500576

HT 8-159

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
SAVANNAH RIVER PLANT
AIKEN, SOUTH CAROLINA
(TEL. & TEL. ADDRESS, AUGUSTA, GA.) May 5, 1960
Date

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ATOMIC ENERGY DIVISION

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2	W. N. Livermore, Engineering Department
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TO: K. P. SIEGMUND
PLANT RECORDS DIVISION

FROM: W. O. CHRISTY, SUPERINTENDENT
PROJECT DEPARTMENT

Proj. File Problem No. _____

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TITLE: SUPPLEMENT NO. 4 TO PROJECT SPECIFICATION 3019

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____ QUOTATIONS	____	X FINAL	5. REVISED
____ SEE BELOW	____	____	6.

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DRAWING NUMBERS, TITLES AND COMMENTS:

SPECIFICATION NO. 3019
BUILDING MATERIALS AND PLUMBING

Supplement No. 4 to Section BR-3, 4 and 5, Protective Coatings - Materials and Application, April 26, 1960. Distribution to be made according to normal procedure.

RECORDS ADMINISTRATION
R0581500

SAVANNAH RIVER PLANT

SUPPLEMENT TO PROJECT SPECIFICATION 3019

February 25, 1960

SPECIFICATION NO. 3019, Sections BR-3, 4 and 5 SUPPLEMENT NO. 4

SPECIFICATION TITLE: Building Materials and Plumbing

REASON FOR ADDITION:

In Specification 3019, Section BR-5, Equipment and Piping, a green metal protective paint is required as the finish coat on electrical switchgear. A more economical paint to use than the one specified would be a light green machinery enamel.

PROPOSED CHANGE:

Add to Section BR-3, Materials and Application, the names of three manufacturers of light green machinery enamel paint. Change all other sections of 3019 that specify a metal protective paint for switchgear to include the additional information.

Prepared By: B. S. Williams/A. F. T. Van Zile

Approved By:

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(Not required for utility and service items)

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PRODUCTION DEPT GENERAL SUPT
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E. P. Eckardt
WORKS ENGINEERING DEPT SUPT

A. J. Schwertfeger
WORKS ENGINEER

J. A. Monier, Jr.
PLANT MANAGER

J. B. Tinker 4/26/60
PROCESS MANAGER

ENGINEERING DEPARTMENT

Signatures on File Copy

SAVANNAH RIVER PLANT

SUPPLEMENT NO. 4 TO PROJECT SPECIFICATION 3019

EQUIPMENT AFFECTED:

All SRP electrical switchgear exterior surfaces.

REASONS FOR CHANGE:

The finishes on electrical switchgear surfaces are beginning to deteriorate and need painting. Therefore, a finish that can be applied more economically than the present coating will reduce Plant maintenance costs.

DETAILS:

1. Add a paragraph (No. 3.224) to Section BR-3, sheet 6 to read as follows:

   3.224 - Federal Specification TT-E-489 machinery enamel paint. Color: Federal Standard No. 595, Chip 14449.

   Du Pont Delux Machinery Enamel, 501 Spotlight Green;
   Glidden E-Z-C Machinery Enamel, 5092 Light Green
   Pittsburgh Lavax Machinery Enamel, 23-74 Focal Green.

2. Change Section BR-4, Sheet 9 Note 7 to read as follows:

   Note 7: Field painting of Electrical switchgear and control panels shall consist of one coat of 3.224.

3. Change Section BR-5, paragraph GN sheet 11c to read as follows:

   GN Green per Specification 3019, Section BR-4, sheet 9 Note 7. One coat 3.224. Bare metal requires primer and two brush coats of 3.224.

MT 8-159

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
SAVANNAH RIVER PLANT
AIKEN, SOUTH CAROLINA
(TEL. & TEL. ADDRESS, AUGUSTA, GA.)

9/25/59
Date

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2	C. E. Marsh, Louviers
2	Standards Coordinator, SRP

TO: K. P. SIEGMUND

FROM: W. O. CHRISTY, SUPERINTENDENT
PROJECT DEPARTMENT

W.O.C.

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DRAWING NUMBERS, TITLES AND COMMENTS:

Specification No. 3019, Supplement No. 3, Building Materials and Plumbing.(Distribution to be made according to normal procedure.)

27.

SAVANNAH RIVER PLANT

SUPPLEMENT TO PROJECT SPECIFICATION

July 24, 1959

SPECIFICATION NO. 3019, Section BJ SUPPLEMENT NO. 3

SPECIFICATION TITLE: Building Materials and Plumbing

REASON FOR CHANGE OR ADDITION:

In Specification 3019, Section BJ, the anchor adhesive is listed as type HTP. The supplier no longer manufactures this adhesive.

PROPOSED CHANGE:

List the anchor adhesive as type HT-4620. The descriptive information will be changed to agree with the manufacturer's instructions.

Prepared By: B. S. Williams/A. F. T. Van Zile

Approved By:

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PRODUCTION DEPT. SUPT.
(Not required for utility and service items)

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A. J. Schwertfeger
WORKS ENGINEER

J. D. Ellett
PLANT MANAGER

J. B. Tinker 9/22/59
PROCESS MANAGER

ENGINEERING DEPARTMENT

Signatures on file copy

SAVANNAH RIVER PLANT

SUPPLEMENT TO PROJECT SPECIFICATION
3019

EQUIPMENT AFFECTED:

All installations of Fiberglas insulation.

REASONS FOR CHANGE:

Through research the manufacturer has found that type HT-4620 anchor adhesive is superior to type HTP (now discontinued) for the following reasons:

1. Type HT-4620 has a shorter setting period than type HTP which decreases installation time.

2. Type HT-4620 has better bonding properties than type HTP.

DETAILS:

Make the following changes to paragraph 9 of Materials:

Delete in first sentence the words "type M". Substitute type HT-4620 for type HTP.

Change paragraph 2 of Installation to read as follows:

Mechanical anchors shall be applied to wall surfaces before the wall is primed. Primer shall not come in contact with base of anchor. Apply skim coat of HT-4620 to dry, clean surface to which anchor is to be bonded. Then apply a quantity of HT-4620 the size of a small walnut onto the anchor base with putty knife and quickly press the anchor into place, using a twisting motion. Nibs of adhesive protruding through the small holes in the base plate shall be flattened down (but not scraped off) to allow the insulation to contact plate. Final film thickness should be from 1/32" to 1/16" after the anchor is firmly pressed into place. Remove excess adhesive from face of anchor base to hasten set. Allow sufficient drying time (48 to 72 hours at 70° F.) before applying load. If in doubt as to set, test several anchors before loading.

Anchors shall be placed so as to provide not less than six anchors for each 24" x 48" board. Anchors shall be equally spaced approximately 3" back from the edge along the long side of the board, three anchors at each long side. Boards 24" x 24" shall have not less than four anchors. Smaller boards and boards which are cut to fit interrupting construction shall be similarly anchored with anchors spaced at approximately the same ratio with no board having less than two anchors. Where anchors are exposed in the finish, care shall be taken to align the anchors in true horizontal and vertical lines.

SAVANNAH RIVER PLANT

SUPPLEMENT TO PROJECT SPECIFICATION

3019

Change paragraphs 1 and 2 of Insulation on Underside of Corrugated Roofing to read as follows:

1. Where rigid type insulation is applied to the underside of corrugated cement asbestos roofing, the insulation, mechanical anchors and primer shall comply with paragraphs 1, 2, 3, 6, 7, 8, 9 and 10 of the Materials section as specified for exterior walls.

2. The insulation shall be supported by metal flats or chicken wire fastened to roof steel as shown on drawings.

HT 8-159

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
SAVANNAH RIVER PLANT
AIKEN, SOUTH CAROLINA
(TEL. & TEL. ADDRESS, AUGUSTA, GA.)

May 28, 1959
Date

EXPLOSIVES DEPARTMENT
ATOMIC ENERGY DIVISION

TO: K. P. SIEGMUND,
PLANT RECORDS DIVISION

FROM: W. O. CHRISTY, SUPERINTENDENT
PROJECT DEPARTMENT
W.O.C

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DRAWING NUMBERS, TITLES AND COMMENTS:

SPECIFICATION NO. 3019

Supplement No. 2 to Sections BR-3, Protective Coatings - Materials and Application, and BR-6, Special Protective Coatings, May 15, 1959. Distribution to be made according to normal procedures.

SAVANNAH RIVER PLANT

SUPPLEMENT TO PROJECT SPECIFICATION

DATE February 26, 1959

SPECIFICATION NO. 3019 Sec. BR-3 & BR-6 SUPPLEMENT NO. 2

SPECIFICATION TITLE: Building Materials and Plumbing

REASON FOR CHANGE OR ADDITION:

In Specification 3019, Sections BR-3, Materials and Application, and BR-6, Special Protective Coatings, Amercoat #33 is listed as an acceptable vinyl type paint. It is desirable for economy of application to qualify Amercoat #33 HB.

PROPOSED CHANGE:

Amercoat 33 HB (all colors) as manufactured by the Amercoat Corp. of Jacksonville, Florida, should be listed as an acceptable vinyl paint equal to Amercoat #33.

Prepared By: A. F. T. Van Zile

Approved By:

PRODUCTION DEPT. SUPT.	PRODUCTION DEPT. GENERAL SUPT.
WORKS TECHNICAL DEPT. SUPT.	W. P. Overbeck 3/12/59 WORKS TECHNICAL DEPT. GENERAL SUPT.
E. P. Eckardt 3/4/59 WORKS ENGINEERING DEPT. SUPT.	A. J. Schwertfeger 3/13/59 WORKS ENGINEER
J. D. Ellett PLANT MANAGER	J. B. Tinker 5/15/59 PROCESS MANAGER
ENGINEERING DEPARTMENT	

Signatures on file copy.

SAVANNAH RIVER PLANT

SUPPLEMENT NO. 2 TO PROJECT SPECIFICATION 3019

EQUIPMENT AFFECTED: All vinyl coated surfaces where Amercoat #33 or equal is specified.

REASONS FOR CHANGE: The vinyl finishes on building and equipment surfaces are beginning to deteriorate and need maintenance painting. Therefore, a finish which is compatible with and can be applied more economically than the present coating will reduce plant maintenance costs.

DETAILS:

	Amercoat #33	Amercoat #33 HB
Open Pot Flash Point	40° F.	90° F.
Mil thickness per coat at 250 sq. ft./gal.	1.39	1.85

The above figures are the manufacturer's. Most regular paints, flat, semi gloss, etc., have flash points from 86° F. and up. Thus in applying Amercoat #33 HB no more safety precautions will have to be taken than when using regular paint. This will materially decrease application costs.

Amercoat #33 costs $6.55 per gallon. Amercoat #33 HB costs $7.05 per gallon. This represents an increase of $ .50 per gallon. However, this increase would be offset by a considerable reduction in ventilation costs when the paint was applied (approximately $ .40/sq. ft. reduction). See attached Construction Painting Costs from a survey made at SRP in February 1958.

SAVANNAH RIVER PLANT

SUPPLEMENT TO PROJECT SPECIFICATION

DATE December 8, 1955

SPECIFICATION NO. 3019 Sec. BR-3 & BR-6 SUPPLEMENT NO. 1

SPECIFICATION TITLE: Building Materials and Plumbing

REASON FOR CHANGE OR ADDITION: Specification 3019, Sections BR-3, Protective Coatings, and BR-6, Special Protective Coatings, list only a few sources of acceptable vinyl type paints. It is desirable for economic and procurement reasons to qualify additional suppliers.

PROPOSED CHANGE:

du Pont vinyl paints; primer 818-002, Top Coats 802-003 (White), 802-006 (Gray), 802-007 (Black), and 802-008 (Red), as manufactured by the Fabrics and Finishes Department of the du Pont Company should be listed as acceptable vinyl paints equal to Amercoat #33.

Prepared By: H. C. Minton, Jr., Works Technical
A. F. T. Van Zile, Project Department

V.Z.

Approved By;

PRODUCTION DEPT. SUPT.
(Not required for utility and service items)

PRODUCTION DEPT. GENERAL SUPT.
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W.P. Overbeck

WORKS TECHNICAL DEPT. SUPT.

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Ed. Symes Jr.

WORKS ENGINEERING DEPT. SUPT.

WORKS ENGINEER

W A Miller

PLANT MANAGER

J B Tinker

PROCESS MANAGER

SAVANNAH RIVER PLANT

SUPPLEMENT TO PROJECT SPECIFICATION

EQUIPMENT AFFECTED:

All vinyl coated surfaces where Amercoat #33 or equal is specified.

REASONS FOR CHANGE:

As the vinyl finishes are now beginning to deteriorate and need repair, maintenance painting requirements are increasing. Therefore additional qualified suppliers will increase competition which may result in lower cost and better delivery of material.

DETAILS:

1. Decontamination tests conducted by the Technical Services Division of Savannah River Laboratories (Exhibit A) shows that du Pont vinyl finishes decontaminate as easily as Amercoat #33.

2. Service/wear tests on floor panels in building 105-R conducted by the Engineering Assistance Section of the Works Technical Department of the Savannah River Plant (Exhibit B) show that du Pont vinyl finishes have wear resistance equal to that of Amercoat #33.

3. Painting tests carried out by the Engineering Assistance Section of the Works Technical Department (Exhibit C) prove that du Pont vinyls are compatible over Amercoat #33 vinyl.

123-11-51-42M Rev.

Voorhees Walker Foley & Smith
101 Park Avenue - New York 17
RESTRICTED

C 4009

Date

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FROM: F. ROORDA - P. E. LANGWORTHY

PROJ: 8980 - SAVANNAH RIVER PLANT

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PROJ: 8980 SAVANNAH RIVER PLANT
SPECIFICATIONS

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101 Park Avenue - New York 17

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12/4/52
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PROJ: 8980 SAVANNAH RIVER PLANT
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10/10/52
Date

[redacted]

TO: MASON - HAUSER

FROM: F. ROORDA - P.E. LANGWORTHY

PROJ: 8980 SAVANNAH RIVER PLANT SPECIFICATION

No. of Prints	COPY TO:
	R.K. MASON W/TRANS. and DITTO MASTER
1	T. BLAKE-C.J. ADOLPH
14	J.A. BURNS-L.B. HAISLETT
1	G.W. DUTCHER
0	H.A.FRITZE
0	D.E. IRONS
0	C.P. KIDDER
0	F.E. LeVAN
2	J.B. TINKER-F.P. ALLEN
1	C.J. VEITH
1	DuPONT-N.Y.
10	J.A. BURNS-DWG. CONTROL SECTION
1	L.H. SMITH
1	H.T. GHERARDI 0 FILE
0	HAVENSTEIN 1 RECORD
0	LANGWORTHY

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.	Attached are	They are to be used for	These are	KIND OF DRAWING
	___ Prints ___ Photoprints X Specifications ___ B. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations X Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.
		Specification 3019 - Building Materials and Plumbing Rev. 27 - dated 9/19/52 is hereby issued for Field Construction. Note: Stencils attached hereto.		

6-

[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

133-1L-8 L-8M Rev.

VOORHEES WALKER FOLEY & SMITH
101 Park Avenue-New York 17

B-5412

[redacted]

Sept. 9, 1952
Date

[redacted]

TO: MASON - HAUSER

FROM: F. ROORDA - P. E. LANGWORTHY

PROJ: 8980 SAVANNAH RIVER PLANT
SPECIFICATIONS

No. of Prints	COPY TO:	
6	R.K.Mason W/Trans. and Ditto Master	Abramson Brooks
1	T.Blake C.J. Adolph	Cady
1h	J.A. Burns-LB Haislett A. N. Daniels, Jr.	Coiro Dean
1	G.W. Dutcher	Gawlicki
0	H.A. Fritze	Hautman
0	C.P. Kidder 0	Havenstein
0	F.E. LeVan	Keller
	C.A. Nelson AEC	Keogh
	C.J. Veith-W/A. Fredlund	Kreymberg
	T.A. Wood 0	Langworthy
1	DuPont N.Y.	Lundberg
2	J.B. Tinker-F. P. Allen	Miller S.
10	JA Burns-Dwg. Control Section	Nathanson Nazaruk

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

KIND OF DRAWING
1. Preliminary
2. Marked "Hold"
3. For Construction
4. Final
5. Revised

Design Sect.

Attached are
___ Prints
___ Photoprints
X Specifications
___ B. P. Files
___ Quotations

They are to be used for
___ Estimating
___ Ordering Materials
___ Securing Quotations
X Construction
___ Fabrication

These are
___ Checked
___ Unchecked
___ For Approval
___ For Comment
___

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS AND PLUMBING REV. 26 - DATED 9/8/52 IS HEREBY ISSUED FOR FIELD CONSTRUCTION. NOTE: STENCILS ATTACHED HERETO.	

No. of Prints	COPY TO:
	Roberts
1	LM. Smith
	Scheckel
0	DE. Irons
0	File
1	Record
1	H.T. Ghenardi

[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

123-12-51-5M Rev.

VOORHEES WALKER FOLEY & SMITH
101 Park Avenue - New York 17

[redacted]

August 13, 1952
Date

[redacted]

TO: MASON - HAUSER

FROM: F. ROORDA - P. E. LANGWORTHY

PROJ: 8980 - SAVANNAH RIVER PLANT
SPECIFICATIONS

No. of Prints	COPY TO:
6	R.K.Mason and Ditto Master
1	T. Blake-C. J. Adolph
14	J. A. Burns - L. B. Haislett
1	G. W. Dutcher
0	H. A. Fritze
0	C. P. Kidder
0	F. E. LeVan
1	Du Pont - N. Y.
2	J. B. Tinker - F. P. Allen
0	D. E. Irons
10	J. A. Burns - Dwg. Cont. Sect.
1	L. M. Smith
1	H. T. Gherardi 1 Record
0	Havenstein
0	Langworthy
0	File

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.		Attached are	They are to be used for	These are	KIND OF DRAWING
		_X_ Prints ___ Photoprints ___ Specifications ___ B. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations _X_ Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised
Page	Item				* Rev. Nos.

DRAWING NUMBERS, TITLES AND COMMENTS

SPECIFICATION 3019 - BUILDING MATERIALS AND PLUMBING

Rev. 25 - DATED 8/5/52 is hereby issued for FIELD CONSTRUCTION.

NOTE: STENCILS ATTACHED HERETO.

[redacted]

8-

[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

123-11-81-8M Rev.

VOORHEES WALKER FOLEY & SMITH
101 Park Avenue - New York 17

June 10, 1952
Date

[redacted]

[redacted]

TO: MASON - HAUSER

FROM: F. ROORDA - P. L. LANGWORTHY

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATIONS

No. of Prints	COPY TO:
15	R.K.Mason W/Trans. & Litho Master
1	T. Blake - C. J. Adolph
3	J. A. Burns
1	F. E. LeVan
1	J.B. Tinker-K.P. Siegmund (2)
1	C. J. Miller
1	Brooks
1	Cady
1	Gawlicki
1	Hautman
1	Kreymborg
1	Langworthy
1	Roberts
1	Scheckel
0	File
1	Record 0 H. T. Gherardi

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

KIND OF DRAWING
1. Preliminary
2. Marked "Hold"
3. For Construction
X 4. Final
X 5. Revised

Design Sect.

Attached are
— Prints
— Photoprints
X Specifications
— B. P. Files
— Quotations

They are to be used for
— Estimating
— Ordering Materials
— Securing Quotations
X Construction
— Fabrication

These are
— Checked
— Unchecked
— For Approval
— For Comment
—

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING REV. 24 - DATED 5/28/52 is hereby issued for FIELD CONSTRUCTION. NOTE: DITTO MASTERS ATTACHED HERETO.		

9-

[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

[illegible] Rev.

VOORHEES WALKER FOLEY & SMITH
101 Park Avenue - New York 17

May 27, 1952
Date

[redacted]

[redacted]

TO: MASON - HAUSER

FROM: F. ROORDA - P.E. LANGWORTHY

PROJ: 8980 - SAVANNAH RIVER PLANT
SPECIFICATIONS

No. of Prints	COPY TO:
6	E. E. Mason & Ditto Master
0	T. Blake-C.
14	J. A. Burns
1	G. W. Dutcher
0	F. E. LeVan
0	C. A. Nelson ABC
2	J. B. Tinker-H.P. Siegmund
1	T. Blake
1	G. T. Richards
10	J. A. Burns
0	D. E. Irons
1	L. M. Smith
0	Havenstein
0	Langworthy
0	File
1	H. T. Gherardi

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.		Attached are	They are to be used for	These are	KIND OF DRAWING
		___ Prints ___ Photoprints ___ Specifications ___ E. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations ___ Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised
Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS			* / Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING			
		REV. 23 - DATED 5/23/52 is hereby issued for FIELD CONSTRUCTION			5
		NOTE: DITTO MASTERS ATTACHED HERETO.			

10

[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

V-33—3-52-5M Rev.

VOORHEES WALKER FOLEY & SMITH B-1957
101 Park Avenue - New York 17

5/7/52
Date

[redacted]

TO: MASON - HAUSER [redacted]

FROM: F. ROORDA - P. E. LANGWORTHY

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATIONS

No. of Prints	COPY TO:		
6	E.E.Mason W/ditto master		
1	T. Blake		
14	J. A. Burns-Haislett	1	L.N.Smith
	A.E. Daniels		Gibbs &
1	G. W. Dutcher		Hill
	H.A. Fritze		Blaw-Knox
	C.P. Kidder		J.I.Hopkins
0	F. E. LeVan	1	H.T.Cherasco
0	C. A. Nelson AEC		Abramson
2	J. B. Tinker-K.P.Siegmund		
	C. J. Veith-		Brooks
	C. A. Fredlund		Cady
	T. A. Wood		Coiro
	DuPont-N.Y.		Dean -
10	C. A. Burns-Dwg.		Gawlicki
1	Control Section		Hautman

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.	Attached are	They are to be used for	These are	KIND OF DRAWING
	___ Prints ___ Photoprints X Specifications ___ B. P. Files ___ Quotations	___ Estimating ___ Ordering Materials X Securing Quotations ___ Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	• / No. of Prints	Rev. Nos. / COPY TO:
			0	Havenstein
				Kollier
				Keogh
				Kreymborg
			0	Langworthy
				Lundberg
				Miller, S.
				Nathanson
				Nazaruk
				Roberts
				Scheckel
			0	File
			1	Record
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING	4/5	
		Rev. 22 Dated 5/2/52 is hereby issued for FIELD CONSTRUCTION.		
		NOTE: Ditto Masters attached hereto.		

11.

[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

133-11-51-5M Rev.

VOORHEES WALKER FOLEY & SMITH
101 Park Avenue - New York 17

April 14, 1952
Date

[redacted]

[redacted]

TO: MASON - HAUSER

FROM: F. ROORDA - P.E. LANGWORTHY

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATIONS

No. of Prints	COPY TO: R 1015
6	R. K. Mason W/Trans.
1	T. Blake-C.J. Adolph
14	J. A. Burns-Haislett
1	C.W. Dutcher
0	F.E. LeVan
0	C.A. Nelson AEC
2	J.B. Tinker-K.P. Siegmund
1	DuPont-N.Y.
10	J.A. Burns-Dwg. Control Section
0	Havenstein
0	Langworthy
0	File
1	Record
1	H. T. Gheradi

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.

Attached are
___ Prints
___ Photoprints
X Specifications
___ B. P. Files
___ Quotations

They are to be used for
___ Estimating
___ Ordering Materials
___ Securing Quotations
X Construction
___ Fabrication

These are
___ Checked
___ Unchecked
___ For Approval
___ For Comment
___

KIND OF DRAWING
1. Preliminary
2. Marked "Hold"
3. For Construction
4. Final
5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING	4/5	
		Rev. 21 Dated 3/27/52 is hereby issued for FIELD CONSTRUCTION		
		NOTE: Ditto Masters attached hereto.		

12-

[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

133-11-51-5M Rev.

A 9262

VOUCHERS WALKER FOLEY & SMITH
101 Park Avenue - New York 17

3/28/52
Date

[redacted]

[redacted]

TO: MASON - HAUSER

FROM: F. ROORDA - LANGWORTHY

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATION

No. of Prints	COPY TO:
6	R.K. Mason W/Ditto Master
2	J.B. Tinker - K.P. Siegmunn
0	C.A. Nelson AEC
14	J.A. Burns - L.B. Haislett
1	G.W. Dutcher
0	F.E. LeVan
1	T. Blake
1	J.F. Coble - G.T. Richards
10	J.A. Burns-Dwg. Control Section
	VWFS
1	Record
0	File, Havenstein, Langworthy
1	Gherardi

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.

Attached are
___ Prints
___ Photoprints
_X_ Specifications
___ B. P. Files
___ Quotations

They are to be used for
___ Estimating
___ Ordering Materials
___ Securing Quotations
_X_ Construction
___ Fabrication

These are
___ Checked
___ Unchecked
___ For Approval
___ For Comment
___

KIND OF DRAWING
1. Preliminary
2. Marked "Hold"
3. For Construction
4. Final
5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING	4/5	
		Rev. 20 Dated 3/23/52 is Hereby issued for FIELD CONSTRUCTION		
		NOTE: Ditto Masters attached hereto.		

13-

[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

A 9107

133-11-51-5M Rev.

VOORHEES WALKER FOLEY & SMITH
101 Park Avenue - New York 17

3/21/52
Date

[redacted]

[redacted]

TO: R.K. MASON - D.A. HAUSER

FROM: F. BOORDA - P.E. LANGWORTHY

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATIONS

No. of Prints	COPY TO:
6	R.K. Mason W/Ditto Master
2	J.B. Tinker - K. P. Siegmund
0	C.A. Nelson AEC
1	J.A. Burns - L. B. Haislett
1	G.M. Dutcher
0	F.E. LeVan
1	T. Blake
1	J.E. Coble - G.T. Richards
10	J.A. Burns - Dwg. Control Section
	VWFS
1	Record
0	File, Havenstein, Langworthy
1	Gherardi

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.		Attached are	They are to be used for	These are	KIND OF DRAWING
		___ Prints ___ Photoprints X Specifications ___ B. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations X Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised
Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS			* / Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING			5
		Rev. 19 Dated 3/20/52 is hereby issued for Field Construction			
		NOTE: Ditto Masters are enclosed herewith.			

14-

[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

133-11-51-SM Rev.

A 7528

VOORHEES WALKER FOLEY & SMITH
101 Park Avenue - New York 17

Feb. 1, 1952
Date

[redacted]

[redacted]

TO: R. K. MASON

FROM: F. ROORDA - LANGWORTHY

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATIONS

No. of Prints	COPY TO:
6	R.K. Mason W/Ditto Master
2	J.B. Tinker - K.P. Siegmund
2	C.A. Nelson, AEC
14	J.A. Burns - L.B. Haislett
1	G.W. Dutcher
1	T. Blake
0	F. E. LeVan
1	J. B. Coble - G.T. Richards
10	J.A. Burns - Dwg. Control Section
	VWFS
1	Record
0	File, Gherardi, Hautman, Havenstein, Langworthy

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.

Attached are
___ Prints
___ Photoprints
X Specifications
___ B. P. Files
___ Quotations

They are to be used for
___ Estimating
___ Ordering Materials
___ Securing Quotations
X Construction
___ Fabrication

These are
___ Checked
___ Unchecked
___ For Approval
___ For Comment
___

KIND OF DRAWING
1. Preliminary
2. Marked "Hold"
3. For Construction
4. Final
5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING Rev. 18 Dated 1-31-52 is hereby issued for Field Construction. Title Sheet not included. NOTE: Title Sheet is being prepared for signature. Ditto Masters are enclosed herewith.		

15-

[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

338-11-51-6M Rev.

[redacted]

June 9, 1952
Date

[redacted]

TO: R. K. Mason

FROM: P. Roorda - F. E. Langworthy

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATIONS

A 6800

No. of Prints	COPY TO:
6	R. K. Mason W/Ditto Master
2	J. D. Tinker - K. F. Siegmund
2	G. A. Nelson, AEC
21	J. A. Burns - L. S. Hatfield
1	C. W. Dutcher
0	F. F. LeVan
1	T. Blake
1	J. E. Coble - G. T. Richards
10	J. A. Burns - Dwg. Control Section
	VWPS
1	Record
0	File, Chernardi, Hartmann, Havenstein, Kagan, Langworthy

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.	Attached are	They are to be used for	These are	KIND OF DRAWING
	___ Prints ___ Photoprints X Specifications ___ B. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations X Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING Rev. 17 dated 1/2/52 is hereby issued for Field Construction. NOTE: Ditto Masters are enclosed herewith.		

16-

[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

A 6625

153-11-81-5M Rev.

VOORHEES WALKER FOLEY & SMITH
101 Park Avenue - New York 17

Jan 3, 1952
Date

[redacted]

TO: R. K. MASON

FROM: F. ROORDA - SCACCHETTI [redacted]

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATIONS

No. of Prints	COPY TO:
6	R.K. Mason W/Ditto Master
2	J.B. Tinker - K. P. Siegmund
2	C.A. Nelson, AEC
14	J.A. Burns - L.B. Haislett
1	G.W. Dutcher
0	F.E. LeVan
1	T. Blake
1	J.B. Cable - G.T. Richards
10	J. A. Burns - Dwg. Control Section
	VWFS
1	Record
0	File, Gherardi, Hautman, Havenstein, Kagan, Langworthy -

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.

Attached are
___ Prints
___ Photoprints
X Specifications
___ B. P. Files
___ Quotations

They are to be used for
___ Estimating
___ Ordering Materials
___ Securing Quotations
X Construction
___ Fabrication

These are
___ Checked
___ Unchecked
___ For Approval
___ For Comment
___

KIND OF DRAWING
1. Preliminary
2. Marked "Hold"
3. For Construction
4. Final
5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING Rev. 16 - Dated 12-24-51 is hereby issued for Field Construction.	5	

17-

[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

133-11-51-5M Rev.

VOORHEES WALKER FOLEY & SMITH
101 Park Avenue - New York 17

December 11, 1951
Date

[redacted]

TO: R.K. MASON [redacted]

FROM: F.ROORDA - SCACCHETTI

PROJ: 8980 - SAVANNAH RIVER PLANT
SPECIFICATIONS

No. of Prints	COPY TO: A 1691 X 1691
10	J.A. Burns - Dwg. Control Section
2	J.B. Tinker - K.P. Siegmund
6	R.K. Mason W/Ditto Master
2	C.A. Nelson, AEC
14	J.A. Burns - L.B. Haislett
1	G.W. Dutcher
0	F.E. Levan
1	T. Blake
1	J.E. Coble - G.T. Richards
	VWFS
1	Record
0	Hautman, File, Gherardi, Havenstein, Langworthy, Kagan

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.

Attached are
___ Prints
___ Photoprints
X Specifications
___ B. P. Files
___ Quotations

They are to be used for
___ Estimating
___ Ordering Materials
___ Securing Quotations
X Construction
___ Fabrication

These are
___ Checked
___ Unchecked
___ For Approval
___ For Comment
___

KIND OF DRAWING
1. Preliminary
2. Marked "Hold"
3. For Construction
4. Final
5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING Rev. #15 dated 12/10/51 is hereby issued for Field Construction	4	
		NOTE: Ditto Masters are enclosed herein.		

18-

[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

A 1556

133-11-51-SM Rev.

[redacted]

December 7, 1952
Date

[redacted]

TO: R. K. MASON

FROM: F. J. ROGERDA - L. SCACCHETTI

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATION

No. of Prints	COPY TO:
10	J. A. Burns - Dwg. Control Section
2	J. D. Tinker - K.P. Siegmund
6	R. K. Mason W/Ditto Master
2	C. A. Nelson, AEC
14	J. A. Burns - L.B. Haislett
1	G. W. Dutcher
0	F. E. LeVan
1	T. Blake
1	J. E. Coble - G.T. Richards
	WMFS
1	Record
0	File, Hartman, Cherardi, Havenstein, Langworthy, Kagan -

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.		Attached are	They are to be used for	These are	KIND OF DRAWING
		___ Prints ___ Photoprints X Specifications ___ R. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations X Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised
Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS			* / Rev. Nos.

SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING — 5

Rev. #14 dated December 3, 1951 is hereby issued for Field Construction.

NOTE: Ditto Masters attached hereto.

19-

[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

135-11-51-5M Rev.

No. of Prints	COPY TO: SERIAL NO. 4366
10	J. A. Burns - F. J. Montgomery
2	J. B. Tinker - K. P. Siegmund
6	R. K. Mason W/Ditto Master
2	C. A. Nelson, AEC
13	J. A. Burns - L.B. Haislett
1	G. W. LeVan
1	T. Blake
1	J. P. Cobb - G. T. Richards
1	G. W. Dutcher
	VWFS
11	Record
0	Scacchetti, Hautman, File, Cherardi, Havenstein, Langworthy

October 24, 1951
Date

[redacted]

[redacted]

TO: R. K. MASON

FROM: F. ROORDA - SCACCHETTI

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATIONS

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.		Attached are	They are to be used for	These are	KIND OF DRAWING
		___ Prints ___ Photoprints X Specifications ___ S. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations X Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised
Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS (Please note Revisions)			* / Rev. Nos.

SPECIFICATION 3019 BUILDING MATERIALS & PLUMBING

Rev. 13 Dated 10/23/51 is hereby issued for Field Construction

NOTE: Ditto Masters are enclosed herein.

20-

[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

[redacted]

October 13, 1951
Date

[redacted]

TO: R. K. MASON

FROM: F. ROORDA - SCACCHETTI

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATIONS

No. of Prints	COPY TO: SERIAL NO. 4308
10	J. A. Burns - E.J. Montgomery
2	J. B. Tinker - K. P. Siegmund
6	R.K. Mason W/Ditto Masters
2	C.A. Nelson, AEC
13	J.A. Burns - L.B. Hallett
1	G.W. Dresher
0	F.E. LeVan
1	T. Blake
1	J.E. Coble - G.T. Richards
	VWES
1	Record
0	File, Gherardi, Hautman, Havenstein Kagan, Langworthy, Scacchetti

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.	Attached are	They are to be used for	These are	KIND OF DRAWING
	___ Prints ___ Photoprints X Specifications ___ B. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations X Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS (Please note Revisions)	*	Rev. Nos.
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING Rev. #12 Dated 10/16/51		
		SPECIFICATION #3019 IS HEREBY ISSUED FOR FIELD CONSTRUCTION.		
		NOTE: Ditto Masters being sent herewith.		

21

[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

133-11-51-5M Rev.

[redacted]

September 24, 1951
Date

[redacted]

TO: R. K. MASON

FROM: SPECIFICATION DEPARTMENT

PROJ: 8980 - SAVANNAH RIVER PLANT
SPECIFICATION

No. of Prints	COPY TO: SERIAL NO. 1856
10	J. A. Burns - E. J. Montgomery
2	J. B. Tinker - K. P. Siegmund
6	R. K. Mason W/Ditto Master
2	C. A. Nelson, AEC
13	J. A. Burns - L. C. Haislett
1	S. W. Dotcher
0	F. E. LeVan
1	T. Hake
1	J. E. Goble - G. T. Richards
	VWES
1	Record
0	Scacchetti, Hautman, Fille, Kagan Chesnardi, Langworthy, Havenstein

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.	Attached are	They are to be used for	These are	KIND OF DRAWING
	___ Prints ___ Photoprints _X_ Specifications ___ B. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations _X_ Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.
		(Please note Revisions)		
		SPECIFICATION 3019 - BUILDING MATERIALS & PLUMBING		
		Rev. #11 Dated 9/18/51 is hereby issued for Field Construction.		

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[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

133-11-51-8M Rev.

No. of Prints	COPY TO: SERIAL NO. 1547
10	J. A. Burns - E.J. Montgomery
2	J. L. [illegible] - K.P. Siegmund A.E.D.
6	R. K. Mason - W/Ditto Master
2	Curtis A. Nelson, AEC
13	J. A. [illegible] - L.B. Haislett
1	G. W. [illegible]
0	F. E. LeVan
1	T. [illegible]
1	J. H. [illegible] - G.T. Richards
	TWES
1	[illegible], [illegible], Langworthy
0	[illegible], Hautman, File, [illegible]

September 6, 1951
Date

[redacted]

TO: R. K. MASON [redacted]

FROM: J. L. HAUTMAN

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATION

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.	Attached are	They are to be used for	These are	KIND OF DRAWING
	___ Prints ___ Photoprints _X_ Specifications ___ B. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations _X_ Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.

(Please Note Revision)

SPECIFICATION 3019 BUILDING MATERIALS [illegible]

Revision #10 dated 8/31/51 to 3019 [illegible] for Field Construction.

NOTE: Ditto Masters sent under separate [illegible]

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[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

123-11-51-5M Rev. [redacted]

[redacted]

July 27, 1951
Date

TO: R. K. MASON

FROM: FRANK ROORDA

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATION

No. of Prints	COPY TO: SERIAL NO. 0914
10	J.A. Burns - E.J. Montgomery
2	J.B. Tinker - K.P. Siegmund A.F.D.
6	R.K. Mason W/Ditto Master
2	Curtis A. Nelson AEC
0	S.J. Meiiner
13	J.A. Burns - L.B. Haislett
1	G.W. Dutcher
0	F.E. LeVan
1	T. Blake
1	A.N. Daniel,Jr. - G.T. Richards
	VWES
1	Record, Havenstein
0	Scacchetti, Hautman, File, Spross
	7/27/51

***INSERT ONE CODE FOR EACH KIND OF DRAWING**

Design Sect.	Attached are	They are to be used for	These are	KIND OF DRAWING
	___ Prints	___ Estimating	___ Checked	1. Preliminary
	___ Photoprints	___ Ordering Materials	___ Unchecked	2. Marked "Hold"
	X Specifications	___ Securing Quotations	___ For Approval	3. For Construction
	___ R. P. Files	X Construction	___ For Comment	4. Final
	___ Quotations	___ Fabrication	___	5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.

(Please note Revisions)

SPECIFICATION 3019 BUILDING MATERIALS AND PLUMBING

Revision #9 dated 7/23/51 to SPECIFICATION 3019 is hereby issued for Field Construction

NOTE: Ditto Masters being mailed under separate cover.

24-

[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

115-12-51-6M Rev.

July 18, 1951
Date

[redacted]

TO: R. K. MASON [redacted]

FROM: FRANK ROORDA

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATION

No. of Prints	COPY TO: SERIAL NO. 0342
10	J.A. Burns - E.J. Montgomery
2	J.P. Tinker - K.P. Siegmund AED
6	R.K. Mason - W/Ditto Master
2	Curtis A. Nelson AEC
0	S.J. Meitner
13	J.A. Burns - L.B. Hallseth
1	G.W. Dutcher
0	F.E. LeVan
1	T. Blake
1	A.N. Daniel, Jr. - O.T. Richards
	VWES
1	Record, Herrenstein
0	Stoughton, Hartman, Spross, File

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.		Attached are	They are to be used for	These are	KIND OF DRAWING
		___ Prints ___ Photoprints _X_ Specifications ___ B. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations _X_ Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS (Please note Revisions)	*	Rev. Nos.
		SPECIFICATION #3019 - Building Materials and Plumbing is hereby issued for Field Construction. Revision #8 dated July 12, 1951 NOTE: Ditto Masters being sent under separate cover.		

25

[redacted] "WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

133-11-51-5M Rev.

June 28, 1951
Date

[redacted]

TO: R. K. MASON [redacted]

FROM: FRANK ROORDA

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATIONS

No. of Prints	COPY TO: SERIAL NO. 0551
10	J.A. Burns - E.J. Montgomery
2	J.E. Tinker - K.P. Siegmund AEC
6	R.K. Mason W/Transparencies & Ditto Master
2	Curtis A. Nelson AEC
0	S.J. Meltzer
13	J.A. Burns - L.D. [illegible]
1	G.W. Du[illegible]
0	F.E. LeV[illegible]
1	T. Blake
1	A.M. Daniel, Jr - G.L. Richards
	TNES
1	Record, Havenstein, Sonnichsen
0	Hautman, File, Spruce

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.

Attached are
___ Prints
___ Photoprints
_X_ Specifications
___ B. P. Files
___ Quotations

They are to be used for
___ Estimating
___ Ordering Materials
___ Securing Quotations
_X_ Construction
___ Fabrication

These are
___ Checked
___ Unchecked
___ For Approval
___ For Comment

KIND OF DRAWING
1. Preliminary
2. Marked "Hold"
3. For Construction
4. Final
5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS	*	Rev. Nos.

DRAWING NUMBERS, TITLES AND COMMENTS

(Please note revisions)

SPECIFICATION 3019 BUILDING MATERIALS & PLUMBING

Revision No. 7 dated 6/19/51 to Specification 3019 and Revised Preliminary Take Off of Hardware lists date 6/25/51 is hereby issued for Field Construction.

NOTE: Ditto Masters being mailed under separate cover.

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[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

153-11-8 L-6M Rev.

[redacted]

June 8, 1951
Date

[redacted]

TO: R. K. MASON

FROM: FRANK ROORDA

PROJ: 8980 - SAVANNAH RIVER PLANT SPECIFICATION

No. of Prints	COPY TO: SERIAL NO. 0432
10	J.A. Burns - E.J. Montgomery
2	J.D. Tinker -K.P. Siegmund, AEC
0	R.K. Mason
2	Curtis A. Nelson
0	S.J. Neibner
13	J.A. Burns - E.D. Haislett
1	G.W. Dutcher
0	F.E. LeVan
1	T. Blake
	VWFS
1	Record, Havenstein,
0	Kreymborg, Hautman, File
	Scacchetti

N *INSERT ONE CODE FOR EACH KIND OF DRAWING

Design Sect.	Attached are	They are to be used for	These are	KIND OF DRAWING
	___ Prints ___ Photoprints X Specifications ___ B. P. Files ___ Quotations	___ Estimating ___ Ordering Materials ___ Securing Quotations X Construction ___ Fabrication	___ Checked ___ Unchecked ___ For Approval ___ For Comment ___	1. Preliminary 2. Marked "Hold" 3. For Construction 4. Final 5. Revised

Page	Item	DRAWING NUMBERS, TITLES AND COMMENTS (Please note revisions)	*	Rev. Nos.
		Standard Engineering Specifications SC-5-E is hereby issued for Field Construction. This specification shall be attached to SPECIFICATION 3019 BUILDING MATERIALS & PLUMBING Revision No. 6 dated 6/6/51 and issued by transmittal letter serial No. 0413 dated 6/6/51.		

21-

[redacted]

"WHEN SEPARATED FROM ENCLOSURES, HANDLE THIS DOCUMENT AS UNCLASSIFIED".

SPECIFICATIONS

FOR

BUILDING MATERIALS & PLUMBING

E. I. DU PONT DE NEMOURS & CO., INC.

[redacted]

AT

SAVANNAH RIVER PLANT

VOORHESS WALKER FOLEY & SMITH
ARCHITECTS & ENGINEERS
101 PARK AVENUE, NEW YORK, 17, N. Y.

PROJECT 8980

March 9, 1951
April 4, 1951
April 16, 1951
May 8, 1951
May 15, 1951
May 22, 1951
June 6, 1951
June 19, 1951
July 12, 1951
July 23, 1951
August 31, 1951
September 18, 1951
October 16, 1951
October 23, 1951
December 3, 1951
December 10, 1951
December 24, 1952
January 2, 1952
January 31, 1952
March 20, 1952
March 23, 1952
March 27, 1952
May 2, 1952
May 23, 1952
May 28, 1952
August 5, 1952
September 8, 1952
September 19, 1952

APPROVED BY:

S/Frank J. Read
Voorhees Walker Foley & Smith

S/George W. Dutcher 3-14-51
E. I. du Pont de Nemours & Co., Inc.

S/A. S. Peterson
E. I. du Pont de Nemours & Co., Inc.

EH.

28

SPECIFICATION 3019

RESTRICTED SECURITY INFORMATION - This material contains information affecting the National Defense of the United States within the meaning of the espionage laws, Title 18 U. S. C. Secs. 793 and 794 the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

SAVANNAH RIVER PLANT

SUPPLEMENT TO PROJECT SPECIFICATION [redacted]

DATE December 8, 1955

SPECIFICATION NO. 3019 Sec. BR-3 & BR-6 SUPPLEMENT NO. 1

SPECIFICATION TITLE: Building Materials and Plumbing

REASON FOR CHANGE OR ADDITION: Specification 3019, Sections BR-3, Protective Coatings, and BR-6, Special Protective Coatings, list only a few sources of acceptable vinyl type paints. It is desirable for economic and procurement reasons to qualify additional suppliers.

PROPOSED CHANGE:

du Pont vinyl paints; primer 818-002, Top Coats 802-003 (White), 802-006 (Gray), 802-007 (Black), and 802-008 (Red), as manufactured by the Fabrics and Finishes Department of the du Pont Company should be listed as acceptable vinyl paints equal to Amercoat #33.

Prepared By: H. O. Minten, Jr., Works Technical
A. F. T. Van Kile, Project Department

Approved By:

PRODUCTION DEPT. SUPT.
(Not required for utility and service items)

PRODUCTION DEPT. GENERAL SUPT.
(Not required for utility and service items)

WORKS TECHNICAL DEPT. SUPT.

/s/ W. P. Overbeck
WORKS TECHNICAL DEPT. GENERAL SUPT.

/s/ Ed Sykes, Jr.
WORKS ENGINEERING DEPT. SUPT.

/s/ A. J. Schwertfeger
WORKS ENGINEER

/s/ D. A. Miller
PLANT MANAGER

/s/ J. B. Tinker
PROCESS MANAGER

SAVANNAH RIVER PLANT

SUPPLEMENT TO PROJECT SPECIFICATION [redacted]

EQUIPMENT AFFECTED:

All vinyl coated surfaces where Amercoat #33 or equal is specified.

REASONS FOR CHANGE:

As the vinyl finishes are now beginning to deteriorate and need repair, maintenance painting requirements are increasing. Therefore additional qualified suppliers will increase competition which may result in lower cost and better delivery of material.

DETAILS:

1. Decontamination tests conducted by the Technical Services Division of Savannah River Laboratories (Exhibit A) shows that du Pont vinyl finishes decontaminate as easily as Amercoat #33.

2. Service wear tests on floor panels in Building 105-R conducted by the Engineering Assistance Section of the Works Technical Department of the Savannah River Plant (Exhibit B) show that du Pont vinyl finishes have wear resistance equal to that of Amercoat #33.

3. Painting tests carried out by the Engineering Assistance Section of the Works Technical Department (Exhibit C) prove that du Pont vinyls are compatible over Amercoat #33 vinyl.

[redacted] March 21, 1952
Rev. December 23, 1952

SPECIFICATION FOR PAINTING BY VENDOR

BUILDING 105-- ASSEMBLY AREA

This specification has been taken from du Pont Spec. No. 3019, Section BR, and applies to non-machined and uncoated steel and wood surfaces.

Section BR-2 Par. 2.21 Uncoated Steel

A. Surface Preparation - Normal cleaning shall result in a surface free from loose rust and loose mill scale or any other foreign material, providing a firm metallic surface for application of paint. It shall consist of scraping and descaling where necessary and in all cases the final step in mechanical cleaning shall be power wire brushing all over.

Any grease or oil shall be removed completely by wiping with a suitable solvent using lint free clean rags.

Surfaces with tight mill scale shall be allowed to rust outdoors until mill scale is gone before cleaning procedure is followed. This shall be done only if feasible with no interruption to schedule.

Section BR-2 Par. 2.22 Sandblast Cleaning

Sandblast cleaning shall result in a surface free from all corrosion products, loose mill scale and tight mill scale. The blasting shall proceed down to "White" metal. Normal rate is 274 to 400 sq. ft. per hour per operator.

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ADC & Reviewing Official: G. L. Bamert (Name and Title)
Date: 6/24/92

Section BR-3 Par. 3.103 Prime Coat Material
(Any one listed is acceptable.)

Devoe Zinc Chromate Primer
Du Pont Dulux Zinc Chromate Primer #746
Pittsburgh Plate Glass Co. - Zinc Chromate Primer 17-6
Sherwin-Williams Co. - Kromik Primer
Glidden Chromatized Metal Primer
U.S.Gutta Percha, Barreled Sunlight, Anti-Corrosive Primer

Section BR-3 Par. 3.301 Application

Primers shall be applied by brush, working in well so as to thoroughly wet the surface. Drying time to be observed as indicated on the can label.

Section BR-2 Par. 2.41 Wood Surfaces

Surface Preparation - Scrub knots, sap streaks and pitch areas with turpentine or other solvent. Coat with Aluminum Paint (3.027) or thin shellac.

Prime Coat.

[redacted]

[redacted]

Section BR-3 Par. 3.101 Material

Federal Spec. TT-P-25 - Exterior Primer

Section BR-3 Par. 3.301 Application

Primers shall be applied by brush, working in well so as to thoroughly wet the surface. Drying time to be consistent as indicated on can label.

Section BR-3 Par. 3.105 Caulk Material

Federal Spec. TT-C-598 - Caulking Compound

Grade I for gun application
Grade II for knife application

Section BR-3 Par. 3.205 Intermediate Coat Material
(Any one listed is acceptable)

Sherwin - Williams Co. Metalistic Intermediate Coat Brown
Pittsburgh Plate Glass Co. Ironhide Intermediate Coat Brown
Du Pont dulux Intermediate Coat Brown
Pratt & Lambert Co. Noxide metal paint
Patterson - Sargent Co. BPS metal paint

Section BR-3 Par. 3.401 Application

Brushing: Paints are to be applied by conventional brush methods following paint manufacturer's instructions.

Section BR-3 Par. 3.402 Application

Spraying: Paints are to be applied by conventional spraying methods following paint manufacturer's instructions

Section BR-3 Par. 3.206 Finish Coat Material
(Any one listed is acceptable)

Pittsburgh Plate Glass Co. Iron hide Metal Protective Gray
Du Pont dulux Metal Protective Gray
Sherwin - Williams Co. Metalistic Metal Protective Gray

Section BR-3 Par. 3.401 Application

Brushing: Paints are to be applied by conventional brush methods following paint manufacturer's instructions.

Section BR-3 Par. 3.402 Application

Spraying: Paints are to be applied by conventional spraying methods following paint manufacturer's instructions.

[redacted]

1638
Sheet 1
3/9/51
Rev. 4/4/51
Rev. 4/16/51
Rev. 5/8/51
Rev. 5/15/51
Rev. 5/22/51
Rev. 6/19/51

[redacted]

GENERAL INDEX SHEET

for

SPECIFICATION 3019

for

PROJECT 8980

SPECIFICATION 3019

1033
Sheet 1
4/4/51
Rev. 4/16/51

REVISIONS

TO

SPECIFICATION 3019

Rev. No. & Date	Sections Sheet No.	Description	Approved	Date
4/4/51	BA Sheet 1	Specification for Slag Cement added.		
"	BA Sheet 2	Specification for Rib Lath, paper backed lath, integral water-proofing added.		
"	BB	New Sections issued		
"	BD	" " "		
"	BE	" " "		
"	BF	" " "		
"	BG	" " "		
"	BH	" " "		
"	BJ	" " "		
"	BK	" " "		
"	BL	" " "		
"	BM	" " "		
"	BN	" " "		
"	BP	" " "		
"	BT	" " "		
2 4/16/51	BR	" " "		
"	BZ	"		

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NUCLEAR INFORMATION
ADC & Reviewing Official: J Bart (Name and Title)
Date: 6/24/97

1638
Sheet 2
5/8/51
Rev. 5/15/51
Rev. 5/22/51
Rev. 6/6/51
Rev. 6/19/51

REVISIONS

TO

SPECIFICATION 3019

Rev. No. & Date	Sections Sheet No.	Description	Approval	Date
3 5/8/51	BC	New Section Issued		
4 5/15/51	BQ	New Section Issued		
5 5/22/51	BB	Specification for Shop Painting added.		
"	BAA	New Section Issued		
"	BBB	This Section will not be issued, See Spec. Number 3018		
6 6/6/51	CE Sheet 1	SC - 5-E Added.		
"	BJ Sheet 1	Application of Table I Specified.		
"	BJ Sheet 2 & 3	Table I of "U" Coefficients added.		
"	BK Sheets 1,2, & 3	Specification for glazed wall tile and vitreous ceramic floor tile added		
7 6/19/51	BB Sheet 2	Riveted field connections to be made by rivet-grip bolts.		
"	BB Sheet 1	Thickness of lead sheet for lead lined blocks revised.		

REVISIONS

TO

SPECIFICATION 3019

Rev. No. & Date	Sections Sheet No.	Description	Approval	Date
7 6/19/51	ED Sheet 1	Cement asbestos siding, flat Sheets Type II added		
"	BE Sheet 1	Std. Engr. Spec. SB-2.08E and SB-2.10E added		
"	BE Sheet 2	The furnishing of hardware for sliding doors modified.		
"	BQ Sheet 3	Stay Rollers for sliding doors added		
"	BQ Sheet 7	Hardware Lists 97 to 110 added		
"	BQ Sheet 15	List 35 revised to include door closer bracket		
"	BQ Sheets 22, 23	List 69 to 74 revised to include Push Bars for screen doors in place of Push Plates		
"	BQ Sheets 28, to 31	New Lists 97 to 110 added to provide for the change from metal frames to wood frames for doors in 400 area.		
"	BAA Sheet 8	Roof drains and roof vent connections added.		

REVISIONS

TO
SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
7 6/19/51	BCC Sheet 1	Steam Water Heaters Std. Engr. Spec. SB-1.1-CC added.	C. W. Dutcher	6-21-51
"	BDD Sheets 1 to 4	Electric Water coolers added.		
"	BG Sheet 1	Glazing changed to include insulating glass as Type "F" and glare reducing glass as Type "G"		
8 Rev.	BJ - Sheets 4 to 6	Specification for Insulation on interior of exterior walls and partitions added.	C. W. Dutcher-de	7-13-51
"	Ba-Sheet 2	Splicing of deformed bars modified.		
"	BE - Sheet 2	Thickness of wood screen doors increased to 1-3/4" where interchangeable with wood doors of same thickness.		
"	BF - Sheet 2	Specification for metal screen doors added.		
"	BQ - Sheet 7	List #111 added.		
"	BQ - Sheet 31	List #111 added.		

REVISIONS

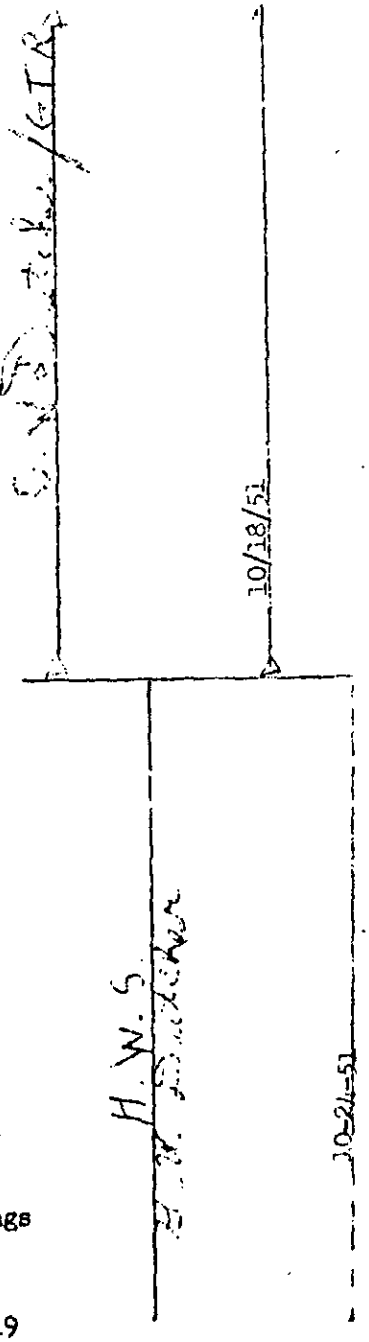
TO

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
9 7/23/51	ER-3 Sheets 4 to 6	Federal Paint Specification Numbers where available are substituted for Manufacturers names.		
10 8/31/51	BN Sheet 1 Revised Sheet 2 Added	Specification for prefabricated cement asbestos board partitions and metal stud partitions added		
"	BQ-Sheet 7 & 31	New Hardware Lists added		
"	BE-Sheet 1	Specification for asphalt dampproofing added.		
"	BD-Sheet 1	Std. Eng. Spec. SB-3-D and SB-4-D added.		
"	BF-Sheet 1 & 2	Std. Eng. Spec. SB-1.2-F, SB-1.3-f, SB-2-F and SB-5-F added and spec. revised to include door thickness other than 1-3/4"		
11 9/18/51	BQ-Sheets,1, 5,6,7,9,10, 11,12,13,16, 18,19,21,29, 30,31	Hardware locksets and latchsets changed from Sargents 7600 line to Sargents 4500 line for 1-3/8" wood doors.		

REVISIONS TO SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
12 10/16/51	BJ-Sheet 1	Weight of Mineral Wool Board Insulation added.		
"	BZ-Sheets 1, 4,5,6,9,12,14	Products and names and addresses of Manufacturers added		
"	BR-1 Sheet 1 BR-3 Sheet 6 BR-4 Sheet 8,8a Sheet 9 Sheet 10	Painting notes added and paint schedule for 400 Area added.		
"	BR-5 Sheet 11 Sheet 12	Equipment, Piping & Valves-Painting for 400 Area added.		
"	BK- Sheet 3	Asphalt tile changed from 3/16" thick to 1/8" thick.		
13 10/23/51	BAA-Sheet 1 15.2-AA	Std. Eng. Spec. 15.1-AA and added.		
	BAA-Sheet 3	Urinal flush valves modified. Type "C" Urinals added.		
	BAA-Sheet 8	Angle hose valve and rack nipple changed to 1-1/2"		
	BAA-Sheet 9	Drains-Roof, Floor & (new) Area Added.		
	BDD-Sheet 1	Electric Bottle Water Coolers added to CONTENTS		
	BDD-Sheet 5	Electric Bottle Water Coolers (new) "C" added.		
	BAA-Sheet 9 & 10	Sinks, Foot Bath, and Trimmings (new) for Sinks added.		



1638
Sheet 7
12/3/51
Rev. 12/10/51
Rev. 12/24/51

REVISIONS TO SPECIFICATIONS

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
14 12/3/51	BD Sheet 1	SB-2-D Revised to include Asbestos Protected Metal Type Flashing.		
"	BE Sheet 3	Plastic Screen Cloth added.		
"	BF Sheet 2	Plastic Screen Cloth added.		12-5-51
"	BK Sheet 1,3, 4, and 5.	Cement Coat Waterproofing added.		
15 12/10/51	BD-Sheet 2	Waterproofing of Concrete Decks added.		
"	BK-Sheet 1,5, and 6	Plastic Tile added to Floor Finishes.		12-10-51
"	BR-Sheet 10	Colors 17,18,29, and 30 added to Color Code.		
16 12/24/51	BR-Sheet 5	Par. 3.204 changed from Fed. Sp. to Brand Names and qualifying note added. Par. 3.206 changed from Fed. Sp. to Brand Names		
"	BR-Sheet 8	Finish coat on exterior metal trim, doors, frames changed from 3.204 to 3.206		12-31-51

[redacted]

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Sheet 8
1/2/52
Rev. 1/31/52

REVISIONS TO SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
17 Rev. 1/2/52	BR-4 Sheet 8 Sheet 8a	Changed from 400 Area to all Areas except where special paint is specified.		
"	BR-4 Sheet 8a	Paint types added for Cement Asbestos Board and Keens Cement Plaster.		
"	BR-4 Sheet 10	Color 5 Added.		
"	BR-5 Sheet 11	Changed from 400 Area to all Areas except where special paint is specified.		
18 Rev. 1/31/52	BH Sheet 1	Cement plaster scratch coat on wire lath added for tile base and walls.		
"	BJ Sheet 4	Pre dipped painting for washers added.		
"	BJ Sheet 5 & 6	Insulation applied on under side of corrugated cement asbestos roofing added. Caulking substituted for tape at insulation joints.		
"	BK Sheet 1 & 2	Non-slip quarry tile added. Wall tile installed by the adhesive method limited to concrete surfaces only. Wall tile applied to plaster surfaces added.		
"	BK Sheet 5	Plastic tile changed from 9 x 9 to 12 x 12.		
"	BP Sheet 2 & 3	Specification for steel overhead type doors added.		

REVISIONS

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
19 3/20/52	BN - Sheet 3	3/16" Thick Cement Asbestos Board "Flexboard" added for metal stud partitions.		
"	BL- Sheet 3	Requirements for bituminous impregnated glass-fiber fabric modified.		
"	BA - Sheets 1, 3 & 4	Specification for high density concrete added.		
"	BE - Sheets 1, 3, 4, 5	Specification for Wood Refrigerator Doors added.		
"	BJ - Sheets 7, 8, 9, 10	Specification for Refrigerator Insulation added.		
"	BK - Sheets 1, 7, 8	Rubber Tile and Base added.		
"	BK - Sheet 5	Vinyl Tile in Laboratory Modules extends under benches and case work.		
20 3/23/52	BAA - Sheet 1	Liquid Soap Tank, Liquid Soap Valves Liquid Soap Dispensers deleted; Sinks added.		
"	BAA - Sheet 2 & 3	Flush Valves Modified		
"	BAA - Sheets 4 & 5	Soap Dispensers deleted.		

REVISIONS

TO

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
20 3/23/52	BAA-Sheet 6	Lavatories Type "E" added.		
"	BAA-Sheet 7	Heading "Floor Drains" changed to Drains.		
"	BAA-Sheet 7a	Drains formerly on Sheet 9 moved to sheet 7a Type "T" changed to "AA" Type "BB" added.		
"	Sheet 9	Sinks revised and given Type Letters. Kitchen and Lunch Room sinks added.		
21 3/27/52	BR-Sheet 1	Reference to new Section BR-6 added.		
"	BR-Sheet 6	3.209 Flat Black added to Intermediate and Finish Coats.		
"	BR-6 Sheet 1 to 61	Section BR-6 Special Protective Coatings added.		

REVISIONS

TO

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
22 5/2/52	BL-Sheet 4 & 5	Specifications for Thickol Rubber Caulking added.		
"	BR-2-Sheet 2	Mill Scale cleaning added under 2.21. 2.22 Sandblast cleaning added.		
"	BR-2-Sheet 3	2.30 cleaning galvanized steel moved from Sheet 2 to Sheet 3.		
"	BR-3-Sheet 4a	3.107, 3.108, 3.109, 3.110 added.		
"	BR-3-Sheet 6	3.210 through 3.220 added.		
"	BR-3-Sheet 6a	Sub-sections 3.300, 3.400 and 3.500 previously on Sheet 6 moved to Sheet 6a. 3.403 and 3.404 added.		
"	BR-4-Sheet 10	Colors 17 and 18 changed. Colors 33, 39 and 40 added.		
"	BR-5-Sheet 11	Title of sheet changed and reference to general note added.		
"	BR-5-Sheet 12 10/16/51	General Painting Notes 1 & 2 formerly on Sheet 12 incorporated with General Notes Sheet 25 as Notes 7 and 8 respectively.		
"	BR-5-Sheets 12 through 24	Schedule of detailed equipment painting added.		

REVISIONS

TO

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
22 5/2/52	BR-5-Sheet 25	General notes added.		
"	Br-5-Sheet 26	Schedule of general coatings not included in detailed schedule added.		
"	BR-6-Sheet 43	Material paragraph numbers deleted and reference to Note 1 added.		
"	BR-6-Sheet 44	Material paragraph number changed and reference to Note 2 added. Notes 1 and 2 added.		
"	BN-Sheet 3	Purchase specifications for Metal Partitions and Wainscot Work, Service Strips and Reagent Shelves added.		
23 5/23/52	BR-6	Sheets 13,14,24,25,26 Miscl. revisions and additions to specifications		
"	"	Sheets 38,38a,39,39a,40, 42,43,44,45,46,46a,47,47a, 48,49 and miscl. revisions, deletions and additions to Bldg. 221 F & H schedule.		
"	"	Sheets 52,53,54 revisions to Bldg. 211 schedule.		
"	"	Sheets 55,56 revisions to Bldg. 232 schedule.		

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Sheet 13
5/23/52
Rev. 5/28/52

REVISIONS

TO

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
23 5/23/52	BR-6	Sheets 57,57a,58,58a 59 revisions and additions to Bldg. 235 schedule.		
"	"	Sheet 60 revisions and additions to Bldg. 241 schedule		
"	"	Sheet 60 a revisions and additions to Bldg. 805 schedule.		
24 5/28/52	BR-3	Sheet 6 Brand names for interior eggshell enamel added item 3.221		
"	BR-4	Sheet 8 and 8a. Title changed to read All areas except where special Protective Coatings are specified. Reference to General Painting Notes added. Paints 3.201 and 3.221 added under Finish coat column and corresponding finishes (gloss, eggshell and semi-gloss) under Remarks column. Finish of concrete floors added on Sheet 8a.		
"	BR-5	Sheet 14. Change painting on Equipment Piece No. 801.		
"	BJ	Sheet 5, Paragraph 3 revised		

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TO

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
25 8/5/52	BR-4	Sheet 9 Rev. to Note 6 Painting room identification and numbers.	G. W. Dutcher/N.W.S.	8-8-'52
"	BR-5	Sheet 11. Painting of pipes exposed in painted areas added.		
"	BR-5	Sheet 11a. Painting of insulation of equipment, piping and valves in painted spaces or rooms added.		
"	BR-5	Sheet 25 revised and Sheet 25a added. Note 7 revised and notes 9 and 10 added.		

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TO

SPECIFICATION 3019

REV. NO. & DATE.	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
26 9/8/52	BK Sheet 3	Reference to thickness of Asphalt Tile deleted	G.W. Dustler / H.W.S.	7-8-'52
"	BR-3 Sheet 6	Paint 3.222 added.		
"	BR-5 Sheet 25a	Note 11 added.		
"	BR-5 Sheet 27 to 34	Equipment painting for Bldg. 105 added.		
"	BR-5 Sheet 35	Painting Ventilation equipment and ductwork added.		
"	BR-6 Sheet 1	Grinding sharp edges of metal surfaced added.		
"	BR-6 Sheet 3	Preparation of concrete walls Bldgs. 105 and 221 added.		
"	BR-6 Sheet 7 Sheet 13 Sheet 25 Sheet 36	Application of Putty on Metal surfaces added.		
"	BR-6 Sheet 32	Sub-paragraph 12 to 6.1709 deleted.		
"	BR-6 Sheet 62 to 64	Equipment painting Bldg. 105. Special paint added.		
"	BR-6 Sheet 65	Ventilation equipment and ductwork Bldg. 105 special paint added.		
"	BR-6 Sheet 66	General Notes added.		

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SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
27 Rev. 9/19/52	BK-Sheet 8	Tile for Refrigerators added.	G. W. Sutton / H.W.S.	10-8-'52
"	BA-Sheets 5 to 8	Specification for treated timber piles added.		
"	BR-5 Sheet 11a	Painting for cellular glass insulation added.		
"	BR-5 Sheet 31	Piece No. 191 Note reference changed.		
"	BR-6 Sheet 25	6.1605 revised.		
"	BR-6 Sheet 39	Item titles changed.		
"	BR-6 Sheet 39a	New items and reference added.		
"	BR-6 Sheet 40	Crane blocks and hooks, materials changed.		
"	BR-6 Sheet 43	Crane maint. shielding Doors - Reference added.		
"	BR-6 Sheet 45	Elevator machine room description changed.		
"	BR-6 Sheet 46	Heat exchanger room and Fan Room, description changed.		
"	BR-6 Sheet 47	Rooms 306 and 307 material changed.		
"	BR-6 Sheet 47a	Corridor 323 added.		
"	BR-6 Sheet 48	Room 411 changed to 410		
"	BR-6 Sheet 51	Entire sheet describing Bldg. 221 "A" line deleted.		
"	BR-6 Sheet 52	Various reference drawings changed and added.		

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REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
27 Rev. 9/19/52	BR-6 Sheet 53	Various reference drawings changed and added. New item added under Recovery Facilities.	G. W. Luther 9/19/52	10-8-52
"	BR-6 Sheet 54	New items added under Waste Handling Facilities and Chem. Storage Facilities added.		
"	BR-6 Sheet 57	Description Room 110 and 111 changed.		
"	BR-6 Sheet 58	Description Room 201, 209 and 226 changed.		
"	BR-6 Sheet 58a	Description Room 225 changed.		
"	BR-6 Sheet 59	Description Ducts and Grilles changed. Air locks, omit rooms 135 and 230.		
"	BR-6 Sheet 60	Various reference numbers changed and added. Catch tank ejector pit added. Description and Materials changed for catch tank and waste line encasements.		
"	BR-6 Sheet 60a	Reference numbers added. Bldg. 294 added and description and material changed.		

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TO

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
28 Rev. 11/28/52	BR-5 Sheets 11b & 11c	Painting of Electrical Equipment. All Areas added.		
"	BR-5 Sheet 25a	Note #11, Revised		
"	BR-5 Sheets 30a & 30b	Painting Process Area Bldg. 105 added.		
"	BR-5 Sheet 31	Piece No. 171 & 172 Revised.		
"	BR-6 Sheet 2	Paragraph 6.0102 Revised		
"	BR-6 Sheet 3	6.0401 Revised 6.0401a Deleted		
"	BR-6 Sheet 12	Paragraph 6.1200 Revised		
"	BR-6 Sheet 38, 42, 43, 44, 45 46, 46a, 47, 47a 48, 49	Various Revisions of Items Titles and Description as per Design Memo 2009F for Bldgs. 221 F&H		
"	BR-6 Sheet 51	Sheet dated to conform to 27 Revision.		
"	BR-6 Sheets 57 57a, 58, 58a, 59	Various Revisions of Description and reference Drawings added. As per Design Memo 2010F for Bldg. 235F.		
"	BR-6 Sheet 60	Paint Material changed for last two items on sheet.		

REVISIONS

TO

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REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
28 Rev. 11/28/52	BR-6 Sheet 62, 62a	Various changes in Equipment Piece Nos. and Description revised.		
"	BR-6 Sheet 63	Equip. No. 191 Eliminate exposed steel.		
"	BR-6 Sheet 66	General Note 1 revised and Note 2 added.		

REVISIONS

TO

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
29 Rev. 12/16/52	BA - Sheet 4	Minimum weight of high density concrete and slump test requirements revised.		
"	BR-5 Sheet 25a	Sheet reference numbers to Spec. 3018 changed.		
"	BR-5 Sheet 31a	New sheet includes conventional paint for equipment in Bldg. 105		
"	BR-6 Sheets 55, 56, 61.	Painting for Bldgs. 232F, 291 F&H, 292 F&H Deleted.		
"	BR-6 Sheet 63	Paint for Equipment deleted from this sheet is now shown on Sheet 31a.		
"	BR-6 Sheets 67 68, 69, 70	Specification for Cell Color Identification System for Bldgs. 105-C K-L-P-R added.		
"	BR-5 Sheet 11b & 11c	Specification for damaged equipment added: and reference to Note 11 deleted. Paint symbol for galvanized conduit fittings revised.		
"	BR-5 Sheet 25a	Note 11 Deleted.		

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SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
30 Rev. 1/7/53	BJ - Sheet 1	Specification for Insulating Fiber Board added.	G. W. Patterson / R. W. L.	1-12-53
"	BJ - Sheet 3	Table Revised to include Insulating Fiber Board.		
"	BR-6 Sheet 38	Painting Canyon Walls Revised. Painting of numbers deleted.		
"	BR-6 Sheet 38a	Delete this sheet entirely.		
"	BR-6 Sheet 42	Item HOT & WARM CANYON SHOPS REVISED		
"	BR-6 Sheet 43	Item STORAGE Revised		
"	BR-6 Sheet 44a	Note 3 - Painting copper lubrication lines added.		
"	BR-6 Sheet 46	Item Exhaust Air Ducts Room 155 & 158 revised.		
"	BR-6 Sheet 48	Painting Personnel Tunnel #1 revised stairways 17 to 25 landings added.		
"	BR-6 Sheet 50	Color Identification for 200 Area, added.		

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REVISIONS

TO

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Sheet 22
1/30/53

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
31 Rev. 1/30/53	BR-6 Sheet 65	Third pararagh changed.	F.W.D. H.W.S.	2/10/53

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REV. NO. DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
32 Rev. 2/11/53	BR-6 Sheet 39a	U-S Motors Deleted Carbon Steel Dummy Covers added.	G. W. Dutton / Pt. W. S.	2-25-'53
"	BR-6 Sheet 40	Pipe Connectors Revised.		
"	BR-6 Sheet 41	Vertical & Horizontal connector guides revised Bolts added FIRE EYE Added. Description Steel Jaws and Vertical Connector guide revised.		
"	BR-6 Sheet 42	FIRE EYE added. Paint for Upper Holder revised. Screw revised. Description for Lower Holder revised. Socket Head Cap Screw added.		
"	BR-6 Sheet 43	Crane Maint. Shielding Doors revised. Cranes, References revised.		
"	BR-6 Sheet 44	Cranes, references moved to Sheet 43.		
"	BR-6 Sheet 44a	Note 4 added.		
"	BR-6 Sheet 47	"B" Line Process Rooms Reference revised.		
"	BR-6 Sheet 47a	"B" Line Process Rooms 306 & 307 added.		
"	BR-6 Sheet 49	Mechanical Equipment		
	" 54	Tank Vessels deleted.		
	" 59	Concrete and Carbon steel supports added. Mounting Bases for Pumps added.		
	" 59	Ducts and Grilles, galv. iron added.		
"	BR-6 Sheet 60	References changed for Covers and Steel edges on Covers and Walls. Reference drawings to Diversion Box to Catch Tank added.		
"	BR-6 Sheet 60a	Reference Drawings added Bldg. 221 & Bldg. 291 and Retention Tank added.		

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REVISIONS

TO

SPECIFICATION 3019

Rev. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
33 Rev. 4/27/53	BR-5 Sheet 30b	Painting E.P. 175 modified.	G.W. Outler / H.W.S.	4-27-'53
"	BR-5 Sheet 32	Painting E.P. 229.11 added.		
"	BR-6 Sheet 43	Painting Crane Maint. Shielding Doors modified.		
"	BR-6 Sheet 44a	Notes 5 and 6 added.		
"	BR-6 Sheet 45 & 46	General changes under Description and reference to note added.		
"	BR-6 Sheet 46a	Heat Exchanger room changed to Storage room and general changes under description.		
"	BR-6 Sheet 47	Changes under Description as noted.		
"	BR-6 Sheet 47a	General changes under Description.		
"	BR-6 Sheet 48 & 48a	Changes as noted under Reference and Description.		
"	BR-6 Sheet 49	Painting of Air Locks revised.		
"	BR-6 Sheet 53	Special coatings omitted as noted.		
"	BR-6 Sheet 54	Description of concrete pit changed and special coatings omitted at chemical storage.		
"	BR-6 Sheet 57	General changes under Description and spare Room 108 changed to Bag Sealer Room.		
"	BR-6 Sheet 57a 58 58a, 59	General changes under description.		
"	BR-6 Sheet 60 60a	Change from 6.1600 to 6.1400 and omit special paint as noted.		
"	BR-6 Sheet 65	Change 2nd Paragraph as noted.		

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SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
34 Rev. 5/6/53	BA- Sheet 9	Specification for Design Mix for Non-Shrink Concrete Containing slag, added.	T.J. /H.W.S.	5-12-53

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SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
35 Rev. 7/1/53	BR-6 Sheet 47	Height of paint on Walls of Room #216 changed.	G.W. Kuttler for W.W.S.	7-2-'53
"	BR-6 Sheet 60a	Painting on exposed concrete and carbon steel surfaces of Retention Tank Ejector Pit added.		

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SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
36 Rev. 7/8/53	Section BR-3 Sheet 6	Paint 3.223 added.		
"	Section BR-5 Sheet 30b	E.P. 177. Material reference for 1st and 2nd coat changed to 3.223.		

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SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
37 Rev. 11/23/53	Section BK Sheets 9 through 12	Specification for Acid-Proof Mastic added.	G.W. Lutkin / H.W.S.	11.25-'53
"	Section BK Sheet 13	Acid-Proof Requirements for Bldg. 483D added.		
"	BR-6 Sheet 54	E.P. 351.22-1 351.22-2, 351.22-3 Change Description		
"	BR-6 Sheet 66	General Notes Change Note 2		
"	BR-6 Sheet 47B	New sheet added.		

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SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
38 Rev. 12/8/53	Section HK Sheet 10	Acid-Proof Asphalt change bitumen soluble in CS_2 to CS_2 For bottom layer change percentage passing 3/8" screen etc. from 32%-44% to 20%-30%.	G.W. Butcher / H.W.S.	12-11-'53
	Section HR-6 Sheet 99 & 70	Identification Color system changed for interior of crane cab.		

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TO

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
39 Rev. 12/24/53	Section BA Sheet 1	New title added to contents.	G.W. Luther / H.W.L.	12-30-53
"	Sheet 10	Specification added for fly ash as an admixture in Portland Cement Concrete.		
"	Section BK Sheet 1	New title added to Contents.		
"	Sheet 13	Application temperature for outside exposures modified.		

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TO

SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
40 Rev. 1/21/54	Section BK Sheet 9	Acid-Proof Asphalt Change 50% Trinidad to 10% Trinidad	G.W. Sutcher/H.W.S.	1-21-'54
"	Sheet 10 & 10a	Aggregate - Change specification and grading limits. Preparation of Mastic Change Specification and proportion of asphalt and aggregate.		

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SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
41 Rev. 4/1/54	Section BR-3 Sheet 4a	Add 3.111 duPont Sealer Coater	G.W. Rutcher/H.W.S.	4-9-'54
"	Section BR-5 Sheet 25a	Add Note 11		
	Sheet 26	Add paint for blow off tank inlet & vent lines		
"	Section BR-6 Sheet 1	Add Surface Preparation for machined surfaces		
"	Sheet 3a	Add approval of surfaces by Construction personnel		
"	Sheet 39 & 39a	Paint for kick plates & dummy covers changed		
"	Sheet 41, 41a & 42	Paint revisions for pipe and electrical connectors Bldg's. 221F&R		
"	Sheet 48a	Change description stairway No. 1		
"	Sheet 52	Change 6.1600 paint from gray to oxide red		
"	Sheet 60	Change paint description for covers		
"	Sheet 66a	Add new sheet General Notes 100-200 areas.		
"	Sheet 44	Note 2 - Painting of insulation of cab added.		

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REVISIONS

TO

SPECIFICATION 3019

REV. NO. & DATE.	SECTIONS Sheet No.	DESCRIPTION	APPROVAL	DATE
42 Rev. 1/6/55	BA - Sheet 2	Modified SB10-A for class #1 floor finish where it is to be painted.	[illegible]	1-6-55
"	BJ- Sheet 6	Changed adhesive from type HTP to HT-2		
"	BL - Sheets 4	Added Cawking #893 and Amercoat #1043 as alternates for Pressstite #106		
"	BR-3 Sheet 4A	Added Pittsburgh Plate Glass Co. Snolite #50-5 Quick drying wall sealer under 3.111		
"	BR-5 Sheet22	E.P. 803 painting rev. in accordance with D.M. 11189		
"	BR-5 Sheet 31	Added E.P. 166 and E.P. 202.3		
"	BR-5 Sheet 34	Added E.P. 370 and note for Crane Spray Piping		
"	BR 6 Sheets 13 &	Added Usilon 400 and Polyclad 33. Added Sheet 13a		
"	BR-6 Sheet 38	Rev. description for painting canyon covers in accordance with D.M. 2364-H		
"	BR-6 Sheets 39 & 50	Rev. marking around partitioning dowels in accordance with D.M. 2460-H, 2711-F		

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1/6/55

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SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
42 Rev. 1/6/55	BR-6 Sheet 47	Rev. painting of room #216 in accordance with D.M. 2260-H	A.M. Morial Jr. H.W.S.	1-6-55

REVISIONS

TO

SPECIFICATION 3019

REV. NO & DATE	SECTIONS SHEET NO	DESCRIPTION	APPROVAL	DATE
43 Rev. 1/7/55	BR-6 Sheets 71 72 & 73	Added Neoprene Coating	G.M. Daniels Jr. H.W.S.	1-7-55

REVISIONS TO SPECIFICATION 3019

REV. NO. & DATE	SECTIONS SHEET NO.	DESCRIPTION	APPROVAL	DATE
44 ~~43~~ Rev. 1-9-56	BCC-1 Sheets	Added Spec. Horizontal & Vertical Steam Water Heater.	[illegible] 2/7/56	1.23.56
44 ~~43~~ Rev. 1-9-56	BCC-2	Added Spec. Vertical Electric Water Heater.		

SECTION CA - GENERAL

CONTENTS

CIVIL	STANDARD ENGINEERING SPECIFICATIONS	
	Issued 8/5/46	
DEFINITIONS OF TERMS	Revised 1/23/50	SC-1-A

1. CONTRACT is the written agreement covering the performance by other than du Pont forces, of all or a part of the work under these specifications. In the performance of such work by others the "General Conditions - Lump Sum or Unit Price Contracts Involving Field Labor" applies to and is made a part thereof.

2. INTENT of these specifications is to describe the materials and methods of construction required for the performance of the work.

3. DU PONT refers to the authorized representative of E. I. du Pont de Nemours & Co., Inc.

4. MANUFACTURERS' PRODUCTS are named for the purpose of describing the material desired; the naming shall not be construed as preventing the use of the materials of other manufacturers, which may receive the approval of du Pont. Samples of alternative materials together with complete specifications shall be submitted to du Pont for approval before the incorporation of such materials in the work, unless this requirement is waived by du Pont.

5. REFERENCES to A.S.T.M., A.A.S.H.O., or others as noted in item 6 shall be considered as referring to the Specifications or Method of Test in effect at the date of invitation to bid.

Reference to Standard Engineering Specifications shall be considered as referring to E. I. du Pont de Nemours & Co., Standard Engineering Specifications.

6. ABBREVIATIONS with their meanings are as follow:

A.S.T.M. - American Society for Testing Materials.
A.A.S.H.O. - American Association of State Highway Officials.
A.W.P.A. - American Wood-Preservers Association.
A.R.E.A. - American Railway Engineering Association.
A.W.W.A. - American Water Works Association.
A.I.S.C. - American Institute of Steel Construction.
A.W.S. - American Welding Society.
W.C.L.A. - West Coast Lumbermans Association.
Joint Committee - American Concrete Institute and Affiliated Societies.

SECTION CE - EARTHWORK

CONTENTS

6 Rev. 6/6/51

MODIFICATIONS & ADDITIONS

SC-3-E: Excavation - shall include pits and trenches required for the work of Mechanical and Electrical Trades when occurring within the limits established in Item 6.

SC-4-E: Backfill - shall include pits and trenches excavated for the work of Mechanical and Electrical Trades as specified in Standard Engineering Specification SC-3-E.

Except as otherwise directed, exterior fill and backfill shall be brought to an elevation - 6" below established grade. Where floor slabs rest on fill, the fill and backfill shall be thoroughly compacted and brought to the elevation of the bottom of the floor slab.

Fill under concrete slabs or other concrete work shall be bank-run gravel, subject to inspection and approval by the Field Engineer.

CIVIL	STANDARD ENGINEERING SPECIFICATIONS	
EARTHWORK	Issued 7/8/48	
CLEARING AND GRUBBING	Revised 1/23/50	SC-1-E

Formerly part of SC-201-A

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is a part of this specification.

2. DESCRIPTION - This specification shall govern clearing and grubbing of land located within the limits of the site, together with land provided for borrow pits and disposal areas, and preparing the site for construction of roads, railroads, buildings, structures, etc.

3. CLEARING shall consist of the cutting, removal, and disposal of trees, brush, fences, poles, stubs, rubbish, debris, and refuse resting upon and protruding above ground.

Trees, bushes, shrubs, or growth designated by du Pont to remain shall be protected and saved from harm during the progress of the work.

Trees felled during the operations, that are designated by du Pont, shall remain the property of du Pont and shall be cut into logs and placed in storage areas designated by du Pont.

4. GRUBBING shall consist of the removal and disposal of tree stumps, shrubs, and brush from within the limits of such work.

5. DISPOSAL - Non-combustible materials resulting from clearing and grubbing operations shall be deposited in disposal areas; combustible materials shall be burned in burning areas designated by du Pont. Upon completion of the operations, nothing shall remain within the limits of the work, which was deposited as a result of the clearing and grubbing operations.

6. METHOD OF MEASUREMENT for pay quantities under unit prices shall be on an acreage basis, except that if clearing and grubbing is a part of an excavation contract, the unit prices paid for excavation shall cover payment for clearing and grubbing of areas to be cut or filled.

Trees which are removed from outside the area to be cleared or grubbed shall be measured individually.

CIVIL	STANDARD ENGINEERING SPECIFCATIONS	
EARTHWORK	Issued JULY 8, 1948	
EXCAVATION	Revised JAN. 23, 1950	SC-3-E

Formerly part of SC-201-A

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - This specification shall govern the excavating, moving, and placing of all materials necessary for grading of the site, and/or excavation necessary for construction of buildings, structures, roads, railroads, etc.

Roads and railroads shall be excavated to subgrade elevation, buildings and structures to approximate bottom of footings, and basement floor slabs, ditches, and other areas to finished grade.

Excavation shall include all necessary drainage, shoring, sheeting, and cofferdam construction and removal required to accomplish the work.

3. CLASSIFICATION OF EXCAVATION - Excavation shall include all materials encountered regardless of their nature, and unless otherwise provided are classified into two groups as follows:

COMMON EXCAVATION shall include all materials removed in excavation, not described under rock excavation.

ROCK EXCAVATION includes all solid rock in ledges, bedded deposits, and conglomerate deposits so firmly cemented as to present the characteristics of solid rock and which may best be removed by drilling and blasting.

4. TOP SOIL shall be stripped from building areas, areas upon which road and railroad embankments will be placed, and areas to be filled and test-controlled compacted. Top soil shall be stock piled for future landscaping, placed in standard fill, or wasted as directed by du Pont.

5. EXCAVATED MATERIALS - Du Pont will designate excavated material for use in forming test-controlled compacted fills, Standard Engineering Specification SC-5-E.

Other excavated materials, unless excluded by du Pont, may be used in forming standard compaction fills, Standard Engineering Specification SC-4-E.

Materials condemned as not usable in fills shall be disposed of as provided in Item 10.

6. LIMITS AND DEPTH OF EXCAVATION shall be in accordance with the lines and depths shown on the drawings or as established by du Pont. Approval by du Pont in writing shall be obtained before making any excavation outside a vertical plane 3 feet from footing or outside wall.

The elevations of the bottoms of footings as shown on the drawings shall be considered as approximate only, and du Pont may order in writing, such changes in dimensions or elevations of footings as may be necessary to secure satisfactory foundation in conformity with design requirements.

Should it be necessary, in the judgment of du Pont, to increase or decrease the size and/or depth of footings or walls from that shown on the drawings, the necessary alterations in the details of the affected portions shall be accomplished in a manner directed by du Pont.

7. TREATMENT OF FOUNDATION MATERIAL:

FOR BUILDINGS AND STRUCTURES -

Rock or other hard foundation material shall be freed from all loose material, cleaned and cut to a firm surface, either level, stepped, or serrated, as may be directed by du Pont. All seams and cavities shall be cleaned out and filled with cement concrete mortar or cement grout.

Where soft or spongy areas appear during excavation for column or wall footings, the unsatisfactory bottom shall be removed to such depths as directed by du Pont. These areas shall not be backfilled with earth but the footings shall be carried to the new depth, or as directed by du Pont.

When foundations are to rest on an excavated surface other than rock, special care shall be taken not to disturb the bottom of the excavation, and the final removal of the foundation material to grade shall not be made until just before the foundations are placed.

FOR ROADS AND RAILROADS -

Subgrade for roads shall be excavated to subgrade elevation. Isolated large boulders or rocks appearing in the subgrade through cut sections, if too large to move, shall be cut off 12 inches below finished subgrade elevation.

When ledge rock is encountered through cut sections, the rock shall be excavated to subgrade elevation, unless otherwise provided in the supplements to project specifications.

Where soft or spongy areas appear during excavation on road and railroad subgrades, they shall be removed to such depths as directed by du Pont. They shall be backfilled with selected material and test-controlled compacted as provided in Standard Engineering Specification SC-5-E.

When subgrade for railroads is rock or other hard material, the subgrade shall be excavated to finished subgrade.

8. SHORING - When no provisions are made on the drawings for shoring or cofferdams, it is the intent of this specification to require that suitable protection be provided for all excavations where such may be necessary in order to control water conditions or to preclude sliding and caving of the walls of the excavation.

Sheet piling of the kind and type shown on the drawings, or as directed by du Pont shall be installed at sides of excavations which are below and adjacent to existing column footings or walls of adjacent buildings or structures. Steel sheet piling shall remain in place after the completion of the work unless otherwise specified or directed by du Pont. Wood sheet piling shall be pulled upon completion of the work and the voids created by removal shall be filled with cement concrete.

9. DRAINAGE of the construction area shall be maintained in good order as required by du Pont during the period of excavation. Existing drains, culverts, ditches, and sewers shall be kept clean and operating during the construction operations. Roads and railroad subgrade shall be sufficiently bladed to grade and cross-section to provide drainage.

10. DISPOSAL of materials resulting from excavation operations and not required for fill or other uses, rejected materials, rubbish, etc. shall be made in disposal areas or burned in burning areas designated by du Pont.

11. METHOD OF MEASUREMENT for pay quantities under unit prices, shall be on a cubic-yard basis. Pay quantities shall be determined from cross-sections made by du Pont of the original and final ground surfaces or original and uncovered surfaces if different classes of excavation are encountered.

The unit prices paid for excavation shall cover payment for clearing and grubbing of areas to be cut or filled, hauling of excavated materials up to 1,000 feet, and standard compacted fill.

Stripping for areas requiring test-controlled compacted fill, and stripping of borrow pits shall be measured and separately paid for as excavation and standard fill.

Over-haul shall be measured on a station-yard basis. Station yards shall be computed from a standard haul and mass diagram prepared by du Pont from cross-sections of original and final surfaces and measured to the nearest foot, from center of mass of cut to center of mass of fill, along the route of haul established or approved by du Pont.

CIVIL EARTHWORK FILL (STANDARD COMPACTION)	STANDARD ENGINEERING SPECIFICATIONS	
	Issued 7-8-48	SC-4-E
	Revised 1-23-50	

Formerly part of SC-201-A

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is a part of this specification.

2. DESCRIPTION - This specification describes the materials, and method of placing fills, and compacting with standard type methods, other than by test-controlled method.

3. MATERIALS shall be suitable approved earth, friable material, gravel, or rock, which shall be free from organic substances, spongy or frozen soil, and other objectionable substances which will prevent satisfactory consolidation.

4. PLACING -

EARTH OR FRIABLE MATERIALS shall be deposited and spread in successive, uniform, nearly horizontal layers. Structural and road fills shall be placed in layers not to exceed 8 inches in compacted thickness. All other fills shall be placed in layers not to exceed 12 inches in compacted thickness. Each layer of fill, before starting the next, shall be compacted as described in Item 5. Movement of vehicles and equipment shall be distributed over the full width of the fill area to prevent tracking and aid compaction.

ROCK OR GRAVEL shall be carefully distributed throughout the fill in uniform, nearly horizontal layers. Before proceeding with the next layer, all interstices of the foregoing layer shall be thoroughly filled with fine material, so as to secure maximum density. No rock fill shall be constructed within 12 inches of subgrade elevation of roads or finished grade elsewhere.

Suitable allowances should be made for shrinkage in the construction of fills

5. COMPACTION - Fill shall be compacted, layer by layer, by routing the earthwork equipment over the entire area of fill or by rolling until uniformly compacted. In places inaccessible to such equipment, the fill material shall be compacted with approved hand or mechanical backfill tampers. The materials shall be damp, but not wet, during compaction.

6. DRAINAGE, both temporary and permanent, shall be constructed and maintained during the performance of the work. The surface of unfinished fills shall be bladed smooth to a crown or grade at the conclusion of the day's work or before shutdown for any cause, to permit the run-off of water.

7. BORROW when required to complete fill material requirements shall conform to Standard Engineering Specification SC-6-E.

8. METHOD OF MEASUREMENT for pay quantities under unit prices shall be on a cubic-yard basis. If fill is being accomplished by cut-and-fill method or from borrow pits, on which sections may be taken, unit prices paid for excavation shall cover payment for fill.

If fill is furnished from sources which have not been measured by du Pont, quantities will be determined from compacted material in place by cross-sections made by du Pont of the original and final surfaces.

CIVIL EARTHWORK FILL (TEST-CONTROLLED COMPACTION)	STANDARD ENGINEERING SPECIFICATIONS	
	Issued 7-8-48 Revised 1-23-50	SC-5-E

Formerly part of SC-20?-A

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is a part of this specification.

2. DESCRIPTION - This specification describes the materials, and method of placing fills, and compacting with test-controlled methods.

3. MATERIALS suitable for this work will be located and selected by du Pont. It shall be free of rock or gravel over 6 inches in greatest dimension, organic substances, rubbish, brush, limbs, spongy or frozen soil, and other objectionable substances which will prevent satisfactory consolidation.

Fill materials which do not contain sufficient moisture to compact to the densities specified in Item 5 shall be sprinkled with water after placing until the desired moisture contact is obtained. Fill materials containing excess moisture shall be dried sufficiently to meet the desired moisture content.

4. PLACING - The fill material shall be placed in successive, uniform, nearly horizontal layers not exceeding the depth at which uniform compaction, to the densities specified in Item 5, can be obtained with the compacting equipment to be used. Each layer of fill shall be thoroughly compacted before the next layer is placed.

Before fill operations are started, all top soil shall be removed from the areas to be filled, as specified in Item 4, Standard Engineering Specification SC-3-E, Excavation.

5. COMPACTING shall be carried on until the density of the compacted materials is not less than the percentages given for the maximum dry density shown, in the following table.

MAXIMUM DRY DENSITY OBTAINABLE by A.S.T.M. Method D 698 T lb. per cu. ft.	MINIMUM COMPACTION REQUIRED - Per Cent of Maximum Dry Density
Less than 100	100
100 to 119.9	95
120 or more	90

6. INSPECTION of densities during construction will be performed by du Pont. Tests will be made in accordance with the following minimum schedule.

once every change of borrow, or
once every layer of fill, or
once every 300 cu. yds. of fill, or
once per day.

Samples will be taken in the lower zone of each compacted layer

Fill sections failing to meet the above requirements shall be removed and replaced, or reworked until satisfactory to du Pont.

7. DRAINAGE, both temporary and permanent, shall be constructed and maintained during the performance of the work. The surface of unfinished fills shall be bladed smooth to a crown or grade at the conclusion of the day's work or before shut-down for any cause, to permit run-off of water.

8. BORROW when required to complete fill material requirements shall conform to Standard Engineering Specification SC-6-E.

9. METHOD OF MEASUREMENT for pay quantities under unit prices shall be on a cubic-year basis. If fill is being accomplished by cut-and-fill method or from borrow pits, on which sections may be taken, materials required for test-controlled compacted fill shall be paid for at the unit price for excavation plus an incremental payment for special compaction required. Quantities for the incremental payments, and for materials furnished from sources which have not been measured by du Pont, shall be determined from compaction material in place by cross-sections made by du Pont of the original and final surfaces.

CIVIL	STANDARD ENGINEERING SPECIFICATIONS	
EARTHWORK	Issued 7/8/48	SC-6-E
BORROW	Revised 1/23/50	

Formerly Part of SC-201-A

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is a part of this specification.

2. DESCRIPTION - This specification governs the excavation, transportation, and placing of excavated materials obtained from borrow pits.

Borrow pits, unless otherwise provided, will be furnished by du Pont.

3. MATERIALS are classified as follows:

STRIPPINGS are those materials which are unapproved for use in any fill.

COMMON BORROW consists of those materials which shall conform to the requirements for standard compacted fill, Standard Engineering Specification SC-4-E.

SELECTED BORROW consists of those materials which shall conform to the requirements for test-controlled compacted fill, Standard Engineering Specification SC-5-E.

4. BORROW PIT STRIPPING shall consist of the excavating, removing, and satisfactory disposal of unsuitable, unapproved materials encountered.

5. EXCAVATION of the borrow pit shall be accomplished as directed by du Pont. When the operations are completed the borrow pit shall present a neat appearance, drain itself, and be of a shape which may be easily cross-sectioned.

The borrow material shall be removed in such a manner that a uniform mixture of all individual layers will result. If difference in strata is found to exist as the pit is excavated, the unsuitable material shall be removed and disposed of as directed by du Pont.

If more fill is placed than required, causing waste of borrow excavation, the amount of such waste will be deducted from pay quantities.

6. PLACING AND COMPACTING of borrow material shall conform to the requirements of Standard Engineering Specifications as follow: for Standard Compacted Fill, Specification SC-4-E; for Test-Controlled Compacted Fill, Specification SC-5-E.

7. DISPOSAL of strippings and rejected materials shall be made in disposal areas designated by du Pont.

8. METHOD OF MEASUREMENT for pay quantities under unit prices shall be on a cubic-yard basis. Pay quantities shall be determined from cross-sections of borrow pit made by du Pont of the original and final ground surfaces or original and uncovered surfaces if different classes of excavation are encountered.

The unit prices paid for excavation shall cover payment for clearing and grubbing of borrow area and area to be filled, hauling of borrow materials up to 1,000 feet, and standard compacted fill.

Stripping for areas requiring test-controlled compacted fill and stripping of borrow pit shall be measured and separately paid for as excavation and standard fill.

Over-haul shall be measured on a station-yard basis. Station yards shall be computed from a standard haul and mass diagram prepared from cross-sections of original and final surfaces and measured to the nearest foot, from center of mass of borrow cut to center of mass of fill, along the route of haul established or approved by du Pont.

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Rev. 3/24/52
Rev. 12/24/53

SECTION BA - CONCRETE

CONTENTS

UNCLASSIFIED
DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION
Reviewing Official: (Name and Title)
Date: 6/24/92

MODIFICATIONS & ADDITIONS

SB-1-A: 4. Delete - Air entraining Portland Cement shall not be used.

In lieu of standard brands of cements specified, a blend consisting of 25% of natural or slag cement and 75% Portland cement may be used.

1 Rev. 4/4/51 Natural cement shall conform to the requirements of A.S.T.M. C-10, Type "N" only. Slag cement shall conform to the manufacturer's tentative Specification for slag cement dated March 6, 1939, Revised June 1, 1949.

SB-4-A: Deformations on deformed bars shall conform to "Standard Specifications for Minimum Requirements for the Deformations of Deformed Bars for Concrete Reinforcement" (A.S.T.M. Designation A305).

SB-6-A: Concrete used in the construction of certain shielding walls as called for on the drawings shall have a minimum density of 142 lbs. per cubic foot.

[redacted]

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3/9/51
Rev. 4/4/51
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Rev. 12/24/53

SECTION BA - CONCRETE

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19 Rev. 3/20/52

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SB-6-A: Concrete used in the construction of certain shielding walls as called for on the drawings shall have a minimum density of 142 lbs. per cubic foot.

SECTION BA - CONCRETE - (Cont'd)

SB-8-A: 4. Splicing - Delete and substitute the following:

The position of splices, other than those shown on the drawings shall be subject to du Pont's approval. The lengths of laps of bars shall be as called for on the drawings.

SB-11-A: Special requirements for jointing concrete walls 5 feet or more in thickness shall be as shown and specified on the drawings.

1 Rev. 4/4/51 SB-4-A: Rib Lath reinforcing shall be used where called for on the drawings. Lath shall have 3/8" ribs spaced not to exceed 4.8" on centers. Lath shall be fabricated from copper alloy steel sheets weighing four (4) pounds per square yard, similar and equal to Truscon 3/8 "Ribplex" Lath. Lath shall be painted.

Paper Backed Lath reinforcing where called for on the drawings shall be a 3" x 4" mesh 12 gauge cold-drawn, electrically-welded, galvanized wire fabric, attached to a cord-reinforced water-resistant backing, furnished in rolls 4' wide, similar and equal to "Steeltex" as manufactured by Pittsburgh Steel Products.

Lath shall be stretched longitudinally across joists or beams by means of a special stretcher and clipped securely every 12" with special clips. Stretcher and the special clips shall be furnished by the Lath Manufacturer.

SB-6-A: Admixtures - Where waterproof concrete is called for on the drawings, an integral waterproofing shall be used, installed in strict accordance with paragraph 9 of Section SB-6-A.

SB-7-A: Forms will not be required for underside of slabs on rib lath or roof lath reinforcing.

8 Rev. 7/12/51 SB-8-A: Splicing - Add the following:

Where deformed bars complying with A.S.T.M. Designation A305-49 are used, splicing for bars in tension (2500# concrete shall be done by lapping the reinforcement not less than 20 diameters, except in the case of bars in the top of beams and girders which shall be lapped not less than 29 diameters.

SB-10-A: Where Class #1 floor finish is to be painted the final steel troweling for burnishing is to be omitted and the following substituted. When the surface is set to the right hydration it is to be wiped with a clean burlap to remove the top paste leaving a hard dense surface with a fine granular texture.

SECTION 8A - CONCRETE - (Cont'd.)

HIGH DENSITY CONCRETE

1. Aggregates for high density concrete shall be "BARITES" as furnished by L. A. Woods Company, Sweetwater, Tennessee or an approved equal.

Fine aggregates shall be graded within the following limits:

Sieve Size	Total Passing % by Weight
No. 8	95-100
No. 16	65-75
No. 30	25-45
No. 50	15-25
No. 100	5-15

Coarse aggregates shall be graded within the following limits:

Sieve Size	Total Passing % by Weight
1-1/2"	100
1"	95-100
3/4"	90-100
1/2"	50-70
3/8"	30-50
No. 4	15-25
No. 8	5-15
No. 16	5-10

2. The proportions and grading of fine and coarse aggregates shall be selected from representative samples to produce a concrete weighing at least 200 lbs. per cubic foot. Variations in the fineness modulus greator than 0.20 either way from the fineness modulus of the preliminary sample shall be rejected or the proportions used in the concrete shall be adjusted to insure that the required weight of concrete is obtained.

3. Deleterious substances in aggregates for high density concrete shall not exceed the following:

	Permissible Limits % by Weight	
	Recommended	Maximum
Soft Fragments	0	.5
Coal and Lignite	.1	.5
Clay Lumps	.1	.5
Material finer than No. 200 sieve	.5	1

SECTION BA - CONCRETE - (Cont'd.)

HIGH DENSITY CONCRETE - (Cont'd.)

SB-6-A 2. COMPRESSIVE STRENGTH

High density concrete shall have a compressive strength of at least 3000 psi at twenty-eight (28) days.

3. PROPORTIONING

Materials for high density concrete shall be mixed in the following proportions:

Coarse Aggregate	428 lbs.
Fine Aggregate	321 lbs.
Cement	94 lbs.
Water	7 gals.

29 Rev. 12/16/52 The aggregates shall be weighed and shall not be measured by volume. The above proportions will produce a concrete having a minimum weight of 210 lbs. per cubic foot. Any variations in the proportions above shall be checked to insure that this weight is maintained. It is expected that the specific gravity of this mix will be approximately 3.4.

4. CONSISTENCY

29 Rev. 12/16/52 Water content shall be controlled by slump tests. Records of slump tests shall be submitted to Wilmington Design for approval.

The method of delivering the aggregates to the work and of storing and handling shall be such that the moisture content of the aggregates as they come to the mixer shall not be subject to frequent or unnecessary changes.

SB-7-A FORMS

Forms for hight density concrete shall be specially designed to maintain the lines and dimensions required under the added weight of the high density concrete

SB-9-A PLACING

Maximum drop of barytes (high density) aggregate concrete shall be six feet.

SECTION BA - CONCRETE (Cont'd.)

TREATED TIMBER PILES

1. MATERIALS

(a) Timber piles shall be dense Southern Yellow Pine, Douglas Fir, Cypress or other woods of comparable strength. Piles shall have a uniform Taper from butt to tip and shall conform to the following:

Length Feet	Circumference, Diameter in Parenthesis					
	3 Ft. from Butt				Tip	
	Min.	Inches	Max.	Inches	Min.	Inches
Under 30	38	(12)	57	(18)	25	(8)
30 to 40	38	(12)	63	(20)	25	(8)
40 to 70	41	(13)	63	(20)	22	(7)
71 to 90	41	(13)	63	(20)	19	(6)
Over 90	41	(13)	63	(20)	16	(5)

(b) Piles which are not ordered "unpeeled" or "rough peeled" shall be clean peeled of bark, but the sapwood shall not be removed or damaged in the peeling process.

(c) Knots and limbs shall be trimmed smooth and flush with the surface of the pile. Both butt and tip shall be cut square with the pole axis.

(d) Piles shall be free of short crooks represented by a straightness deviation in excess of 4 percent for any section that is five feet long. Piles shall be straight otherwise to the extent that a srraight line passing through the center of the butt and tip shall not fall outside the pile surface at any place intermediate thereof.

(e) Lengths are to be as stated in the order. The average length of piles of any one nominal length furnished on an order shall not be less than the length stated. Piles of 40 feet nominal length or less shall be within a tolerance of plus or minus one foot, and those of longer nominal lengths within a tolerance of plus or minus two feet.

(f) Not more than 10 percent of the piles in any shipment may have butt sizes (measured 3 feet from end) that are more than 15 percent below those tabulated under Paragraph 1 (a).

SECTION BA - CONCRETE (Cont'd.)

2. PRESERVATIVE TREATMENT

(a) Piles shall be treated by the Pressure Process so as to retain a minimum weight of not less than twelve pounds of Grade 1 creosote per cubic foot of wood. The tops of the cut off piles shall be treated with three coats of hot creosote oil. The treatment of piles shall conform to the methods prescribed in the specifications C12-51 American Wood Preservers' Association. Creosote shall conform to A.W.P.A. Specification P1-51.

3. MARKING AND SEGREGATION

(a) Piles shall be marked as required in the order and to comply with the requirements of common carriers handling shipments. Piles shall be segregated by groups for identification and ease in handling whenever more than our species of wood, type, class or length constitutes a shipment.

4. REJECTION FOR CAUSE

(a) Splits longer than the butt diameter (1-1/2 times butt diameter for Class C.)

(b) Shakes that are over a third of the butt diameter (half of butt diameter for Class) as measured by the chord length across the shake ends or, for shakes exceeding a half circle, the maximum diameter thereof.

(c) Spiral grain that exceeds half a turn in any 20-foot length (in any 10-foot length for Class C.)

(d) Knots that are unsound, which exceed 4 inches in diameter, and any the diameter of which is more than a third of the pile diameter where they occur.

Also, for knots occurring in any two feet of length, the sum of the diameters of which exceeds a third of the smallest pile diameter in that length. If more than one knot occurs in any 6-inch length of pile, the sum of their diameters shall not exceed twice the limitation prescribed for a single knot.

(e) Holes less than a half inch in diameter may be accepted if the sum of the average diameters of holes in any square foot of pile surface does not exceed 1-1/2 inches.

SECTION BA - CONCRETE (Cont'd.)

5. WARRANTY

(a) The Purchaser claims the right to inspect and test piles furnished under these specifications at the place of assembly by the Vendor for shipment or at the Treating Plant. However, the Vendor accepts complete responsibility for conformance hereto in all respects without dependence on inspection or tests of the Purchaser which are to be made, or not, at the Purchaser's discretion.

6. DRIVING

(a) Piles

Piles shall be driven with a maximum deviation from the vertical or batter plan of two inches in ten feet. A suitable driving head shall be provided to prevent undue damage to the top of the pile.

(b) Bearing Value

Each pile shall be driven to sufficient resistance to develop a bearing value of twenty tons. The Engineering News formulae for the particular type of hammer used shall be the basis for calculations of the load bearing capacity of the driven pile. The value of "S" in the formulae shall be the average penetration per blow in inches of the last five blows applied.

7. TEST PILES

(a) The required resistance of piles shall be determined by load test piles. At least three test piles shall be driven in the area of the foundation site at locations designated by du Pont. Continuous records for the full penetration of the piles shall be kept of the blows per foot to drive the piles to the required resistance. Load tests shall be made on these piles and the depth increased where necessary until the required bearing value is obtained.

8. LOAD TESTS

(a) Test piles are to be loaded in seven increments equal to one half, three fourths, one, one and one fourth, one and one half, one and three fourths and two times the required bearing value. Readings of settlements and rebounds shall be referred to a constant elevation bench mark and shall be recorded to one thousandth of a foot for each increment or decrement of load. After the required working load has been applied and for each increment thereafter, the test load shall remain in place until there is no settlement for a two hour period.

SECTION BA - CONCRETE (Cont'd.)

8. LOAD TESTS (Cont'd.)

The total test load shall remain in place until settlement does not exceed one thousandth of a foot in forty eight hours. The total load shall be removed in decrements not exceeding one fourth of the total test load with intervals of not less than one hour. The rebound shall be recorded after each decrement is removed and the final rebound shall be recorded twenty four hours after the entire test load has been removed. The maximum allowable pile load shall be one half that which causes net settlement of not more than one hundredth of an inch per ton of total test load or shall be one half that which causes gross settlement of one inch, whichever is less.

9. LOAD BEARING PILES

(a) Subsequent piles shall be driven to a penetration developing an equal or greater final resistance to driving than the test pile in that area using the same operation of the hammer. Where actual pile lengths vary more than twenty five per cent from that of the test pile, additional load tests shall be run to obtain the required depth needed.

(b) If there is reason to doubt the value of any pile group, a group load test should be conducted up to one hundred and fifty per cent of the proposed group load.

SECTION 8A - CONCRETE

DESIGN MIX FOR NON-SHRINK CONCRETE CONTAINING SLAG

1. AGGREGATE

Aggregates for non-shrink concrete shall be as follows:
Fine aggregate shall be sand, #4 to #100 graded in accordance with A.S.T.M. C33.

Coarse aggregate shall be blast-furnace slag, 1-1/2" to 3/4" graded in accordance with A.S.T.M. C33.

The proportions and grading of fine and coarse aggregates shall be selected from representative samples to produce a concrete weighing at least 142 lbs. per cubic foot.

2. COMPRESSIVE STRENGTH

Non-shrink concrete shall have a compressive strength of not less than 2500 lbs. per sq. inch at twenty eight (28) days.

3. PROPORTIONING

Materials for non-shrink concrete containing slag aggregate shall be mixed in the following proportions:

Coarse Aggregate - slag	1630 lbs.
Fine Aggregate - sand	1456 lbs.
Portland Type II Cement	470 lbs.
Admixture - Embeco	200 lbs.
Plastiment	5 lbs.
Lime - Hydrated	50 lbs.
Water (6.5 gals. per sack)	32.5 gallons

The aggregates shall be weighed and not measured by volume. The above proportions will produce a concrete having a minimum weight of 142 lbs. per cubic foot. Any variations in the proportions above shall be checked to insure that this weight is maintained.

4. CONSISTENCY

Slump of non-shrink concrete shall not be more than 3".

The method of delivering the aggregates to the work and of storing and handling shall be such that the moisture content of the aggregates as they came to the mixer shall not be subject to frequent or unnecessary changes.

SECTION BA - CONCRETE (Cont'd.)

FLY ASH AS AN ADMIXTURE IN PORTLAND CEMENT CONCRETE

In lieu of cements specified in this section on Sheet 1, a blend of 15 per cent fly ash and 85 per cent portland cement may be used.

1. SCOPE

These specifications cover fly ash to be used as an admixture in portland cement concrete.

Definition

Fly ash is the finely divided residue obtained from the scientific combustion of pulverized coal at high temperatures in steam generating plants. The fine material carried out of the combustonn zone by the flue gases shall be collected in electrostatic or mechanical type precipitators.

2. CHEMICAL REQUIREMENTS

	Min. Per Cent	Max. Per Cent
Silicon Dioxide (SiO_2)	35	50
Iron Oxide (Fe_2O_3)	10	25
Aluminum Oxide (Al_2O_3)	20	35
Calcium Oxide (CaO)	2	7
Magnesium Oxide (MgO)	0	2
Sulphur Trioxide (SO_3)	0	3
Carbon (C)	0	12

3. PHYSICAL REQUIREMENTS

Fineness

The specific surface as determined by the Wagner Turbidimeter shall not be less than 1500 sq. cm. per gram (A.S.T.M. C-115-42).

Soundness

A pat comprising one part of portland cement and one part of fly ash by weight shall remain firm and hard showing no sign of disintegration, cracking or popping, in the steam test for soundness (A.S.T.M. C-189-44)

Water

To give same slump as standard mix.

4. AUTOCLAVE EXPANSION

The volume change of a mixture comprising one part of portland cement and one part of fly ash by weight when subjected to the autoclave test shall not exceed five-tenths of one per cent (A.S.T.M. C-151-43).

SECTION 8A - CONCRETE (Cont'd.)

5. COMPRESSIVE STRENGTH

The average compressive strength of not less than three standard mortar cubes composed of one part cementitious material (15 per cent fly ash and 85 per cent portland cement by weight) shall not be less than the following:

At 28 days - not less than 85 per cent of the 28 day strength of standard mortar cubes (A.S.T.M. C-109-50).

At 90 days - not less than 100 per cent of the 28 day strength of such cubes.

6. PACKAGING AND MARKING

When fly ash is delivered in packages, the name and brand of the producer shall be plainly marked thereon. Similar information shall be provided in the shipping devices accompanying the shipment of packaged or bulk fly ash.

7. STORAGE

The fly ash shall be stored in such manner as to permit easy access for proper inspection and identification of each shipment.

8. INSPECTION

Every facility shall be provided the purchaser for careful sampling and inspection, either at the source, at the plant where fly ash may be mixed with portland cement, or at the site of work.

9. REJECTION

The fly ash may be rejected if it fails to meet any of the requirements of this specification.

Packages varying more than 5 per cent from the specified weight may be rejected; and, if the average weight of packages in any shipment, as shown by weighing 50 packages taken at random, is less than specified the entire shipment may be rejected.

BUILDING MATERIALS CONCRETE PORTLAND CEMENT	STANDARD ENGINEERING SPECIFICATIONS	
	Issued MAY 24,1949	SB-1-A
	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRANDS - are subject to du Pont's approval. Changing of brands or types of cement within the same structure will not be permitted, without prior approval of du Pont.

3. PORTLAND CEMENT - shall conform to the requirements of A.S.T.M: C150, Types I and II for normal cement and Type III for high early-strength cement.

4. AIR-ENTRAINING PORTLAND CEMENT - shall conform to the requirements of A.S.T.M.: C175 Types IA and IIA.

5. UNIFORMITY OF COLOR - Gray Portland cement used in exposed concrete within any one structure shall be uniform in color, unless this requirement is specifically waived by du Pont.

6. TESTS - All shipments of cement shall be accompanied with manufacturer's certified analysis when so requested by du Pont. Sampling for required tests shall be done in accordance with A.S.T.M.: C183.

BUILDING MATERIALS CONCRETE DENSE AGGREGATES	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED May 24, 1949 REVISED DECEMBER 1951	SB 2 A Page 1 of 2

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. MATERIALS

2.1 Fine Aggregates shall conform to the requirements of ASTM C33, subject to the following qualifications:

2.1.1 Deleterious Substances. The permissible maximum shall not exceed the limitations of applicable governmental codes or specifications and, in no case shall such substances exceed the following:

	Percentage by Weight
Materials finer than No. 200 sieve	2.0
Clay lumps	0.75
Coal and lignite	1.0
Shale, mica, coated grains, partially disintegrated, soft or flaky materials, conglomerate or cemented material — total	2.0
Salt, alkali	0.0
Wood, paper, trash, etc.	0.0
Total of all above materials	5.0

2.1.2 Mortar Strength shall be equal at 7 or 28 days, to that developed by the mortar specified in ASTM C87 as a basis of comparison.

2.1.3 Soundness. When tested in accordance with ASTM C88, weight loss shall not exceed 10 percent after subjection to five cycles.

2.2 Coarse Aggregates shall conform to the requirements of ASTM C33, subject to the following qualifications:

2.2.1 Physical Characteristics. No aggregate containing chert will be permitted and all aggregate used in concrete which will be subjected to temperatures higher than 350-degrees F., shall be trap-rock or slag.

2.2.2 Deleterious Substances. The permissible maximum shall not exceed the requirements of applicable governmental codes or specifications and, in no case shall such substances exceed the following:

	Percentage by Weight
Material finer than No. 200 sieve	0.5
Soft or partially disintegrated particles	2.0
Coal, coke, lignite	0.75
Clay lumps	0.25
Shale, slate, thin or laminated materials, mica, etc. — Total	1.0
Glassy particles	4.0
Iron	2.0
Wood chips, burlap, paper, trash, etc.	0.0
Salt, alkali	0.0
Organic materials	0.0
Total of all above except glassy particles and iron	4.0

2.2.3 Soundness. When tested in accordance with ASTM C88, weight loss shall be exceed 10 percent after subjection to five cycles.

2.2.4 Abrasion Loss. When tested in accordance with ASTM C131, the loss shall not exceed 35 percent at five-hundred revolutions.

2.3 Grading and size limitations shall conform to the following:

2.3.1 Gradations, as set forth in Table II, ASTM C33, shall cover the sizes and maximum permissible ranges in sieve analysis. The gradation limits represent those which shall determine suitability for use from all sources of supply.

2.3.2 Maximum permissible sizes shall be as set forth below:

2.3.2.1 Building Structures. The selection of the size of aggregate to be used shall be subject to the approval and direction of the Testing Laboratory or du Pont. The maximum size shall not be larger than one-fifth of the smallest dimension of the concrete member for which the concrete is to be used, or three-fourths of the minimum clear spacing between reinforcing bars, whichever is smaller.

2.3.2.2 Cement Concrete Pavements and Base Courses. Aggregate shall consist of a combination of two ranges of sizes, 2-inch to 1-inch and 1-inch to No. 4, as listed in Table II, ASTM C33. The exact percentage of each size classification

for a particular project shall be as determined by the Testing Laboratory.

3. MISCELLANEOUS

3.1 Storage. Coarse aggregates shall be stored in stock piles on locations approved by du Pont. The material shall be piled in such a manner as to prevent coning, contamination with foreign materials, and mixing of the various gradations. Fine aggregate shall be protected against wet weather so as to hold the moisture content to a constant figure.

3.2 Approval and Sampling. All concrete aggregates proposed for use on a project shall be subject to du Pont's approval and, after specific materials have been accepted, the source of such materials shall not be changed without prior approval of du Pont or the Testing Laboratory.

3.3 Sampling for tests shall be done in accordance with ASTM D75.

BUILDING MATERIALS CONCRETE REINFORCEMENT	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED May 24, 1949 REVISED MARCH 1951	SB 4 A

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. MATERIALS

2.1 The size and cross-sectional shape of bars, gage and spacing of mesh, and gage of wire shall be as indicated on the drawings or called for in the project specifications. When requested by du Pont, shipments shall be accompanied by Mill Test Reports.

2.1.1 *Reinforcing Bars* shall be deformed unless otherwise indicated on the drawings or called for in the project specifications, and shall conform to the requirements of ASTM:A15 for intermediate grade. When "High-Bond" bars are called for on the drawings, they shall conform to the requirements of ASTM:A305.

2.1.2 *Plain Wire Mesh or Fabric* shall conform to the requirements of ASTM:A185.

2.1.2.1 *Wire Mesh over Steel Joists* shall be a 3-inch by 4-inch, No. 12 gage, cold-drawn, electrically welded, galvanized wire fabric, attached to a water-resistant paper backing, such as "Steeltex" floor lath, manufactured by the Pittsburgh Steel Products Co., Pittsburgh, Pa. Manufacturer is to furnish standard clips as required.

2.1.3 *Wire* shall conform to the requirements of ASTM:A82.

3. FABRICATION AND DRAWINGS

3.1 **Fabrication.** Reinforcing bars shall be shaped as indicated on the drawings. Bends shall conform accurately to the requirements of Engineering Standard B15L and shop drawings as approved by du Pont.

3.1.1 Bars shall not be straightened and rebent in a manner that will injure the material. Bars with kinks or bends not shown on the drawings shall not be used. Heating of reinforcement will not be permitted unless the entire operation is approved by du Pont.

3.2 **Shop Drawings**, including placement diagrams, shall be prepared by the fabricator and submitted to du Pont for approval before proceeding with the fabrication.

4. MISCELLANEOUS

4.1 **Accessories.** All chairs, spacers, tie-wire, etc. shall be furnished as shown on the drawings or as required for proper placement.

4.2 **Storage.** Reinforcing steel shall be stored above ground and under cover. Care shall be exercised to prevent damage during shipment, handling, and storage.

BUILDING MATERIALS CONCRETE LABORATORY AND TESTING	STANDARD ENGINEERING SPECIFICATIONS	
	Issued MAY 24 1949	SB-5-A
	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. LABORATORY - Wherever a "Testing Laboratory" is referred to in the Project Specifications or Standard Engineering Specifications it shall be understood to mean a laboratory selected by du Pont.

All costs incurred in connection with sampling and testing, including laboratory fees, shall be paid for by du Pont.

3. TESTS - and analyses shall be made on concrete and concrete materials as outlined in the applicable A.S.T.M. specification or noted below, except when such tests, in whole or in part, are waived by du Pont. Tests may be waived when reliable records, acceptable to du Pont, exist of tests performed on materials used on contemporary work and which originated from the same source as materials proposed for use on this project. Testing methods shall be in accordance with the applicable A.S.T.M. specifications unless otherwise noted.

Water Quality - test shall be made in accordance with the method outlined in A.A.S.H.O.:T26.

Concrete Strength - tests shall be made, as required, for the purpose of determining proportions of concrete ingredients, together with tests on field cylinders, obtained in accordance with the requirements of Standard Engineering Specification SB-6-A.

Entrained Air - tests for determining air content shall be made when air-entraining cement is used.

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. COMPRESSIVE STRENGTH AND CLASSIFICATION

2.1 Compressive Strength. The class of concrete or design strength indicated on the drawings is based on the minimum ultimate compressive strength at 28 days when normal or air-entraining cement is used, or at 7 days with the use of high early-strength cement.

2.1.1 Classification. Dense Aggregate Concrete. The minimum compressive strength and minimum allowable quantity of cement used shall be as shown in Table I.

Table I

Class	Compressive Strength PSI	Min. Allowable Cement per Cu. Yd.
A	5000	6.5 cu. ft.
B	4000	5.5 cu. ft.
C	3000	4.7 cu. ft.
D	2500	4.4 cu. ft.
E	1500	4.0 cu. ft.

2.1.2 Classification. Lightweight Aggregate Concrete. Compressive strength of concrete made from Types I or II aggregates (Std. Eng. Spec. SB3A) shall be as indicated on the drawings. The minimum quantity of cement used shall be as determined by the Testing Laboratory.

3. PROPORTIONING

3.1 Determination of Proportions. The proportions of cement, aggregates, and water necessary to produce concrete having the required strength shall be determined by the Testing Laboratory designated by du Pont (see Std. Eng. Spec. SB5A). Proportioning in the field shall follow the design of the mix, as set forth by this Testing Laboratory, for the particular strength of concrete involved.

3.1.1 The mix shall be designed with the cement and aggregates, conforming to the applicable Standard Engineering Specifications, and which are proposed for use in the work, and a necessary quantity of these materials shall be forwarded to the Laboratory at least 35 days prior to the starting of concrete work.

3.1.2 In the event that sufficient and reliable test records are furnished on concrete of the same class (consisting of the same materials from the same source as that proposed for use in this project and used in current work), and provided that such test records are acceptable to du Pont, the necessity for determination of proportions for the particular class of concrete involved, as specified above, will be waived.

3.1.3 Only Type I and Type II lightweight aggregates conforming to the requirements of Std. Eng. Spec. SB3A shall be used in lightweight concrete for structural purposes. A dense fine aggregate may be used, at the discretion of the Testing Laboratory, providing use of such aggregate does not increase the weight of the concrete beyond that desired.

3.1.4 Proportions of cement and aggregates for concrete made from Type III aggregates, Std. Eng. Spec. SB3A, shall be 1 part cement to 6 parts aggregate, unless otherwise called for in the project specifications.

3.2 If, during the progress of the work, there is a desire to use materials other than those originally approved or if the materials from the sources originally approved change in characteristics, there shall be submitted for approval evidence satisfactory to du Pont that the new combination of materials will produce concrete meeting the requirements of this specification and of the Testing Laboratory; and that their use will not bring about objectionable changes in appearance of the building or structure.

4. CONSISTENCY

4.1 Concrete shall be of such consistency and composition that it can be worked readily into the corners and angles of the forms and around the reinforcement, without segregation of materials or presence of surface water.

4.1.1 Dense Aggregate Concrete. Subject to the limiting requirements of Table II below and du Pont's approval, adjustments shall be made to

the cement-aggregate ratio as may be necessary, during the progress of the work, to produce a mixture which will be easily placeable at all times, due consideration being given to the methods of placing and compaction. The water-cement ratio, as set forth by the Testing Laboratory, must be maintained.

Table II

Portion of Structure	Slump, Inches Max.	Min.
Reinforced foundation walls and footings	6	2
Plain footings, substructure walls	4	1
Slabs, beams, columns, and reinforced walls	6	3
Heavy mass construction	3	1

4.1.1.1 Compaction. When mechanical vibration is used for compaction, the limiting consistencies in Table II may be modified subject to the approval of Testing Laboratory and du Pont. The consistencies, however, shall be such that the full requirements of Paragraph 4.1 shall be satisfied.

4.1.2 Lightweight Aggregate Concrete. For the purpose of design, slump of concrete using Types I or II aggregates shall be approximately 4 inches, but placeability with non-segregation shall, at all times, govern.

4.1.2.1 Concrete, made from Type III aggregate, shall contain enough water to produce a slump of 6 inches to 9 inches.

5. ADMIXTURES

5.1 Dense Aggregate Concrete. Admixtures may be used, subject to the approval of du Pont and the Testing Laboratory. The type used shall depend on the specific quality which it is desired to introduce into the mix. The use of an admixture (any type) shall not, under any circumstances, decrease the ultimate (28-day) strength of the concrete. The manufacturer's directions, as to quantity to be used and the method of using his product, shall be strictly followed.

5.1.1 Whenever air-entraining agents are used, the strength of the resulting concrete must be closely watched and if unsatisfactory, fine aggregate content must be adjusted to suit. This also applies to Item 5.2, below.

5.2 Lightweight Aggregate Concrete. To increase workability, mixes, using Types I or II aggregates, shall be designed around the use of an air-entraining agent which is acceptable under ASTM specifications. The introduction of the air-entraining agent shall result in approximately 4 percent of entrainment when concrete is tested in accordance with the method outlined in ASTM C185.

6. TEST CYLINDERS

6.1 Dense Aggregate Concrete. During the progress of the work, a reasonable number of test specimens shall be taken, as required by du Pont and local codes. However, at least three test cylinders of dense aggregate concrete shall be made from each 250 cubic yards of each class of concrete or once per week for each class when small quantities are poured.

6.2 Lightweight Aggregate Concrete. Requirements for lightweight concrete made from Type I aggregates shall be the same except that the test specimens shall be taken from each 100 cubic yards, or each day's pour, if less. Test specimens of concrete made from Types II and III aggregate will not be required.

6.3 Specimens shall be taken at random, under du Pont's supervision, and the cylinders shall be made and cured in accordance with the methods specified in ASTM C31.

7. BATCHING

7.1 The cement and both fine and coarse aggregate shall be measured by weight and the batching equipment shall be capable of control within 1 percent of the desired amount. Fine and coarse aggregates shall be measured separately. Cement in standard packages (sacks) need not be weighed but bulk cement and fractional packages shall be measured. Water shall be measured by volume or weight and the measuring device shall be susceptible of control, accurate to plus or minus $\frac{1}{2}$ percent of the tank capacity.

7.2 Measurement of cement and Type III lightweight aggregates shall be by volume.

8. MIXING

8.1 Site Mixing. Mixing equipment shall be capable of combining the aggregates, cement, and water into a thoroughly mixed and uniform mass within the specified time and of discharging the mixture without segregation. Unless otherwise authorized by du Pont, mixing of concrete shall be done in a

batch mixer of an approved type. The volume of mixed material per batch shall not exceed the manufacturer's rated mixer capacity.

8.1.1 Dense Aggregate Concrete. The batch shall be so charged into the mixer that some water will enter in advance of cement and aggregate and all water shall be in the drum by the end of the first 15 seconds of the specified mixing time. The mixing time for mixers of 1 cubic yard capacity or less shall be not less than one minute. For larger mixers, this minimum shall be increased 15 seconds for each cubic yard or fraction thereof of additional capacity. Mixing time shall be measured from the time all cement and aggregates are in the drum.

8.1.2 Lightweight Aggregate Concrete. When Types I or II aggregates are used, the stockpile of coarse aggregate shall be wetted down thoroughly at least 2 hours before mixing is to start. Water and air-entraining agent shall be charged into the mixer first. Dry ingredients shall be placed into the charging skip in the following sequence; sand, cement, and finally coarse aggregates. Minimum mixing time shall be 3 minutes after entire mix is charged into the mixer.

8.1.2.1 Concrete made with Type III aggregate shall preferably be mixed in an approved mixer designed for mixing plaster. Charging sequence shall be that normally used for plaster mixes, using enough water to satisfy absorption of aggregate and slump requirements.

8.2 Ready-Mixed Concrete shall be batched, mixed, and delivered in accordance with ASTM C94, on the basis described under "Alternate No. 2" therein.

8.2.1 When high early-strength cement is used, the concrete shall be delivered so the total elapsed time from the plant to the point of placement does not exceed 50 minutes.

8.2.2 The method and time of delivery shall be controlled by plant delivery slips issued to the driver. These slips shall contain the name and location of the plant, the size and proportions of the batch, and the time mixing started. Upon arrival at the job, each slip shall be delivered to du Pont and be completed to show the time the concrete is discharged from the truck.

8.3 Air-Entrained Concrete. When air-entraining cement is used, the mixing shall be such that fresh concrete will have entrained air of not less than 3 percent or more than 6 persent at the point of placement. Tests for air entrainment shall be made, when directed by du Pont, in accordance with ASTM C173.

9. WATER

9.1 Water shall be clean and free of oil, acids, alkali, and organic materials. In general, water currently being used for human consumption will be satisfactory for use in concrete. All other water must be approved by the Testing Laboratory.

10. RETEMPERING

10.1 Retempering of concrete which has partially hardened (that is, remixing with or without additional cement, aggregate, or water) will not be permitted.

11. COLD WEATHER REQUIREMENTS

11.1 Adequate equipment, approved by du Pont, shall be used for heating the concrete materials during freezing or near freezing weather. No frozen materials or materials containing ice shall be used.

11.2 The heating of materials (aggregates and water) shall result in mixed concrete having a minimum temperature of 50 degrees F. at the point of placement. However, the temperature of materials entering the mixer shall not be more than 125 degrees F.

11.3 The use of chemicals to lower the freezing point of concrete or decrease the time required for initial set will not be permitted, without specific approval of du Pont.

12. METHOD OF MEASUREMENT

12.1 Method of measurement for pay quantities under unit prices shall be on a cubic-yard basis, determined as follows:

12.1.1 Concrete Purchased in Place. The cubic yards for payment shall be computed from the absolute volume yield as determined by actual measurement of concrete in place. All openings and projections shall be deducted and corners shall not be doubled in computing the volume.

12.1.2 Concrete Delivered for Placing. The unit shall be cubic yard, and payment made at the unit prices quoted for the various classes of concrete on the basis of properly completed delivery tickets signed by authorized du Pont personnel at the site of the pour. Quantities indicated on delivery tickets shall be computed by weight at the plant from the design mix currently in effect, and shall be periodically verified by authorized du Pont personnel. Controlled yield tests will be made periodically and comparisons made with quantities indicated on delivery tickets. Should yield be found to be lower than quantities indicated on delivery tickets, the mixes in use shall be readjusted to bring both in line.

BUILDING MATERIALS CONCRETE FORMS	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED May 24, 1949 REVISED DECEMBER 1951	SB 7 A

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. MATERIALS

2.1 **Forms** may be of wood or metal of a type approved by du Pont and shall conform to the shapes, lines, grades and dimensions of the concrete as called for on the drawings. Lumber shall be of the resinous type (no hemlock), free of loose knots, holes, warp, and other defects. Dressed lumber shall be used for exposed surfaces while undressed lumber may be used for unexposed surfaces.

2.1.1 Where a smooth finish is required, as shown on the drawings or called for in the project specifications, forms shall be constructed of plywood or be lined with pressed fiber board (Federal Specification LLL-F-311, Class B) at least 3/16-inch thick, insulating board conforming to Federal Specification LLL-F-321, "Hydron" as manufactured by United States Rubber Co., or an equal approved by du Pont. In lieu of the above and subject to du Pont's approval, dressed and matched lumber that is accurately manufactured may be used.

3. WORKMANSHIP

3.1 **Construction and Erection.** Forms shall be sufficiently tight to prevent leakage of mortar, and be properly braced and tied together so as to maintain the desired position and shape during and after placing concrete. Shores supporting successive stories shall be placed directly over those below or be so designed and placed that the load will be transmitted directly to them. If adequate foundation for shores cannot be secured, trussed supports shall be provided.

3.1.1 Internal ties shall be bolts or rods of the combination tie-and-spreader type, designed so that no metal will be within one inch of any surface when the forms are removed.

3.1.2 Provide screeds, as required, to facilitate placement of concrete to the levels indicated. Install inserts, anchors, pipe sleeves, chases, reglets, etc. as shown on the drawings or as may be required and furnished by other trades.

3.2 **Oiling.** The inside of metal forms shall be coated with nonstaining mineral oil or other material approved by du Pont. Reinforcement shall not be placed until oiling of forms has been completed and oil must not be permitted to contaminate adjoining concrete surfaces. Forms for "smooth finish" concrete (except when lined) shall be similarly treated.

3.3 **Temporary Openings** shall be provided at the base of column and wall forms and at other points declared necessary by du Pont, to facilitate cleaning and inspection.

3.4 **Forms Below Grade.** Where soil conditions permit and excavations can be cut neat, either outside or inside forms, or both, may be omitted.

3.5 **Form Removal.** The removal of forms shall not be started until concrete has attained the necessary strength to support its own weight and any construction live loads, but in no case, less than 24 hours after concrete is placed. The local building code restrictions, when existent, must be observed. Removal of shoring shall be subject to du Pont's approval. Forms shall be removed in such a manner that there will be no spalling or chipping of the concrete.

3.5.1 Lumber intended for reuse shall be thoroughly cleaned of clinging concrete, have all nails removed, and holes that will permit mortar leakage suitably plugged.

BUILDING MATERIALS CONCRETE PLACING REINFORCEMENT	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED May 24, 1949 REVISED NOVEMBER 1951	SB 8 A

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. WORKMANSHIP

2.1 Cleaning. Metal reinforcement, before placing, shall be free of loose mill and rust scale and of ice, mud, or other coatings. Where there is delay in depositing concrete, reinforcement shall be reinspected and cleaned of deposits of foreign matter.

2.2 Placing. Bars shall be accurately positioned and spaced as shown on the drawings or details, be secured against displacement by using annealed wire ties or suitable clips at intersections, and be supported by concrete or metal supports, spacers, or metal hangers. Mesh or fabric shall be securely wired at ends and sides, and lapped as indicated in Engineering Standard B2T.

2.2.1 *Wire mesh over steel joists* shall be clipped securely every 12 inches along the end joist, and be stretched tant longitudinally across the joists by a special stretcher, followed by similar clipping along the bearing to which the stretcher is attached. It shall then be clipped to each joist, 24 inches on centers, when joists are spaced 16 inches or over, and one clip per width of roll when joists are spaced less than 16 inches on centers, facing every other clip in opposite directions. Side laps shall be not less than 4 inches and, where end laps are necessary, the mesh shall be lapped at least 12 inches directly over a joist. Care must be exercised to prevent distortion or misalignment of joists or supporting walls.

2.3 Splicing. In general, all splicing of bars shall be done by lapping the bars not less than 20 diameters for high bond bars (ASTM Spec. A-305-50T) or 45 diameters for other type bars. Horizontal bars in walls shall be lapped at corners in accordance with Standard B17L. The position of splices, other than those shown on the drawings, shall be subject to du Pont's approval.

2.4 Concrete Coverage of Reinforcing Steel shall not be less than the dimensions indicated on Engineering Standard B14L. When state or local building codes call for coverages greater than those indicated, such code requirements shall govern.

2.5 Future Bonding. To prevent corrosion, exposed reinforcement, intended for bonding with future extensions, shall be thoroughly coated with asphalt or encased in lean concrete where possible. When the reinforcement for the extension is placed, the asphalt shall be completely removed with a volatile solvent or by sand blasting.

BUILDING MATERIALS. CONCRETE PLACING CONCRETE	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED May 24, 1949	SB 9 A
	REVISED MARCH 1951	

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. CONDITIONS FOR PLACEMENT

2.1 Remove all ice or frost, debris, loose concrete or aggregates, and standing water from the space to be occupied by concrete. The installation of reinforcement must receive du Pont's approval and the installation of anchors, inserts, sleeves, etc. shall be subject to the inspection and approval of the supervisor of the particular trade or trades involved. Assurance must be obtained that all required work of the electrical, plumbing, heating, ventilating, and process groups is complete.

2.2 Equipment used for mixing and transporting concrete shall be clean and free of hardened concrete, oils, greases, and other foreign substances.

2.3 Wood forms shall be thoroughly wetted so that all joints are swelled tight.

2.4 When concrete is placed directly on prepared subgrade, the subgrade shall be thoroughly and uniformly moistened prior to placing concrete. Care shall be taken not to cause pools of water or muddy or soft subgrade. Place sisal-reinforced paper over pervious subgrades to prevent the escape of concrete ingredients.

3. HANDLING

3.1 Concrete shall be handled from the mixer or, in the case of ready-mixed concrete, from the transporting vehicle to the place of final deposit as rapidly as possible, by methods which shall prevent the separation or loss of the ingredients. Concrete shall be deposited in the forms as nearly as practicable in its final position to avoid rehandling and so as to maintain a surface approximately horizontal. Forms for walls or thin sections of considerable height shall be provided with openings or other devices that will permit the concrete to be placed so as to prevent segregation and accumulations of hardened concrete on the forms or metal reinforcement above the level of the concrete.

4. CHUTING

4.1 When concrete is conveyed by chutes, the equipment shall be of such size and design as to insure a continuous flow. The chutes shall be of metal or metal lined and the different portions shall have approximately the same slope, which shall be such as to prevent the segregation of the ingredients. The discharge end of the chute shall be provided with a baffle plate and be positioned, wherever practicable, so that it is not more than three times the thickness of the layer being deposited, above the surface of such layer.

5. PNEUMATIC PLACING

5.1 Where concrete is conveyed and placed by pneumatic means, the equipment shall be suitable in kind and adequate in capacity for the work. The machine shall be located as close as practicable to the place of deposit. The position of the discharge end of the line shall not be more than 10 feet from the point of deposit.

6. COMPACTING

6.1 Concrete, during and immediately after depositing, shall be thoroughly compacted with suitable tools. For thin walls or inaccessible portions where spading, rodding, or forking is impractical, the concrete shall be worked into place by vibrating or hammering the forms lightly. The concrete shall be thoroughly worked around reinforcement, embedded fixtures, and into corners of the forms.

6.2 When mechanical vibration is used, the type of vibrators shall be subject to the approval of du Pont. Vibration shall not be continued longer than necessary for proper compaction or used to move concrete from one point of deposit to another.

7. CONCRETE SLAB OVER STEEL JOISTS

7.1 Placement shall, in general, conform to the requirements set forth above. However, care shall be exercised to prevent loss of material through the mesh and laps and the concrete shall be placed in strips at right angles to the joists. Adequate planking and turnouts shall be provided to keep traffic off the exposed mesh and unhardened concrete.

8. DEPOSITING CONCRETE IN COLD WEATHER

8.1 Concrete shall not be placed when the air temperature is 40 degrees F. and falling, except with the written permission of du Pont. When so permitted, the concrete shall be uniformly heated to not less than 50 degrees F. or more than 100 degrees F. and kept so heated for not less than 72 hours after placement for normal cement or 24 hours for high early-strength cement. Granting of permission shall not remove the responsibility for producing concrete of the required strength and quality.

9. RECORDS

9.1 Records shall be kept of each day's concrete placement indicating time of start and finish, volume of concrete placed, location in the structure, composition of the mix, and weather conditions (including temperature). Originals and one copy of such records shall be furnished du Pont after each day's work.

BUILDING MATERIALS CONCRETE *FINISHING*	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED May 24, 1949	
	REVISED MARCH 1951	SB 10 A Page 1 of 2

1. GENERAL

1.1 Standard Engineering Specifications SC1A, SB1A, and SB12A apply to and are a part of this specification.

2. MATERIALS

2.1 The materials used to obtain the required finish shall meet the following requirements:

2.1.1 Metallic Hardener shall be a metallic aggregate, approved by du Pont, free from non-ferrous metal particles, oil, grease, and soluble alkaline compounds. There shall be combined with the metallic aggregate, when manufactured, a pozzuolanic material and a cement dispersing agent. The grading of the metallic aggregate shall be as follows:

Mesh	Percent Passing
8	90 - 100
16	70 - 85
30	35 - 50
50	5 - 10
100	0 - 5

Before use, metallic hardener shall be well mixed (dry) with normal Portland cement, conforming to Standard Engineering Specification SB1A, in the proportion of 1 part cement to 2 parts of hardener by weight.

2.1.2 Abrasive Aggregate shall be subject to du Pont's approval and shall consist of from 60 percent to 75 percent of fused aluminum oxide (Al_2O_3), silicon carbide, boron carbide, or emery, having a hardness of 8.5 or more on Mohs' scale, combined with other compatible materials, or a mixture of such abrasives. After crushing, the individual grains shall be angular and sharp, and the aggregate shall be screened and graded within the range of from 1/32 inch to 1/4 inch in size. The abrasive shall be homogeneous, non-glazing, rust-proof, and unaffected by freezing, moisture, or cleaning compounds. Aggregate shall be soaked for a minimum of 10 minutes immediately before using.

2.1.3 Dust-Proofing Liquid shall be a magnesium zinc fluosilicate (not less than 20 percent zinc fluosilicate) solution, approved by du Pont, capable of a high degree of penetration. Application to a finished concrete floor shall result in a dust-proof, dense, hard, highly impermeable surface. It shall be mixed or diluted in accordance with the manufacturer's directions.

3. SLAB PREPARATION

3.1 All slabs for floors, platforms, or roofs shall be screeded to the levels indicated on the drawings, and sloped to drainage points if or as required. Screed strips and supports then shall be removed and the resulting holes and depressions shall be completely filled with fresh concrete of the same quality as the base slab. The surface (except for Class 8 finish) shall be further leveled and smoothed with long-handled wide board floats, working the coarse aggregate well into the surface.

3.2 Surface water, which may appear during the process of the screeding or floating, shall not be disposed of by the process of dusting neat cement on the surface.

4. CLASSES OF FINISH AND APPLICATION METHODS

4.1 The drawing or the project specifications indicate the class of finish to be applied. The type of finish required shall be obtained by use of the methods and sequence of work described below, following slab preparation specified in Paragraph 3 preceding. Floating preferably shall be done by means of mechanical floats. All steel trowelings, except the burnishing operation, preferably shall be done with finishing machines instead of manual methods. The burnishing operation shall be a manual troweling performed at the stage in the setting of the concrete when no "fat" clings to the trowel and the passage of the trowel over the surface produces a distinctly ringing sound.

4.2 All finished surfaces, except Class 8 finish, shall be free of ridges or other protrusions, holes, depressions, or blisters. The finishing operations shall not begin until the slab has set sufficiently to bear the weight of workmen standing on boards, and surface water has disappeared.

4.3 When finishing work begins, a small portion of the surface shall be completed in accordance with these specifications and be submitted to du Pont for approval as to quality. The approved portion shall then serve as a basis of comparison for the rest of the surface receiving the same class of finish, and the quality of the remainder of the work shall be equal to that of the approved portion.

Class 1 Finish - Plain, smooth, steel-troweled finish:

Apply one wood floating, at least one steel troweling for densifying, and a final steel troweling for burnishing.

Class 2 Finish - Plain smooth finish (on floor surfaces to receive asphalt or rubber tile, linoleum, etc.).

Apply one wood floating and one steel troweling for densifying.

Class 3 Finish - Plain, roughened finish:

Apply two steel trowelings for densifying and then slightly roughen the surface by lightly applying a wad of burlap, a broom, or a brush. If the slab is set too hard for proper results when using burlap, the burlap may be slightly wetted. When using a broom or brush, no additional moisture will be permitted.

Class 4 Finish - Abrasive, non-slip finish:

When the slab has reached a state of hardness which will permit the aggregate to be floated in and bond itself to the slab, yet remain near the surface, sprinkle abrasive over the floor at the rate prescribed by the manufacturer of the aggregate and float in manually. Then apply one steel troweling to smooth the surface.

If the slab was too wet to permit the aggregate to be properly exposed, or if the final troweling produced too dense a surface, lightly rub the surface with burlap to expose the aggregate.

Class 5 Finish - Smooth, steel-troweled finish with metallic hardener:

The drawings or the project specifications designate whether a medium or a heavy-duty floor is required. The rate of application of the dry, hardener-cement mixture shall be as follows:

Medium-duty; 75 lbs. per 100 sq.ft. applied in two shakes.

Heavy-duty; 120 lbs. per 100 sq.ft. applied in three shakes.

While the surface is still damp, distribute the metallic hardener-cement mixture evenly over the surface and float each shake into the floor. Sufficient moisture to insure proper bonding of the mixture must come up from the base during these floatings. Permit the surface to set sufficiently and then apply two or more steel trowelings for densifying and a final steel troweling for burnishing.

Class 6 Finish - Roughened finish with metallic hardener:

Apply hardener-cement mixture as described for Class 5 finish; then trowel and roughen the surface as described for Class 3 finish.

Class 7 Finish - On roofs under built-up roofing; on floors under mastic floor finishes, magnesite topping, acid-proof brick, wood block flooring, or waterproofing membranes:

Apply one steel troweling or wood floating.

Class 8 Finish - Scored or broomed finish (on floor surfaces to receive cement topping, ceramic tile and quarry tile).

After screeding and when the slab has attained initial set, roughen the surface with a coarse broom or light rake being careful not to dislodge coarse aggregate or expose reinforcing steel.

5. CURING

5.1 After application of finish, the slab shall be cured as specified in Standard Engineering Specification SB12A.

6. LIQUID DUSTPROOFING

6.1 Liquid dustproofing shall be applied to floors having Class 1, 3, or 4 finishes. The floor shall be completely cured and dry, with a minimum lapse of 12 days between completion of finishing and application of dustproofing liquid, and shall be thoroughly cleaned of oil, grease, paint, or other foreign material. The application shall consist of 3 or more coats applied at 3- or 4-hour intervals until absorption ceases and superfluous crystals form on the surface. Within 24 hours, flush the floor with clean water to remove such crystals and prevent staining of the finish.

BUILDING MATERIALS CONCRETE JOINTS (EXCEPT IN FLOORS ON EARTH)	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED May 24, 1949 REVISED NOVEMBER 1951	SB 11 A

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. DESCRIPTION

2.1 *Joints* shall be formed in the concrete where shown on the drawings or specified hereafter, and as detailed on the following applicable Engineering Standards:

B2L Construction Joints in Walls
B4L Expansion Joints in Structural Slabs
B5L Expansion Joints in Walls and in Roof
B6L Construction Joints in Walls, Watertight Construction
B8L Expansion Joints in Walls and Floors, Watertight Construction

3. MATERIALS

3.1 **Preformed Expansion-Joint Filler** shall conform to the requirements of ASTM B-994 for bituminous type and ASTM D-544, Type V, for bituminous fiber.

3.2 **Pouring Type Asphalt Filler** shall be of the rubberized asphalt hot-pouring type conforming to the requirements of Federal Spec. SS-F-336.

3.3 **Sheet Copper** shall be 16 oz., soft annealed, light cold-rolled strip conforming to the requirements for Type A in ASTM B-152.

4. WORKMANSHIP

4.1 **Construction Joints** shall conform to the following:

4.1.1 Location. Joints in columns shall be made at the underside of floor members and at floor levels. Haunches and column capitals shall be considered as part of and continuous with the floor or roof. At least 24 hours shall elapse after depositing concrete in columns or walls before depositing concrete in the floor system.

4.1.2.1 Joints in structural slabs, beams, and girders shall be located, subject to du Pont's approval, at or near the middle of the span, unless a beam intersects a girder at that point, in which case, the joint in the girder shall be offset a distance equal to twice the width of the beam. The joints shall be vertical throughout the full thickness of the concrete member.

4.1.2 Forming Joints. Before depositing new concrete on or against concrete which has hardened, the surface of the hardened concrete shall be roughened, as deemed necessary by du Pont, removing all laitance and exposing the aggregate. Thoroughly saturate with water and apply a coating of neat cement mixed with water to a paint consistency, or a rich cement grout. The new concrete shall be placed before the cement mixture or grout has attained its initial set.

4.1.3 Watertight Construction Joints. Where a horizontal construction joint is required to resist water pressure, special care shall be taken in finishing the surface to which the succeeding concrete is to be bonded. The consistency of the concrete shall be carefully controlled so that it can be placed with a minimum of puddling with no free water showing.

4.1.3.1 Vertical Construction Joints shall not be made in watertight construction unless shown on the drawings or authorized by du Pont.

4.2 Expansion Joints shall be made in accordance with the applicable Engineering Standards.

4.3 **Joints in Floors on Earth.** See Standard Engineering Specification SB15A.

BUILDING MATERIALS CONCRETE CURING	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED May 24, 1949 REVISED NOVEMBER 1951	SB 12 A

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. MATERIALS

2.1 Sisal-reinforced paper shall conform to the requirements of ASTM C-171. The paper shall be chemically treated to resist shrinkage and scuffing.

2.2 Shavings shall be coarse, clean, and contain no tannic acid or other ingredients which will cause staining or discoloration of the slab.

2.3 Burlap shall be in large sheets and in good serviceable condition.

2.4 Curing emulsion shall be non-staining compound, conforming to the following requirements:

Viscosity at 70°F. (Saybolt Universal)	100 to 140 secs.
Specific Gravity at 70°F.	0.895 minimum
Flash point C.O.C.	100°F. minimum
Total solids (by weight)	50 % minimum
Separation at 70°F.	1 % maximum

2.4.1 When sprayed on wet concrete having a 2-inch slump, at 70-degrees F. in reasonably dry atmosphere, the film shall dry to touch in 20 minutes.

2.4.2 When tested for efficiency of water retention, the results shall show not less than 95-percent efficiency in 24 hours and not less than 85-percent in 6 days. The method of test shall be described in ASTM C-156.

3. WORKMANSHIP

3.1 Methods. As soon as forms are removed from vertical concrete surfaces, and floor or roof slabs attain sufficient hardness to prevent marring by workmen, the concrete members involved shall be subjected to one of the curing methods stated hereafter for a minimum period of 7 days for normal cement and 3 days for high early-strength cement. When steel forms are used for vertical surfaces, they may be retained in place for the minimum curing period in lieu of other curing methods.

3.1.1 The emulsion curing process shall not be used when a slab is to receive an applied wearing surface, water- or acid-proofing membranes, built-up roofing, or liquid dust-proofing.

3.1.2 The curing method to be used on floors on earth is subject to the limitations outlined in Paragraph 2, Standard Engineering Specification SB15A.

3.1.2.1 Sisal-reinforced paper shall be applied to the damp surface in strips as wide as practicable, with all joints lapped at least 4 inches and sealed with a water-proof adhesive or tape. The paper shall be weighted down at the edges of the area or around projecting foundations, etc., using boards or any other suitable method.

3.1.2.2 Sawdust or shavings shall be applied in a layer at least 2 inches thick and be wetted, as required, to keep the surface constantly moist during the curing period.

3.1.2.3 Burlap shall entirely cover the surface and be kept constantly wet during the curing period.

3.1.2.4 Emulsion shall be applied strictly in accordance with manufacturer's printed instructions.

3.1.2.5 Ponding shall consist of a process of damming of the area to be cured with clean sand and then keeping the dammed area flooded with clean water to a minimum depth of 1/2 inch during the curing period.

3.1.2.6 Plain wetting shall consist of the process of frequently sprinkling the surface with water during the curing period.

4. STORAGE OF MATERIALS

4.1 Flammable materials, such as curing paper, burlap, sawdust, shavings, etc., shall be stored so as to prevent fire, in a manner approved by du Pont. When such materials are not intended for re-use, they shall be promptly removed from the site or burned in approved disposal areas.

BUILDING MATERIALS CONCRETE BONDING AND GROUTING	STANDARD ENGINEERING SPECIFICATIONS	
	Issued MAY 24, 1949	SB-13-A
	Revised	Sheet 1 of 2

1. GENERAL - Standard Engineering Specifications SC-1-A and SB-2-A apply to and are part of this specification.

2. MATERIALS - shall conform to the following specifications:

CEMENT - shall be normal Portland cement (Type I or II) conforming to the requirements of the A.S.T.M.:C150.

SAND - for grout (including grading) shall conform to Std. Eng. Spec. SB-2-A. Sand for bonding mixtures shall all pass a No. 20 sieve.

PEA GRAVEL - shall conform to Std. Eng. Spec. SB-2-A but shall be graded from 3/8" to No. 8; 3/8" to mean the size of sieve opening through which 100% of aggregate will pass.

METALLIC AGGREGATE - shall be subject to du Pont's approval and shall consist of chemical iron combined, when manufactured, with a finely divided plasticizing agent, a cement dispersing agent, and an oxidation catalyst. It shall be free of non-ferrous metals, oil, grease, and soluble alkaline compounds. The metallic portion of the material shall be not less than 60% (preferably 75%) of the whole, and shall be screened and graded from coarse to fine as follows:

Sieve Size	Percentage Passing
No. 8	90 - 100
No. 16	70 - 85
No. 30	35 - 50
No. 50	5 - 10
No. 100	0 - 5

3. BONDING - shall be provided when it is required to create cohesion between new concrete and concrete members already in place. Unless a specific bonding mixture is called for on the drawings or in the project specifications, either of the mixtures below may be used.

MIXTURES - Type I mixture shall consist of neat cement and water mixed to the consistency of creamy paint.

Type II mixture shall consist of cement, metallic aggregate, sand, and water in the following proportions:

Cement - 1 part (by weight). Do not use high early-strength cement

Metallic aggregate - 1/2 part
Sand - 3/4 part
Water - enough to create a mixture of brushing consistency

SURFACE PREPARATION AND APPLICATION - The surface of existing concrete shall be cleaned of grease, oil, paint, ice, laitance, and other coatings, and either shall be mechanically roughened to expose the aggregate or be etched with a solution of not more

than 10% hydrochloric acid and water, followed by a thorough flushing with clean water to leave the surface clean. Thoroughly soak the surface until absorption stops and then remove free water before applying bonding mixtures.

Either of the bonding mixtures just preceding shall be applied by vigorously working it into the surface with a stiff brush. New concrete shall be placed before the bonding mixture dries out.

4. GROUT - shall be placed where called for on the drawings. "Expansive" type grout shall be used only under critical equipment or base plates, where no settlement can be tolerated, and where specified on the drawings.

"NON-EXPANSIVE" grout shall consist of 1 part of cement and 3 part of sand, mixed with the minimum amount of water necessary for proper mixing and placing.

"EXPANSIVE" grout shall consist of metallic aggregate with cement and sand for clearances of 1" or less, and with pea gravel added for clearances greater than 1". Proportioning shall be strictly in accordance with printed directions issued by the manufacturer of the metallic aggregate used.

Mixing shall be done in a mechanical mixer, unless a small quantity (1cu. yd. or less) is required, for a period of at least 2 minutes per batch.

Retempering of grout which has partially hardened will not be permitted

PLACING - Non-Expansive Grout - Prepare surface and apply bonding mixture as specified in paragraph 3. Spread grout and screed it to a level slightly higher than that desired. When the grout has attained its initial set, steel trowel the surface to the exact level required. After hardening, keep the grouted surface wet for a minimum of five days.

Base plates for steel columns shall be set in a very stiff grouting mixture, and be tapped down to the required elevation, making certain that the top is level both ways. When plates are too heavy to be supported properly by grout only, use shims for temporary supports. When shims are used, they must subsequently be removed, and resulting holes shall be filled.

Expansive Grout - shall be placed by the use of pneumatic pressure equipment, by ramming, or by flowing, as recommended in the printed directions of the manufacturer of the metallic aggregate for the particular type of job being done. The space between the applied load and the foundation shall be completely filled to form a bed of maximum area. After placement is complete, finish exposed surfaces of grout with steel trowel.

BUILDING MATERIALS CONCRETE REPAIRING AND PATCHING	STANDARD ENGINEERING SPECIFICATIONS	
	Issued MAY 24, 1949	SB-14-A
	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - Patching of honeycombed or otherwise defective areas shall be subject to du Pont's approval. As soon as the forms are removed, concrete surfaces shall be examined and all defective areas called to the attention of du Pont who shall have the option of permitting necessary patching to be done or rejecting the concrete unit in question. Rejected concrete shall be removed and replaced to the satisfaction of and without expense to du Pont.

When permission for patching is granted, the defective area shall be prepared and patched as specified below.

3. MATERIALS - Cement shall be normal Portland Cement conforming to the requirements for Types I or II in A.S.T.M.:C150. Except when high early-strength has been used in the part of the structure involved, the cement shall be of the same brand as that used in the concrete.

Sand shall conform to the requirements of A.S.T.M.:C33.

Commercial Patching Compound shall be subject to du Pont's approval.

4. WORKMANSHIP - Chip out and remove all loose aggregate to a depth of at least one inch into sound concrete. The edges of the area shall be cut at right angles to the surface to eliminate "feather edging". Thoroughly soak the hole with clean water until absorption stops and then apply a bonding-coat of neat cement and water mixed to the consistency of creamy paint, working the material into the surface, corners, etc. with a stiff brush.

Patching mortar shall consist of 1 part of cement and 2 parts sand thoroughly mixed with only enough water to make a stiffly plastic mass, or commercial patching compound. Apply the mortar to the cavity before the bond coat attains its initial set. Thoroughly compact into place and screed off to a level slightly higher than the concrete surface. When the mortar has set sufficiently, finish the area to match that of surrounding surface as closely as possible.

When cavities are more than 2" deep, the patching mortar shall consist of cement, sand, and coarse aggregates, proportioned approximately the same as the concrete in the member being patched.

Patched areas shall be kept constantly moist by frequent wettings for a minimum period of 5 days.

Holes left by removal of internal form ties and spreaders shall be filled with mortar as specified above.

BUILDING MATERIALS CONCRETE FLOOR SLABS ON EARTH	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED May 24, 1949 REVISED NOVEMBER 1951	SB 15 A Page 1 of 2

1. GENERAL

1.1 Standard Engineering Specifications SC1A, SB1A, SB2A, SB4A, SB5A, SB6A, SB7A, SB9A, SB10A, and SB12A apply to and are a part of this specification.

2. FLOOR SLAB TYPES

2.1 The type of floor slab to be installed in any particular area shall be as called for on the drawings or in the project specifications and designated as Type I, Type II, or Type III. The requirements for each type, with regard to subsurface covering, reinforcing, joints, pouring sequence, and curing, shall be as outlined in the following table:

ITEM	TYPE I	TYPE II	TYPE III
Subsurface Covering	Over porous subsurfaces only **	Same as Type I	Same as Type I
Reinforcing Mesh	As per Eng. Std. B2T, cut at joints	As per Eng. Std. B2T, not cut at joints, except for expansion joints	Same as Type II
Reinforcing Rods	Rods at re-entrant corners and perimeter steel. See Paragraph 3.1.2	None - except as specifically indicated on the drawings	Same as Type III
Joints	Located only where shown on drawings. All joints shall be dowelled. They are to be tooled when called for on the drawings	Located only where shown on drawings. No dowelling or tooling of joints	No jointing required
Pouring Sequence	Checkerboard fashion	Checkerboard fashion	Either checkerboard or continuous
Curing Process	Sisal-reinforced paper only	Sisal-reinforced paper, sawdust, burlap, emulsion* or ponding	All methods as for Type II, plus plain wetting method

* Use of curing emulsion is subject to the limitations set forth in Std. Eng. Spec. SB12A.
** Porous subsurfaces shall be defined as those which will permit infiltration of the ingredients of concrete (water excepted).

3. CONCRETE MATERIALS

3.1 Concrete materials shall conform to the following Standard Engineering Specifications:

3.1.1 *Cement:* SB1A, Types I, II, or III, Portland cement.

3.1.2 *Reinforcing Rods and Mesh:* SB4A, rods used for dowels in expansion, contraction, or construction joints shall be plain round rods. Other reinforcing rods shall be deformed. The size and type of mesh shall be as called for on the drawings in accordance with Engineering Standard B2T. Reinforcement for re-entrant corners shall consist of two 1/2-inch diameter rods; perimeter steel around the edge of each pouring unit, of 1/2-inch diameter rod. Dowels in joints shall be 1/2-inch diameter rods, 2 feet long, spaced 24 inches center-to-center, or as indicated on detailed drawings.

4. MISCELLANEOUS MATERIALS

4.1 **Sisal-reinforced Paper** shall conform to the requirements of ASTM C-171.

4.2 **Saturated Felt** shall be a 30-pound bituminous-saturated felt conforming to ASTM D-226 or ASTM D-227.

4.3 **Preformed Expansion Joint Filler** shall be 1/2-inch thick and conform to the requirements of ASTM D-544, Type V. Width shall be equal to 1/2 inch less than full thickness of the floor slab or as shown on the drawings.

4.4 Expansion-joint Compound shall conform to Federal Specification SS-F-336.

5. CONCRETE QUALITY, PROPORTIONING AND MIXING

5.1 They shall conform to the requirements for Class D concrete (unless otherwise called for) in Standard Engineering Specification SB6A.

6. SUBSURFACE COVERING

6.1 Subsurface covering shall consist of a layer of sisal-reinforced paper applied directly under the concrete slab. If subsurface is of such nature that it will not pierce the covering, saturated felt may be used. No covering will be required over a sand or sandy-clay subsurface.

7. FORMS AND SCREEDS

7.1 Install forms around the perimeter of each section of floor to be poured as a unit, except when a floor is to be poured continuously. The forms shall be adequately secured and straight, with top edges set to the slopes or levels indicated. Provide additional screeds where and if required.

8. WETTING

8.1 When a subsurface covering is not used, the subsoil shall be thoroughly and uniformly moistened before placing concrete but no pools of water or muddy subsurface will be permitted.

9. PLACING REINFORCEMENT AND CONCRETE

9.1 Reinforcing mesh shall be installed by one of the following methods to obtain the spacing indicated on the drawings:

9.1.1 Deposit a layer of concrete and strike off at the level required for the indicated spacing. Lay the mesh on the struck-off surface, place reinforcing rods, if required, and then continue pouring to full slab thickness. This is the preferred method.

9.1.2 Place the mesh on the subsurface, pour a quantity of concrete through the mesh and screed off to the level at which the mesh is to be imbedded. Then pull the mesh to the top of this screeded surface. Place reinforcing rods, if required, and continue the pouring to full slab thickness.

9.1.3 In either method, pour the second layer of concrete while the first layer is fresh and in a plastic state.

9.1.4 Mesh shall be securely wired at ends and sides and lapped as indicated in Engineering Standard B2T.

9.2 Concrete shall be placed in Type I or Type II floors in checkerboard fashion, that is, by the method of pouring alternate squares.

9.2.1 Joints for Type I and Type II floors shall be located where shown on the drawings. Instead of forming joints directly on the column lines, they shall be placed to one side so that they are aligned with the side of the column footings, when footings extend up through the floor. Construction joints for Type III floors shall be similarly located but shall be made only to cut off the pour at the end of a pouring period, unless the floor is poured in checkerboard fashion.

9.2.2 Construction, expansion, and contraction joints shall be installed in accordance with details shown on Engineering Standards B3L, B7L, and B8L, as called for on the drawings.

9.2.3 The maximum dimension of slab to be poured as a unit shall not exceed 40 feet in length or width.

9.2.4 Tooling shall be done, when required, with a 1/8-inch radius jointing tool.

9.2.5 Column and equipment foundations passing through the floor shall be separated from the slab with saturated felt. Foundations supporting vibratory loads, such as moving equipment, shall be separated from the slab with preformed expansion-joint filler.

10. SCREEDING, FLOATING, AND FINISHING

10.1 Shall conform to the requirements of Standard Engineering Specification SB10A.

11. CURING

11.1 See Standard Engineering Specification SB12A.

SECTION BB - STEEL

CONTENTS

MODIFICATIONS & ADDITIONS

OPEN WEB STEEL JOISTS

SB-1-B: The design and erection of the joists shall conform rigidly to the requirements of the Steel Joist Institute. Steel used in the manufacture of joist shall conform to the requirements of A.S.T.M. Designation A7-46. For spans of over 32 feet, chords shall be composed of hot-rolled angles, or other shapes; web members shall consist of hot-rolled angles or bars, and no member shall be less than 3/16" thick.

Joists spanning more than 32 feet shall be hoisted into place by hooking to top chord joists at approximately third points. Hoisting ropes shall not be released until the line of bridging nearest mid-span is installed, and in the case of bottom bearing joists the ends of the top chords shall be restrained laterally. After erection, bridging shall be installed before any construction loads are applied to the joists. Bridging shall be steel, but in proper lengths to space joists accurately, and shall be attached in a positive manner to both the top and bottom chords of all joists to resist both tension and compression. The shape and dimensions of bridging shall be such that the slenderness ratio does not exceed 200. For spans of over 32 feet bridging shall consist of not less than 1-1/4" x 1-1/4" x 1/8" angles, bolted together at mid-points, with spacing of bridging not over 10 feet.

Supports for joists shall be true and level. Minimum length of bearing shall be as follows: For spans of 32 feet or less, 4 inches on masonry and 2-1/2" on steel; for spans over 32 feet, 6" on masonry and 4" on steel. Bearing plates shall be provided where necessary so that the unit bearing on masonry does not exceed 200 p.s.i. Anchorage for joists supporting on concrete or masonry shall be as follows: For spans of 32 feet or less, every third joist anchored with a 3/8" diameter round wall anchor; for spans of over 32 feet each joist anchored by means of one 3/4" round wall anchor 12" long. Anchorage for joists supported on steel beams shall be as follows: For spans of 32 feet or less, joists shall be secured to beam by means of 3/16" round bar fastened over flanges of beam or by other approved equivalent attachment; for spans of over 32 feet, joists shall be connected to beam with not less than two 3/4" bolts or welds of equal strength.

Riveted Connections - When rivet-grip bolts are used, and the holes are more than 1/32" out of alignment, the holes shall be reamed, and the next larger sized bolt used.

SECTION BB - STEEL - (Cont'd)

Welding - All welding shall be designed and executed in accordance with the American Welding Society "Standard Code" for Arc and Gas Welding in Building Construction", latest issue. Welding shall be done by the electric arc method and with covered electrodes.

The welding details shall be designed by a competent engineer thoroughly familiar with welding practice. In general, the standards proposed in the "Manual of Design for Arc Welded Steel Structures" by Air Reduction will be acceptable.

Field Painting - After erection, all steel work to be encased in poured concrete shall be cleaned of loose scale, clay, or other material affecting proper bond by the use of wire brushes or other approved effective means. Steel work designed to be encased in poured concrete shall not be painted either in the shop or at the field.

The field painting of all other steel shall be done specified under Section BR.

5 Rev. 5/22/51 SB-1-B: SHOP PAINTING - In addition to the paint specified, the following paints are approved for shop priming:

Devoe Zinc Chromate	
Pittsburgh Plate Glass Co.	- Zinc Chromate Primer 17-6
Sherwin-Williams Co.	- Kromik Primer
H. J. Herkin Paint Co.	- Mercromate Green Primer #3330

7 Rev. 6/19/51 SB-1-B: Field connections specified or shown on drawings to be riveted, shall be fastened with "Dardelet" rivet bolts or approved equal. Bolts and rivet-grip bolts for field connections shall be furnished with the structural steel.

BUILDING MATERIALS STRUCTURAL STEEL	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED 1-24-49	SB 1 B
	REVISED APRIL 1952	Page 1 of 2

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. DESCRIPTION

2.1 This specification covers the fabrication and erection of structural steel members and miscellaneous structural supports indicated on the drawings or called for in the project specifications.

2.2 When governmental building code requirements differ from the following specifications, such code requirements shall govern design; otherwise, all design, material, fabrication, and erection shall conform to the current issue of the "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings," as compiled by the American Institute of Steel Construction (except that the "Code of Standard Practice" shall not apply) and to the requirements set forth below.

3. FABRICATION

3.1 **Shop Drawings and Weight Lists** prepared as indicated in the AISC specifications shall be submitted to, and be approved by du Pont, before fabrication is started. When field drilling of holes is necessary in conjunction with the fastening of new steel members to members in existing buildings, shop, or erection drawings shall cover such drilling in detail. Weight lists shall be submitted to the du Pont Field Project Manager for approval at the earliest possible date.

3.2 **Rivets and Holes.** The diameter of rivets and unfinished bolts shall be 7/8 inch (or, in special cases, as shown on the drawings) except when the sizes of the members will not permit, in which case the largest rivet or unfinished bolt permissible shall be used. The diameter of open holes shall be 1/16-inch larger than the size of rivet or bolt.

3.3 **Connections.** All riveted or welded beam connections, both shop and field, shall be "standard" or of equal strength, unless heavier connections are required by the reactions shown on the drawings. Beams framing into webs of columns shall have seated connections with top angles. Beams framing into flanges of columns shall have top and bottom angles (4-inch by 3-inch by 3/8-inch minimum) in addition to any framing angles.

3.3.1 *Field Connections.* All beam connections to columns, bracing connections, connections for beams over 14 inches deep, and other connections so specifically shown on the drawings shall be field riveted. Other connections may be bolted with unfinished machine bolts. Riveted connections shall be fastened with rivets, "Dardelet" rivet bolts, or an equal approved by du Pont. Only galvanized "Structural rib bolts" and "Anco nuts" manufactured by the Automatic Nut Company, Lebanon, Pa. shall be used for riveted field connections of galvanized steel.

3.3.2 *Connections to Existing Steel.* Wherever possible, fastening of new steel members to existing steel shall be made through the use of welded connections to eliminate the necessity of drilling holes on the field.

4. SHOP COATINGS

4.1 **Painting.** Shop priming and preparation of surfaces shall be done in accordance with the American Institute of Steel Construction specifications, Section 34. Unless otherwise indicated on the drawings, all structural steel shall be given a shop coat of Dulux Zinc Chromate Primer No. 67-746, or an equal approved by du Pont. Surfaces of members which are to be welded, galvanized, or encased in concrete and those which are to receive a vinyl-resin type of field coating shall not be shop painted.

4.2 **Galvanizing.** Structural steel shall be galvanized, when such a coating is specifically called for on the drawings, after all shearing, punching, and machine work has been completed and either before or after assembly as determined by du Pont after acceptance of bids. Galvanizing shall be applied only after the surface of the steel has been prepared in a suitable bath, and shall meet the requirements of ASTM A123 for coatings on structural steel shapes, plates, and bars, and their products; A153 for castings, rolled, pressed, and forged articles, bolts, screws, nuts, etc.; A120 for steel pipe.

4.2.1 All bolts used in erection of galvanized structural steel shall be galvanized. Threads of bolts and nuts shall have a neat fit after galvanizing, so that the nuts can be finger turned for the full depth of the nut. Bolts shall not be machined after galvanizing. Threads on galvanized machine bolts shall be checked by striking with a punch or chisel after assembly or erection.

4.2.2 All work which has been warped during the galvanizing process, shall be straightened by the fabricator before shipment. Care shall be taken not to damage the coating during the process of straightening.

5. MARKING

5.1 Building Identification. When projects involve more than one building, vendor shall apply a separate shop order number to each building or otherwise suitably identify the steel for each building in the project.

5.2 System of Marking. The steel members in each building shall be marked as follows:

5.2.1 *Columns* shall carry the same designation as that shown on du Pont design drawings. When buildings have more than two stories, columns shall also be marked by tiers.

5.2.2 *Beams and Girders* shall be marked to indicate the level of their location in addition to their regular number, thus: (3 - 2nd fl.), (5 - Roof), etc., (or by a similar system approved by du Pont). Erection drawings shall indicate the marking of beams and girders at one end of the member and the mark placed on the member shall be on the same end to enable the erector to properly orient the member for erection.

Note – The above divisions shall be further subdivided by areas in any building, when du Pont deems it necessary, to accommodate a particular sequence of construction.

5.2.3 *Independent Platforms, Equipment Supports, etc.,* shall be given an identifying mark for each.

5.2.4 The marking system outlined above will permit the steel to be separated as follows:

a. By buildings
b. By building areas (if desirable)
c. By tiers of columns
d. By floors

5.3 Method of Marking. Shop-painted steel shall be legibly marked with paint of a color different from that used for shop-painting. Galvanized steel shall be marked with a welded wire bead applied before the member is galvanized.

6. ERECTION

6.1 Burning or Drilling of Holes not shown on the Drawings for bolts, rivets, or other purposes will not be permitted without express approval of du Pont for the particularly proposed holes. Approval for burning or drilling specific holes shall not be taken as general approval for similar holes elsewhere in the structure.

6.2 Alignment. All structural steel shall be properly aligned and braced, and shall be kept in alignment as required for the progress of other work. Special care shall be taken with steel for elevator shafts and dumbwaiters to maintain plumbness throughout the entire height.

7. FIELD PAINTING

7.1 Field Painting is not included in this specification.

8. REJECTION

8.1 Material or workmanship not conforming to this specification may be rejected by du Pont at any time such nonconformities are found, even after the steel is erected, and until final acceptance by du Pont. Work, so rejected, shall be removed and replaced, without expense to du Pont, including the replacement of all work of others which may have been damaged through the removal of defective material and workmanship covered by this specification.

BUILDING MATERIALS STEEL AND IRON WORK MISCELLANEOUS STEEL AND IRON	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED 2 - 21 - 49 REVISED APRIL 1952	SB 2 B

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. DESCRIPTION

2.1 This specification covers the fabrication and erection of all miscellaneous steel and iron items, such as:

2.1.1 Structural steel frames, loose lintels and brackets.

2.1.2 Ceiling furring channels (larger than three inch) together with hangers and fastenings.

2.1.3 Column anchor bolts, miscellaneous bolts, masonry anchors, inserts, pipe sleeves, joist hangers, etc.

2.1.4 Column bases and caps (for timber frame construction).

2.1.5 Guards, buffers, curb angles, thresholds, etc.

2.1.6 Handrails, stairs and treads, nosings, ladders, grating, floor plates, flagpoles, etc.

2.1.7 Manhole frames and covers, trench curbs and covers, chutes, sidewalk doors, access doors (except hollow metal), dampers, scuppers, etc.

2.2 The items involved shall be of the kind, type, size, etc. indicated on the drawings or called for in the project specifications.

3. DRAWINGS

3.1 **Shop Drawings.** Detailed shop drawings (and erection drawings, if required for proper installation) shall be submitted to, and be approved by, du Pont before starting fabrication.

4. MATERIALS AND FABRICATION

4.1 **Materials.** Miscellaneous steel and iron items shall be fabricated from unused mill or foundry products conforming to the following minimum requirements:

4.1.1 Cast Iron. Class 25, ASTM A48.

4.1.2 Cast Steel. Grade U60-30, ASTM A27.

4.1.3 Malleable Iron. Grade No. 35018, ASTM A47.

4.1.4 Structural Shapes, Steel Plates, and Column Anchor Bolts. ASTM A7.

4.1.5 Steel Pipe. ASTM A120, Schedule 40, unless otherwise specifically indicated.

4.1.6 Wrought Iron. ASTM A42 for plates, A162 for sheets, A41 for rods and bars, and A72 for Schedule 40 pipe.

4.2 **Fabrication.** Items which are not "stock" or commercial items, shall be fabricated strictly in accordance with the approved shop drawings. All finished products shall be free of defects impairing strength, durability, and appearance. Welding shall conform to the "Code for Arc and Gas Welding in Building Construction," as currently issued by the American Welding Society. Exposed welds creating a safety hazard shall be ground smooth.

5. PROTECTIVE COATINGS

5.1 **Shop Painting.** If not otherwise called for in the project specifications or indicated on the drawings, all items (except items to be imbedded in concrete, and galvanized items) shall be shop-primed using "Dulux" Zinc Chromate Primer No. 67-746, or equal, approved by du Pont.

5.1.1 Parts inaccessible after assembly, shall be given two coats of shop paint, of different colors.

5.2 **Galvanizing,** when required, shall be done in accordance with the following:

5.2.1 ASTM A123 for structural steel shapes, plates, bars, and their products.

5.2.2 ASTM A153 for castings, rolled, pressed and forged articles, bolts, screws, nuts, etc.

5.2.3 ASTM A120 for steel pipe.

5.2.4 Wherever practicable, all galvanizing shall be done after fabrication and before assembly.

5.2.5 Unless otherwise specified or shown on the drawings, all outside items, such as grating, handrails, toe boards, ladders and ladder guards, and checkered floor plate shall be galvanized.

6. ERECTION

6.1 **Workmanship.** Miscellaneous steel and iron items shall be installed in strict accordance with the drawings or manufacturer's directions. Fastenings to steel, concrete, or masonry shall be adequate to insure permanent stability and to effectively resist all intended loads and strains. Temporary supports shall be provided, as required, for items built into masonry. Drilling of holes in the bottom flanges of structural members for hangers, etc., will not be permitted.

SECTION BC - MASONRY

3
Rev. CONTENTS
5/8/51

7 MODIFICATIONS & ADDITIONS
Rev.
6/19/51 SB-3-C: LEAD LINED BLOCK: - Lead lined blocks shall consist of two (2) equal thicknesses of cinder concrete block with one unpierced sheet of lead laminated between. Lead sheet shall be not less than 1/16" in thicknesses. Blocks shall be 12" x 12" x 4" thick unless otherwise shown and a sufficient number of half-blocks shall be provided for proper bonding of the work. Lead shall be exposed not less than 1-1/2" on all four bearing sides to allow for lapping of lead on all adjoining blocks. Blocks shall be manufactured so that all or part of concrete on either side of lead can be removed at pipe chases or other obstructions without damaging sheet lead.

SB-5-C: When laying lead lined blocks, the additional requirements contained herein shall be observed.

Starting course of lead lined block shall be squared on the bottom and the lead folded over the smooth half of the bottom of the block.

End of blocks abutting metal frames and other inserted items shall be trimmed square and the lead lining folded over the end of the block.

Lead lined block shall be laid with vertical joints staggered 6".

Block shall be trimmed as required to top off partitions, which shall extend up to about the masonry construction above, unless shown otherwise. In no case shall the lead lining be trimmed, but shall fold over to lay against the masonry, on the insulated side of the partition. Common brick may be used to top off partitions provided that no more than 2 courses of brick are required, and provided that a strip of lead is built-in to achieve a continuous unbroken lead lining.

Lead lined frames for doors, louvers, control windows, lead flashing and other items are specified under other sections of the specification, but shall be built-in and flashed with lead under this section of the specification.

SECTION BC - MASONRY - (Cont'd)

3 Rev. 5/8/51 Where a lead flooring lining is required, a 6" wide strip of lead shall be laid under the starting course of block, inserted between the lead fold and the bottom surface of the block, and extended not less than 4" beyond the face of the partition on the insulated side.

BUILDING MATERIALS MASONRY HOLLOW BUILDING TILE TERRA-COTTA COPING TILE	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED July 30, 1948 REVISED MARCH 1951	SB 2 C

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. DESCRIPTION

2.1 **Size and Type** of tile shall be as indicated on the drawings.

2.2 **Color** shall be as called for in the Project Specifications or as selected by du Pont.

3. QUALITY

3.1 **Building Tile.** All types of tile shall preferably be made of de-aired shale, and shall otherwise conform to the following requirements:

Type "A" shall be load-bearing tile conforming to the specifications for Grade "LBX" in ASTM:C34.

Type "B" shall be non-load-bearing tile conforming to ASTM:C56.

Type "C" shall be smooth-faced unglazed facing tile conforming to the specifications for Type FTX, standard class, in ASTM:C212, except that tolerances on dimensions and distortion may be those specified for Type FTS. The dimensions used for determination of such tolerances shall be 1/8-inch less than the nominal tile dimensions. When required, furnish cove base, bullnose jamb tile, and sill members of a quality equal to that of the tile.

Type "D" shall be ceramic glazed tile conforming to the specifications for Grade S, Type I or II in ASTM:C126. Furnish cove base, bullnose jamb tile, and sill members as required, of a quality equal to that of the tile. Finish shall be clear or opaque as called for in the Project specifications.

3.2 **Terra-Cotta Coping Tile** shall be of the width indicated on the drawings. They shall be vitrified and salt-glazed and have a maximum absorption of 8 percent when tested according to the method described in ASTM:C13. Exposed surfaces shall be free from blisters, cracks, holes, chips, and other blemishes. The end joints shall be so designed that the tiles, when laid, present a flush top surface, smoothly convex or sloped from side to side. The maximum allowable distortion shall be 1/4 inch.

4. SAMPLES

4.1 When requested, samples of the proposed tile, consisting of a minimum of 3 units, shall be submitted to du Pont for approval. Such samples shall represent the maximum range of color, size variations, and other applicable specified physical requirements, and shall be considered the basis for comparison in acceptance of shipments.

BUILDING MATERIALS MASONRY CONCRETE MASONRY UNITS	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED 7 - 30 - 48	SB 3 C
	REVISED APRIL 1952	

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. DESCRIPTION

2.1 **Physical Dimensions.** Nominal face size of concrete blocks shall be 8 inches by 16 inches. Nominal thickness shall be as indicated on the drawings. The height of blocks shall be such that 3/8-inch thick joints (1/4-inch minimum) will result in 4-inch modules. Standard corner and jamb units shall be furnished in both half and full lengths as required. Face shell thickness of hollow units shall average 1 1/4 inch for those 6 inches thick and over and 1 inch for 4-inch thick units, with minimums of 1 1/8-inch and 7/8-inch respectively. Web thickness shall be 1-inch, minimum.

2.1.1 Nominal dimensions of brick shall be 2 1/4-inch by 3 3/4-inch by 8-inch.

2.2 **Aggregates** used to manufacture units shall conform to the requirements of ASTM Specifications C33 and C130, except that cinders, lava, and tufa aggregates shall not be used for units that are to be used for units that are to be laid in exterior walls. Only stone aggregate units shall be used below grade.

2.2.1 ***Grading.*** Fine aggregate shall be defined as that passing a No. 4 screen and coarse aggregate, that retained on a No. 4 screen. At least 25 percent by volume of the mixed aggregates (all types) shall be coarse aggregate.

2.2.2 ***Deleterious Substances.*** All aggregates shall be clean and free from deleterious substances and organic impurities within the limits prescribed in the applicable ASTM Specifications. Maximum allowable total content of shale, alkali, mica, coated grains, soft and flaky particles, etc. shall be 3 percent.

2.3 **Finish.** Where concrete masonry units are to be exposed in interior walls that are to be painted, the surface texture shall be approved by du Pont before shipment.

3. QUALITY

3.1 Hollow "load-bearing" units shall be used generally for all walls above grade. "Non-load-bearing" units may be used for interior partitions which do not carry superimposed loads. Solid "load-bearing" units shall be used in all subgrade work.

3.2 Concrete masonry units shall meet the requirements of the following specifications, in addition to those covered in Paragraph 2, above:

Hollow load-bearing units: ASTM C90, Grade A.
Hollow non-load-bearing units: ASTM C129.
Solid load-bearing units: ASTM C145, Grade B.
Brick: ASTM C55, Grade A.

4. MANUFACTURE

4.1 **Curing.** Immediately after casting, units shall be water- or steam-cured in such a manner and for such a duration as to result in the attainment of the compressive strength called for in the applicable ASTM Specifications, in 28 days. Maximum moisture content at time of shipment shall be 40 percent of the maximum allowable water absorption. Steam-curing is the method preferred by du Pont.

4.2 **Label.** No Underwriters' label will be required, unless specifically called for on the drawings or in the Project Specification.

5. SITE STORAGE

5.1 It is essential that concrete masonry units be kept dry until placed in the wall. Units shall be so stored that the moisture content, when units are placed, does not exceed the maximum permitted under Par. 4.1, above. No units shall be used less than 28 days after casting (including curing period) unless curing was done by steam, in which case minimum age may be reduced to 14 days, providing moisture content requirements are met.

5.1.1 ***Note:*** Concrete masonry units which are thoroughly cured and which are 28 days old or older and have been protected against wet weather will have a moisture content ranging from less than 5 percent for lightweight units to less than 3 percent for dense aggregate units.

6. SAMPLES

6.1 When requested, samples, consisting of a minimum of 2 units, shall be submitted to du Pont for approval. Such samples shall be representative of the maximum range of surface texture and physical properties and shall be considered the basis for comparison in acceptance of shipments.

BUILDING MATERIALS MASONRY MORTAR	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JUL. 30, 1948	SB-4-C
	Revised DEC. 20, 1949	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRANDS - of Cement, Lime, Commercial Masonry Cement, and Waterproofing Admixture shall be approved by du Pont.

3. MATERIALS - shall conform to the following specifications:

CEMENT - Portland Cement, Type I or II, A.S.T.M.: C150.

MASON'S HYDRATED LIME - Type "S", A.S.T.M.: C207.

QUICK LIME - A.S.T.M.: C5, and shall be slaked in accordance with the "Directions for Slaking" in the Appendix thereto, and be used when in a highly plastic state.

COMMERCIAL MASONRY CEMENT - Type II, Federal Specification SS-C-181b. Staining requirement shall not apply, except when used in mortar for stonework.

WATERPROOFING ADMIXTURE - shall be a cement dispersing agent, combined with pozzuolanic material, stearic acid or a stearate, and/or other advantageous fillers. The addition of the admixture to the mortar shall result in an increase in the plasticity and compressive strength at 28 days, over a similar mortar made without the admixture.

SAND - A.S.T.M.: C144.

WATER - currently used for human consumption will be considered acceptable for use in masonry mortars.

4. STORAGE - of mortar materials shall be in such a manner as to prevent deterioration and contamination with foreign matter. Use of material which has become damaged or contaminated will not be permitted.

5. PROPORTIONING AND MIXING - mortar materials shall be measured by weight or by volume. Proportioning shall be as follows:

Cement - Lime Mortar:
1 part Portland Cement
1 part Mason's Hydrated Lime, or Slaked Quick Lime
5 parts Sand (for brickwork), or 3 parts Sand (for tile or concrete-block work.)
Waterproofing Admixture added strictly in accordance with manufacturer's directions.

Cement Mortar for Concrete Blocks below grade

1 part Portland Cement
3 parts Sand
1/4 part (maximum) Hydrated Lime, or proper quantity of other plasticizing agent approved by du Pont.

Commercial Mason's Cement Mortar:

1 part Mason's Cement
3 parts Sand

Mechanical mixing, for minimum period of 3 minutes from the time all ingredients are in the mixer, is mandatory, except when only a small quantity is required for patching, etc.

Equipment for mixing and transporting mortar shall be clean and free from set mortar, dirt, or other foreign matter.

6. FREEZING WEATHER REQUIREMENTS - when temperatures are lower than the limits specified in Standard Engineering Specification SB-5-C, heating methods, approved by du Pont, shall be used to provide a sand and water temperature sufficiently high (but not to exceed 140°F.) to insure a mortar temperature of 60°F. to 90°F. at the time and point of use in the masonry.

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

1.2 **General Appearance.** All masonry units shall be laid plumb and to a line with line twigs not more than 20 feet apart.

1.2.1 Holes left by the removal of line twigs shall be filled with mortar immediately upon removal of the twig.

1.3 **Coursing** shall be as indicated on the drawings. Vertical joints shall be as required, between the limits of 1/4 inch and 3/8 inch in thickness. In remodeling work, joints and coursing shall match that in adjoining walls. Masonry units shall be spaced so as to present a uniform appearance, with vertical joints in line.

1.4 **Parging.** The back of all exterior brick facings shall be parged with not less than 3/8 inch of mortar. Particular care shall be taken with header courses.

1.4.1 All joints shall be completely filled with mortar. Slushing shall be resorted to only when absolutely necessary.

1.5 **Closure Units.** Before laying a masonry unit to close the space between two other units already laid, fresh mortar from the mud board shall be placed on the full end surfaces of the adjacent units and on the top of the unit below. The unit shall then be rocked into place. The bed and cross joints shall be completely filled, and the back of the closure unit shall be slushed full with fresh mortar (when facing is backed up with other masonry units.)

1.6 **Shifting** or realignment of masonry units, once laid, will not be permitted, except by removing the unit and relaying in a bed of fresh mortar.

1.7 **Tooling.** Joints of exterior and interior facings shall be tooled to a concave contour, unless otherwise indicated on the drawings. The tool shall be slightly larger than the joint thickness, and it shall be used with force and in such a manner as to produce a hard, compact, smooth surface.

1.8 **Other Requirements.** Masons shall verify the shape, size, and strength of templates, and the accuracy of the centering of openings, bracketing, etc. They shall build in openings, chases, strips, lugs, inserts, anchors, bolts, grilles, reglets, hardware, flashing, counterflashing, etc. furnished by other trades, and as directed by them or indicated on the drawings; do require toothing, etc. for future continuation of masonry work; bed and point up around frames for all openings; and back up all cement, steel, iron, or other work. Where fresh masonry joins masonry already set, the surface of the set masonry shall be cleaned with a wire brush and be lightly wetted so as to obtain the best possible bond with a new work. All loose units and mortar shall be removed.

1.9 **Wetting of Masonry Units.** Units (except concrete masonry units) having natural rates of absorption in excess of 20 grams per minute when placed flatwise in 1/8 inch of water, shall be wetted by dipping or sprinkling immediately before placing in the walls, except in freezing weather. Concrete masonry units shall *not* be wetted before placing in the wall.

2. ADDITIONAL REQUIREMENTS FOR SPECIFIC KINDS OF MASONRY

2.1 **Brickwork.** Cross joints shall be entirely filled by applying mortar from the mud board (not drippings) directly to the full end face, and then laying the brick on a full bed of mortar, shoving it tightly against the adjacent unit already in place. The mortar bed shall not be furrowed with the end of the trowel to a depth which exceeds half the joint thickness. Spreading of mortar shall extend only so far ahead that the mortar will be plastic when the units are laid.

2.1.1 Brick used for back-up and filling-in shall be laid by the pick-and-dip method, shoving the brick in an amply full bed of mortar against units already in place, so as to get full collar and head joints.

2.1.2 No bricks or "bats" smaller than 3 inches will be permitted.

2.1.3 Brick shall be laid in "common" bond with a full header course every seventh course, unless otherwise indicated on the drawings. When mechanical bonding of brick is required, galvanized or non-ferrous corrugated ties shall be placed every 24 inches longitudinally, in every 5th course vertically staggered over the ones below.

2.2 Facing Tile. Special care shall be exercised to get joints full of mortar. Full coverage must be obtained at both face shells, in both horizontal and vertical joints. When smooth-face tile is used in conjunction with a ceramic glazed tile wainscoting, thickness of joints shall be as specified below for ceramic glazed tile. The faces shall be laid in a flat plane, limited only by the inherent tile distortion. The distortion effect shall be minimized by selecting, whenever possible, units which match the distortion of the adjacent unit.

2.2.1 Tile facing units shall be cut only with the use of a carborundum cutting wheel.

2.2.2 Ties for tile shall be galvanized or non-ferrous corrugated ties installed every 24 inches horizontally, and approximately 11 inches vertically (2 courses of 5-inch tile) staggered over the ones below.

2.2.3 Joints in facings laid up with ceramic glazed tile shall not be more than 3/10-inch thick, and units must be laid to achieve maximum uniformity with vertical joints alternately in line.

2.3 Terra-Cotta Coping Tile shall be set in a full bed of mortar with all cross joints filled except for the top 1/2 inch which is to be left open for caulking as required by Std. Eng. Spec. SB2L. Cross joints shall not exceed a width of 5/8 inch.

2.4 Concrete Masonry Units. Provide full mortar coverage at inside and outside face shells for both horizontal and vertical joints.

2.4.1 Unless otherwise indicated on the drawings or called for in the Project Specifications, continuous galvanized wire wall ties shall be embedded in the joint mortar at both faces at every third course of both exterior and interior walls. The longitudinal wires of the tie shall be No. 9 gage (0.1483 inch) (minimum) and these shall be suitably spaced and tied together. Over-all width of tie shall be one inch less than the wall thickness.

2.4.2 In lieu of wire ties, No. 10 gage (0.125 inch), 3/4-inch galvanized expanded wire mesh of the same width, may be used.

2.4.3 Weep holes, 3/8-inch diameter, or equivalent, either open or filled with cotton wicking, shall be provided in all exterior walls. They shall be spaced not over 16 inches, O.C., and shall extend from the outside face to the interior core space, positioned directly on top of the foundation in the first mortar joint.

3. COLD WEATHER CONSTRUCTION

3.1 Masonry shall not be built when the temperature, at the point where the work is in progress, is below 30 degrees F. with rising temperature, or below 34 degrees F. with falling temperature, unless adequate provisions are made to prevent the masonry from freezing. Any masonry that has been frozen shall be removed and replaced without expense to du Pont. Masonry units shall be heated to a temperature sufficiently high (but not in excess of 140 degrees F.) to remove frost or ice coatings.

4. PROTECTION

4.1 Tops and faces of exterior walls which were built during the work period shall be covered with waterproof canvas or other protection to prevent weather damage. Foundation water sheds, sills, and other protrusions shall be protected against mortar droppings. Care shall be exercised to prevent splashing or splattering of mortar on finished facings.

5. CLEANING

5.1 Exposed surfaces of masonry shall preferably be kept clean as the work progresses by wiping with a damp cloth. Upon completion, if dirty surfaces cannot be cleaned with a stiff brush and water, they shall be first thoroughly wetted with plain water, and then scrubbed with a solution of not more than one part hydrochloric (muriatic) acid and ten parts water (preferably twenty parts water), and be immediately thereafter thoroughly rinsed off with clean water. Sash, doors, floors, lintels, etc., shall be protected from acid. Care must be exercised not to burn the joint mortar or masonry units. Walls which are to have an application of clear waterproofing, and glazed ceramic tile facings must not be cleaned with acid.

5.2 If it is necessary to clean glazed ceramic tile facings, only soap and water or a 10 percent ammonia solution shall be used.

5.3 As cleaning progresses, masonry surfaces shall be examined for cracks, holes, or other joint defects. Such defects shall be carefully pointed at this time.

6. SCAFFOLDING AND EQUIPMENT

6.1 Safe and adequate scaffolding and other equipment, necessary for the proper execution of the work, shall be furnished, installed, and maintained as long as necessary, and removed upon completion. During erection, walls shall be adequately braced.

7. METHOD OF MEASUREMENT

7.1 Measurement for pay quantities under unit prices shall be as follows:

7.1.1 Brick Masonry. Quantities of brick shall be computed as based on net measurements (corners shall not be doubled) as follows:

4-inch walls - 6 1/2 brick per square foot
8-inch walls - 13 brick per square foot
12-inch walls - 19 1/2 brick per square foot
16-inch walls - 26 brick per square foot

7.1.2 Pilasters, Free Standing Columns, Fire Proofing, Belt Courses and similar projections shall be computed as above in multiples of 4 inches; additional thicknesses over multiples of 4 inches exceeding 2 inches shall be computed as 4 inches.

7.1.3 All openings in brick walls exceeding 3 square feet shall be deducted. All sills, panels, belts, lintels, spandrels, curbs, slabs, and similar projections into brick walls, shall be deducted by the amount of their displacement of brick in multiples of 4 inches. Projections into brick walls of less than 4 inches shall not be deducted. Pipe and similar chases left in brick walls shall not be deducted.

7.1.4 Cutting and patching of brick work shall be computed on a square foot basis. Holes less than 12-inch by 12-inch shall be measured as one square foot. Larger holes shall be measured actual size for cutting and average size of new work for patching. Patching of holes larger than 30 square feet shall be computed per Par. 7.1.1, plus toothing.

7.1.5 Toothing will be measured to the nearest linear foot.

7.1.6 Tile, Concrete Masonry Units (concrete blocks), and Glass Blocks shall be computed on the basis of the number of pieces installed.

7.1.7 Terra-Cotta Coping, Cut Stone Work, and Precast (Concrete copings) Sills and Lintels shall be computed on a linear-foot basis, measured to the nearest half foot. Corners shall not be doubled.

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SECTION BD - ROOFING, SIDING, FLASHING & SHEET METAL

CONTENTS

MODIFICATIONS & ADDITIONS:

SB-5-D: Unless otherwise shown on drawings or herein specified corrugated sheets shall have a pitch of 4.2" and shall conform to Federal Specifications SS-R-524 Type I. Flat sheets shall conform to Federal Specifications SS-5-283. Where they are shown on drawings to be 1/4" thick they shall be type 1, where shown 3/8" thick they shall be type II.

7 Rev. 6/19/51

10 Rev. 8/31/51

SB-4-D: Asphalt plank drip strips shall conform to the specifications for walkway plank except that the width shall confrom to dimension shown on drawings.

14 Rev. 12/3/51

SB-2-D: MATERIALS (e) Asbestos Protected Metal Type shall consist of a 24 ga. steel core protected on both sides with an asbestos felt and a suitable asphalt surface coating.

UNCLASSIFIED
DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION
ADC & Reviewing Official: C J Bank (Name and Title)
Date: 6/24/92

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Sheet 1
4/4/51
Rev. 6/19/51
8/31/51
12/3/51

SECTION SB - ROOFING, SIDING, FLASHING & SHEET METAL

CONTENTS

MODIFICATIONS & ADDITIONS:

7 Rev. 6/19/51 SB-5-D: Unless otherwise shown on drawings or herein specified corrugated sheets shall have a pitch of 4.2" and shall conform to Federal Specifications SS-R-524 Type I. Flat sheets shall conform to Federal Specifications SS-5-283. Where they are shown on drawings to be 1/4" thick they shall be type 1, where shown 3/8" thick they shall be type II.

10 Rev. 8/31/51 SB-4-D: Asphalt plank drip strips shall conform to the specifications for walkway plank except that the width shall conform to dimension shown on drawings.

14 Rev. 12/3/51 SB-2-D: MATERIALS (e) Asbestos Protected Metal Type shall consist of a 24 ga. steel core protected on both sides with an asbestos felt and a suitable asphalt surface coating.

[redacted]

SECTION BD - ROOFING, SIDING, FLASHING & SHEET METAL (Cont'd)

15 Rev. 12/10/51

SB-1-D: ROOFING TYPE S1 - WC

WATER PROOFED CONCRETE DECK - SLOPE HALF INCH OR LESS PER FOOT

(A) The surface shall first be thoroughly cleaned and shall be dry, free from ice, dust, grease or any other materials which might prevent proper bond.

(B) Apply one coat of Asphaltic Concrete Primer over the entire area of roof deck, using one gal. (approximately 10 lbs.) per square. Asphaltic Primers shall meet A.S.T.M. Specification D-41-41.

(C) Over the entire primed surface apply a uniform mopping of Hot Asphalt using not less than 25 lbs. per square. (On slopes of over 2 inches per ft. use Steep Roofing Asphalt; however slopes over 2" per ft, are not expected to be encountered.) This asphaltic mopping coat shall meet A.S.T.M. Specification D312-44.

NOTE: The application of one paint coat of "Carbozite", "Elaterite", or an approved equal over the prime coat will be an acceptable alternate for the asphaltic mopping.

BUILDING MATERIALS BUILT-UP ROOFING BY CONTRACT	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED 7-30-48	SB 1 D
	REVISED MARCH 1952	Page 1 of 3

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. DESCRIPTION

2.1 Roof Types and Symbols. Roofing shall be applied in the location and of the type as indicated by symbols on the drawings. The definitions of symbols are as follows:

SG - Slag or Gravel Surface
SM - Smooth Surface
1 - Slope of deck less than 1/2 inch per foot
2 - Slope of deck 1/2 inch or more per foot
W - Wood Deck
C - Poured-Concrete Deck
T - Precast-Concrete Tile Deck
S - Steel-Plate Deck
I - Insulation
10 - Ten-year Bond
15 - Fifteen-year Bond
20 - Twenty-year Bond
No numeral suffix - Two-year guarantee

Example: SG-1WI-20 - Slag or Gravel Surface - Slope less than 1/2 inch per foot - Wood Deck - Insulation - Twenty-year Bond.

3. BONDED AND GUARANTEED ROOFS

3.1 Bonded Roofs. A written bond shall be furnished protecting du Pont against defective materials and faulty workmanship in the application of the roofing, flashing, and counterflashing for the period designated in the roof symbol. Term of bond shall extend from date of acceptance of the finished roof.

3.1.1 It shall be the obligation of the roofing contractor, before beginning application of roofing, to advise the Manufacturer of the roofing materials as to all details of construction involving roofing, flashing, and counterflashing in order that there shall be no limitations or restrictions upon the issuance of the Roofing Bond.

3.2 Guaranteed Roofs. A written guarantee shall be furnished protecting du Pont against defective materials, faulty workmanship, or both, in the application of the roofing, flashing, and counterflashing for a period of two years following date of acceptance of the finished roof. Materials and application shall conform to the roofing material manufacturer's standard specifications for twenty-year bonded roofs.

4. MATERIALS

4.1 Materials to be used. Tar-saturated felts and coal-tar pitch shall be used for all roofs having a slope of less than 1/2 inch, and asphalt-saturated felts and roofing asphalt for roofs having a slope of 1/2 inch or more.

4.2 Felts. Shall be asbestos or rag and shall conform to the following:

4.2.1 Asphalt - saturated rag felt - ASTM D226

4.2.2 Asphalt - saturated asbestos felt - ASTM D250, perforated asbestos felts are acceptable to du Pont.

4.2.3 Coal-tar pitch-saturated rag felt - ASTM D227.

4.2.4 Coal-tar pitch-saturated asbestos felt ASTM D250 except that the saturant shall be coal-tar pitch conforming to ASTM D450. Weight of the saturant shall be not less than 40 percent of the total weight of the felt. The felt shall be produced by "felting" at least 70 percent by weight of asbestos fiber.

Note: Minimum weight of base felts over wood decks shall be 30 pounds per square.

4.3 Primers. Asphalt primers shall be used under asphalt bitumen and asphalt-saturated felts and creosote under coal-tar pitch bitumen and coal-tar saturated felts.

4.3.1 Asphalt - ASTM D41. Minimum application 10 pounds per square.

4.3.2 Creosote - ASTM D43. Minimum application 8 pounds (or 1 gallon) per square.

4.4 Application Bitumen shall be of the same type (coal-tar pitch or asphalt) as that forming the saturant in the particular felt being used.

4.4.1 Asphalt - ASTM D312. Steep Roofing Asphalt shall be used when slopes exceed 2 inches per foot. Minimum quantities used per square shall conform to the following:

Wood, poured Gypsum Precast Gypsum (uninsulated)	Min. per Mopping	Min. Total
10 year roof	25 lbs.	100 lbs.
20 year roof	25 lbs.	140 lbs.
Poured and precast Concrete and all insulated decks		
15 year roof	25 lbs.	115 lbs.
20 year roof	25 lbs.	150 lbs.

4.4.1.1 If proprietary materials are contemplated for the finish of smooth-surface asphalt roofs, the minimum total quantities indicated above may be adjusted to conform to the manufacturer's standard specifications, subject to du Pont's approval.

4.4.2 Coal-tar Roofing Pitch - ASTM D450. Minimum quantities used per square shall conform to the following:

Wood, poured Gypsum Precast Gypsum (uninsulated)	Min. Per Mopping	Min. Total
10 year roof	25 lbs.	125 lbs.
20 year roof	25 lbs.	150 lbs.
Poured and precast Concrete and all insulated decks		
15 year roof	25 lbs.	175 lbs.
20 year roof	25 lbs.	200 lbs.

4.5 Plastic Roof Cement. Federal Specification SS-C-153, Types 1 and 2.

4.6 Sheathing Paper shall be red or blue rosin-sized paper, having minimum weight of 5 pounds per square.

4.7 Nails shall be "Simplex" type or common nails provided with metal disks not less than 7/8 inch in diameter, or large-head roofing nails having heads not less than 1/2 inch in diameter. All nails and disks shall be galvanized.

4.8 Slag or Gravel shall be uniformly graded from 1/4 inch to 5/8 inch in size, be dry, and free from dirt. Crushed limestone shall not be used.

4.9 Insulation. See Standard Engineering Specification SB1J.

4.10 Flashing. See Standard Engineering Specification SB2D.

5. APPLICATION

5.1 Manufacturer's Specifications. Application of Built-up Roofing and Built-up Flashing shall be in accordance with the standard specifications of the roofing material manufacturer and the minimum requirements set forth herein. Roofing work shall be done by a contractor approved by the manufacturer.

5.1.1 The roofing contractor shall submit for approval, with his proposal, detailed specifications for materials and methods of application of the various types of built-up roofing and built-up flashing proposed for use, unless such requirement is waived by du Pont.

5.2 Condition of Decks. Roof decks shall be dry, clean, and free from loose material.

5.3 Mopping and Rolling shall be done in such a manner as to produce a smooth, even surface, free from wrinkles or buckles. At no time shall the mop be more than two or three feet in front of the roll. Use strip or spot mopping on precast tile decks, keeping the mopping material back at least 4 inches from joints between tiles.

5.3.1 Maximum temperature of coal-tar pitch shall not exceed 400 degrees F., and asphalt shall not exceed 450 degrees F. in the kettle.

5.3.2 Mops shall be "spun" or "whirled" at the end of work periods to separate the strands of the mop; and to be stored with the strands separated so as to prevent spontaneous combustion.

5.3.3 Roofing contractors shall take necessary precautions to see that no fire hazard exists in connection with their work.

5.4 Felt Application. Felt plies shall be laid progressively by lapping the felt one half its width for 2-ply, two thirds for 3-ply, and three fourths for 4-ply, etc.

5.4.1 Base Felts shall be carried up at least 4 inches along vertical surfaces.

5.5 Aggregate Application. Where Slag or Gravel Surfaces are specified, either may be used, slag being preferred. Minimum total weight of slag used shall be 300 pounds, and gravel 400 pounds per square. Slag or gravel shall be firmly pressed into place while the final mopping is hot. Slag or gravel shall not be stored on bare felt at any time.

BUILDING MATERIALS BUILT-UP ROOFING BY CONTRACT	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED 7-30-48	SB 1 D
	REVISED MARCH 1952	Page 1 of 3

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. DESCRIPTION

2.1 Roof Types and Symbols. Roofing shall be applied in the location and of the type as indicated by symbols on the drawings. The definitions of symbols are as follows:

SG - Slag or Gravel Surface
SM - Smooth Surface
1 - Slope of deck less than 1/2 inch per foot
2 - Slope of deck 1/2 inch or more per foot
W - Wood Deck
C - Poured-Concrete Deck
T - Precast-Concrete Tile Deck
S - Steel-Plate Deck
I - Insulation
10 - Ten-year Bond
15 - Fifteen-year Bond
20 - Twenty-year Bond
No numeral suffix - Two-year guarantee

Example: SG-1WI-20 - Slag or Gravel Surface - Slope less than 1/2 inch per foot - Wood Deck - Insulation - Twenty-year Bond.

3. BONDED AND GUARANTEED ROOFS

3.1 Bonded Roofs. A written bond shall be furnished protecting du Pont against defective materials and faulty workmanship in the application of the roofing, flashing, and counterflashing for the period designated in the roof symbol. Term of bond shall extend from date of acceptance of the finished roof.

3.1.1 It shall be the obligation of the roofing contractor, before beginning application of roofing, to advise the Manufacturer of the roofing materials as to all details of construction involving roofing, flashing, and counterflashing in order that there shall be no limitations or restrictions upon the issuance of the Roofing Bond.

3.2 Guaranteed Roofs. A written guarantee shall be furnished protecting du Pont against defective materials, faulty workmanship, or both, in the application of the roofing, flashing, and counterflashing for a period of two years following date of acceptance of the finished roof. Materials and application shall conform to the roofing material manufacturer's standard specifications for twenty-year bonded roofs.

4. MATERIALS

4.1 Materials to be used. Tar-saturated felts and coal-tar pitch shall be used for all roofs having a slope of less than 1/2 inch, and asphalt-saturated felts and roofing asphalt for roofs having a slope of 1/2 inch or more.

4.2 Felts. Shall be asbestos or rag and shall conform to the following:

4.2.1 Asphalt - saturated rag felt - ASTM D226

4.2.2 Asphalt - saturated asbestos felt - ASTM D250, perforated asbestos felts are acceptable to du Pont.

4.2.3 Coal-tar pitch-saturated rag felt - ASTM D227.

4.2.4 Coal-tar pitch-saturated asbestos felt ASTM D250 except that the saturant shall be coal-tar pitch conforming to ASTM D450. Weight of the saturant shall be not less than 40 percent of the total weight of the felt. The felt shall be produced by "felting" at least 70 percent by weight of asbestos fiber.

Note: Minimum weight of base felts over wood decks shall be 30 pounds per square.

4.3 Primers. Asphalt primers shall be used under asphalt bitumen and asphalt-saturated felts and creosote under coal-tar pitch bitumen and coal-tar saturated felts.

4.3.1 Asphalt - ASTM D41. Minimum application 10 pounds per square.

4.3.2 Creosote - ASTM D43. Minimum application 8 pounds (or 1 gallon) per square.

4.4 Application Bitumen shall be of the same type (coal-tar pitch or asphalt) as that forming the saturant in the particular felt being used.

4.4.1 Asphalt - ASTM D312. Steep Roofing Asphalt shall be used when slopes exceed 2 inches per foot. Minimum quantities used per square shall conform to the following:

Wood, poured Gypsum Precast Gypsum (uninsulated)	Min. per Mopping	Min. Total
10 year roof	25 lbs.	100 lbs.
20 year roof	25 lbs.	140 lbs.
Poured and precast Concrete and all insulated decks		
15 year roof	25 lbs.	115 lbs.
20 year roof	25 lbs.	150 lbs.

4.4.1.1 If proprietary materials are contemplated for the finish of smooth-surface asphalt roofs, the *minimum* total quantities indicated above may be adjusted to conform to the manufacturer's standard specifications, subject to du Pont's approval.

4.4.2 Coal-tar Roofing Pitch - ASTM D450. Minimum quantities used per square shall conform to the following:

Wood, poured Gypsum Precast Gypsum (uninsulated)	Min. Per Mopping	Min. Total
10 year roof	25 lbs.	125 lbs.
20 year roof	25 lbs.	150 lbs.
Poured and precast Concrete and all insulated decks		
15 year roof	25 lbs.	175 lbs.
20 year roof	25 lbs.	200 lbs.

4.5 Plastic Roof Cement. Federal Specification SS-C-153, Types 1 and 2.

4.6 Sheathing Paper shall be red or blue rosin-sized paper, having minimum weight of 5 pounds per square.

4.7 Nails shall be "Simplex" type or common nails provided with metal disks *not* less than 7/8 inch in diameter, or large-head roofing nails having heads not less than 1/2 inch in diameter. All nails and disks shall be galvanized.

4.8 Slag or Gravel shall be uniformly graded from 1/4 inch to 5/8 inch in size, be dry, and free from dirt. Crushed limestone *shall not* be used.

4.9 Insulation. See Standard Engineering Specification SB1J.

4.10 Flashing. See Standard Engineering Specification SB2D.

5. APPLICATION

5.1 Manufacturer's Specifications. Application of Built-up Roofing and Built-up Flashing shall be in accordance with the standard specifications of the roofing material manufacturer and the minimum requirements set forth herein. Roofing work shall be done by a contractor approved by the manufacturer.

5.1.1 The roofing contractor shall submit for approval, with his proposal, detailed specifications for materials and methods of application of the various types of built-up roofing and built-up flashing proposed for use, unless such requirement is waived by du Pont.

5.2 Condition of Decks. Roof decks shall be dry, clean, and free from loose material.

5.3 Mopping and Rolling shall be done in such a manner as to produce a smooth, even surface, free from wrinkles or buckles. At no time shall the mop be more than two or three feet in front of the roll. Use strip or spot mopping on precast tile decks, keeping the mopping material back at least 4 inches from joints between tiles.

5.3.1 Maximum temperature of coal-tar pitch shall not exceed 400 degrees F., and asphalt shall not exceed 450 degrees F. in the kettle.

5.3.2 Mops shall be "spun" or "whirled" at the end of work periods to separate the strands of the mop; and to be stored with the strands separated so as to prevent spontaneous combustion.

5.3.3 Roofing contractors shall take necessary precautions to see that no fire hazard exists in connection with their work.

5.4 Felt Application. Felt plies shall be laid progressively by lapping the felt one half its width for 2-ply, two thirds for 3-ply, and three fourths for 4-ply, etc.

5.4.1 Base Felts shall be carried up at least 4 inches along vertical surfaces.

5.5 Aggregate Application. Where Slag or Gravel Surfaces are specified, either may be used, slag being preferred. Minimum total weight of slag used shall be 300 pounds, and gravel 400 pounds per square. Slag or gravel shall be firmly pressed into place while the final mopping is hot. Slag or gravel shall not be stored on bare felt at any time.

5.6 Roofs on Decks which are Intended for Future Floor Slags. Where roofs are placed on concrete decks which are intended to be used as future floor slabs, built-up roofing shall be as specified above, except that a single layer of sisal-reinforced paper, conforming to ASTM C171, shall be installed next to the deck surface. The paper strips shall be lapped a minimum of 3 inches and the joints shall be sealed with hot pitch. This layer of paper shall not be mopped to the deck. Following application of the sisal-reinforced paper, installation of roofing shall proceed as outlined above, in accordance with manufacturer's specifications. Such a roof shall be applied only on areas surrounded by adjacent walls or parapet walls and cannot be bonded.

6. METHOD OF MEASUREMENT

6.1 Measurement for pay quantities under unit prices shall be on a square-foot basis computed as follows:

6.1.1 Built-up roofing shall be measured (1) from wall to wall including turn-up at walls, (2) from wall to gravel stop and gravel stop to gravel stop including turn-up at wall and turn-down at gravel stop, and (3) from eave to eave, eave to ridge, and ridge to eave, including turn-down at eave. Turn-up at curbs of openings occurring in roof surface will be added. Openings of 20 square feet and over will be deducted. On openings not deducted, no turn-up will be allowed.

6.1.2 Vertical surfaces will be measured from 8 inches above roof deck, up and over turnout on top of wall.

6.1.3 Patching will be measured over the average area from which gravel or equivalent has to be removed to make patch.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
ROOFING, SIDING, FLASHING, AND SHEETMETAL	Issued JUL.30.1948	SB-2-D
FLASHING AND COUNTERFLASHING	Revised DEC.20.1949	

1. NOTICE - Standard Engineering Specification SC-1-A applies to and is a part of this specification.

2. FLASHING AND COUNTERFLASHING shall be installed in the location and of the type shown on the drawings.

3. MATERIALS
   (a) Metal Type shall be as indicated on drawings.

   Counterflashing and through-wall flashing under copings shall be an interlocking type to provide a mechanical key bond in all directions in the mortar bed.

   (b) Metal - Reinforced Fabric Type - shall consist of: (1) a sheet of galvanized hardware cloth covered on both sides with a bituminous-saturated fabric, (2) a sheet of copper (minimum weight 2 oz. per sq. ft.) coated on both sides with a suitable resilient bituminous solution, or saturated cotton fabric, or (3) sisal or glass-fiber reinforced paper laminated to a 2-oz. copper sheet.

   (c) Asphalt-Fabric Type shall consist of a sheet of asbestos felt or cotton fabric heavily coated on both sides with a suitable bituminous compound.

   (d) Built-up Type shall be in accordance with the requirements for built-up roofing as described in Standard Engineering Specification SB-1-D.

4. INSTALLATION (See Engineering Standards B7G and B8G)
   (a) Flashing and Counterflashing shall be furnished and installed in ample time to prevent delay of other work.

   (b) Step Counterflashing shall be used at the intersection of vertical surfaces and slopes. Steps shall be formed of separate pieces lapped at least 3".

   (c) Flanges of all leader heads, scuppers, ventilators, soil pipes, etc. shall be installed over the finished roof (nailed for wood roofs) and double felt stripped.

5. BOND OR GUARANTEE - See Standard Engineering Specification SB-1-D.

6. MEASUREMENTS - For pay quantities under unit prices shall be on a square-foot basis computed as follows:

   Composition, fabric, and metal flashing will be measured over their extreme dimension in each direction in place; that is, their length by their actual girth. When flashings consist of an extension of roof felts, they shall be added to the area of the roof and computed as roofing.

BUILDING MATERIALS GUTTERS AND DOWNSPOUTS	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED 9 - 22 - 48 REVISED MARCH 1952	SB 3 D Page 1 of 2

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. DESCRIPTION

2.1 This specification shall cover the requirements for copper, galvanized iron, aluminum, and asbestos protected metal roof drainage systems. The kind, size, and shape of gutters and downspouts shall be as indicated on the drawings. Furnish conductor heads and down leads to interior cast-iron drainage systems where indicated on the drawings.

3. MATERIALS

3.1 Materials used in fabrication and erection shall conform to the following specifications:

3.1.1 Gutters and Downspouts shall be of the type detailed on the drawings and specified below.

3.1.1.1 Sheet copper shall weigh at least 16 ounces per square foot and shall be cold rolled (hard), 99.9 percent pure copper.

3.1.1.2 Galvanized sheet iron shall be zinc coated copper-bearing sheets, galvanized in accordance with the specifications for Class "D" ASTM A93.

3.1.1.3 Aluminum shall be Grade 3S sheets with a minimum thickness of 22 gage. Finish shall be as fabricated unless otherwise called for in the project specifications.

3.1.1.4 Asbestos protected metal shall consist of a steel core, alloy-coated both sides with an asbestos felt pressed into the alloy coating while it is still in a molten state. The asbestos felt is then impregnated with an asphaltic solution, and finally covered with a heavy tough outer coating. The gage of the sheet steel core for asbestos protected metal, or of steel sheets for galvanized iron half-round gutters and round downspouts shall be as follows:

Diam. of Gutter or Downspout (Inches)	Gage	
	Gutters	Downspout
4	24	24
Over 4 to 6	24	22
Over 6 to 8	22	22

3.1.2 Hangers, Straps, and Fasteners shall be of the type detailed on the drawings and specified below:

3.1.2.1 For copper systems, all hangers, straps, nails, screws, bolts, etc. shall be of copper or bronze.

3.1.2.2 For aluminum systems, such items shall be aluminum or hot-dipped galvanized steel.

3.1.2.3 For galvanized iron and asbestos-protected metal systems, such items shall be galvanized, cadmium-plated, or sherardized malleable iron or forged steel. Coatings shall be applied after fabricating to the required shape.

3.1.2.4 All rivets, unless otherwise specified, shall be of corrosion-resistant metal, such as stainless steel, copper, or aluminum.

4. FABRICATION

4.1 Fabrication shall be in strict accordance with the detailed drawings, approved shop drawings, and the following specifications:

4.1.1 Copper, galvanized iron, and aluminum systems. Plain half-round gutters shall be of the double-bead lap-joint type. Molded or box type gutters and rectangular downspouts shall conform to the detailed drawings. All joints in gutters shall be made using a slip-joint connection and end caps, outlets, mitered corners, etc. shall be fastened together or to the gutters using pressed folded joints, reinforced and soldered as required for maximum rigidity and tightness.

4.1.1.1 Downspouts shall be nested together and fastened to the wall with hooks and drives or straps as detailed or approved by du Pont.

4.1.2 Asbestos-protected metal systems. Gutters shall be plain half-round, unless otherwise indicated. Both edges shall be returned into the gutter 1 inch and bent back on themselves for reinforcement. The total depth shall be equal to the radius plus 1 inch, and the standard length of the sections shall be 8 feet. There shall be a $2\frac{3}{4}$-inch butt lap at the joints, riveted to the gutter sections, with an application of approved asphalt roof putty between the gutter and lapping strip. The ends and down leads shall be similarly cemented and riveted. The braces across the top of the gutter shall be

1/4-inch by 1-inch strap iron, riveted to gutter edges, and spaced not to exceed 4 feet center to center.

4.1.2.1 Hangers shall be 3/8-inch round rod with an approximate over-all length of 16 inches, bent to suit the roof pitch. They shall be flattened at 3 points and drilled for 1/4-inch machine bolts for fastening to the supporting members. The lower end shall be threaded approximately 4 inches to receive gutter-holding nuts.

4.1.2.2 Downspouts shall be plain round or corrugated unless otherwise indicated. Seams shall be bent outward and bolted together with 1/4-inch machine bolts, nuts, and washers, with an application of asphalt roof putty between the legs of the seam. Bolts shall be spaced 2 inches center to center. The required elbows may be fabricated with flat lapped seams. Standard length of downspout sections shall be 8 feet. The sections shall be nested together and fastened with 1/8-inch by 1-inch by 3-inch tie plates.

4.1.2.3 Downspout supports shall be 1/8-inch by 1-inch straps, bent so as to space the conductor approximately 1 1/2 inch from the wall surface, and bolted to the downspout seams with 1/4-inch bolts. The type and size of fastening to the wall surface shall be as required for the kind of wall construction involved.

4.1.2.4 All exposed metal fastenings shall be coated with one coat of Bitumastic No. 50 after erection.

5. DRAWINGS

5.1 Shop and erection drawings shall be submitted, when requested by du Pont, for approval before fabrication is started and any material shipped to the job site.

6. ERECTION

6.1 Erection shall be in accordance with the drawings. Furnish safe and adequate scaffolding as required for proper execution of the work, and remove it when the job is completed.

BUILDING MATERIALS ASPHALT PLANK WALKWAYS ON BUILT-UP ROOFS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued OCT. 24, 1949	SB-4-D
	Revised.	

1. GENERAL - Standard Engineering Specifications SC-1-A and SB-1-D apply to and are part of this specification.

2. MATERIAL - Plank shall be MINERAL SURFACED asphalt plank conforming to the requirements of the A.S.T.M.: D517. Size shall be 1 inch thick, 12 inches wide and 24 inches or 36 inches long.

Application bitumen shall be the final mopping of Roofing Asphalt or Coal-Tar Roofing Pitch applied under Standard Engineering Specification SB-1-D. Plank shall be laid in asphalt when roofing consists of asphalt products, and in pitch when pitch products are used.

3. APPLICATION - Plank may be laid longitudinally or transversely but the width of the walkway shall be 24 inches nominally, unless otherwise indicated on the drawings. The roofing surface to which the plank is to be applied shall be completed, except for application of the final bituminous mopping and gravel, and must be free of gravel or debris in the walkway area.

Plank shall be laid directly on the roofing in the final mopping of hot roofing bitumen, with joints in line and approximately 1 inch wide, firmly impressing the plank into the hot bitumen.

When graveling the roof surface, gravel shall be spread over the walkway and then swept off, allowing the gravel to enter the joints. All gravel which protrudes above the surface of the plank shall be removed.

4. METHOD OF MEASUREMENT - for pay quantities under unit prices shall be on a net square-foot basis. The area for payment will be determined by actual measurement of the finished work in place.

BUILDING MATERIALS CORRUGATED ASBESTOS ROOFING AND SIDING	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED 9-22-48	SB 5 D
	REVISED MARCH 1952	

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. MATERIALS

2.1 The brand of corrugated asbestos roofing, siding, and trim shall be subject to du Pont's approval.

2.1.1 Roofing and Siding. Sheets and trim items shall conform to Federal Specification SS-R-524, Types 1 or 2.

2.1.1.1 The pitch of corrugations shall be 4.2 inches or 2.625 inches as indicated on the drawings or as required to match existing work.

2.1.1.2 Ridge roll shall be $^3/_8$-inch thick with an inside radius of $3\,^1/_2$ inches. Corner roll shall be 6 inches by 6 inches by $^3/_8$ inch thick.

2.1.2 Flashing shall be as indicated on the drawings.

2.1.3 Accessories. Bolts, screws, clips, and steel washers shall be galvanized or cadmium plated. Bent or formed items shall be plated after shaping. Lead-head bolts and screws, or plain bolts and screws with lead washers shall be furnished as required in Par. 3.1.2 "Nelson" or "Tempotool" studs, welded to the purlins or girts, together with lead-coated nuts and lead washers, may be used in lieu of clips.

2.1.3.1 Closure strip shall be a bituminous mastic or rubber-bituminous mastic strip shaped to fit the sheet corrugations.

2.1.4 Plastic Roof Cement shall conform to Federal Specification SS-C-153, Types 1 and 2.

2.1.5 Caulking Compound shall be gray in color and conform to Grades 1 or 2, Federal Specification TT-C-598.

3. ERECTION

3.1 Corrugated asbestos siding and roofing sheets shall be applied by the "Straight Joint" method, and according to the approved erection drawings. The sheets shall be installed with the smooth side to the weather.

3.1.1 Laps. Side laps for 4.2 pitch shall be one corrugation; for 2.625 pitch, two corrugations. End laps shall be a minimum of 6 inches for roofing and siding, and shall be positioned over purlins or girts. Sheets shall be of sufficient length so that the fasteners pass through both upper and underlying sheets. Where possible, siding shall be arranged so that no end laps occur adjacent to framed openings.

3.1.1.1 When roof pitch is less than 4 inches in 12 inches, lap joints shall be cemented with plastic roof cement, applied at a minimum rate of 10 pounds per 150 lineal feet of joints, and so that cement is not visible on exposed surfaces.

3.1.2 Fastening. On the main body of the roof and for siding, fastenings to supporting members shall be spaced not to exceed 18 inches center to center; along eaves and on unusually exposed areas, 12 inches center to center. The position of bolt fasteners shall be on the upper side of purlins and girts. Side lap fastenings shall be evenly spaced and not exceed 2 ft. o.c. Trim, ridge roll, flashing, etc. shall be rigidly fastened.

3.1.2.1 Lead washers shall be used under the heads of all steel bolts and screws in contact with asbestos materials, unless such fastenings are of the lead-head type.

3.1.2.2 Bolt heads, except lead-head type, shall be covered with an application of gray "Slaters" cement or asbestos plastic.

3.1.3 Closure Strips shall be installed where shown on the drawings, and seams and joints shall be caulked with caulking compound where indicated or required.

3.1.4 Handling and Protection. Asbestos materials shall be handled and stored with care so as to prevent breakage. The use of broken sheets or trim will not be permitted.

3.1.4.1 During the process of erection, proper precautions shall be taken to prevent overloading of roof surfaces. Workmen shall be provided with planking and chicken ladders, and shall not be permitted to walk on unprotected areas. Horizontal walkways shall be placed only over the purlins. If materials are piled on the finished roof, the load shall be well distributed.

3.2 Scaffolding and other equipment shall be provided as required for the safe and proper execution of the work, and be removed when the work is completed.

4. SHOP DRAWINGS

4.1 When requested, drawings which indicate size and location of sheets, location of joints, fastenings, and details of trim and flashings shall be submitted to du Pont for approval before any material is shipped to the job site.

SECTION BE - CARPENTRY & MILLWORK

CONTENTS

MODIFICATIONS & ADDITIONS:

1. Flush type wood doors shall be veneered, solid framed up core, of thickness indicated on the door schedule and conforming to the following:

(a) Cores shall be white pine built up of wood blocks not over 2" wide on the face, laid with grain running vertically. In lieu of vertical blocks, the core may be of stile, rail and panel units, each unit made up of blocks. The stile and rail units shall be assembled with dowels with the panel units tightly tongued and grooved between. Vertical edges shall be of same wood as face veneers and not less than 3/4" thick.

(b) Face veneers for exterior doors shall be northern white pine or ponderosa pine not less than 1/8" thick before sanding and of a grade suitable for painting. Exterior doors shall be toxic-treated as specified under SB-2-E.

(c) Unless otherwise shown on drawings or herein specified face veneer for interior doors shall be unselected birch 1/20" thick before sanding and of a grade suitable for painting. Cross-banding consisting of suitable hardwood veneer not less than 1/10" thick shall be required for all doors having a face veneer less than 1/8" thick before sanding.

(d) All doors shall be assembled with all parts thoroughly glued under heavy pressure and held in retainers until glue is set.

(e) Doors shall be well manufactured with all surfaces sanded smooth. All glue shall be water-resistant.

SECTION BE - CARPENTRY & MILLWORK - (Cont'd.)

(f) Wood sliding doors shall be of size, design and thickness shown on drawings. Stiles and rails shall be solid and dadoed to receive full thickness of panels and shall be mortised and tenoned or doweled together and glued. Panels shall be 13/16" "V" joint, T & G boards or 5/8" plywood, good both sides. Materials shall conform to materials specified under SB-2.01-E. Exterior doors shall be toxic treated as specified under SB-2-E. All glue shall be water resistant. Hardware for sliding doors in prefabricated structures is supplied with the doors, hardware for all other sliding doors is specified under section D or is shown on Door Schedules.

7 Rev. 6/19/51

SB-2.09F: TRIM - In addition to the requirements of the Standard Engineering Specifications the following shall apply:

Unless otherwise shown on drawings or herein specified, lumber for interior trim shall be White Pine, Ponderosa Pine, Southern Yellow Pine, Tupelo or Gumwood.

SB-3-F: WALLBOARDS - In addition to the requirements of Standard Engineering Specifications SB-3-F the following shall apply:

Gypsum Sheet Wallboard shall be of the recessed edge type suitable for taped joints. All joints between boards shall be covered with perforated tape similar to U. S. Gypsum Company's "Perfatape" applied in strict accordance with the manufacturer's printed directions.

7 Rev. 6/19/51 SB-2-F: Hardware specified herein for overhead doors, and for other installations where hardware is specifically herein specified, shall be furnished and installed under this section.

SB-2.08-F: Where so shown on drawings wood louvers and metal louvers shall be closed on inside with wood batten doors. Doors shall be equipped with hinges, catches and other operating hardware as shown on drawings and as required to operate doors from floor. This hardware shall be furnished under this section. Where shown on drawings louvers shall be covered on outside with bird screens constructed as specified in SB-2.07-E.

8 Rev. 7/12/51 SB-2.06-E: Where wood screen doors are to be interchangeable with 1-3/4" thick vestibule doors and hang on the same butts they shall be 1-3/4" thick instead of 1-3/8" thick as herein specified.

SECTION BE - CARPENTRY & MILLWORK - (Cont'd.)

SB-2.06-E and SB-2.07-E: PLASTIC CLOTH may be used, if approved by du Pont for a specific installation. Such cloth shall be "Lumite" as manufactured by Chicopee Manufacturing Corporation, 40 Worth Street, New York City with a mesh not larger than 16 x 16.

SCREEN CLOTH shall be tautly secured and be covered by a neatly molded bead securely nailed into a rabbet.

WOOD REFRIGERATOR DOORS - Refrigerator doors shall be shipped hung in frame complete with all hardware, gaskets, lag bolts and other specified features ready to erect in building.

19 Rev. 3/20/52

Metal Doors to container refrigerator are not included in this section. Doors to all other refrigerators and meat freezer shall be infitting doors. Door to Bakery freezer shall be overlapping freezer door.

Wood Refrigerator Doors shall be of sizes shown on drawings.

Infitting Doors shall be constructed as follows:

Front of door flush, 7 ply, Kiln dried, clear Douglas Fir Marine plywood, made up of solid unbroken cores and bonded with waterproof synthetic plastic resin, inside face flooded with hot asphalt except where waterproof paper is specified. Back of doors shall be similarly constructed except that plywood shall be 5 ply and set flush into recessed stiffeners. Stiffeners shall be clear Douglas Fir. Provide necessary blocking for hardware. Jambs, heads and casings, including interior casings where shown, shall be of nominal size as shown on drawings, designed for single seal and constructed of clear Douglas Fir. Insulation for doors to refrigerators having a temperature of 36° F. and above shall be 4" of granulated cork with frost-proof odorless water resisting paper placed on each side of insulation. Insulation for doors to refrigerator having a temperature of 32° F. to 34° F. shall be 4" of corkboard accurately fitted into moisture proof cells and sealed with hot asphalt. Insulation for doors to meat freezer shall be 6" of corkboard similarly installed.

Overlapping Freezer Door to Bakery Freezer shall be constructed as follows:

Front of door shall be flush panel type built of long tongue and deep groove Yellow Pine or Douglas Fir. Stiffeners shall Be Yellow

SECTION BE - CARPENTRY & MILLWORK - (Cont'd.)

WOOD REFRIGERATOR DOORS - (Cont'd.)

Infitting Doors - (Cont'd.)
Overlapping Freezer Door - (Cont'd.)

Fine or Douglas Fir. Back of door shall be flush panel type built of long tongue and deep groove clear Douglas Fir. Castings and jambs shall be Douglas Fir.

Doors shall be reinforced and cross braced in accordance with manufacturers standard construction. Insulation shall be 8" of corkboard accurately fitted into moisture proof cells and sealed with hot asphalt.

Jamb and head casing shall be fitted with a heat generating electrical resistance cables complete with rheostat and standard electrical extension to plug into electrical receptacle supplied by others. The heat generating resistance cable shall be designed to prevent ice from forming at contact of door with casing and shall be recessed into casing.

Metal Cladding - Doors and frames to garbage refrigerator shall be clad on all exposed faces both inside and outside to a height of 4' -0" with 16 ga. galvanized sheet steel.

Door to meat freezer and bakery freezer shall be clad, full height on front and edges and on casing of frame with 26 ga. galvanized sheet steel. All metal cladding shall have seams folded and locked, without exposed nail heads or solder.

Provide removable metal cover plate over the electrical resistance cables tin the casing of Bakery Freezer.

Gaskets - Gaskets at overlap of head and jambs for infitting doors shall be sponge rubber core covered with a moisture impervious skin conforming to manufacturers standard. Gasket at sill of infitting doors shall be resilient, pliable and tough rubber sealing gasket conforming to manufacturers standard. Gaskets at overlap of bakery freezer door and at sill of door shall be manufacturers recommended gasket for use with -50° F. temperature freezer doors.

Hardware - Hardware for infitting doors shall consist of the following:

Three hinges combining automatic self-adjustment with spring tension regulation assuring evenly distributed uniform gasket compression.

SECTION B3 - CARPENTRY & MILLWORK - (Cont'd.)

WOOD REFRIGERATOR DOORS - (Cont'd.)

Hardware - (Cont'd.)

Two point fasteners providing similar uniform gasket compression on fastener side of door. Front and back release handles but no throug rod. Hardware for overlapping freezer door shall consist of the following:

Three heavy duty adjustable spring hinges for use on overlapping freezer doors, combining automatic self-adjustment with spring tension regulation assuring evenly distributed uniform gasket compression with two point fasteners and front and back release handles as specified above for Infitting Doors.

Hardware shall include all lag bolts or carriage bolts as required for installation. All hardware shall be hot-dipped galvanized. All exterior door handles shall have provision for locking with padlocks which will be furnished by others.

Finish - All exposed woodwork of doors, casings and frames shall be thoroughly sanded and given one coat of filler thoroughly rubbed in and properly cleaned off. When thoroughly dry apply two (2) coats of approved spar varnish allowing sufficient time between coats for drying. Rub each coat with fine sandpaper or hair cloth.

BUILDING MATERIALS CARPENTRY AND MILLWORK LUMBER	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED Feb. 21, 1949 REVISED JANUARY 1952	SB 1 E Page 1 of 2

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. DESCRIPTION

2.1 This specification covers all lumber used for the following purposes:

2.1.1 *Group 1* – Joists and headers, beams, girders, rafters, purlins, main girts, truss members, lintels, plank flooring, stair and step stringers, bumpers, etc.

2.1.2 *Group 2* – Columns, posts, studs 3 inches or larger in least dimension, shoring, etc.

2.1.3 *Group 3* – Wall plates, studs (except as listed under Group 2), bridging, door bucks, nailing strips, grounds, hand rails, small girts (for attachment of corrugated siding), miscellaneous blocking material, unexposed fillers, covered facias, edging strips for insulated roofs, cants, wood curbs for ventilators, sleepers, etc.

2.1.4 *Group 4* – Grillage, dunnage, etc.

2.1.5 *Group 5* – Roof and wall sheathing, subflooring, siding, etc.

2.1.6 *Group 6* – Maple flooring.

3. GRADING RULES AND GRADES

3.1 **Grading Rules.** Lumber for items in Groups 1 to 5 above shall be graded according to the Standard Grading Rules of the *Southern Pine Association* for Long-leaf and Short-leaf Yellow Pine; of the *West Coast Lumberman's Association* for Douglas Fir and Sitka Spruce; of the *Western Pine Manufacturer's Association* for Ponderosa Pine, Idaho White Pine, California Sugar Pine, California White Pine, and California White Fir; of the *Northern Pine Manufacturer's Association or Northeastern Lumber Manufacturer's Association* for Northern White Pine, Norway Pine and Eastern Spruce.

3.1.1 Maple flooring shall be graded according to the Standard Grading Rules of the Maple Flooring Manufacturer's Association.

3.2 **Grades.** Unless otherwise called for in the Project specifications, shall be as follows:

3.2.1 Lumber for the members listed in Groups 1, 2, and 4 shall be Yellow Pine or Douglas Fir. The grade shall meet the stress requirements of 1400 f (minimum) unless otherwise indicated on the drawings.

3.2.2 Lumber for members listed in Groups 3 and 5 shall be Yellow Pine, Fir, Spruce, or White, Ponderosa or Norway Pine, and shall meet the following minimum requirements as to grade:

Group 3 – No. 2 Dimension (1100f)
Group 5 – Roof and Wall Sheathing, subflooring, No. 2 Common. Siding – D Grade.

The above grades for Groups 3 and 5 are specified for Yellow Pine or Douglas Fir. When Spruce or other Pine is used, the grades thereof shall be as required to provide a material of equal appearance and strength.

3.2.3 Maple flooring shall be Third (Factory) Grade, unless otherwise indicated on the drawings.

4. MOISTURE CONTENT

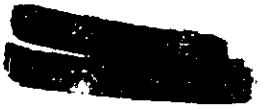
4.1 Lumber having a nominal thickness of 1 1/2-inch, or less, shall be kiln-dried, and the moisture content shall not be more than as specified in the grading rules for the type and grade of material involved. Lumber over 1 1/2-inch in thickness shall be air-dried to a moisture content within the limits set forth in the grading rules for air-drying.

5. TREATMENT

5.1 **Description.** Lumber to be in contact with earth or water or to be used for sleepers or nailers in contact with concrete shall be creosote treated. Other lumber shall not be treated unless specifically called for on the plans or in the Project specifications.

5.1.1 When treatment is required (other than Fire Retardant) and the odor, color, or oiliness of creosote is objectionable to du Pont, or when the treated lumber is to be painted, a Chromated Zinc Chloride treatment shall be used.

5.2 **Preservatives.** Creosote shall conform to the requirements of AWPA's Specification P1 for Grade 1; Chromated Zinc Chloride, for treatment against decay, to AWPA's Specification P5; Boiled Linseed



SECTION BH - LATHING & PLASTERING

CONTENTS

MODIFICATIONS & ADDITIONS

SB-2-H: Keenes Cement Plaster - shall meet the requirements of A.S.T.M. Specification Designation C61.

Keenes Cement Plaster shall be applied over a scratch and brown coat when applied on metal lath and over brown coat when applied over masonry surfaces or other lath.

Scratch coat shall be composed of one (1) part gypsum neat plaster to not more than two (2) parts sand by weight.

Brown coat shall be composed of one (1) part gypsum neat plaster to not more than three (3) parts sand by weight.

Finish coat shall be one (1) part lime putty to three (3) parts Keenes Cement, by weight.

The finish shall be 1/16" to 1/8" thick. It shall be allowed to draw for a few minutes and then it shall be well troweled with water to a smooth finish, free from cat faces and other blemishes.

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Portland Cement Plaster - Scratch coat of cement plaster behind tile base and tile walls and wainscoting, except where tile is applie to concrete surfaces by the adhesive method, shall consist of one (1 part Portland cement, three (3) parts sand and one quarter (1/4) part hydrated lime, fibred for proper application and bond to metal lath. Hydrated lime shall meet the requirements of A.S.T.M. Designation C-150 Type 1.

BUILDING MATERIALS

LATHING AND PLASTERING

FURRING AND LATHING

STANDARD ENGINEERING SPECIFICATION

ISSUED	SB-1-H
9-22-45	
REVISED	
May, 1950	

1. GENERAL:- Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. MATERIALS:- Furring and lathing materials shall be painted or galvanized as specified below. Paint shall be a black rust-inhibitive paint. Galvanizing shall be in accordance with A.S.T.M.: A 123 for H.R. or C.R. shapes; A.S.T.M.: A 93, Class E for steel sheets or Sheet Metal Products; A.S.T.M.: A 112 for wire. Shaped items shall be galvanized after fabrication.

CHANNELS - shall be painted or galvanized with minimum weights as specified in Schedule I.

SCHEDULE I - CHANNEL WEIGHTS

Channel Size	Minimum weight, lb. per 1000 lin.ft. Hot-Rolled	Cold-Rolled
2"	1260	553
1-1/2"	850	442
1"	410	332
3/4"	300	276

Other shapes of hot- or cold-rolled members of equal strength may be used in lieu of channels.

RUNNER CHANNEL SIZES - shall be as indicated in Schedule V for the various longitudinal hanger spacings.

CROSS CHANNEL SIZES - shall depend upon the type and weight of metal lath used, and conform to Schedule II.

SCHEDULE II - CROSS CHANNEL SIZES (COLD ROLLED)

Runner Channel Spacings	Cross Channel Spacings (See Schedule IV) 12"& 13-1/2"	16"	19"	24"	31-1/2"
To 3'-0"	3/4"	3/4"	3/4"	3/4"	1"
To 3'-6"	3/4"	3/4"	3/4"	1"	1"
To 4'-0"	3/4"	3/4"	1"	1"	--
To 4'-6"	1"	1"	1"	--	--
To 5'-0"	1"	--	--	--	--

Where size indications are omitted in the above schedule, it means that those spacings are not permitted.

HANGERS - shall be painted or galvanized round mild-steel rods, flat mild-steel straps, or soft annealed wire of the sizes indicated in Schedule III. Strap hangers shall have the ends punched as required to receive 5/16" bolts.

SCHEDULE III

Maximum Area Supported	Minimum Hanger Size
12 sq.ft.	3/16" round rod or No. 6 (0.192") wire
16 sq.ft.	7/32" round rod or No. 5 (0.207") wire
25 sq.ft.	1" x 3/16" flat steel straps

Hanger length (rod or wire) shall not exceed 150 times its diameter, unless provided with suitable lateral stiffeners at every alternate row of hangers each way.

FASTENINGS - shall be soft annealed galvanized wire, sheet metal, or wire clips, or other fastenings as specified in paragraphs 3 to 7.

INSERTS, ANCHORS, BOLTS, ETC. - shall be galvanized. Concrete inserts for suspended ceilings shall be of a type and size which will provide sufficient strength to carry the total weight of the supported area with a minimum safety factor of 2. Inserts for strap hangers under a concrete slab may be T-shaped steel toggles with the cross-members at least 7" long, and embedded in the concrete above the reinforcing steel. Anchorage to the sides of concrete beams and girders shall be by means of drilled holes and expansion bolts. The minimum size of bolts subjected to shear shall be 5/16".

LATH - shall be of the kind indicated on the drawings, and as described hereafter.

BRAND of all lath shall be subject to du Pont's approval.

Gypsum Lath shall be at least 3/8" thick and conform to A.S.T.M.: C37.

Fiber Insulating Lath shall be of the thickness indicated on the drawings. The quality shall conform to the specification for Class B Insulating Fiber Board in Federal Specification LLL-F-321a.

Metal Lath shall be flat expanded, flat-rib, or high-rib (or self furring) lath made from steel sheets. It shall be painted, unless galvanized lath is specified on the drawings. Painted and galvanized lath shall be coated after expanding. The type and weight of metal lath used shall be in accordance with Schedule IV.

SCHEDULE IV - MINIMUM WEIGHTS, LB. PER SQUARE YARD

F.E.- Flat Expanded F.R.- Flat-Rib H.R.- 3/8" High-Rib

Maximum Support Spacing	Vertical Supports Wood	Metal	Horizontal Supports Wood	Metal
12"	F.E. 2.5 F.R. 2.75	F.E. 2.5 F.R. 2.75	F.E. 3.0 F.R. 2.75	F.E. 3.0 F.R. 2.75
13-1/2"	F.E. 2.5 F.R. 2.75	F.E. 3.0 F.R. 2.75	F.E. 3.0 F.R. 2.75	F.E. 3.4 F.R. 2.75
16"	F.E. 2.5 F.R. 2.75	F.E. 3.4 F.R. 2.75	F.E. 3.4 F.R. 3.0	F.E. 3.4
19"	F.R. 3.0 H.R. 3.0	F.R. 3.0 H.R. 3.0	F.R. 3.4 H.R. 3.0	F.R. 3.4 H.R. 3.0
24"	H.R. 3.0	H.R. 3.0	H.R. 3.4	H.R. 3.4
31-1/2"	H.R. 3.4	H.R. 3.4	H.R. 4.0	H.R. 4.0

Sheet Lath weighing 4.5 lb. per sq.yd. may be used as an alternate for 3/8" high-rib lath. Rod-ribbed flat expanded lath of equal rigidity and weight is permissible for same spacings as 3/8" high-rib lath in above schedule. Alternate use of paper-backed woven-wire lath of 2" x 2" mesh 16 ga.(0.063") galv. wire will be permitted in lieu of expanded metal or flat-rib lath up to a maximum vertical or horizontal support spacing of 16".

NAILS - shall be galvanized or blued, of sizes and types hereafter specified.

CORNER LATH - shall be shaped from painted or galvanized (if galvanized lath is called for on the drawings) expanded-metal lath, 4" x 4" in size, and shall weigh not less than 190 lb. per 1000 lineal feet.

CORNER BEADS, CONCEALED PICTURE MOLDS, AND BASE SCREEDS shall be of the perforated metal type, No. 26 gage, and galvanized after fabrication. Corner bead shall be 1-1/2" standard small nose, unless otherwise specifically called for on the drawings. Minimum weights shall be as follows:

Item	Lb. per 1000 lin.ft.
Corner Bead	200
Cancealed Picture Mold	230
Base Screeds	160

PATENTED SYSTEMS - Patented or special systems of furring, lathing, fastening, etc. will be permitted under this specification. The use of such shall be subject to du Pont's approval, and complete data in reference thereto must be submitted for that purpose before purchase.

3. FURRED CEILINGS - Furring for suspended ceilings shall be installed where indicated on the drawings. When furring under a precast concrete-slab roof deck, and purlin spacing in excess of 5'-0" is required, the runner channels and hangers are not covered by this specification; but cross furring is covered in this specification and shall be installed as described herein.

HANGER SPACINGS - Longitudinal spacing shall depend upon the size of Runner Channels used and shall not exceed spacings as indicated in Schedule V. Transverse spacing shall be governed by the size and spacing of Cross Channels and the size of Hangers, as indicated in Schedules II and III.

SCHEDULE V

(H.R.- Hot Rolled C.R.- Cold-Rolled)

Runner Channel Size	Maximum Longitudinal Spacing
2" H.R. or C.R.	5'-0"
1½" H.R. or C.R.	4'-0"
1" H.R. or C.R.	3'-0"
3/4" H.R. or C.R.	2'-0"

FASTENINGS - When wire hangers are used, the wire shall be saddle-tied to the runner channels and given at least three twists around itself. The upper end shall be fastened to steel beams, purlins, or joists by wrapping the wire around the steel at least twice and then twisting it around itself, or be attached to suitable clips clamped to the steel flanges. Fastening to concrete floor or roof slabs shall be by the means of shaping the wire into a 2" loop and embedding this end into the concrete above the reinforcement.

When rod hangers are used, they shall be fastened to steel beams, purlins, or joists by the use of suitable clips clamped to the flanges of the steel member; and to concrete floor or roof slabs by hooking to obtain a minimum of 4" of anchorage in the concrete above the reinforcing, or by fastening to concrete inserts designed for the purpose.

When strap hangers are used, they shall be fastened to the runner channels by a 5/16" bolt passing through the strap and channel web. The upper end shall be fastened to steel members by wrapping the strap around the steel and bolting the end to itself, or be bolted to suitable clips clamped to the flanges. Fastening to concrete slabs shall be by bolting to inserts embedded in the concrete.

Hangers for ceilings under Precast Roof Slabs shall be fastened to the steel framing members by clips. No hangers shall be fastened to the Precast Slabs, or be bolted directly through the flanges of framing members.

Cross channels shall be fastened to the runner channels at each crossing, using No. 9 hairpin clips or at least 3 turns of No. 16 gage wire.

CONTACT FURRING - When furring is to be installed in contact with structural members, the arrangement and sizes of channels shall be as specified above. Runner channels shall be fastened by methods similar to those used for the upper ends of hangers. Minimum size of wire used for saddle-tying runner channels to structural supports shall be as follows:

SCHEDULE VI

Maximum Area Supported	Minimum Wire Size
Up to 4 sq.ft.	16 ga. (0.063")
Over 4 sq.ft. to 8 sq.ft.	12 ga. (0.106")
Over 8 sq.ft. to 12 sq.ft.	10 ga. (0.135")
Over 12 sq.ft.	8 ga. (0.162")

4. WALL FURRING:- shall be installed where indicated on the drawings using one of the following systems (or a patented or special system approved by du Pont).

(a) Runner channels may be horizontal or vertical and shall be fastened to the wall with inserts built into the masonry, by toggle bolts into tile, cut stub nails driven into the joints, or by hardened nails driven into concrete. Fasteners shall be spaced not over 24" apart. The method used shall provide a good firm anchorage. The channel spacing shall not exceed 4'-6" c.c., with channels located not over 6" from the floor and ceiling (when installed horizontally) or 6" from openings and internal and external corners (when installed vertically). Cross channels, spaced as required for the lath used (see Schedule IV), shall be fastened to runner channels using clips or wire fastenings as specified in Paragraph 3. When cross channels are vertical, place channels within 3" of all openings and both ways from internal and external corners.

(b) Furring channels may be installed without the use of runner channels, and in a vertical or horizontal position. Spacing shall be as specified for cross channels and they shall be fastened to the wall as specified for runner channels in System (a) above. Spacing from the wall, using fiber or metal spacers, will be necessary to permit passage of lath ties. Channels shall be set plumb and to a true flat plane. Minimum channel size (runner or cross) shall be 3/4".

WOOD FURRING, if called for, shall be as indicated on the drawings.

5. APPLICATION:- METAL LATH shall be applied with the long dimension at right angles to the supports. High-rib lath shall be applied with the ribs against the supports.

LAPS - Flat expanded lath shall be lapped a minimum of 1/2" at the sides of the sheets and 1" at the ends, with end laps only over supports; ribs of ribbed lath shall be nested at the sides, and sheets shall lap a minimum of 1" at the ends. Sheet lath shall be nested at the sides and be nested by at least one series of loops at the ends. For horizontal joints in walls, the lower sheet shall lap the upper one.

FASTENING - Flat expanded and flat-rib lath shall be fastened to vertical wood supports by means of 4 d. common nails, 1" roofing nails, or No. 14 gage (0.080") wire staples; to horizontal wood supports with 6 d. common nails, 1-1/4" roofing nails, or No. 14 gage (0.080") wire staples. High-rib lath shall be fastened to wood supports by means of nails or staples 3/8" longer than those specified above. Fastenings to metal supports and for tying laps are to be No. 18 gage (0.048") wire, or larger. Nails, staples, and wire shall be galvanized. Spacing of fastenings and ties shall be a maximum of 6" at the supports, with side laps always fastened at the supports. Side laps shall be fastened with a minimum of one fastening between supports and a maximum spacing of 12".

CORNERS - Expanded-metal ceiling lath shall extend at least 6" down onto the walls; wall lath is to start at the first support away from the vertical corner and be bent onto the abutting wall and fastened to the first support. Ribbed or sheet lath on walls or ceilings shall be butted at the corner and then reinforced with corner lath, fastened along the edges only with wire ties spaced a maximum of 6". If lath other than metal lath is used on the ceilings, expanded-metal lath shall start at the top of the wall and be bent onto the ceiling, lapping the ceiling lath a minimum of 6", and be securely fastened along the edge. Ribbed lath shall butt against the ceiling and be reinforced with corner lath as above.

6. APPLICATION:- GYPSUM AND FIBER-BOARD LATH sheets shall not be tightly butted at the sides and ends, nor are the joints to be open more than 1/4". Vertical or transverse joints shall be staggered.

FASTENING - Nails for gypsum lath shall be 1-1/8" No. 13 gage with 3/8" flat head, blued; for 1/2" fiber-board lath, they shall be 1-1/8" blued fiber-board nails or 4 d. coated box nails; and for fiber-board lath thicknesses over 1/2" to 1", 1-3/4" blued fiber-board nails or 6 d. coated box nails. Nail spacing shall be 4" maximum.

CORNERS - Corner lath shall be applied in all interior corners of walls lathed with gypsum or fiber-board lath, securely fastened at the edges only.

Provide strips of metal lath, approximately 6" x 16", extending outward at an angle of 45°, at the heads of window or door openings.

Maximum spacing of supports for gypsum or fiber-board lath shall be 16".

7. APPLICATION:- ACCESSORIES - Corner beads shall be applied on all vertical exterior corners. Beads shall be straight and free from kinks and bends. Ends of beads at splices or at intersecting corners shall be fastened together with suitable pins inserted in the beads. Beads shall be securely fastened to the backing in a manner approved by du Pont.

Concealed picture molds and base screeds shall be applied in the positions indicated on the drawings, and must be perfectly level and straight from end to end. They shall be securely fastened by methods approved by du Pont.

8. SCAFFOLDING:- shall be provided as required for the proper and safe execution of the work, and shall be removed (unless it is subsequently to be used for plastering) when lathing is completed.

9. CLEAN-UP:- All lath ends, cuttings, surplus materials, etc. shall be removed upon completion of the work and the areas left broom clean.

10. METHODS OF MEASUREMENT for pay quantities under unit prices shall be as follows:

(a) Where the furring and lathing for a general ceiling area are of similar types throughout the area (furring all of same kind, hung same way either by rods or wire or fastened directly to structural members, and lathing all of same material), unit prices shall be on a square-yard basis for furring and lathing installed complete--including channels, hangers, fastenings, inserts, lath, corner lath, scaffolding, cleanup, etc.

(b) Where the furring and lathing for a ceiling area is composed of various types due to structural irregularities above the furred ceiling, the area shall be broken into panels or zones of specific types for which square-yard unit prices for each zone type may be used as per 10a above.

(c) Wall furring and lathing also shall be computed by unit prices on a square-yard basis for each similar panel or section as outlined for ceilings in 10a and 10b above. The unit prices shall include runner and/or furring channels, fastenings, lath, tie wire, corner lath, corner beads, concealed picture molds, base screeds, scaffolding, clean-up, etc.

BUILDING MATERIALS LATHING AND PLASTERING PLASTERING	STANDARD ENGINEERING SPECIFICATION Issued 9-22-48 Revised	SB-2-H Sheet 1 of 4

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRANDS - of plaster shall be subject to du Pont's approval.

3. MATERIALS - Manufactured materials shall be delivered in the original packages or containers bearing the name of the manufacturer and the brand.

SAND - shall be free from alkali, acids, salt, quicksands and organic matter, and shall not contain more than 5% of loam and/or clay. It shall otherwise conform to A.S.T.M.: C 35.

GYPSUM CEMENT PLASTERS - shall conform to the specification for "Gypsum Neat Plaster" in A.S.T.M.: C28, and should contain hair or sisal fibers.

FINISHING LIME - shall conform to A.S.T.M.: C6. It shall be soaked for at least 24 hours and kept moist until used.

GAGING PLASTER - shall conform to the specification for "Calcined Gypsum for Finishing Coat" in A.S.T.M.: C28.

PREPARED TROWEL FINISH - shall be a specially prepared gypsum plaster used instead of Finishing Lime and Gaging Plaster for the finish coat.

BONDING PLASTER - shall be a prepared plaster designed for use as a bonding coat to monolithic concrete surfaces.

WATER - currently used for human consumption will be considered acceptable for use in plaster mixes. Water used for cleaning tools and equipment must not be used for mixing plaster.

STORAGE - Plaster and cementitious materials shall be kept dry until they are used, and free from contamination with foreign matter. Use of damaged or contaminated materials will not be premitted.

4. EQUIPMENT AND TOOLS - used for mixing and transporting plaster must, at all times, be kept clean and free from set plaster. Mixing equipment must be thoroughly cleaned between each batch.

5. TEMPERATURE AND VENTILATION - Plaster shall not be applied to frozen surfaces. A minimum temperature of 40°F. shall be maintained in the building for an adequate period prior to application, while plastering is being done, and until it is

completely dry. Salamanders shall not be used for heating. Regulated ventilation shall be provided in all plastered areas until the plaster is dry.

6. PROPORTIONING - of plaster mixes shall be according to the manufacturer's printed directions.

7. MIXING - shall be by either hand or mechanical mixing methods. When hand mixing method is used, the mixing box shall be tight.- If mixing is done in the building, both the box and water barrels shall be provided with waterproof protection underneath.

Mixing shall be thorough so that the sand and plaster is uniformly distributed throughout the mass. No frozen, caked, or lumpy material shall be used. Batches mixed in a mechanical mixer shall be dumped in their entirety and then used. Retempering of partially set material, or mixing of more material than can be applied within one hour, will not be permitted. Do not mix one gaging with another. Use of artificial retarders and accellerators will not be permitted.

8. SCREEDS - shall be provided at all corners, every 8 ft. on walls where grounds do not occur and every 8 ft. on ceilings.

9. APPLICATION - On metal lath, plaster shall be applied in three coats, and on other lath or on masonry surfaces (except as specified in Paragraph 10) in two coats. Finish coat shall be omitted from areas designated to receive acoustical treatment cemented to the plaster, and brown coat shall be troweled or floated, as required.

WETTING - of masonry surfaces, immediately before plaster is applied, shall be properly done to reduce suction. If the scratch or base coat is too dry, the surface shall be properly wetted immediately before applying the following coat.

SCRATCH COAT - (in three-coat work) shall be applied with sufficient material and pressure to form good full keys on metal lath, and cover well. It shall then be scratched to a rough surface and allowed to set firm and hard before application of the brown coat.

BROWN COAT - (in three-coat work) shall be applied over the scratch coat, brought out to the grounds, straightened to a true surface with rod and darby, left rough, allowed to set and become surface dry before application of the finish coat.

BASE COAT - (in two-coat work) shall be applied with sufficient material and pressure to form a good key to lath or masonry surfaces, and to cover well. Plasterer shall then

double back to bring the plaster out to the grounds, straighten it out to a true surface with rod and darby, and leave it rough. The coat shall be allowed to set and become surface dry before application of the finish coat.

FINISH COAT - in the application of trowel finishes, the use of excessive water shall be avoided.

Gypsum-Lime putty finish shall be applied over the base or brown coat, scratched in thoroughly, laid on well, doubled back and filled out to a true even surface. The thickness shall be from 1/16" to 1/8". The finish shall be allowed to draw a few minutes and then, with the application of water, be well trowelled to a smooth flat surface, free from blemishes.

Prepared trowel finish shall be applied strictly in accordance with the manufacturer's directions.

10. PLASTERING ON MONOLITHIC CONCRETE - Surfaces shall be cleaned of oil, laitance, or other foreign coatings. Use a 10% solution of commercial muriatic acid and water, if necessary, and then flush off all traces of acid with clean water. Immediately before plastering, the concrete surfaces shall be evenly wetted (but not saturated) to provide proper suction.

Surfaces of ceilings shall have a coat of "Bonding Plaster" scratched in thoroughly, doubled back and filled out to a true even surface, and left rough in readiness for the finish coat.

Surfaces of walls and columns shall be plastered as specified above for ceilings, unless a plaster thickness greater than 3/8" is required. In that case, plaster shall consist of a base coat of "Bonding Plaster" followed by a brown coat of gypsum plaster, trowelled into the base coat before it has set. The brown coat shall be brought out to the grounds, straightened to a true surface with rod and darby, and left rough in readiness for the finish coat.

Apply finish coat as specified in Paragraph 9.

11. THICKNESS OF PLASTER - If not otherwise indicated on the drawings, the thickness of plaster shall be as follows:

On metal lath	5/8" min.
On other lath	1/2" min.
On masonry walls	5/8" min.
On monolithic concrete ceilings	1/8" min. to 1/4" max.
On monolithic concrete walls and columns	3/8" max. (except as specified in Par.10)

12. CLEAN-UP - After plastering is completed, all debris and plaster droppings shall be removed and the area left broom clean.

13. SCAFFOLDING - Furnish safe and adequate scaffolding to properly execute the work, and remove it when plastering work is completed.

14. METHOD OF MEASUREMENT for pay quantities under unit prices shall be on a square-yard basis. Individual unit prices shall be used for various types of plastering such as 3-coat, 2-coat, gypsum, Keene's finish, etc., and for such items as scratch coats to receive other than plaster finishes. Unit prices shall cover complete installation including plaster, screeds, acid cleaning of masonry surfaces to receive plaster, scaffolding, clean up, etc.

SECTION BJ - INSULATION

CONTENTS

MODIFICATIONS & ADDITIONS

SB-1-J: Insulating Fiber Board at junction of floors on ground and exterior foundation walls where so shown on the drawings shall be not less than 1" thick, integrally treated to resist dry rot and termites and coated on all edges and surfaces with asphalt.

6 Rev. 6/6/51 SB-1-J: Roof Insulation - The coefficients of heat transmission "U" for insulated roof decks with built-up roofing are shown on the drawings. The insulation on such roofs shall be of a type and thickness which when combined with the roof construction shall result in an overall coefficient of heat transmission not in excess of the "U" coefficient shown on drawings. Table I, sheets 2 and 3 shows the maximum permitted "U" coefficients for various types and thicknesses of insulation in combination with various thicknesses of roof slabs.

12 Rev. 10/16/51 SB-1-J: The weight per cubic foot of Type I molded block mineral wool board insulation shall be 12 pounds.

30 Rev. 1/7/53 SB-1-J: INSULATING FIBER BOARD - where used for roof insulation shall be Class C Roof Board, conforming to Federal Specification LLL-F-321b, and the Commercial Standard CS42-49 and shall be either impregnated or asphalt-coated.

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NUCLEAR INFORMATION
ADC & Reviewing Official: (Name and Title)
Date: 6/24/92

[redacted]

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Sheet 1
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Rev. 10/16/51
Rev. 1/7/53

SECTION BJ - INSULATION

CONTENTS

MODIFICATIONS & ADDITIONS

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6
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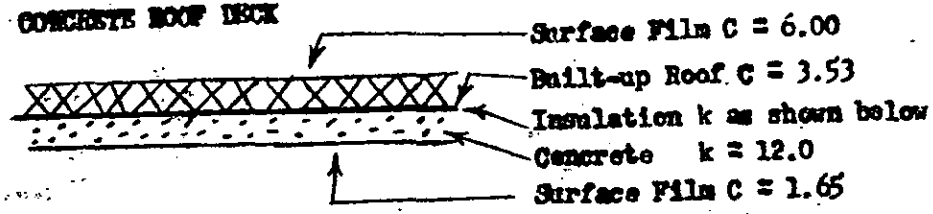
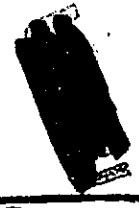
SECTION BJ - INSULATION. TABLE I

OVERALL COEFFICIENT OF HEAT TRANSFER (U) OF FLAT ROOFS WITH BUILT-UP ROOFING; NO CEILING

CONCRETE ROOF DECK





COEFFICIENTS OF HEAT TRANSMISSION (U) IN BTU/ (HR.) (SQ. FT.) (°F) AIR TO AIR - Mean Temp. 75° F.

Regardless of type of insulation used the thickness shall be such that the resulting overall "U" Factor will not be greater than that indicated on the drawings.

Type of Insulation	k	Slab Thickness	Thickness of Insulation 3/4"	1"	1-1/2"	2"	3"	4"
"Rubatex"	.21	2"		.167	.119	.0930	.0645	.0495
		4"		.163	.117	.0915	.0639	.0489
		6"		.159	.115	.0902	.0633	.0486
		8"		.155	.113	.0889	.0625	.0482
		10"		.151	.111	.0875	.0619	.0477
		12"		.147	.109	.0864	.0613	.0474
"Fiberglas"	.25	2"	.237	.192	.139	.109	.0757	.0580
		4"	.228	.186	.136	.107	.0748	.0575
		6"	.220	.180	.133	.105	.0738	.0569
		8"	.212	.175	.130	.103	.0729	.0564
		10"	.205	.170	.127	.101	.0721	.0560
		12"	.198	.165	.124	.099	.0712	.0555

81

6 Rev. 6/6/51

SECTION BJ - INSULATION TABLE I (Cont'd)

Type of Insulation	k	Slab Thickness	Thickness of Insulation 3/4"	1"	1-1/2"	2"	3"	4"
Vegetable Cork Board	.27	2"		.203	.148	.115	.081	.0625
		4"		.197	.144	.114	.080	.0619
		6"		.190	.141	.112	.079	.0613
		8"		.184	.138	.110	.078	.0606
		10"		.179	.135	.108	.077	.0600
		12"		.174	.131	.106	.076	.0594
Mineral Wool Board (Rock Cork)	.33	2"		.235	.173	.137	.0968	.0750
		4"		.226	.168	.134	.0954	.0742
		6"		.218	.164	.133	.0939	.0733
		8"		.210	.160	.128	.0924	.0723
		10"		.203	.155	.126	.0912	.0715
		12"		.197	.153	.123	.0898	.0706
30 Rev. 1/7/53 Insulating Fiber Board Class C Roof Board	.38	2"		.259	.193	.155	.109	.0851
		4"		.248	.187	.151	.108	.0839
		6"		.239	.182	.147	.106	.0828
		8"		.229	.177	.144	.104	.0816
		10"		.221	.172	.140	.102	.0805
		12"		.213	.167	.137	.100	.0795
"Foamglas"	.42	2"				.167	.119	.0930
		4"				.163	.117	.0915
		6"				.158	.115	.0903
		8"				.154	.113	.0890
		10"				.150	.111	.0875
		12"				.147	.109	.0864

SECTION BJ - INSULATION (Cont'd.)

8 Rev. 7/12/51

SB-2-J: Where insulated exterior walls are framed in wood or steel with wood studs and where partitions are of wood studs, the type of insulation and the method of installation shall be as described in SB-2-J. In all other buildings where exterior walls and partitions are insulated the type of insulation and method of installation shall be as shown on drawings and as hereinafter specified.

MATERIALS - 1. Insulation for exterior walls shall be a rigid type, pre-formed insulation, 2" thick in blocks approximately 24" x 48" consisting of glass fibres bonded together with a durable thermo setting resin and shall be rated incombustible when tested under the requirements of Federal SS-A-118 and shall be "Fiberglas" as manufactured by Owens-Corning Fiberglas Corporation.

2. Insulation applied to inside of exterior walls and not exposed in the finish shall have a density of not less than 4.25 lbs. per cubic foot.

3. Insulation applied to inside of exterior walls and exposed in the finish shall have a density of not less than 6 lbs. per cubic foot and shall have a shop finish on the exposed side consisting of sanding the surface and applying one coat of a white resin emulsion paint in accordance with the manufacturers standards. Such insulation shall be proper accoustically carboned to prevent damage in shipment and handling.

4. Insulation for insulated metal stud partitions which is applied in the field shall comply with all of the requirements included in paragraph 1 above, except that the thickness shall be 3" and the density shall be not less than 2.5 lbs. per cubic foot.

5. Insulation applied to panels of post and panel partitions where such insulation is part of the partition shop assembly is not included in this section.

6 Insulation on exterior walls in building where the nature of the occupancy and the presence of high humidities require a vapor seal, shall be of materials and method of installation as shown on drawings.

7. Mechanical anchors shall be corrosion-resistant metal anchors with perforated base not less than 2" x 2" and of a type to be applied to the wall surface with adhesive and shall be mfgd. by Miracle Adhesive Corporation. Base of mechanical anchors shall be flat or curved as required to conform to the wall surface and shall be of the spindle type with self-locking "speed washers". Where exposed in the finish "Speed washers" shall be Type W-2, 7/8" diameter, elsewhere they shall be Type W-1 not less than 1-3/4" in diameter. All washers shall be pre-dipped in paint before installation.

18 Rev. 1/31/52

SECTION BJ - INSULATION (Cont'd.)

8. Wall primer shall be waterproof Miracle Adhesive Primer as manufactured by Miracle Adhesives Corporation.

9. Adhesive shall be heavy-bodied, rubber base type M. cold bonding, fast setting, waterproof, solvent-type mastic, specially prepared for fastening of mechanical anchors. Adhesive shall be "Miracle Adhesive" as manufactured by the Miracle Adhesive Corporation. Adhesive used to secure mechanical anchors to corrugated cement asbestos roofing shall be "Miracle Adhesive" Type HTP.

16 Rev. 1/31/52

10. Caulking material shall be as specified in SB-2-L. Color shall conform to color of factory finish of insulation board.

18 Rev. 1/31/52

INSTALLATION - 1. Wall surfaces against which adhesive is applied shall be cleaned free of all paint, oil, dust, dirt, talc or other foreign substances. Contact surfaces of cement asbestos board shall be brushed with a stiff wire brush before applying adhesive.

2. Mechanical anchors shall be applied to wall surfaces before the wall is primed. Primer shall not come in contact with base of anchor. Anchors shall be attached to wall surfaces with adhesive in accordance with the manufacturers directions and spaced so as to provide not less than six anchors for each 24" x 48" board. Anchors shall be equally spaced approximately 3" back from the edge along the long side of the board, three anchors at each long side. Boards 24" x 24" shall have not less than four anchors. Smaller boards and boards which are cut to fit interrupting construction shall be similarly anchored with anchors spaced at approximately the same ratio with no board having less than two anchors. Anchors shall be rigidly placed and adhesive shall become hard before insulation is applied. Where anchors are exposed in the finish, care shall be taken to align the anchors in true horizontal and vertical lines.

3. After anchors are in place the interior surface of the exterior wall shall be given one coat of primer, brushed on, be taken to keep the primer clear of the bases of the mechanical anchors.

24 Rev. 5/28/52

4. Insulation shall be applied against the interior surface of exterior walls or as otherwise shown on drawings and secured with mechanical fasteners. Boards shall be laid in horizontal course with vertical joints in line. Boards shall be cut as necessary to fit tightly against steel members and any other interrupting installations. Impale insulation on the mechanical fasteners pressing firmly against the wall surface. Use care to assure a snug fit of each board to adjacent boards or structural members. After boards are in place washers shall be pressed over the spindles and pressed firmly against the board. Where insulation is exposed in the finish the projecting spindles shall be cut off close to the washers.

SECTION BJ - INSULATION (Cont'd.)

5. Insulation board with a factory finish shall be carefully removed from the protective cartons and every precaution taken to keep the painted surface of the board clean and free from dents and abrasions which would detract from its appearance. Where insulation is expected in the finish all joints both vertical and horizontal between the boards and between the boards and steel construction shall be caulked with caulking compound.

18 Rev. 1/31/52

6. Metal studs for partitions and wainscoting of exterior concrete walls where insulation is applied in the field are spaced approximately 24" on centers. The insulating blocks shall be spaced between the studs and sprung into place between the flanges of the studs. Blocks shall extend from floor to ceiling and shall be cut and fitted as necessary to entirely fill the space between studs.

18 Rev. 1/31/52

INSULATION ON UNDER SIDE OF CORRUGATED ROOFING

1. Where rigid type insulation is applied to the underside of corrugated cement asbestos roofing, the insulation, mechanical anchors, and primer shall comply with the applicable paragraphs as herein specified for exterior walls under MATERIALS except that the adhesive shall be Miracle Adhesive - Type HT-2 (high temperature).

2. The method of installation shall conform to the applicable paragraphs as herein specified for exterior walls under INSTALLATION with the added provision that the insulation shall not be installed until at least 48 hours after the mechanical anchors have been installed and then only after the prime coat has had at least 24 hours to dry.

SECTION BJ - INSULATION (Cont'd.)

REFRIGERATOR INSULATION

MATERIALS - The required thickness and number of layers of insulation shall be as indicated on drawings. Quality and physical characteristics of corkboard and application materials shall conform to the following:

Compressed Vegetable Corkboard - shall conform to Federal Specification HH-C-561 b - Standard Finish.

Erection Asphalt - shall conform to A.S.T.M. - D449, Type C, Maximum Kettle Temperature shall be 350° F.

Insulation Nails - shall be Steel, Hot-galvanized, with 1/2" heads and of the following gauges:

1-3/4" and 2-1/2" lengths	-	No. 10
3" and 4" lengths	-	No. 9
5-1/2" and 7-1/2" lengths	-	No. 8

Skewers - shall be hardwood, specially treated against mold growth and dry rot, 1/4" diameter and of proper length.

Lumber - Wood studs, sills, plates and door bucks shall conform to the requirements of Standard Engineering Specifications SE-1-E - Group 3 and treated with chromated-zinc chloride.

Metal Lath - applied to insulated surfaces only shall be 1" mesh #20 galvanized chicken wire.

Portland Cement Plaster - shall be as specified in Section BH.

Ceiling Supports - shall be hot rolled steel T-irons, properly cleaned and shop painted with Fed. Spec. TT-P-25 - Exterior Primer.

Asphalt Primer - shall be A.S.T.M. : D41.

Membrane Fabric - shall be an asphalt saturated all cotton woven fabric having a tensile strength, both directions (grab method) of not less than 50 pounds per linear inch with not less than 10% elongation. Fabric shall weigh , before saturation, not less than 4 oz. per square yard and, after saturation, not less than 12 oz. per square yard. It shall have a thread count between 18 x 18 and 36 x 36. In all other respects, the fabric shall conform to Federal Specifications HH-C-581. In lieu of the cotton membrane, fabric may be asphalt-coated fiber glass cloth having such characteristics as to be equal to that specified above.

SECTION BJ - INSULATION - (Cont'd.)

REFRIGERATOR INSULATION - (Cont'd.)

Framing - The size and spacing of studs, sills, plates and bucks shall be as shown on drawings and interval between studs shall be as required to receive insulation. Steel T-iron supports for ceilings shall be of size shown on drawings. They shall be spaced approximately 12" apart to receive 12" wide corkboard. T supports shall have a bearing of at least 4" on walls and shall be securely anchored to plates and shall have intermediate suspension supports as required and as shown on drawings.

APPLICATION

Wall Insulation - Walls shall be insulated with 4", 6" or 8" of corkboard in two, three, or four layers of 2" corkboard respectively as shown on the drawings. Walls inside refrigerators shall be of heights as shown on drawings. The first layer of corkboard (the outside layer) shall have the edges, coming in contact with the studs, dipped in hot asphalt and immediately applied between the studs with each sheet fitting tightly to studs and securely toe nailed to studs with insulation nails. The second layer of corkboard shall be dipped in hot asphalt and be immediately applied to the first layer and shall in addition be secured with skewers of proper length using a minimum of two (2) skewers per sq. ft. Skewers shall be driven at opposite angles. Joints shall be butted tight but units shall not be forced into place. Vertical joints shall be staggered and when more than one layer is applied all joints shall be broken with those in the preceeding layer. Additional layers, where required, shall be applied in a similar manner.

After the wall insulation is completed the outside of the exterior walls shall be given a 1/8" thick spray coat of "INSUL-MASTIC" No. 4010 Vapor seal, as manufactured by the INSUL-MASTIC Corp. of America, extending from bottom of wall insulation to top of ceiling insulation to form a continuous vapor seal.

Ceiling Insulation - shall consist of two, three or four layers of corkboard as shown on the drawings. Each layer shall be two inches thick. The first layer of corkboard shall be placed between the T-irons, with the edges notched so that it snugly fits the flanges, and so that the flanges do not project below the corkboard.

The second layer of corkboard shall be dipped in hot asphalt and be immediately applied to the underside of the first layer, and at right angles to it with all joints broken. The second layer shall, in addition, be secured to the first layer with skewers of proper length, using a minimum of three (3) skewers per sq. ft. and driven at opposite angles. Where additional layers of insulation are required or indicated on the drawings, they shall be placed on top of the first layer and each layer shall be bedded in hot asphalt with all joints filled with asphalt and butted close. All joints in succeeding layers shall be broken.

SECTION BJ - INSULATION (Cont'd.)

APPLICATION - (Cont'd.)

Ceiling Insulation - (Cont'd.)

The top surface of the ceiling insulation shall be mopped with a heavy coat of hot asphalt extending down at least 6" over the outside of the wall insulation to form a vapor seal. Over the vapor seal, install at continuous layer of 1/2" mest galvanized hardware cloth (rat proofing) extending over the entire area and embed this in a topping of Portland cement mortar evenly floated to not less than 3/4" thick.

Floor Insulation - shall consist of two, three or four layers of corkboard, each 2" thick, as shown on drawings. The concrete sub slab shall be dry, reasonably smooth and level. Over the concrete sub slab apply waterproofing consisting of two layers of a bituminous-impregnated glass-fiber fabric, installed as specified in SB-1-L. Fabric shall extend over the entire area of the depressed sub slab and turn up at all edges to the underside of the floor finish. Over this waterproofing apply the insulation as follows: Each layer of insulation shall be embedded into a mopping of hot asphalt, using not less than 40 lbs. per 100 sq. ft. per layer. All joints in successive layers shall be broken.

Over the final layer, a membrane consisting of 2 plies of fabric shall be applied in hot moppings, using at least 20 lbs. of asphalt per 100 sq. ft. per mopping. The moppings shall extend over the entire surface of the insulation and between fabric plies so that at no place shall fabric touch fabric. Membrane and moppings shall extend 8" up onto wall, columns, pilasters, etc. and be thoroughly sealed thereto. After second ply of membrane is complete a final mopping shall be applied. Immediately before placing waring slab, the entire area shall be examined and all damaged spots repaired.

Finish of Insulated Surfaces

Ceilings - of the refrigerator spaces shall have a plastic finishing coat applied directly to the corkboard in one coat 1/4" thick troweled smooth. Point up all open joints, voids or broken corners with this material befor applying the finishing coat. The plastic finish coat shall be a synthetic rubber composition capable of permanent bond to cork insulation and retaining a smooth even surface. Plastic finishing coat shall be similar and equal to "Plastic Underlayment" as manufactured by The Miracle Adhesiv Corporation.

SECTION BJ - INSULATION (Cont'd.)

APPLICATION - (Cont'd.)

Interior Walls - for the full height of refrigerators shall be covered with metal lath securely fastened to insulation with 1-1/4" galvanized staples driven at an angle to wall surface. Perforated galvanized bullnoised corner beads shall be applied from floor to ceiling on all outside vertical corners, where walls are finished in cement plaster.

The first coat of cement plaster shall be applied in a thin layer approximately 1/4" thick, exerting pressure to force the plaster into voids in the corkboard and key to wire lath. The first coat shall be cross scratched and allowed to set. Except where tile finish is shown, the second coat shall be applied over the scratch coat to obtain a total plaster thickness of not less than 3/4" and then trowelled to a dense, flat, even smooth finish using a minimum of water to achieve the desired result.

Where tile is required as a finish on walls and floors, it shall be applied as specified under Section BK.

Painting - The finished ceilings shall be painted with aluminum paint applied in two coats, each coat flowed on. Allow the first coat to dry before the second coat is applied. Aluminum paint shall be of a type designed for application over asphaltic plaster and shall be similar and equal to Armstrong's Aluminum Paint.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
INSULATION FOR NORMAL CONDITIONS	ISSUED FEB. 21,1949	SB-1-J
FOR USE BENEATH BUILT-UP ROOFING	REVISED DEC. 20,1949	

1. GENERAL - Standard Engineering Specifications SC-1-A and SB-1-D apply to and are part of this specification.

2. BRAND - The brand of insulation shall be subject to du Pont's approval.

3. INSULATION MATERIALS - The type and thickness of insulation shall be as shown on the drawings or called for in the project specifications. Quality shall conform to the following applicable specification:

COMPRESSED VEGETABLE CORKBOARD - Federal Specification HH-C-561. Finish shall be standard corkboard finish.

INSULATING FIBER BOARD - Class C Roof Board, Federal Specification LLL-F-321, and shall be either impregnated or asphalt-coated.

MINERAL WOOL BOARD - Type I Molded Block in Federal Specification HH-M-371.

CELLULAR INSULATION BOARD - shall be "FOAMGLAS" as manufactured by the Pittsburgh-Corning Corporation, Pittsburgh, Pa., or "RUBATEX" as manufactured by the Great American Industries, Inc., Virginia Rubatex Division, Bedford, Va.

4. APPLICATION MATERIALS - Primers, asphalt, coal-tar pitch, felts, and nails shall conform to the requirements of Standard Engineering Specification SB-1-D.

5. APPLICATION - Insulation shall be applied to the areas indicated on the drawings.

CONDITIONS FOR APPLICATION - Roof decks and insulation shall be thoroughly dry and decks shall be free of ice, snow, frost, and refuse. Boards on wood decks must be securely nailed and must not be cupped or warped.

Asphalt primers and adhesives shall be used with asphalt felts, and creosote primers and coal-tar pitch adhesives with coal-tar-saturated felts. Maximum kettle temperature of asphalt shall be 450°F. and of coal-tar pitch 375°F.

Except when Cellular Insulation, 2" or less in thickness, is used on a poured concrete deck, a moisture barrier shall be applied between the deck and the insulation.

Insulation more than 2" thick (except Cellular Insulation) shall be applied in two layers of equal thickness. Cellular insulation may be applied in a single layer, regardless of thickness.

PRIMING DECKS - Poured concrete and precast tile decks shall be primed with asphalt or creosote primer. Poured concrete decks shall be completely covered using not less than ten lbs. of primer per 100 sq.ft. Precast tile decks shall be "spot primed," keeping the primer back approximately four inches from the tile joints. Prime coating shall be dry before application of moisture barrier or insulation.

Steel Plate or Wood decks need not be primed.

MOISTURE BARRIER - shall consist of two plies of 15-lb. felt, applied by lapping the felt one half its width and at least six inches at the ends, or one ply of 30-lb. felt lapped a minimum of six inches at the sides and ends. End joints of adjacent strips shall be staggered. On poured concrete and steel-plate decks, the felt shall be laid into a uniform mopping of hot asphalt or coal-tar pitch, using a minimum of 20 lbs. per 100 sq.ft. per mopping. Precast tile decks shall be "spot mopped" in the manner described for priming. The adhesive shall completely cover the surface between plies and laps, so that felt does not touch felt in any case. The felt shall be laid without wrinkles or buckles. It shall be unrolled immediately behind the hot mop and firmly embedded by brooming the felt.

On wood decks, the moisture barrier shall be applied in a similar manner, except that only the laps shall be sealed with adhesive. The felt membrane shall be nailed to the deck through the laps, with nails spaced not over six inches apart.

Oil to ASTM D260; Raw Linseed Oil to ASTM D234. Chromated Zinc Chloride for Fire-retardant Treatment shall consist of not less than 75 percent Chromated Zinc Chloride meeting the requirements of AWPA's Specification P5 plus not less than 10 percent each of Ammonium Sulphate and Boric Acid or other suitable chemicals, which will reduce afterglow.

5.3 Treating Processes, material conditioning, plant equipment and other pertinent requirements shall conform to the "Standard Specification for Preservative Treatment by Pressure Processes," American Wood Preserver's Association's Designation T1 and T2 for the specific kind of lumber and type of preservative to be used.

5.3.1 When a "Fire-retardant Treatment" is called for, all the requirements of the above AWPA Specifications for a Chromated Zinc Chloride treatment shall apply except for retention which shall be as follows:

	Nominal Lumber Thickness	
	4 inches and thinner (lb. per cu.ft.)	Over 4 inches Thick (lb. per cu.ft.)
Southern Yellow Pine	3.0	2.5
Douglas Fir	2.0	1.5

5.3.2 Oil Treatment. When a linseed oil treatment is required, the lumber shall be immersed for five minutes in either boiled or raw linseed oil heated to a temperature of approximately 100-degrees F. The oil shall be kept under the boiling point for the entire process. After removal from the bath, the lumber shall have the excess oil removed by use of rubber squeegees, or by similar means, and then be permitted to dry before use.

6. OTHER REQUIREMENTS

6.1 Dimensions indicated on the drawings are nominal dimensions (except where details show actual sizes) and shall be subject to the standard reductions required for surfacing, or tolerances permitted by the grading rules. Unless otherwise specified or indicated, material in Groups 1 to 4, inclusive, shall be S4S.

6.2 Sheathing. Wall sheathing shall be S4S or shiplapped 1 inch by 6 inch or 1 inch by 8 inch, unless otherwise called for on the drawings. Roof sheathing and subflooring shall be 1 inch by 6 inch or 1 inch by 8 inch D&M.

6.3 Siding shall be drop siding, milled to Pattern Nos. 119, 101, 105, 109, stated in order of preference. The thickness shall be 3/4-inch and the preferred face width, 5 1/16-inch. A face width of 6 7/8-inch will be acceptable, however, especially for the larger structures.

6.4 Flooring. Maple flooring shall be 25/32-inch by 2 1/4-inch face, unless otherwise indicated on the drawings, and shall be end-matched.

6.5 Plank flooring shall be of the thickness, width, and edge pattern (T&G or S4S) indicated on the drawings. Splined edges may be substituted for T&G. Spaced flooring shall be S4S.

7. STORAGE

7.1 All material specified herein shall be stored, after delivery to the site, so that it will be fully protected against weather or other damage, and shall be piled so as to prevent warpage.

BUILDING MATERIALS CARPENTRY AND MILLWORK MILLWORK – GENERAL REQUIREMENTS	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED Feb. 21, 1949 REVISED JANUARY 1952	SB 2 E

1. GENERAL

1.1 Standard Engineering Specification SC1A applies to and is a part of this specification.

2. FABRICATION

2.1 The selection of the millwork manufacturer(s) shall be subject to du Pont's approval. Millwork shall be manufactured in accordance with the details indicated on the drawings and as specified herein.

2.1.1 Surfaces of millwork shall be machined smooth or sanded as hereinafter specified. Surfaces not sanded shall be free of machine marks or similar defects, and items intended to receive a stained or varnished finish shall not be sanded across the grain.

2.1.2 Assembly. Millwork shall be assembled at the mill and be ready for installation, insofar as is practical. When fitting on the job is necessary, ample material shall be allowed for trimming.

2.1.3 Priming and Preservation. Exterior door and window frames, exterior doors and windows, louvers, screens, exterior mouldings and trim, and other items exposed to the weather or in contact with masonry shall receive a toxic treatment equivalent to the Toxic-Preservative Minimum Standards of the National Door Manufacturer's Association applied at the mill.

2.1.4 Moisture Content. Lumber used in the manufacture of millwork shall be kiln-dried so that the moisture content at the time of manufacture does not exceed 10 percent.

2.1.5 Glass and Glazing. is not included in this specification. See Std. Eng. Spec. SB1G.

2.1.6 Hardware. Other than that specified for overhead doors, is not included in this specification.

3. SHOP DRAWINGS

3.1 Shop drawings for all items, except manufacturer's "stock" items, shall be submitted to du Pont for approval before any shop work is begun. Measurement shall be verified on the job, as required, to insure a fit as intended by the drawings.

BUILDING MATERIALS CARPENTRY AND MILLWORK MILLWORK - DOOR AND WINDOW FRAMES	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB. 21, 1949	SB-2.01-E
	Revised	

Door and window frames shall be made of White, Ponderosa or selected Yellow Pine or Cypress, unless otherwise specified or indicated on the drawings. Exposed members shall be free of knots, checks, shakes, or other defects, and unexposed members shall be sound and free of defects which will reduce the strength of frames. White sap, light brown water stain, and light red kiln burn will not be considered defects. Pulley stiles, head jambs, and parting stops shall be sanded. Joints between stiles and sill or head jamb shall be primed with white lead and oil before assembly. When the drawings indicate sills for door frames, they shall be clear Red or White Oak.

BUILDING MATERIALS CARPENTRY AND MILLWORK MILLWORK - WINDOWS AND SASH	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB.21.1949	SB-2.02-E
	Revised	

Windows and sash shall be made of White or Ponderosa Pine or Cypress, and, unless otherwise indicated on the drawings, shall be of manufacturer's "stock" or standard design and layout, and of Grade "A" quality, all as set forth by the National Door Manufacturers Association's Specifications for Ponderosa Pine stock windows and sash. Custom-made windows or sash shall be equal to the above in quality.

Windows and sash shall be of the size and thickness shown on the drawings, and shall be divided into lights as indicated.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
CARPENTRY AND MILLWORK	Issued FEB.21.1949	SB-2.03-E
MILLWORK - PANEL DOORS	Revised DEC.20.1949	

Panel doors shall be of a quality equal to that set forth in the National Door Manufacturers Association's Specification for Grade "No. 1" for pine doors and Fir Door Institute's Specification for Grade "No. 1" for fir doors. Stiles and rails shall be made of White or Ponderosa Pine, Douglas Fir, Yellow Pine, or Cypress; and panels shall be unselected Birch plywood, or Pine or Fir plywood, good on both sides, 3/8" thick (minimum), and of at least three plies; or, when so called for on the drawings, shall be 3/4" thick clear Pine or Fir "V" joint ceiling, tightly fitted together. All glue shall be waterproof resin or casein glue. Muntins for glazed doors shall be a minimum of 3/8" between the glass. Doors shall be sanded on both sides and shall be marked with the grade and manufacturer's name.

BUILDING MATERIALS CARPENTRY AND MILLWORK MILLWORK - LAMINATED PANEL DOORS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB.21,1949	SB-2.04-E
	Revised	

Stiles and rails shall be manufactured of White or Ponderosa Pine, Sitka Spruce or Western Fir. Panels shall be built-up of tongue-and-groove pine or birch strips having a maximum face width of 1-1/8", nailed together every 4". The nails shall be 4" long and shall extend through two and one-half laminations and so arranged in a staggered manner that the entire panel becomes a laminated section. The tongue-and-groove edges of the strips shall be painted with white lead paint before assembly to exclude moisture. Panel thickness shall be 13/16" for 1-3/4" doors and 1-1/8" for doors over 1-3/4" thick. Panels shall be sanded on both sides before assembly. Stiles and rails shall be dadoed to receive full thickness of panel and shall be mortised and tenoned, or dowelled together, using casein glue.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
CARPENTRY AND MILLWORK	Issued FEB. 21, 1949	SB-2.05-E
MILLWORK - OVERHEAD TYPE DOORS	Revised	

The size, thickness, and number of sections shall be as indicated on the drawings. The doors shall be furnished complete with all hardware, screws, bolts, hangers, ropes, bottom astragal, etc. Hand-chain or electric operators shall be furnished as indicated on the drawings or called for in the project specifications. The brand of door shall be subject to du Pont's approval.

The following specifications are to be considered minimum requirements:

The doors shall be made of clear, dry, straight-grained Sitka Spruce, Fir, White or Ponderosa Pine, or Yellow Pine that is free of knots, shakes, checks, pitch streaks, and other imperfections. Panels shall be at least 3-ply, 3/8"-thick Douglas Fir waterproof plywood, sound and sanded on both sides. Horizontal joints between sections shall be shiplapped and all molds shall be cleanly run. Joints between the stiles, rails, and mullions shall be mortise-and-tenon joints, glued together with waterproof glue. Steel reinforcements acceptable to du Pont shall be applied over the joints subjected to strain on doors over 12'-0" wide. Panels shall be set in a dado of a width equal to the full panel thickness. Doors shall be sanded on both sides ready for painting and shall be toxic treated as specified in Paragraph 5, Std. Eng. Spec. SB-2-E.

Hardware shall be finished in black, unless galvanized hardware is specifically called for on the drawings. Tracks shall be formed from at least No. 13 gauge (0.0897") steel plate for doors up to 144 sq. ft. in area, and No. 11 gauge (0.1196") for larger sizes. Vertical track support shall be a continuous angle, drilled for bolting to the jambs. Rollers shall be ball-bearing with hardened steel faces and shafts. Counterbalances shall be of the tensile or torsional type, capable of being accurately adjusted to the weight of the particular door involved. Doors shall be provided with manually-operated safety devices or other approved means for holding them open in the desired position. Provision shall also be made for automatically holding all sections of the door tightly against the side and head jambs when in a closed position. Furnish a combination latch and lock and a rubber astragal or metal weatherstrip at floor juncture.

Glazed panels shall be provided with wood stops or beads, neatly fitted to the opening.

Complete installation, operating, and maintenance instructions shall be furnished with the door shipment.

BUILDING MATERIALS CARPENTRY AND MILLWORK MILLWORK - SCREEN DOORS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB.21,1949	SB-2.06-E
	Revised	

Screen doors shall be manufactured from White or Ponderosa Pine, Yellow Pine, Douglas Fir or Sitka Spruce straight-grained lumber that is free from knots, shakes, checks, pitch streaks, or other defects. Joints shall be mortised and tenoned or dowelled and glued with waterproof casein glue. Molds shall be cleanly run on stiles and rails and doors shall be sanded on both sides. Stiles, top rail, and lock rails shall be 1-3/8" x 3-1/2", and bottom rail shall be 1-3/8" x 7-1/2". The location of lock rails shall match the wood door in the same opening.

WIRE CLOTH shall be 16-mesh copper, bronze, or aluminum-alloy insect wire, conforming to Types A, B, C, and G in Federal Specification RR-C-451.

The lower panels shall be reinforced with 1/2" mesh, rustproofed metal wire guard. Insect wire shall be tautly secured and be covered by a neatly molded bead securely nailed into a rabbet.

BUILDING MATERIALS CARPENTRY AND MILLWORK MILLWORK - SCREENS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB.21.1949	SB-2.07-E
	Revised	

Window insect screens shall be of the types and sizes indicated on the drawings. Lumber shall be White or Ponderosa Pine, Cypress or Sitka Spruce, straight gained and free of knots, shakes, checks, pitch streaks, or other defects. Stiles and rails shall be mortised and tenoned together and glued with waterproof casein glue. Molds shall be cleanly run on stile and rails and screens shall be sanded on both sides. Unless otherwise indicated on the drawings, stiles and top rails shall be 1-1/8" x 2-1/4", bottom rail 1-1/8" x 4-1/2", and vertical and horizontal bars a minimum of 1-1/8" x 1". The location of the center horizontal bar shall match and check rail of the double-hung window being screened.

WIRE CLOTH shall be 16-mesh copper, bronze, or aluminum-alloy insect wire, conforming to Types A, B, C, or G in Federal Specification RR-C-451.

Insect wire shall be tautly secured and be covered by a neatly molded bead securely nailed into a rabbet.

Bird screens shall be similarly manufactured except that 1/2" mesh No. 16 gauge (0.065") (minimum) galvanized hardware cloth shall be used in lieu of the wire cloth specified above.

BUILDING MATERIALS CARPENTRY AND MILLWORK MILLWORK - LOUVERS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB.21,1949	SB-2.08-E
	Revised	

Wood louvers shall be of the type, size, and details shown on the drawings and on Engineering Standard B5H, and shall be made of White or Ponderosa Pine or Cypress unless otherwise indicated. Blades, jambs, and sills shall be sanded.

BUILDING MATERIALS CARPENTRY AND MILLWORK MILLWORK - TRIM	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB.21,1949	SB-2.09-E
	Revised	

Provide all exterior and interior trim of the sizes and details indicated on the drawings or required to make a complete installation. Exterior trim such as cornice mouldings, corner trim, facias, barge boards, etc. shall be made of White or Ponderosa Pine, Douglas Fir, Cypress or Southern Yellow Pine, and of a material equal to "C Select" lumber grade. Interior trim shall be of the kind of lumber indicated on the drawings, clear and free of all defects, and shall be thoroughly sanded ready for finishing.

BUILDING MATERIALS CARPENTRY AND MILLWORK MILLWORK - CABINET WORK	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB.21,1949	SB-2.10-E
	Revised	

Tables, benches, shelving, lockers, mill-manufactured stairs, etc. shall be manufactured strictly in accordance with the detailed drawings and shall be of first class quality in accordance with the best practices of the trade. Kind of lumber shall be as indicated. Where tables and counters are to be covered with linoleum, the tops are to be prepared as necessary. Linoleum shall be applied by others, unless otherwise specifically indicated.

Manufacturer's "stock" items may be furnished providing the layout is similar to that incidated on the drawings and the overall dimensions of the stock item can be adjusted to fit the space provided.

BUILDING MATERIALS CARPENTRY AND MILLWORK WALLBOARDS	STANDARD ENGINEERING SPECIFICATIONS Issued FEB.21.1949 Revised	SB-3-E Sheet 1 of 2

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - This specification covers the quality and physical requirements of the following items:

Fiber-Board Sheathing, Insulating Fiber Board, Tempered Fiber Board, Plywood, Flat Asbestos Wallboard, Asbestos-Encased Insulating Board, Gypsum Sheet Wallboard, and Sheathing Paper.

Thickness shall be as indicated on the drawings, and the width and length of sheets shall be as required for a minimum of joints. When wallboards are used for the lining of interior wall surfaces, joint strips shall be furnished as called for on the drawings.

The brand of the above materials to be used shall be subject to du Pont's approval.

3. FIBER-BOARD SHEATHING - shall conform to the specification for Class A Building Board in Federal Specification LLL-F-321a, and be impregnated or surface coated with asphalt.

4. INSULATING FIBER BOARD - shall conform to the specification for Class A Building Board in Federal Specification LLL-F-321a.

5. PRESSED FIBER BOARD - shall conform to Federal Specification LLL-F-311, and may be either Class A, untreated, or Class B, treated, unless a treated board is specifically called for on the drawings.

6. PLYWOOD - shall have Douglas Fir or Unselected Gum face veneers, and shall be formed of 3 or more plies bonded together under heat and pressure, using a waterproof binder. Fir plywood shall conform to the quality requirements set forth by Douglas Fir Plywood Assn. Gum plywood shall be equal to that manufactured by the United States Plywood Corporation. The grade shall be as called for in the project specifications.

7. ASBESTOS WALLBOARD - shall be made of asbestos fibers and Portland cement united under hydraulic pressure into dense, unlaminated, monolithic sheets. The color shall be light gray and surfaces for exposed work shall be smooth. Asbestos board shall be stored and handled so as to prevent breakage. The use of broken or damaged boards will not be permitted.

8. ASBESTOS-ENCASED INSULATING BOARD - shall be made with a core of Insulating Fiber Board conforming to the requirements set forth in Paragraph 4, and S2S facings of 1/8" Asbestos Board as specified in Paragraph 7 above. The asbestos board shall be cemented to the core with a moisture-proof, highly vapor-resistant, permanent adhesive.

9. GYPSUM SHEET WALLBOARD - shall meet the requirements for Gypsum Wall Board, Type A, as specified in Federal Specification SS-W-51a.

10. SHEATHING PAPER - The type of paper shall be as indicated on the drawings.

Type I paper shall be red or blue rosin-sized paper weighing not less than 5 lbs. per 100 sq.ft.

Type II paper shall consist of two sheets of 30-lb. kraft paper bonded together with two layers of asphalt in which is embedded a reinforcing of crossed sisal fibers, not more than 1/4" apart. The quantity of sisal fibers shall be approximately 13 to the linear inch, both ways. The paper shall be chemically treated to resist shrinkage and scuffing.

BUILDING MATERIALS CARPENTRY AND MILLWORK WORKMANSHIP	STANDARD ENGINEERING SPECIFICATIONS Issued FEB.21,1949 Revised	SB-4-E Sheet 1 of 2

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - This specification covers the installation of materials listed or referred to in Standard Engineering Specifications SB-1-E, SB-2-E, and SB-3-E, including rough and finish hardware, anchors, sheathing papers, grounds, etc.

The workmanship shall be first class and in accordance with the best trade practices.

3. ROUGH CARPENTRY - Framing members shall be accurately cut to the work requirements, and be well fastened. Bolted fastenings shall have washers of adequate size under both the heads and nuts. Nails shall be of adequate size and quantity for proper fastening, but oversized nails that will result in splitting shall not be used. Sheathing boards shall be driven up tight. All work shall be adequately braced for proper alignment and to provide adequate safety for the workmen. Do all cutting as required by other trades; but weakening of structural members will not be permitted.

Permanent grounds and nailing strips shall be provided where required to afford proper nailing for all finished carpentry work. Grounds shall be dressed to required sizes and beveled so as not to loosen through shrinkage. They shall be securely nailed and be rigid, straight, level, and plumb.

4. FINISH CARPENTRY - Frames, louvers, etc. shall be erected plumb and accurately to the layout shown on the drawings, and be well braced to retain alignment. Windows, sash, doors, screens, etc. shall be accurately fitted with the minimum clearance for smooth operation.

Interior and exterior trim shall be neatly mitered or coped, with faces well matched, and finished smooth. Nails for exposed work shall be finishing or casing nails of the proper size and the heads shall be set ready for the painter. Door and window trim shall be scribed to the plaster surfaces as required. Cabinet work shall be neatly installed and fitted to the plaster surfaces or adjoining cabinets, etc. as necessary. Install wallboard partitions where and in the manner indicated on the drawings. Flooring shall be driven up tight, and be blind-nailed at each joist or sleeper.

5. FINISH HARDWARE - shall be unpacked and verified as to type and quantity, and all shortages immediately reported to the proper authority. All keys shall be properly identified and marked and be placed in the custody of du Pont, who will issue a receipt therefor.

Hardware shall be neatly installed and shall operate perfectly before final acceptance by du Pont.

6. FLOOR SANDING - Wood strip floors shall be sanded with a mechanical floor sander. All ridges and factory machine marks shall be removed, and the areas adjoining walls or other fixed vertical surfaces shall be hand scraped and sanded, leaving the entire area perfectly smooth and ready for the painters. Sanding across the grain will not be permitted, and the final sanding shall be done with a fine grade of paper.

7. PROTECTION - All finished work shall be adequately protected against damage, soiling, etc. from any source. If plastered or masonry surfaces are not completely dry and the humidity within the building is not down to a point where no serious swelling or damage therefrom can occur, finishing materials shall not be brought into the building or be installed until permitted by du Pont.

8. COORDINATION - Carpenters shall coordinate their work with that of the other trades so that progress continues without interruption.

SECTION BF - STEEL DOORS & FRAMES

CONTENTS

MODIFICATIONS & ADDITIONS

SB-1.1-F: Where indicated on the drawings to be light-tight, pressed steel frames shall be provided with a metal-backed sponge rubber gasket, applied to the head and both jambs, mitered at the corners and continuous on each surface. Gasket shall be positioned on the integral door stop in such manner as to provide a light eseal when the door is in its closed position.

SB-1.4-F: In addition to doors meeting the requirements of Standard Engineering Specification SB-1-F and SB-1.4-F, flush metal doors conforming to the following specifications are acceptable: Unless otherwise shown on drawings, doors shall be 1-3/4" thick having a core constructed of solid hydrous calcium silicate with fibrous reinforcing having a nominal density of 20 lbs. per cubic foot with a modulus of elasticity of 160,000 lbs. p.s.i. The core shall be banded in a continuous steel framing channel of not less that 18 gauge around the entire perimeter of the door, continuously welded at corners. Surface covering shall be not less that 24 a gauge stretcher leveled steel, zinc coated and bonderized, welded to framing channel and bonded to core with a waterproof resin adhesive under hydraulic pressure. Surfaces shall be smooth and flat without visible joints on face or edges. Provide steel reinforcing drilled and tapped at factory for application of mortised hardware and reinforcing for all surface hardware where required. Openings for glazed panels shall have removable .035" thick steel mouldings mitered and welded at corners and secured in place with oval head screws. Finishing of doors shall be as specified under Standard Engineering Specification SB-1-F.

UNCLASSIFIED
DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION
ADC & Reviewing Official: (Name and Title)
Date: 6/24/92

SECTION BF - STEEL DOORS & FRAMES - (Cont'd)

SB-3-F: Where the use of insulating glass is indicated on the drawings, the depth of the sections shall be sufficient to receive the glazing and provide adequate space for putty. Where so shown on drawings rack-and-pinion type operators shall be hand crank operated instead of chain operated.

SB-4-F: Where the use of insulating glass is indicated on drawings sash members shall provide for the type of glazing shown. Where windows are indicated "fixed" on drawings provide stops on the frame to hold the sash in the closed position.

SB-5-F: Unless otherwise shown on drawings, screens for double hung windows shall be full length except that screens shall not be provided for windows indicated "fixed" on drawings. Where the rack of rack-and-pinion type operator extends through screen supporting frame, provide rubberized felt gaskets to give complete insect protection.

8 Rev. 7/12/51 14 Rev. 12/3/51 10 Rev. 8/31/51 SB-1.4-F: Metal screen doors shall be hollow steel plate doors, 1-3/8" thick. Stiles, top rail, and lock rails shall be 3-1/2" wide, bottom rail shall be 8" wide. The location of lock rails shall match the lock rail of the adjacent exterior steel door. Panels shall be filled with bronze-wire screen cloth or plastic screen cloth of the type specified in SB-6-F. Screen cloth shall be stretched taut and secured in grooves in the frames by removable metal splines.

SB-1.4-F: Unless otherwise shown on drawings Type "SP" doors shall be 1-3/4" thick.

18 Rev. 1/31/52 STEEL OVERHEAD TYPE DOORS

The width, height, vertical clearance and horizontal clearance shall be as indicated on drawings. The doors shall be furnished complete with all hardware, bolts, hangers, tracks, seals, weather strips, glazing stops, etc. Hand chain or electric operators shall be furnished as indicated on the drawings and as herein specified. The brand of door shall be subject to du Pont's approval.

Doors - shall be constructed of not less than 16 gauge open-hearth galvanized steel sheet with interlocking hinged sections, approximately 18" wide. Provide beads rolled into horizontal edges of each section of sufficient depth to provide adequate reinforcing. Vertical edges of sections shall be provided with galvanized reinforcing strips. Doors shall be constructed to resist excessive deflection and to withstand 20 lb. per sq. ft. of wind pressure.

Counterbalance - Doors shall be counterbalanced by oil tempered helical springs, mounted on continuous operating cold rolled steel shaft and arranged for tension adjustment. Head shaft shall be supported at each end by steel brackets attached to tracks and shaft shall be keyed to grooved drums for winding cable. Drums shall provide adjustments for levelling doors and all bearings shall be self-lubricating graphite or grease-sealed ball bearings.

SECTION BF - STEEL DOORS & FRAMES - (Cont'd)

STEEL OVERHEAD TYPE DOORS - (Cont'd)

Tracks shall be of galvanized rolled shapes and formed from not less than .083" iron for 1-13/16" rollers and .125" iron for 2-13/16" rollers. Vertical tracks shall be attached to steel door jambs or wall construction with continuous steel angles bolted at about 24" intervals. Horizontal tracks sahll be reinforced with continuous steel angles properly supported. Top of doors and jambs shall be provided with adjustable seal strips. Provide rubber weather strip at bottom of door to form floor seal.

Hardware - Each section of the door shall be provided with malleable iron brackets, through bolted, at each end and supporting the ball bearing rollers. Rollers shall be 1-13/16" for doors under 140 sq. ft. and 2-13/16" for larger doors. Cables shall be of flexible steel having a factor of safety of at least ten. Manually operated doors shall be equipped with a master keyed cylinder lock. Provide handles to operate the slide locking bars from both outside and inside. Hoist operated doors shall be retained in closed position by means of chain lock on hand operating chain.

Manual Operation - Unless otherwise shown on drawings, doors up to 105 sq. ft. shall be operated manually by raising and lowering with hand pull cords located on inside at both edges of door and convenient lift handles outside.

Chain Hoist where soshown on drawings, doors shall be operated by means of a gear reduction unit operated by sprocket and hand chain. These are to operate with minimum friction with oilless brushings.

Electric Operators shall be wall mounted, conforming to the requirements of ELECTRIC OPERATORS specified for steel vertical Rolling Doors Sheet 2 Section SB-2-F.

General All galvanized surfaces shall be phosphate treated or bonderized to assure paint adhesion. Steel sash shall be arranged as shown on drawings. Where indicated on drawings doors shall have high-lift tracks.

Work Not Included - Field wiring, conduit, line service switches, fuses, glass and glazing.

Priming, Shop Drawings, Packaging, Installation and Guarantee shall conform to the requirements as shown on Sheet 2 and 3, Section SB-2-F.

BUILDING MATERIALS STEEL DOORS AND FRAMES GENERAL REQUIREMENTS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB.21,1949	SB-1-F
	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - This specification covers swinging and sliding doors only. The types and sizes of doors and frames shall be as shown on the drawings. Underwriters' Laboratories Labels of Inspection shall be provided only when specifically called for on the drawings, but both labeled and non-labeled doors of the same type shall be of identical material and construction. When called for on the drawings, provide louvers of the size and type indicated. All doors shall be reinforced and fitted for hardware, using templates furnished by du Pont or the hardware vendor. Hardware is not included in this specification. The brand of doors shall be subject to du Pont's approval.

Structural steel door frames are not included in this specification. See Standard Engineering Specification SB-2-B.

3. SHOP DRAWINGS - Detailed shop drawings shall be submitted to du Pont for approval before starting fabrication.

4. PRIMING - Unless otherwise specified, doors and frames shall receive a factory coat of Dulux Zinc Chromate Primer No. 67-746, or equal approved by du Pont. Galvanized metal shall be factory primed with Dulux No. 67-744 Galvanized-Metal Primer or equal approved by du Pont.

5. PACKAGING - Doors and frames shall be well packed for shipment to assure delivery in an undamaged condition. Use of damaged doors or frames will not be permitted. Provide identification tags or labels indicating the number of the opening, as shown on the drawings, for which the door is intended.

6. GLASS AND GLAZING - not included in this specification. See Standard Engineering Specification SB-1-G.

BUILDING MATERIALS STEEL DOORS AND FRAMES PRESSED STEEL FRAMES	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB. 21, 1949	SB-1.1-F
	Revised	

Pressed Steel Frames with integral stops, with or without integral casings, shall be manufactured of at least No. 16 gauge (0.0598") sheet steel, and to the contour and details indicated on the drawings. Frames shall be provided with strap, or similar, anchors properly spaced for the type of wall construction involved. Provide at least 2 anchors per side for frames under 4'-0" high, 3 anchors per side for frames without transoms, and 4 anchors per side for frames with transoms. Frames shall be provided with boxes for mortar and plaster exclusion at hardward mortises, and adequate reinforcement for hardware.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
STEEL DOORS AND FRAMES	Issued FEB.21.1949	SB-1.2-F
TYPE "F" DOORS	Revised	

Type "F" Doors shall be hollow sheet-metal doors, 1-13/16" thick, whose faces are manufactured from No. 22 gauge (0.0299") steel channels approximately 10" wide, running the full height of the door. The legs of the channels shall be staggered so that there is a flange every 5", measured in a horizontal plane. These flanges shall extend through the full thickness of the door, and serve as stiffening reinforcements. Steel rods, approximately 18" on centers, shall extend through the door horizontally (through holes in the flanges of the channels) to unite the two sides of the door into a rigid construction. All metal shall be galvanized. The finished faces shall be such as to represent a flush slab-type door.

A sheet of corrugated asbestos shall be installed between the metal channels forming the two faces of the door, and interwoven to pass around the flanges of the channels. Steel channels shall be assembled around the perimeter of the door, flush with the faces at the sides and top, to present a neatly finished appearance.

Sufficient allowance in length and width shall be made to insure proper hanging and operation without binding.

When glazed panels are indicated on the drawings, they shall be of the sizes shown, and shall consist of standard Industrial steel sash for 1/4" thick wired glass, arranged so that glass is held in place with metal beads fastened to the sash with screws.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
STEEL DOORS AND FRAMES	Issued FEB.21,1949	SB-1.3-F
TYPE "T" DOORS	Revised	

Type "T" Doors shall be 2- or 3-ply (as indicated on the drawings) tin-clad doors conforming to Engineering Standards F7B and F8B. Two-ply doors shall be 1-3/4" thick, and 3-ply 2-1/2" thick.

When glazed panels are indicated on the drawings, they shall conform to the details indicated in Engineering Standard F9B.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
DOORS AND FRAMES	Issued FEB.21,1949	
TYPE "SP" DOORS	Revised	SP 1.4-F

Type "SP" Doors shall be hollow steel plate doors, 1-3/4" thick, either panel or flush type as indicated on the drawings. Paneled doors shall have stiles and rails manufactured from a minimum of No. 18 gauge (0.0478"), and panels from a minimum of No. 20 gauge (0.0359") sheet steel. Faces of flush doors shall be a minimum of No. 18 gauge steel plate, electrically welded to an approved core. The edge faces and top of the top rail shall be finished smooth and flush. All welds shall be ground smooth. Stiles, rails, and panels or panel type doors, and the entire cored area of flush doors shall be insulated to eliminate metallic sound. Provide sufficient allowance in width and height for proper hanging and operation without binding.

BUILDING MATERIALS STEEL DOORS AND FRAMES INSTALLATION	STANDARD ENGINEERING SPECIFICATIONS	
	Issued FEB. 21, 1949	SB-1.5-F
	Revised	

Frames shall be set, before starting construction of walls, in the locations indicated on the drawings. They shall be firmly anchored to the floor by the methods provided, and be firmly braced in a plumb and true plane, square at corners, and free from twist. Adequate bracing shall be provided between jambs to prevent bowing or bending during construction of wall.

Swinging doors shall be hung so that proper clearance, as provided by the manufacturer, is secured all around the opening. No shimming shall be done, except upon approval by du Pont, and, when shimming is required and permitted, only steel shims shall be used.

Sliding doors shall be installed in strict accordance with the drawings and the instructions provided by the door and hardware manufacturers.

Finish hardware shall be carefully unpacked and verified as to type and quantity and all shortages immediately reported to the proper authority. All keys shall be properly identified and marked and be placed in the custody of du Pont, who will issue a receipt therefor.

Hardware shall be applied as indicated or required, making certain that all locks, latches, closers, etc. operate smoothly and efficiently.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JUNE 24, 1949	SB-2-F
STEEL VERTICAL ROLLING DOORS	Revised	Sheet 1 of 3

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DOORS - shall be furnished complete with guides, operating mechanism, hardware, etc. Unless otherwise shown on the drawings, all doors 8 ft. high and over shall be provided with a mechanical operator (chain or electrical as indicated). Complete maintenance instructions shall be included with each door, and shall be delivered to du Pont upon completion of installation. The door units shall conform to the following specifications.

CURTAIN - shall be made of interlocking rolled-steel slats formed, in easy curves without sharp bends, from open-hearth galvanized sheet steel of at least No. 20 gauge thickness, free of blisters and other imperfections. Provide wind locks for curtains in openings 14 ft. and wider, or 150 sq. ft. total area, and malleable-iron end locks for alternate slats. Bottom bar shall be two angles back-to-back or equally effective reinforcement.

COUNTERBALANCE - The curtain shall be coiled on a steel pipe or drum of sufficient strength to carry the door load with a deflection not to exceed .03" per foot of opening width, and shall be evenly counter-balanced by helical springs contained in the pipe. When door size requires it, the pipe shall be provided with rings for increased initial diameter.

COIL BRACKETS - shall be high-grade gray-iron castings or steel plate designed to house the ends of the coil.

SHAFT - shall be made of polished cold-rolled steel.

BEARINGS - shall be self-lubricating graphite or grease-sealed precision ball bearings, located at both ends of the barrel.

HOOD - shall be galvanized sheet metal, No. 22 gauge (0.0299") for doors over 20 feet wide and No. 24 gauge (0.0239") for narrower sizes. It shall be suitably reinforced with beads or flanges to prevent deflection.

GUIDES - shall be built of structural steel to form a slot of a depth that will retain the curtain in the guides. Guides shall be provided with anchors for windlocks when these are required.

REDUCTION GEARING - shall be cast steel, with teeth machine-molded from machine-finished patterns.

CHAIN OPERATORS - When chain operators are called for on the drawings, the operating mechanism shall be provided with a sprocket and a chain of adequate length and strength. The gear-reduction ratio shall be such that required pull is not over 35 lbs.

ELECTRICAL OPERATORS - Electrically-operated doors shall be provided with an operator of either the Wall or Bracket Mounting type, depending upon available space. All moving parts shall be completely enclosed and provided with means of access for proper maintenance.

Motors, brakes, switches, etc. shall be explosion-proof, when called for on the drawings or in the project specifications.

The mechanism shall consist of a high-torque motor with a gear-reduction unit providing for a maximum door speed of 1 ft. per second. Motor specifications shall meet the power requirements for satisfactory door operation, and consistent with characteristics of the plant power system as ascertained in the field or from information furnished by du Pont. The electric operator shall be supplemented with a chain operator for emergency use. The manual control for automatically engaging this chain operator and releasing the brake shall be operable from the floor. A device which will automatically prevent the motor from operating until the emergency sprocket is disengaged shall be provided. Emergency operation shall not affect the timing of the limit switch.

Provide automatic starter, limit switches, and 3-button control switch (or switches, when more than one control point is indicated) marked "Open", "Close", and "Stop". Control shall be arranged to stop the door in any position, from where it can then be operated in either direction.

Wiring, conduit, line-service switches, and fuses are not included in this specification.

3. FIRE UNDERWRITERS' LABEL - When called for on the drawings, provide a Fire Underwriters' Laboratories Label of Inspection which includes approval of gauges, thermal control, safety devices, etc. The safety device shall be a governor of the escapement type, inoperative during normal operation, but which will become operative automatically through action of the thermal control.

4. PRIMING - The doors shall receive a factory coat of metal primer approved by du Pont. Galvanized parts (where called for in the project specifications, or drawings) shall be factory primed with Dulux No. 67-744 Galvanized Metal Primer or approved equal.

5. STRUCTURAL STEEL FRAMES - are not included in this specification. See Standard Engineering Specification SB-2-B.

6. SHOP DRAWINGS - indicating all details of fabrication and installation shall be submitted to du Pont, whose approval must be obtained before starting fabrication or shipping any material to the job site.

7. PACKAGING - All parts of the unit shall be well packed for shipment to assure delivery in an undamaged condition. Use of damaged parts will not be permitted.

8. INSTALLATION - shall be made only by the manufacturer or his authorized representative (unless such requirement is specifically waived by du Pont). If installed by others, the installation shall be made strictly in accordance with the manufacturer's directions.

9. GUARANTEE - A written guarantee shall be furnished protecting du Pont from loss through defective material or workmanship involved in both fabrication and installation. This guarantee shall be valid for a period of one year from date of final acceptance of the installation by du Pont. The guarantor shall not be liable for faults resulting from improper or defective work of others, providing such improper work was not apparent at the time of starting the installation.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
INDUSTRIAL AND COMMERCIAL	Issued JUNE 24, 1949	SB-3-F
METAL WINDOWS AND SASH	Revised	Sheet 1 Of 2

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - This specification covers the fabrication and installation of Industrial Pivoted and Projected Metal Windows and Sash. The kind, type, and size of the units and arrangement of lights shall be as indicated on the drawings. The units shall be furnished complete with operating hardware as specified hereafter, as well as all necessary installation clamps, bolts, screws, etc. Provide mullions and stiffeners as called for on the drawings. All accessories shall be rust-proofed, unless otherwise specified. When aluminum sash is required all accessories and hardware shall be aluminum or other suitable non-ferrous metal. Where specifically called for on the drawings, the units shall be provided with a Fire Underwriters' Laboratories Label of Inspection.

3. MATERIAL AND FABRICATION - The units shall be fabricated from hot-rolled new billet steel or extruded aluminum sections (as required) having a minimum flange and web thicknesses of 1/8". Frame and ventilator sections shall be not less than 1-3/8" deep (front to back) except that, for steel sash, sections 1-1/4" deep may be used, provided that frame and ventilator corners are welded solid and ground smooth. Design shall provide for a continuous anchorage to supporting structure of not less than 7/16". Weathering section shall be attached to window sections so as to provide continuous double contact. Muntins shall be "T" shaped bars, continuous horizontally and vertically, interlocked at intersections. All joints between stiles and rails and muntins shall be mortise-and-tenon and fastened with rivets or welds. The units shall be arranged for inside putty glazing.

VENTILATION

For Pivoted Windows - Each vent shall be hinged approximately 2" above vent center, and arranged to swing in at the top. The vents shall be supported by external butts with removable stainless-steel pins.

For Projected Windows - Each one-light-high sill vent shall be projected to open in. All other vents shall open out. Each ventilator shall have two heavy supporting arms pivoted securely to the ventilator and to the frame; a guide on each side of the ventilator opening; and two friction or sliding shoes with compression springs or an equivalent device which will hold the ventilator firmly in any desired position. Hinge pins and bolts shall be stainless steel.

MULLIONS - For steel sash units of 6 lights in height, or less, shall be hot-rolled flat sections, and hot-rolled "T" sections for greater heights, unless otherwise called for. Either type shall be of the proper width to provide ample window anchorage with the window spacing indicated on the drawings. Mullions for aluminum sash shall be "T" sections of adequate depth.

Mullions shall be provided at the ends with the proper type of fastening for securing them to heads and sills of the opening as shown on the plans or required for the particular type of construction involved. No mullion covers shall be furnished unless specifically called for on the drawings. Mullions shall be furnished complete with sash-holding clips spaced approximately 16" apart.

HARDWARE - Sash shall be operated manually or mechanically as called for on the drawings.

HAND OPERATORS - for pivoted windows shall consist of a spring catch with attached chain for each unit. The chain shall loop over a roller at top of vent and through a slotted chain-catch at bottom. Operators for Projected Windows shall be cam-handle type. No stay-bar operators will be permitted.

MECHANICAL OPERATORS shall be lever or rack-and-pinion type as indicated on the drawings, and be chain operated. Chain shall be of adequate length to reach control point. Gears shall be of cast steel in a dustproof enclosure unless otherwise specified.

SHOP FINISH - All steel units, unless otherwise indicated, shall be Bonderized and receive a shop coat of metal primer, approved by du Pont. When galvanized units are called for on the drawings and are to be painted, they shall be factory primed with Dulux No. 67-744 Galvanized Metal Primer or approved equal. Finish for aluminum units shall be as fabricated with one coat of clear lacquer.

4. MISCELLANEOUS - If the unit proposed for use does not meet all the requirements set forth in the above specifications, complete data shall be submitted to du Pont for approval before purchase.

5. GLASS AND GLAZING - are not included in this specification. See Standard Engineering Specification SB-1-G.

6. PACKAGING - Window and frame units shall be packaged so as to assure delivery at the job site in an undamaged condition. Use of damaged units will not be permitted.

7. INSTALLATION - The units shall be erected in openings provided in the steel framing, or they shall be set on the masonry sills and be adequately braced in a plumb and true plane until the wall is completed to the top of the window unit. Ventilator operation shall be tested for smooth and free action both before and after anchoring the units to the collateral construction and provisions shall be made so they may be maintained in such condition. The windows shall be weather-tight when closed.

When aluminum units are used, members in contact with steel framing shall be separated therefrom by coating steel with one coat of "Bitumastic No. 50" or by insertion of strips of asphalt-saturated felt.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
DOUBLE-HUNG METAL WINDOWS AND FRAMES	Issued JUNE 24, 1949	SB-4-F
	Revised	Sheet 1 of 2

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - This specification covers the fabrication and installation of Double-Hung Metal Windows and Frames. The size of the windows and arrangement of lights shall be as indicated on the drawings. The units shall be furnished complete with hardware as specified hereafter, as well as all necessary glazing angles, installation clamps, bolts, screws, etc. All accessories not otherwise specified, shall be rust-proofed.

3. MATERIAL AND FABRICATION - The units shall be fabricated from tight-coat hot-dip galvanized copper-bearing sheet steel, of the following minimum thicknesses:

		Gauge	
Frame -	Head	16	(0.0598")
	Sill and Pulley Stiles	14	(0.0747")
	Weight Box (when provided)	18	(0.0478")
Sash -	Stiles and Rails	14	
	Muntins (Bars and Caps)	18	

FRAME MEMBERS - shall be accurately formed, firmly interlocked, and welded. All welds shall be ground smooth. Pulley stiles, head jamb, and sill shall provide for double-contact weathering around entire opening. Pulleys shall be solid machined steel or malleable iron, bronze bushed, and noiseless, with a groove designed to keep the chain in a true line of travel. Chain shall be sherardized American No. 130 or approved equal. Sash shall be counter-balanced by cast-iron weights adequate for the sash when glazed as indicated on the drawings, and running in a partitioned weight box. Pulley equipped stiles shall be removable to provide access to sash weights. Spring counter-balances (such as the "Unique") for sash may be used instead of weights, subject to du Pont's approval.

SASH MEMBERS - shall be tubular in shape, flush-welded at the corners, and ground smooth. The sash stiles shall have double flanges to slide in the grooves in the frames. The check rail shall be of a double interlocking type. Sash shall be designed for inside glazing, and be provided with removable glazing angles secured by concealed clips, and muntin caps secured by oval-head screws.

HARDWARE - Provide a pull-down for the bottom of the top sash, a sash lock at the check rail, and two bar lifts for the lower sash. All hardware shall be solid bronze unless otherwise specified, shall conform to the window manufacturer's standard, and be subject to du Pont's approval.

Provide two window cleaning bolts of drop-forged "Silicon" bronze, approved by du Pont, for each opening above the ground floor.

SHOP FINISH - Entire unit shall receive a coat of metal primer, approved by du Pont, and applied at the factory.

4. MISCELLANEOUS - If the unit proposed for use does not meet all the requirements set forth in the above specifications, complete data shall be submitted to du Pont for approval before purchase.

5. GLASS AND GLAZING - are not included in this specification. See Standard Engineering Specification SB-1-G.

6. PACKAGING - Window and frame units shall be packaged so as to assure delivery at the job site in an undamaged condition. Use of damaged units will not be permitted.

7. INSTALLATION - Frames shall be set into the prepared openings. All work shall be set plumb and true and be suitably and securely anchored to the collateral construction. Windows shall be installed as directed by the manufacturer. Just before glazing, the sash shall be carefully adjusted so that the opening and closing movement is smooth. It shall be free from twist or rattle, under ordinary conditions, in either open or closed position. The windows shall be absolutely weathertight when closed.

BUILDING MATERIALS METAL TRIM	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JUNE 24, 1949	SB-5-F
	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - This specification covers all metal trim, such as door and window trim (unless such trim is an integral part of the frame), base and shoe, chair rail, staff and scribe mouldings, picture mouldings, etc. The trim shall be of the type, contour, and size indicated on the drawings, and fabricated as specified below. Type "A" trim is applied after plastering is completed. Type "B" trim is designed for application before plastering.

3. TYPE "A" TRIM - shall be cold drawn from the best grade of steel furniture stock. Minimum thickness of the steel sheets shall be No. 18 gauge (0.0478") for all mouldings except Window Stools, which shall be No. 14 gauge (0.0747").

Casings for door and window openings shall be cut, mitered, fitted, and welded together at the factory. All welds must be ground smooth. When window stools and aprons are not entirely recessed, they shall be fabricated to the exact length required and have the ends neatly returned and welded. Other trim shall be furnished in adequate and suitable lengths for cutting and fitting on the job. Trim shall be fastened to the grounds in a concealed manner by an approved method. Provide all required fastenings, accessories, etc.

Unless otherwise specified, Type "A" trim shall receive a coat of metal primer, approved by du Pont, applied at the factory.

4. TYPE "B" TRIM - shall be fabricated from tight-coat galvanized sheets, of the following minimum thicknesses:

	Gauge	
Base and Accessories	18	(0.0478")
Casings, etc. with expansion wings	24	(0.0239")
Chair Rail	20	(0.0359")
Window Stools	16	(0.0598")
Other Trim	22	(0.0299")

Mouldings adjacent to plastered surfaces shall be provided with expansion wings (of expanded-metal lath) at least 3" wide, tack-welded to the trim. Provide all accessories, installation screws, nails, etc.

Exposed surfaces of Type "B" trim shall receive a factory coat of metal primer approved by du Pont.

5. PACKAGING - Trim shall be packaged so as to assure delivery at the job site in an undamaged condition. Use of damaged material will not be permitted.

6. INSTALLATION - Trim shall be adequately fastened to the backing or grounds as recommended or directed by the manufacturer. All miters cut in the field shall be neatly joined and tightly fitted. No exposed fastenings are to be made, except where expressly shown on the drawings or intended by the manufacturer.

BUILDING MATERIALS METAL INSECT SCREENS	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED NOV. 1950 REVISED	SB 6 F

1. GENERAL

1.1 Standard Engineering Specification SC 1 A applies to and is a part of this specification.

2. BRANDS

2.1 Brands of screens specified herein shall be subject to du Pont's approval.

3. SCREEN TYPES

3.1 Insect screens for commercial projected-in windows shall be attached to the outside; for projected-out windows, to the inside; and for industrial pivoted windows shall be either of the cage-type, to be attached to the outside, or the split-screen-type, to be fastened to the inside and outside of the window, with metal glass-contacting baffles to close the opening at the pivotal point. Screens shall fit closely and neatly around the entire perimeter of the ventilators, and shall be interchangeable for ventilators of the same size and type.

3.2 Screens for double-hung windows shall be full or half length, as called for in the project specifications, and shall fit the rabbet provided in the window frame.

4. SCREEN FRAMES

4.1 Screen frames of screens used in conjunction with steel sash and windows, shall be manufactured from electro-galvanized or bonderized, copper-bearing, pressed or extruded steel sections, unless otherwise called for in the project specifications. Minimum thickness of steel used in fabrication of pressed steel frames for projected or pivoted window openings, shall be .037 inch; for double-hung window openings, .032 inch. Cross-sectional dimensions shall be such as to provide adequate strength, proportional to the size of the screened opening. Frame corners shall be mitered or folded, reinforced and completely welded. Welds shall be ground smooth. Provide brace bars as required to maintain accurate rail and stile spacing, such bars to be aligned with muntins or meeting rails of the window for which the screen is intended. Screen cloth shall be retained in grooves in the frames by splines so that the screens are rewireable. Provide necessary wickets or other devices for access to window-operating mechanism.

4.2 Screens for aluminum sash and double-hung window units shall have frames made from aluminum extrusions of the proper alloy and physical dimensions, to provide strength and rigidity comparable to that specified above for steel frames. The other requirements specified above for steel units shall also apply to aluminum screen frames.

5. SCREEN CLOTH

5.1 Screen cloth for steel screens shall be either 14 x 18 or 16-mesh bronze-wire cloth conforming to Type C in Federal Specification RR-C-451, unless otherwise called for on the drawings or in the project specifications. Cloth for aluminum screens shall be aluminum conforming to Type G in above referenced Federal Specification. Minimum wire diameter shall be .0113 inch.

5.2 Plastic screen cloth may be used in either steel or aluminum frames, if approved by du Pont for a specific installation. Such cloth shall be "Lumite", as manufactured by Chicopee Manufacturing Corporation, 40 Worth Street, New York 13, N. Y., with a mesh size not larger than 16 x 16.

5.3 Screen cloth shall be stretched taut in the frames.

6. HARDWARE

6.1 Hardware shall include guides, stops, fastening devices, screws, bolts, clips, etc.; shall be cadmium-plated or sherardized steel, when applied to steel units. Hardware shall be adapted to the particular installation involved. Hardware of aluminum or other suitable non-ferrous metal, compatible with aluminum from an electrolysis standpoint, shall be used with aluminum units.

7. SHOP FINISH

7.1 Steel screen frames shall be given one prime and one finish coat of Bakelite enamel, approved by du Pont, both coats oven baked. Finish color shall be black or dark green, unless otherwise called for in the project specifications. Aluminum frames shall receive a finish coat of clear lacquer.

8. PACKAGING

8.1 Metal Insect Screens shall be well packed for shipment to guarantee delivery in an undamaged condition. Use of damaged screens will not be permitted. Provide numbered identification tags or labels indicating the sash opening or type of window for which each screen is intended.

9. INSTALLATION

9.1 Installation shall be made in accordance with the manufacturer's directions. Screens shall be carefully adjusted to insure satisfactory operation.

BUILDING MATERIALS GLASS AND GLAZING FLAT GLASS	STANDARD ENGINEERING SPECIFICATION	
	Issued 9-22-48	SB-1-G
	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRAND - The brand of glass is subject to du Pont's approval. Factory labels indicating the name of the manufacturer and grade shall be attached to each pane of glass and remain in place until final cleaning.

3. MATERIALS - The type of glass shall be as shown on the drawings, and the quality shall conform to Federal Specification DD-G-451 for the various types as follows:

TYPE A - Polished Plate Glass - Glazing Quality, 1/4" thick.
TYPE B - Clear Window Glass - Double Strength, "B" quality.
TYPE D - Rolled Figured Sheet Glass (Obscure) - 1/8" thick, uncolored, pattern as selected by du Pont.
TYPE E - Wire Glass - 1/4" thick, polished both sides, or polished one side and figured other side, as indicated on the drawing (pattern to be selected by du Pont).
Wire glass shall bear the approval of the Underwriters' Laboratory.

PUTTY - shall conform to the following Federal Specifications:

For wood windows and doors - TT-P791a, Type I, "Whiting Putty".
For steel sash and metal doors - TT-P-781, Type II, "Metal Casement Putty".

FASTENERS - shall be diamond or triangular galvanized Glazier's Points, wood or metal beads furnished by the door manufacturer, or galvanized clips furnished by the steel sash manufacturer.

4. WORKMANSHIP - All glazing shall be done by experienced workmen.

The glazing rabbet of wood windows, sash, and doors shall be primed with boiled linseed oil.

Glass in exterior doors, windows, and sash and interior doors and metal sash shall be back-puttied by firmly pressing the glass into a full bed of putty.

Face putty shall fill the entire rabbet, and shall be run neatly and cleanly even with the inside edge of frame members.

Glass in wood windows shall be fastened with Glazier's Points spaced in accordance with best practices. Beads for doors shall be firmly pressed into place and adequately fastened. Clips for steel sash shall be installed in accordance with manufacturer's direction or Underwriters' Laboratory where so indicated.

Obscure glass is to be set with smooth side out.

5. CLEANING - After painting is completed and paint is thoroughly dry, remove labels, paint, and other coatings from the glass. Wash and polish both sides as required to leave the surfaces thoroughly clean.

6. BREAKAGE - Remove and replace all glass broken during construction and until final acceptance by du Pont.

SECTION 8G - GLASS & GLAZING

CONTENTS

MODIFICATIONS & ADDITIONS

7 Rev. /19/51 SB-1-C: In addition to the glass types mentioned under Paragraph 3, the following types shall be included:

Type "F" - Unless otherwise shown on drawings, Insulating glass shall consist of two (2) panes of double strength "A" quality clear window glass with a 1/4" air space between, similar and equal to "Thermopane" as manufactured by Libby Owens Ford Glass Company.

Type "G" - Glare reducing glass shall be 1/8" thick, unwired, hammered and frosted, similar and equal to Blue Ridge "Aklo" heat absorbing glass or Mississippi Glass Co.'s "Coolite" heat absorbing glass.

Glass for mirrors shall be not less than 7/32" thick, silvering quality clear plate glass, back-coated with two (2) coatings of silver and one (1) coating of copper and protected by a thick coat of paint. Face of mirrors shall be unbeveled.

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Sheet 1
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SECTION EE - LATHING & PLASTERING

CONTENTS

MODIFICATIONS & ADDITIONS

EE-2-E: Keenes Cement Plaster - shall meet the requirements of A.S.T.M. Specification Designation C61.

Keenes Cement Plaster shall be applied over a scratch and brown coat when applied on metal lath and over brown coat when applied over masonry surfaces or other lath.

Scratch coat shall be composed of one (1) part gypsum neat plaster to not more than two (2) parts sand by weight.

Brown coat shall be composed of one (1) part gypsum neat plaster to not more than three (3) parts sand by weight.

Finish coat shall be one (1) part lime putty to three (3) parts Keenes Cement, by weight.

The finish shall be 1/16" to 1/8" thick. It shall be allowed to dray for a few minutes and then it shall be well troweled with water to a smooth finish, free from cat faces and other blemishes.

AC Rev. 1/31/52

Portland Cement Plaster Scratch coat of cement plaster behind tile base and tile walls and wainscoting, except where tile is applied to concrete surfaces by the adhesive method, shall consist of one (1) part Portland cement, three (3) parts sand and one quarter (1/4) part hydrated lime, fibred for proper application and bond to metal lath. Hydrated lime shall meet the requirements of A.S.T.M. Designation C-207 Portland cement shall meet the requirements of A.S.T.M. Designation C-150 Type I.

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Date: 6/24/92

[redacted]

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
INSULATION FOR NORMAL CONDITIONS	Issued FEB. 21, 1949	SB-2-J
MINERAL WOOL BATTS AND BLANKET	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRAND - of insulation shall be subject to du Pont's approval.

3. MATERIAL - Mineral wool insulation shall be in batt or strip form of the nominal thickness indicated on the drawings. The material shall be fibrous and conform to the requirements set forth for Type I, Class A batt or strip form insulation in Federal Specification HH-I-521.

Insulation in strip form shall be enclosed in moisture-proofed paper. The paper at the edges of the strip shall be formed into a continuous flange to facilitate fastening to the collateral construction.

Insulation in batt form shall have a supporting member consisting of moisture-proofed paper on one side only.

4. INSTALLATION - Strip form insulation shall be applied continuously between the supporting members from floor to ceiling in walls, between supporting walls or partitions in ceilings, or between the wall plate and ridge in sloping roofs. The edge flanges of the strip and the strip ends shall be fastened to faces or edges of the supporting member with staples as used in a stapling hammer, spacing the staples not over 6" apart. If a joint is necessary at strip ends, lap the insulation at least 6" and fasten to blocking installed for this purpose. When a space is too small to permit stapling, the insulation shall be packed into place.

Insulation in batt form shall be applied between the studs, joists, or rafters, as the case may be, with the paper reinforcement toward the room side, and with batts tightly butted against one another.

Insulation shall be installed so that no paper is dangerously near or against electrical outlet boxes or fixtures.

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SECTION BK - FLOOR FINISHES & WALL TILE

CONTENTS

UNCLASSIFIED
DOES NOT CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION
ADC & Reviewing Official: C.J. Branch (Name and Title)
Date: 6/24/92

MODIFICATIONS & ADDITIONS

SB-1-K: Unless otherwise shown on drawings or herein specified asphalt tile shall be 9" x 9" and 1/8" thick. The code numbers on Finish and Color Schedules indicate the desired grade and color of asphalt tile.

18 Rev. 6/6/51 1/31/52 SB-5-K: Quarry tile for floors shall be 6" x 6" x 3/4" thick and of color approved and shall have a non-slip surface consisting of an integral abrasive aggregate. In addition to quarry tile herein specified, this specification shall include ceramic mosaic floor tile and ceramic glazed wall tile.

MATERIALS - Ceramic glazed wall tile shall be non-crazing, standard grade true and even, free from warp and uniform in size and color. Field tile shall be 4-1/4" x 4-1/4", cushion edge tile. Wainscot cap shall be bull-nose tile of size shown on drawings. Base shall have integral cove at floor and shall be of size shown on drawings with straight top. Internal angles shall be butted without cove and external angles shall be bullnosed including stops and mitres where required, integral with the tile. Where wall tile is installed by the adhesive method, fittings shall be of the type required for such installation. Fittings shall be of the type required for the adhesive method of setting. Tile shall be matt glazed or bright glazed and of finish and colors as shown on drawings. Vitreous ceramic mosaic floor tile shall be standard grade, non-slip, manufactured by the dust-pressed method, and in size, colors and pattern as shown on drawings. Ceramic mosaic and glazed tile shall be equal to tile manufactured by the Mosaic Tile Company, American-Franklin-Olean Tile Company or the Atlantic Tile Manufacturing Company.

18 Rev. 1/31/52 Adhesive for wall tile installed by the Adhesive method shall be a heavy bonding, fast setting, waterproof, solvent-type mastic specially prepared for application of ceramic tile, such as, "Miracle Adhesive" as manufactured by Miracle Adhesives Corporation. All tile shall be delivered sealed and graded in accordance with Department of Commerce Simplified Practice Recommendation No. R61-30 and this specification. Within each barrel there shall

SECTION 8K - FLOOR FINISHES - (Cont'd.)

6 Rev. 6/6/51 be a manufacturer's package grade certificate duly endorsed and identified. All unglazed ceramic mosaic tile shall be mounted in accordance with the same recommendation and show the grade designations specified.

18 Rev. 1/31/52 INSTALLATION - Ceramic mosaic floor tile and glazed wall tile applied to plaster surfaces shall be laid in Portland Cement Mortar as herein specified for quarry tile. Mounted ceramic mosaic tile shall maintain the standard mounting width between all tile of each sheet and between adjacent sheets, and shall be grouted with gray Portland Cement grout.

18 Rev. 1/31/52 Glazed wall tile applied to concrete surfaces shall be set in adhesive. Where required to plumb and square walls, or to fill depressions, an adhesive underlayment shall be applied in accordance with the manufacturer directions. Underlayment shall be allowed to dry before installing tile.

Cover surface on which tile is to be applied with a thin layer of adhesive, applied evenly, leaving no bare spot. Adhesive shall be applied in accordance with the manufacturer's directions, using a saw-toothed trowel having notches 3/16" deep and 1/2" apart. Coverage shall not exceed 50 square feet per gallon of adhesive. Press each tile firmly into wet adhesive within 30 minutes after adhesive is spread using slight twisting motion. Care should be taken to keep joints between tile free from adhesive. Maintain horizontal and vertical joints plumb, level and even. When adhesive films over or dries before tile can be applied, scrape off adhesive and apply fresh adhesive. Do not leave any area coated with adhesive which can not be completely tiled before the adhesive dries. Clean off all adhesive from face of tile. Tile applied by adhesive shall not be grouted sooner than 24 hours after placing. Thoroughly soak all joints with clean water and grout with white Portland cement or Keen's cement.

CUTTING & FITTING - Intersections and returns shall be perfectly formed. Cutting and drilling of tiles shall be neatly done without marring the surface. The cut edges of tiles against trim, finish, etc., shall be carefully ground and jointed. The tile shall fit closely around electric outlets, piping, fixtures or fittings, so that plates, collars or coverings, where used, will overlap the tile.

LAYOUT - Tile work shall be laid out on floors and lengthwise on walls so that, wherever possible, no tiles less than one-half full size shall occur.

Do all necessary cutting, drilling and fitting as required for the installation of door stops and other accessories, and all cutting required for the work installed by all trades employed on the building and on completion. do all patching neatly and carefully.

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SECTION BK - FLOOR FINISHES - (Cont'd.)

6 Rev. 8/6/51

PROTECTION & CLEANING - Carefully protect all work and keep same intact until all mechanics are out of the building when protection shall be removed and work thoroughly pointed, cleaned, and rubbed down and left in satisfactory condition.

12 Rev. 10/16/51 26 Rev. 9/8/52

14 Rev. 12/3/51

CEMENT COAT WATERPROOFING - This specification describes the installation of cement coat waterproofing on walls, floors and ceilings.

PREPARATION OF SURFACES - Where cement coat waterproofing is applied to the top of a concrete slab, the slab shall be raked or broomed before the final set as specified for Class 8 Finish under Section SB-10-A and all laitance and scum shall be removed. All other concrete surfaces which are to receive cement coat waterproofing including beam pockets, wall chases and other construction recesses shall be mechanically roughened or chipped to provide a proper bonding surface. Where required to properly bond waterproofing to floors, the floor slabs shall be mechanically roughened or chipped. All surfaces shall be rinsed clean with clean water. The patching of honey combed or otherwise defective areas shall be done as specified under Section SB-14-A. The removal of form ties shall be done as specified under Section SB-7-A. Where pipe sleeves, drains, bolts or other embedded fixtures penetrate the waterproofing envelope, the concrete shall be cut back around them to form a groove of suitable depth to permit tightly caulking the cement coat waterproofing around them. Cut out all cracks and construction joints, and the intersection of floors and ceilings with vertical surfaces and point with cement coat waterproofing.

MATERIALS - Materials shall conform to the applicable requirements of Section SB-13-A. Cement coat waterproofing shall consist of one part Portland cement and not more than two parts of sand, together with such waterproofing compound or compounds as will produce a waterproof cement coating.

WORKMANSHIP - Where cement coat waterproofing is called for on drawings it shall be applied to floors, walls and ceilings as indicated.

[redacted]

SECTION BK - FLOOR FINISHES -(Cont'd)

14 Rev. 12/3/51

including pits, grillage pockets, column and pipe chases, beam pickets or other surfaces so as to form a continuous watertight coating which will prevent water from entering through these parts.

Cement coat waterproofing on floors and other horizontal surfaces shall be applied in one operation to a thickness of one (1) inch. Waterproofing shall be keyed through and under raised curbs, unless otherwise shown and shall extend through wall openings to form a continuous seal. Unless otherwise shown on drawings, floor waterproofing shall be carried under iron pit frames, interior walls and partitions, concrete steps and equipment foundations.

Cement coat waterproofing on ceilings and vertical surfaces including walls, columns, jambs and sides of beams and girders shall be applied in two (2) coats, a scratch coat and finished coat, the two aggregating in thickness not less than 5/8". Waterproofing shall extend through wall openings at jambs and head to form a continuous seal.

Cement coat waterproofing shall be applied not later than twenty four (24) hours after the surface has been prepared. A perfect bond at all points shall be secured with the underlying masonry. All surfaces shall be thoroughly coated with a wooden float and trowelled with a steel trowel to a smooth, hard and even finish without trowel marks or other defects. Where cement coat waterproofing comes in contact with painted metal surfaces the paint on such contact surfaces shall be removed before waterproofing is applied. After the waterproofing has thoroughly hardened, all waterproofing which is not thoroughly bonded or which is otherwise defective shall be removed and this portion of the work shall be properly replaced. Any portion of the waterproofing coating which shall become set before it has been properly floated and finished, shall be entirely removed by chipping, and shall be replaced with a freshly mixed coating. When it becomes necessary to interrupt the progress of applying the waterproof coating, that already applied shall be cut off straight at the edges at the time the work is done. In jointing old and new work, the edges of the old work shall first be thoroughly chipped to provide a perfect bond between the two applications. In all cases, a continuous seal must be obtained throughout with all adjoining surfaces carefully jointed.

Special care shall be taken around pits, trenches, machinery foundations, drains and similar interruptions in the envelope.

SECTION BK - FLOOR FINISHES - (Cont'd.)

NOTE: Waterproofing shall not be applied to concrete surfaces which have not been allowed to harden for a minimum of 28 days.

Cement coat waterproofing shall not be applied when the temperature in the space where the work is being done is below 40°F. and heat shall be provided in all spaces where waterproofing is being done to maintain a temperature above 50°F. For a sufficient time to permit the waterproofing coat to thoroughly harden.

Curing shall be done as specified under Section SB-6-K.

Use of Floor shall not be permitted for at least five (5) days as specified under Section SB-6-K.

15 Rev. 12/10/51 PLASTIC TILE - shall be an unlaminated Vinyl plastic tile with patterns or colors extending entirely through the tile. Tile shall be grease proof and acid and alkali resistant.

Tile, unless otherwise shown on drawings, shall be 12" x 12" and 1/8" thick. Borders shall be 6" to 9" wide and shall follow the line of permanent walls and partitions, around columns and fixtures or equipment presenting an enclosed vertical surface at the floor line. Vinyl tile in laboratory modules shall extend under laboratory benches and case work and fit to partitions or service strip line so as to provide a complete floor covering should laboratory fixtures be removed or relocated. In spaces where the module is divided by a partition the tile shall extend under the dividing partition without border.

Base - shall be a Vinyl cove base, top-set type 1/8" thick and of height shown on drawings. Color of tile and base shall be as shown on drawings. Tile and base shall be similar and equal to "Lifetime Vinyl Tile" as manufactured by Robbins Floor Products, Inc., Tuscumbia, Alabama.

Primer - shall be a thin Liquid emulsified asphalt primer. (Use only in mixing crack-filler).

Crack-Filler - shall be a mixture of 1 part of emulsified primer, 1 part Plaster of Paris, and water mixed to mortar consistency.

Adhesive - shall be a waterproof adhesive recommended by manufacturer of the tile.

Installation - The concrete sub-floor shall be smooth, without protrusions or depressions, and free of scale, dust, dirt, grease, oil and other foreign deposits. The sub-floor must be thoroughly dry before application of tile.

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SECTION BK - FLOOR FINISHES --(Cont'd)

15 Rev. 12/10/51

Before starting installation, the rooms involved must be heated for at least 2 days to a minimum temperature of 70°F. and be maintained at this temperature during the installation period. Provide adequate ventilation during the progress of the work.

Tile work must not be started until the work of all other trades, in the area involved, is entirely completed.

Prime cracks and joints, fill with crack filler, and trowel smooth.

Apply adhesive on the sub-floor with a serrated trowel, spreading it in even, uniform layer at the rate of 140 to 180 sq. ft. per gallon. Apply tile in adhesive, beginning at the center of the area and working toward the edges. The tile shall be laid square with the room axis and in the pattern indicated on the drawings or selected by du Pont. The joints shall be tight and adhesion to the slab must be complete Excess adhesive must be cleaned off as the work progresses, using only solvents approved by the tile manufacturer or steel wool.

Border widths may vary slightly to maintain full size of tiles in the field. Scribe neatly to the walls or other vertical surfaces, fitting into breaks and recesses against or under base trim, and around pipes Punch out tile where legs of radiators or other fixed weighty objects are positioned and insert specially-made aluminum discs, of the same thickness as the tile into the holes

When called for on the drawings, install base as indicated, strictly in accordance with the manufacturer's directions. Base shall be mitered at external and internal corners set into adhesive, and be sand-bagged to retain its position until the adhesive is thoroughly set Accurately scribe the base to trim

Surface Treatment - allow a minimum time lapse of 7 days after completion before cleaning and finishing Floors and base shall be thoroughly cleaned and then polished with a soft buffer or brush

Protection - until final acceptance the floors shall be covered and protected as necessary to prevent damage to the surface.

SPECIFICATION 3019

[redacted]

SECTION 8K - FLOOR FINISHES - (Cont'd.)

RUBBER TILE & BASE - shall consist of a high grade rubber compound containing no fibre, properly vulcanized and molded under high pressure to produce a tile of great density free from cracks, blisters or other defects. Surface of tile shall present a smooth polished appearance. The degree of hardness shall be determined by testing with Type A Shore Durometer. The average of five readings when any sample is so tested shall be not less than 93. Rubber tile shall be non-absorbent to the extent that samples 3/16" thick having surface buffed with fine sandpaper and completely immersed in water for 24 hours shall show not more than 0.1% increase in weight. Coloring pigments shall be of the highest quality, insoluble in water, and extending entirely through the tile. Tile shall be 12" x 12" x 1/8" in thickness with plus or minus tolerance of .005" in thickness. Borders shall be 6" to 9" wide and shall follow the lines of permanent walls and partition, around columns and fixtures or equipment presenting an enclosed vertical surface at the floor line.

RUBBER BASE where required shall be of height shown on drawings, top set with 1/2" radius cove. Preformed end stops shall be provided at interior and exterior corners.

ADHESIVE shall be a waterproof adhesive recommended by the manufacturer of the tile.

INSTALLATION - The concrete sub-floor shall be smooth, without protrusions or depressions, and free of scale, dust, dirt, grease, oil and other foreign deposits. The sub-floor must be thoroughly dry before application of tile. Rubber tile shall not be installed on concrete slabs in direct connect with earth.

Tile work must not be started until the work of all other trades in the area involved, is entirely completed.

Adhesive shall be applied with a smooth or toothed trowel spreading it in an even, uniform layer at the rate of approximately 100 to 125 sq. ft. per gallon. Spread only enough adhesive to allow proper setting of tile while adhesive is tacky. Apply tile in adhesive, beginning at the center of the area and working toward the edges. The tile shall be laid square with the room axis and in the pattern indicated on the drawings.

The joints shall be tight and adhesion to the slab must be complete. Excess adhesive must be cleaned off as the work progresses.

Border widths may vary slightly to maintain full size of field tile. Scribe neatly to the walls or other vertical surfaces, fitting into breaks and recesses, against and under base trim, and around pipes. Punch out tile where legs of radiators or other fixed weighty objects are positioned and insert specially made aluminum discs, of the same thickness as the tile, into the holes.

SECTION BK - FLOOR FINISHES - (Cont'd.)

INSTALLATION - (Cont'd.)

When called for on the drawings, install base as indicated, strictly in accordance with the manufacturer's directions.

Tile and base shall be of the colors indicated on the drawings.

Surface Treatment and Protection shall be as herein specified for PLASTIC TILE.

27 Rev. 9/19/52

SB-5-K Ceramic Tile For Walls of Refrigerators.

Where tile is indicated on drawings for walls of refrigerators the tile and setting shall conform to the following:

Tile - shall be a weatherproof 4-1/4" x 4-1/4" glazed tile having an impervious face and a semi-vitreous or vitreous white or colored body composed of clay or other ceramic material and which will pass the standardized freezing tests as established by the Tile Industry Research Bureau. Color shall be white; thickness, not less than 3/8", and edges shall be slightly rounded or of the "Cushion" type. Furnish trim shapes as required to produce a complete finished installation.

Setting - Scratch Coat will be provided as called for under Section BJ - Refrigerator Insulation.

Float coat shall be composed of 1 part Portland Cement, 1/2 to 1 part lime putty and 3 to 4 parts sand. Scratch coat shall be moistened and the float coat then applied to an area of such an extent as can be readily covered with tile before initial set.

The "Floating" or "Buttering" method shall be used in setting tile, skim-coating the tile with neat cement. Tile shall be applied to the wall in a plumb, true plane and tamped into place. Joints shall be uniform and not over 3/32" wide.

Grout shall be pure White Cement and shall fill all joints to within 1/16" of the tile surface.

Tile surfaces must be kept clean as the work progresses. No cleaning solutions which will affect the color or structure of grout or tile will be permitted.

All tile must be thoroughly soaked in clean water before setting.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
FLOOR FINISHES	Issued MAY 24, 1949	SB-6.1-K
ABRASIVE CEMENT TOPPING	Revised	

1. GENERAL - Standard Engineering Specification SB-6-K applies to and is part of this specification.

2. ABRASIVE AGGREGATE - shall be subject to du Pont's approval. It shall consist of from 60% to 75% of fused aluminum oxide (Al_2O_3), silicon carbide, boron carbide, or emery (or a mixture of such abrasives) having a hardness of 8.5 or more on Mohs' scale, combined with other compatible materials. After crushing, the individual grains shall be angular and sharp, and the aggregate shall be screened and graded within the range of from 1/32" to 1/4" in size. The abrasive shall be homogeneous, non-glazing, rust-proof and unaffected by freezing, moisture, or cleaning compounds. Aggregate shall be soaked for a minimum of 10 minutes immediately before using.

3. APPLICATION - The installation of the topping shall proceed in accordance with Standard Engineering Specification SB-6-K, through the process of compaction. The surface at this point shall be fairly smooth. When the topping has reached a state of hardness which will permit the aggregate to be floated in and bond itself to the topping, yet remain near the surface, sprinkle abrasive over the floor at the rate indicated on the drawings or prescribed by the manufacturer of the aggregate and float in manually. Then employ one steel troweling to smooth the surface.

If the topping was too wet to permit the aggregate to be properly exposed, or if the final troweling produced too dense a surface, lightly rub the surface with burlap to expose the aggregate.

Joints, dust-proofing, curing, and use of floor shall be as specified in Standard Engineering Specification SB-6.0-K.

SECTION BK - FLOOR FINISHES (Cont'd)

Melting Point.....144°F.
Flash Point .....428°F.
Specific Gravity 1.2468
Penetration:
115°F. 50 grams - 5 sec. 160
77°F.100 grams - 5 sec. 27
32°F.200 grams - 60 sec. ... 16
Bitumen soluble in CS_2 - not less than 72%.

Asphalt for the second layer shall be similar except that fluxing shall be adjustable to secure a penetration of from 7 to 12 at 77°F., as required for the specific conditions involved.

Maximum kettle temperature shall be 400°F.

AGGREGATE - preferably shall be all trap rock and trap rock screenings, but may be silica sand and pebbles free of loam or other deleterious matter. Grading shall be as required for the specific conditions involved within the following limits:

40 Rev. 1/21/54 Aggregate for both top and bottom layers.
For conditions of heavy traffic or exposure to corrosive liquids of low concentration.

Passing 3/8"	100%
Retained on 1/4" Mesh	27% - 35%
Retained on #10 Mesh	41 - 33
Retained on #40 Mesh	8 - 10
Retained on #80 Mesh	19 - 15
Retained on #200 Mesh	5 - 7

For conditions of light or foot traffic or exposure to corrosive liquids of higher concentration.

Passing 3/8"	100%
Retained on 1/4" Mesh	35 - 29%
Retained on #10 Mesh	25 - 19
Retained on #40 Mesh	12 - 16
Retained on #80 Mesh	20 - 25
Retained on #200 Mesh	8 - 11

ACID-PROOF EQUIPMENT FOUNDATION COATING - shall be a specially prepared asphalt, equal to Rulon's "Acid-Proof Compound, Type S" and approved by duPont.

SECTION 8K - FLOOR FINISHES (Cont'd.)

5. PREPARATION OF MASTIC - The mastic shall consist of a mixture of acid-proof asphalt and aggregate proportioned by weight as required for the specific conditions involved, within the following limits:

Top and Bottom Layer - light traffic - highly corrosive liquids -

Asphalt	50%
Aggregate	50%

Bottom Layer - heavy traffic - light exposure -

Asphalt	43%
Aggregate	57%

Top Layer - Heavy traffic - light exposure -

Asphalt	38%
Aggregate	62%

SECTION BK - FLOOR FINISHES (Cont'd.)

The aggregate shall be slowly added to the hot asphalt in the kettle while continuously mixing or agitating the mass and maintaining a kettle temperature of between 350°F. and 450°F., until all aggregate intended for a batch is used. Continuous agitation and heating must be maintained until the mastic is applied.

6. CONDITIONS FOR APPLICATION - The areas to be affected shall be closed to traffic of all kinds. The concrete sub-surface shall be completely dry and shall be thoroughly cleaned of dust, dirt and other foreign matter. The room temperature shall be maintained at a minimum of 70°F. during installation

7. PRIME COAT - the concrete sub-surface so as to provide complete coverage and allow to dry before placing matrix. Priming shall be carried up approximately 4" on all vertical surfaces formed by walls, curbs, column and equipment foundations.

8. APPLICATION OF ACID-PROOF MEMBRANE - A squeegeed coat of matrix asphalt approximately 1/8" thick shall be applied over the entire area, followed by one layer of 30 pound asphalt saturated asbestos felt applied while asphalt is still hot with sides and ends lapped at least 2 inches.

9. APPLICATION OF MASTIC - The mastic topping shall be 1-1/4" thick, unless otherwise indicated on the drawings and be applied in two layers, each 5/8" thick. The first layer shall be spread, screeded off, and allowed to set sufficiently to hold the workmen before applying the second layer.

The hot mastic shall overlap cold joints about 4" so that the cold edge will become soft, thus allowing finisher to make a perfect joint after the surplus material has been cut away. The cold joint shall be primed with concrete primer before applying the hot mastic.

The surface shall be sprinkled with fine silica sand and then finished smooth and even with wood trowels.

Joints in the top layer shall not occur over those in the layer below and the first layer shall be kept clean of refuse of all kinds during the interim between application of layers.

At walls, curbs, column and machine foundations, a fillet 3" high sealed at the top with an approved elastic cement, shall be constructed. Elastic cement to conform to Federal Specification SS-F-336a.

No traffic shall be allowed on the finished surface until the mastic is thoroughly set and hard.

When and where called for on the drawings, apply one coat of primer and two coats of hot acid-proof equipment foundation coating to the surfaces of concrete foundations, etc., above the mastic fillet.

SECTION BK - FLOOR FINISHES (Cont'd.)

The overall thickness of this floor is 1-3/8" thick.

Acid-proof mastic floor surfaces for outdoor exposure shall have one (1) coat of "Jennite J16" as manufactured by Maintenance, Inc., Wooster, Ohio applied to the surface in accordance with manufacturers directions.

10. METHOD OF MEASUREMENT - for pay quantities under unit prices shall be on a square foot bases for Acid-proof floor in place and per linear foot for cove base or 3" fillet. The square feet or areas for payment will be determined by actual measurement of finished space covered. Cove base or fillet shall be measured in linear feet in place.

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SECTION 8K - FLOOR FINISHES (Cont'd.)

WATER TREATMENT PLANT

BUILDING 483 - ACID & CAUSTIC STORAGE W-161061

1. Type of sub-floor - Concrete
2. Location of floor - Grade
3. Kind and weight of loads - Foot traffic
4. Frequency of hosing - Infrequently
5. Kind and degress of concentration of exposure - Sulphuric acid 10% to 93%
   Caustic 50%
6. Maximum temperature of liquids - Ambient
7. Variation in temperature - Outside exposures

39 Rev. 12/24/53 Mastic floor finish may be applied at a minimum temperature of 40° F or at a temperature at which the material can be worked.

BUILDING MATERIALS FLOOR FINISHES ASPHALT TILE	STANDARD ENGINEERING SPECIFICATIONS Issued FEB. 21, 1949 Revised	SB-1-K Sheet 1 of 3

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRAND - The brand of tile shall be subject to du Pont's approval

3. MATERIALS - The nominal size of tile and either the color or the color group is indicated on the drawings or specified in the project specifications. When the color group is indicated, the shade shall be as later selected by du Pont. The border shall be 6" to 9" wide and shall follow the line of all permanent walls and partitions, around columns, pilasters, and permanent fixtures or equipment presenting an enclosed vertical surface at the floor line.

Primers and adhesives shall be as approved by the manufacturer of the proposed tile.

TILE - shall be manufactured from completely inert materials, be odorless, and possess non-fading colors; and be grease-proof and chemical-resistant when so called for on the drawings or in project specifications. Tile shall be 3/16" thick unless otherwise specified. Tile shall conform to Federal Specification SS-T-306.

PRIMER - shall be a thin liquid cut-back asphalt primer.

ADHESIVE - may be an emulsified bituminous cement when applied on suspended slabs. For application on slabs in contact with ground, the adhesive shall be a cut-back bituminous cement.

CEMENT FOR ASPHALT BASE - shall be a bituminous cement manufactured especially for application of asphalt base.

CRACK FILLER - shall be a mixture of 1 part of emulsified asphalt priming liquid, 1 part Plaster of Paris, and sufficient water to mix to a mortar consistency. The mixture is quick-setting and should be mixed in small quantities as required.

ACCESSORIES - Protective edgings shall be extruded brass or aluminum, unless otherwise indicated or specified.

ASPHALT BASE - shall be 1/8" thick cove base, shaped so as to set on top of the tile floor. It shall be sufficiently flexible so that internal and external corners can be formed easily from 3-ft. sections by heating and bending. The base shall be shatter-proof when subjected to impact, and sufficiently rigid to remain in its original position.

Note: Base other than asphalt base is not included in this specification.

4. INSTALLATION - The concrete sub-floor shall be smooth, without protrusions or depressions, and free of scale, dust, dirt, grease, oil, and other foreign deposits. The sub-floor must be thoroughly dry before application of the primer.

Before starting installation, the rooms involved must be heated for several days to a minimum temperature of 70°F. and be maintained at this temperature during the period of installation and for several days after completion. Provide adequate ventilation during the progress of the work and throughout the drying period.

Tile work must not be started until the work of all other trades, in the areas involved, is entirely completed.

Prime the sub-floor, applying the primer in as thin a coat as is compatible with complete coverage, using approximately one gallon per 300 sq.ft.

After primer is dry, fill all joints and cracks with crack filler, and trowel smooth.

Apply adhesive with a serrated trowel and in an even and uniform layer. Emulsified bituminous cement shall be applied at the rate of approximately 125 sq. ft. per gallon and be allowed to set until the color is jet black and no bitumen adheres to the thumb when pressed into the asphalt. Cut-back bituminous cement shall be applied at the rate of approximately 200 sq. ft. per gallon and be allowed to dry for a minimum period of 30 minutes and a maximum of 2 hours, so that the adhesive becomes tacky before applying tile.

When the adhesive is sufficiently dry, install the tile in accordance with the layout and pattern selected by du Pont. The field shall be applied first, starting at the center of the area and working toward the edges. The tiles shall be square with the room axis and be laid in full contact with the sub-floor surface. The border shall be scribed to the wall or other vertical surfaces, fitting neatly into breaks or recesses, against or under base trim, and around pipes. Punch out tile where the legs of radiators or other fixed weighty objects are positioned and insert specially-made aluminum discs of the same thickness as the tile into the holes.

Install asphalt base where indicated on the drawings strictly in accordance with the manufacturer's directions, using the cement intended for this purpose. Accurately scribe the base to trim and plinths.

5. SURFACE TREATMENT - After completion of installation, clean the tile surfaces of adhesive, dirt, and other foreign substances. Use of solvents, other than those recommended by the tile manufacturer, is not permitted.

Allow a minimum time lapse of 2 weeks before washing and waxing. In washing, use only cleaners approved by the tile manufacturer. The surface shall be thoroughly washed and then rinse-mopped using clean water, removing all traces of cleaner. When the floor is dry, apply 2 coats of water-emulsion non-skid wax in accordance with manufacturer's directions. Wax shall be devoid of free oils and fats and be approved by the tile manufacturer. Both coats shall be power-polished, leaving the finished surface highly glossy.

Until final acceptance by du Pont, the floor shall be covered or protected as necessary to prevent damage to the surface.

6. INSPECTION AND ADJUSTMENTS - After completion, the temperature of the rooms floored with asphalt tile shall be continuously maintained at a minimum of 70°F. for a period of approximately 30 days. The work shall then be inspected and necessary repairs and adjustments be made. Loose or projecting tiles shall be reseated, tiles with minor cracks and fractures shall be repaired, and tiles with major fractures or broken corners replaced, waxed, and polished.

7. METHOD OF MEASUREMENT - Pay quantities under unit prices shall be on a square-foot basis for tile in place and per lineal foot for cove base in place. The square feet of area to be paid for shall be determined by actual measurements of finished floor space covered. No additional allowance will be made for scrap or section of tile not laid.

BUILDING MATERIALS FLOOR FINISHES LINOLEUM	STANDARD ENGINEERING SPECIFICATIONS Issued FEB. 21, 1949 Revised	SB-3-K Sheet 1 of 3

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRAND - of linoleum is subject to du Pont's approval.

3. MATERIALS - The lining felt, waterproof cement, and adhesive shall be as approved by the manufacturer of the proposed linoleum.

LINOLEUM - shall be plain linoleum of Battleship grade and shall conform to Federal Specification LLL-L-351. Unless otherwise indicated on the drawings, the thickness shall be 1/8". The color shall be as selected by du Pont.

PRIMER - shall be a thin liquid emulsified asphalt primer.

CRACK FILLER - shall be a mixture of 1 part of emulsified asphalt priming liquid, 1 part Plaster of Paris, and sufficient water to mix to a mortar consistency. The mixture is quick-setting and should be mixed in small quantities as required.

LINING FELT - shall be a semi-saturated asphalt felt made especially for use under linoleum.

ADHESIVE - shall meet the requirements of Federal Specification O-P-106.

WATERPROOF CEMENT - shall be an alcohol-soluble waterproof cement, made especially for use with linoleum.

CEMENT FOR ASPHALT BASE - shall be a bituminous cement as manufactured especially for application of asphalt base.

ACCESSORIES - Fillets shall be composed of ingredients not subject to fungus growth or decay from moisture. Protective edgings shall be extruded brass or aluminum, unless otherwise indicated on the drawings.

ASPHALT BASE - shall be 1/8" thick cove base, shaped so as to set on top of the linoleum. It shall be sufficiently flexible so that internal and external corners can be formed easily from 3-ft. sections by heating and bending. The base shall be shatter-proof when subjected to impacts, and sufficiently rigid to remain in its original position.

Note: Base, other than asphalt and linoleum base, is not included in this specification.

4. INSTALLATION - The concrete sub-floor shall be smooth, without protrusions or depressions, and free of scale, dust, dirt, grease, oil, and other foreign deposits. The sub-floor must be thoroughly dry before application of lining felt. Before starting installation, the rooms involved must be heated for several days to a minimum temperature of 70° F. and be maintained at that temperature during the installation period. The linoleum shall have been stored under a temperature of 70° F. or above for a period of several days, so that the material is pliable and not subject to ready breakage.

Linoleum work must not be started until the work of all other trades in the areas involved is entirely completed.

Prime cracks and joints, fill with crack-filler, and trowel smooth.

Apply adhesive on the sub-floor with a serrated trowel, spreading it in an even uniform layer at the rate of 140 to 180 sq. ft. per gallon. Lining felt shall be laid into the adhesive with butted joints, with a minimum of seams, and be evenly and thoroughly rolled and cross-rolled into place. The roller shall be used from the center of the area toward the edges, working out all wrinkles and air bubbles.

Apply linoleum on the lining felt, bonding with adhesive that is spread as specified above. All areas subjected to moisture shall be sealed with waterproof cement. The linoleum shall be laid with tight joints and a minimum of seams. No piecing of short ends will be permitted.

The linoleum shall be scribed to form tight joints with vertical surfaces, around projections from the floor surface, and against or under trim base. Roll and cross-roll the entire area as specified for lining felt until adhesion is complete, and sandbag corners and other areas inaccessible to the roller. When linoleum base is called for on the drawings or in the project specifications, the linoleum shall be laid neatly into the fillet at the junction of the wall and floor, and be brought up the wall the required height. The top of the base shall fit under the wood cap, and corners shall be tightly butted and fitted. No metal corner pieces will be permitted.

Install asphalt base where indicated on the drawings, strictly in accordance with the manufacturer's directions, using the cement intended for this purpose. Accurately scribe the base to trim and plinths.

Install protective edgings where indicated on the drawings or required. Punch out linoleum where legs of radiators or

other fixed weighty objects are positioned and insert specially-made aluminum discs of the same thickness as the linoleum into the holes.

5. SURFACE TREATMENT - Allow a minimum time lapse of 48 hours after completion of installation before washing and waxing. All solvents, cleaners, and waxes shall be as approved by the linoleum manufacturer and used in accordance with his directions. After the floor is thoroughly dry, apply two coats of the approved wax, and thoroughly power-polish both coats to produce a highly glossy surface.

Until final acceptance by du Pont, the floor shall be covered and protected as necessary to prevent damage to the surface.

6. METHOD OF MEASUREMENT - Pay quantities under unit prices shall be on a square-foot basis for linoleum in place, and per lineal foot for cove base in place. The square feet of area to be paid for shall be determined by actual measurement of finished space covered.

BUILDING MATERIALS FLOOR FINISHES QUARRY TILE	STANDARD ENGINEERING SPECIFICATIONS Issued FEB. 21, 1949 Revised	SB-5-K Sheet 1 of 2

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRANDS - of tile, Portland cement, and hydrated lime are subject to du Pont's approval.

3. MATERIALS - The size of tile, color, and the laying pattern shall be as indicated on the drawings.

TILE - shall be Standard Grade, dense, vitreous tile manufactured from shale or clay or a mixture of both. Absorption, by the 5-hour boiling test, shall not exceed 3%. The surfaces and edges shall be straight, level, and smooth and free of warpage and blemishes. The face shall be unmarred by pitting, scaling, or other imperfections, and the back shall be grooved or scored. The thickness shall be at least 1/2". Tile shall be thoroughly soaked in clean water until sizzling stops and be kept wet until used.

PORTLAND CEMENT - shall conform to A.S.T.M.: C150.

HYDRATED LIME - shall conform to the specification for Type "S", A.S.T.M.: C207.

SAND - shall conform to A.S.T.M.: C144.

4. INSTALLATION - Before mortar setting-bed is spread, the concrete sub-floor shall be thoroughly cleaned of dirt and dust and be saturated with clean water. All excess water shall be removed.

The mortar for the setting-bed shall be proportioned as follows:

1 part Portland Cement
3 to 4 parts Sand
1/5 part Lime Putty

Mix ingredients with sufficient water to create a homogeneous, plastic, workable mixture.

As large a floor area as can be covered with tile before the mortar has reached its initial set shall be placed at one time. The bed shall be screeded and floated to a true flat plane, level or sloped to drains as indicated on the drawings. For all surfaces, screed strips shall be set as temporary guides. When more mortar has been spread than can be covered before it sets, the unfinished portion shall be cut back to a clean beveled edge and removed. The minimum thickness of setting-bed shall be 1/2".

Dust Portland cement by hand uniformly over the setting-bed immediately preceding laying of tile. The tile shall be placed upon and firmly pressed and beaten into the mortar bed until they are seated in the desired position. The tile shall be laid flush and to a true plane, square with the room axis, and with uniform joints, 1/4" wide.

Tile nosing, coves, curbings, gutters, and base shall be installed where indicated on the drawings. They shall be rigidly set, reinforced, or otherwise made firm and secure, and be thoroughly backed up with mortar.

Grouting mixture shall be proportioned: 1 part Portland cement, 2 parts sand, and 1/10 part lime putty. When colored joints are indicated on the drawings, only non-fading mineral oxide colors shall be used. Force grouting mixture into the joints with a trowel or other suitable means and tool flush with the tile surface.

Tile **must be kept clean at all times.** Mortar spots must not be allowed to set upon the face. When grouting, remove surplus cement by carefully wiping with a clean damp cloth and restrike the joint. Upon completion of the job and after the grouting is thoroughly set, clean and wash entire area. If a muriatic acid solution is required, it shall not be stronger than 5% and must be applied and then immediately and thoroughly rinsed off with clean water. Special care shall be taken to prevent burning of joints with the solution.

The finished floor area must be closed to all traffic until all possibility of damage thereto is past, and then shall be suitably protected until final acceptance by du Pont.

5. METHOD OF MEASUREMENT - Pay quantities under unit prices shall be on the square-foot basis for tile in place, and per lineal foot for base in place. The square feet of area to be paid for shall be determined by actual measurement of finished space covered.

BUILDING MATERIALS FLOOR FINISHES PLAIN CEMENT TOPPING	STANDARD ENGINEERING SPECIFICATIONS	
	Issued MAY 24, 1949	SB-6-K
	Revised	Sheet 1 of 4

1. GENERAL - Standard Engineering Specifications SC-1-A, SB-1-A, SB-2-A, and SB-12-A apply to and are part of this specification.

2. DESCRIPTION - This specification covers the installation of a cement topping finish, applied either (a) on a set base slab or (b) monolithically with the base slab.

The use of controlled moisture absorption, specified in Paragraph 5, shall be mandatory only when specifically called for on the drawings or in the project specifications.

The temperature of the room involved shall be maintained at not less than 50° F. for at least 24 hours prior to, during installation, and at least to the end of the curing period.

When finishing work begins, a small portion of the floor shall be completed in accordance with these specifications, and be submitted to du Pont for approval as to quality. The approved portion shall then serve as basis of comparison for the rest of the floor receiving the same type of finish, and the quality of the remainder of the work shall be equal to that of the approved portion.

3. MATERIALS - Cement shall be normal Portland cement conforming to the requirements of Standard Engineering Specification SB-1-A.

Aggregates shall conform to Standard Engineering Specification SB-2-A except that grading shall approximate that called for below. Fine aggregates preferably shall be trap-rock screenings, with crushed trap rock preferred for coarse aggregate.

GRADING - FINE AGGREGATE

Passing 3/8" sieve	100%
Passing No. 4 sieve	95-100%
Passing No. 16 sieve	45- 65%
Passing No. 50 sieve	5- 15%
Passing No. 100 sieve	0- 5%

GRADING - COARSE AGGREGATE

Passing 1/2" sieve	100%
Passing 3/8" sieve	95-100%
Passing No. 4 sieve	40- 60%
Passing No. 8 sieve	0- 5%

Water shall conform to Standard Engineering Specification SB-3-A.

Dust-proofing liquid shall be a magnesium zinc fluosilicate solution (not less than 20% zinc fluosilicate), approved by du Pont.

It shall possess a surface tension characteristic resulting in a reduction of at least 50% of that of plain water. Application to a finished concrete floor shall result in a dust-proof, dense, hard, highly impermeable surface. The liquid shall be mixed or diluted in accordance with the manufacturer's directions, but dilution shall be such that the resulting liquid contains not less than 14% of solids.

4. PROPORTIONING AND MIXING - The topping mix shall be proportioned: 1 part cement, 1 part fine aggregate, and 1-3/4 parts coarse aggregate, together with only sufficient water to produce a workable mixture. This shall be of such consistency that, within 30 minutes after the topping is poured and screeded, it will sustain a weight of 300 lbs. per square foot (directly on the topping) without causing a surface depression. Cement and aggregates shall be measured by weight.

When a controlled moisture-absorption process is not used, the water-cement ratio shall not exceed 5 gals. of water per sack of cement, including free water in the aggregates. The consistency shall be such that screeding, floating, or troweling will not bring water to the surface.

Mixing shall be done in a batch mixer, approved by du Pont, and mixing time shall not be less than 1-1/2 minutes after all the materials for a batch are in the mixer.

5. CONTROLLED MOISTURE ABSORPTION - An approved method consists of covering the screeded and leveled topping surface with large sheets of burlap. On this burlap is then sprinkled dry cement or a dry mixture of 1 part cement and 1 part fine aggregate (as used in the topping mix) in a quantity sufficient for the purpose, and allowing this absorbent to soak up the free water through the burlap. When absorption is complete, the cement or mixture shall be removed and used in the following batch of topping. The neat cement or mixture, when reused in this manner, must not be allowed to partially harden before mixing.

Any other method, equal to the foregoing one and approved by du Pont, may be used.

6. APPLICATION: TO A SET BASE SLAB - The slab shall have been provided with a Class 8 finish (Standard Engineering Specification SB-10-A), at a level uniformly one inch below the finished floor elevations unless otherwise called for on the plans or in the project specifications. The surface of the base slab shall be cleaned to remove oil, grease, dirt, and other loose particles, and scrubbed with a 10% solution of muriatic acid, if necessary. Laitance, if existent, shall be removed by application of the muriatic acid solution or an equal approved by du Pont, or by

mechanical chipping. Acid or etching solutions must be thoroughly removed by flushing with water. The base slab shall be thoroughly saturated for a period of from 5 to 8 hours. Surface water shall then be removed.

Thoroughly broom into the damp surface a mixture of cement and water of creamy paint consistency, which shall not be allowed to set or dry out before applying topping.

Deposit topping mix between previously set screeds and strike off to the required level. Remove excess moisture by the controlled moisture absorption process, if so required. Then thoroughly compact to obtain maximum density throughout the full depth of the topping, using a grid-type (preferably) or solid face tamper, or a roller weighing not less than 10 lbs. per linear inch. Follow with a mechanical floating using a machine of a metal disc type.

Under no circumstances shall excess moisture or surface water be disposed of by the process of sprinkling neat cement or a mixture of cement and sand directly on the topping and troweling in. No additional water shall be sprinkled on the surface during finishing.

7. APPLICATION: MONOLITHIC WITH BASE SLAB - After the base slab has been poured and screeded to a level one inch below the required final elevation and before slab achieves initial set, apply the topping, screed, remove excess moisture (if required or necessary), compact and float as specified in preceding Paragraph 6.

8. FINISHING - The floating operation shall be followed by at least three steel trowelings to bring the finish to a smooth, hard, impervious surface, free of appreciable marks or blemishes. All but the final troweling shall preferably be done mechanically. The final troweling shall be a manual operation performed for the purpose of burnishing and shall be done sufficiently late so that there is no evidence of cement past or "fat" adhering to the edge of the trowel. As the burnishing operation progresses, it shall produce a shine or gloss on the surface, and be accompanied by an audible ringing sound from the trowel as it is being used.

9. JOINTS - The work of installing the topping, once started, shall be continuous during the work period, and the work shall be planned so that construction joints in the topping occur only over construction, expansion, or contraction joints in the base slab. All construction joints shall be straight, at right angles to the base slab, and be protected to insure a tight joint free of feather edges. When a period's work extends over and beyond construction or contraction joints in the base slab, joints in the topping need not be made, unless otherwise indicated on the drawings. However, the joints in the topping must be made in accordance with Engineering Standard B4L over expansion joints in the base slab.

When discontinuations in topping occur, a bonding mixture shall be brushed into the edge of the topping when commencing adjacent work.

10. BASE - When called for on the drawings, install cement base to the height indicated. Screeds, installed at the top of the base and at the juncture of the base and topping (if used), shall be straight and true. If the wall construction does not provide for adequate anchorage, install a strip of galvanized metal lath, solidly fastening the strip to the wall. The bullnose at the top and the cove at the floor line shall be 1/2" and 1-1/2" radius, respectively, and be clean, straight, and true.

11. CURING - shall be started within 24 hours after the final troweling, and be done by the method of using sisal-reinforced paper, in accordance with Standard Engineering Specification SB-12-A. Minimum curing period shall be 10 days.

12. USE OF FLOOR - shall not be permitted for at least 5 days following completion of the final troweling, and only light use shall be permitted for an additional 10 days thereafter.

13. DUST-PROOFING - After the floor is cured and thoroughly dry, treat the surface with at least three applications of dust-proofing liquid, applied at 3- to 4-hour intervals. Within 24 hours after the final application, thoroughly flush the floor with clean water to remove the crystals which have formed.

14. METHOD OF MEASUREMENT - for pay quantities under unit prices shall be as follows:

Monolithically-applied floor topping shall be considered as part of and integral with the base slab and shall be computed on the same basis as the base slab as specified in item 11, Standard Engineering Specification SB-6-A. Cement base shall be computed separately, on a lineal-foot basis, using the actual lineal feet of base in place as a basis of measurement.

Topping applied to a set base slab - shall be on a square-foot basis and cement base on a lineal-foot basis, computed from the actual square feet of topping and lineal feet of cement base in place. All openings or projections in the base slab larger than 6 sq. ft. shall be deducted.

SECTION BK - FLOOR FINISHES (Cont'd.)

ACID-PROOF MASTIC

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is a part of this specification.

2. BRANDS - of all materials covered by this specification are subject to duPont's approval.

3. DESCRIPTION - DuPont shall furnish to the Vendor information as to the (1) type of subfloor and whether above grade or on ground, (2) loading to be imposed together with information on the tire type, width, and wheel loads to be imposed, (3) kinds and degree of concentration of acids, alkalis, and oils to which the surface will be subjected, (4) the moisture conditions for both the bottom and top of slabs, including frequency of hosings, (5) temperature variations to which floor will be exposed and (6) whether the floor is for indoor or outdoor exposure.

In order to meet the specific conditions involved, the penetration characteristic of the asphalt, the grading of aggregates, and the proportioning of the mastic mixture shall be adjusted within the limits indicated in paragraphs 4 and 5 hereafter.

4. MATERIALS - shall conform to the following:

CONCRETE PRIMER - shall consist of an asphalt base with the following characteristics:

Softening Point ..... approx. 150°F.
Penetration at 77°F.-50 grams-5 sec. ..... 25 to 30

The primer shall be thinned as required for suitable brushing consistency using a volatile solvent having an end point of 260°C. Asphaltic content of the primer shall not be less than 35% by weight. In other respects, the primer shall conform to A.S.T.M.:D41.

MATRIX ASPHALT - shall be a specially prepared asphalt, specifically made to be used in an acid-proof membrane, such as "Rulon Acid-Proof Matrix", manufactured by Ralph W. Rulon, Inc., Philadelphia, Pa., or "Atlastic No. 31" manufactured by The Atlas Mineral Products Co., Mertztown, Pa. The maximum kettle temperature shall be as recommended by the manufacturer.

MEMBRANE FELT - shall be asphalt-saturated asbestos felt, 30 pound type. A.S.T.M.:D250.

ACID-PROOF ASPHALT - for the first layer of mastic topping shall be a soft adhesive "self-healing", homogeneous and water-free asphalt. It preferably shall contain at least 50% Native Trinidad Lake Asphalt. It shall be so fluxed that the resulting blend possess the following characteristics:

BUILDING MATERIALS FLOOR FINISHES METALLIC CEMENT TOPPING	STANDARD ENGINEERING SPECIFICATIONS	
	Issued MAY 24, 1949	SB-6.2-K
	Revised	Sheet 1 of 2

1. GENERAL - Standard Engineering Specification SB-6-K applies to and is part of this specification.

2. METALLIC HARDENER - shall be a metallic aggregate, approved by du Pont, free of non-ferrous metal particles, oil, grease, and soluble alkaline compounds. There shall be combined with the metallic aggregate, when manufactured, a pozzuolanic material and a cement dispersing agent. The grading of the metallic aggregate shall be as follows:

Mesh	Percent Passing
8	90 - 100
16	70 - 85
30	35 - 50
50	5 - 10
100	0 - 5

Before use, metallic hardener shall be well mixed (dry) with normal Portland cement in the proportion of 1 part cement to 2 parts of hardener by weight.

3. APPLICATION - The drawings or the project specifications designate whether a medium-duty, heavy-duty, or spark-proof floor is required.

The rate of application of the dry cement-hardener mixture shall be as follows:

Medium-duty - 75 lbs. per 100 sq. ft., applied in two shakes.

Heavy-duty - 120 lbs. per 100 sq. ft., applied in two or more shakes as required.

Spark-proof - The rate of application shall be such that the floor surface is sufficiently conductive to prevent the formation of static charges to sparkable potentials and in no case possesses a resistance in excess of 250,000 ohms between any point on the surface and the grounding electrodes, when measured on any standard ohmeter using a 5-lb. electrode, with a contact area of 5 sq. in., for contact with the floor surface. The minimum rate of application for a spark-proof floor shall be the rates for medium-duty and heavy-duty traffic as stated before.

The grounding electrodes for spark-proof floors are not included in this specification, but the electrodes must be in place before installation of topping begins.

The installation of the topping shall proceed as stated in Standard Engineering Specification SB-6-K through the stage of

floating (after compation). The finishing operations from this stage must follow each other immediately. Each shake of the hardener, as required for a medium-duty floor, may be floated into the surface using ordinary floating methods, but when a heavy-duty or spark-proof floor is applied, the metallic aggregate shall be worked into the surface by the use of a grill tamp. Sprinkling of water on the topping for additional moisture shall not be permitted. Follow the tamping with a wood float. Then proceed with the finishing of the surface as specified in Paragraph 8, Standard Engineering Specification SB-6-K, using a troweling machine for all operations except for final troweling.

Joints, curing, and use of floor shall be as specified in Standard Engineering Specification SB-6-K.

BUILDING MATERIALS ACID-PROOF BRICK FLOORS AND SIDEWALLS	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED FEB. 1951	SB 7 K
	REVISED	Page 1 of 6

1. GENERAL

1.1 Standard Engineering Specification SC 1 A applies to and is a part of this specification.

2. BRANDS

2.1 Brands of materials covered by this specification shall be subject to du Pont's approval.

3. MATERIALS

3.1 **Brick** shall be manufactured from deaerated shale and possess uniform density and complete vitrification. When tested in accordance with the method outlined in ASTM:C67 for the 5-hour boiling test, the maximum absorption shall not be over 2 percent. The brick shall be inert to mild alkalies and to all acids except hydrofluoric.

3.1.1 **Size.** The nominal width and length of floor brick shall be 3¾ inch and 8 inch respectively, and the nominal thickness shall be 1⅛ inch, 1⅜ inch, 1½ inch, 2¼ inch, or 4½ inch as indicated on the drawings. Brick for floors and trench or sump bottoms shall have wire-cut tops and bottoms and scored (or terry- or matt-textured) sides and ends, unless the finish of sides and ends is specifically called for in the project specifications. The 3¾ inch x 8 inch x 4½ inch brick shall be laid with the 4½ inch x 8 inch surface exposed when so indicated on the drawings, providing the top surface is smooth with sides, ends and bottom scored, terry- or matt-textured. Floor brick, 1⅜ inch thick, having a horizontal fiber structure; commonly called tile, shall be used only when called for in the project specifications or indicated on the drawings. They shall have a smooth, diamond tread, or abrasive top finish (as called for in the project specifications) with wire-cut ends and grooved sides and bottoms.

3.1.1.1 The nominal face dimensions of brick for the side walls of trenches, sumps and vertical surfaces of foundations, piers, curbs, etc., shall be 2¼ inch x 8 inch or 4½ inch x 8 inch, as called for on the drawings, with a width of 3¾ inch. When brick protecting curbs and foundations are to be laid with the 3¾ inch x 8 inch side exposed, thickness shall be as indicated on the drawings. Finish of exposed face shall be smooth, back and ends scored, terry- or matt-textured, top and bottom wire-cut.

3.1.1.2 Size variations shall not exceed 2 percent in length and 3 percent in width and thickness.

3.1.2 *Distortion.* The maximum permissible distortions of face and edges of face shall be 1/16 inch.

3.1.3 *Special Shapes,* when required, shall be as indicated on the drawings.

3.2 **Channel Tile.** Size shall be as indicated on the drawings. Tile shall be extra strength, conforming to the requirements of ASTM:C200. Manufacturer shall, if so requested by du Pont, furnish certified results of tests performed with "1N" solutions in accordance with ASTM testing methods, on tile identical to that which it is proposed to furnish under this specification.

3.3 *Joint Cement.* The type of joint cement to be used shall be as indicated in the project specifications. This Standard Specification covers plasticized, sulphur-base cements herein designated as "Sulphur Base Cement" and phenolic- or furane-base, synthetic resin cements together with their associated carbon or non-carbon aggregates, designated as "Resin-Base Mortar."

3.4 **Concrete Primer.** Shall have an asphaltic base with the following characteristics:

Softening Point	Approx. 150°F.
Penetration at 77°F.	
50 grams - 5 sec.	20 to 30

The base material shall be thinned with a petroleum solvent having an end point of 260°C. to create a primer of suitable brushing consistency. Asphaltic content of primer shall be not less than 35 percent by weight. In other respects, the primer shall conform to ASTM:D41.

3.5 *Matrix Asphalt.* Shall conform to the following requirements:

Melting Point	200°F. to 220°F.
Penetration:	
115°F. 50 grams - 5 sec.	Less than 70
77°F. 100 grams - 5 sec.	35 to 45
32°F. 200 grams - 60 sec.	25 to 35
Percent of Bitumen Soluble in CS_2	Not less than 90 Pct.
Weight	65 lb. to 75 lb. per cubic foot

a powder. The manufacturer's directions for proportioning and mixing shall be implicitly followed, using equipment designed according to his recommendations.

6.2.1 Only enameled pans shall be used for holding the finished mortar.

6.2.2 The "working time" (time during which a batch is workable) and the "hardening time" (time required for hardening after mortar is placed) varies with temperature, brand, and kind of resin-base cement being used. Manufacturer's technical data, furnished with the shipment, must be consulted to ascertain these properties. Mortar shall not be used when it starts to set. It cannot be retempered or reconditioned for use and must be discarded.

6.2.3 Warning. Some resin-base cements, particularly the phenolformaldehyde type, are toxic to some individuals and may cause serious skin irritations. In order to prevent injury, it shall be ascertained from the manufacturer whether or not the material is toxic and if there is any record of injuries caused by the particular product being used. If toxicity is suspected, the following procedure shall be used when work is performed by du Pont forces.

(a) Only workmen, selected by the Medical Division, who show no evidence of existing skin disease and who have no history of having had dermatitis from handling chemical compounds shall be chosen for this work.

(b) These men shall be instructed that in handling this material, every possible effort must be made to keep it from any part of the skin and clothing.

(c) Workmen shall be supplied with heavy rubber gloves and their hands be watched for the slightest sign of irritation. It may be necessary to discard the gloves at the end of every shift period and to start the next day's work with new gloves.

(d) At lunch time, the workmen shall carefully wash their hands with non-irritating soap. At the end of the shift period, it is advisable for them to take a shower.

(e) Clothing contaminated with the material shall be properly laundered before it is worn again.

6.3 Preparation of Sand-asphalt Mastic. The mixture shall be proportioned by weight as follows:

Acid-resisting asphalt	10 Percent
Silica Aggregate	90 Percent

The aggregate, after being heated, shall be slowly added to the hot asphalt, while the asphalt is being continuously agitated in the kettle. Mixing shall be thorough to produce a homogeneous mass, while maintaining a temperature between 350 degrees F. and 400 degrees F. The mastic shall be continuously heated and agitated until used.

7. WORKMANSHIP

7.1 Priming Subsurfaces. Concrete subfloors, curbs, vertical surfaces, machine foundations, trench and sump pit sides and bottoms, etc., which are to receive acid-proof brick, shall be primed. Metal subsurfaces shall also be primed. A sufficient quantity shall be used to provide thorough coverage, and the primer shall be allowed to dry before applying the membrane, sand-asphalt mastic or brick.

7.1.1 Resin-base mortars must not be placed in direct contact with surfaces containing alkalies such as lime, plaster, or Portland cement. Such surfaces must either be primed with asphalt primer or, in cases where a membrane is not required, neutralized with hydrochloric acid, then washed free of acid and be dried, before placing the mortar. Some proprietary resin-base primers are also available for use on such surfaces.

7.2 Application of Membranes. The type of membrane used shall be as indicated in the project specifications and shall conform to the requirements specified below. The finished membranes shall be examined for pinholes or other imperfections and repaired, as necessary, so that the entire surface will be covered with an impervious layer. The membrane shall be brought up onto walls and foundations and over curbs, tightly applying it into all corners. Where floor drains occur, the membrane shall be reinforced with fiberglas cloth, neatly fitted, and shall be tightly secured by the clamping ring.

7.2.1 Type I - Hot Asphalt Membrane, not Reinforced. A coat of matrix asphalt, approximately 1/8-inch thick, shall be squeegeed over the entire primed area. When it is set, a second coat of equal

7.5 Solid Brick Equipment Foundations shall be of the size and shape indicated on the drawings. The brick forming the sides and top shall be laid in resin-base cement while sulphur-base cement may be used for joints of inside brick. If sulphur-base cement is used, no more than one layer of inside brick shall be laid before pouring joints. Bed joints shall be formed by laying the brick on sulphur-base cement spacing chips.

7.5.1 Anchor bolts must be primed with asphalt primer before embedding in brickwork, as called for in Paragraph 7.1.

7.6 Trench and Sump Linings. Trenches and sumps, which are lined entirely with brick, shall be constructed in accordance with Paragraphs 7.6.1 and 7.6.2. When channel tile is used for the bottom of the trench, construction shall be as outlined in Paragraph 7.6.3.

7.6.1 Membrane. The membrane used shall be Type II, unless otherwise specifically called for in the project specifications, applied, in general, as outlined in Paragraph 7.2.2.

7.6.2 Laying Brick. The bond or brick layout shall be as indicated on the drawings, and the type of cement used shall be as called for in the project specifications. Laying method shall conform to the following for the particular type of cement used.

7.6.2.1 Sulphur-Base Cement. The sides of trenches shall be laid up first (unless the concrete subsurface in the bottom is sloped, or brick surface is stepped the same as concrete subsurface), starting by placing the first course directly on the membrane. Joint and back space thickness shall be 1/4 inch, with the bed-joint formed by inserting chips and no more than one course shall be laid before pouring the cement. The joints shall be sealed with paper adhesive masking tape and filled with hot sulphur-base cement to a level down approximately 1/3 of the brick thickness. Care shall be exercised to make certain that no air pockets or voids are created. The following courses shall be similarly laid until both sides of the trench are lined.

7.6.2.1.1 If the concrete subsurface of the trench bottom is stepped and brick surface is sloped, a sand asphalt mastic shall be installed to the slope and thickness indicated on the drawings, finishing with a trowel to a smooth, even surface. If a joint is required between work done at different times the work shall be feather-edged so that the new hot layment will overlap the cold about 4 inches. The joint shall be primed before applying the later work. The mastic shall be allowed to set thoroughly before laying brick.

7.6.2.1.2 The brick in the bottom of the trench shall have the bottom surface dipped in hot matrix asphalt and be laid directly on the mastic, or be placed on chips when the cement is to be poured under the brick. Joints shall be 1/4-inch thick, and all brick shall be laid flush and even. Cement shall then be poured into the joints to within approximately 1/4 inch from the surface, working from one end of the trench, and progressively from brick to brick so as to prevent voids. Joints shall then be completely filled, overpouring slightly. Flooding of surface will not be permitted.

7.6.2.1.3 When the concrete subsurface of the trench bottom is sloped, or brick surface is stepped the same as the concrete subsurface, the sand-asphalt mastic shall be omitted and the bottom shall be laid first. Otherwise, laying procedure shall be as outlined above.

7.6.2.1.4 The above procedure shall also apply to installation of linings of sumps.

7.6.2.2 Resin-Base Mortars. Procedure shall be as specified above for sulphur-base cement except that brick shall be laid into resin-base mortar. Horizontal and vertical joints of side walls shall not exceed 3/16 inch in thickness and the back space shall be completely filled. Joints shall be struck with the tip of the trowel. Brick for the bottom shall be laid in a 1/8-inch thick bed of resin-base mortar on the membrane or mastic fill, as the case may be, with vertical joints not over 3/16-inch thick.

7.6.2.2.1 Brick surfaces must be kept clean as the work progresses. See Paragraph 7.4.4.

7.6.2.2.2 Water or process liquids must be kept off until mortar is thoroughly set and hard.

7.6.2.3 Dual Cement Construction. In lieu of the methods described above, the linings on vertical surfaces may be installed using resin-base mortar in the bed and cross joints and sulphur-base cement in the back space. The back space, in this case, shall be 1/4-inch thick and no more than one course shall be laid at one time before filling with cement. Bed and cross joints of facing brick shall be as specified above for resin-base mortar construction.

BUILDING MATERIALS ACID-PROOF BRICK FLOORS AND SIDEWALLS	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED FEB. 1951	SB 7 K
	REVISED	Page 1 of 6

1. GENERAL

1.1 Standard Engineering Specification SC 1A applies to and is a part of this specification.

2. BRANDS

2.1 Brands of materials covered by this specification shall be subject to du Pont's approval.

3. MATERIALS

3.1 **Brick** shall be manufactured from deaerated shale and possess uniform density and complete vitrification. When tested in accordance with the method outlined in ASTM:C67 for the 5-hour boiling test, the maximum absorption shall not be over 2 percent. The brick shall be inert to mild alkalies and to all acids except hydrofluoric.

3.1.1 Size. The nominal width and length of floor brick shall be 3¾ inch and 8 inch respectively, and the nominal thickness shall be 1⅛ inch, 1⅜ inch, 1½ inch, 2¼ inch, or 4½ inch as indicated on the drawings. Brick for floors and trench or sump bottoms shall have wire-cut tops and bottoms and scored (or terry- or matt-textured) sides and ends, unless the finish of sides and ends is specifically called for in the project specifications. The 3¾ inch x 8 inch x 4½ inch brick shall be laid with the 4½ inch x 8 inch surface exposed when so indicated on the drawings, providing the top surface is smooth with sides, ends and bottom scored, terry- or matt-textured. Floor brick, 1⅜ inch thick, having a horizontal fiber structure; commonly called tile, shall be used only when called for in the project specifications or indicated on the drawings. They shall have a smooth, diamond tread, or abrasive top finish (as called for in the project specifications) with wire-cut ends and grooved sides and bottoms.

3.1.1.1 The nominal face dimensions of brick for the side walls of trenches, sumps and vertical surfaces of foundations, piers, curbs, etc., shall be 2¼ inch x 8 inch or 4½ inch x 8 inch, as called for on the drawings, with a width of 3¾ inch. When brick protecting curbs and foundations are to be laid with the 3¾ inch x 8 inch side exposed, thickness shall be as indicated on the drawings. Finish of exposed face shall be smooth, back and ends scored, terry- or matt-textured, top and bottom wire-cut.

3.1.1.2 Size variations shall not exceed 2 percent in length and 3 percent in width and thickness.

3.1.2 Distortion. The maximum permissible distortions of face and edges of face shall be 1/16 inch.

3.1.3 Special Shapes, when required, shall be as indicated on the drawings.

3.2 **Channel Tile.** Size shall be as indicated on the drawings. Tile shall be extra strength, conforming to the requirements of ASTM:C200. Manufacturer shall, if so requested by du Pont, furnish certified results of tests performed with "1N" solutions in accordance with ASTM testing methods, on tile identical to that which it is proposed to furnish under this specification.

3.3 **Joint Cement.** The type of joint cement to be used shall be as indicated in the project specifications. This Standard Specification covers plasticized, sulphur-base cements herein designated as "Sulphur Base Cement" and phenolic- or furane-base, synthetic resin cements together with their associated carbon or non-carbon aggregates, designated as "Resin-Base Mortar."

3.4 **Concrete Primer.** Shall have an asphaltic base with the following characteristics:

Softening Point - - - - - - - - Approx. 150°F.
Penetration at 77°F.
50 grams - 5 sec. - - - - - - - - - - - - - 20 to 30

The base material shall be thinned with a petroleum solvent having an end point of 260°C. to create a primer of suitable brushing consistency. Asphaltic content of primer shall be not less than 35 percent by weight. In other respects, the primer shall conform to ASTM:D41.

3.5 **Matrix Asphalt.** Shall conform to the following requirements:

Melting Point - - - - - - - - - - - 200°F. to 220°F.
Penetration:
115°F. 50 grams - 5 sec. - - - Less than 70
77°F. 100 grams - 5 sec. - - - 35 to 45
32°F. 200 grams - 60 sec. - - - 25 to 35
Percent of Bitumen Soluble in
CS_2 - - - - - - - - - - - - - Not less than 90 Pct.
Weight - - - - - - - - - - - - - - - - 65 lb. to 75 lb. per cubic foot

3.6 Acid-Resisting Asphalt for use in silica-asphalt mastics shall be a soft, adhesive, self-healing, homogeneous, water-free asphalt which flows easily under the mop. It shall preferably consist of at least 50 percent native Trinidad Lake asphalt fluxed to obtain the following characteristics:

Melting Point	144°F.
Flash Point	428°F.
Specific Gravity	1.2468
Penetration:	
115°F. 50 grams - 5 sec.	160
77°F. 100 grams - 5 sec.	27
32°F. 200 grams - 60 sec.	16

Bitumen soluble in CS_2 not less than 72 percent.
Maximum kettle temperature shall be 400°F.

3.7 *Silica Mineral* Aggregate shall be clean, sharp silica sand, free from loam or other deleterious matter and shall be graded from coarse to fine within the following limits:

	By Weight Percent
Passing 3/8-inch mesh	100
Retained on 1/4-inch mesh	25 to 35
Retained on No. 10 mesh	25 to 35
Retained on No. 40 mesh	10 to 20
Retained on No. 80 mesh	15 to 20
Retained on No. 200 mesh	not over 5

3.8 Fiber Glass Cloth shall be asphalt-coated and possess the following minimum characteristics:

Strength with warp	92 lbs. per in.
Strength with fill	64 lbs. per in.
Weight - uncoated	1.33 oz. per sq. yd.
Weight - coated	2.20 oz. per sq. yd.
Thread count	24 per in. both ways
Thread gage	.0035-inch thick

3.9 Spacers shall be chips made of sulphur-base cement, 1/4-inch thick and approximately 1 square inch in area.

4. STORAGE OF MATERIALS

4.1 Brick, joint cements, silica aggregates, membrane reinforcements, etc., must be stored so they may be maintained in a dry condition.

4.2 Liquid binders of resin cements deteriorate in storage and it is suggested that maximum shelf life be considered as approximately 3 months. It is helpful to store this material in a room having a temperature of less than 60 degrees F.

5. CONDITIONS FOR APPLICATION

5.1 Condition of Rooms and Subsurfaces. After the curing period has elapsed, concrete subsurfaces shall be allowed to dry thoroughly and must be kept dry during the entire installation. Room temperature shall be a minimum of 70 degrees F. at the start of work and shall be kept at approximately this temperature during installation. The areas affected shall be closed to traffic and shall be thoroughly cleaned of dust, dirt and other foreign matter.

5.2 Brick shall be clean, free from dirt, straw, oil and other foreign matter, thoroughly dry and be warmed to at least room temperature, using artificial heating, if necessary. However, they shall not be warmer than can be handled comfortably with bare hands.

5.2.1 Cutting shall be done with a carborundum or diamond saw except that when sulphur-base cement is used, the brick may be face cut to a depth of 1/2 inch and then broken with a hammer.

6. PREPARATION OF CEMENTS AND SAND-ASPHALT MASTIC

6.1 Sulphur-base Joint Cements. The kettle used for melting the cement shall be steel or cast-iron and arranged over the source of heat so that the heat is applied slowly to the sides as well as the bottom, through the use of a shield or jacket suspending the kettle. The equipment shall preferably be obtained, where possible, from the cement manufacturer.

6.1.1 The optimum temperature of the melted cement is approximately 290 degrees F., but varies somewhat with the brand. When the cement becomes too hot, the liquid becomes less fluid and must be allowed to cool to the optimum temperature before using. If the liquid cement should ignite, remove the fire from beneath the kettle, put the lid in place and cover with wet sacking or burlap.

6.1.2 If the cement, when first melted, exhibits a foam on the surface, evidencing trapped air, it shall be stirred with a metal rod or ladle until the trapped air has escaped and a smooth liquid remains.

6.1.3 A spouted container shall be used for pouring the cement into the joints.

6.2 Resin-base Mortars. These cements are furnished by the manufacturer in two parts - liquid and

a powder. The manufacturer's directions for proportioning and mixing shall be implicitly followed, using equipment designed according to his recommendations.

6.2.1 Only enameled pans shall be used for holding the finished mortar.

6.2.2 The "working time" (time during which a batch is workable) and the "hardening time" (time required for hardening after mortar is placed) varies with temperature, brand, and kind of resin-base cement being used. Manufacturer's technical data, furnished with the shipment, must be consulted to ascertain these properties. Mortar shall not be used when it starts to set. It cannot be retempered or reconditioned for use and must be discarded.

6.2.3 Warning. Some resin-base cements, particularly the phenolformaldehyde type, are toxic to some individuals and may cause serious skin irritations. In order to prevent injury, it shall be ascertained from the manufacturer whether or not the material is toxic and if there is any record of injuries caused by the particular product being used. If toxicity is suspected, the following procedure shall be used when work is performed by du Pont forces.

(a) Only workmen, selected by the Medical Division, who show no evidence of existing skin disease and who have no history of having had dermatitis from handling chemical compounds shall be chosen for this work.

(b) These men shall be instructed that in handling this material, every possible effort must be made to keep it from any part of the skin and clothing.

(c) Workmen shall be supplied with heavy rubber gloves and their hands be watched for the slightest sign of irritation. It may be necessary to discard the gloves at the end of every shift period and to start the next day's work with new gloves.

(d) At lunch time, the workmen shall carefully wash their hands with non-irritating soap. At the end of the shift period, it is advisable for them to take a shower.

(e) Clothing contaminated with the material shall be properly laundered before it is worn again.

6.3 Preparation of Sand-asphalt Mastic. The mixture shall be proportioned by weight as follows:

Acid-resisting asphalt	10 Percent
Silica Aggregate	90 Percent

The aggregate, after being heated, shall be slowly added to the hot asphalt, while the asphalt is being continuously agitated in the kettle. Mixing shall be thorough to produce a homogeneous mass, while maintaining a temperature between 350 degrees F. and 400 degrees F. The mastic shall be continuously heated and agitated until used.

7. WORKMANSHIP

7.1 Priming Subsurfaces. Concrete subfloors, curbs, vertical surfaces, machine foundations, trench and sump pit sides and bottoms, etc., which are to receive acid-proof brick, shall be primed. Metal subsurfaces shall also be primed. A sufficient quantity shall be used to provide thorough coverage, and the primer shall be allowed to dry before applying the membrane, sand-asphalt mastic or brick.

7.1.1 Resin-base mortars must not be placed in direct contact with surfaces containing alkalies such as lime, plaster, or Portland cement. Such surfaces must either be primed with asphalt primer or, in cases where a membrane is not required, neutralized with hydrochloric acid, then washed free of acid and be dried, before placing the mortar. Some proprietary resin-base primers are also available for use on such surfaces.

7.2 Application of Membranes. The type of membrane used shall be as indicated in the project specifications and shall conform to the requirements specified below. The finished membranes shall be examined for pinholes or other imperfections and repaired, as necessary, so that the entire surface will be covered with an impervious layer. The membrane shall be brought up onto walls and foundations and over curbs, tightly applying it into all corners. Where floor drains occur, the membrane shall be reinforced with fiberglas cloth, neatly fitted, and shall be tightly secured by the clamping ring.

7.2.1 Type I - Hot Asphalt Membrane, not Reinforced. A coat of matrix asphalt, approximately 1/8-inch thick, shall be squeegeed over the entire primed area. When it is set, a second coat of equal

thickness shall be applied using a wood straight-edge directly behind application to insure a flat, smooth surface. The finished membrane thickness shall be 1/4 inch which requires approximately 150 pounds asphalt per 100 square feet.

7.2.2 Type II - Hot Asphalt Membrane Fabric Reinforced. A coat of matrix asphalt, approximately 1/8-inch thick, shall be applied over the entire primed area, using a squeegee, followed by one ply of fiberglas cloth with the sides and ends lapped at least 2 inches. Over this reinforcement, the final coating of asphalt shall be applied in sufficient quantity to produce a membrane having an over-all thickness of 1/4 inch., A wood straight-edge shall be used to insure a flat smooth surface.

7.3 Laying Brick - Using Sulphur-Base Cement. The over-all thickness of floor finish, using sulphur-base cement, will be the brick thickness plus 1/4 inch, or 1/2 inch when a sulphur-base cement bed-joint is used. When pouring cement, *care shall be exercised to prevent air locks and voids.*

7.3.1 The bottom of the brick shall be dipped in hot matrix asphalt and be laid directly on the membrane, or shall be laid on 1/4-inch spacing chips when a bed-joint is required. Work shall start at the low point of the area (adjacent to trenches or drains) and the brick be spaced so as to provide a uniform joint thickness of 1/4 inch. A 1/4-inch thick wood strip shall be used in the longitudinal joints to provide accurate spacing. The pattern shall be "Common Bond" keeping the cross joints alternately in line. Brick shall be laid flush and to a true plane, sloped to drains as required.

7.3.2 When a sufficient area has been laid, the liquid cement shall be poured into the joints, working progressively from brick to brick. The first pour shall be made to within 1/4 inch of the face of the brick, followed by a second to completely fill the joints, overpouring slightly. No flooding of the floor will be permitted.

7.3.3 Brick, forming curbs or protecting vertical surfaces of piers and equipment foundations, shall be laid in accordance with the detailed drawings. Vertical cross and bed-joints and back space shall be 1/4-inch thick. Bed joints shall be formed by using spacers (3.9). Faces of joints in vertical surfaces shall be taped with a paper adhesive masking tape. The liquid cement shall be progressively poured into the cross joints and back space to a level down approximately 1/3 of the brick thickness. The following courses shall be similarly laid until the vertical lining is completed.

7.3.4 When more than one layer of brick is applied to the protected surfaces, the joints of second layer shall be staggered with those in the preceding layer.

7.3.5 Excess cement shall be chipped or scraped away, being careful not to chip directly over the joint.

7.4 Laying Brick - Using Resin-Base Cement. The over-all thickness of floor finish, using resin-base cement will be equal to the brick thickness plus 3/8 inch.

7.4.1 The brick shall be laid in a 1/8-inch thick bed of mortar, starting at the low point of the area (adjacent to trenches and drains). Longitudinal and cross joints shall preferably be not over 1/8-inch thick but, in no case, over 3/16 inch, and shall be completely filled with mortar. Excess mortar shall be scraped off and the joints smoothed with the tip of the trowel. The pattern shall be "Common Bond" keeping the longitudinal joints straight and cross joints alternately in line. Brick shall be laid flush and to a true plane, sloped to drains as required and shall be tamped into place to eliminate air pockets.

7.4.2 Brick, forming curbs or protecting vertical surfaces of piers and equipment foundations shall be laid as detailed on the drawings, in a manner similar to that described in Paragraph 7.4.1, with vertical and horizontal joints not exceeding 3/16-inch thick. The back space shall be completely filled with either sulphur-base cement or resin-base mortar. When the resin-base mortar is used, the back space shall not be over 3/16-inch thick, while if sulphur-base cement is used, it shall be 1/4-inch thick. When using sulphur-base cement, not more than one course shall be laid before filling.

7.4.3 Water, process liquids and traffic shall not be permitted on the floor until the mortar is thoroughly set.

7.4.4 Every effort shall be made to keep the excess mortar from soiling the exposed surface of the brick. Excess mortar can be removed through cleaning with a damp cloth before mortar sets.

7.5 *Solid Brick Equipment Foundations* shall be of the size and shape indicated on the drawings. The brick forming the sides and top shall be laid in resin-base cement while sulphur-base cement may be used for joints of inside brick. If sulphur-base cement is used, no more than one layer of inside brick shall be laid before pouring joints. Bed joints shall be formed by laying the brick on sulphur-base cement spacing chips.

7.5.1 Anchor bolts must be primed with asphalt primer before embedding in brickwork, as called for in Paragraph 7.1.

7.6 Trench and Sump Linings. Trenches and sumps, which are lined entirely with brick, shall be constructed in accordance with Paragraphs 7.6.1 and 7.6.2. When channel tile is used for the bottom of the trench, construction shall be as outlined in Paragraph 7.6.3.

7.6.1 Membrane. The membrane used shall be Type II, unless otherwise specifically called for in the project specifications, applied, in general, as outlined in Paragraph 7.2.2.

7.6.2 Laying Brick. The bond or brick layout shall be as indicated on the drawings, and the type of cement used shall be as called for in the project specifications. Laying method shall conform to the following for the particular type of cement used.

7.6.2.1 Sulphur-Base Cement. The sides of trenches shall be laid up first (unless the concrete subsurface in the bottom is sloped, or brick surface is stepped the same as concrete subsurface), starting by placing the first course directly on the membrane. Joint and back space thickness shall be 1/4 inch, with the bed-joint formed by inserting chips and no more than one course shall be laid before pouring the cement. The joints shall be sealed with paper adhesive masking tape and filled with hot sulphur-base cement to a level down approximately 1/3 of the brick thickness. Care shall be exercised to make certain that no air pockets or voids are created. The following courses shall be similarly laid until both sides of the trench are lined.

7.6.2.1.1 If the concrete subsurface of the trench bottom is stepped and brick surface is sloped, a sand asphalt mastic shall be installed to the slope and thickness indicated on the drawings, finishing with a trowel to a smooth, even surface. If a joint is required between work done at different times the work shall be feather-edged so that the new hot layment will overlap the cold about 4 inches. The joint shall be primed before applying the later work. The mastic shall be allowed to set thoroughly before laying brick.

7.6.2.1.2 The brick in the bottom of the trench shall have the bottom surface dipped in hot matrix asphalt and be laid directly on the mastic, or be placed on chips when the cement is to be poured under the brick. Joints shall be 1/4-inch thick, and all brick shall be laid flush and even. Cement shall then be poured into the joints to within approximately 1/4 inch from the surface, working from one end of the trench, and progressively from brick to brick so as to prevent voids. Joints shall then be completely filled, overpouring slightly. Flooding of surface will not be permitted.

7.6.2.1.3 When the concrete subsurface of the trench bottom is sloped, or brick surface is stepped the same as the concrete subsurface, the sand-asphalt mastic shall be omitted and the bottom shall be laid first. Otherwise, laying procedure shall be as outlined above.

7.6.2.1.4 The above procedure shall also apply to installation of linings of sumps.

7.6.2.2 Resin-Base Mortars. Procedure shall be as specified above for sulphur-base cement except that brick shall be laid into resin-base mortar. Horizontal and vertical joints of side walls shall not exceed 3/16 inch in thickness and the back space shall be completely filled. Joints shall be struck with the tip of the trowel. Brick for the bottom shall be laid in a 1/8-inch thick bed of resin-base mortar on the membrane or mastic fill, as the case may be, with vertical joints not over 3/16-inch thick.

7.6.2.2.1 Brick surfaces must be kept clean as the work progresses. See Paragraph 7.4.4.

7.6.2.2.2 Water or process liquids must be kept off until mortar is thoroughly set and hard.

7.6.2.3 Dual Cement Construction. In lieu of the methods described above, the linings on vertical surfaces may be installed using resin-base mortar in the bed and cross joints and sulphur-base cement in the back space. The back space, in this case, shall be 1/4-inch thick and no more than one course shall be laid at one time before filling with cement. Bed and cross joints of facing brick shall be as specified above for resin-base mortar construction.

7.6.3 Trenches With Channel Tile Bottoms. After the slab in the bottom of the trench has been poured, the channel tile shall be laid, using furane resin-base cement in the joints. Tile shall be adequately propped to the grade and slope shown on the drawings, such propping to remain in place while the joint cement sets and until concrete walls have been poured. Any suitable method (such as concrete cubes or similar material which can be embedded in the concrete) may be used.

7.6.3.1 The side walls shall be formed by using a method which will not disturb or break the jointing material or tile.

7.6.3.2 When pouring side wall concrete, care shall be taken to entirely fill the space under and around the tile.

7.6.3.3 After forms are removed and concrete is dry, the balance of the wall areas above the tile shall receive a Type II membrane and acid-proof brick, applied in accordance with Paragraphs 7.6.2.1 to 7.6.2.3 inclusive, depending upon the type of joint cement called for in the project specifications.

8. METHOD OF MEASUREMENT

8.1 Measurements for pay quantities under unit prices shall be on a square foot basis for floors and for vertical and horizontal surfaces of trenches and sump pits; on a lineal foot basis for building and equipment curbs and on a cubic foot basis for equipment foundations. The square feet of area for payment will be determined by actual measurement of finished work in place. Curbs will be measured in lineal feet in place.

SECTION BL - WATERPROOFING & CAULKING & DAMPPROOFING

CONTENTS

MODIFICATIONS & ADDITIONS - DAMPPROOFING

10 Rev. 8/31/51

1. GENERAL - Standard Engineering Specification S-1-A applies to and is a part of this specification.

2. MATERIALS - When requested by du Pont, provided certified laboratory reports and analyses covering the materials to be used in this work.

FIBRATED DAMPPROOFING

The Fibrated Dampproofing shall consist of a carefully steam refined petroleum asphalt thinned with a sweet bland non-toxic refined hydrocarbon solvent, admixed homogenously with 100% pure asbestos fibre in conformity to the following.

a. Asphalt Base

Asphalt Base shall conform to A. S. T. M. D 449 Type A

b. Solvent Hydrocarbon distillate

A. S. T. M. Distillation
50% @ 340° F.
90% @ 370° F.
End Point 385° F.

c. Consistency:

The material shall be a smooth homogenous mixture and shall show no separation which cannot be easily overcome by stirring.

d. Nonvolatile Material

The fibrated Dampproofing shall yield not less than 60% N. V. M. when 10 grams are heated in a oven at 105° C. for 24 hours.

SECTION BL - WATERPROOFING & CAULKING & DAMPPROOFING (Cont'd.)

e. Mineral Filler:

The mineral filler used shall be composed of 100% pure asbestos fibre and the finished product shall contain not less than 8% nor more than 20% by weight.

f. The residue obtained from the ignition of the inorganic filler shall not be less than 85 per cent.

g. Asphalt Primer

Asphalt Primer shall conform to A. S. T. M. D.41.

TROWEL DAMPPROOFING

The Trowel Dampproofing shall consist of a carefully steam refined Venezuelan petroleum asphalt thinned with a sweet bland nontoxic refined hydrocarbon solvent, admixed homogenously with 100% pure asbestos fibers in conformity to the following:

a. Asphalt Base

Asphalt base shall conform to A. S. T. M. D 449 Type ..

b. Solvent Hydrocarbon distillate

A. S. T. M. Distillation
50% @ 340° F.
90% @ 370° F.
End Point 385° F.

c. Inorganic Filler

Shall be composed of 100% asbestos fibre homogenously admixed. The finished product shall yield on ignition not less than 25% nor more than 45% ash.

d. Non-volatile

The mastic material shall yield not less than 70% non-volatile material when 10 grams are heated @ 105° C. to 110° C. for 24 hours.

e. Consistency

The condition of the finished product in the container shall be of a heavy plastic nature, smooth and uniform, not livered and of trowel consistency.

SECTION BL - WATERPROOF[illegible] & CAULKING & DAMPPROOFING (Cont'd.)

f. Workability

The plastic cement shall spread readily without drawing or pulling when applied with a trowel.

3. APPLICATION - Asphalt primer shall be applied to all concrete surfaces and allowed to dry before applying fibrated or trowel dampproofing. The extent and type of dampproofing shall be as indicated on the drawings.

Fibrated dampproofing shall be applied in two (2) brush coats. The first coat shall be allowed to dry before applying the second coat. Trowel dampproofing shall be applied in one coat troweled to a uniform thickness not less than 1/8" thick.

All surfaces must be dry and free from dirt, dust, grease, oil or loose particles before applying dampproofing.

19 Rev. Sheet 1 3/20/52 SB-1-L Requirements for bituminous-impregnated glass-fiber fabric on are modified as follows:

Strength with warp	60 lbs.	per in. minimum
with fill	60 lbs.	per in. minimum
Weight per s/y uncoated	1.9 oz.	maximum 0.9 oz. minimum
Weight per s/y coated	2.2 oz.	maximum 1.0 oz. minimum
Thread count both warp and fill	22	maximum 16 minimum

SECTION 8L - WATERPROOFING & CAULKING & DAMPPROOFING (Cont'd)
THIOKOL RUBBER CAULKING

1. MATERIAL

a. Mastic Caulking Material: A two-component vulcanizing thiokol rubber compound suitable for continuous service at 220°F. Material shall be supplied as a viscous rubber polymer and an accelerator packed in separate packages. Prior to use, the rubber polymer and accelerator shall be mixed in accordance with the manufacturer's recommendations. After mixing, the material shall have a pot stability of 3 to 4 hours at 70°F. and shall be suitable for use in a caulking gun, power applicator, or spatula. The mixed material shall be compounded so that it will cure or convert to the rubber stage in 24 hours at 70°F. Caulking material to be #106 compound as manufactured by the Presstite Engineering Company, St. Louis, Mo., or Caw King #893 (non slump) manufactured by C. A. Wolsey Paint & Color Company, Inc., New York, N.Y. or Amercoat #1043 manufactured by the Amercoat Corporation, South Gate, California. When purchasing this material vendor should be informed as to purpose for which it is to be used. Amercoat #1043 is not recommended for caulking of floor joints. All caulking material to be applied in accordance with manufacturers direction.

b. Low Temperature Sealing Material

Same as Section 1a (Mastic Caulking Material)

c. High Temperature Sealing Material

A solvent drying rubber-like compound suitable for continuous service at 350°F. without embrittlement or loss of adhesion. Material shall be supplied as a black dough-like compound which, when the solvent has evaporated, forms a tenacious rubber-like coating to the surface to which it is applied. Material shall be suitable for use with a caulking gun, power applicator, or spatula. The mixed material shall be compounded so that it will dry in about 5 hours at 70°F. Sealing material shall be #193.1 sealer as manufactured by the Presstite Eng. Co. St. Louis, Mo. or equal.

d. Preformed Joint Filler

Same as called for in Spec. 3019 Sec. 8a (8B-15A)

2. INSTALLATION

a. Caulking Joint: Prepare as noted in Section 1a and apply in accordance with this section. Apply with a caulking gun, power applicator, or spatula to fill joints as called for on the drawings. All surfaces to be caulked shall be clean, dry, and free from foreign material. Avoid contaminating the compound with water prior to its use as it will result in premature curing of the rubber. Retempering of caulking material after it has lost its pot stability will not be permitted. Caulking material shall be left exposed until cure is completed.

SECTION BL - WATERPROOFING & CAULKING & DAMPPROOFING (Cont'd.)

2. INSTALLATION (Cont'd.)

b. Same as Section 2a (Caulking Joint)

c. High Temperature Sealer

Prepare material as per Section 1c and apply in accordance with this section. Apply sealer as called for on the drawings with caulking gun, power applicator, or spatula in built-up coating of 1/8" thickness. Maximum thickness of completed joint shall be 3/4". Allow each layer to dry approximately 5 hours before applying next coat.
All surfaces to be sealed must be clean, dry, and free from extraneous material. Avoid contaminating the material with water prior to use as it will result in premature curing of the rubber.

d. Preformed Joint Filler:

Placed as called for on the drawings:

e. Cleaning:

After application of sealing or caulking compounds, remove all loose or extraneous materials. The finished joints shall have a smooth appearance and all projections and drippings shall be removed.

BUILDING MATERIALS MEMBRANE WATERPROOFING	STANDARD ENGINEERING SPECIFICATIONS	
	Issued MAY 24, 1949	SB-1-L
	Revised	Sheet 1 of 2

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRANDS - of materials specified herein shall be subject to du Pont's approval.

3. MATERIALS - When requested by du Pont, provide certified laboratory reports and analyses covering the materials to be used in this work.

CONCRETE PRIMER - shall be an asphalt primer conforming to A.S.T.M.:D41.

WATERPROOFING ASPHALT - shall conform to the specification for Type B in A.S.T.M.:D449. Maximum kettle temperature shall be 450° F.

MEMBRANE FABRIC - shall be an asphalt-saturated ALL COTTON woven fabric having a tensile strength, both directions (grab method), of not less than 50 lbs. per linear inch and not less than 10% elongation. Fabric shall weigh, before saturation, not less than 4 oz. per sq. yd.; and after saturation, not less than 12 oz. per sq. yd. The thread count shall be between 18x18 and 36x36. In all other respects, the fabric shall conform to Federal Specification HH-C-581a.

When specifically called for on the drawings or in the project specification, the membrane fabric shall be a bituminous-impregnated glass-fiber fabric, conforming to the following requirements:

Strength with warp	92 lbs. per in.
with fill	64 lbs. per in.
Weight uncoated	1.33 oz./sq. yd.
Weight coated	2.2 oz./sq. yd.
Thread count	24 per in. both ways
Thread gauge	.0035" thick

PREFABRICATED STEEL-MESH MEMBRANE - shall be composed of 2 layers of Membrane Fabric, as specified above, between which a 21 gauge, 1/2" mesh, galvanized wire-mesh is inserted and the whole bonded together with an asphalt mastic binder. It shall be similar to "Sandell Type S" as manufactured by Sandell Manufacturing Corp., Watertown, Mass.

INSULATION-TYPE PROTECTIVE COVERING - shall be 1/2" thick vegetable-fiber insulation board conforming to Class "A" in Federal Specification LLL-F-321a. It shall be impregnated or surface-coated with asphalt.

PAPER-TYPE PROTECTIVE COVERING - shall consist of two sheets of 30-lb. kraft paper bonded together with two layers of asphalt in which is embedded a reinforcing of cross sisal fibers, not more than 1/4" apart. The quantity of sisal fibers shall be approximately 13 to the linear inch, both ways. The paper shall be chemically treated to resist shrinkage and scuffing.

4. APPLICATION - The extent of waterproofing, type of membrane, and the number of layers of saturated fabric required shall be as indicated on the drawings or called for in the project specifications. The membrane must not be broken at corners, turns, or passage through walls or slabs.

CONDITIONS FOR APPLICATION - The concrete surface shall be thoroughly dry, uniformly smooth with no projecting aggregate, and be free of frost, dirt, grease, paint, oil or other foreign substances.

PRIMING - surfaces shall receive a uniformly applied brush-coat of concrete primer, using approximately 10 lbs. (1-1/4 gal.) per 100 square feet.

MEMBRANE APPLICATION - After the primer has dried, apply a mopping of hot waterproofing asphalt, using between 40 and 50 lbs. per 100 sq. ft. Into the hot asphalt, apply the membrane fabric, lapping at least 6" for single-ply membrane, 1/2 the fabric width for 2-ply, and 3/4 the fabric width for 3-ply. A 40-lb. mopping of hot asphalt shall be applied with thorough coverage between each layer of fabric, and finally, over the entire membraned area. The final mopping shall be smoothly and uniformly applied and be free from pin holes or other defects.

Where the membrane is applied to a floor area, the corners and vertical surfaces against curbs, walls, etc. shall receive a strip of prefabricated steel-mesh membrane. This membrane shall be lapped by the cotton fabric on the floor, and bent up the vertical surface to a height indicated on the drawings or required to provide protection for exposed edges and surfaces over which masonry is to be placed. The membrane shall be well mopped in with hot asphalt.

5. SURFACE PROTECTION - When a membrane is installed on the outside of walls and in intimate contact with the backfill, apply a layer of insulation-type protective covering over the entire area while the final mopping of asphalt is still tacky. The sheets shall be shoved up tight against the membrane and the top edges of the uppermost sheets shall be given a coat of asphalt to make the whole watertight. Backfill may be placed in about one hour.

When the backfill consists of fine sand or material without sharp stones, bricks, refuse, etc., surface protection may be secured by applying one ply of paper-type protective covering onto the asphalt surface while still tacky. Sheets shall be lapped at least 2 inches at sides and ends with laps well cemented using any bituminous adhesive.

6. METHOD OF MEASUREMENT for pay quantities under unit prices shall be on a square-foot basis, except turn-up at curbs, equipment foundations, etc. which shall be on a lineal-foot basis for different heights. The square feet of area for payment will be determined by actual measurement of finished work in place and turn-up will be measured in lineal feet in place.

BUILDING MATERIALS WATERPROOFING CAULKING	STANDARD ENGINEERING SPECIFICATIONS Issued FEB.21.1949 Revised	SB-2-L

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRAND - of caulking material shall be subject to du Pont's approval.

3. MATERAL - The caulking compound shall be composed of inert, stabilizing, uniformly graded reinforcing fillers and stable pigments thoroughly mixed into a highly elastic oleo-resinous vehicle. The quality shall exceed the requirements of Federal Specification TT-C-598 Grade 1. The color shall be steel gray, unless otherwise called for in the project specifications, and the consistency shall be such as to make it readily placeable with a caulking gun.

4. WORKMANSHIP - Caulk around all door, window, and other openings in exterior masonry walls, joints in concrete or terra-cotta tile copings, under metal thresholds of exterior doors, and at other places indicated on the drawings or called for in the project specifications.

The caulking groove provided at the perimeter of exterior openings in masonry walls should not be more than 3/8" wide and shall be cleaned out to a minimum depth of 1/2" (preferably 3/4") removing loose particles and dust. Completely fill the groove, using a caulking gun approved by du Pont, and leave the surface smooth and even. When the caulking groove is more than 3/4" deep, the joint may be filled with cement grout or oakum to a depth of 1/2" or 3/4" before caulking. Grout shall be thoroughly dry before caulking is applied.

Cross joints of precast concrete and terra-cotta copings shall be caulked to a depth of not less than 3/4". The longitudinal joint under precast concrete copings shall be caulked to a depth of 1/2". Expansion or contraction joints of cast-in-place concrete copings or sills, where indicated on the drawings, shall be completely filled with compound.

Metal thresholds at exterior doors shall be bedded in caulking compound.

5. METHOD OF MEASUREMENT - for pay quantities under unit prices shall be on a lineal-foot basis. The lineal feet for payment will be determined by actual measurement of finished work in place, measured to the nearest lineal foot.

SECTION BM - ROOF & WALL VENTILATORS

CONTENTS

BUILDING MATERIALS
ROOF VENTILATORS
ASBESTOS PROTECTED METAL

STANDARD ENGINEERING SPECIFICATIONS

ISSUED OCT. 1950	SB 1 M
REVISED	

1. GENERAL

1.1 Standard Engineering Specification SC 1 A applies to and is a part of this specification.

2. BRAND

2.1 Brand of ventilators proposed for use shall be subject to du Pont's approval.

3. DESCRIPTION

3.1 The type of ventilator, throat size, type of mounting and dimensions of mounting base, shall be as indicated on the drawings or called for in the project specifications. Ventilators shall be furnished complete with erection bolts.

3.2 Ventilators shall be designed to provide straight air flow with a minimum of obstructions, and to deflect air currents passing upward from pitched roofs. They shall be capped to prevent the entrance of snow or rain and be provided with an adequate method of drainage. Ventilators shall be equipped with galvanized wire-mesh bird screens.

3.3 Under natural draft conditions, round ventilators shall have a minimum exhaust capacity of 60 cubic feet per minute per square foot of throat area at a wind velocity of 2 miles per hour and zero degrees temperature difference, regardless of height above the air intake and wind direction.

3.4 Continuous-type ventilators shall have a minimum exhaust capacity of 50 cubic feet per minute per square foot of throat area under the same conditions.

3.5 Continuous-type ventilators shall be provided with dampers. Round ventilators shall be equipped with dampers, or with fans if specifically called for on the drawings or in the project specifications. Dampers shall be either of the "flat" or "butterfly" type and shall be manually or motor operated as called for in the project specifications. The fan motor and method of mounting, fan and drive method, electric current characteristics and switching requirements shall be as called for in the project specifications.

4. MATERIAL AND FABRICATION

4.1 Unless otherwise called for on the drawings or in the project specifications, the sheet metal used for fabricating base, throat, wind band, louvers, dampers and cap shall consist of a sheet-steel core, alloy coated both sides, with an asbestos felt pressed into the alloy while it is still in its molten state. The asbestos felt shall then be impregnated both sides with a bituminous solution and finally protected by a heavy, tough, black bituminous mastic outer coating. Edges shall be protected. The thickness of the steel core shall be such that, in combination with the supporting structure, resistance will be provided without appreciable deflection, to a wind velocity of 50 miles per hour.

4.2 Stiffeners and bracing shall be made of flat steel, be designed to withstand wind velocities to 80 miles per hour, and be protected against corrosion as specified above for sheets, except that an asphalt-saturated fabric shall be used in lieu of felt. When angles or other shapes are required (as for continuous ventilators), they shall be hot-rolled and meet the requirements of A.S.T.M.:A7. Hot-rolled shapes and other structural metal parts, not otherwise protected against corrosion, shall be coated after assembly with a rust-inhibitive, bituminous paint approved by du Pont. Bolts, nuts and washers, including erection bolts and operating mechanism, shall be galvanized.

4.3 Round ventilators up to and including the 36-inch size shall be completely assembled in the factory. Larger sizes of round ventilators and all continuous-type ventilators shall be factory assembled to the maximum practicable extent, compatible with the limits involved in handling and shipping. Workmanship shall be such as to obtain maximum rigidity, with all fastenings drawn up tight.

5. SHOP DRAWINGS

5.1 Detailed drawings for fabrication and erection shall be submitted to and approved by du Pont before fabrication is started.

6. CRATING

6.1 Ventilating units and parts shall be crated as necessary to prevent damage during shipment.

7. ERECTION

7.1 Shall be in accordance with the drawings and manufacturer's instructions. Ventilators shall be solidly set on the supports provided and be rigidly and securely anchored thereto.

7.2 Flashing is not included in this specification. See Standard Engineering Specification SB 2 D.

BUILDING MATERIALS METAL WALL LOUVERS TYPE I - SITE ASSEMBLED	STANDARD ENGINEERING SPECIFICATIONS	
	Issued MAY 24, 1949	SB-2-M
	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - This specification covers the fabrication and installation of louver blades, stiffeners, and bird screens into the structural frames furnished and erected under Standard Engineering Specification SB-2-B. The design of the louver shall be as shown on Engineering Standard B6H and the size shall be as indicated on the drawings or called for in the project specifications.

3. MATERIALS - Unless otherwise called for in the project specifications, louver blades shall be made from asbestos-protected flat metal sheets consisting of a sheet-steel core (gauge as required per Engineering Standard B6H) alloy coated on both sides, with an asbestos felt pressed into the alloy while it is still in a molten state. The asbestos felts shall then be impregnated with a bituminous solution and finally be protected by heavy, tough, bituminous-mastic outer coatings. All edges shall be protected. The color shall be black, unless otherwise specifically called for on the drawings. The sheets shall be accurately bent to the required shape.

Vertical stiffeners and face strips shall be mild steel flats, as shown, drilled for bolts as required.

Bird screen shall consist of No. 18 (0.0475") gauge 1/2" galvanized wire mesh mounted into a pressed-steel frame, made from at least No. 16 (0.0598") gauge sheets.

Stiffeners, face strips, spacers, bird-screen frame, bolts, nuts, and washers shall be galvanized.

4. SHOP DRAWINGS - shall be submitted to du Pont, and du Pont's approval obtained before any fabrication is started.

5. INSTALLATION - shall be in accordance with the drawings. Bolts shall be provided with flat washers under heads or nuts adjacent to the metal blades, together with lock washers.

BUILDING MATERIALS	STANDARD ENGINEERING SPECIFICATIONS	
METAL WALL LOUVERS	Issued MAY 24, 1949	SB-2.1-M
TYPE II - PREFABRICATED	Revised	Sheet 1 of 2

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - This specification covers louvers with either fixed or adjustable blades, entirely prefabricated, and arranged to be set into prepared masonry or structural steel openings. The height and width of the units and their overall thickness shall be as indicated on the drawings or called for in the project specifications. Louvers shall provide for a minimum effective ventilating area of 50%. Blades shall be bent so as to provide strengthening members on both sides of the louver, and shall be arranged for maximum resistance to moisture infiltration.

Louvers with adjustable blades shall be provided with a mechanism, operating from a single point, which will open or close all blades simultaneously, to any position between full-open or full-closed. The blades shall be hinged so as to tend to close by gravity. Provide a fusible link arranged for automatic closing of the blades in case of fire. When the location of the louver so requires, furnish a galvanized chain of adequate strength, and of a length necessary to reach the operating position.

Louvers shall be provided with vertical stiffeners as required to assure permanent blade stability or shall be divided into sections to limit the blade span.

Provide detachable bird screens as specified below.

3. MATERIALS - Louvers shall be manufactured from galvanized sheet steel, asbestos protected metal, or both, or aluminum, as called for on the drawings or in the project specifications, conforming to the following requirements:

Galvanized Sheet Steel - A.S.T.M.:A93, Class D, copper bearing.

Asbestos-Protected Metal shall consist of a sheet-steel core, alloy coated on both sides, with an asbestos felt pressed into the alloy while it is still in the molten state. The asbestos felts shall then be impregnated with a bituminous solution and finally be protected by heavy, tough, bituminous-mastic outer coatings. All edges shall be protected.

Aluminum - Grade 3S.

The minimum thickness of metal for various members shall be as follows:

	Frames	Stiffeners, etc.	Blades
Galvanized Steel	16 ga. (0.0598")	1/8" (flat bars)	16 ga.
Asb. Protected Metal Core	18 ga. (0.0475")	1/8" (flat bars)	22 ga. (0.0286")
Aluminum	.064"	1/8" (flat bars)	.064"

Steel flat bars, angles, etc. shall be hot rolled mild steel and galvanized in accordance with A.S.T.M.:A123.

Hinge pins for adjustable louvers shall be stainless steel and bearings shall be either bronze or stainless-steel ball bearings.

Steel bolts, screws, and other accessories shall be galvanized. Rivets shall be copper or aluminum.

Bird screens shall consist of No. 18 (0.0403") gauge 1/2 inch galvanized steel or aluminum wire mesh set into a galvanized pressed-steel or aluminum frrme, respectively, and shall be provided with suitable means of fastening to the louver.

Note: Aluminum louvers shall consist entirely of aluminum parts except for hinge pins and bearings which may be stainless steel. Aluminum parts (including aluminum screens) shall not be used in the manufacture of galvanized steel louvers.

4. SHOP DRAWINGS - shall be submitted to du Pont and approval obtained before any fabrication is started.

5. FABRICATION - shall be in strict accordance with the approved shop drawings. Members of fixed louvers and of adjustable louvers, wherever practicable, shall be riveted together.

6. INSTALLATION - shall be in accordance with the drawings. Aluminum surfaces shall be isolated from steel framing, lintels, etc. with strips of 30-lb. bituminous-saturated felt.

Bolts, screws, etc. used for fastening asbestos-protected metal louvers shall be porvided with washers under heads and nuts, together with lock washers.

SECTION 8E - METAL PARTITIONS AND METAL STUD PARTITIONS

10 Rev. 8/31/51

CONTENTS

MODIFICATIONS & ADDITIONS

8E-3-E: Metal Partitions Toilets

5 - FINISH - Color for metal toilet partitions shall match manufacturers standard color K-40A light grey by Henry Weis Mfg. Co., Inc.

6 - HARDWARE - Each metal vestibule door shall be fitted with the following:

1 Set - Gravity - type hinges to hold door closed.
1 Door Pull
1 Door Strike without Bolt Hole
1 Door Stop with Rubber Bumper

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ADC & Reviewing official: J. Barich (Name and Title)
Date: 6/24/92

10 Rev. 8/31/51

8E-1-E to 8E-1.3-E

Prefabricated Partitions with insulated cement asbestos board panels shall conform to the applicable provisions of 8E-1-E and 8E-1.1-E. Partitions shall consist of posts and post caps with panels, consisting of two parallel sheets of flat cement asbestos board spaced for an overall thickness as shown on drawings and filled solidly with an inorganic sound-deadening material. Cornice and base members shall be as described in 8E-1.1-E. Doors and frames shall be metal as described in 8E-1-E. Cement asbestos board shall be flat sheets conforming to Federal Specifications SS-S-263 type I and shall be of thickness shown on drawings.

All metal parts shall be factory primed with one priming coat of chlorinated rubber base paint conforming to Section 9E-3 paragraph 3.106. Finish painting shall be done in the Field by others.

Wainscoting at exterior walls and returns at jambs and head of windows shall be of similar type construction with single thickness cement asbestos board panels and without sound deadening.

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SECTION BN - METAL PARTITIONS

AND METAL STUD PARTITIONS

CONTENTS

MODIFICATIONS & ADDITIONS

SB-3-N: Metal Partitions Toilets

5. - FINISH - Color for metal toilet partitions shall match manufacturers standard color K-404 light grey by Henry Weis Mfg. Co., Inc.

6. - HARDWARE - Each metal vestibule door shall be fitted with the following:

1 Set - Gravity - type hinges to hold door closed.
1 Door Pull
1 Door Strike without Bolt Hole
1 Door Stop with Rubber Bumper

10 Rev. 8/31/51 SB-1-N to SB-1.3-N

Prefabricated Partitions with insulated cement asbestos board panels shall conform to the applicable provisions of SB-1-N and SB-1.1 N. Partitions shall consist of posts and post caps with panels, consisting of two parallel sheets of flat cement asbestos board spaced for an overall thickness as shown on drawings and filled solidly with an inorganic sound-deadening material. Cornice and base members shall be as described in SB-1.1-N. Doors and frames shall be metal as described in SB-1-N. Cement asbestos board shall be flat sheets conforming to Federal Specifications SS-S-283 type 1 and shall be of thickness shown on drawings.

All Metal parts shall be factory primed with one priming coat of chlorinated rubber base paint conforming to Section BR-3 paragraph 3.106. Finish painting shall be done in the Field by others.

Wainscoting at exterior walls and returns at jambs and head of windows shall be of similar type construction with single thickness cement asbestos board panels and without sound deadening.

SECTION BN - METAL PARTITIONS AND METAL STUD PARTITIONS (Cont'd.)

General arrangement; spacing of posts, width and height of panels, and details of construction shall be as shown on drawings.

Prefabricated Partitions with uninsulated cement asbestos board panels shall conform to the applicable provisions of SB-1-N and SB-1.3 N. Partitions shall consist of posts and post caps with panels consisting of a single sheet of flat cement asbestos board. In all other respects they shall conform to all applicable provisions of the preceding specification for partitions with insulated panels.

Field Erected Metal Stud Partitions and exterior wall wainscoting shall consist of metal studs covered on exposed sides with cement asbestos board sheets. Metal studs shall be pressed steel "Nailing Studs" as manufactured by the Great Lakes Steel Corporation, or "Clipgrip Studs" as manufactured by the Neslo Manufacturing Company, or approved equivalent. Studs shall support cement asbestos board panels as shown on drawings, except that where drawings indicate "Nailing Studs" or "Clipgrip Studs" either one or the other or an approved equivalent may be used.

Studs shall be spaced approximately 2'-0" on centers with a stud at each vertical joint of the wall board with intermediate studs as required. Provide studs and headers as required at all openings. Provide studs at interior and exterior corners and elsewhere as required to provide nailing for wall board.

At all points where steel studs are fastened to steel framing of exterior wall a standard neoprene washer not less than 2" x 2" x 1/8" thick shall separate the stud from the framing. All stud framing, construction at corners, anchoring studs to door bucks and window openings, and all other partitions construction shall conform to detail drawings. Fastenings shall be concealed where possible.

Studs shall be erected in a substantial, workmanlike manner, true to line, level and plumb, and welded or secured with sheet metal screws or bolts top and bottom to pressed steel channel plates. Channel plates shall be secured to concrete with expansion bolts or other approved method and shall be machine bolted or welded to steel members all in accordance with manufacturers standard practice.

Cement asbestos wall board shall conform to Federal Specification SS-S-283 Type 1 and shall be of size and thickness as shown on drawings. Boards generally shall be installed with vertical joints with continuous horizontal joints at the height indicated on drawings. When "Nailing Studs" are used wall board shall be secured at vertical joints with a pressed steel grooved batten as shown on drawings secured to nailing studs with cement coated box nails spaced not to exceed 12" on centers. horizontal joints shall be covered by a pressed steel slip-on batten as shown on drawings. When "Clipgrip Studs" are used wall board may be secured at vertical joints with clips spaced not to exceed 16" on centers and at horizontal joints to through wall stiffeners with slips spaced not to exceed 12" on centers or wall board may be secured with grooved batten and nails as specified above for "Nailing Studs."

SECTION BH - METAL PARTITIONS AND METAL STUD PARTITIONS (Cont'd.)

When nailed battens are used, a pressed steel snap-on bead moulding shall be sprung into the groove of the batten, covering the nail heads. When clips are used, the joints in wall board shall be covered with a continuous pressed steel clip-on batten.

All studs, framing members, battens and fittings shall be either hot galvanized or shop primed. Shop priming shall consist of one coat of Zinc Chromate Primer as specified in 3.103 Section BR-3.

Where pressed fiber board protective wainscoting is shown on drawings, it shall conform to specification Section SB-3-E and shall be of same thickness as the cement asbestos board and shall be installed in place as herein specified for cement asbestos board.

For insulation of metal stud partitions see Section BJ - Modifications and Additions - SB-2-J.

19 Rev. 3/20/52 Where 3/16" thick cement asbestos board is indicated on drawings for field erected metal stud partitions and exterior wall wainscoting, it shall be smooth surface on exposed side, cement asbestos board conforming to Federal Specification SS-S-283 Type II and similar and equal to "Flexboard" as manufactured by Johns-Manville, NYC

22 Rev. 5/2/52 Purchase specifications for METAL PARTITIONS AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES applying only to the work defined in 3 WORK INCLUDED, are attached to and included under Section BH.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES

1. GENERAL - Standard Engineering Specifications SC-1-A and E4J applies to and are a part of this specification.

2. FACILITIES FURNISHED BY DU PONT AT THE JOB SITE

(a) ROADS - Construction roads to the immediate vicinity of the work will be available.

(b) STORAGE - Storage space but not structures will be made available as close to the work as practicable.

(c) UTILITIES - Electric service and construction water will be available in the vicinity of the work, but subcontractor will be required, at his expense, to make the necessary service connections and extensions. Available electric service will be at 110/220 Volts, single phase, 60 cycle and/or 440 Volts, three phase, 60 cycle.

(d) DRINKING WATER AND SANITARY FACILITIES - Subcontractor shall have the use of these facilities where they have been provided for du Pont personnel. Should subcontractor desire to provide additional facilities, they must meet the requirements of the South Carolina State Board of Health and du Pont.

(e) TELEPHONE - Existing telephone facilities will be made available to the subcontractor subject to du Pont's restrictions.

(f) RAILROADS - Railroad sidings within 300 feet of the site are available.

While du Pont will make every reasonable effort to maintain the continuity of the services listed above and will make prompt repairs in the event of interruption, no claim for compensation resulting from a failure will be allowed the subcontractor.

RESTRICTED SECURITY INFORMATION
This material contains information affecting the National Defense of the United States within the meaning of the espionage laws, Title 18, U.S.C. Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

3. WORK INCLUDED

(a) All labor and material required for the furnishing of all material and complete erection and finishing of metal and cement asbestos board partitions and wainscoting, metal service strips and reagent shelves, metal enclosure apron panels, metal supports for service strips and reagent shelves, supports for piping, low railing and counter, doors in metal partitions and doors and frames in adjacent steel stud and asbestos board partitions, including hardware, electric outlet boxes and all miscellaneous items as shown on the drawings or herein specified or as required to properly carry out the intent of the drawings.

(b) Furnishing only of pipe clamps, and cover plates for electrical outlets including necessary screws.

SECTION A The work included under this section of the specifications applies to Buildings 735A, 772F and 773A with exceptions as hereinafter noted.

1 - Flush type metal partitions with posts, flush metal post caps and flush metal panels in corridors and around column enclosures.

2 - Flush type metal partitions with posts, flush metal post caps in laboratories and offices, reagent shelves, service strips, all flush single line metal panels below the line of top of service strip, all flush single line metal apron panels for covering of pipes, except where furniture or case work with closed backs occur against the service strip, and cement asbestos panels above the top of reagent shelf in laboratories, except as herinafter specified under paragraph three (3), also cement asbestos panels or flush metal panels on end walls as shown on drawings.

3 - Flush type metal partitions with posts, flush metal post caps in laboratories and offices of the Control Laboratory Building No. 772F, reagent shelves, service strips and single line flush metal panels without post covers, above and below the service strip in laboratories in this building only, as shown on drawings.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

3. WORK INCLUDED (Cont'd)

4 - Metal frame and metal door units with cement asbestos side and head panels, including transfer grilles over door on both sides of door frame, or metal transfer louver and metal panel over door.

5 - Metal frames and metal doors with door louvers and glass panels as shown on door schedule in locations where door openings are indicated with dash lines, in steel stud and cement asbestos covered partitions, in the Offices of the H.P. Headquarters Building No. 735A.

6 - Metal Transfer louver frames and louver units with cement asbestos side, head and bottom panels in laboratories of "A" spaces of Main Technical Laboratory No. 773A.

7 - Metal transfer louver frames and louver units with metal panels over and below louvers, in laboratories of "A" spaces of Control Laboratory Building No. 772F.

8 - Metal window embrasures consisting of metal stool, metal jambs and metal head of windows, with cement asbestos panels below and above windows and metal and cement asbestos exterior wall wainscot at sides of windows in H.P. Headquarters Building No. 735A and Main Technical Laboratory No. 773A.

9 - Metal flush type wall wainscot with flush metal posts and metal cement asbestos board panels, in H.P. Headquarters Buildings No 735A and Main Technical Laboratory No. 773A.

10 - Metal flush type wall wainscot with flush metal post and metal panels in Control Laboratory No. 772F.

11 - Metal floor stanchions and out looker brackets for support of service strips, reagent shelves, closure apron panels and piping including pipe hangers and clamps at all upright posts or support.

12 - Removable single line flush metal closure apron panels, below the bottom of the service strip, on partitions, walls, wainscot, etc., except where case work with closed backs, occurs against the service strip.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

3. WORK INCLUDED (Cont'd)

13 - Metal floor and ceiling channels.

14 - Metal base and metal cap.

15 - Miscellaneous doors and frames for access to services or electrical panels.

16 - Top filler and closure strips above partitions and wall wainscot up to the bottom of beams of slab above, of cement asbestos board in the Main Technical Laboratory No. 773A.

17 - Top filler flush steel closure strips above partitions in utility corridor up to the bottom of beams or slab above, in Control Laboratory No. 773F.

18 - Vertical flush metal filler or closure strips as required where partitions, wainscot, service strips, reagent shelves and closure apron panels abut other partitions, wainscot or walls and at columns where metal partitions pass behind columns.

19 - Metal filler caps for ceiling channel members at module line where no partitions occur.

20 - Metal railing and gate in rooms Nos. 153A and 154A of the Control Laboratory No. 772F.

21 - Metal caps for low island partitions.

22 - Metal grilles for heating and ventilating, where they occur in metal partitions or metal wainscot but not connected to ducts.

23 - Hose cabinet doors and frames where they occur in metal partitions or metal wall lining.

24 - Hardware and application of hardware.

25 - Miscellaneous accessories.

26 - Glass and glazing.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

3. WORK INCLUDED (Cont'd)

27 - Complete paint finish at the shop, except as otherwise herein specified.

28 - Finished painting in the Field of heating or ventilating grilles or louvers which are connected to ducts and which are furnished under another division of the specification.

29 - Field erection of all work.

30 - Shop Drawings.

31 - Cleaning.

32 - Samples.

SECTION B The work included under this section of the specifications applies to Building No. 320H as follows:

1 - Flush metal reagent shelves with back panels and service strips only, at partitions, island partition conditions and walls.

2 - Flush metal closure panels at ends of island partition conditions.

3 - Flush metal plate caps for island partition conditions.

4 - Removable flush metal closure apron panels, below the service strip on all partitions, island partitions and end walls, except where case work with closed backs occurs against the service strip.

5 - Upright metal channel members with horizontal channel out lookers for support of service strips, reagent shelves and piping, with pipe hangers and clamps at all upright supports.

6 - Miscellaneous steel angles at floor, service strips and reagent shelves.

7 - End fillers for reagent shelves and backs, service strips and removable panels below service strips.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

3. SECTION B (Cont'd)

8 - Miscellaneous accessories.

9 - Complete paint finish at the shop.

10 - Shop Drawings.

11 - Erection

12 - Cleaning.

13 - Samples.

4. WORK NOT INCLUDED

(a) Typical Field erected metal stud partitions and wainscoting consisting of pressed steel studs covered with cement asbestos board.

(b) Metal grilles in window embrasures or exterior metal wall wainscot which are connected to duct work.

(c) Cabinets, furniture, and shelving in Laboratories and Offices.

(d) Metal Pan or cement asbestos ceiling work except as otherwise herein specified.

(e) Metal toilet partitions.

(f) Window and frame in partition between Room A-148 and vestibule in Control Laboratory No. 772F.

5. APPROVED MATERIALS

(a) Materials similar and equal to the following when furnished in accordance with the requirements of this specification are approved for use.

(b) All glass shall be of the best quality as free from waves, bubbles and other defects as possible.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

5. APPROVED MATERIALS (Cont'd)

(c) Every sheet of glass shall bear the label of the manufacturer, which label shall remain on the glass until the glass is inspected and approved.

(d) The type of glass shall be as shown on the drawings and the quality shall conform to Federal Specifications SS-G-451 for the various types as follows:

TYPE A - Polished Plate Glass - Glazing Quality, $\frac{1}{4}$"thick.

TYPE B - Clear Window Glass - Double Strength, "A" quality.

TYPE D - Rolled Figured Sheet Glass (obscure) - 1/8" thick; uncolored, pattern as selected by du Pont.

TYPE E - Wire Glass - $\frac{1}{4}$ thick, polished both sides, or polished one side and figured other side, as indicated on drawing (pattern to be selected by du Pont).

(e) Cement asbestos board, unless otherwise shown on drawings, shall be 3/16" thick, smooth surface on exposed side, cement asbestos board conforming to Federal Specifications SS-S-283 Type II. Similar and equal to "Flexboard" as manufactured by Johns-Manville Co., New York.

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6. SUBSTITUTION

(a) Substitution of materials other than those named in the specification may be made only after the approval has been jointly granted in writing.

7. APPROVAL OF MATERIALS, SAMPLES & SHOP DRAWINGS

(a) Obtain approval of materials, samples and shop drawings.

(b) Shop drawings shall be submitted for approval.

8. MATERIALS

(a) Exposed steel for metal partitions, service strips, reagent shelves, etc., shall be full pickled full cold rolled furniture stock, extra flat, properly annealed, process leveled, with smooth clean surfaces.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

8. MATERIALS (Cont'd)

(b) The following minima are established for U.S. standard gauges of the various parts, and any deviation shall not be made unless approved in Writing.

1 - Panel Plates with verticals	20	gauge
2 - Panel Plates with formed edges, no verticals	18	"
3 - Panel verticals	16	"
4 - Post caps	16	"
5 - Base	16	"
6 - Partition alignment channels	16	"
7 - Partition alignment pocket channel	18	"
8 - Picture mould or cornice	18	"
9 - Floor strip	18	"
10 - Door Frame	18	"
11 - Door stile	18	"
12 - Door panels	18	"
13 - Window stools	16	"
14 - Window jambs	18	"
15 - Window heads	20	"
16 - Box reinforcing ribs	24	"
17 - Reinforcing for door butts	12	"
18 - Angle or channel floor stops	12	"
19 - Transfer Louvers	18	"
20 - Service strip and reagent shelf	16	"
21 - Enclosure apron for piping	20	"

9. GENERAL

(a) The entire installation shall be "Eye Perfect", smooth and free from waves, having flush surfaces and tight, straight line joints. The component units shall not warp, swell, crack or open up and they shall be assembled into a rigid structure that will maintain its initial appearance indefinitely with just washing with soap and water. Any unit shall be readily removable from the structure at any time, and units of like size shall be readily interchangeable. Any desired change of layout shall be easily, quickly and economically made with a minimum of dirt and debris and with 100% salvage of steel units and component parts.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

9. GENERAL (Cont'd)

(b) The plans and specifications indicate the requirements and the general arrangement desired. Deviations in design to conform to the standard practice of the manufacturer will be considered. Such changes or deviations shall be submitted for approval and approved. Tolerances herein specified shall be maximum and the gauges shall be minimum, except as may be approved in writing.

(c) Do all cutting and fitting around work of other trades, including all cutting of and providing all cut-out for services on service strips or reagent shelves.

10. COORDINATION

(a) Work under this division of the specification shall include the responsibility for coordinating the movable steel walls, linings, window trim, column covering, etc., as outlined in "WORK INCLUDED", with each other, and with the work of other trades, particularly metal ceiling work, to produce and carry out a harmonious, functional treatment of the entire interior of the building. Establish the modules and unit dimensions to which all attaching equipment shall conform. These include cabinets, drinking fountains, alarm systems, ventilation ducts, electrical fittings, plumbing fixtures, etc. All units shall reflect the unit sizes of partition and lining for the greatest flexibility both initially and for subsequent rearrangements and changes.

11. FLATNESS

(a) The face of every panel shall be flat and remain permanently flat.

12. JOINT TOLERANCES

(a) Joints shall be straight, tight, uniform and mechanically neat. The radius of the edge shall not exceed 5/64".

13. INSULATION & SOUND DEADENING, PARTITIONS

(a) In all offices and metal corridor partitions the partition units and partition end fillers shall be packed with inorganic insulation of not less than 4-1/2 lbs. per cu. ft. density in the assembled panel. Wainscot units, pier panels, jamb panels, stool top and fronts shall be sound deadened with an inert mastic composition not less than 1/8" thick. This mastic shall not be affected by ordinary heat and shall not give off an odor at any time.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

13. INSULATION & SOUND DEADENING, PARTITIONS (Cont'd)

(b) Evidence from a reliable testing laboratory shall be presented to the Architect-Engineer showing that this material will remain in place and effectively prevent any metallic ring for a period of ten (10) years.

(c) Steel partition half panels and removable metal single line partitions in laboratories shall not be packed with insulation but shall be sound deadened with inert mastic composition not less than 1/8" thick.

(d) Cement asbestos partition panels and half panel cement asbestos removable panels and both side independently removable cement asbestos panels shall not be packed with insulation nor have mastic deadener.

(e) Inorganic insulation shall be a fibrous thermal insulator, composed of silica and metallic oxides. Fire resistance shall meet the requirements of National Bureau of Standards Specification C.S.-131-46. The fusion point of the material shall not be less than 1700°F. The sulphur content shall not exceed Federal Specification HH-1-5216 with average acid to base ratio 0.913.

14. FLEXIBILITY

(a) Panel and door units for the same size shall be easily and economically interchangeable at any time.

(b) Units shall be so designed and assembled that any and all future extensions may be easily and economically made in a neat, symmetrical and substantial manner without alternation or removal, or damage to existing units, or the use of fillers, or the necessity of refinishing. Joints at junction of panels shall be tight, straight and true, same as that of adjoining panels. The resulting layout shall be as fine in every way as if it were made originally. Conversely, said extensions shall be just as easily and economically removed and the original layout re-established, likewise without refinishing.

15. FLUSH TYPE METAL PARTITION WITH POSTS PARTITION PANEL UNIT CONSTRUCTION

(a) Panel units shall be flush, with thickness not less than 3" across panels and posts. Panel plates shall be 20 gauge steel, reinforced with steel box channels welded to back side on 12" centers with double row of spot welds approximately 3" on centers. This construction is required to provide strong panels so as to use as many wide panels as possible.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

15. FLUSH TYPE METAL PARTITION WITH POSTS PARTITION PANEL UNIT CONSTRUCTION (Cont'd)

(a) (Cont'd) Panel plates shall be reinforced to obtain flat panels within a tolerance of 3/32" to assure equipment fitting tight against panels.

(b) Panel units shall be assembled and packed as herein before specified with inorganic insulation at the factory to eliminate as much field work as possible and also to facilitate reerection.

(c) Chennel members shall be connected together by means of clips approximately 18" apart. The bottom of the channel members behind the base and at the top behind the cornice mould shall be narrowed or punched to provide adequate means for electric wiring. From a point 6" above the base to the top, provide where required key-holed slots in post cap member and channel members fastened to clips spaced 6" on centers for the application of shelves, pipe clips, etc.

(d) Each panel unit shall be separated by a steel "snap-on" post cap of rolled section the face of which shall be flush with panel face.

(e) Caps shall be removable for disassembly, wiring and the joining of panels.

(f) Where service piping in Laboratories occurs on partitions or walls, install the reagent shelf, service strip and panels below the service strip down to the floor line to cover, service piping. Vertical supports of steel channel sections with bracket out lookers and floor stanchions for pipes reagent shelf, service strip and panels below the service strips shall be provided with pipe hangers and clamps.

(g) In Laboratories where island services occur provide similar reagent shelf, service strip, panels below service strips, caps and closed ends together with the necessary supports and horizontal bracing and pipe hangers and clamps.

(h) Where panels are designed to be used as ventilation panels a 2" clear passage within the panel sheets shall be maintained by means of staggered reinforcement.

(i) Cement Asbestos board panels shall be mounted in No. 16 U.S. gauge steel frames as detailed.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES Cont'd)

15. FLUSH TYPE METAL PARTITION WITH POSTS PARTITION PANEL UNIT CONSTRUCTION (Cont'd.)

(j) All Steel or cement asbestos panels in partitions & wall wainscot in Laboratories shall be constructed and erected in such a manner as to enable one half in thickness of the panel to be removed on one side of the partition without disturbing the other half in thickness of the panel, on the opposite side.

16. SINGLE DOOR UNITS

(a) Each door unit shall be interchangeable with panel units of same size and shall consist of the door unit proper, door frame, and the full height cap trim.

(b) In ceiling high partitions the door unit proper shall consist of 2 verticals and 2 panel plates for all steel units and 2 verticals, head rail and top rail and two (2) cement asbestos panels for cement asbestos units. The steel panel plates above the door, shall be of the same construction as described for the all steel panel units and the head rail and top rail above the door shall be of No. 18 gauge rolled steel shapes.

(c) The frame shall be as narrow as practical. Stages shall provide in frames for all interchangeable hardware. Steel reinforcements of size and strength sufficient to stiffen the frame against the strain of the service required shall be securely welded to the frame. Reinforcement or butts shall be steel channel, 12" long with raised bosses tapped for screws.

(d) The door frames shall have continuous rubber-cushioned side and top strikes to provided tight contact between the frame and door, to lessen sound transmission and to provide quiet closing doors.

(e) Doors and frames shall be of floating construction adjustable to variations in floor levels and to clear rough.

(f) Doors shall be 1-3/4" thick, with not more than 3/32" clearance at sides and heads. Doors shall be of the Partition Manufacturer's standard hollow steel construction, with glass in upper level, or flush steel solid type as own or specified.

[redacted]

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

16. SINGLE DOOR UNITS (Cont'd.)

(f) (Cont'd.) Stiles and panels shall be sound deadened with rockwool. There shall be no exposed screw heads on the glass stops or glazed doors. Doors shall be constructed to receive closers and automatic draft check at the bottom at any time.

(g) Pairs of doors shall have beveled meeting stiles and rubber-cushioned astragals.

(h) Steel panels in doors shall be readily interchangeable with the glass.

(i) The rebate to receive door shall have 1/2" strike.

(j) Provide vertical pattern, Grecian Border Type, sound deadened louvers in doors and grilles over doors where shown.

(k) Entrance doors to Offices and Laboratories shall have card holders size 2" x 12", card holder shall be arranged so as to make possible the insertion of card from the side. Cardholder frame shall have transparent plastic covering for cards.

(l) Where shown on the drawings to be lightproof, doors shall be equipped with a rubber seal, in addition to the seal which occurs on the door frame. Seal shall be located on both jambs end on the head, and shall function in a positive manner to prevent the passage of any light. Bottom of lower rail of door shall be fitted with a light stop of approved detail.

(m) When shown to be lightproof or when occurring in light-proof doors, louvers shall be constructed to an approved pattern and in an approved manner which shall effectively prevent the passage of any light.

(n) Door frames for Offices in the H.P. Headquarters Building, 735A shall be constructed of No. 16 U.S. gauge steel, in accordance with the detail shown on drawings. Provide 4" channel anchors 1'-2" above floor and three formed anchors spaced 2'-0" on centers, welded to sides of door frame for anchoring to steel studs of partition.

(o) Doors for openings indicated in dash lines on drawings for the H.P. Headquarters Building, 735A shall be of size and design as shown on the door schedule for this building, including glass panels, louvers etc., as shown.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

17. PAIRS (DOOR UNITS)

(a) Pairs of door units of design as shown shall be provided as shown. They shall have continuous rubber-cushioned meeting strikes, but in all other respects the doors shall conform to the specifications for single door units. Provide metal transfer louvers over doors as shown.

18. POST & POST CAPS

(a) Adjoining panel units shall be inter-connected and alighed by means of two vertical rows of removable rigid clips. # 18 gauge rolled steel post caps shall snap on to clips on both sides of partition and on finished side of interior wainscot, forming a post with vertical or adjoining panel units. Within partition posts there shall be a continuous raceway 2" square, for full height of post, accessible by removing post cap and clips on either side of partition or on finished side of wainscot.

19. BASE

(a) Base shall be the same for wainscot, window embrasures and partitions and shall continue around all recesses.

(b) Base shall be black steel approximately 6" high with minimum of projection. It shall be held in place with continuous inner base on partitions only, clips may be used on wainscot, provide metal channel for caulking where shown. Base shall be readily removable each side independently and adjustable for varying floor levels.

20. PARTITION CHANNEL & CORNICE MOULD

(a) Partition alignment channel, where no steel pan or cement asbestos hung ceilings occur, shall be continuous of #16 gauge steel, 3" wide and shall have recess in the top to receive a rubber or similar seal at the ceiling where it comes in connection with concrete beam or slab to prevent sound transmission. No seal shall be used in conjunction with steel pan or cement asbestos board, ceilings.

(b) Space between partition alignment channel and top of units, except where top fillers are shown or required, shall be closed by a continuous #18 gauge rolled steel cornice mould 3" high with 1/4" projection.

[redacted]

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

20. PARTITION CHANNEL & CORNICE MOULD (Cont'd.)

(b) (Cont'd.) It shall have a continuous lip for picture hook. It shall be anchored in place by concealed interlocking clips, (no bolts or nails) and shall be readily removable for wiring. Where cornice picture mould is used on partitions there shall be no ceiling pocket, except as otherwise shown.

(c) Where partitions occur in rooms with steel pan or cement asbestos ceilings, the ceiling channel shall be provided with an extension flange or special channel as required to support steel pan or cement asbestos ceiling similar to that specified or shown for single line partitions.

(d) Where ceiling pocket is used omit the use of picture moulding on partition panels, except as otherwise shown.

21. INTERIOR WAINSCOT PANEL UNITS

(a) Standard wainscot units shall consist of a single 20 gauge panel plate, reinforced as hereinbefore specified, and two 16 gauge vertical members spot-welded on the sides to form an integral unit. Wainscot units shall have the same finished appearence as partition units.

22. EXTERIOR WAINSCOT WINDOW STOOLS, JAMBS & PIERS, HEADS

(a) Each window embrasure shall consist of jamb panels and pier panels, flanking the window and stool construction between the piers, which shall consist of a fixed stool top and a removable stool front.

(b) The fixed stool top shall be # 16 gauge steel with 7/16" radius bullnose front edge. It shall be framed to the bottom of the window sash or sill with a 1-3/4" wide trim member which shall have concealed fastenings. Stool tops shall be reinforced with a box rib and cut out to receive grilles.

(c) Stool fronts shall be cement asbestos panels. Stool fronts shall be semi-flush with face of adjoining piers, and shall be removable by means of concealed fastenings and clips.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

22. EXTERIOR WAINSCOT WINDOW STOOLS, JAMBS & PIERS, HEADS (Cont'd.)

(d) Exterior wainscot piers and jambs shall be of the following design and construction:

(e) Piers to be flush panel and post design with cement asbestos panel above and # 20 gauge steel panel below top of reagent shelf. Face of pier between post line to be removable.

(f) Provide 3" wide pocket in face of pier, covered with flush post cap wherever indicated on plans, to receive present or future cross-runs of partitions.

(g) Jamb panels to frame into window sash with 1-3/4" wide trim member, and to return approximately 2" on face of pier and be received into corner post.

(h) Piers shall be ceiling high with partition alignment channel or have cement asbestos top fillers as shown.

(i) Side returns, head plates and soffits over windows shall be of #20 gauge reinforced steel, similar to wainscot panels.

(j) Steel pier front, stool and side returns shall be sound deadened with 1/8" thick inert material sprayed on same as specified for wainscot.

(k) A cap shall be provided for the channel post on the center line of each pier which will form a flush connection between removable sections of the pier wainscot.

(l) The removal of this cap shall provide the facility and means for attaching and extending a sub-dividing wall without disturbing wainscot pier panels.

23. COLUMN & SERVICE SHAFT ENCLOSURES

(a) Column and service shaft enclosures shall be flush type metal wall lining with posts complete with access doors and cutouts, and angle frames at cutouts. Enclosures shall be deadened with 1/8" mastic the same as specified for partition panel plates. Lining shall have connections for corridor and laboratory partitions.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

24. ACCESS DOORS

(a) All access doors and frames at service shaft enclosures shall be flush and solidly packed for sound deadening. Face of door shall be in same plane as wall and clearance around door shall be not more than 3/64".

(b) Openings in panels to receive access doors shall have finished return on all four (4) sides and angle frames where shown.

(c) Openings to receive access doors over electric cabinet installations shall have adjustable closure pieces on all sides. Closure pieces shall extend full depth, to the surface of the cabinet front, and shall allow sufficient clearance for the cabinet doors to be open not less than 90°. Shop drawings shall indicate construction.

(d) Lighting and power and other electric cabinet access doors shall be faced front and back, and packed solidly for sound deadening.

(e) All other access doors shall be single faced.

(f) All lighting panel doors shall have a switch record card holder 8-1/2" x 11" with glass. Glass and card to slip in at top.

(g) All access doors shall be hung with an approved type concealed hinge and fitted with an approved latch, all furnished and installed under this division of the specification.

25. FAN MOUNTINGS

(a) Heavy steel plates approximately 9" x 9" shall be placed back of all wall fan outlets behind the wainscoting where indicated on drawings and welded to pier posts. This plate shall have an extended arm arranged to support the electrical condulet outlet for fan wiring. Fan mountings shall be tapped for fan mounting screws.

26. MISCELLANEOUS ACCESSORIES

(a) Distillation Brackets - Steel, malleable iron or cast iron, provided with 2 lugs, 6" on centers to fit into key-holed supports. Brackets and supports designed to support 300 lbs. at the end.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

26. MISCELLANEOUS ACCESSORIES (Cont'd.)

(b) Slotted Pipe Support - Rolled steel, length as required, 2 lugs, 5/8" projection open top and bottom grooved or slotted to receive pipe clamps.

(c) Post caps to be punched to receive pipe supports, shelf brackets etc.

(d) Pipe Clamps, 5/8" diameter - (for 1/2" pipe) with washer, 1" x 3/16" RHMS, toggle, crimped end thread clamp, screwhead and washer painted.

(e) Pipe Clamps, 7/8" diameter - (for 13/16" pipe) Same as above.

(f) Pipe Clamps, 1" diameter - (for 3/4" conduit) - Same as above.

(g) Pipe Clamps, 1-3/4" diameter - (for 1-1/4" conduit) - Same as above.

(h) Keyhole Supports - Individual supports shall be arranged to attach to the channel members in the slots provided in such a way that the support of the shelf brackets, reagent shelf and service strip bracket or pipe support is carried directly by these keyholes and not on the post cover. Where keyhole supports are used the post cover shall have rectangular openings opposite the keyhole. Where keyhole supports are used on both sides of a partition at the same level, there shall be two similar supports attached to the channel member back to back, where the support is required only on one side of the partition. The single support shall be backed up with a filler piece to fill the gap in the channel slot provided for the double installation.

(i) Drain Support Brackets

(j) Drain Support Channel

(k) Inner post accessory channel reinforcement - approximately 2'-6".

(l) Shelf brackets for 6" and 12" shelves.

(m) Island strip supports.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

26. MISCELLANEOUS ACCESSORIES (Cont'd)

(n) Fan Bracetts

27. ERECTION

(a) Wainscot and partition runs shall be installed on top of finished floor covering.

(b) Where channel posts are not installed concealed positive means shall be provided to draw abutting panel plates together so as to assure tight panel joints. Wall fastenings, shall be made with masonry anchors.

(c) Unless otherwise shown or specified all fastenings shall be concealed and adjustable to variations in floor level.

(d) Expansion bolts shall be "Dyvin" as made by the Star Expansion Bolt Company or an approved equal. Bolts shall penetrate the masonry at least 1-1/2". Lead shields shall be driven into masonry at least 1-1/2". Nails used for fastening panels shall be hot dipped galvanized.

(e) All field work shall be done in a careful manner by workmen experienced in the erection of this type of material.

(f) Wainscot and partitions shall be erected in a rigid and substantial manner, straight and plumb, and with horizontal lines level. Units shall be secured against movement in any direction. All abutting units shall be aligned and securely fastened together. Units shall be interlocked and aligned at all panels and door unit joints.

(g) Wainscot shall be equipped with clips or reinforcings as necessary to provide means of attachment to abutting window frames, door frames or other abutting surfaces. Metal wainscoting shall be tap screwed to metal window frames.

(h) Hardware shall be carefully adjusted and left in perfect working condition.

(i) Cover each window stool top with corrugated paper to protect it against damage and remove the protection paper when directed.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

28. ANCHORS & FASTENINGS

(a) Adequate anchors and fastenings shall be provided and installed to properly secure all wainscoting, window stools, partitions, partition alignment channels, door frames, and other work under this division.

(b) Where wainscoting or other panel work is attached to metal window frames, provide angle or other suitable concealed fastenings. Frames shall be drilled as required to make such connection.

29. GLASS & GLAZING

(a) Glass for doors in this division of the specification, and glass for hose cabinets were required, shall be furnished and installed under this division of the specification.

(b) Where required by drawings glass shall be bedded in putty and back-puttied. Putty shall be colored to match adjacent steel panels and shall not show on exposed surfaces. Glazing stops shall be secure and without any exposed screwheads.

30. ELECTRICAL OUTLETS

(a) Provide outlet boxes and cover plates including cutouts as required for electrical outlets including in general utility outlets, switches, bells, fans, clocks. Boxes shall be of a type required for installation in the manufacturers post construction and shall have insulated linings and conform to all provisions of Engineering Standard E-4-J. Plates shall be of material and finish as herein specified for hardware. Boxes will be installed as part of the partition assembly. Plates will be installed by du Pont.

31. PIPE, SERVICE STRIP, REAGENT SHELF & SHELF SUPPORTS

(a) Pipe, service strip, reagent shelf and shelf supports shall be provided in quantity as required to properly support the pipes, service strips reagent shelf and shelves as indicated on drawings.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

31. PIPE, SERVICE STRIPS, REAGENT SHELF & SHELF SUPPORTS (Cont'd)

(b) Key-holed supports shall be provided with one or more key holes and shall be arranged to attach to the channel members of the panel units in such a way that the support of the shelf brackets, service strip brackets, reagent shelf brackets or pipe supports is carried directly by these channel members and not on the post cap.

(c) Service strip and reagent shelf brackets shall be of the design shown to receive the service strip and reagent shelf.

(d) Pipe hangers shall be provided with lugs to fit into the supports in a manner similar to the brackets. The hangers shall be grooved or slotted to receive the pipe clamps.

(e) Pipe clamps shall be provided under this division of the specification for installation by others. These clamps shall be designed to be adjustable in the vertical groove for pitching lines. Clamps shall be malleable iron brushed smooth or formed heavy gauge steel and cadmium plated. Furnish brackets and continuous steel channel for supporting lead drain pipe where shown and suitable supports for "Duriron" drain pipe as shown on drawings.

32. HOSE CABINET DOOR & FRAME

(a) Where hose cabinets are located in metal partitions or metal wall linings, the door and frame shall be furnished and installed under this division of the specification.

(b) Door and frame shall be of size shown on drawing, strongly constructed and reinforced as required. Provide adjustable angles on all four (4) sides to provide means for fastening to metal partitions or wall linings. The frame trim and door shall have all necessary hardware. Door shall be glazed with 1/4" polished plate glass.

(c) The inner hose cabinets will be furnished under another division of the specification.

33. TOP FILLERS

(a) Unless otherwise shown on drawings or specified top fillers or closure strips shall be 1/4" thick cement asbestos board on both sides of partitions and on face side of wall wainscot.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

33. TOP FILLERS (Cont'd)

(a) (Cont'd) The filler on partitions shall have an overall thickness of approximately 3" and be neatly scribed to ceiling, beams, walls, etc., Joints shall be filled, reinforced, smoothed and painted as specified for cement asbestos panels.

(b) Top filler closure strip in utility corridor of Control Laboratory No. 772F shall be No. 20 U.S. steel plates.

(c) Where partitions pass behind columns in Utility Corridors provide vertical filler plates as shown of No. 20 U. S. Gauge Steel.

34. TRANSFER LOUVERS

(a) Transfer louvers shall be Grecian Pattern, Vertical type as shown on drawings, No. 18 U. S. Gauge Steel and shall be two faced, flush with partition panel on each side and shall be readily removable.

35. SINGLE LINE MOVABLE STEEL PARTITIONS

(a) All provisions of section Nos. 5,6,7,8,9,10,11,12,13,14, 16,17,20,26,27,28,30,31 hereinbefore specified and section Nos. 36 to 42 inclusive and such portions of section 44 to 50 which are applicable, as hereinafter specified shall apply to all single line movable steel partition work.

36. BASE FOR PARTITION & WAINSCOT

(a) Floor member shall be #16 gauge coated steel such as paint-grip or paint-lock. Shape shall be as shown on details with offset provided to receive caulking at floor. Base member shall be anchored to finished concrete floor with removable fastenings. Provide inner #12 gauge continuous reinforcement where service strip occurs for future connection.

37. SUPPORT POSTS

(a) Inner support posts where service strip occurs shall be stanchion type of design as shown on the drawings. Posts shall be located at each panel joint.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

37. SUPPORT POSTS (Cont'd)

(a) (Cont'd) Posts shall consist of #12 gauge channel with #18 gauge pipe channels, spot-welded on both sides full height as shown on details.

(b) Posts shall be securely welded to 1/4" x 3" x 3" hot rolled steel angle. Posts shall be rigidly anchored on top of the finished floor and into the concrete with removable fastenings.

38. SERVICE STRIP AND REAGENT SHELF

(a) Service strip and reagent shelf shall be as detailed. Steel shall be #16 gauge cold rolled. All joints shall be tight and backed up with splice plates which shall be of the same material as the surface being reinforced.

(b) Service strip and reagent shelf shall be bracketed to support posts with #12 gauge steel channels.

(c) Service strip cap on island units shall be #18 gauge steel.

(d) Provide all cutouts and caps for services on service strips or reagent shelves.

39. PARTITION ALIGNMENT CHANNELS

(a) Provide partition alignment channels of #18 gauge steel to support partitions at underside of building construction in spaces not having hung metal ceilings, and provide partition alignment pocket channels of #18 gauge steel to receive tops of partitions at intersection with hung metal ceilings. Partition alignment pocket channels shall be of the proper design to accommodate the metal pans of adjoining metal ceilings, as shown on the drawings.

(b) Partition alignment channels shall be directly attached to overlaying concrete construction by an approved means. Partition alignment channels and pocket channels shall be furnished and installed under this division of the specification.

(c) Partition alignment channels and partition alignment pocket channels shall be installed where so indicated to receive future partitions, and shall be provided with #18 gauge steel snap-in caps to close the channel area.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS AND REAGENT SHELVES (Cont'd.)

39. PARTITION ALIGNMENT CHANNELS (Cont'd.)

(d) Provide removable screw-in type clips for securing snap-in type post caps.

(e) Provide proper series of punched holes in all partition alignment channels and pocket channels to receive post cap clips.

40. PANELS

(a) All Panels shall be horizontally jointed at the top of reagent shelf back. This applies to all full height single line type panels.

(b) All panel plates including panels below reagent shelf back top and service strip shall be #20 gauge steel, reinforced with #24 gauge steel box reinforcements approximately 12" o.c. with double row of spot-welds 3" o.c.

(c) Joints of panels shall be flush single line joint. All panel plate sections shall be readily removable on either side of partition within five (5) minutes. When panels are removed on one side there shall be no disturbance of parts on opposite side of partition.

(d) Top of panels shall insert in partition alignment channel and pocket channels as shown.

(e) Bottom of base panels shall overlap and interlock with base member as shown.

(f) There shall be no projection moulding or trim such as picture mould or base.

(g) Provide flush concealed devices and provision for readily removing panel plates without screws of similar fastenings. Similar devices to be used for snapping on pipe channels, etc.

41. PARTITION INNER VERTICALS

(a) Provide inner verticals extending from top of reagent shelf back or from floor member to partition alignment channels according to the location.

(b) Verticals shall be #18 gauge steel formed to provide a stiff inner post and to permit snapping in of panels.

[redacted]

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS AND REAGENT SHELVES (Cont'd.)

42. SOUND DEADENER

(a) The backs of steel panels for single line steel partitions shall be sound deadened as hereinbefore specified.

43. ANGLE FLOOR STOPS

(a) At service shafts only in corridors which ar enclosed with flush type metal wainscot panels with posts, install a continuous channel in back of base. The steel channel shall be 2" x 1-1/4" x 1/8" and shall be anchored in place with 1/4" expansion bolts spaced 12" on centers. The channel shall be caulked at bottom edge as shown on drawing.

44. CAULKING

(a) Partition and wainscot panels and apron panels enclosing piping when installed in Laboratories, shall be gun caulked along the joint occuring between the 45° metal base member of partition or bottom member of apron panel enclosing piping.

(b) Caulking compound shall be an approved chemical resistant compound, mixed and applied on prepared surfaces, all in strict accordance with the instructions of the manufacturer of the caulking compound, which shall be specially thickened "Thiokol LP-2" as manufactured by the Thiokol Corporation, Yardsville, N.J., or an approved equivalent.

45. SAMPLES

(a) Furnish for partitions and wainscot the following samples:

1 - One (1) 12' -0 wide by full height from floor to ceiling exterior wall unit including complete window embrasure.

2 - Three complete foot (4) foot wide interior partition sections, full height from finished floor to ceiling, with wall service strips reagent shelf, apron panel, and complete system of pipe hangers for two (2) of the sections. The third sample section shall be a complete wall to ceiling section without service strip, but with channel shoe at floor, and post supports.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

46. OFFICE RAILING

(a) Office Railing in Room A153 shall be 3' -0" high with post and panels to match partition work and shall be 3" thick, with stainless steel counter as shown. Gate in railing shall be 1-1/4" thick, insulation packed, flush steel paneled, single acting, hung on manufacturers standard single acting bottom checking ball bearing hinge and top pivot with painted finish. Provide secret type gate latch finished to match hardware.

(b) Counter shall be #16 U.S. gauge stainless steel 12" wide, with hinged flap and flush piano hinges.

47. METAL GRILLES

(a) Ventilation grilles in partitions, except where they are connected directly to ventilation ducts, shall be furnished under this division of the specification.

(b) Ventilation grilles shall be vertical type, flush with finished face or faces of partitions and constructed in accordance with detail drawings.

(c) All grilles furnished under this division of the specification and also all other ventilation grilles furnished under another division of the specification shall be finished to match the partition finish under this division of the specification.

(d) Where doors are required by drawings to have grilles, furnish similar grilles in and over doors as shown.

48. HARDWARE

(a) Provide and install all hardware for doors under this division of the specification.

(b) Doors with push and pull hardware furnished under this division of the specification shall be provided with 1/8" thick Formica kickplates on push side of door. They shall be beveled type and two ends, 1/2" less than the width between stops and 8" high except as otherwise shown or specified.

(c) Provide the mortises and install the hardware.

(d) The plate numbers as specified hereinafter, unless otherwise noted, have been taken from the catalog of Sargent & Company. They represent the type and quality of hardware required, and do not exclude similar and equal items of hardware of other approved makes.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

48. HARDWARE (Cont'd.)

(e) Door closers shall be surface type reversible liquid door closers with arms adjustable to any degree of door opening. Doors opening into corridors shall have closer mounted on the room side and be provided with brackets. Door closers shall conform to the following sizes.

Doors up to 2'5" in width	Size No. 2
2'-6" to 3'-0" in width	Size No. 3
3'-1" to 3'-4" in width	Size No. 4
3'-5" to 4'-0" in width	Size No. 5

Door closers shall be prime coat finish for painting

(f) Push plates unless otherwise specified shall be 1/8" thick brown "Formica" 4" wide x 16" high with all edges bevelled.

(g) Door pulls except as otherwise specified shall be A[illegible]-1620.

(h) Door knobs shall be as specified for lock and latch sets.

(i) Cylinders shall be cast bronze with six (6) pin ball bearing pin tumblers.

(j) Material for all locks, latches and other hardware shall conform to U. S. Department of Commerce, National Production Authoritys' current limitation orders. Strike plates, lock and latch faces, knobs, escutcheons and pulls shall be cast, forged or heavily wrought aluminum with aluminite satin finish.

(k) Butts shall be ball-bearing wrought steel finished prime coat for painting, with two (2) butts for each door leaf.

(l) Door stops, spring hinges, flush bolts shall be steel, plated satin nickel finish.

(m) All locks in metal partition doors shall be, sub-master, master-keyed and grand-master-keyed in with the keying system of each individual building.

(n) All items of hardware which apply to metal work shall be made accurately to template and shall be supplied complete with the proper types of machine screws for attaching.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

48. HARDWARE (Cont'd.)

(o) Mortise latches, locks and strikes shall be of one uniform size and shall fit the standard cutouts and sinkages as used by metal partition manufacturer's for their stock type doors.

(p) Schedule of Hardware for door in M. I. Headquarters Building No. 735A shall be as follows:

DESCRIPTION

Single doors Nos. 102,104,105,107,116,117,118,119,123,124,148,149, 152,153,154,155,156,157,158,159,166.

1 Pair butts	BBK 146P 5" x 4"	Stanley
1 Lockset	AN 7605 1/2 H.M.R.	Sargent
1 Door Closer	44V	Sargent
1 Stop 35		Sargent

Single doors Nos. 122,138,140,143,144,145,146.

1 Pair butts	BBK 146P 5" x 4"	Stanley
1 Lockset	AN 7605 1/2 H.M.R.	Sargent
1 Door Closer	44V	Sargent
1 Bracket	53	Sargent
1 Stop 35		Sargent

Pair of Doors Nos. 103,150.

2 Pairs butts	BBK146P 5" x 4"	Stanley
2 Flush Bolts	LN 1116 - 12"	Sargent
1 Lockset	AN7605 1/2 H.M.R.	Sargent
1 Door Closer	44V	Sargent
2 Stops 35		Sargent

Pair of Doors Nos. 139, 139A

2 Pairs butts -	BBK 146P 5" x 4"	Stanley
2 Flush Bolts	LN 1116 - 12"	Sargent
1 Lockset	AN 7605 1/2 H.M.R.	Sargent
1 Door Closer	44V	Sargent
2 Bracket 53		Sargent
1 Stop 35		Sargent

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd)

DESCRIPTION

Single doors Nos.108,109,111, and 113

1 Pair butts	BBK 146P 5" x 4"	Stanley
1 Push plate	1/8" Formica 4" x 16" four (4) sides beveled	
1 Door pull	AN 1620	Sargent
1 Door Closer	44V	Sargent
1 Kickplate		
1 Stop 35		Sargent

Single doors Nos. 110,112,147

1 Pair butts	BBK 146P 5" x 4"	Stanley
1 Latchset	AN 7615 H.L.R.	Sargent
1 Stop 35		Sargent

Single doors Nos. 115,126,128,129,130,131,132,133,134,135,136, 137,142.

1 Pair Butts -	BBK 146P 5" x 4"	Stanley
1 Latchset	AN 7615 H.L.R.	Sargent
1 Door Closer	44V	Sargent
1 Bracket 53		Sargent
1 Stop 35		Sargent

Single doors Nos. 120,160,163,164,165

1 Pair butts	BBK 146P 5" x 4"	Stanley
1 Latchset	AN 7651 H.R	Sargent
1 Door Closer	44V	Sargent
1 Stop 35		Sargent

Pair of doors No. 141

2 Pairs butts	BBK 146P 5" x 4"	Stanley
1 Latchset	AN 7651 H.R	Sargent
1 Door Closer	44V	Sargent
2 Flush bolts	L" 116 -12"	Sargent
2 Stops 35		Sargent

(q) Schedule of Hardware for Control Laboratory No. 772F and Main Technical Laboratory No. 773A shall be based on the same type hardware as specified for M.I. Headquarters Building No. 735A as follows.

METAL PARTITION AND MILLWORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

CORRIDOR DOORS IN PARTITIONS

Butts - Each single door and each leaf or pairs of doors shall have two (2) butts.

Closers - Each single door and each pair of doors opening from corridors one (1) closer, with bracket for doors opening into the corridors.

Lockset - Each office door shall have a lockset.

Latchset - Each laboratory shall have a latchset.

Bolts - Each pair of doors shall have two (2) flush bolts.

Stops - Each single door shall have one (1) stop and each pair of doors shall have two (2) stops.

INTERIOR DOORS IN PARTITIONS

Butts - Each single door shall have two (2) butts.

Closers - No closers will be required.

Latchset - Each door shall have a latchset.

Stop - Each door shall have one (1) stop.

49. FINISH

(a) Finish, except as otherwise specified, shall be applied in the factory, all surfaces shall be thoroughly degreased, before finish is applied.

(b) All steel surfaces including concealed surfaces, shall have one (1) coat of baked enamel primer. This includes all accessories.

(c) Exposed steel surfaces, including accessories, and factory primed hardware shall have one additional coat (second coat) of baked enamel. Doors and frames, service strips and reagent shalves shall have a third coat of baked enamel.

Rev. 5/5/52 (d) The second and third baked enamel finishing coat shall be a polymerin resin enamel of an approved manufacture. The finish shall produce a uniform permanent eggshell sheen.

METAL PARTITION AND WAINSCOT WORK, SERVICE STRIPS & REAGENT SHELVES (Cont'd.)

49. FINISH (Cont'd.)

(e) Each coat shall be sprayed on in two (2) applications, the second being worked at right angles to the first. All coats shall be evenly applied and all parts must be of uniform shade.

(f) Asbestos cement panels shall be finished on all exposed surfaces with three coats of vinyl paint similar and equal to "Amercoat" No. 33 as manufactured by the Amercoat Corporation. Except as otherwise hereinafter specified vinyl paint shall be sprayed on in the shop.

Rev. 5/5/52 NOTE: Acceptable vinyl paints are Amercoat No. 33 as manufactured by the Amercoat Corporation, Jacksonville, Florida; Corrosite No. 22 as manufactured by the Corrosite Corp., New York, N.Y. and Nukemite No. 40 as manufactured by the Nukem Products Corp., Buffalo, N.Y. Each coat shall be applied in strict accordance with the manufacturer's directions.

50. CLEANING

(a) All exposed surfaces shall be cleaned and left in perfect condition.

BUILDING MATERIALS METAL OFFICE & FACTORY PARTITIONS	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED March 1950	SB 1 N To SB 1.3 N
	REVISED	

GENERAL REQUIREMENTS

1. GENERAL - Standard Engineering Specification SC-1-A and SB-1-G apply to and are part of this specification.

2. BRANDS - shall be subject to du Pont's approval.

3. DESCRIPTION - Partitions shall be of the type indicated on the drawings. They shall be arranged so that door and panel units of the same size are interchangeable and be designed and assembled so that future extensions, in either two, three, or four ways may be joined thereto in a neat, symmetrical and substantial manner without removing existing units or using fillers. Width and height of units shall be as indicated on the drawings, adjusted as may be required to meet the manufacturer's nearest standard size. When unit widths are not shown, the dimensions shall be such as to provide as symmetrical a layout as possible. Furnish all bolts, screws, etc. necessary for assembly and erection.

When a manufacturer's standard partition varies from these specifications, complete data as to general construction, metal thicknesses, assembly arrangement, and finish shall be submitted to du Pont for its consideration.

4. SHOP DRAWINGS - showing partition layout, typical elevations, and all special conditions, shall be submitted to du Pont for approval before fabrication is started.

5. STEEL - All exposed steel shall be cold rolled furniture stock, properly annealed, process leveled, with smooth, clean surfaces. Thickness shall be as specified in Std. Eng. Specs. SB-1.1-N, SB-1.2-N, or SB-1.3-N for the various types of partitions.

6. DOORS AND FRAMES - Doors shall be manufacturer's standard one panel, two panel or flush type and, when required, shall be arranged for glass and/or louvers, all as indicated in the drawings. Thickness shall be 1-3/4" and maximum clearance at the jambs 3/32". Stiles, rails and panels shall be packed with an inorganic sound-deadening material. Rubber strikes or felt-lined frames shall be provided for doors in office partitions to reduce sound transmission and permit quiet closing. Frames shall be arranged for adjustment to floor variations. They shall be punched, drilled and adequately reinforced for the hardware called for on the drawings or in the project specifications.

7. FACTORY FINISH - All surfaces shall be properly degreased, clean and dry before finish is applied. Priming shall consist of one coat of Dulux No. 764 line primer and finishing, two coats of Dulux No. 710 or 720 line enamels. All coats shall be evenly applied and be oven baked. Colors shall be as set forth in the project specifications, or as requested by du Pont.

8. ELECTRICAL PROVISIONS - When electrical drawings so indicate, furnish and install switches and plates in posts 4'-0" above floor and other devices where shown. Wiring and conduit is not included in this specification.

9. ERECTION - Partitions shall be erected in a rigid and substantial manner, straight and plumb, with horizontal lines level. Hardware shall be carefully adjusted and left in perfect working condition.

10. TOP FILLERS - Unless otherwise indicated on the drawings, top fillers for office partitions shall consist of a wood framework, covered both sides with gypsum wall board conforming to Std. Eng. Spec. SB-3-E. The filler shall have an overall thickness of approximately 3" and be neatly scribed to ceiling, beams, walls, etc. Joints shall be filled, reinforced, smoothed and left ready for the painters.

Top fillers for factory partitions shall be as called for on the drawings or in the project specifications.

11. GLASS AND GLAZING - Door and panel units shall be glazed where called for on the drawings or in the project specifications. Glass and glazing shall conform to the requirements of Standard Engineering Specification SB-1-G.

12. FINISH HARDWARE - When furnished by the partition manufacturer, shall be as called for in the project specifications.

SB 1.1 N - SEMI-FLUSH TYPE

1. GENERAL - Standard Engineering Specification SB 1 N applies to and is part of this specification.

2. STEEL SHEET THICKNESS - Minimum thickness shall be as follows:

Panel Surfaces	No. 20 Gage
Posts	No. 18 Gage
Cornice	No. 18 Gage
Chair Rails (when used)	No. 20 Gage
Base	No. 18 Gage
Plinths (when used)	No. 16 Gage
Door Frames	No. 18 Gage

3. **CONSTRUCTION** - Panels shall be 2-3/4" thick, minimum, and be "semi-flush" with projections at the posts not to exceed 1/8". Provide suitable stiffening members for both surfaces, firmly welded thereto. Panels shall be packed solidly with an inorganic filler to form a firm backing and provide sound insulation.

Posts shall be arranged for easy erection or disassembly and be provided with suitable stiffening members and internal fastening devices. The floor fastening shall be arranged to compensate for variations in floor level. Post caps shall be a rolled shape arranged to snap on flush with panel verticals and shall be removable for access to wiring.

Rails shall be arranged to permit insertion of glass with or without removable stops.

Plinths, when used, shall be flat, hook-on type, vertically adjustable to floor at all posts.

Base shall be removable for lay-in wiring with both sides independently adjustable for varying floor levels. Raceways shall be provided within base for high and low tension wiring.

Cornice shall be provided with internal reinforcement at each joint and be arranged for concealed wiring.

End Fillers shall match the partition panels in appearance and construction and fit into a channel which shall be neatly and securely fastened to the building wall.

SB 1.2 N - PANEL TYPE INSULATED

1. **GENERAL** - Standard Engineering Specification SB 1 N applies to and is part of this specification.

2. **STEEL SHEET THICKNESS** - Minimum thickness shall be as follows:

Panels	No. 24 Gage
Posts & Post Caps	No. 18 Gage
Cornice	No. 18 Gage
Rails	No. 20 Gage
Base	No. 20 Gage
Plinths (when used)	No. 20 Gage
Door Frames	No. 18 Gage

3. **CONSTRUCTION** - **Panels** shall consist of 2 parallel sheets, spaced for an overall thickness of approximately 3/8" and be filled with an inorganic sound-deadening material. Panel assembly shall be by means of tie rods, or an equal method approved by du Pont.

Posts shall be arranged for easy erection or disassembly and be provided with suitable stiffening members and internal fastening devices. The floor fastening shall be arranged to compensate for variations in floor level. Post caps shall be a rolled shape arranged to snap on and shall be removable for access to wiring.

Rails shall be arranged to permit insertion of glass with or without removable stops.

Plinths, when used, shall be snap-on type vertically adjustable to the floor.

Base shall be moulded to match unit construction and be reinforced internally at each joint. Arranged for concealed wiring.

Cornice shall be moulded to match unit construction and be reinforced internally at each joint. Arrange for concealed wiring.

End Fillers shall match the partition panels in appearance and construction and shall be securely fastened to the channel at the building wall.

SB 1.3 N - PANEL TYPE UNINSULATED

1. **GENERAL** - Standard Engineering Specification SB 1 N applies to and is part of this specification.

2. **STEEL SHEET THICKNESS** - Minimum Thickness shall be as follows:

Panels	No. 20 Gage
Horizontal Rails	No. 20 Gage
Vertical Muntins	No. 22 Gage
Posts and Post Caps	No. 20 Gage
Cornice (when required)	No. 18 Gage
Door Frames	No. 18 Gage

3. **CONSTRUCTION** - **Panels** shall consist of a single thickness of steel sheet formed and arranged to be inserted into the rails and muntins.

Posts shall extend from floor to ceiling (or to cornice when called for on the drawings) and be arranged for easy erection and disassembly. Provide suitable stiffening members and internal fastening devices. The floor fastening shall be arranged to compensate for variations in floor levels. Post caps shall be a rolled shape arranged to snap on the posts.

Rails and Muntins shall be rolled shapes designed to fit the posts and either steel or glass panels. Rails shall be fastened to posts with concealed bolted connections.

Cornice shall be furnished only when called for on the drawings. Provide internal reinforcement at each joint.

End Fillers shall match the partition panels in appearance and construction and fit into a channel, at the building wall, which will allow for lateral adjustment.

BUILDING MATERIALS EXPANDED METAL PARTITIONS	STANDARD ENGINEERING SPECIFICATION	
	ISSUED March 1950	SB 2 N
	REVISED	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRANDS - shall be subject to du Pont's approval.

3. DESCRIPTION - Partitions shall consist of individual units generally not less than 3'-0" or more than 4'-0" wide. The height shall be as indicated on the drawings. Door and other openings shall be provided as indicated. Furnish all accessories required for a complete installation. Hardware for doors and other finish hardware, as called for on the drawings or in the project specification, shall be the partition manufacturer's standard and shall be furnished under this specification.

All partition parts and accessories shall be hot-dip galvanized after fabrication, before assembly.

4. MATERIAL & FABRICATION - Mesh shall be 1-½" No. 10 galvanized expanded metal, weighing not less than .89 lbs. per sq.ft., or a welded chain link or interwoven wire fabric of equal strength with mesh openings of approximately the same area.

Frames, forming the units, shall preferably be a rolled tubular shape, No. 16 gage, approximately 5/8" x 1-1/4" in cross section with double 5/8" wide lips for mesh insertion, but may be hot-rolled channels, 1" x 1/2" x 1/8" minimum size. The units shall be provided with horizontal braces, consisting of 2-3/4" x 3/8" x 1/8" (minimum) hot-rolled channels, or equivalent, spaced not over 4'-0" on centers, starting 3'-6" above floor line. Height of units shall be such as to provide a 3" to 4" broom space at the floor line. Frames for door units shall be the same as above for partition units except that the hinged side shall be No. 14 gage bar or equivalent. Doors shall be provided with strike plates and shall be arranged and drilled for hardware.

All cut-outs in mesh for wickets, etc., shall be provided with protective edging.

Corners of partitions shall be provided with 2" x 2" x 1/8" hot rolled angles or other equally rigid supports extending from the floor to ceiling or other supporting structure.

Bracing - Provide 1-1/4" x 3/8" flat bar or equivalent, running horizontally from corner to corner, to brace the top of the partition. If the partition run is over 8'-6" high and 16'-0" long (between floor-to-ceiling supports), provide stiffening braces from the top of the partition to the ceiling or other supporting structure, with a spacing not to exceed 16'-0" o.c. Such braces shall consist of pipe, special sections or hot rolled angle of adequate cross section.

Sheet metal panels, of No. 18 gage, shall be provided in the lower sections of the units where called for on the drawings.

Floor fastening - partitions shall be fastened to the floor with sockets made to fit the partition bars and arranged to compensate for variations in floor levels.

5. SHOP DRAWINGS - detailing fabrication and erection, shall be prepared and submitted to du Pont for approval before any fabrication is started.

6. INSTALLATION - shall be such that partitions are rigid, straight and plumb, with horizontal lines level, all in accordance with the approved erection drawings.

Hardware shall be carefully adjusted and left in perfect working condition.

BUILDING MATERIALS METAL PARTITIONS TOILETS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued MAY 24, 1949	SB-3-N
	Revised	Sheet 1 of 2

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRAND - of partitions shall be subject to du Pont's approval.

3. DESCRIPTION - Unless otherwise called for on the drawings or in the project specifications, partitions shall be 6'-10" high and doors 2'-0" wide, arranged to open in. Doors and partition panels shall be flush type. Partitions shall be furnished complete with the necessary fasteners, wall and floor fittings, and hardware.

4. MATERIALS AND FABRICATION - All sheet steel shall be galvanized and bonderized. Minimum thickness of sheet shall be as follows:

For doors and partition panels under 54" wide---22 ga. (0.0299")
For partition panels over 54" wide----------20 ga. (0.0359")
For edge strips----------20 ga. (0.0359")
For posts and head rails----------16 ga. (0.0598")
(Panelled posts may be made from 18 ga. (0.0478") steel)

Doors and partition panels shall consist of two sheets assembled over a sound-deadening core and cemented under pressure, resulting in an overall thickness of 1". The two faces shall have formed edges and shall be sealed together with interlocking edge strips at the hinge and lock sides of doors, and internal locking devices at other edges. Partitions shall fit tightly against the walls at the back of the enclosure and be provided with a method for rigid fastening.

Posts shall be tubular and provided with post caps and chromium-plated wrought-brass (or other suitable non-corroding alloy) shoes, arranged so the posts can be adjusted for floor variations. Nominal cross section shall be 2"x2" and posts may be either plain or panelled. Post caps may act as part of the headrail assembly.

Head rails shall be tubular and be securely fastened to posts and anchored to wall.

Panels, doors, posts, and rails shall be drilled and reinforced as required for hardware and anchoring devices.

5. FINISH - Color shall be as called for on the drawings or in the project specifications, and finish shall consist of primer paint and two finish coats of enamel, both baked on separately.

6. HARDWARE - Each toilet compartment shall be fitted with the following:

1 set - Gravity-type hinges
1 - Door pull
1 - Combination stop, keeper, and throw latch
1 - Coat hook

All door hardware and the coat hook shall be chromium-plated brass. Door hinges shall be of the adjustable type with concealed ball-bearing rollers, arranged to open by gravity.

7. SHOP DRAWINGS - shall be submitted to du Pont, and du Pont's approval obtained before any fabrication is started. Provide erection diagrams as required for proper installation.

8. PACKAGING - Partition units and hardware shall be well packed for shipment to assure arrival on the site in its original condition. No marred or damaged units shall be accepted.

9. ERECTION - shall be strictly according to the drawings and erection diagrams. Partitions shall be installed plumb and true and fastenings shall be rigid and permanent.

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SECTION SP - ACOUSTICAL TREATMENT

CONTENTS

SPECIFICATIONS & ADDITIONS

SB-1-P: Metal pantype acoustical tile units shall be "off white" with a flat finish.

SB-2-P: Mineral fibre type acoustical tile units shall be white in color, 12" X 12" X 24" scored to 12" squares.

BUILDING MATERIALS ACOUSTICAL TREATMENT METAL-PAN TYPE	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JUNE 24, 1940	SB-1-P
	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRAND - of material to be used shall be subject to du Pont's approval.

3. MATERIAL - The size of the acoustical units shall be as indicated on the drawings or called for in the project specifications.

Metal pans shall be manufactured from No. 26 gage (0.0179") (unless otherwise called for) perforated and bonderized steel sheets. The edges of the units shall be flanged and shaped so as to clip into special "tee" bars. Exposed corners shall be beveled and 12"x24" units shall be scored transversely to simulate 12"x12" tile. The sound-absorbing element shall be mineral wool held in the proper position with a metal support. Only flame-proofed or asbestos paper shall be used for backing or enclosing the sound-absorbing element.

The acoustical characteristics shall meet the following requirements:

Noise-reduction coefficient----------	.85
Sound-absorption coefficient at 512 cycles-------	.97

The exposed surface of the pans shall receive a baked-enamel finish with a light ivory color, unless another color is called for in the project specifications.

Furnish the necessary "tee" bars and clips required for the installation. The bars shall be shaped to receive the flanged edges of both adjacent pans and hold them securely in place. They shall be manufactured from bonderized or electro-galvanized sheets having a minimum thickness of No. 22 gage (0.0299"). Wire clips shall be No. 10 gage (0.135") galvanized wire, shaped to fit over the furring channels and securely hold the "tee" bars in place.

4. INSTALLATION METHOD - Metal-pan type acoustical tile shall be installed by Method III, Standard Engineering Specification SB-4-P.

5. METHOD OF MEASUREMENT - for pay quantities under unit prices shall be on a square-foot basis and shall include all necessary bars, clips, and supports. The area for payment shall be determined by actual measurement of finished work in place. All openings, regardless of size, for light troffers, anemostats, grills, or any other openings shall be deducted in computing quantity of Acoustical Treatment.

BUILDING MATERIALS ACOUSTICAL TREATMENT MINERAL-FIBRE TYPE	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JUNE 24, 1949	SB-2-P
	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. BRAND - of material to be used shall be subject to du Pont's approval.

3. MATERIAL - The size of the acoustical units shall be as indicated on the drawings or called for in the project specifications.

Mineral-fibre type material shall consist of filaments of stone, silica sand, or asbestos fibre bonded with gypsum, and/or other compatible materials into a porous, sound-absorbent tile, or be felted with a suitable non-combustible binder into similar tile units. The surface of gypsum-bonded units shall be "fissured" and felted units, plain or perforated. The exposed edges shall be beveled. When the tile is to be installed by Method II (Standard Engineering Specification SB-4-P), the edges shall be cut to receive the clips and splines.

The acoustical characteristics shall meet the following minimum requirements:

Noise-reduction coefficient	.70
Sound-absorption coefficient at 512 cycles	.77

The exposed surface of the units shall be factory painted with a high-grade resin emulsion paint approved by du Pont. The color shall be light ivory, unless otherwise called for in the project specifications.

Clips and splines, used for installation Method II, shall be bonderized or galvanized and be furnished by the manufacturer of the acoustical units in a sufficient quantity for the entire job.

4. INSTALLATION METHOD - Felted material shall be installed by Method I only. Gypsum-bonded tile shall be installed by Method I or II as called for on the drawings or in the project specifications and described in Standard Engineering Specification SB-4-P.

5. METHOD OF MEASUREMENT - for pay quantities under unit prices shall be on a square-foot basis and shall include all necessary furring, clips, supports, cement, lathing and plastering, or plasterboard as required. The area for payment shall be determined by actual measurement of finished work in place. All openings, regardless of size, for light troffers, anemostats, grills, or other openings shall be deducted in computing quantities of Acoustical Treatment.

BUILDING MATERIALS ACOUSTICAL TREATMENT MOUNTING METHODS - GENERAL	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JUNE 24, 1949	SB-4-P
	Revised	

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is part of this specification.

2. DESCRIPTION - The erection of required furring and supports, plasterboard sub-surface, and the mounting of acoustical units shall be done by the manufacturer of the acoustical material or his authorized representative.

Plastered sub-surfaces (including furring and lathing) are not included in this specification. See Standard Engineering Specifications SB-1-H and SB-2-H.

3. MOUNTING METHOD - shall be as indicated on the drawings or called for in the project specification and as hereafter described. When the ceiling arrangement indicates anemostats, light troffers, etc., the layout of acoustical units shall be in strict accordance with the detail drawings.

4. CAUTION - Extreme care shall be observed to keep the tile clean before and during application. If soiling occurs, only cleaning methods approved by the tile manufacturer shall be used. No soiled or stained units shall be permitted to remain in place, and shall be removed at the expense of the Contractor.

BUILDING MATERIALS ACOUSTICAL TREATMENT MOUNTING METHODS - FURRED CEILINGS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JUNE 24, 1949	SB-4.1-P Sheet 1 of 2
	Revised	

1. GENERAL - Unless otherwise specifically indicated on the drawings, ceiling furring materials and the erection thereof shall be as specified below.

When furring under precast concrete slabs is required, the runner channels and hangers shall be in accordance with the detailed drawings, and if the size is larger than 2" hot- or cold-rolled, the channels and hangers are not included in this specification. See Standard Engineering Specification SB-2-B.

2. MATERIALS - Painted materials shall be given a factory coat of black, rust-inhibitive paint; galvanized materials shall be coated in accordance with A.S.T.M.:A123 for cold-rolled channels; A.S.T.M:A93, Class E, for steel sheets or sheet metal products; A.S.T.M:A112 for wire. Shaped items shall be galvanized after fabrication.

RUNNER CHANNELS - shall be painted or galvanized 1-1/2" cold-rolled channels weighing not less than 442 lb. per 1000 lineal feet, for all furring except under precast concrete slabs.

CROSS CHANNELS - when used, shall be painted or galvanized 3/4" cold-rolled channels or specially shaped bars, approved by du Pont, such as "Nailock Universal Nailing Channels" manufactured by the Sanymetal Products Co. Inc., Cleveland, Ohio.

HANGERS - shall be painted or galvanized 3/16" round mild-steel rods, No. 6 gage (0.192") soft annealed wire, or 1" x 1/8" flat mild-steel straps. Hanger length (rod or wire) shall not exceed 150 times its diameter, unless provided with suitable lateral stiffeners at every alternate row of hangers each way. Strap hangers shall be punched as required to receive 5/16" bolts.

INSERTS, ANCHORS, BOLTS, ETC. - shall be galvanized. Concrete inserts for suspended ceilings shall be of a type and size which will provide sufficient strength to carry the total weight of the supported area with a minimum safety factor of 2. Supports for strap hangers under a concrete slab may be T-shaped steel inserts embedded in the concrete above the reinforcing steel or may be Rawl plugs or "Tempotool" fasteners. Anchorage to the sides of concrete beams and girders shall be by similar means. The minimum size of bolts subjected to shear shall be 5/16".

ROCK LATH - shall be at least 3/8" thick and conform to A.S.T.M:C37.

GYPSUM SHEATHING - shall be 24" x 96" sheets, 1/2" thick, equal to "Acousti-lock Board" manufactured by Celotex Corp., Chicago, Ill.

3. SUPPORT SPACINGS - Runner channels shall be spaced not to exceed 4 ft. center to center, and shall be supported by hangers not over 4 ft. apart. Cross channels shall be spaced as required for the tile dimensions, but shall not exceed 2 ft., center to center.

4. FASTENINGS - When wire hangers are used, the wire shall be saddle-tied to the runner channels and given at least three twists around itself. The upper end shall be fastened to steel beams purlins or joists by wrapping the wire around the steel at least twice and then twisting it around itself, or be attached to suitable clips clamped to the steel flanges. Fastening to concrete floor or roof slabs shall be by the means of shaping the wire into a 2" loop and embedding this end in the concrete above the reinforcement.

When rod hangers are used, they shall be fastened to steel beams, purlins, or joists by the use of suitable clips clamped to the flanges of the steel member, and to concrete floor or roof slabs by hooking to obtain a minimum of 4" of anchorage in the concrete above the reinforcing, or by fastening to concrete inserts designed for the purpose.

When strap hangers are used, they shall be fastened to the runner channels by a 5/16" bolt passing through the strap and channel web. The upper part either shall be fastened to steel members by wrapping the strap around the steel and bolting its end to itself, or be bolted directly to suitable clips clamped to the flanges. Fastening to concrete slabs shall be by bolting to inserts embedded in the concrete.

Hangers for ceilings under precast slabs shall be fastened to the steel framing members with clips. No hangers shall be fastened to the precast slabs, or be bolted through the flanges of framing members.

Cross channels shall be fastened to the runner channels at each crossing, using No. 9 (0.1483") gage hairpin clips, specially made galvanized sheet-metal clips, or at least three turns of No. 16 (0.0625") gage wire.

5. CONTACT FURRING - when furring is to be installed in contact with structural members, the arrangement and sizes of channels shall be as specified before. Runner channels shall be fastened by methods similar to that used for the upper end of hangers, as specified before. Minimum size of wire used for saddle-tying of runner channels to structural supports shall be No. 10 (0.135") gage.

6. PLASTER BOARD SUB-SURFACE - Where indicated on the drawings or in the project specifications, install Rock Lath under the cross channels using special clip fasteners such as U.S. Gypsum Co.'s "Burson C Clips", spaced 24" o.c. on both sides of the lath. Cross joints shall be broken, but shall be positioned under cross channels.

When "Nailock Universal Nailing Channels" are used for cross channels, 1/2" x 24" x 96" Gypsum sheathing shall be used instead of rock lath. Cross joints shall be broken at least 24", offset from the cross channels, and supported with "Nailock Metal Joint Locking Strips". The sheets shall be fastened with flat "Nailock" nails not over 5" apart. Rock lath and Gypsum sheathing shall be installed at right angles to the supporting members.

BUILDING MATERIALS ACOUSTICAL TREATMENT MOUNTING METHODS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JUNE 24, 1949	SB-4.2-P
	Revised	

MOUNTING METHOD I

Method I shall consist of cementing the acoustical units directly to the concrete, plaster, or plaster-board surfaces.

The mounting cement shall be manufactured by or be as approved by the manufacturer of the particular tile to be used, and shall provide permanent, sagless adherence of the acoustical units to the sub-surface. The quantity of cement to be used and the manner of application shall be in accordance with the manufacturer's directions.

The application of the units shall be started at the center of the area, making sure that tiles will be square with the room axis. Border tiles shall be cut, if necessary, at the intersection of the walls or beams and ceiling and shall be of the same width at opposite sides of the room. When a bead is not required, the tile shall be accurately scribed to vertical intersecting surfaces.

When and where called for on the drawings or in the project specifications, install the type of bead indicated.

BUILDING MATERIALS ACOUSTICAL TREATMENT MOUNTING METHODS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JUNE 24,1949	SB-4.3-P
	Revised	

MOUNTING METHOD II

Method II shall consist of fastening the acoustical units directly to the cross channels of the furring system, using clips or splines, or both, furnished by the tile manufacturer, and according to his instructions.

The application of the units shall be started at the center of the area, making sure that the tile will be square with the room axis. Border tiles shall be cut, if necessary, at the intersection of the walls or beams and ceiling and shall be of the same width at opposite sides of the room. When a bead is not required, the tiles shall be accurately scribed to vertical intersecting surfaces.

When and where called for on the drawings or in the project specifications, install the type of bead indicated.

BUILDING MATERIALS ACOUSTICAL TREATMENT MOUNTING METHODS	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JUNE 24, 1949	SB-4.4-P
	Revised	

MOUNTING METHOD III

Method III shall identify the method used for installation of the metal-pan type of acoustical units. The "tee" bars, furnished with the tile, shall be accurately positioned under the runner channels, as required by the size of the units to be applied; be square with the room axis; and be securely fastened, using the accompanying clips. Acoustical units shall then be snapped into the "tee" bars. The installation shall be strictly in accordance with the manufacturer's directions.

Where the acoustical units finish against walls or other vertical surfaces, the pans shall be cut to fit. The edges of the pans shall be supported by resting on the flange of the channel sections furnished by the tile manufacturer and be secured to the vertical surface. This channel shall provide the required finish at the sides of the area and no bead or other trim will required.

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SECTION BQ - FINISHING HARDWARE

1. GENERAL - Standard Engineering Specification SC-1-A applies to ... is part of this specification.

2. SCOPE

(a) The hardware numbers and finishes hereinafter specified ... taken from the following manufacturers catalogs:

Sargent & Company	Glynn-Johnson Corp.
The Stanley Works	Richards-Wilcox
Boomer Spring Hinge Co.	Rixson

(b) Door Schedules are shown on drawings, hardware lists sh... on DOOR SCHEDULES for each building refer to similarly inden... ed numbered lists hereinafter specified under HARDWARE SCHEDULE.

(c) All locks, latches and strikes of the 7600 line shall be of one uniform size in order to permit interchange of locksets and latchsets of this line and all locks, latches and strikes of ... 4500 line shall be of one uniform size in order to permit interch... of locksets and latchsets of this line. Locks and latches shall have box strikes. Cylinders for all locks shall be subject to the masterkey system.

(d) The masterkey system shall include grand masterkeys, mas... keys and sub-master keys. In general each area will have a grand masterkey but a great grand masterkey for all areas will not be provided. The masterkeys shall be set up to provide individual control over each of the functional groups such as patrol, operations, power, maintenance, health instruments, etc. Sub-masterkeys shall be provided for individual buildings or sections of buildings. The detailed requirements for the lock system for each building will be shown on drawings. Except as may be otherwise directed, exterior doors in the same building shall be keyed alike, each building to differ. When there is more than one locked door to the same space, the doors shall be keyed alike. All other interior locked doors shall be individually keyed.

(e) Material for all locks, latches and other hardware shall conform to U. S. Department of Commerce, National Production Authority's current limitation orders. Strike plates, lock and latch faces, knobs, escutcheons, and pulls shall be cast, forged or heavy wroght aluminum with aluminite satin finish. Butts shall be wroght steel finished prime coat for painting. Door closers shall be finished prime coat for painting. Door stops, spring hinges, flush bolts and surface bolts shall be steel, plated satin nickel finish.

SECTION BQ - FINISHING HARDWARE (Cont'd)

DIVISION I

(f) All items applied to metal work shall be made accurately to template.

(g) Provide with each item of Hardware, all wood screws, machine screws or bolts required for properly attaching Hardware.

(h) Except where door holders are scheduled, all doors shall have door stops in order to prevent door knobs, door pulls, or door closers from striking the adjacent walls. Unless otherwise shown on door schedule door stop shall be floor type secured to concrete, similar to Sargent's #35. Door stops shall be provided with hooks where so shown on door schedules, similar to Sargent's #30.

(i) Kickplates, except as otherwise shown on Door Schedules, shall be 1/8" thick brown Formica 8" high, three sides beveled. In width they shall be 1" less than the width of the door where applied on the "pull" side and 2" less than the width of the door where applied on the "push" side of the door. Kickplates in general shall be placed on the "push" side of exterior doors opening out, on the push side of screen doors, vestibule doors, doors to group toilets, push and pull doors, emergency exit doors, and on both sides of double acting doors and as may be otherwise specifically indicated on Door Schedules.

(j) Push plates shall be 1/8" thick brown Formica 4" wide by 16" high all edges beveled.

(k) Door closers shall be surface type, reversible, liquid door closer with closer arms adjustable to any degree of door opening and shall be provided with hold open feature except where door holders are specified. Parallel arm door closers shall be used on exterior doors where space between exterior door and screen door is not adequate to accomodate the standard type door closer. They shall also be used on doors less than 7'-0" high in lieu of standard closers with brackets. Parallel arm closers shall be provided with drop brackets except on flush door without glazing panels. Door closers in general shall be placed on the "pull" side of doors, except that for exterior doors opening out and for doors opening into corridors, closers shall be placed on "push" side of door. Where door closers are placed on "push" side of doors, reversible type corner brackets of the proper size to accomodate door closer, shall be provided.

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SECTION B2 -- FINISHED HARDWARE (Cont'd)

Door closers shall conform to the following sizes:

Interior Doors	up to 2'-5"	in width	Size 2
"	2'-6" to 3'-0"	"	3
"	3'-1" to 3'-4"	"	4
"	3'-5" to 4'-0"	"	5
Exterior Doors	up to 3'-0"		4
"	3'-1" to 3'-4"	"	5
"	over 3'-4"	"	6

(l) Door butts in general shall be button tmp, cadmium plated primed for painting. Ball bearing butts shall be provided for exterior doors, doors with closers, corridor doors, hollow metal doors, metal covered doors and doors which will be frequently used. Plain butts shall be provided for intercommunicating doors, closets, janitors closets and doors subject to infrequent use, except where such doors are hollow metal. But in gensral shall conform to the following sizes:

Screen doors 1-3/8" thick	3 x 3	regular weight butts	
Doors 1-3/8" thick up to 3'0" wide	3-1/2 x 3-1/2	regular wgt. butts	
" 1-3/4" " " " 3'6" "	4-1/2 x 4-1/2	" " "	
" 1-3/4" " " " 3'7" to 4'0" wide	4-1/2 x 4-1/2	extra heavy Ball Bearing Butt	

Butts for doors wider than 4'-0" shall be of size and type scheduled in Hardware Lists. Butts for doors hung on rolled steel frames shall be half mortise butts for hollow metal doors and full surface butts for metal covered doors and shall conform to the sizes shown above for height of butt.

(m) Hardware for sliding doors unless otherwise specified shall consist of No. 33 lock-joint trolley track and fittings. The track length and the spacing of brackets shall conform to the requirements of Engineering Standards B 34 B for the size of door indicated. Hangers shall be No. 150-1/2 B-1 for 1-3/4" thick doors and No. 150-1/2 B-2 for 2-1/4" thick doors. All doors shall have end brackets, lock joint brackets, center brackets, and doublt skid sliding doors shall have center stop brackets. Brackets shall be for overhead attachment or sidewall attachment as shown on drawing or door schedules. Unless otherwise shown on Door Schedules Stay Rollers, similar and equal to Richards - Wilcox No. 68 shall be provided for exterior sliding doors and stay rollers, similar and equal to Richard-Wilcox No. 54 for interior sliding doors, one for each single door and two for each pair of doors.

(n) Hardware shall be packaged and marked before delivery in such a manner as to clearly indicate this door number and the building number for which the ;hardware is intended.

SECTION EQ - FINISHING HARDWARE

DIVISION I

(o) The successful bidder shall schedule the hardware for each building separately. The schedule shall include, in addition to the hardware shown in this applicable hardware list, all door stops, kickplates, closer brackets, etc. required to complete the list. There shall be four (4) typed schedules submitted for approval, and upon approval three (3) additional schedules shall be supplied. One copy of the approved schedule shall be carbon backed for reproduction.

(p) The successful bidder shall submit for approval a complete line of samples.

(q) Window poles shall be not less than 1-1/4" diameter oak turned poles 6'0" long, finished with not less than two coats of varnish stain. Each pole shall be fitted with a pole hook similar to Sargent IN 198 and a pole hanger similar to Sargent IN 158.

SECTION 8Q - FINISHING HARDWARE (Cont'd.)

GENERAL DESCRIPTION OF HARDWARE LIST FUNCTIONS

List 1	Pair	HM or Wood Doors	1-3/4,	Frame HM, PA Closer, Lock	7616 Holders
" 2	"	" " "	"	" " " "	7616
" 3	"	" " "	"	" Std. " "	7616 Holders
" 4	"	" " "	"	" " " "	7616
" 5	"	" Wood "	"	" Wood " "	7616 Holders
" 6	"	" " "	"	" HM " "	Latch 7615
" 7	"	HM or Wood	"	" " " "	4515
" 8	"	Wood Doors	1-3/8,	" " No Closer "	7615
" 9	"	HM "	1-3/4,	" " " "	7615
" 9W	"	Wood "	1-3/4,	" " " "	4515
" 10	"	Wood Doors	1-3/8,	" " Std. "	Push and Pull
" 11	"	HM or Wood	" 1-3/4,	" " " "	" " "
" 12	"	Wood Doors	1-3/8,	" " Double Acting	
" 13	"	HM or Wood	" 1-3/4,	" " " "	
" 14	"	Wood Doors	1-3/8,	" " Std. Closer Lock	7605-1/2
" 15	"	HM or wood	" 1-3/4,	" " " " "	7605-1/2 Holder
" 16	"	HM or wood	" 1-3/4,	" " " " "	4505-1/2
" 17	"	Wood Doors	1-3/8,	" " No " "	7605-1/2
" 18	"	HM "	1-3/4,	" " No " "	7605-1/2
" 18W	"	Wood "	1-3/4,	" " No " "	4505-1/2
" 19	"	Wood Doors	1-3/8,	" " Std. " "	7625
" 20	"	HM or Wood	" 1-3/4,	" " " " "	7625 Overhead Holder
" 21	"	HM or Wood	" 1-3/4,	" " " " "	4505-1/2
" 22	"	Wood	" 1-3/8,	" " No " "	7625
" 23	"	HM	" 1-3/4,	" " " " "	7625
" 23W	"	Wood	" 1-3/4,	" " " " "	4505-1/2
" 24	"	Wood	" 1-3/8,	" Rolled Steel PA Closer Lock	7616
" 25	"	HM or Wood	1-3/4,	" Rolled Steel PA closer Lock	7616 Holder
" 26	"	HM or Wood	1-3/4,	" " " Std. " "	7616
" 27	"	HM or Wood	1-3/4,	" " " " " "	7616 Holder
" 28	"	Hm Or Wood	1-3/4,	" " " " " "	7605-1/2
" 29	"	HM or Wood	1-3/4,	" " " " " "	7605-1/2 Holder
" 30	"	HM or Wood	" 1-3/4,	" " " Hm PA Closer Lock	7616
" 31	"	Single HM or Wood	1-3/4,	" HM PA Closer Lock	7616 O.H. Holder
" 32		Single HM or Wood Doors	1-3/4,	" Std. " "	7616
" 33	"	" " " "	" 1-3/4,	" Std. " "	7616 O.H. Holder
" 34	"	" " " "	" 1-3/4,	" Wood Std. Closer, Lock	7616
" 35	"	Wood	" 1-3/4,	" " " " "	7616 O.H. Holder
" 36	"	Wood	" 1-3/4,	" HM " " Latch	7615
" 37	"	HM or Wood	" 1-3/4,	" " " " "	4515
" 38	"	Wood	" 1-3/8,	" " No " "	7615
" 39	"	HM	" 1-3/4,	" " " " "	7615
" 39W	"	Wood	" 1-3/4,	" " " " "	4515
" 40	"	Wood	" 1-3/8,	" Frame HM, Std. Closer, Push and Pull	
" 41	"	HM or Wood	" 1-3/4,	" HM Std. Closer, Push and Pull	
" 42	"	Wood	1-3/8,	" HM Double Acting	
" 43	"	HM or Wood	" 1-3/4,		

SECTION BQ - FINISHING HARDWARE (Cont'd.)

GENERAL DESCRIPTION OF HARDWARE LIST FUNCTIONS

List	44	Single	Wood	Door,	1-3/8,	Frame	HM,	Double Acting				
"	45	"	HM or Wood	"	1-3/4,	"	"	Std. Closer,	Lock	7605-1/2		
"	46	"	" " "	"	1-3/4,	"	"	"	"	"	7605-1/2 Holder	
"	47	"	" " "	"	1-3/8,	"	"	"	"	"	4505-1/2	
"	48	"	HM	"	1-3/4,	"	"	No	"	"	7605-1/2	
"	48W	"	Wood	"	1-3/4,	"	"	"	"	"	7605-1/2	
"	49	"	Wood "	"	1-3/8,	"	"	"	"	"	4505-1/2	
"	50	"	HM or Wood	"	1-3/4,	"	"	Std, Closer	Lock	7625		
"	51	"	" " "	"	1-3/4,	"	"	"	"	"	7625 Holder	
"	52	"	" " "	"	1-3/8,	"	"	"	"	"	4505-1/2	
"	53	"	HM	"	1-3/4,	"	"	No	"	"	7625	
"	53W	"	Wood	"	1-3/4,	"	"	"	"	"	7625	
"	54	"	"	"	1-3/8,	"	"	"	"	"	4505-1/2	
"	55	"	HM or Wood	"	1-3/4,	"	Rolled Steel	PA Closer	Lock	7616		
"	56	"	" " "	"	1-3/4,	"	"	"	"	"	7616 Holder	
"	57	"	" " "	"	1-3/4,	"	"	"	Std.	"	7616	
"	58	"	" " "	"	1-3/4,	"	"	"	Std.	"	Lock7616 Holder	
"	59	"	" " "	"	1-3/4,	"	"	"	"	"	"7605-1/2	
"	60	"	" " "	"	1-3/4,	"	"	"	"	"	"7605-1/2 Holder	
"	61	"	HM	"	1-/34,	"	HM,	No Closer,	Lock	7665		
"	62	"	Wood	"	1-3/4,	"	"	"	"	"	7665	
"	63	"	Wood	"	1-3/8,	"	"	"	"	"	4565	
"	64	Pair	HM	"	1-3/4,	"	"	Dutch Doors	Latch	7615		
"	65	Pair	Wood	"	1-3/4,	"	"	"	"	"	7615	
"	66	"	"	"	1-3/8,	"	"	"	"	"	4515	
"	67	"	HM	"	1-3/4,	"	"	"	Lock		7605-1/2	
"	68	"	Wood	"	1-3/4,	"	"	"	"	"	7605-1/2	
"	69	"	HM Screen Doors		1-3/8,	"	"					
"	70	"	Wood " "		1-3/8,	"	"					
"	71	"	Wood " "		1-3/8,	"	Wood					
"	72	Single	HM " "		1-3/8,	"	HM					
"	73	"	Wood " "		1-3/8,	"	"					
"	74	"	Wood " "		1-3/8,	"	Wood					
"	75	Pair	HM or Wood "		1-3/4,	"	HM Emergency Exit Cylinder Lock					
"	76	"	" " " "		1-3/4,	"	Rolled Steel Emergency Exit Cylinder Lock					
"	77	Single	" " " "		1-3/4,	"	HM	"	"	"	"	
"	78	"	" " " "		1-3/4,	"	Rolled Steel	"	"	"	"	
"	79	"	" " " "		1-3/4,	"	HM	"	"	No Outside Trim		
"	80	"	" " " "		1-3/4,	"	Rolled Steel	"	"	"	"	
"	81	Bi-Parting Sliding Doors			without	lock	1-3/4" to 2"	thick	Overhead	Brackets		
"	82	"	" " "		with	lock	1-3/4" to 2"	"	"	"		
"	83	"	" " "		without	lock	1-3/4" to 2"	"	Sidewall	"		
"	84	"	" " "		with	lock	1-3/4" to 2"	"	"	"		
"	85	"	" " "		without	lock	2-1/4" to3-1/2"	thick	Overhead	Brackets		
"	86	"	" " "		with	lock	2-1/4" to3-1/2"	"	"	"		
"	87	"	" " "		without	lock	2-1/4" to3-1/2"	"	Sidewall	"		
"	88	"	" " "		with	lock	2-1/4" to3-1/2"	"	"	"		

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SECTION BQ - FINISHING HARDWARE - (CONT'D)

GENERAL DESCRIPTION OF HARDWARE LIST FUNCTIONS

	List	89	Single	Sliding	Door,	without	lock,	1-3/4"	to 2"	thick	overhead Bracket
	"	90	"	"	"	with	"	1-3/4"	to 2"	"	" "
	"	91	"	"	"	without	"	1-3/4"	to 2"	"	sidewall "
	"	92	"	"	"	with	"	1-3/4"	to 2"	thick	" "
	"	93	"	"	"	without	"	2-1/4"	to 3-1/2"	"	overhead "
	"	94	"	"	"	with	"	2-1/4"	to 3-1/2"	"	" "
	"	95	"	"	"	without	"	2-1/4"	to 3-1/2"	"	Sidewall Bracket
	"	96	"	"	"	with	"	2-1/4"	to 3-1/2"	"	" "
7	"	97	Pair	Wood	Door	1-3/4",	Frame	Wood,	PA	Closer,	Lock 7616, Holders
Rev.	"	98	"	"	"	1-3/4",	"	"	Std.	"	Push and Pull
6/19/51	"	99	"	"	"	1-3/4",	"	"	Double	Acting	
	"	100	Single	Wood	Door	1-3/4",	"	"	"	"	
	"	101	"	"	"	1-3/4",	"	"	Std.	Closer,	Lock 7605-1/2
	"	102	"	"	"	1-3/8",	"	"	"	"	Latch 4515
	"	103	"	"	"	1-3/8",	"	"	No	"	" 4515
	"	104	"	"	"	1-3/8",	"	"	Std.	"	Push and Pull
	"	105	"	"	"	1-3/8",	"	"	Pa.	"	Lock 4505-1/2
	"	106	"	"	"	1-3/8",	"	"	No	"	Lock 4565
	"	107	"	"	"	1-3/8",	"	"	Std.	"	Lock 4505-1/2
	"	108	Pair	Wood	Screen	Doors	1-3/4",	Frame	Wood,	Std.	Closer, Push and Pull
	"	109	Single	Wood	Door	1-3/4",	Frame	Wood,	Emergency	Exit,	No outside trim
	"	110	Pair	Wood	Doors	1-3/8",	"	"	Std.	Closer,	Push and Pull
8	"	111	"	"	"	1-3/8",	"	"	"	"	Lock 4505-1/2
Rev. 7/12/51											
10	"	112	Pair	Wood	Doors	1-3/4",	Frame	Wood,	Std.	Closer,	Lock 7892, Push and Pull
Rev.	"	113	"	HM	"	2-1/4",	"	Rolled	Steel,	Std.	Closer, Lock 7616,
8/31/51											6 x 5 Butts, Holders
	"	114	Single	HM	"	2-1/4",	"	HM		"	" Lock 7605-1/2, 6 x 5 Butts
	"	115	Pair	HM	"	2-1/4",	"	HM		"	" Lock 7605-1/2
	"	116	Single	HM	"	2-1/4",	"	HM		"	" Latch 7615 6 x 5 Butts
	"	117	Pair	HM	"	2-1/4",		Rolled	Steel	No	" Lock 7605-1/2, 6 x 5 Butts

SECTION BQ - FINISHING HARDWARE - (CONT'D)

SCHEDULE OF HARDWARE LISTS

List #1

Pairs 1-3/4" Wood or H. M. Doors & H. M. Frame

3 - Pairs Butts BBK145P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44VP x Bracket # 239	Sargent
1 - Drop Bracket #233	Sargent

List #2

Pairs 1-3/4" Wood or H.M. Doors & H.M. Frame

3 - Pairs Butts BBK 145P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44VP x Bracket #239	Sargent
1 - Drop Bracket #233	Sargent
2 - Overhead Holders CJ 120	Glynn-Johnson

List #3

Pairs 1-3/4" Wood or H.M. Doors & H.M. Frame

3 - Pairs Butts BBK 145P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44V	Sargent
1 - Door Closer Bracket 153	Sargent

List #4

Pairs 1-3/4" Wood or H.M. Doors & H.M. Frame

3 - Pairs Butts BBK 145P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44V	Sargent
1 - Door Closer Bracket 153	Sargent
2 - Overhead Holders GJ 70	Glynn-Johnson

SECTION 8Q - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #5

Pairs 1-3/4" Wood Doors & Frame

3 - Pairs Butts BBK 242P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts LN 1116 - 12"	Sargent
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44V	Sargent

List #6

Pairs 1-3/4" Wood Doors & Frame

3 - Pairs Butts BBK 242P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts LN 1116 - 12"	Sargent
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44V	Sargent
2 - Overhead Holders GJ 70	Glynn-Johnson

List #7

Pairs 1-3/4" Wood or H.M. Doors & H.M. Frame

3 - Pairs Butts BBK 146P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts LN 1116 - 12"	Sargent
1 - Latchset AN 7615 HAR	Sargent
1 - Door Closer 44V	Sargent

List #8

Pairs 1-3/8" Wood or H.M. Doors & H.M. Frame

	3 - Pairs Butts BBK 146P 3-1/2 x 3-1/2	Stanley
11	2 - Flush Bolts LN 1126 12"	Sargent
Rev.	1 - Latchset AN 4515 AR	Sargent
9/18/51	1 - Door Closer 43V	Sargent

List #9

Pairs 1-3/4" H.M. Doors & Frame

3 - Pairs Butts BBK 146P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Latchset AN 7615 HAR	Sargent

SECTION 8Q - FURNISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #9W

Pairs 1-3/4" Wood Doors & H.M. Frame

3 - Pairs Butts K 146P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Latchset AN 7615 HAR	Sargent

List #10

Pairs 1-3/8" Wood Doors & H.M. Frame

3 - Pairs Butts K146P 3-1/2 x 3-1/2	Stanley
2 - Flush Bolts LN 1126 12"	Sargent
1 - Latchset AN 4515	Sargent

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List #11

Pairs 1-3/4" Wood or H.M. Doors & H.M. Frame

3 - Pairs Butts BBK146P 4-1/2 x 4-1/2	Stanley
2 - Push Plates 1/8" Formica 4 x 16" 4 sides beveled	
2 - Door Pulls AN 1620	Sargent
2 - Door Closers 43V	Sargent

List #12

Pairs 1-3/8" Wood or H.M. Doors & H.M. Frame

3 - Pairs Butts BBK 146P 3-1/2 x 3-1/2	Stanley
2 - Push Plates 1/8" Formica 4 x 16" 4 sides beveled	
2 - Door Pulls AN 1620	Sargent
2 - Door Closers 43V	Sargent

List #13

Pairs 1-3/4" Wood or H.M. Doors & H.M. Frame

2 - Sets D.A. Hinges #872	Bommer
4 - Push Plates 1/8" Formica 4 x 16" 4 sides beveled	

SECTION 8Q - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #14

Pairs 1-3/8" Wood or H.M. Doors & H.M. Frame

		Bommer
2 sets	D. A. Hinges #870	
4 -	Push Plates 1/8" Formica 4 x 16" sides beveled	

List #15

Pairs 1-3/4" Wood or H.M. Doors & H.M. Frame

3 - Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts	LN 1116 12"	Sargent
1 - Lockset	AN 7605-1/2 HAR	Sargent
1 - Door Closer	44V	Sargent

List #16

Pairs 1-3/4" Wood or H.M. Doors & H.M. Frame

3 - Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts	LN 1116 12"	Sargent
1 - Lockset	AN 7605 1/2HAR	Sargent
1 - Door Closer	44V	Sargent
1-Door Closer Bracket	153	Glynn-Johnson
2 - Overhead Holders	GJ 70	

List #17

Pairs 1-3/8" Wood or H.M. Doors & H.M. Frame

	3 - Pairs Butts	BBK 146P 3-1/2 x 3-1/2	Stanley
11	2 - Flush Bolts	LN 1116 12"	Sargent
Rev.	1 - Lockset	AN 4505-1/2 AR	Sargent
9/18/51	1 - Door Closer	43V	Sargent

List #18

Pairs 1-3/4" H.M. Doors & H.M. Frame

3 - Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts	LN 1116 12"	Sargent
1 - Lockset	AN 7605 1/2 HAR	Sargent

SECTION BQ - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #18W

Pairs 1-3/4" Wood Doors & H.M. Frame

	3 - Pairs Butts K 146P 4-1/2 x 4-1/2	Stanley
	2 - Flush Bolts LN 1116 12"	Sargent
	1 - Lockset AN 76p5 1/2 HAR	Sargent

List #19

Pairs 1-3/8" Wood Doors & H. M. Frame

11 Rev. 9/18/51	3 - Pairs Butts K146P 3-1/2 x 3-1/2	Stanley
	2 - Flush Bolts LN 1126 12"	Sargent
	1 - Lockset AN 4505-1/2 AR	Sargent

List #20

Pairs 1-3/4" Wood or H.M. Doors & H.M. Frame

	3 - Pairs Butts BBK146P 4-1/2 x 3-1/2	Stanley
	2 - Flush Bolts LN 1116 12"	Sargent
	1 - Lockset AN 7625 HAR	Sargent
	1 - Door Closer 44V	Sargent

List #21

11 Rev. 9/18/51 Pairs 1-3/4" Wood or H.M. Doors & H.M. Frame

	3 - Pairs Butts BBK146P 4-1/2 x 4-1/2	Stanley
	2 - Flush Bolts LN 1116 12"	Sargent
	1 - Lockset AN 7625 HAR	Sargent
	1 - Door Closer 44V	Sargent
	1 - Overhead Holder 224V	Sargent

List #22

Pairs 1-3/8" Wood or H.M. Doors & H.M. Frame

11 Rev. 9/18/51	3 - Pairs Butts BBK146P 3-1/2 x 3-1/2	Stanley
	2 - Flush Bolts LN 1126 12"	Sargent
	1 - Lockset AN 4505-1/2 AR	Sargent
	1 - Door Closer 43V	Sargent

SECTION BQ - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #23

Pairs 1-3/4" H.M. Doors & H.M. Frame

3 Pairs Butts BBK146 P 4-1/2 x 4-1/2	Stanley
2 Flush Bolts LN 1116 12"	Sargent
1 Lockset AN 7625 HAR	Sargent

List #23W

Pairs 1-3/4 Wood Doors & H. M. Frame

3 - Pairs Butts K146P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7625 HAR	Sargent

List #24

Pairs 1-3/8" Wood Doors & H. M. Frame

	3 - Pairs Butts K146P 3-1/2 x 3-1/2	Stanley
	2 - Flush Bolts LN 1126 12"	Sargent
11 Rev. 9/18/51	1 - Lockset AN 4505-1/2 AR	Sargent

List #25

Pairs 1-3/4" Wood or H. M. Doors & Rolled Steel Frame

3 - Pairs Butts BBK 128 P 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44VP x Bracket #239	Sargent
1 - Drop Bracket #233	Sargent

List #26

Pairs 1-3/4" Wood or H.M. Doors & Rolled Steel Frame

3 - Pairs Butts BBK 128 P 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7616 HAR	Sargent
1- Door Closer 44VP x Bracket #239	Sargent
1 - Drop Bracket #233	Sargent
2 - Overhead Holders GJ 120	Glynn-Johnson

SECTION 8Q - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #27

Pairs 1-3/4" Wood or H.M. Doors & Rolled Steel Frame

3 - Pairs Butts BBK 128P 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44V	Sargent
1 - Door Closer Bracket 153	Sargent

List #28

Pairs 1-3/4" Wood or H.M. Doors & Rolled Steel Frame

3- Pairs Butts BBK 128P 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44 V	Sargent
1 - Door Closer Bracket 153	Sargent
2 - Overhead Holders GJ 70	Glynn-Johnson

List #29

Pairs 1-3/4" Wood or H.M. Doors & Rolled Steel Frame

3 - Pairs Butts BBK 128P 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7605-1/2 HAR	Sargent
1 - Door Closer 44V	Sargent
1 - Door Closer Bracket 153	Sargent

List #30

Pairs 1-3/4" Wood or H.M. Doors & Rolled Steel Frame

3 - Pairs Butts BBK 128P 4-1/2	Stanley
2 - Flush Bolts LN 1116 12"	Sargent
1 - Lockset AN 7605-1/2 HAR	Sargent
1 - Door Closer 44V	Sargent
1 - Door Closer Bracket 153	Sargent
2 - Overhead Holders GJ 70	Glynn-Johnson

List #31

Single 1-3/4" Wood or H.M. Door & H.M. Frame

1-1/2 Pairs Butts BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Lockset AN 7616 HAR	Sargent

SECTION BQ - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #31 - (Cont'd.)

1 - Door Closer 44VP x Bracket 239	Sargent
1 - Drop Bracket 233	Sargent

List #32

Single 1-3/4" Wood or H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44VP x Bracket 239	Sargent
1 - Drop Bracket 233	Sargent
1 - Overhead Holder GJ 120	Glynn-Johnson

List #33

Single 1-3/4" Wood or H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44V	Sargent
1 - Door Closer Bracket 153	Sargent

List #34

Single 1-3/4" Wood or H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44V	Sargent
1 - Door Closer Bracket 153	Sargent
1 - Overhead Holder GJ 71	Glynn-Johnson

List #35

Single 1-3/4" Wood Door & Frame

7 Rev. 6/19/51

1 - 1/2 Pairs Butts BBK 242P 4-1/2 x 4-1/2	Stanley
1 - Lockset AN 7616 HAR	Sargent
1 - Door Closer 44V	Sargent
1 - Door Closer Bracket 153	Sargent

List #36

Single 1-3/4" Wood Door & Frame

1 - 1/2 Pairs Butts BBK 242P 4-1/2 x 4-1/2	Stanley
1 - Locket AN 7616 HAR	

SECTION BQ - FINISHING HARDWARE (Cont'd.)

SCHEDULE OF HARDWARE LISTS

List #36 Cont'd

1 - Door Closer 44V		Glynn-Johnson
1 - Overhead Holder GJ 71		

List #37

Single 1-3/4" Wood or H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Latchset	AN 7615 HAR	Sargent
1 - Door Closer	44V	Sargent

List #38

Single 1-3/8" Wood or H.M. Door & H.M. Frame

11 Rev. 9/18/51	1 - 1/2 Pairs Butts	BBK 146P 3-1/2 x 3-1/2	Stanley
	1 - Latchset	AN 4515 AR	Sargent
	1 - Door Closer	43V	Sargent

List #39

Single 1-3/4" H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Latchset	AN 7615 HAR	Sargent

List #39W

Single 1-3/4" Wood Door & H.M. Frame

1 - 1/2 Pairs Butts	KBK146P 4-1/2 x 4-1/2	Stanley
1 - Latchset	AN 7615 HAR	Sargent

List #40

Single 1-3/8" Wood & H.M. Frame

11 Rev. 9/18/51	1 - 1/2 Pairs Butts	KBK146P 3-1/2 x 3-1/2	Stanley
	1 - Latchset	AN 4515 AR	Sargent

List #41

Single 1-3/4" Wood or H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts	BBK 146P 4-1/2
1 - Push Plate 1/8" Formica 4 x 16" 4 sides beveled	Stanley

SECTION BQ - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE ITEMS

List #41 (Cont'd.)

1 -	Door Pull AN 1620	Sargent
1 -	Door Closer 44V	Sargent

List #42

Single 1-3/8" Wood or H.M. Door & H.M. Frame

1 -	1/2 Pairs Butts BBK 146P 3-1/2 x 3-1/2	Stanley
1 -	Push Plate 1/8" Formica 4" x 16" 4 sides beveled	Sargent
1 -	Door Pull AN 1620	Sargent
1 -	Door Closer 43V	Sargent

List #43

Single 1-3/4" Wood or H.M. Door & H.M. Frame

Bommer

1 Set D.A. Hinges 872
2 - Push Plates 1/8" Formica 4 x 16"

List #44

Single 1-3/8" Wood or H.M. Door & H.M. Frame — Bommer
1 Set D.A. Hinges 870
2 - Push Plates 1/8" Formica 4 x 16" 4 sides beveled

List #45

Single 1-3/4" Wood or H.M. Door & H.M. Frame

1 -	1/2 Pairs Butts BBK 146P 4-1/2 x 4-1/2	Stanley
1 -	Lockset AN 7605 1/2 HAR	Sargent
1 -	Door Closer 44V	Sargent

List #46

Single 1-3/4" Wood or H.M. Door & H.M. Frame

1 -	1/2 Pairs Butts BBK 146P 4-1/2 x 4-1/2	Stanley
1 -	Lockset AN 7605 1/2 HAR	Sargent
1 -	Door Closer 44V	Sargent
1 -	Door Closer Bracket 153	Glynn-Johnson
1 -	Overhead Holder GJ 71	

SECTION BQ - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #47

Single 1-3/8" Wood or H.M. Door & H.M. Frame

	1 - 1/2 Pairs Butts	BBK 146P 3-1/2 x 3-1/2	Stanley
11	1 - Lockset	AN 4505-1/2 AR	Sargent
Rev. 9/18/51	1 - Door Closer	45 V	Sargent

List #48

Single 1-3/4" H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Lockset	AN.7605 1/2 HAR	Sargent

List #48W

Single 1-3/4" Wood Door & H.M. Frame

1 - 1/2 Pairs Butts	K242P 4-1/2 x 4-1/2	Stanley
1 - Lockset	AN 7605 1/2 HAR	Sargent

List #49

Single 1-3/8" Wood Door & H.M. Frame

	1 - 1/2 Pairs Butts	K 146P 3-1/2 x 3-1/2	
11	1 - Lockset	AN 4505-1/2 AR	
Rev. 9/18/51			

List #50

Single 1-3/4" Wood or H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Lockset	AN 7625 HAR	Sargent
1 - Door Closer	44V	Sargent

List #51

Single 1-3/4" Wood or H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Lockset	AN 7625 HAR	Sargent
1 - Door Closer	44VH	Sargent

SECTION BQ - FINISHING HARDWARE (Cont'd.)

SCHEDULE OF HARDWARE LISTS

List #52

Single 1-3/8" Wood or H.M. Door & H.M. Frame

11	1 - 1/2 Pairs Butts	BBK 146P 3-1/2 x 3-1/2	Stanley
Rev.	1 - Lockset	AN 4505-1/2 AR	Sargent
9/18/51	1 - Door Closer	43V	Sargent

List #53

Single 1-3/4" H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts	146P 4-1/2 x 4-1/2	Stanley
1 - Lockset	AN 7625 HAR	Sargent

List #53W

Single 1-3/4" Wood Door & H.M. Frame

11	1 - 1/2 Pairs Butts	K146P 4-1/2 x 4-1/2	Stanley
Rev.	1 - Lockset	AN 7625 HAR	Sargent
9/18/51			

List #54

Single 1-3/8" Wood Door & H.M. Frame

1 - 1/2 Pairs Butts	K146P 3-1/2 x 3-1/2	Stanley
1 - Lockset	AN 4505-1/2	Sargent

List #55

Single 1-3/4" Wood or H.M. Door & Rolled Steel Frame

1 - 1/2 Pairs Butts	BBK 128P	Stanley
1 - Lockset	AN 7616 HAR	Sargent
1 - Door Closer	44VP x Bracket #239	Sargent
1 - Drop Bracket #233		Sargent

SECTION BQ - FINISHING HARDWARE (Cont'd.)

SCHEDULE OF HARDWARE LISTS

List #56

Single 1-3/4" Wood or H.M. Door & Rolled Steel Frame

1 - 1/2 Pairs Butts	BBK 128P 4-1/2	Stanley
1 - Lockset	AN 7617 HAR	Sargent
1 - Door Closer	44 VP x Bracket #239	Sargent
1- Drop Bracket	#233	Sargent
1 - Overhead Holder	GJ 12-	Glynn-Johnson

List #57

Single 1-3/4" Wood or H.M. Door & Rolled Steel Frame

1 - 1/2 Pairs Butts	BBK 128P 4-1/2	Stanley
1 - Lockset	AN 7616 HAR	Sargent
1 - Door Closer	44V	Sargent
1 - Door Closer Bracket	153	Sargent

List #58

Single 1-3/4" Wood or H. M. Door & Rolled Steel Frame

1 - 1/2 Pairs Butts	BBK 128P 4-1/2	Stanley
1 - Lockset	AN 7616 HAR	Sargent
1 - Door Closer	44V	
1 - Door Closer Bracket	153	
1 - Overhead Holder	GJ 71	Glynn-Johnson

List #59

Single 1-3/4" Wood or H.M. Door & Rolled Steel Frame

1 - 1/2 Pairs Butts	BBK 128P 4-1/2	Stanley
1 - Lockset	AN 7605 - 1/2 HAR	Sargent
1 - Door Closer	44V	Sargent
1 - Door Closer Bracket	153	Sargent

List #60

Single 1-3/4" Wood or H.M. Door & Rolled Steel Frame

1 - 1/2 Pairs Butts	BBK 128P 4 1/2	Stanley
1 - Lockset	AN 7605-1/2HAR	Sargent
1 - Door Closer	44V	Sargent
1 - Door Closer Bracket	153	Sargent
1 - Overhead Holder	GJ 71	Glynn-Johnson

SECTION BQ - FINISHING HARDWARE (Cont'd.)

SCHEDULE OF HARDWARE LISTS

List #61

Single 1-3/4" H.M. Door & H.M. Frame

1 - 1/2 Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Lockset	AN 7665 HAR	Sargent

List #62

Single 1-3/4" Wood Door & H.M. Frame

1 - 1/2 Pairs Butts	K146P 4-1/2 x 4-1/2	Stanley
1 - Lockset	An 7665 HAR	Sargent

List #63

Single 1-3/8" Wood Door & H.M. Frame

11 Rev. 9/18/51	1 - 1/2 Pairs Butts	K146P 3-1/2 x 3-1/2	Stanley
	1 - Lockset	AN 4565 AR	

List #64

Pairs 1-3/4" H.M. Doors & H.M. Frame (Dutch)

4 - Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts	LN 1116 12"	Sargent
2 - Surface Bolts	LN 1155 4"	Sargent
1 - Latchset	AN 7615 HAR	Sargent
2 - Overhead Holders	224V	Sargent

List #65

Pairs 1-3/4" Wood Doors & H.M. Frame (Dutch)

4 - Pairs Butts	K146P 4-1/2 x 4-1/2	Stanley
2 - Flush Bolts	LN 1116 12"	Sargent
2 - Surface Bolts	LN 1155 4"	Sargent
1 - Latchset	AN 7615 HAR	Sargent
2 - Overhead Holders	224V	Sargent

List #66

Pairs 1-3/8" Wood Doors & H.M. Frame (Dutch)

	4 - Pairs Butts	K146P 3-1/2 x 3-1/2	Stanley
	2 - Flush Bolts	LN 1116 12"	Sargent
11 Rev. 9/18/51	2 - Surface Bolts	LN 1155 4"	Sargent
	1 - Latchset	AN 4515 AR	Sargent
	2 - Overhead Holders	224V	Sargent

[redacted]

SECTION 8Q - FINISHING HARDWARE (Cont'd.)

SCHEDULE OF HARDWARE LISTS

List #67

Pairs 1-3/4" H.M. Doors & H.M. Frame (Dutch)

4 Pairs Butts	BBK	146P	4-1/2 x 4-1/2	Stanley
2 Flush Bolts	LN	1116	12"	Sargent
2 Surface Bolts	LN	1155	4"	Sargent
1 Lockset	AN	7605 1/2	HAR	Sargent
2 Overhead Holders	224V			Sargent

List #68

Pairs 1-3/4" Wood Doors & H.M. Frame (Dutch)

4 Pairs Butts	K	146P	4-1/2 x 4-1/2	Stanley
2 Flush Bolts	LN	1116	12"	Sargent
2 Surface Bolts	LN	1155	4"	Sargent
1 Lockset	AN	7605 1/2	HAR	Sargent
2 Overhead Holders	224V			Sargent

List #69

Pairs 1-3/8" H.M. Screen Doors & H.M. Frame

3 Pairs Butts	BBK	146P	3 x 3	Stanley
2 Door Pulls	AN	1620		Sargent
2 Push Bars	An	333	Length C to C of Stiles	Sargent
2 S. D. Closers	2020			Sargent

List #70

Pairs 1-3/8" Wood Screen Doors & H.M. Frame

3 Pairs Butts	K	146P	x 3	Stanley
2 Door Pulls	AN	1620		Sargent
2 Push				Sargent
2 - S. D. Closers	2020			

List #71

Pairs 1-3/8" Wood Screen Doors & Wood Frame

3 Pairs Butts	K	242P	4-1/2 x 4-1/2	Stanley
2 Door Pulls	AN	1620		Sargent
2 Push				Sargent
2 S. D. Closers	2020			

SECTION BQ - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #72

Single 1-3/8" H.M. Screen Door & H.M. Frame

1 - 1/2 Pairs Butts	BBK 146P 3x3	Stanley
1-Door Pull	AN 1620	Sargent
1-Push Plate	AN 8333 Length C to C of Stiles	Sargent
1-S.C. Closers	2020	Sargent

List #73

Single 1-3/8 Wood Screen Door & H.M. Frame

7 Rev. 6/19/51

1 - 1/2 Pairs Butts	K 146P 3 x 3	Stanley
1 - Door Pull	AN 1620	Sargent
1 - Push Bar	AN 333 Length C to C of Stiles	Sargent
1 - S. D. Closer	2020	Sargent

List #74

Single 1-3/8" Wood Screen Door & Wood Frame

1 - 1/2 Pairs Butts	K 242P 3 x 3	Stanley
1 - Door Pull	AN 1620	Sargent
1 - Push Bar	AN 333 Length C to C of Stiles	Sargent
1 - S. C. Closer	2020	Sargent

List #75

Pairs 1-3/4" H.M. or Wood Doors & H.M. Frame

7 Rev. 6/19/51

3 - Pairs Butts	BBK 146P 4-1/2 x 4-1/2	Stanley
1 - Combination Exit Bolts	LR 27VA x 22VA	Von Duprin
2 - Door Closers	44V	Sargent
2 - Door Closers Brackets	53	Sargent

List #76

Pairs 1-3/4" H.M. or Wood Doors & Rolled Steel Frame

3 - Pairs Butts	BBK 128P x 4-1/2	Stanley
1 - Combination Exit Bolts	LR 27VA x 22VA	Von Duprin
2 - Door Closers	44V	Sargent
2 - Door Closers Brackets	53	Sargent

SECTION BQ - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #77

Single 1-3/4" H.M. or Wood Door & H.M. Frame

1 - 1/2 Pairs Butts	BBK 146P	4-1/2 x 4-1/2	Stanley
1 - Exit Bolt	22VA	US26D	Von Duprin
1 - Door Closer	44V		Sargent
1 - Door Closer Bracket	53		Sargent

List #78

Single 1-3/4" H.M. or Wood Door & Rolled Steel Frame

1 - 1/2 Pairs Butts	BBK 128P x 4-1/2		Stanley
1 - Exit Bolt	22VA	US26D	Von Duprin
1 - Door Closer	44V		Sargent
1 - Door Closer Bracket	53		Sargent

List #79

Single 1-3/4" H.M. or Wood Door & H.M. Frame

1 - 1/2 Pairs Butts	BBK 146P	4-1/2 x 4-1/2	Stanley
1 - Exit Bolt 58A		US26D	Von Duprin
1 - Door Closer	44V		Sargent
1 - Door Closer Bracket	53		Sargent

List #80

Single 1-3/4" H.M. or Wood Door & Rolled Steel Frame

1 - 1/2 Pairs Butts	BBK 128P x 4-1/2		Stanley
1 - Exit Bolt 58A		US26D	Von Duprin
1 - Door Closer	44V		Sargent
1 - Door Closer Bracket	53		Sargent

List #81

Bi-Parting Sliding Doors 1-3/4" to 2" thick

1 - Set Sliding Door Hardware No. 33 Lock-Joint Trolley Track, 18 x 33 Center Bracket, 19 x 33 End Brackets, 189 x 33 Lock Joint Bracket, 11 x 33 Center Stop Bracket, 150-1/2 B-1, hangers.	Richards-Wilcox
2 - Low Handles #81 - 1	Richards-Wilcox
2 - Flush Pulls #70 - 1	Richards-Wilcox

[redacted]

SECTION BQ - FINISHING HARDWARE (Cont'd.)

SCHEDULE OF HARDWARE LISTS

List #82

Bi-Parting Sliding Doors 1-3/4" to 2" thick

1 - Set Sliding Door Hardware as included under List #81	Richards-Wilcox
1 - Bow Handle #81 - 1	Richards-Wilcox
1 - Flush Pull #70 - 1	Richards-Wilcox
1 - Latchset #152A - 2	Richards-Wilcox
1 - Padlock 754 HSC	Sargent

List #83

Bi-Parting Sliding Doors 1-3/4" to 2" thick

1 - Set Sliding Door Hardware No. 33 Lock-Joint Trolley Track, 1 x 33 Center Brackets, 2 x 33 End Brackets, 39 x 33 Lock Joint Brackets, 12 x 33 Center Stop Brackets, 150-1/2 B - 1 hangers.	Richards-Wilcox
2 - Bow Handles #81 - 1	
2 - Flush Pulls #70 - 1	

List #84

Bi-Parting Sliding Doors 1-3/4" to 2" thick

1 - Set Sliding Door Hardware as included under List #83	Richards-Wilcox
1 - Bow Handle #81 - 1	Richards-Wilcox
1 - Flush Pull #70 - 1	Richards-Wilcox
1 - Latchset #152A-2	Richards-Wilcox
1 - Padlock #754 HSC	Sargent

List #85

Bi-Parting Sliding Doors 2-1/4" to 3-1/2" thick

1 - Set Sliding Door Hardware, Handles and Pulls as included under List #81 except use 150-1/2 B - 2 hangers

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SECTION 8g - FINISHING HARDWARE

SCHEDULE OF HARDWARE LISTS

List #

Bi-Parting Sliding Doors 2-1/4" to 3-1/2" thick

1 - Set Sliding Door Hardware, Handles, Pulls and Padlock as included under List #62 except use 150-1/2 B - 2 hangers

List #87

Bi-Parting Sliding Doors 2-1/4" to 3-1/2" thick

1 - Set Sliding Door Hardware, Handles and Pulls as included under List #83 except use 150-1/2 B - 2 hangers

List #88

Bi-Parting Sliding Doors 2-1/4" to 3-1/2 thick

1 - Set Sliding Door Hardware, Handles, Pulls, and Padlock as included under List #84 except use 150-1/2 B - 2 hangers

List #89

Single Sliding Door 1-3/4" to 2" thick

1 - Set Sliding Door Hardware, No. 33 Lock-Joint Trolley Track, 18 x 33 Center Brackets, 19 x 33, End Brackets, 189 x 33, Lock-Joint Brackets, 150-1/2 B - 1 hangers.	Richards-Wilcox
1 - Bow handle #81 - 1	Richards-Wilcox
1 - Flush Pull #70 - 1	Richards-Wilcox

List #90

Single Sliding Door 1-3/4 to 2" thick

1 - Set Sliding Door Hardware as included under List #89	Richards-Wilcox
1 - Latchset #152 A - 2 Block out to receive latch keeper at jamb	Richards-Wilcox
1 - Padlock 754 WSC	Sargent

SECTION BQ - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #91

Single Sliding Door 1-3/4" to 2" thick. — Richards-Wilcox

1 - Set Sliding Door Hardware
No. 33 Lock-Joint Trolley Track,
1 x 33 Center Bracket, 2 x 33 End
Bracket, 39 x 33 Lock Joint Bracket, 150 -1/2
B - 1 hangers
1 - Bow Handle #81 - 1
1 - Flush Pull #70 - 1

List #92

Single Sliding Door 1-3/4" to 2" thick — Richards-Wilcox

1 - Set Sliding Door Hardware as included under List #91 — Richards-Wilcox
1 - Latchset #152 A - 2 Block out to receive latch keeper at jamb — Sargent
1 - Padlock 754 HSC

List #93

Single Sliding Door 2-1/4" x 3-1/2" thick — Richards-Wilcox

1 - Set Sliding Door Hardware, Bow Handle and pull as included under list #89 except use 150-1/2 B - 2 hangers

List #94

Single Sliding Door 2-1/4" to 3-1/2" thick — Richards-Wilcox

1 - Set Sliding Door Hardware, as included under List #89 except use 150-1/2 B - 2 hangers — Richards-Wilcox

1 - Latchset #152 A - 2 Block out to receive latch keeper at jamb — Sargent
1 - Padlock 754 HSC

SECTION 8Q - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #92

Single Sliding Door, 2-1/4" to 3-1/2" thick

1 - Set Sliding Door Hardware as included under List #91 except use 150-1/2B - 2 hangers.	Richards-Wilcox
1 - Bow Handle #61 - 1	
1 - Flush Pull #70 - 1	

List #96

Single Sliding Door, 2-1/4" to 3-1/2" thick

1 - Set Sliding Door Hardware as included under List 92 except use 150-1/2B - 2 hangers	Richards-Wilcox
1 - Latchset #152 A - 2 Block out to receive Latch keeper at jamb	Richards-Wilcox
1 - Padlock 754 KSC	Sargent

List #97

Pairs 1-3/4" Wood Doors and Frame

7 Rev. 6/19/51	3 - Pairs Butts BBK 242 P 4-1/2 x 4-1/2	Stanley
	2 - Flush Bolts LN 1116 12"	Sargent
	1 - Lockset AN 7616 HAR	Sargent
	1 - Door Closer 44 VP x Bracket #239	Sargent
	1 - Door Bracket #233	Sargent
	2 - Overhead Holders GJ 120	Glynn-Johnson
	2 - Kick Plates	Sargent

List #98

Pairs 1-3/4" Wood Doors and Frame

3 - Pairs Butts BBK 242P 4-1/2 x 4-1/2	Stanley
2 - Push Plates	Sargent
2 - Door Closers 43V	Sargent
2 - Door Stops 30	Sargent
2 - Kick Plates	Sargent
2 - Door Pulls	Sargent

SECTION 88 - FINISHING HARDWARE (Cont'd.)

SCHEDULE OF HARDWARE LISTS

List #99

Pairs 1-3/4" Wood Doors and Frame

2 sets D. A. Hinges #872 x special Jamb Plate	Bommer
4 - Push Plates	Sargent
4 - Kick Plates	Sargent
4 - Door Stops #30	Sargent

List #100

Single 1-3/4" Wood Door and Frame

1 Set D. A. Hinges 872 x special Jamb Plant	Boomer
2 - Push Plates	Sargent
2 - Kick Plates	Sargent
2 - Door Stops #35	Sargent

List #101

Single 1-34" Wood Door and Frame

1-1/2 Pairs Butts BBK 242P 4-1/2 x 4-1/2	Stanley
1 - Lockset AN 7605-1/2 HAR	Sargent
1 - Door Closer 44V	Sargent
1 - Door Closer Bracket 153	Sargent
1 - Overhead Holder OJ 71	Glynn - Johnson

List #102

Single 1-3/8 Wood Door and Frame

	1 - 1/2 Pairs Butts BBK 242P 3-1/2 x 3-1/2	Stanley
	1 - Latchset AN 4515 AR	Sargent
11	1 - Door Closer 43V	Sargent
Rev.	1 - Door Stop #35	Sargent
9/18/51		

List #103

Single 1-3/8" Wood Door and Frame

	1-1/2 Pairs Butts K242P 3-1/2 x 3-1/2	Stanley
11	1 - Latchset AN 4515 AR	Sargent
Rev.	1 - Door Stop #35	Sargent
9/18/51		

SECTION 8Q - FINISHING HARDWARE (Cont'd.)

SCHEDULE OF HARDWARE LISTS

List #104

Single 1-3/8" Wood Door and Frame

	1-1/2 Pairs Butts BBK 242P 3-1/2 x 3-1/2	Stanley
	1 - Push Plate	Sargent
	1 - Door Pull AN 1620	Sargent
	1 - Door Closer 43V	Sargent
	1 - Door Stop #35	Sargent

List #105

Single 1-3/8" Wood Door and Frame

	1-1/2 Pairs Butts BBK 242P 3-1/2 x 3-1/2	Stanley
11	1 - Lockset AN 4505-1/2 AR	Sargent
Rev.	1 - Door Closer 43VPH x 239 Bracket	Sargent
9/18/51	1 - Door Stop #35	Sargent

List #106

Single 1-3/8" Wood Door and Frame

	1-1/2 Pairs Butts K242P 3-1/2 x 3-1/2	Stanley
11	1 - Lockset AN 4565 AR	Sargent
Rev.	1 - Door Stop #35	Sargent
9/18/51		

List #107

Single 1-3/8" Wood Door and Frame

	1-1/2 Parks Butts BBK 242P 3-1/2 x 3-1/2	Stanley
11	1 - Lockset AN 4505 - 1/2 AR	Sargent
Rev.	1 - Door Closer 43V	Sargent
9/18/51	1 - Door Stop #35	Sargent

List #108

Pairs 1-3/4" Wood Screen Doors and Frame

NOTE: These doors are interchangeable with wood doors.

	3 Pairs Butts BBK 242P 4-1/2 x 4-1/2 Door Leaf only	Stanley
	2 - Door Pulls AN 1620	Sargent
	2 - Push Bars AN 333 - Length C to C of Stiles	Sargent
11	2 - Connecting rods, connections and foot, Part	Sargent
Rev.	No. 80 (only) use with 43V Door Closer	
9/18/51	2 - Kick Plates 7" Wide	Sargent

[redacted]

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SECTION BQ - FINISHING HARDWARE (Cont'd)

SCHEDULE OF HARDWARE LISTS

List #109

Single 1-3/4" Wood Door and Wood Frame

1-1/2 Pairs Butts BBK 242P 4-1/2 x 4-1/2	Stanley
1 - Exit Bolts 58 A US 26 D	Von Duprin
1 - Door Closer 44V	Sargent
1 - Door Closer Bracket 53	Sargent

List #110

Pairs 1-3/8" Wood Doors and Wood Frame

3 - Pairs Butts BBK 242 P 3-1/2 x 3-1/2	Stanley
3 - Push Plates	Sargent
2 - Door Pulls AN 1620	Sargent
2 - Door Closers 43V	Sargent
2 - Door Stops 30	Sargent
2 - Kick Plates	Sargent

List #111

Pairs 1-3/8" Wood Doors and Wood Frame

8 Rev. 7/12/51 11 Rev. 9/18/51	3 Pairs Butts BBK 242P 3-1/2 x 3-1/2	Stanley
	2 Flush Bolts LN 1126 12"	Sargent
	1 Lock Set AN 4505-1/2 AR	Sargent
	1 Door Closer 43V	Sargent
	2 Door Stops #35	

List #112

Pairs 1-3/4" Wood Doors and Wood Frame

10 Rev. 8/31/51	3 - Pairs Butts BBK 242P 4-1/2 x 4-1/2	Stanley
	2 - Flush Bolts LN 1116 12"	Sargent
	1 - Lockset DGN 7892 x 1 Knob AN 1852 HAR x sprindle 1630 x 1 escutcheon AN 615 HAR	Sargent
	2 - Door Closers 43VH	Sargent
	2 - Door Closer Brackets 53	Sargent
	2 - Door Pulls AN 1620	Sargent
	2 - Push Plates 1/8" Formica 4" x 16"	Sargent
	2 - Kick Plates	Sargent

SPECIFICATION 3[illegible]

SECTION BQ - FINISHING HARDWARE (Cont'd.)

SCHEDULE OF HARDWARE LISTS

List #113

Pairs 2-1/4" H. M. Doors & Rolled Steel Frame

4 - Pairs Butts BBK 114P 6 x 5	Stanley
1 - Flush Bolt LN 1116 12"	Sargent
1 - Flush Bolt LN 1116 36"	Sargent
1 - Lockset AN 7616 Har-RB for 2-1/4" Door	Sargent
1 - Door Closer 46V	Sargent
1 - Door Closer Bracket 153	Sargent
2 - Overhead Holders GJ 73 U. S. 26D	Glynn-Johnson

List #114

Single 2-1/4 H. M. Door approximately 3-6 x 8-0 and H. M. Frame

1-1/2 Pairs Butts BBK 118P 6 x 5	Stanley
1 - Lockset AN 7605-1/2 HAR for 2-1/4 Door	Sargent
1 - Door Closer 45WH	Sargent

List #115

Pair 2-1/4 H.M. Doors, approximately 3 x 8 & H.M. Frame

3 - Pairs Butts BBK 118P 4-1/2 x 4-1/2	Stanley
1 - Flush Bolt LN 1116 12"	Sargent
1 - Flush Bolt LN 1116 24"	Sargent
1 - Lockset AN 7605-1/2 HAR - RB for 2-1/4 Door	Sargent
1 - Door Closer 44 WH	Sargent

List #116

Single 2-1/4 H. M. Door 3-6 Wide & H. M. Frame

1-1/2 - Pairs Butts BBK 118P 6 x 5	Stanley
1 - Latchset AN 7615 HAR	Sargent
1 - Door Closer 45 WH	

List #117

Pair 2-1/4 H. M. Doors, approximately 4-0 x 8-0 & Rolled Steel Frame

3 - Pairs Butts BBK 114 P. 6 x 5	Stanley
1 - Flush Bolt LN 1116 12"	Sargent
1 - Flush Bolt LN 1116 24"	Sargent
1 - Lockset AN 7605-1/2 HAR - RB for 2-1/4 Door	Sargent

[redacted]

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SECTION BR-1

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is a part of this specification

SUBJECT: PROTECTIVE COATINGS - GENERAL INSTRUCTIONS

HOW TO USE: Section BR - SPECIFICATION 3019:

12 This Specification is divided into 6 sections as follows:
Rev. 10/16/52

BR-1 GENERAL Instructions: This section is automatically a part of all others.

BR-2 Surface Preparation: This section is a master specification defining various types of surface preperation. All specifications for individual pieces of equipment refer to the proper paragraph in the master specifications.

BR-3 Materials and Application: This section is a master specification listing all materials to be used on the project and methods for their application. All specifications for individual pieces of equipment refer to the proper paragraph in this master specification.

BR-4 Structural Painting: This section contains detailed specifications for structural work.

BR-5 Equipment & Piping: This section contains detailed specifications for painting equipment, piping and valves, and general painting notes.

BR-6 Special Protective Coatings: This section is a master specification defining the degree of surface preparation required for metal, concrete,
21 and cement asbestos board surfaces and the protective coating materials to be
Rev. applied by Vendor or construction including the methods of applications.
3/27/52

[redacted]

SECTION BR-2 (Cont'd)

SUBJECT: PROTECTIVE COATINGS - SURFACE PREPARATION

SCOPE: This specification defines the degree of surface preparation required for various classifications of surfaces and coatings.

SPECIFICATIONS:

2.10 Equipment received with prime coat

2.11 Spot cleaning of equipment received from fabricator already primed is to be done only after equipemnt is set in place. All damaged or loose areas of coating shall be thoroughly wire brushed with a power driven brush to remove all loose paint, rust and dirt and to provide a firm surface for new paint. Care shall be taken not to burnish the surface.

NOTE: If this paragraph is specified in error for equipment not primed, substitute paragraph 2.21.

2.20 Uncoated steel

2.21 Normal cleaning shall result in a surface free from loose rust and loose mill scale or any other foreign material, providing a firm metallic surface for application of paint. It shall consist of scraping and descaling where necessary and in all cases the final step in mechanical cleaning shall be power wire-brushing all over.

Any grease or oil shall be removed completely by wiping with a suitable solvent using lint free clean rags.

22 Rev. 5/2/52 Surfaces with tight mill scale shall be allowed to rust outdoors until mill scale is gone before cleaning procedure is followed. This shall be done only if feasible with no interruption to schedule.

NOTE: If this paragraph is specified in error for equipment received with prime coat, substitute paragraph 2.11.

2.22 Sandblast cleaning shall result in a surface free from all corrosion products, loose mill scale and tight mill scale. The blasting shall proceed down to "white" metal. Normal rate is 275 to 400 sq. ft. per hour per operator.

22 Rev. 5/2/52

SECTION BR-2 (Cont'd.)

2.30 Galvanized Steel

2.31 Remove grease coat from new spangled galvanized surface with solvent. Any physically damaged areas of galvanized surface should have further preparation as in paragraph 2.11.

2.40 Woodwork

2.41 Scrub knots, sap streaks and pitch areas with turpentine or other solvent. Coat with Aluminum Paint (3.207 or thin shellac -

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SECTION BR-3

SUBJECT: PROTECTIVE COATINGS - MATERIALS AND APPLICATION

SCOPE: This specification covers all paints and protective coating materials to be applied in the field including methods of application.

SPECIFICATIONS: Section 1 is part of this specification.

9 Rev. 7/23/51 MATERIALS: Where paint categories are not designated by Federal Specifications, manufacturers not listed shall submit the trade name and formula of materials for approval before using on project. Where paint categories are designated by Federal Specifications, each container shall be labeled with an appropriate label identifying the paint with the applicable Federal Specification number. All paint shall be delivered to the project in unopened containers.

3.100 Primers and Sealers

9 Rev. 7/23/51 3.101 Fed. Sp. TT-P-25 Exterior Primer

3.102 Fed. Sp. TT-P-641 Galvanized Metal Primer

3.103 Devoe Zinc Chromate Primer
Du Pont Delux Zinc Chromate Primer #46
Pittsburgh Plate Glass Co. - Zinc Chromate Primer [illegible]
Sherwin-Williams Co. - Kromik Primer
Glidden Chromatized Metal Primer
[illegible]

3.104 Fed. Sp. TT-P-56a Primer Sealer

3.105 Fed. Sp. TT-C-598 Caulking Compound
Grade I for gun application
Grade II for knife application

3.106 Chlorinated Rubber Base Paint
Pittsburgh Plate Glass
Du Pont
Devoe
Glidden Spred Satin

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DOES NOT CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION
ADC & Reviewing Official: (Name and Title)
Date: 6/24/92

See BR 2 — protected ...

SPECIFICATION 3019

SECTION BR-3

SUBJECT: PROTECTIVE COATINGS - MATERIALS AND APPLICATION

SCOPE: This specification covers all paints and protective coating materials to be applied in the field including methods of application.

SPECIFICATIONS: Section 1 is part of this specification.

MATERIALS: Where paint categories are not designated by Federal Specifications, manufacturers not listed shall submit the trade name and formula of materials for approval before using on project. Where paint categories are designated by Federal Specifications, each container shall be labeled with an appropriate label identifying the paint with the applicable Federal Specification number. All paint shall be delivered to the project in unopened containers.

9 Rev. 7/23/51

3.100 Primers and Sealers

3.101 Fed. Sp. TT-P-25 Exterior Primer

9 Rev. 7/23/51

3.102 Fed. Sp. TT-P-641 Galvanized Metal Primer

3.103 Devoe Zinc Chromate Primer
Du Pont Dulux Zinc Chromate Primer #746
Pittsburgh Plate Glass Co. - Zinc Chromate Primer 17-6
Sherman-Williams Co. - Kromik Primer
Glidden Chromatized Metal Primer
U.S. Gutta Percha, Barreled Sunlight, Anti-corrosive Prime

3.104 Fed. Sp. TT-P-56a Primer Sealer

3.105 Fed. Sp. TT-C -598 Caulking Compound
Grade I for gun application
Grade II for knife application

3.106 Chlorinated Rubber Base Paint
Pittsburgh Plate Glass
Du Pont
Devoe
Glidden Spred Satin

SECTION HR-3 (Cont'd.)

3.100 Primers and Sealers (Cont'd.)

3.107 Devoe Ready Mixed Read Lead #20
Du Pont 785 Metal Primer
Pittsburgh Ironhide Inhibitive Red 8-2
Sherwin-Williams Metal Primer Red 49

3.108 Du Pont Submarine Primer or U.S. Army Corp. of Engineers Spec. #3-193A, Amendment No. 2, Typo I

3.109 Amercoat No. 48 Primer

3.110 Dulux Machinery Oxide Primer
Glidden E-Z-C Machinery Enamel Primer
Pittsburgh Lavax Machinery Enamel Primer

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3.111 Du Pont "Sealer Coater" (389-001) Vinyl Emulsion Sealer
Pittsburgh Plate Glass Company - Snolite 50-5 Quick drying Wall Sealer

SECTION HR-3 (Cont'd.)

3.200 Intermediate and Finish Coats

23/51 3.201 Fed. Sp. TT-P-146 Floor Paint

3.202 Fed. Sp. TT-E-543 Enamel Undercoat

3.203 Fed. Sp. TT-E-508 Interior Enamel, Semi-gloss

3.204 Devoe House Paint
Du Pont House Paint
Sherwin-Williams Co. S.W.P. House Paint (S.W.P. Quality)
24/51 Pittsburgh Plate Glass Co. Sunproof House Paint

NOTE: Above paints to be Lead Pigment Free, lead drier permissible.

3.205 Sherwin-Williams Co. Metalistic Intermediate Coat Brown
Pittsburgh Plate Glass Co. Ironhide Intermediate Coat Brown
Du Pont dulux Intermediate Coat Brown
Pratt & Lambert Co. Moxide Metal paint
Patterson-Sargent Co. BPS Metal Paint

16 Rev. 12/24/51 3.206 Pittsburgh Plate Glass Co. Ironhide Metal Protective Gray
Du Pont Dulux Metal Protective Gray
Sherwin-Williams Co. Metalistic Metal Protective Gray

3.207 Fed. Sp. TT-A-468a Aluminum Pigment
Fed. Sp. TT-V-81b Varnish

[redacted]

SECTION BR-3 (Cont'd.)

3.200 Intermediate and Finish Coats (Cont'd.)

3.208 Fed. Sp. TFP-51b Flat Interior Paint

9 Rev. 7/23/51 21 Rev. 3/27/52 3.209 Du Pont Flat Black
Devoe Flat Black
Sherwin-Williams Flat Black

22 Rev. 5/2/52 3.210 Du Pont Acid and Fume Resistant Black

3.211 Du Pont Acid and Fume Resistant Gray

3.212 Insul-Mastic No. 4010

3.213 Du Pont Dulux Metal Protective Black/Pittsburgh S-W

3.214 Amercoat No. 33 Black
David E. Long "A" Black
Merchants Chemical "Dynaclad No. 1060" Black

3.215 Amercoat No. 33 Gray
David E. Long "A" Gray
Merchant's Chemical Dynaclad No. 1060 Gray

3.216 Du Pont Dulux Aluminum Paint
Pittsburgh Metaleaf Aluminum Paint

3.217 Du Pont Heat Resistant Aluminum Paint or an approval equal.

3.218 Du Pont Hi-Heat Resistant Aluminum Paint or an approval equal.

3.219 Hippers Bitumastic No. 50.

3.220 Du Pont Dulux Machinery Enamel 7B Gray Gloss
Glidden E-Z-C Machinery Enamel Gray Gloss
Pittsburgh Lavax Machinery Enamel Gray Gloss

24 Rev. 5/28/52 3.221 Du Pont Dulux Mill White Eggshell Enamel
Sherwin-Williams Co. Kem-Mill White Eggshell
U.S. Gutta Percha Paint Co. Chinaline Enamel Eggshell

26 Rev. 9/8/52 3.222 Du Pont Dulux Machinery Enamel #8 Medium Green
Glidden EZC Machinery Enamel Medium Green
Pittsburgh Lavax Machinery Enamel Medium Green

3.223 Du Pont Color conditioning safety color code
Fire Protection Red
Glidden E-Z-C Machinery Enamel Red Gloss
Pittsburgh Lavax Machinery Enamel Red Gloss.

SECTION BR-3 (Cont'd)

APPLICATION:

3.300 Primers

3.301 Primers shall be applied by brush working in well so as to thoroughly wet the surface. Drying time to be observed as indicated on can label.

3.400 Intermediate and Finish Coats

3.401 Brushing: Paints are to be applied by conventional brush methods following paint manufacturer's instructions

3.402 Spraying: Paints are to be applied by conventional spraying methods following paint manufacturer's instructions.

22 Rev. 5/2/52

3.403 Insul-Mastic No. 4010 - apply by spray to thickness of 1/8 inch dry in one application. When dry to touch (10 - 12 gallons per 100 sq. ft.) coating shall be checked with Mastic Pinhole Tester for defects, which shall be repaired if present.

22 Rev. 5/2/52

3.404 Apply by brush or spray to clean base metal. Application shall be made just prior to start-up since heat is required to properly set the coating and make it weather resistant.

3.500 GENERAL

3.501 All surfaces are to be dusted with dry brush or by air immediately before painting to remove residual dust or loose particles remaining after surface preparation.

3.502 Surfaces are to be primed within 2 hours to 4 hours of cleaning.

3.503 No Paint is to be applied to wet or damp surfaces.

3.504 All cracks and crevices are to be caulked after the prime coat is applied and before the intermediate or top coats are applied.

12 Rev. 10/16/51

3.505 Enamel coats shall be sanded with fine sand paper and wiped free of dust before succeeding coats are applied.

3.506 Succeeding coats shall not be applied until the previous coat is hard and dry.

SAVANNAH RIVER PLANT

SUPPLEMENT NO. 4 TO PROJECT SPECIFICATION 3019

EQUIPMENT AFFECTED:

All SRP electrical switchgear exterior surfaces.

REASONS FOR CHANGE:

The finishes on electrical switchgear surfaces are beginning to deteriorate and need painting. Therefore, a finish that can be applied more economically than the present coating will reduce Plant maintenance costs.

DETAILS:

1. Add a paragraph (No. 3.224) to Section BR-3, sheet 6 to read as follows:

   3.224 - Federal Specification TT-E-489 machinery enamel paint. Color: Federal Standard No. 595, Chip 14449.

   Du Pont Delux Machinery Enamel, 501 Spotlight Green;
   Glidden E-Z-C Machinery Enamel, 5092 Light Green
   Pittsburgh Lavax Machinery Enamel, 23-74 Focal Green.

2. Change Section BR-4, Sheet 9 Note 7 to read as follows:

   Note 7: Field painting of Electrical switchgear and control panels shall consist of one coat of 3.224.

3. Change Section BR-5, paragraph GN sheet 11c to read as follows:

   GN Green per Specification 3019, Section BR-4, sheet 9 Note 7. One coat 3.224. Bare metal requires primer and two brush coats of 3.224.

[redacted]

SECTION BR-4

SUBJECT: PROTECTIVE COATINGS - STRUCTURAL PAINTING

SCOPE: This specification covers methods of surface preparation to be used and coatings to be applied for all structural work.

SPECIFICATION: Section 1 is part of this specification.

All references in following list are to paragraph numbers in Section 2 for Surface Preparation and Section 3 for Materials and Application.

[redacted]

12 Rev. 10/16/51 17 Rev. 1/2/52 24 Rev. 5/28/52

		PRIME				1st COAT		FINISH COAT	
	EXTERIOR	Surface Prep.	Mat'l	Appli cation	Caulk	Mat'l.	Appli- cation	Mat'l.	Appli- cation	Remarks
16 Rev. 12/24/51	Structural Steel & Misc. Iron	2.11 or 2.21	3.103	3.402 or 3.301	3 105	3.215	3.401 or 3.402	3.206	3.401 or 3.402	
16 Rev. 12/24/51	Woodwork	2.41	3.101	3.303	3 105	3 204	3.401 or 3 402	3.204	3.401 or 3.402	
12 Rev. 10/16/51	Metal Trim and Metal Doors, Frames and Windows	2 11 or 2.21	3.103	3 301	3 105	3 205	3.401 or 3.402	3 206	3.401 or 3.402	
	Cement Asbestos Board									
	Concrete									
	INTERIOR									
16 Rev. 12/24/51	Structural Steel & Misc. Iron	2.11 or 2 21	3.103	3.402 or 3.301	3 105	3.205	3.401 or 3.402	3.206	3.401 or 3.402	
12 Rev. 10/16/51	Metal Doors & Frame, Metal Trim & Metal Windows & Frame	2.11 or 2.21	3.103	3.301	3.105	3.202	3.401	3.201 3.221 3 203	3.401	Glodd Eggshell Semi-Gloss
24 Rev. 5/28/52	Gypsum Board Walls & Ceilings	Dust	3.104	3.301	3 105	3.208	3.401 or 3.402	3.208	3.401 or 3.402	Flat Finish
24 Rev. 5/28/52	Gypsum Board Walls & Ceilings	Dust	3.104	3.301	3 105	3.202	3.401 or 3.402	3.221 3.203	3.401 or 3.402	Eggshell Semi-Gloss
24 Rev. 5/28/52	Concrete Walls and Ceilings	Dust	3.104	3.301	3.105	3.202	3.401 or 3.402	3.221 3.203	3.401 or 3.402	Eggshell Semi-Gloss

[redacted]

			PRIME			1st COAT		FINISH COAT		
	INTERIOR - (Cont'd.)	Surface Prep.	Mat'l.	Application	Caulk	Mat'l.	Application	Mat'l.	Application	Remarks
	Concrete Walls and Ceilings	Dust	3.104	3.301	3.105	3.206	3.401 or 3.402	3.208	3.401 or 3.402	Flat
17 Rev. 1/2/52	Cement Asbestos Board	Dust	3.106	3.301	3.105	3.106	3.401	3.208 or 3.106	3.401	Flat Flat
24 Rev. 5/28/52	Woodwork, Doors, Frames & Trim Fiberboard	2.41	3.101	3.301	3.105	3.202	3.401	3.221 3.203	3.401	Eggshell Semi-Gl.
17 Rev. 1/2/52 24 Rev. 5/28/52	Cement Asbestos Board	Dust	3.106	3.301	3.105	3.106	3.401	3.221 3.203	3.401	Eggshell Semi-Gl.
24 Rev. 5/28/52	Keens Cement Plaster	Dust	3.104	3.301	3.105	3.202	3.401 or 3.402	3.221 3.203	3.401 or 3.402	Eggshell Semi-Gloss
	Keens Cement Plaster	Dust	3.104	3.301	3.105	3.202	3.401 or 3.402	3.208	3.401 or 3.402	Flat
24 Rev. 5/28/52	Concrete Floors	6.0400	-	-	-	3.201	3.401 or 3.402	3.201	3.401 or 3.402	Gloss

[redacted]

SECTION BR-4 (Cont'd.)

GENERAL PAINTING NOTES

Note 1: Galvanized metal and aluminum will not be painted, unless specifically called for.

Note 2: All paint materials shall be delivered on the site in their original unopened containers and they shall bear the manufacturer's name and label of contents.

12 Rev. 10/16/51

Note 3: The following surfaces shall not be field painted:

Glazed Tile
Quarry Tile
Exposed insulation with a factory finish.
Accoustical ceilings with a factory finish.
Surfaces of equipment, toilet partitions, lockers, cabinets and similar items which are delivered with a shop finish.
Metal partitions including doors furnished with partitions which are specified to be shop finished.
Steel embedded in concrete.

Note 4: Fir Plywood surfaces shall be coated with "Firzite" or approved equivalent before painting.

Note 5: Paint exposed piping of Safety Showers from control valve to shower head with a high visibility yellow with alternate stripes of Safety Green. See Engineering Standard S-1-E.

Note 6: Paint exit signs and directional signs as shown on drawings and as required by the National Fire Protection Association Building Exits Code, Eleventh Edition, 1951. Letters shall be White on a Red field and shall be 6" high with principal strokes not less than 3/4" wide. Paint other signs as shown or noted on drawings or as directed. Room identification and room numbers shall be lettered directly on upper panel of the door on the corridor side. Letters shall be black, approximately two (2) inches high and approximately six (6) feet above floor level.

25 Rev. 8/5/52

Note 7: Field painting of Electrical Switch Gear and Control Panels shall consist of one (1) coat of 3.206 color green conforming to du Pont Code 276-34580.

Note 8: Hardware butts and door closers and brackets shall be painted as specified for doors.

Note 9: Radiators and Radiator enclosures shall be painted in with the room finish same color as adjacent wall finish. Concealed radiators and interior of radiator enclosures shall be painted one coat of 3-206.

SECTION 8B-4 (Cont'd.)

Note 10: The color code numbers shown on the drawings refer to the color code numbers listed hereinafter. Samples of the following colors are on file at the Field Office and at the office of Voorhees, Walker, Foley and Smith, 72 Wall Street, New York City.

SCHEDULE OF COLORS

V.W.F.& S. Color Code No.	Color Shade
*5	Black
6	Cucumber
7	Flat White
*8	Nickel Gray
9	Ivory
10	Terra Cotta
*12	Daylight Green
*13	Dusk Green
*14	Peach
*15	Terra Cotta
17	Blue Steel Gray
18	Gray
29	Flat Black
30	Light Gray
33	Pearl Gray
39	Special
40	Special

17 Rev. 1/2/52

Rev. 12/10/51

22 Rev. 5/2/52

Colors marked thus * shall be washable semi-gloss enamel.

SECTION BR-5
EQUIPMENT, PIPING & VALVES - PAINTING

17 Rev. 1/2/52 22 Rev. 5/2/52

ALL AREAS EXCEPT WHERE SPECIAL PROTECTIVE COATINGS ARE SPECIFIED
(See General Note)

	Surface Prep.	PRIME Mat'l.	PRIME Application	Caulk	1st COAT Mat'l.	1st COAT Application	FINISH COAT Mat'l.	FINISH COAT Application	Remarks
Equipment insulated above Dew point	2.21	3.103	3.301						
Equipment insulated below Dew point	2.11 or 2.21	3.103	3.301	3.105	3.103	3.401 or 3.402			
Equipment not insulated	2.11 or 2.21	3.103	3.301	3.105	3.205	3.401 or 3.402	3.206	3.401 or 3.402	
Piping & Valves insulated above Dew point	2.11 or 2.21								
Piping & Valves insulated below Dew point	2.11 or 2.21	3.103	3.301	3.105	3.103	3.401 or 3.402			
Piping & Valves Hangers etc not insulated (not exposed in painted areas)	2.11 or 2.21	3.103	3.301	3.105	3.205	3.401 or 3.402	3.206	3.401 or 3.402	
25 Rev. 6/5/52 Piping & Valves Hangers etc not insulated (exposed in painted area)	2.11 or 2.21	3.103	3.301	3.105	3.202	3.401 or 3.402	3.201 3.203 3.208 2.221	3.401 or 3.402	Note 9

(See General Note)

	Surface Surface Prep.	PRIME Mat'l.	PRIME Application	Caulk	1st COAT Mat'l.	1st COAT Application	FINISH COAT Mat'l.	FINISH COAT Application	Remarks
Type "A" Finish, Pasted Canvas (SHID)	Dust	3.104	3.301		3.202	3.401 or 3.402	3.201 3.203 3.208 3.221	3.401 or 3.402	Note 9
Type "D" Finish, Finished Cement (SN-2D)	Dust	3.104	3.301	3.105	3.202	3.401 or 3.402	3.201 3.203 3.206 3.221	3.401 or 3.402	Note 9
Type "J" Finish, Cemented Canvas (SN-7D)	Dust	3.104	3.301		3.202	3.401 or 3.402	3.201 3.203 3.208 3.221	3.401 or 3.402	Note 9

27
Rev.
9/19/52

NOTE: For Type Finish and "SN" Designation refer to STANDARD ENGINEERING SPECIFICATION NO. 1984, Specification SN. Cellular Glass Insulation (N3A) shall be painted as above specified for Type "J" Finish except that the prime coat shall be du Pont "Sealer Coater" No. 389.001.

SECTION ER-5 (Cont'd.)

PAINTING OF ELECTRICAL EQUIPMENT - ALL AREAS

This section is assembled as a guide to the painting of all general classifications of electrical equipment and in the main refers to existing portions of the Painting Specification. A few special high-light colors, including Precaution Blue and Alert Orange, are specified for limited use.

29 Rev. 12/16/52 Electric Motors, Transformers, switch gear and motor control centers are normally finished by the Vendors with conventional serviceable paint. Unless these are damaged in shipment, storage or installation no additional painting is to be required. Where finish damage is of a local nature, touch-up painting only is required.

If special finishing of equipment in process areas is required for process reasons, the special finishing specification shall take precedence over finishing as outlined in this section. (Also See Sec. ER-6 -SH 66 Note 1 & 2).

29 Rev. 12/16/52 It is not intended that this section make necessary any repainting of portions of the plant which have been painted before the receipt of this data.

TYPE OF ELECTRICAL EQUIPMENT	FOR EXPLANATION OF SYMBOLS SEE FOLLOWING PAGES: PROCESS BLDGS. POWER BLDGS.	SERVICE & TECH BLDGS.
Lighting & Power Panels	GY	S
Conduit Fittings & Pull Boxes - Galvanized	X	X
Conduit & Pull Boxes - Other	GY	S
Transformers - Indoor	GY Note 2	GY Note 2
Transformers - Outdoor	MR	MR
Motors - Indoor	GY Note 2	GY Note 2
Motors - Outdoor	GY Note 2	GY Note 2
Control Centers, Starter Racks	GN Note 1	GN Note 1
Switchgear	GN Note 1	GN Note 1
Motor Push Buttons, Small Manual Controls	PB	PB
Inside cover of Starters, Switchgear or other enclosure containing uninsulated conductors.	AO	AO
Unit Substations - Indoor	GN Note 1	GN Note 1
Unit Substations - Outdoor	MR	MR

NOTES:

(1) Switchgear

In most cases, switchgear is given a very excellent finish at the factory, over which is applied a strippable protective coating to be removed after installation. Where such finish is supplied and has not been damaged before being placed in service, no additional field painting should be done, even if the color is at some variance with colors outlined in these specifications.

[redacted]

SECTION BR-5 (Cont'd.)

PAINTING OF ELECTRICAL EQUIPMENT - ALL AREAS (Cont'd.)

NOTES: (Cont'd.)

(2) Motors and Transformers

If these items are painted any color lighter than a medium grey their capacity may be reduced. If lighter color is necessary for process reasons, check with Design Div.

EXPLANATION OF SYMBOLS

AO Alert Orange (Spot only) as per Engineering Standard S30. Paint triangle not over 6" per side on interior or enclosures without hinged covers, and arrow not over 6" long on inside of hinged covers, (the arrow pointing toward the energized parts of the enclosure when the cover is open.)

GN Green per Spec. 3019 Sec. BR-4 SH. 9. 1 coat 3.206 green similar to du Pont 276-34580 green, over factory paint. Bare metal required primer and two coats of green.

GY Grey, per spec. 3019 Sec. Br-5 Machinery primer, 2 coats grey gloss enamel (Over factory finish, one coat grey gloss enamel is reqd.)

MR Manufacturers Recommendations. This equipment is finished by the manufacturer for the exposure intended and should not be repainted in field except with finish specified by the original manufacturer.

PB Precaution Blue. Over factory finish one coat of blue 1.253 similar to du Pont 81-23665. This is for small manual electric controls located among process and power equipment, not for switches and starters in electric control rooms.

S Same color and finish as surrounding walls and ceilings.

29 Rev. 12/16/52

X Galvanized Material does not require painting for protection. Paint GY or S only if required by Operating Department.

Equipment Piece No.	Name	Surface Prep.	Prime Coat Matl	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Application	Finish Coat Mat'l	Finish Coat Application	See Note
801	Gen. Pump	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
802	High Lift	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	
803	Low Lift	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	5
804	Traveling Water Screen Housings	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	
805	Sump Pumps	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
806	Dewatering Pumps	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
807	Hydraulic Accumulator System	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	5
808	Chlorination Equipment	-	-	-	-	-	-	-	-	-	*
809	Trash Racks	2.22	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	5
810	Steel Intake Gates	2.22	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	5
816	Manually Operated Sluice Gate	2.22	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	5
816-	Electrically Operated Sluice Gate	2.27	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	5
820	Gantry Crane - Outdoor	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	
822	Screen Gate Guides	2.27	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	5
823	Intake Gate Guides	2.27	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	5
827	Elliott Twin Strainer	2.21	3.108	3.301	3.105	3.108	-	3.401 3.402	3.211	3.401 3.402	5
832	Strainers	2.21	3.108	3.301	3.105	3.108	-	3.401 3.402	3.211	3.401 3.402	5

*. Coated by Manufacturer.

SECTION BR-5 (Cont'd.)

BUILDING 681 G - WATER PUMP HOUSE (Cont'd.)

(See General Note)

Piece No.	Equipment Name	Surface Prep.	Prime Coat Mat'l	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Application	Finish Coat Mat'l	Finish Coat Application	See Note
833	Air Compressors	2.21	3.108	3.301	3.105	3.108	-	3.401 3.402	3.211	3.401 3.402	5
	Motor Generator	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
	BUILDING 785-A - COOLING TOWER (See General Note)										
	Circulating Water Pumps	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	
	BUILDING 485-D - COOLING TOWER (See General Note)										
801 802	Cooling Tower Cir. Water Pumps	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
	BUILDING 487D DUAL SOFT AND DOMESTIC WATER TANK										
801	Elev. Dual Soft and Dom. Tank	-	-	-	-	-	-	-	-	-	****

**** See Std. Eng. Spec. No. SB2R

SECTION B/B-5

BUILDING 484D - BOILER PLANT
(See General Note)

Sheet 14
5/2/52
Rev. 5/28/52

Equipment Piece No.	Name	Surface Prep.	Prime Coat Mat'l	Prime Coat Appli-cation	Caulk	Intermediate Coat 1st Coat	Intermediate Coat 2nd Coat	Intermediate Coat Appli-cation	Finish Coat Mat'l	Finish Coat Appli-cation	See Note
801	Boilers-Casing	2.21	3.103	3.301	3.105	-	-	-	3.216	3.401 3.402	
802	Ducts, 50° to 250°F.	2.21	3.103	3.301	3.105	-	-	-	3.216	3.401 3.402	
802	Ducts, 250° to 400°F.	2.21	-	-	-	3.217	-	3.404	3.217	3.404	
802	Ducts, 400° to 600°F.	2.21	-	-	-	3.218	-	3.404	3.218	3.404	
802	Breeching	2.21	-	-	-	3.218	-	3.404	3.218	3.404	
803	Induced Draft Fan	2.21	3.103	3.301	-	-	-	-	-	-	***
804	Stack	-	-	-	-	-	-	-	-	-	*
805	Condensate Return Unit	2.21	3.103	3.301	-	-	-	-	-	-	***
806	Ash Handling System	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	5
807	Forced Draft Fan	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	
808	Ash Hopper Seal Pumps	2.21	3.103	3.301	3.105	3.205	3.212	3.401 3.402	3.206	3.401 3.402	2
809	Combustion Control System	-	-	-	-	-	-	-	-	-	**
813	Light Oil Storage Tank	2.21	-	-	-	3.219	-	3.401 3.401	3.219	3.401 3.402	4
813	Light Oil Pumps	2.21	3.301	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	2
816	Deaerating Heaters	-	-	-	-	-	-	-	-	-	***
817	Boiler Feed Pumps	-	-	-	-	-	-	-	-	-	***
817	Boiler Feed Turbine	-	-	-	-	-	-	-	-	-	***
822	Chemical Feed System	2.21	3.109	3.301	-	3.215	3.214	3.401 3.402	3.215	3.401 3.402	1

* No paint required
** Coated by Manufacturer
*** See Insulation Spec.

SECTION BR-5 (Cont'd.)

BUILDING 484b - BOILER PLANT (Cont'd.)

(See general note)

Equipment Piece No.	Name	Prime Coat Surface Prep.	Prime Coat Mat'l.	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Application	Finish Coat Mat'l.	Finish Coat Application	See Note
823	Coal Handling Equip.	-	-	-	-	-	-	-	-	-	**
824	Coal Scales	-	-	-	-	-	-	-	-	-	**
824	Coal Hoppers	2.21	3.103	3.301	3.205	3.213	3.213	3.401 3.402	3.206	3.401 3.402	3
836	Air Compressor	2.21	3.103	3.301	3.205	3.213	3.213	3.401 3.402	3.206	3.401 3.402	
836	Air Compressor Receivers	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	
837	Air Dryer for Inst.	-	-	-	-	-	-	-	-	-	**
838	Electric Hoist and Trolleys	-	-	-	-	-	-	-	-	-	**
840	Car Shaker and Supports	-	-	-	-	-	-	-	-	-	**
845	Bank Pressure Turbines	-	-	-	-	-	-	-	-	-	**
845	Turbine Oil Reservoir	-	-	-	-	-	-	-	-	-	**
845	Aux. Oil Pumps	-	-	-	-	-	-	-	-	-	**
845	Oil Cooler	-	-	-	-	-	-	-	-	-	**
846	Double Automatic Controlled Ext.	-	-	-	-	-	-	-	-	-	**
846	Single Uncontrolled Extraction	-	-	-	-	-	-	-	-	-	**
846	Condensing Turbine Generating Units	-	-	-	-	-	-	-	-	-	**
846	Turbine Oil Reservoir	-	-	-	-	-	-	-	-	-	**
846	Aux. Oil Pumps	-	-	-	-	-	-	-	-	-	**
847	Two Pass Condensers	-	-	-	-	-	-	-	-	-	**
848	Turbine Oil Cond. Equip.	-	-	-	-	-	-	-	-	-	**

** Coated by Manufacturer

[redacted]

SECTION HR-5 (Cont'd.)
BUILDING 484D - BOILER PLANT (Cont'd.)

(See general note)

Equipment Piece No.	Name	Surface Prep.	Prime Coat Mat'l	Prime Coat Application	Caulk	Intermediate Coat 1st Coat	Intermediate Coat 2nd Coat	Intermediate Coat Application	Finish Coat Mat'l	Finish Coat Application	See Note
848	With Storage Tanks	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
849	Turbine Room Crane	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
851	Feed Water Heaters	-	-	-	-	-	-	-	-	-	***
852	Feedwater Heaters-with	-	-	-	-	-	-	-	-	-	***
853	Drain Coolers	-	-	-	-	-	-	-	-	-	***
855	Air Compressors-with	-	-	-	-	-	-	-	-	-	**
855	After Coolers Control Equip.	-	-	-	-	-	-	-	-	-	***
861	Car Pullers	-	-	-	-	-	-	-	-	-	**
862	Misc. Tanks	-	-	-	-	-	-	-	-	-	***
863	Ash Handling Water Pump	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	2
864	Desuperheater Pump	-	-	-	-	-	-	-	-	-	***
868	Control Panelboard	-	-	-	-	-	-	-	-	-	**
876) 878)	Sump Pumps	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	2
882	Chain Hoists & Trolleys	-	-	-	-	-	-	-	-	-	**

** Coated by Manufacturer
*** See Insulation Spec.

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[redacted]

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SECTION BR-5 (Cont'd.)
BUILDING 483D - WATER TREATMENT PLANT
(See general note)

Equipment Piece No.	Name	Surface Prep.	Prime Coat Mat'l	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Application	Finish Coat Mat'l	Finish Coat Application	See Note
801	Clarification Equip.	2.22	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	1 & 5
802	Filtration Equip.	-	-	-	-	-	-	-	-	-	*
803	Boiler & Process Water Equip.	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	1
804	Fire Pumps	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
805	Deep Well Pump	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
806	Chlorinator	-	-	-	-	-	-	-	-	-	**
807	Process Feed Make-Up Pump	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	2
808	Boiler Feed Make-Up Pumps	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	2
809	Process Feed Booster Pumps	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	2
810	Process Raw Water Pumps	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	2
811	Backwash Strainers	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	5
812	Cold Water Deaerators	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	5
814	Raw Water Level Control System	-	-	-	-	-	-	-	-	-	**
815	Conc. Acid Storage Tank	2.21	3.103	3.301	3.105	-	-	-	3.212	3.403	
816	Chem. Handling Elevator	-	-	-	-	-	-	-	-	-	**

* No Paint Required
** Coated by Manufacturer

[redacted]

SECTION BR-5 (Cont'd.)
BUILDING 483D - WATER TREATMENT PLANT (Cont'd.)
(See General Note)

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Equipment Piece No.	Name	Surface Prep.	Prime Coat Mat'l.	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Application	Finish Coat Mat'l	Finish Coat Application	See Note
817	Caustic Storage Tanks	2.21	3.103	3.301	3.105	-	-	-	3.212	3.403	
820	Ground Storage Tank	2.21	3.103	3.301	3.105	-	-	-	3.212	3.403	
821	Boiler Feed Booster Pumps	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	2
823	Degassifiers	-	-	-	-	-	-	-	-	-	*
824	Power House Aux.Pump	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	2
830	Alum. Storage Tank	2.21	3.103	3.301	3.105	-	-	-	3.212	3.403	
831	Acid Unloading Pump	2.21	3.109	3.301	-	3.214	3.215	3.401 3.402	3.214	3.401 3.402	2 2
832	Caustic Unloading Pump	2.21	3.109	3.301	-	3.214	3.215	3.401 3.402	3.214	3.401 3.402	2
833	Alum. Unloading Pump	2.21	3.109	3.301	-	3.214	3.215	3.401 3.402	3.214	3.401 3.402	2
836	Condenser Circ. Water Pumps	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.20	3.401 3.402	2
846	Liquid Level Indicators	-	-	-	-	-	-	-	-	-	**
846	Heat Exchanger	-	-	-	-	-	-	-	-	-	*
849	Instruments & Control	-	-	-	-	-	-	-	-	-	**
851	Lab. (W ter) Furn.	-	-	-	-	-	-	-	-	-	**
858	Air Breathing Equip.	-	-	-	-	-	-	-	-	-	*
859	Deep Well Turbine Pump	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
861	Deep Well Pumps	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5

* No Paint required.
** Coated by manufacturer

[redacted]

Equipment Piece No.	Name	Surface Prep.	Mat'l	Application	Caulk	1st Coat	2nd Coat	Application	Mat'l	Application	See Note
301	600,000 Gal. Sto. Tank	-	-	-	-	-	-	-	-	-	*
302	100,000 Gal. Sto. Tank	-	-	-	-	-	-	-	-	-	*
305	Fire Pumps	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
306	Service Water Pumps	2 21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
307	Domestic Water Pumps	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5

BUILDING 281 F. H. RETURN WATER PUMP HOUSE
(See General Note)

	Return Water Pumps	2 21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5

BUILDING 108-1R - ENGINE HOUSE
(See General Note)

301	Heavy Duty Diesel Eng.	-	-	-	-	-	-	-	-	-	**
302	1000 KV Diesel Gen. Set	-	-	-	-	-	-	-	-	-	**
303	10,000 Gal. Diesel Sto. Fuel Oil	2.21	-	-	-	3 219	-	3.401 3.402	3.219	3.401 3.402	4
304	Instrument Air Dryer	2 21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
305	Inst. Air Compressor	2 21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
311	Lub. Oil Sto Tank	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
312	Gravity Strainer	2 21	3.110	3.301	3.105	3 220	-	3.401 3.402	3.220	3.401 3.402	

* No Paint Required
** Coated by Manufacturer

[redacted]

SECTION BR-5 (Cont'd.)
BUILDING 108-1R - ENGINE HOUSE (Cont'd.)
(See General Note)

Equipment			Prime Coat			Intermediate			Finish Coat		
Piece No.	Name	Surface Prep.	Mat'l	Application	Caulk	1st Coat	2nd Coat	Application	Mat'l	Application	See Note
815	Lube. Oil Trans. Pump	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	2
821	Strainers	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
822	1 Ton Hoist	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
823	1 Ton Chain Hoist	2.21		3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	
	Exhaust Piping	2.22	-	-	-	3.218	-	3.404	3.218	3.404	****

**** No Paint on Chain

[redacted]

BUILDING 190 R - COOLING WATER PUMP HOUSE [redacted]

(See general note)

Equipment Place No.	Name	Surface Prep.	Prime Coat Mat'l.	Prime Coat Appli-cation	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Appli-cation	Finish Coat Mat'l.	Finish Coat Appli-cation	See Note
801	Cooling Water Pumps	2.21	3.108	3.301	3.105	3.108	-	3.401 3.402	3.211	3.401 3.402	2 &
803	Service Water Pumps	2.21	3.108	3.301	3.105	3.108	-	3.401 3.402	3.211	3.401 3.402	2 &
814	Traveling Crane	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
602	Sump Pumps	2.21	3.108	3.301	3.105	3.108	-	3.401 3.402	3.211	3.401 3.402	2 &
603	Sewage Ejector	2.21	3.108	3.301	3.105	3.108	-	3.401 3.402	3.211	3.401 3.402	5
901	Roof Ventilator	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
902	Unit Heaters	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
	BUILDING 186 R - COOLING WATER RESERVOIR (CONCRETE) (See general note)										
801	Sluice gates	2.22	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	5
804	Screen Hoist	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
805	Screens	2.22	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	5
	BUILDING 285 F & H - COOLING TOWER (See general note)										
	Circulating Water Pumps	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
	BUILDING 241 - PUMP HOUSE See general note)										
	Closed system Circ. Pumps	2.21	3.108	3.301	3.105	3.108	-	3.401 3.402	3.211	3.401 3.402	2 & 5

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EQUIPMENT			Prime Coat			Intermediate			Finish Coat		
Piece No.	Name	Surface Prep.	Mat'l	Application	Caulk	1st Coat	2nd Coat	Application	Mat'l	Application	See Note
801	Steam Generator Casings	2.21	-	-	-	3.217	-	3.401 3.402	3.217	3.401 3.402	
802	Turbine Oil Conditioners	2.21	3.103	3.301	3.105	3.205	-	3.401 3.402	3.206	3.401 3.402	
803	Turbo Generator Casings	2,21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
804	Condensers, Hotwell Pumps, Air Ejectors, Cir.Water Pumps	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	2
805	Flues and Ducts	2.21	-	-	-	3.217	-	3.401 3.402	3.217	3.401 3.402	
806	Stacks	-	-	-	-	-	-	-	-	-	*
807	Dust and Ash Handling Equipment	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	5
810	Controls	-	-	-	-	-	-	-	-	-	**
814	Deaerators	-	-	-	-	-	-	-	-	-	***
815	L.P. Heaters	-	-	-	-	-	-	-	-	-	***
816	H.P. Heaters	-	-	-	-	-	-	-	-	-	***
817	B. Feed Pumps B.F. Turbines	-	-	-	-	-	-	-	-	-	***
822	Blowdown and Blow-off System	-	-	-	-	-	-	-	-	-	***
824	Coal Handling Equipment	-	-	-	-	-	-	-	-	-	**
830	Coal Storage Silo	-	-	-	-	-	-	-	-	-	*
832	Inst. Air Compressor	-	-	-	-	-	-	-	-	-	**
834	Plant Service Compressor	-	-	-	-	-	-	-	-	-	**
835	Air Dryers for Inst.AIR	-	-	-	-	-	-	-	-	-	**
837	Car Puller	-	-	-	-	-	-	-	-	-	**
842	Desuperheating Sta. to Process	-	-	-	-	-	-	-	-	-	***
843	150 Lb. Desuperheating Sta.	-	-	-	-	-	-	-	-	-	***
850	Turbine Drives for Induced Fans	-	-	-	-	-	-	-	-	-	***
851	Forced and Induced Draft Fans	-	-	-	-	-	-	-	-	-	**

* No paint required
** Coated by manufacturer
*** See Insulation Spec.

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BUILDING 184 R - POWER HOUSE (Cont'd.)

(See general note)

Piece No.	Equipment Name	Prime Coat Surface Prep.	Prime Coat Mat'l.	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Finish Coat Application	Finish Coat Mat'l.	Finish Coat Application	See Note
852	Press. Reducing Sta. to Deaerator	-	-	-	-	-	-	-	-	-	***
853	Press. Reducing Stat. 3rd Bleed	-	-	-	-	-	-	-	-	-	***
856	Misc. Tanks	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	
858	Desuperheated Injection Pump	-	-	-	-	-	-	-	-	-	***
859	Misc. Pumps	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	2
860	Press. Red. Sta. #1, Steam-Process	-	-	-	-	-	-	-	-	-	***
868	Misc. Hoist	-	-	-	-	-	-	-	-	-	**
873	Steam Driven Air Comp., Steam	-	-	-	-	-	-	-	-	-	***
873	Steam Driven Air Comp., Air End	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
878A	Service Water Pumps	-	-	-	-	-	-	-	-	-	**
878B	Trash Hopper Sump Pump	-	-	-	-	-	-	-	-	-	**
601	Water Cooler	-	-	-	-	-	-	-	-	-	**
602	Hot Water Heater & Storage Tank	-	-	-	-	-	-	-	-	-	***

BUILDING 185 - COOLING TOWER

(See general note)

801	Cooling Tower	-	-	-	-	-	-	-	-	-	*
803	Chlorination Equip.	-	-	-	-	-	-	-	-	-	**

BUILDING 789 A - REFRIGERATION

(See general note)

-	Pump-Out Unit	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	
801	Refrig. Units	-	-	-	-	-	-	-	-	-	***
802	Chilled Water Pumps	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	2 & 5
803	Refrig. Units, 300 Tons	-	-	-	-	-	-	-	-	-	***
804	Air Compressors	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	

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SECTION BR-5 (Cont'd.)
BUILDING 184 R - POWER HOUSE (Cont'd.)
(See General Note)

Equipment Piece No.	Name	Surface Prep.	Prime Coat Met'l.	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Application	Finish Coat Met'l	Finish Coat Application	See Note
		2.21	3.108	3.301	3.105	3.108	-	3.401 3.402	3.211	3.401 3.402	5
-	Refrig. Compressors										

* No Paint required.
** Coated by Manufacturer
*** See Insulation Spec.

SECTION BR-5 (Cont'd.)

BUILDING 183 R - COOLING WATER TREATMENT PLANT [redacted]

(See general note)

Equipment Piece No.	Name	Surface Prep.	Prime Coat Mat'l.	Prime Coat Application	Caulk	Intermediate Coat 1st Coat	Intermediate Coat 2nd Coat	Intermediate Coat Application	Finish Coat Mat'l.	Finish Coat Application	See Note
802	Chem. Unloading Equip.	2.21	3.109	3.301	-	3.215	3.214	3.401 3.402	3.215	3.401 3.402	1
803	Chem. Feed Equip.	2.21	3.109	3.301	-	3.215	3.214	3.401 3.402	3.215	3.401 3.402	1
806	Clarification Equip.	2.22	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	1
808	Chlorination Equip. System	-	-	-	-	-	-	-	-	-	**
810	84" Sluice Gates	2.22	3.108	3.301	3.105	3.108	3.108	3.401 3.402	3.108	3.401 3.402	
812	Liquid Sodium Silicate Tank	2.21	3.103	3.301	3.105	-	-	3.401	3.212	3.403	
813	Chem. Storage Silos	-	-	-		-	-	3.402	-	-	*
814	Chem. Storage Tanks, Acid	2.21	3.103	3.301	3.105	-	-	-	3.212	3.403	
816	Acid Storage Tanks	2.21	3.103	3.301	3.105	-	-	-	3.212	3.403	
817	Acid Unloading Pump	2.21	3.109	3.301	-	3.214	3.215	3.401 3.402	3.214	3.401 3.402	2
819	Sodium Silicate Unloading Pump	2.21	3.109	3.301	-	3.214	3.215	3.401 3.402	3.214	3.401 3.402	
822	Acid Transfer Pump	2.21	3.109	3.301	-	3.214	3.215	3.401 3.402	3.214	3.401 3.402	
827	Air Compressor	2.21	3.110	3.301	-	3.220	-	3.401 3.402	3.220	3.401 3.402	**
602	Elec. Water Heater	-	-	-	-	-	-	-	-	-	**

* No Paint Required
** Coated by Manufacturer

SECTION BR-5 (Cont'd.)

GENERAL NOTE: Do not paint if equipment is delivered with finished paint job unless required to obtain desired color of if coating as received is in poor condition.

Coatings specifications for equipment not listed herewith may be obtained from the attached general specifications.

Note 1: Coat steel and cast iron parts only.

Note 2: Same as Note 1 except base plate shall be coated before setting and touched-up after setting.

Note 3: Primer only shall be used on inside.

Note 4: No primer shall be used. Previous paint shall be removed.

Note 5: Never allow longer than 18 hours dry time between coats.

Note 6: See Section BR-6 for special protective coatings.

25 Rev. 8/5/52 Note 7: Galvanized metal, Brass, Copper, Aluminum or stainless steel shall not be painted except where specifically called for.

25 Rev. 8/5/52 Note 8: Striped areas, spot and color painting required in accordance with safety practice shall be taken care of in the field by construction under Operating Department Instructions. See Eng. Std. S3G.

Note 9: Unless otherwise noted on drawings or Paint Schedules for individual buildings the following shall apply:

(a) No insulation shall be painted except where such insulation is exposed to view in spaces having walls and/or ceilings painted.

(b) Where insulation is exposed to view in spaces having walls and/or ceilings painted it shall be painted with prime coat, first coat and finish coat as shown on Schedule (Sheet 11a). The finish coat shall conform to the color & finish of the wall or ceiling surface adjacent to the insulation as indicated on drawings or as elsewhere herein specified under paint schedules for individual bldgs.

(c) Where piping & valves are exposed to view in spaces having walls and/or ceilings painted they shall be painted as shown on Schedule (Sheet 11). The finish coat shall conform to the color & finish of the adjacent wall or ceiling surface as indicated on drawings or as elsewhere herein specified under paint schedules for individual bldgs.

SECTION BR-5 (Cont'd.)

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(d) For the identification of pipe (insulated or uninsulated) by color banding and stencil, See Specification 3018, Sheets 52, 53, 54, of general specification and Engineering Standards S3C.

Note 10: Where equipment, piping valves, hangers etc. are galvanized and are required to be painted, the surface treatment shall be 2-21 and the prime coat 3-102. Other coats shall be as specified. Where non-ferrous metals are required to be painted, they shall be cleaned of all grease and oil as specified in 2-21 and painted as specified for iron pipe.

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Note 11: Interior concrete surfaces serving as boundaries of ventilation supply ducts and casings shall be painted one coat of du Pont sealer coater 3.111.

SECTION ER-5 (Cont'd.)
GENERAL COATING SPECIFICATIONS FOR STEEL AND CAST IRON EQUIPMENT SURFACES NOT COVERED BY THE DETAILED SPECS. FOR POWER AND WATER TREATMENT FACILITIES

EQUIPMENT	Surface Prep.	Prime Coat Mat'l.	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Application	Finish Coat Mat'l.	Finish Coat Application	See Note
Normal - Indoors	2.21	3.110	3.301	3.105	3.220	-	3.401 3.402	3.220	3.401 3.402	
Normal - Outdoors	2.21	3.103	3.301	3.105	3.205	3.213	3.401 3.402	3.206	3.401 3.402	
Wet - Indoors	2.21	3.108	3.301	3.105	3.108	-	3.401 3.402	3.211	3.401 3.402	
Wet - Outdoors	2.21	3.108	3.301	3.105	3.108	3.210	3.401 3.402	3.211	3.401 3.402	5
Submerged in Water	2.22	3.108	3.301	3.105	3 108	3.108	3.401 3.402	3.108	3.401 3.402	5
Buried In Ground	2.21	-	-	-	3.219	-	3.401 3.402	3.219	3.401 3.402	4
Chemical,Outdoors - General	2.21	3.109	3.301	-	3.215	3.214	3.401 3.402	3.215	3.401 3.402	
Chemical - Indoor - General	2.21	3.109	3 301	-	3.215	3.214	3.401 3.402	3.215	3.401 3.402	
Chemical Outdoor - Tanks	2.21	3.103	3.301	3.105	-	-	-	3.212	3.403	
Hot, up to 250°F.	2.21	3.103	3.301	3.105	-	-	-	3.216	3.401 3.402	
Hot, 250 to 400°F.	2.21	-	-	-	3.217	-	3.404	3.217	3.404	
Hot, 400 to 600°F.	2.22	-	-	-	3.218	-	3.404	3.218	3.404	

#1 Blow off tank inlet & Rev. Vent lines 4/1/54

Paint 1 coat of "Hi-Degree Gray" as manufactured by Cheesman-Elliot Co., Inc. 645 Kent Avenue, Brooklyn, N.Y., in accordance with manufacturers instructions.

SECTION BR-5 (Cont'd.)

BUILDING 105 - ASSEMBLY AREA

For Room Finish and Color Schedule See Arch. Dwg.

(See General Notes for BR-5)

Equipment Piece No.	Name	Surface Prep.	Prime Coat Mat'l.	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Application	Finish Coat Mat'l.	Finish Coat Application	Notes
100	2-Ton Monorail Bridge Crane (for unloading)	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401. 3.402	Vendor-Prime Field-Finish
101	2-Ton Double Girder Ridge Crane (for storage)	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
Bldg. R Only											
101-2	Pick-up Frame for E. P. 101	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
101-3	Tube Box Dolly	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
101-4	Lifting Beam for C-ved Beams	"	"	"	"	"		"	"	"	" "
102-1	Extrusion Shipping Crate	-	-	-	-	-		-	-	-	Finish by Vendor
102-3	Crate Separators	-	-	-	-	-		-	-	-	" "
102-4		-	-	-	-	-		-	-	-	Finish by Vendor
103-1	Elec. Fork Trucks	-	-	-	-	-		-	-	-	No Paint Required
105	Pallets	-	-	-	-	-		-	-	-	
107	Final Inspection Bench Steel	2.21	3.103	3.301	3.105	3.222		3.401	3.222	3.401	Vendor-Prime Field-Finish
	Wood Table	2.40	3.101	3.301	3.105	3.222		3 401	3.222	3.401	" "
	Wood Table-Top-	-	-	-	-	-		-	-	-	Shellac Finish by Vendor

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SECTION BR-5 (Cont'd.)
BUILDING 105 - ASSEMBLY AREA
For Room Finish and Color Schedule See Arch. Dwg.
(See General Notes for BR-5)

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Equipment Piece No.	Name	Surface Prep.	Prime Coat Mat'l	Prime Coat Appli-cation	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Appli-cation	Finish Coat Mat'l	Finish Coat Appli-cation	Notes
108	Gauges	-	-	-	-	-	-	-	-	-	Finish by Vendor
109	Tube Racks	-	-	-	-	-		-	-	-	Alum.
113-1	Degreaser-Cleaning Bath	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Paint Outside Inside Galv.
113-4	Sto. Tanks	-	-	-	-	-		-	-	-	Galv.
113-5	Strainer Bucket	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Paint
113-6	Solvent Pumps	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
113-7 114	Transporting Dollies	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Field Finish Coat Only
115	Degreaser Hoist	-	-	-	-	-		-	-	-	Finish by Vendor
116-1	F-Tube Loading Mach.	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
116-2	Magazine Loading Tables	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
116-3	Magazines	-	-	-	-	-		-	-	-	Finish by Vendor
116-4	Platforms (By Field)	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Field
1119	Q Test Fixture	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
1119-1	Test Sta. Pumps S/S	-	-	-	-	-		-	-	-	-

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SECTION BR-5 (Cont'd.)
BUILDING 105 - ASSEMBLY AREA (Cont'd.)
For Room Finish and Color Schedule See Arch. Dwg.
(See General Notes for BR-5)

Equipment Piece No.	Name	Surface Prep.	Prime Coat Matl	Prime Coat Appli-cation	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Appli-cation	Finish Coat Matl	Finish Coat Appli-cation	Notes
119-2	Steam Drying Unit	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Prime-Vendor Field-Finish
119-3	Platform Assembly	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Field-Finish Struc-Steel Insulated
119-4	Evactor Air Pumps	"	"	"	"	"		"	"	"	Vendor-Prime
121	Hand Truck	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Field-Finish
122	Rod Wash Station Revolving	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
122-1	C-rod Multiple gripper	-	-	-	-	-		-	-	-	Stain. Steel
122-2	C-Rod Box Clamp	"	"	"	"	"		"	"	"	" "
122-3	Multiple Rod Clip	-	-	-	-	-		-	-	-	" "
123	Pick up Grippers	-	-	-	-	-		-	-	-	Finish by Vendor
124-1	Q Tube Ass'y Leg Rack	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
124-2	Monorail System-Elec.	-	-	-	-	-		-	-	-	Shop cost of aluminum by Vendor
124-3	Lift Towers	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
124-5	Hoist	-	-	-	-	-		-	-	-	Finish by Vendor
126	Tipping Machine	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor Field-Finish
130	Non-Elec.Monorail System	-	-	-	-	-		-	-	-	Shop Cost of Alum. by Vendor

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SECTION BR-5 (Cont'd.)
BUILDING 105 - ASSEMBLY AREA (Cont'd.)
For Room Finish and Color Schedule see Arch. Dwg.
(See General Notes for BR-5)

Equipment Piece No.	Name	Surface Prep.	Prime Coat Mat'l	Prime Coat Appli-cation	Caulk	1st Coat	Intermediate 2nd Coat	Intermediate Appli-cation	Finish Coat Mat'l	Finish Coat Appli-cation	Notes
131	Water Sto. Tank S/s	-	-	-	-	-	-	-	-	-	-
132	Steam Surge Tank	2.21	3.103	3.301	3.105	3.22		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
133	Sump Pump	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
134	Storage Hangers	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
136	Tube Sto. Rack	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Field-Finish
137	Shut-off Door at Pick-up Station										
142	Valves S/S	-	-	-	-	-		-	-	-	-
145	Booster Pumps	2.21	3.103	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	

SPECIFICATION 3019

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SECTION III (Cont'd)
BUILDING 105 PROCESS AREA
(See General Notes for BR-5)

Piece No.	Name	Prime Coat Surface Prep.	Prime Coat Mat'l	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Application	Finish Coat Mat'l	Finish Coat Application	Notes
160TF	Plenum Template Assembly	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime & Intermediate Field Finish W-153583
161.5R2	Latch Carrier Assembly	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime & Intermediate Field Finish W-153366 W-153375 W-153390 W-153404
161.8R2 161.9R2	Rack Extension Hanging Guide Assembly	2.21	3.103	3.301	3.105	3.220		3.401	3.220	3.401	Vendor-Prime & Intermediate Field-Finish W-153089 W-153100 W-153078-B D-119908
160.2R2 160.3R2	AG & AH Deck /Framing & Plates	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Intermediate & Finish W-132593 W-132594 W-132371
161.4R2	60 Ton Hoist & Sheave Assy's	2.21	3.103	3.301	3.105	3.220		3.401 3.402	--	3.401 3.402	Outside Surfaces, Vendor Complete BPP

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SECTION BR-5 (Cont'd.)

BUILDING 105 PROCESS AREA (Cont'd.)

(See General Notes for BR-5)

Piece No.	Name	Surface Prep.	Mat'l.	Application	Caulk	1st. Coat	2nd. Coat	Application	Mat'l.	Application	Notes
160	Amplifier Rack Platform	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Field-Complete W-152312 W-152423
159.1	Amplifier Racks	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Inter. & Finish W-152494
175*	In Conveyor	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Unmachined Carbon Steel Vendor-Prime Field-Inter. & Finish W-151735
177	Robot C. P.	2.21	3.103	3.301	3.105	3.223		3.401 3.402	3.223	3.401 3.402	Vendor-Complete
179	Servicing Wrench	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Unmachined Carbon Steel Vendor-Prime Field-Inter. & Finish.

* Portion of conveyor extending into Process Room shall be painted with vinyl paint under BR-6.

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SECTION BR-5 (Cont'd.)
BUILDING 105 - PROCESS AREA
For Room Finish and Color Schedule See Arch. Dwg.
(See General Notes for BR-5)

Equipment Piece No.	Name	Prime Coat Surface Prep.	Prime Coat Mat'l.	Prime Coat Appli-cation	Intermediate 1st Coat Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Appli-cation	Finish Coat Mat'l.	Finish Coat Appli-cation	Notes
171	Crane rails, splice plates, etc. of charging crane (except finished surfaces) Conveyor-Maintenance Rm.	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
172	Crane rails, splice plates, etc. of Discharging crane (except finished surfaces) Conveyor-Maintenance Rm.	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
190	Observation windows Exposed Steel in Control Rm.	2.21	3.110	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Prime Field Finish
191	Observation windows Exposed steel in Observation Room	2.21	3.110	3.301	3.105	3.222		3.401 3.402	3.222	3.401 3.402	Vendor-Prime Finish Field
201	Heat Exchangers	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-field
202	Circulating Pumps	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-field
202.3	Fornspreg Backstop	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Prime-Field Finish-Field
203	Lubrication System	3.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
206	Sump Pumps	2.21	3.110	3.301	3 105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
206.1											
209	Drain Tank Pumps	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Motor-Support
210	Transfer Cars	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
166	Supplementary Safety	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Field-Prime Field-Finish

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[redacted] AREA

For Room Finish and Color Schedule See Arch Dwg.
(See General Note for BR-5)

Equipment Piece No.	Name	Surface Prep.	Prime Coat Matl	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Application	Finish Coat Matl	Finish Coat Application	Note
203	Storage Tank	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Vendor-Finish
204	Horiz. Storage tank (outside only)	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
204.1	Horiz. Pump (outside only) except stainless steel)	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
205	Storage Tank (outside only)	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
214	Overflow Tank (Outside only except stainless steel)	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
215	Overflow Pump (Outside Only except stainless steel)	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
216	Overflow Pump (Outside Only) A to D F & G	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
208	Drain Tank (Outside Only) except stainless steel.	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
208.1	Drain Tank (Outside Only except Stainless steel)	2.21	3.103	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish

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SECTION BR-5 (Cont'd.)
BUILDING 105 - PROCESS AREA (Cont'd.)
For Room Finish and Color Schedule See Arch. Dwg.
(See General Notes for BR-5)

Equipment		Prime Coat			Intermediate				Finish Coat		
Piece No.	Name	Surface Prep.	Mat'l.	Application	Caulk	1st Coat	2nd Coat	Application	Mat'l.	Application	Notes
211	Trolley Hoist (10 Ton)	2111	-	-	3.105	-		-	3.220	3.401	Field Finish for color
212	Trolley Hoist (6 Ton)	2.11	-	-	3.105	-		-	3.220	3.401	Field Finish for color
213	Electric Truck	2.11	-	-	3.105	-		-	3.220	3.401 3.402	Field Finish for color
219	Overflow Separator	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-Field Except s/s
224	Shield Water Coolers	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-Field Except s/s
225	Shield Water Pumps	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-Field Except s/s
226	Separator Tank	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-Field Except s/s
228	Vacuum Drying Unit	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-Field Except s/s
229.3	Steel Drums	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-Field Except s/s
229.4	Sump Pump	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-Field
229.4	Desiccant Chambers	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-Field Except s/s
229.11	Cooling Water Collection Tank	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-Field
238	CO_2 Cylinder Manifold	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Finish-Field Except s/s

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SECTION BR-5 (Cont'd.)

BUILDING 105 - DISASSEMBLY AREA EQUIPMENT

For Room Finish and Color Schedule see Arch. Dwg.

(See General Notes for BR-5)

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Equipment Piece No.	Name	Surface Prep.	Prime Coat Mat'l	Prime Coat Application	Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Application	Finish Coat Mat'l	Finish Coat Application	Notes
322	Relay Cabinet Assembly	2.21	3.110	3.301	3.105	[illegible]		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
325.1	Equip. Cabinet Assembly	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
326	Control Station	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
327	Pump Assembly	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
328	Tank Assembly (Outside)	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
333	Foil Rod Extractor	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.206	3.401 3.402	Prime-Finish Field
336	Roof Hole Plugs	2.21	3.103	3.301	3.105	3.205		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
340	Moncrail System, Hangers-rods & Insert Panels	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
348	Monitor Basin Turn-table Desk	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
357	Control Panel	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish

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SECTION BR-5 (Cont'd.)
BUILDING 105- DISASSEMBLY AREA (Cont'd.)
[redacted] Room Finish and Color Schedule See Arch. Dwg.
(See General Notes for BR-5)

Equipment Piece No.	Name	Prime Coat Surface Prep.	Prime Coat Mat'l.	Prime Coat Appli-cation	Intermediate Caulk	Intermediate 1st Coat	Intermediate 2nd Coat	Intermediate Appli-cation	Finish Coat Mat'l.	Finish Coat Appli-cation	Notes
377	30-Ton crane	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
	Exposed Steel Exposed Steel										
385	Window Tanks	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
	Observer's Side										
390	6-ton Shop Crane	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish
370	Dry Cask Yoke	2.21	3.110	3.301	3.105	3.220		3.401 3.402	3.220	3.401 3.402	Vendor-Prime Field-Finish

Crane Spray Piping - painted BR-5 Sh. 11 - exposed uninsulated pipe.

SECTION BR-5 (Cont'd)

BUILDING 105

VENTILATION - EQUIPMENT AND DUCTWORK

Equip Piece #105-901, 901.07, 902, 907, 909. 911, 914. 916, 918, 925 (935 & 936 L & K Bldg.) are to be painted in accordance with the following Specification.

Fan wheels and casing, all other equip casing, inside and outside where Vendor has applied an unacceptable prime coat. follow procedure as tabulated on sheet #11 of Section BR-5 for the item "Equip not Insulated"

Where Vendor has applied an acceptable prime coat in good condition, follow procedure as tabulated on sheet #11 of Section BR-5 for the item "Equip not Insulated" except omit "Prime Coat Application"

Where Vendor has applied an acceptable finish coat in good condition, follow procedure as tabulated on sheet #11 of Section BR-5 for the item "Equip not Insulated" except omit "Surface Preparation", "Prime Coat Application" and "1st Coat Application"

Equip Piece No. 105-901.01. 901.02. 901.03 901 04. 901 06, [illegible]8. 904. 908, 912, 913. 915. 917. 919, 922, 923. 928, 929, 930. 931. 933, and [illegible]4 are to be painted outside only. and the same specification as given above is to be followed

Galvanized ducts and casings, including galvanized casings of finned coils are not to be painted; however, where flaking of coating occurs. follow instructions on sheet 6. Specification No. 3027.

Finned coils are not to be painted

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Sheet 1
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Rev. 4/1/54

SECTION BR-6

SUBJECT - SPECIAL PROTECTIVE COATINGS

- SURFACE PREPARATION - MATERIALS AND APPLICATION

SCOPE - This specification defines the degree of surface preparation required for metals, concrete and cement asbestos board surfaces and protective coating materials to be applied by Vendor or construction including methods of application.

6.0000 - Surface Preparation: All surfaces are to be clean, dry, free of all grease, loose material and in case of steel or iron, the surface to be painted must be free of all rust and scale. Wherever practicable metal surfaces are to be sandblasted.

6.0001 - Stainless steel piping and equipment does not require painting for protection. The use of paint for identification marking and for visibility definition is permitted.

6.0100 - Metal Surface Preparation by Vendor, Painting by Construction

6.0101 - Surface Preparation: Metal surfaces are to be sandblasted, leaving the surface free of al mill scale rust, grease, old coatings, moistur or other impurities. Before sandblasting, all traces of grease shall be removed by solvent washing, AMERCOAT 55 cleaner may be used.

Grind or file all rough or sharp edges before sandblasting. Where carbon steel component ha been sandblasted before machining, machined surfaces requiring special protective coatings need not be sandblasted provided:

1. Machine surfaces are roughed up with a rasp and
2. Surfaces so treated are minor in extent.

Blasting Procedure:

1. Use an air source with a minimum 200 cfm. at 100 psi per blast nozzle.
2. Use a graded flint or silica sand, 15-30 mesh, that is, 0% retained on 15 mesh scree 100% retained on 30 mesh screen.
3. Max. speed and most effective cleaning is obtained by systematic even blasting. Blo out work in one foot squares and blast each square evenly until complete.

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[redacted]

SECTION PR-6 (Cont'd)

6.0100 - Metal Surface Preparation by Vendor, Painting by Construction (Cont'd.)

6.0101 - Surface Preparation (Cont'd.)

Blasting Procedure (Cont'd.)

4. When blasti.. is completed, the surface of the steel should be an even, gray color. Blotchy surfaces indicate incomplete blasting and are not satisfactory. When sandblasting is completed, remove all dust by vacuum. All surfaces shall be primed as quickly as possible after blasting. Never leave bare metal surface overnight before coating.

6.0102 - Application of Rust Preventive

One coat of rust preventive Esso Rust Preventive 4773 Esso Standard Oil Company, New York City or Ensis fluid 207 Shell Oil Company, New York City E. F. Haughton Rust-Vito 344 Nox-Rust Chem. Corp. 369 Freedom Valvoline X-Rust 481 or equal shall be applied. This is a solvent cut back type rust preventive and can be applied at room temperature either by brush or dipping. A drying time of approximately one hour is required. This rust preventive will deposit a protective film against exposure to weather and will withstand normal handling in transit and storage. All parts containing any machined surfaces shall be sandblasted and coated with rust preventive before machining operation. After this operation the machined surfaces shall be coated and the entire part shall be inspected to insure complete coverage. All stainless steel that receives paint shall be sandblasted and coated with rust preventive in compliance with this specification.

6.0103 - Removal of Rust Preventive

Before applying the Speciat Protective Coating, all rust preventive must be removed. The following two methods are recommended.

1. Vapor Spray Degreasing - Trichloroethylene Solvent

This method is recommended for parts that are relatively small, low in weight, and can be readily handled on commercial vapor spray degreasing machines. Parts cleaned by this method are free of all grease and oil. As a result, application of the special Protective Coating should follow immediately to preclude any rust formation.

SECTION HR-6 (Cont'd.)

6.0100 - Metal Surface Preparation by Vendor, Painting by Construction (Cont'd.)

6.0103 - Removal of Rust Preventive (Cont'd.)

2. Solvent Soak and Steam Jet Cleaning

This method is recommended for parts that are too large to be cleaned in degreasing machines. The parts to be degreased first should be drenched with stoddard solvent that contains an emulsifier. Brymal A (Esso Standard Oil Company) or equivalent is a product of this type. It also is possible to make such a mixture in the field using stoddard solvent with 10-20% Mulsirex (Turco Products Company) or equivalent.

The solvent plus emulsifier should be allowed to soak the rust preventive coating for 10 - 15 minutes The parts should then be cleaned by means of a steam jet cleaner. A detergent such as "Steam Off" (Turco Products, Inc.) should be introduced into the steam jet. Most all portable steam cleaners are equipped to introduce detergent into the steam

This type of cleaning should remove all oil and grease from the surface. Temporary protection from corrosion will remain after cleaning. The application of Special Protective Coating should not be delayed longer than absolutely necessary.

6.0200 - Metal Surface Preparation by Vendor, Painting by Vendor

Same as 6 0100 except omit 6.0102, 6.0103.

6.0300 - Metal Surface Preparation by Construction, Painting by Constr.

Same as 6.0100 except omit 6.0102, 610103

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SECTION RR-6 (Cont'd.)

6.0400 - SURFACE PREPARATION OF CONCRETE FOR COATING APPLICATION

6.0401 - Surfaces must be clean, dry, and free of previously applied coatings, oil, grease and disintegrated or chalky material. Any bumps or projections on the surfaces shall be removed. All water and air pits in the surface shall be filled with cement grout. Areas to be so-treated shall be marked by qualified personnel. Dust-proofing liquid shall be omitted from all surfaces which are to be painted. Final surface shall be reasonably smooth with slightly granular surface. Sample surface shall be prepared in each area and approved by qualified personnel.

[redacted]

SECTION EE-6 (Cont'd.)

6.0400 - SURFACE PREPARATION OF CONCRETE FOR COATING APPLICATION (Cont'd.)

6.0402 - The concrete shall not be painted until the surface is thoroughly dry and in no case less than 30 days after pouring. A representative of the paint manufacturer shall approve surfaces prior to application of paint.

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As of March 23, 1954, it will no longer be necessary to have a paint manufacturer's representative to approve painting, competent construction personnel will perform this service using an Electronic Moter Tester (Model BD3, L.R. Bradley & Co. Scientific Instrument Div.) New York, N.Y.

6.0403 - After the drying period, which follows the grouting operation, all surfaces, original and cement washed, shall be acid etched to remove glaze and concrete laitance.

1. Etch with a solution of 1 part hydrochloric and 2 parts clean water. Apply acid solution to concrete by brush or garden spray until solution runs.

2. Concrete shall be wet well with acid. It will bubble for 1/4 to 1/2 minute and stop, at which point the acid is neutralized.

3. When etching is completed, wash surface down with clean water using garden hose. Scrub with stiff brush during washing to remove concrete salts.

4. A properly etched surface should be slightly granular and free from any glaze.

5. On very dense troweled surfaces, several applications of acid may be necessary to get proper tooth or the slightly granular surface.

SECTION BR - (Cont'd.)

6.0500 - RECOMMENDED TYPE OF COATING EQUIPMENT:

6.0501 - Standard Industrial Spray Painting Equipment is recommended, such as manufactured by the De Vilbiss Company, as follows:

1. Pressure material pot
2. De Vilbiss MBC spray gun, with:
   a. 54, 76 or 765 Air Cap
   b. AV-15-EX Fluid Tip
   c. 496-EX Fluid Needle
3. Air Mask for Operator No. MPH 501 (Necessary only for work in confined areas). This mask is recommended as the most comfortable for the operator, with maximum visibility, and freedom from solvent fumes.
4. Air hose for gun and operator, $\frac{1}{4}$" I.D.
5. Material Hose, $\frac{1}{2}$" I.D.
6. Brushes - For brushing, it is essential that brushes be of good quality with long, flexible bristles which will remain well filled.
7. Clean paint paddles and buckets.
8. No. 180 wet-or-dry sandpaper.
9. 1-$\frac{1}{2}$" to 2" Putty Knife.
10. Dusting Brush
11. Explosion-proof lights and electrical equipment.
12. Exhaust fan of sufficient capacity to keep solvent fumes below 1% by volume of air, if work is done in closely confined areas. Example: Small tanks, 100-1000 gals., change air once per minute. Large tanks, 1000 gals., - 20,000 gals., change air once every 2 - 5 minutes.

[redacted]

[redacted]

SECTION BB-6 (Cont'd.)

6.0500 - RECOMMENDED TYPE OF COATING EQUIPMENT: (Cont'd.)

6.0501 - (Cont'd.)

13. A compressor or regular plant air line capable of supplying a continuous volume of air at a minimum of 80 pounds pressure to the nozzle of each gun at all times.

6.0600 - SPRAYING TECHNIQUE

1. Use pressure pot spray equipment, with atomizing pressure of 80 to 100 pounds per square inch, and with air pressure in the pot, except as otherwise hereinafter specified for each class of protective coating, of 10 to 20 pounds per square inch at temperature of approximately 70°F. If temperature is lower, increase pot pressure so that approximately the same workability is obtained. If temperature is higher, lower the pot pressure in the same relation.

2. Spray guns shall always be held at right angle to the work. Never allow the wrist to "flick" out of a right angle position at the end of a pass.

3. The spray gun shall be held about eight (8) inches from the work, using an 8" fan; even, parallel passes should be made.

4. Pay particular attention to all welds, seams, rivets, corners, edges, or rough areas. These shall be double lapped for certain protection.

5. Allow a minimum of two (2) hours drying time between successive coats, except as otherwise hereinafter specified for each class of protective coating.

6. Inspect surface for roughness or overspray before final coat is applied. A light sanding is recommended to remove any overspray or dust.

7. Apply final coat by spray in the same manner as the preceding coat; and even, wet coat is essential.

SECTION BR - 6 - (Cont'd.)

6.0700 - WARNING

As the solvent in these solutions during application are unsuitable for breathing in high concentration, there should be good air circulation where work is done. If the special coating is to be applied to an enclosed area, forced air circulation should be used, and it is necessary that the operator wear an air mask during the application in confined areas.

The solvents in all special coating materials are also inflammable and the materials should be stored away from any danger of fire. During the application, no work should be done near an open flame. Matches, torches, and smoking should be prohibited. It is possible for dangerous solvent concentrations to accumulate in confined areas if adequate air circulation is not provided. Air circulation must be maintained continuously during application and drying.

6.0800 - AMERCOAT NEW #55

6.0801 - AMERCOAT NEW #55 is a three component system, prime, body and seal, manufactured by the AMERCOAT Corp. 4809 Firestone Boulevard, South Gate, California.

6.0802 - AMERCOAT NEW #55 colors are available in black, white, gray, red, and yellow.

6.0900 - AMERCOAT NEW #55 - APPLICATION TO METAL

One (1) coat AMERCOAT NEW #55 Prime to be applied.

1. Prepare metal surfaces in accordance with applicable provisions of 6.0200 through 6.0300 and dust surface thoroughly ahead of priming operation.

2. The material should be stirred thoroughly before and during the application to insure suspension of all pigments. Care must be exercised during application to obtain a smooth, even coat, leaving no uncovered area or holidays.

[redacted]

SECTION BR-6 (Cont'd.)

6.0900 - AMERCOAT NEW #55 - APPLICATION TO METAL - (Cont'd.)

6.0901 - Application of Prime Coat to Metal - (Cont'd.)

3. Apply Prime Coat by brush, thoroughly brushing it into the metal surface. An even wet coat is essential.

4. Total coverage of No. 55 Prime should be a maximum of 200 square feet per Gallon.

5. A minimum of two (2) hours drying time should be allowed between the Prime Coat and the first Body Coat.

6.0902 - Application of Body Coats

Two (2) coats of AMERCOAT NEW #55 Body to be applied.

1. In all cases the Body Coat must be applied over the New No. 55 Prime. Before applying first body coat, fill all seams, pit holes, blow holes and other depressions with Amercoat No. 58 putty.

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2. Apply first Body Coat by Spray. Use pressure pot spray equipment with atomizing pressure of 80 to 100 pounds per square inch and air pressure in the pot of 40 to 60 pounds per square inch at temperatures of approximately 70 degrees Farenheit. If temperature is lower, increase pot pressure so that approximately the same workability is obtained. If temperature is higher, lower the pot pressure in the same relation. Pot pressure will also vary depending on length of fluid hose.

3. Spray guns should always be held at right angle to the work. Never allow the wrist to "Flick" out of a right angle position at the end of a pass.

4. The spray gun should be held about nine (9) inches from the work and even, parallel passes should be made.

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SECTION BR-6 (Cont'd.)

6.0900 - AMERCOAT NEW #55 - Application to Metal (Cont'd.)

6.0902 - Application of Body Coats (Cont'd.)

5. Do not thin Body Coats unless necessary for workability, and then with not more than one pint No. 55 Thinner per gallon of Body Coat.

6. Particular attention should be paid to the coverage of welds, seams, corners, rough spots, edges, etc.. All such areas should be double lapped to make certain of proper coverage and film thickness.

7. Allow a minimum of four (4) hours drying time between body coats.

8. Spray second Body Coat, alternating colors for ease of application and inspection. If first coat Gray, apply second coat Dark Gray.

9. Check all corners, floors, and ledges for overspray. If coating is rough in these areas, sand lightly. Brush a coat of Body over all sanded areas or apply third complete Body Coat as in No. 11 below.

10. Each Body Coat must be applied to obtain a maximum coverage of 125 square feet per gallon.

11. Above coverage is essential for proper coating performance. If maximum coverage of 125 square feet per gallon is exceeded, a third coat of Body will be required to provide proper film thickness.

12. Allow 24 hours drying time after applying last Body Coat before application of Seal Coat.

[redacted]

SECTION BR - 6 (Cont'd.)

6.0900 - AMERCOAT NEW #55 - APPLICATION TO METAL - (Cont'd.)

6.0905 - Application of Seal Coats

Two (2) coats of AMERCOAT NEW #55 Seal to be applied.

1. Before the Seal Coats are applied, the Body Coat surfaces should be given a final inspection. If any overspray or dust has stuck to the surface, a light sanding is recommended for its removal.

2. Do not thin the Seal Coats, unless necessary for workability, and then not more than one (1) pint AMERCOAT #55 Thinner per gallon of Seal.

3. Apply first Seal Coat by Brush. Keep brush well-filled and spread material with even strokes to cover surface; do not excessively rebrush area already covered.

4. Allow four (4) hours drying time between coats.

5. Apply second Seal Coat by spray; an even, wet coat is essential.

6. First and second Seal Coats to be applied - rate not exceeding 150 square feet per gallon per coat.

7. Vary color of Seal Coats for ease of application and inspection. Areas to be painted and finish colors to be as called for on drawings or as hereinafter shown on paint schedule for individual buildings.

8. Allow a final drying time of 48-72 hours before placing coating in service. Air should circulate over coating during entire drying period.

6.0904 - Recommended Type of Coating Equipment - 6.0500

Warning - 6.0700

6.1000 - AMERCOAT NEW #55 OVER OTHER PAINTS OR WHERE SURFACE CANNOT BE SAND-BLASTED

6.1001 - Special Primer AMERCOAT #48 shall be applied over all surfaces of foreign paints and surfaces that cannot be sandblasted. This is to be followed by the standard AMERCOAT three component coating system.

SECTION BB-6 (Cont'd.)

6.1000 - AMERCOAT New No. 55 Over Other Paints or Where Surface Cannot be Sandblasted (Cont'd.)

6.1002 - Under normal conditions No. 48 dries to touch in a few hours, but it must be allowed to dry at least 72 hours before the application of subsequent coats as described below.

6.1003 - Surfaces must be clean, dry and free of grease.

1. All loose rust, or dirt should be removed by scraper and/or wire brush.

2. Loose paint should be scraped off, although it is not absolutely necessary to remove tightly adhering paint.

3. The surface should be dusted off with a brush or clean cloth immediately before application of the coating.

4. All grease should be removed by solvent washing, AMERCOAT #55 cleaner may be used.

6.1004 - (One coat required)

1. Stir thoroughly to insure proper suspension of pigments.

2. If thinning is necessary for workability, use AMERCOAT No. 65 Thinner in quantities not to exceed one quart Thinner to each gallon of No. 48.

3. Apply by brush, working material into the surface thoroughly leaving no bare areas or holidays. Coverage should be approximately 300 square feet per gallon.

When No. 48 is properly dried, sandpaper lightly to remove any rough spots. Then apply the standard AMERCOAT New No. 55 three component coating system in accordance with their respective Application Specifications.

SECTION BR- 6 (Cont'd.)

6.1100 - AMERCOAT NEW #55 - APPLICATION TO CONCRETE

6.1101 - Dust-proofing liquid shall be omitted from all concrete finish which is to be painted with AMERCOAT NEW #55.

6.1102 - All residual grease remaining from forms to be removed by solvent.

6.1103 - Dry Surface thoroughly. A moist surface will not allow proper adhesion of the coating.

6.1104 - Application of Prime Coat to Concrete

1. First coat to be thinned with AMERCOAT #55 Thinner; one gallon thinner to each gallon New No. 55 Prime.
2. First coat to be applied by brush in an even manner, working it well into the concrete surface to obtain the proper penetration.
3. Maximum coverage of first coat should be 200-250 square feet per gallon of the thinned material.
4. Second Prime Coat may be applied within a few minutes after the first coat.
5. Second coat not to be thinned.
6. Second coat to be applied by spray in an even, wet coat.
7. The material should be stirred thoroughly before and during the application to insure suspension of all pigments. Care must be exercised during its application to obtain a smooth, even coat, leaving no uncovered areas or holidays.
8. Coverage of second coat should be a maximum of 200 square feet per gallon.

SECTION BR-6 (Cont'd.)

6.1100 - AMERCOAT NEW 55 - Application on Concrete (Cont'd.)

6.1104 - Application of Prime Coat to Concrete (Cont'd.)

.9. A minimum of two (2) hours drying time should be allowed after second Prime Coat.

6.1105 - Application of Body Coats - Same as 6.0902

6.1106 - Application of Seal Coats - Same as 6.0903

6.1107 - Surface Preparation of Concrete for Coating Application - 6.0400

Recommended Type of Coating Equipment - 6.0500

Warning 6.0700

6.1108 - Application of AMERCOAT NEW 55 to Cement Asbestos Board.

1. Where AMERCOAT NEW 55 is applied to cement asbestos board the surface of the cement asbestos board shall be clean, dry and free of all dust.

2. The application of prime coats, body coats and seal coats shall be as described under 6.1100 Application of AMERCOAT NEW 55 to Concrete, Etching not required.

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6.1200 - Grease - Apply one Coat of Molybdenum Disulfide

(To be Specified - Refer to Lubrication Spec. 3054)

6.1201 - All surfaces specified to be greased must receive a uniform film, and excess material removed.

6.1300 - Grease - Apply one Coat of Molybdenum Disulfide

(To be Specified - Refer to Lubrication Spec. 3054)

6.1301 - All surfaces specified to be greased must receive a uniform film, and excess material removed.

SECTION HR-6 (Cont'd.)

6.1400 - APPLICATION OF AMERCOAT #33 to CONCRETE AND METALS

6.1401 - Acceptable materials are Amercoat No. 33 as manufactured by the Amercoat Corporation, Jacksonville, Florida, Corrosite No. 22 as manufactured by the Corrosite Corp., New York, N.Y. Nukemite No. 40 as manufactured by the Nukem Products Corps., Buffalo, N.Y. Ucilon 400 as manufactured by United Chromium, Inc. New York, N.Y. and Polyclad 33 DG as manufactured by the Carboline Company, St. Louis, Missouri. First Coat on concrete to be thinned "50-50" with manufacturer's recommended thinner as follows: Amercoat No. 10 Diluent for Amercoat No. 33 Corrosite Brushing Thinner for Corrosite No. 22 or Nukemite No. 40 Solvent for Nukemite Primer. Do not thin first coat on metal except for workability and then with not more than one pint of above filler per gallon.

6.1402 - First coat to be applied by brush in an even manner, working it well into the surfaces.

6.1403 - The material shall be stirred throughly before and during the application to insure suspension of all pigments. Care must be exercised during its application to obtain a smooth even coat, leaving no uncovered areas.

6.1404 - Coverage shall not be greater than 250 square feet per gallon of thinned material.

6.1405 - A minimum of two (2) hours drying time shall be allowed between each coat, except that Nukemite primer requires four (4) hours, and following coats require 6-8 hours between coats.

6.1406 - Second and following coats shall not be thinned, unless it is necessary for workability - and then with not over one (1) pint of thinners mentioned above to one (1) gallon of coating. Coverage shall not exceed 250 sq. ft. per gallon of material. Before applying second coat on metal surfaces, fill all seams, pit holes, blow holes and other depressions with Amercoat No. 58 putty or equivalent putty as recommended by the manufacturer of the finishing paint used.

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6.1407 - Second coat and following coats to be applied by spray in an even, wet coat, overlapping each pass.

6.1408 - For wall and ceilings, three (3) coats are to be applied for floors five (5) coats are to be applied. For piping equipment, vessels, etc. three (3) coats are to be applied.

SECTION BB-6 - (Cont'd.)

6.1400 - APPLICATION OF AMERCOAT #33 TO CONCRETE AND METALS - (Cont'd.)

6.1409 - Alternate colors shall be used, such as white - gray - white, finishing with the desired color. Where finish color is white, the last two coats shall be white. Areas to be painted and finish colors to be as called for on drawings, or as hereinafter shown on schedule for individual buildings.

6.1410 - Preparation of Metal Surfaces - 6.0000 to 6.0300
Surface Preparation of Concrete for Coating Application 6.0400
Recommended type of Coating Equipment - 6.0500
Spraying Technique - 6.0600
Warning - 6.0700

Application over other paints or where surface cannot be sandblasted; similar to 6.1000 or materials and methods recommended by the manufacturer of the approved protective coating used.

6.1411 - APPLICATION OF AMERCOAT #33 TO CEMENT ASBESTOS BOARD

1. Where AMERCOAT #33 is applied to cement asbestos board, the surface of the cement asbestos board shall be clean, dry and free of all dust.

2. Three (3) coats of AMERCOAT #33 shall be applied as herein described for application to concrete and metals. Etching not required.

6.1500 - COCOON OR ENVELOPE COATING SYSTEMS

APPLICATION OF COCOON COATING SYSTEM TO CONCRETE

MATERIALS AS MANUFACTURED BY R. M. HOLLINGSHEAD CORP., CAMDEN, N.J.

6.1501 - General

1. Concrete surface must be thoroughly dry after preparation covered by "Surface Preparation of Concrete for Coating Application" - 6.0400.

2. Painting shall be avoided when surfaces are wet due to condensation. Also the temperature shall not be lower than 40°F.

3. Apply by spray, one wet coat of Pliobond 15%.
4. After Pliobond has dried to tough, apply by a spray a 25 mils thickness of C.E. "Cocoon" White, which should be 5 to 6 gals. per 100 sq. ft.
5. Application shall be made by licensed applicators only.
6. Areas to be coated and finish color shall be as called for on drawings.

SECTION BR-6 (Cont'd.)

6.1500 - COCCON OF ENVELOPE COATING SYSTEMS (Cont'd.)

APPLICATION OF COCCON COATING SYSTEM TO CONCRETE (Cont'd.)

6.1502 - Application Technique of Pliobond and G. E. "Cocoon" White (Cont'd.)

1. PLIOBOND and G. E. "Cocoon" White must be applied by means of standard pressure spray equipment or gear or positive displacement pumps, such as manufactured by the DeVilbiss Spray Equipment Company. The Binks Manufacturing Company, and the Gray Co., manufacturers of Grace Pumps.

2. PLIOBOND and G. E. "Cocoon" White must be applies using external spray guns, since the rapid-drying solvent causes clogging and a defective spray pattern when used with internal mix spray guns.

3. PLIOBOND and G.E. "Cocoon" White use the same fluid or tank pressure, 20 to 30 lbs. PSI and the same atomizing pressure of 70 PSI (minimum) to 890 PSI at the spray gun. The 70-lb atomizing pressure at the spray gun is important; air pressures lower than 70 PSI do not provide sufficient break-up of these materials.

4. In applying PLIOBOND and G. D. "Cocoon" White, it is important
   a. That the spray gun be held perpendicular to the surface.
   b. That the spray gun be approximately six to eight inches from the surface at all times.
   c. That the motion of the spray gun be parallel to the surface at all points of the stroke to provide equal uniform application of the coatings.

   Care shall be taken during the application to make sure the film is sprayed directly into right-angle corners, slightly closer than the normal six to eight inch recommended distance. This precaution will prevent bridging of the corners due to the web-like qualities of the materials.

[redacted]

SECTION BR - 6 (Cont'd.)

6.1500 - COCOON OR ENVELOPE COATING SYSTEMS - (Cont'd.)

APPLICATION OF COCOON COATING SYSTEM TO CONCRETE - Cont'd.)

6.1502 - Application Technique of PLIOBOND and G. E. "Cocoon" White (Cont'd.)

5. An area of sufficient size (approximately 100 sq. ft.) shall be sprayed at one time to allow some drying time between coats of PLIOBOND and G.E. "Cocoon" White to eliminate any sags or runs caused by too rapid a build-up of the coatings. This is important only from an appearance standpoint and does not in any way effect the efficiency of the coatings.

6. The operator, during the application of the coatings, shall maintain a definite pattern, so that he will know exactly the number of coats applied to a specific area. If this technique is followed, the operator will have no trouble in determining and being relatively sure of the coating thickness, where otherwise a haphazard method of application, jumping from spot to spot makes it impossible to maintain uniformity.

6.1503 - Determining Thickness of "Cocoon" while Spraying

1. "Cocoon: thickness is gauged during the spray application by an overlapping pass of 50% or more which constitutes approximately 5 mils (.005") in thickness. The initial stroke travels left to right; the return stroke right to left. The area overlapped shall be approximately 5 mils (.005") in thickness. The same procedure shall be used for vertical passes after all horizontal passes have been made on a unit spray area. The horizontal and vertical passes shall be alternated until the desired thickness is obtained.

[redacted]

SECTION BR - 6 (Cont'd.)

6.1500-COCOON OR ENVELOPE COATING SYSTEMS (Cont'd.)

APPLICATION OF COCOON COATING SYSTEM TO CONCRETE (Cont'd.)

6.1503 Determining Thickness of "Cocoon" while Spraying (Cont'd.)

2. In "Cocoon" terminoloty, the overlapped area which constitutes approximately 5 mils (.005") is referred to as one (1) pass. The fluid adjustment of the gun to arrive at this thickness must be the maximum fluid output without causing sags or runs in the coating.

3. A dry coating thickness of 25 mils (.025") minimum requires six to seven passes to arrive at this prescribed thickness coating.

4. Spray operators shall be checked in attempting to maintain this 25 mils (.025") minimum thickness.

5. When spraying corners created by ceiling and floor, to maintain the 5 mils (.005") thickness and eliminate any coating from surfaces other than which it is to be applied the return stroke would naturally be directly over the previous stroke since the overlap would not be possible in this boundary area.

6.1504 - Trouble -- Remedy

Trouble	Remedy
1. Coating spray has dry feathery fringe even when solution control screw of gun is wide open.	Increase feed tank pressure
2. Coating spray fan erratic, sprays sideways, etc.	Clean air cap in solvent or if necessary clean gun completely.
3. Solution sprays in spurts.	Tank is empty or air is entering fluid line. Check tightness of fluid pipe tank.

SECTION BR - 6 (Cont'd.)

6.1500 - COCOON OR ENVELOPE COATING SYSTEMS (Cont'd.)

APPLICATION OF COCOON COATING SYSTEM TO CONCRETE (Cont'd.)

6.1504 - Trouble -- Remedy (Cont'd.)

	Trouble	Remedy
4.	Excessive runs or sagging encountered in spraying.	Re-adjust gun to decrease flow of coating solution being careful to avoid too dry a spray. Move gun more rapidly, covering large areas.

"Cocoon" coating spray guns consume 23 CFM of air at 80PSI.

Insufficient volume as well as insufficient pressure causes defective spray pattern and what is often referred to by spray painters as "orange peel".

6.1505 - Recommended DO'S and DON'TS for Usage of "Cocoon" and Its Equipment

1. Pressures for spraying "Cocoon" coating

   a. 20# to 30# Fluid pressure

   b. A minimum of 70 lbs. Atomizing Air

2. Air caps for G.E. "Cocoon" coating

   De Vilbiss - Nos. 76 and 765.

   Binks - No. 63 PB.

3. An air compressor should be capable of delivering at least 23 CFM at 80 lbs. pressure for each coating gun. (The coating cap consumption is approximately 23 CFM at 80 lbs.)

4. "Cocoon" shall always be kept in an air-tight container (this prevents the solvents from escaping.)

5. Material shall not be permitted to remain in the hoses overnight.

6. Material may be blown back in the tank by the following procedure:

SECTION [redacted] - 6 - (Cont'd.)

6.1500 - COCOON OR ENVELOPE COATING SYSTEMS - (Cont'd.)

APPLICATION OF COCOON COATING SYSTEM TO CONCRETE - (Cont'd.)

6.1505 - Recommended DO's and DON'Ts for Usage of "Cocoon" and Its Equipment - (Cont'd.)

a. Release regulator by backing screw handle out until it feels free.

b. Release all air from tank by opening release valve.

c. Cover air cap with padded rag, squeeze tight and pull trigger all the way open.

d. Listen for noise of material entering tank; shut-off fluid valve and release trigger. Clean with "Cocoon" cleaning solvent.

7. Always be sure all cocks of tank are closed to keep out air.

8. Do not add thinner to "Cocoon". It is ready for use on arrival.

9. In extremely cold weather, "Cocoon" becomes slightly heavier in consistency. If work must be performed under these conditions, the fluid pressure may be increased approximately 5 lbs. over the maximum 30 lbs. "Cocoon" may assume a jell-like consistancy; this may be corrected by vigorous agitation -- NOT by thinning.

10. If hose lines over 50 ft. are used, there may be use for increase in fluid pressure. This can be determined by the operator.

11. Pressures:

a. Fluid pressure or pot pressure is that which shows on the pressure gauge on top of the pressure tank.

SECTION BR - 6 - (Cont'd.)

6.1500 - COCOON OR ENVELOPE COATING SYSTEMS - (Cont'd.)

APPLICATION OF COCOON COATING SYSTEM TO CONCRETE -(Cont'd.)

6.1505 - Recommended DO's and DONT's for Usage of "Cocoon" and It's Equipment - (Cont'd.)

b. Atomizing pressure or atomizing air is that pressure indicated on the transformer or separator gauge and is the air disbursed at the air cap. This regulator must be set to allow for pressure drop in the air line to the gun depending on the length and diameter of air hose.

12. It is absolutely necessary to use an air regulator:

a. It removes oil and water from compressed air.

b. It regulates atomizing air.

Regulator shall be a minimum of 25 ft. from the compressor and consist of air hose with an I.D. of at least 3/4".

NOTE: Use solvent resistant hose for all fluid lines.

6.1506 - APPLICATION OF LIQUID ENVELOPE COATING SYSTEM TO CONCRETE MATERIALS AS MANUFACTURED BY BETTER FINISHES & COATING INC., NEWARK, N. J.

6.1507 - General

1. Concrete surface must be thoroughly dry after preperation covered by "Surface Preperation of Concrete for Coating Application" - 6.0400.

2. Painting shall be avoided when surfaces are wet due to condensation. Also the temperature shall not be lower than 40°F.

3. The first application composed of 50 parts of RX-65 24 Liquid envelope Permanent White and 50 parts Methyl Ethyl Keton shall be sprayed over the entire surface. This reduced material will seal all small holes and produce a foundation coat which will insure a uniform final coat. This prime coat shall be allowed to dry for a minimum of 30 minutes before the heavy film is applied.

SECTION RR-6 (Cont'd.)

6.1500 - COCOON OR ENVELOPE COATING SYSTEMS (Cont'd.)

APPLICATION OF LIQUID ENVELOPE COATING SYSTEM TO CONCRETE (Cont'd.)

6.1507 - General (Cont'd.)

4. Successive coats shall be applied employing Rx-6524 Liquid Envelope Permanent White without any reduction. It should be emphasized that this material should not be reduced in any manner.

5. The equipment required to apply the material mentioned above so that efficient results are obtained provides higher pressure and volume than is used for ordinary paint sprays. The most efficient results are obtained by utilizing equipment similar in design and function to the Graco Power Master, Model 225-815 which provides a fluid pump, agitator fluid and air gauges incorporated in a head which fits a 50 gallon drum. The fluid pump described above is capable of delivering fluid up to a pressure of 200 lbs. p.s.i. and concurrently performs the additional function of circulating the fluid to maintain a uniform viscosity. The head described above is capable of operating two guns simultaneously and includes air and fluid pressure gauges to maintain proper control, eliminating any surge or variance in fluid and air pressures while operating.

6. The compressor required to efficiently operate the equipment outlined above shall be capable of delivering at least 60 cubic feet of air per minute at a minimum pressure of 100 lbs.

7. The spray guns which have produced satisfactory results have been those similar in design and function to the DeVilbiss MBC gun, using Air Cap 640-#24 with Fluid Tip AV-601-D and a Needle MBC-496-D-BX. Internal atomization guns shall not be used. The lines from the pump head to the gun shall have inside diameters of 3/8 to 1/2" on the air line and 1/2 to 5/8" on the fluid line. The line from the compressor to the pump head shall have a minimum inside diameter of 3/4" and not be reduced at any point.

6.1500 - COCOON OR ENVELOPE COATING SYSTEMS - (Cont'd.)

APPLICATION OF LIQUID ENVELOPE COATING SYSTEM TO CONCRETE (Cont'd.)

6.1507 - General - (Cont'd.)

8. In spraying, the air control shall be adjusted so that a fan of 8 to 10" is obtained at a distance of from 8" to 11" from the tip of the gun. The fluid control shall be so adjusted that a wet coat is applied without producing sagging or curtaining (which is the result of an improper balance between fluid feed and air atomization.)

   After the proper adjustment has been obtained, the spraying shall be carried out holding the gun at a distance of from 6 to 10" from the surface being sprayed with the gun held perpendicular to that surface. Each succeeding pass of the gun in one direction shall overlap the preceding spray pattern by one-half. For example, if the spray on the first coat produces a sprayed strip 8" wide, the succeeding pass in opposite direction should overlap by 4". The 4" double lap strip is then considered a single pass of the gun.

   Normally to guarantee a minimum thickness of 25 mils. approximately five passes are required. It is recommended that a cross-coat method of application be employed. By cross-coat is meant a horizontal pass, followed by a vertical pass successively through four passes, completing the spraying with a final horizontal pass.

   Liquid Envelope shall be sprayed "wet" so that a shiny or glowwy appearance is produced both before and after drying.

   The fifth or final pass shall not be sprayed on a humid day, when blushing may occur which would effect a dull, flat appearance in the final finish.

SECTION [illegible] (Cont'd.)

6.1500 - COCOON OR ENVELOPE COATING SYSTEMS (Cont'd.)

APPLICATION OF LIQUID ENVELOPE COATING SYSTEM TO CONCRETE (Cont'd.)

6.1507 - General (Cont'd.)

In spraying Liquid Envelope, a 25 mil. film may be built up in a normal spraying area without waiting for any drying period between coats as is customary in normal coating procedures.

9. The coverage obtained from one gallon of R[illegible]-6524 Liquid Envelope Permanent White when sprayed to a thickness of 25 mils shall approximate 20 square feet or between 5 and 6 gallons per hundred square feet. Spraying should not be done over any damp or wet surfaces whether it be the concrete or a previous coat of Liquid Envelope.

Dry spraying shall be avoided to prevent the formation of a porous, permeable film with relatively poor adhesion. A filter or separator shall be installed between the compressor and the pump and as close to the pump as possible to remove water and condensate from the air being introduced to the spraying system.

Due to the highly technical aspects involved in proper spray applications, a licensed applicator is recommended.

[redacted]

SECTION BB-6 - (Cont'd.)

6.1600 - AMERCOAT NO. 1574

6.1601 - AMERCOAT NO. 1574 consists of one (1) prime, two (2) body and two (2) seal coats. Each of the components are catalyzed before use with a chemical curing agent. The product air dires or cures at very low baking temperatures (140°F. & 160°F.) to thick, insoluble, hard, glossy and chemically resistant films.

6.1602 - SURFACE PREPARATION: 6.0000

Concrete: Concrete should be acid etched and free of all grease, dirt and foreign matter. Concrete must be washed and dryed before coating. 6.0400.

Steel: Except as noted in 6.1610, steel shall be sandblasted. See 6.0100, 6.0200, and 6.0300.

Wood: Wood should be clean and dry.

Cement Asbestos Board: Cement asbestos board should be clean and dry. Etching not required.

6.1603 - APPLICATION PRIME COAT

One gallon of No. 1574 prime is mixed with EXACTLY one-half pint of No. 1574 chemical curing agent by slowly adding the chemical to the prime and stirring thoroughly.

The solution may thicken momentarily, but will return to initial viscosity. The prime should be applied as soon as possible after mixing by either brush or spray. Once the curing agent has been added, the solution will start to thicken. From time to time during application, it may be necessary to add small increments of No. 1574 thinner to keep the viscosity as uniform as possible. If the temperature of the original material is 70°F., a pot life of at least eight hours is obtained. Longer lives are obtained if the product is colder.

6.1600 - AMERCOAT NO. 1574 - (Cont'd.)

6.1603 - APPLICATION PRIME COAT - (Cont'd.)

Heat will greatly shorten the pot lift. This is especially true where 5 to 10 gallons are mixed at one time. The useful life terminates when addition of No. 1574 thinner is difficult and results in gelled material which cannot be re-dispersed easily. After overnight air drying at temperatures of 70° F. and above, the body coat may be applied.

6.1604 - COVERAGE: 300 square feet per gallon.

6.1605 - APPLICATION BODY COATS - One gallon of No. 1574 body coat is mixed with EXACTLY one-half pint of No. 1574 Curing Agent. The body coat is immediately applied by brush or spray. This same precautions are to be observed as in the case of the prime. After drying 4 to 8 hours at temperatures of 70 F. or above (or as soon as coating is firm and tack-free) the body coat may be recoated. Coverage: 275 square feet per gallon per coat.

26 Rev. 9/8/52 Before applying first body coat fill all seams, pit holes, blow holes and other depressions with a mixture of Amercoat No. 1574 primer (accelerated) and silica flour.

27 Rev. 9/19/52 Particular attention should be paid to the coverage of welds, seams, corners, rough spots, edges, etc. All such areas should be double lapped to make certain of proper coverage and film thickness.

6.1606 APPLICATION SEAL COATS - One gallon of No. 1574 seal coat is mixed with EXACTLY one-half pint of No. 1574 curing agent. The seal coat is immediately applied by brush or spray. Drying time is 4 to 8 hours between coats. Final drying time (see curing of coating). Coverage: 250 square feet per gallon per coat.

6.1607 - APPLICATION OF COATS, ALTERNATE COLORS - Alternate colors shall be used, such as white - gray - white finishing with the desired color. Where finish color is white, the last two coats shall be white. Areas to be painted and finish colors to be as called for on drawings, or as hereinafter shown on schedule for individual buildings.

[redacted]

SECTION NR-6 (Cont'd.)

6.1606 - AMERCOAT NO. 1571 (Cont'd.)

6.1607 - CARE OF EQUIPMENT: Due to the chemical setting of the materials, they should not be left in spray equipment or brushes. Equipment must be cleaned immediately after use in No. 1575 thinner, cyclohexanone or methylene dichloride.

6.1608 - CURE OF COATING: The air cure of the coating to solvent insolubility requires approximately 16 hours, at temperatures of 70° F. or above. Temperatures below this point greatly slow the cure rate. Resistance to solvents and chemicals increase with time, coming close to maximum in a 30 day period, if maintained at temperatures of 70° F. or above. This period can be shortened by warming the coating to 160° F. and keeping it at that temperature for approximately 2½ hours, or warming to 110° F. for 45 hours. It is advisable to warm the complete coating system soon after application, so that chemical curing and solvent release may proceed simultaneously. At temperature of 70° F. or above, a time lapse of not more than one week should be permitted between coats. Time lapse longer than this period may reduce adhesion between coats.

6.1609 - Recommended type of Coating Equipment - 6.0700

Spraying technique - 6.0800 except that pot pressure shall be increased as required to properly apply the protective coatings.

Warming - 6.0700

6.1610 - Where it is required to apply Amercoat 1571 over surfaces which have been previously painted, such paint shall be removed by sandblasting. If sandblasting is not possible the paint shall be removed by a wax free type paint remover or by other approved process. When the previously applied paint is an Amercoat paint, Amercoat 1575 Z may be used to seal off previously applied Amercoat coatings as an alternate for the paint remover. All such work shall be done in accordance with the manufacturers detailed instructions.

6.1611 - Amercoat 1571 colors are available in black, white, gray, red and yellow.

[redacted]

SPECIFICATION 3-29

SECTION BR - 6 - (Cont'd.)

6.1700 - AMER-PLATE PLAIN

6.1701 - AMER-PLATE Plain lining is composed of AMERCOAT No.18Y Adhesive and AMER-PLATE Sheet as manufactured by Amercoat Corp., South Gate, California. Surface preparation and application specifications must be carefully and strictly followed for proper results.

6.1702 - Metal Surface Preparation - 6.0300

6.1703 - Concrete Surface Preparation - 6.0400

6.1704 - Recommended Type of Coating Equipment

1. Linoleum Knife - To cut sheet when it is not possible to use tin snips.
2. 12" Tin Snips - to trim sheet
3. 1" heavy blade - sharp putty knife
4. 12" Crescent Wrench - to tighten Oxygen Therapy regulator to Hydrogen Tank
5. Two 8" Crescent Wrenches - to tighten air and hydrogen lines.
6. High quality medium length bristel brushes.
   a. 1" brush - For applying Amercoat No. 171 Welding Solution.
   b. 4" brush - For applying Amercoat No. 18Y Adhesive.
7. Blow-torch, one-pint capacity, for use in heating sheet.
8. Welding equipment - Use either Hydrogen Hot Air Torch or Electric Hot Air Torch:

SECTION BR - 6 - (Cont'd)

6.1700 - AMER-PLATE PLAIN - (Cont'd)

a. Hydrogen Hot Air Torch (as supplied by Amercoat Corporation) - This torch is so designed that a small flame burning inside the torch heats the effluent air to approximately 500-600° F. When the torch is properly adjusted, there is no free flame omitted from the tip of the torch.

Welding of the plastic is accomplished solely by the hot air which issues from the torch. The torch has two small adjusting valves for control of both the air and hydrogen.

(1) Oxygen-Therapy Regulator of the type sold by Airco Company for use on hydrogen tank, reducing flow to Liter reading on secondary gauge.

(2) The extension hose for both hydrogen and air should be De Vilbiss 5/16" air hose. (Attached to the torch are two lead sections, 10 feet long, of 3/16" pressure hose. These smaller leads into the torch make for easier handling and welding.)

(3) Continuous source of compressed air. A small 1/4 H.P. compressor which maintains a minimum of 30# air pressure is adequate.j

(4) Bottled hydrogen

b. Electric Hot Air Torch (as supplied by Amercoat Corporation): Electrically heated to operate with 110 volts, AC or DC. Consumption 450 watts.

SECTION BR - 6 - (Cont'd.)

6.1700 - AMER-PLATE PLAIN - (Cont'd.)

b. Electric Hot Air Torch - (Cont'd.)

Weight 20 oz., less hose and cord. Complete with one nozzle, 15'-0" of gas hose and 14'-0" of flexible electric cord and plug.

(1) Air Hose De Vilbiss 5/16"

(2) Continuous Source of Compressed Air. A small 1/4" h.p. compressor which maintains a minimum of 30# air pressure is adequate.

(3) 110 volts extension cord.

6.1705 - WARNING - 6.0700

6.1706 - Application of Adhesive to Metal or Concrete

1. Dust surface thoroughly ahead of priming operation. Surface must be dry.

2. Apply Adhesive by brush, thoroughly brushing it into the metal or concrete surface. An even, wet coat is essential.

3. A minimum of two (2) hours drying time should be allowed between the first and second coats of Adhesive.

4. Apply second coat of No. 18Y Adhesive by brush in same manner as first.

5. Allow 12 hours' drying after second coat of Adhesive

6. Coverage of No. 18Y Adhesive should be a maximum of 100 square feet per gallon per coat.

7. Clean brushes and equipment with AMERCOAT No. 10 DILUENT.

SECTION BR-6 (Cont'd)

6.1700 - AMER-PLATE PLAIN (Cont'd)

6.1707 - Application of Adhesive to AMER-PLATE Sheet

1. Cut the AMER-PLATE Sheet to fit. Cutting and Fitting should be done prior to attaching sheet to structure.
2. Apply one coat AMERCOAT No. 18Y Adhesive to the underside of the AMERCOAT Plastic Sheet by brush. Apply evenly without holidays.
3. Allow two hours' drying.
4. Apply a second coat of AMERCOAT No. 18Y Adhesive to the underside of the AMERCOAT Plastic Sheet by brush.
5. Allow two hours' drying time after second coat.

6.1708 - Application of AMER-PLATE Sheet to Metal or Concrete.

1. By the use of infra-red lights, steam table or other similar heating method, heat a section of the AMER-PLATE Sheet, on which the Adhesive has been applied, to the point where the Adhesive becomes tacky.
2. At this point, activate the Adhisive on the matal or concrete surface with a light application of AMERCOAT No. 10 DILUENT by brush or spray.
3. Place the hot AMER-PLATE Sheet on the metal or concrete surface so that the top of the Sheet is first to be applied to the surface. Once the top part of the Sheet is in place, progressively roll or press the Sheet down into the under-surface.
4. Control the above procedure so that there are no areas of loose adhesion or blisters. Blisters are caused by trapped air under the sheet.

SECTION BR - 6 (Cont'd)

6.1700 - AMER-PLATE PLAIN (Cont'd)

6.1708 - Application of AMER-PLATE Sheet to Metal or Concrete - (Cont'd)

5. All joints between the Plastic Sheet shall be butt joints and not lap joints.

6. On cooling, the Sheet should be smooth and tightly adherent to the under surface over the entire area.

6.1709 - Welding of Joints between AMER-PLATE Sheets

1. Thoroughly clean the area of the sheet (approximately 1" wide strip on edge) to be welded, with an aromatic petroleum solvent so that the sheet is completely clean and free from dirt or foreign material.

2. Apply two coats of AMERCOAT No. 17Y welding solution by brush over the area on the sheet to be welded only.

3. Allow the AMERCOAT No. 17Y welding solution to dry until it is print-free. Thirty minutes is the minimum drying time required.

4. Adjust hot air torch (either type) so that effluent air is approximately 500-6000 F. Only minor adjustments of temperature are required at any time.

5. The temperature of the air from the welding torch should be hot enough to frost the surfaces of the AMER-PLATE Sheet and to thoroughly soften the welding strip to a tacky condition.

Caution. Do not blister the Sheet or Welding Strip. The welding strip is a slightly softer material than the AMER-PLATE Sheet, and blistering due to excessive heat will occur on it before it will on the Sheet.

SECTION BR-6 (Cont'd)

6.1700 - AMER-PLATE PLAIN (Cont'd)

6.1709 - Welding of Joints between AMER-PLATE Sheets (Cont'd.)

6. The welding torch must be held approximately 1/4" to 1/2" from the surface to be welded and on a 45° angle.

7. The Sheet should receive the major portion of the heat, as the excess heat from the gun will ordinarily be sufficient to soften the welding strip to the proper bending point.

8. As the heat from the torch softens the Sheet to the proper frosty condition, the welding strip should be moved steadily forward and pressed solidly into the Sheet.

9. The relation of the heat between the two sheets is critical. Each must be frosted but not blistered.

10. After the welding strip is thoroughly bonded to the plastic sheet, the edges of the strip should be beveled by using the 1/4" round tip, threaded on one end, to fit the torch. This tip is bent on a 30° Angle for beveling.

11. Use the back-side of the tip to travel on the edge of the strip, flowing the strip down to meet the sheet.

The edge of the welding strip should flow into the plastic sheet.

[redacted]

SECTION ER - 6 (Cont'd.)

6.1700 - AMER-PLATE PLAIN (Cont'd.)

6.1710 - Application - Miscellaneous

1. Care must be exercised when transporting, handling or storing AMER-PLATE to prevent damage. Sheet shall be stored flat, and all sharp pointed or sharp-edged tools shall be kept free from contact with the sheet. Extra care must be used in cold weather as the AMER-PLATE becomes progressively more boardy and brittle as the temperature goes down.

2. The AMER-PLATE Sheet is permanently thermoplastic and may be rewelded by the use of the welding strip described above anytime during its existence.

3. The AMER-PLATE Sheet is non-inflammable; will not support combustion.

4. For best success with this lining, every care must be taken to see that each step in the application is properly performed. Close inspection must be maintained during application of the sheet to the adhesive and during welding. A perfect job is required and can be obtained only by vigilance and care, throughout the entire application.

[redacted]

SECTION BB-6 - (Cont'd.)

6.1800 - AMERCOAT # 25

6.1801 - AMERCOAT #25 is a three component coating system; prime, body and seal, manufactured by AMERCOAT Corp., South Gate, California.

6.1802 - Surface Preparation - 6.0000

6.1803 - Metal Surfaces Preparation by Vendor, painting by Construction - 6.0100

6.1804 - Metal Surfaces Preparation by Vendor, painting by Vendor - 6.0200.

6.1805 - Metal Surfaces - Preparation by Construction, painting by construction - 6.0300.

6.1806 - Concrete Surface Preparation - 6.0400.

6.1807 - Recommended Type of Coating Equipment - 6.0500.

6.1808 - Warning - 6.0700

6.1809 - Application of Prime Coat to Metal

1. Dust metal surface thoroughly, ahead of priming operation as previously stated.

2. Stir material thoroughly before and during the application to insure suspension of all pigments. Care must be exercised during application to obtain a smooth, even coat, leaving no uncovered areas or holidays.

3. Apply one (1) Prime Coat by brush, thoroughly brushing it into the metal surface. An even, wet coat is essential.

SECTION ER - 6 - (Cont'd.)

6.1800 - AMERCOAT # 25 .(Cont'd.)

4. Total coverage of No. 23 Prime should be a maximum of 250 square feet per gallon.

5. A minimum of two (2) hours drying time should be allowed between the Prime Coat and the first Body Coat.

6.1810 - Application of Prime Coats to Concrete

1. First coat to be thinned with AMERCOAT No. 10 DILUENT: one gallon of No. 10 to each gallon of No. 23 Prime.

2. First coat to be applied by brush in an even manner, brushing it well into the concrete surface, to obtain proper penetration.

3. Maximum coverage of first coat should be 250 to 300 square feet per gallon of the thinned material.

4. Second Prime Coat may be applied within a few minutes after first Prime Coat.

5. Second Coat not to be thinned.

6. Second Coat to be applied by brush or spray in an even, wet coat.

7. The material should be stirred thoroughly before and during the application to insure suspension of all pigments. Care must be exercised during its application to obtain a smooth, even coat, leaving no uncovered areas or holidays.

8. Coverage of Second Coat should be a maximum of 250 square feet per gallon.

9. A minimum of two (2) hours drying time should be allowed after second Prime Coat.

SECTION BR-6 (Cont'd.)

6.1800 - AMERCOAT #23 (Cont'd.)

6.1811 - Application of Body Coats

1. In all cases the Body Coat must be applied over the AMERCOAT No. 23 Prime. Before applying first body coat fill all seams, pit holes, blow holes and other depressions with Amercoat No. 58 Putty.
2. All Body Coats should be sprayed. Using pressure pot spray equipment, the atomizing pressure should be 80 to 100 pounds per square inch and the air pressure in the pot should be maintained 40 to 60 pounds per square inch at temperatures of approximately 70°F. If temperature is lower, increase pot pressure in relation to the drop in temperature so that approximately the same workability is obtained. If temperature is higher, lower the pot pressure in the same relation. Pot pressure will also vary depending on material hose length.
3. Spray guns should always be held at right angle to the work. Never allow the wrist to "flick" out of a right angle position at the end of a pass.
4. The spray gun should be held about nine (9) inches from the work and even, parallel passes should be made.
5. The AMERCOAT No. 23 Body is a heavy solution necessitating a thorough mixing before use and quite frequent agitation during application. Do not thin Body Coats unless necessary for workability and then not more than one (1) pint AMERCOAT No. 10 DILUENT per gallon of Body Coat.
6. Particular attention should be paid to the coverage of welds, seams, corners, rough spots, edges, etc. All such areas should be double lapped to make certain of proper coverage and film thickness.
7. Allow a minimum of four (4) hours drying time between Body Coats.
8. Alternate color of Body Coats for ease of application and inspection. If first coat Gray, apply second coat Black or Red.
9. Check all corners, floors, and ledges for overspray. If coating is rough in these areas, sand lightly. Brush a coat of Body over all sanded areas or apply third complete Body Coat as in No. 11 below.
10. Each Body Coat must be applied to obtain a maximum coverage of 100 square feet per gallon.
11. Above coverage is essential for proper coating performance. If maximum coverage of 100 square feet per gallon is exceeded, a third coat of No. 23 Body will be necessary to provide proper film thickness.
12. Allow 8 to 24 hours drying time after applying last Body Coat before application of Seal Coat.

[redacted]

SECTION HR - 6 - (Cont'd.)

6.1800 - AMERCOAT #23(Cont'd.)

6.1812 - Application of Seal Coats.

1. Before the Seal Coats are applied, the Body Coat should be given a final inspection. If any over-spray or dust has stuck to the surface, a light sanding is recommended for its removal.

2. Do not thin the first two (2) coats unless necessary for workability, and then not more than one (1) pint AMERCOAT No. 10 DILUENT per gallon of Seal Coat.

3. Apply first Seal Coat by spray: even, parallel passes should be made: even, wet coat is essential.

4. Allow four (4) hours drying time between coats.

5. Apply second Seal Coat by spray: even, wet coat is essential.

6. First and second Seal Coats to be applied with maximum coverage of 200 square feet per gallon per coat.

7. Vary color of Seal Coats for ease of application and inspection. Areas to be painted and finish colors to be as called for on drawings or as hereinafter shown on paint schedule for individual buildings.

8. Allow a final drying time of 48-72 hours before placing coating in service. Air should circulate over coating during entire drying period.

6.1813 - Application of AMERCOAT #23 to Cement Asbestos Board

1. Where Amercoat #23 is applied to cement asbestos board the surface of the cement asbestos board shall be clean, dry and free of all dust. Etching not required.

2. The application of Prime Coats 6.1810, application of Body Coats 6.1811 application of Seal Coats 6.1812.

6.1814 - Application of AMERCOAT #23 Over Other Paints or Where Surface Cannot be Sandblasted.

1. Application of special primer AMERCOAT #48 shall be as specified in 6.1000.

2. After AMERCOAT #48 is properly dried, sandpaper lightly to remove rough spots and apply the standard AMERCOAT #23, three component coating systems in accordance with their respective application specifications.

[redacted]

SECTION HR-6 (Cont'd.)

BUILDING 221-F&H (PAINTING FOR EQUIPMENT & CANYON)

ITEM	REFERENCES	DESCRIPTION	MATERIAL PARAGRAPH NO.
CANYON WALLS - Center & rack sides up to elev. 322'-6" for 221-F; 320'-6" for 221-H. Exterior walls up to elev. 329'-6" for 221-F; 327'-6" for 221-H. No paint on stainless steel	Rooms #156 & 157, 315, 320	White, except yellow canyon border line. Top 6" (final seal coat only) Unpainted surfaces leaned of loose particles and dust	6.0400 6.1600
CANYON FLOOR		White	6.0400 6.1600
CANYON COVERS (Pipe rack, decontamination room, railroad tunnel and canyon)			
Tops	W-159958	Gray with 8" red band around 3 edges and 8" yellow band on same side of cover (the yellow band being on the north side in one canyon and the south side in the other canyon	6.0400 6.1600
Sides and Steps		White	6.0400 6.1600
Bottoms		White except stainless steel for decontamination room covers	6.0400 6.1600
Rails		Yellow	6.0300 6.1600
Shims on Covers		Grease	6.1200

[redacted]

SECTION BR-6 (Cont'd.)

SHEET 38a - DELETED

[redacted]

[redacted]

1633
Sheet 39
3/27/52
Rev. 5/23/52
Rev. 9/19/52
Rev. 4/1/54
Rev. 1/6/55

SECTION BR-6 (Cont'd.)

BUILDING 221-F&H (PAINTING FOR EQUIPMENT & CANYON) (Cont'd.)

	ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
	CANYON EQUIPMENT			
	Positioning Trunnions and dowels	D-127617	Black	6.0100 6.1600
27 Rev. 9/19/52	Marking around positioning dowels		See Note 4 Sheet 50	6.0300 6.1600 (5 coats)
	Positioning Trunnion support		Black	6.0300 6.1600
	Positioning guides except guiding surfaces	D-127823	Yellow	6.0100 6.1600
	Positioning guides guiding surfaces	D-127828	Grease	6.1200
	Centrifuge Block (All surfaces)	W-148136	White	6.0400 6.1600
	Centrifuge Lifting Trunnions		Yellow	6.0300 6.1600
	Structural supports, misc (carbon steel)		Gray	6.0300 6.1600
	Structural supports for pipe connections		Black	6.0300 6.1600
27 Rev. 9/19/52	Carbon Steel Pipe Jumpers and structural stiffeners		Gray	6.0300 6.1600
	Electrical conduit in cells		Gray	6.0300 6.1600
	Centrifuge frames	W-148137	Gray	6.0100 6.1600
	Centrifuge motors		Gray	6.0200 6.1600
	Motoreducers		Gray	6.0200 6.1600
41 Rev. 4/1/54	Kick Plates	D-127505-A D-127675-A	Gray	6.0300) Aluminum all 6.1600) over including machined bottom.
	Rack Expansion Plates	D-116370	Gray	6.0300 6.1600

[redacted]

SECTION BR-6 (Cont'd.)

BUILDING 221F&H (PAINTING FOR EQUIPMENT & CANYON) (Cont'd.)

	ITEM	REFERENCES	DESCRIPTION	MATERIAL PARAGRAPH NO.
	CANYON EQUIPMENT (Cont'd.)			
	Target on M-S Motors	D127688	2 opposite yellow quadrants on 5" black circle	6.1600 (One Coat each)
27 Rev. 9/19/52	Box Base Details	D116211 D129856	Gray	6.1600 6.0100
27 Rev. 9/19/52	Locating Blocks and shims for equipment positioning guides	D127719	White	6.0300 6.1600
27 Rev. 9/19/52	Fire curtain guides (except guiding surfaces)	D116444	Black	6.0100 6.1600
27 Rev. 9/19/52	Fire curtain guides (guiding surfaces)	D116444	Grease	6.1300
27 Rev. 9/19/52	Fire curtains	D146005	Gray	6.0300 6.0400 6.1600
27 Rev.	Plaque over Ventilating openings in Canyons, including frames for openings.	W147376 W146016	White	6.0300 6.1600
27 Rev. 9/19/52	Farval Grease Measuring Valves	D116453	Gray	6.0100 6.1600
41 Rev. 4/1/54	Carbon Steel Dummy Covers	D127633-A	Gray Amercoated all over except inside machined surface which is to be greased	6.0100 6.1600 6.1300 (1 Coat)
41 Rev. 4/1/54	Carbon Steel Dummy Covers	D127634-A	Gray Amercoat all over	6.0100 6.1600

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BLDG. 221F&H (PAINTING FOR EQUIPMENT & CANYON) - (Cont'd.)

ITEM	REFERENCES	DESCRIPTION	MATERIAL PARAGRAPH NO.
CANYON EQUIPMENT - (Cont'd.)			
Lifting Yokes except hooks and eyes		Gray	6.0300 6.1600
		Alternate 2" wide bands of yellow and black	6.0300 6.1600
Rev.27 Crane Blocks 9/19/52		Red	6.0300 6.1600
Rev. 27 Hooks 9/19/52			
Bails and lifting trunnions on pipe, equipment, and eyes on lifting yokes.		Yellow except tray on parts which clamp to motoreducers	6.0300 6.1600
Studs and nuts		Studs and nuts except thread yellow. Thread in nut-grease.	6.0100 6.1600 6.1300
Motor on impact wrench		Black	6.0200 6.1600
Impact Wrench	W145100	Gray	6.0200 6.1600
Bar on impact wrench (prevents motor from rotating)	W145100	Red	6.0200 6.1600
Grabber	D116584	Gray	6.0100 6.1600
Motor for Grabber		Gray	6.0200 6.1600
Extractor	D-116321	Gray	6.0100 6.1600
Tool Board	D-129876	Gray	6.0300 6.1600
Impact Wrench Suspension	W145358	Gray	6.0100 6.1600
PIPE CONNECTORS Screw	W145099 W145090 D127529	Threads Only	1 coat 6.1300 on threads

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SECTION BR-6 (Cont'd.)

BUILDING 221-B&H (PAINTING FOR EQUIPMENT & CANYON) - (Cont'd.)

ITEM	REFERENCES	DESCRIPTION	MATERIAL PARAGRAPH NO.
PIPE CONNECTORS - (Cont'd.)			
Nut	D127558 (410 S.S.)	Grease threads and holes for pins	1 coat 6.1300
Jaws	D127552 - A,B,F,G (Stainless Steel)		
Pin	D127552-D	Grease all over	1 coat 6.1300
Jaw Guide	D127530	Yellow, except machined guide surfaces and surfaces in contact with screw, circular key and connector block all of which are to be greased.	6.0100 6.1600 1 coat 6.1200
Vertical Connector Guide	D127546	Yellow all over except for tapped holes and gasket recess and seat.	6.0100 6.0300 6.1600
Horizontal Connector Guide	D127551	Same as above	Same as above
Bolts		Yellow all over except for threads which are to be greased. I Coat	6.0300 6.1600 6.1300
PIPE ELECTRICAL CONNECTOR	W145177		
PIPE FIRE EYE	W148546		
Nut	D127558 (410 S.S.)	Grease threads and holes for pins	1 coat 6.1300
Jaws	D127552-C (Carbon Steel)	Black Amercoat All over except hole for pin, side guide surface and bottom guide surface which are to be greased	6.0100 6.1600 1 coat 6.1300

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SECTION BR-6 (Cont'd.)

BUILDING 221-F&H (PAINTING FOR EQUIPMENT & CANYON) (Cont'd.)

ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
ELECTRICAL CONNECTORS (Cont'd.)			
Pin	D127552-D	Grease All over	1 Coat 6.1300
Jaw Guide	D127530	Yellow, except machine guide surfaces and surfaces in contact with screw, circular key and connector block all of which are to be greased.	6.0100 1 Coat 6.1200
Cap	D127560-B	Yellow, except surfaces in contact with jaw guide and screw, which are to be greased and surfaces in contact with upper holder which are to be clean. (See W145177 for coating of inside surfaces and joint)	6.0100 6.1600 6.1200
Upper Holder	D127560-A	Yellow, except surfaces in contact with cap, and gasket surfaces. Grease tapped holes (See W145177 for coating of inside surfaces and joint)	6.0100 6.0300 6.1600 6.1200
Lower Holder	D127566-A (Carbon Steel)	Yellow, outside except top edge which is a gasket surface and is to be left clean and free of all coating. (See W145177 for coating of inside surfaces)	6.0100 6.0300 6.1600
	D127566-B (Stainless Steel)	(See W143177 for coating of inside surfaces)	
Screw	D127529	Grease threads only	1 Coat 6.1300
Socket Head Cap Screw	[redacted]	Yellow all over except for threads which are to be greased. 1 Coat	6.0300 6.1600 6.1300

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BUILDING 221F&H (PAINTING FOR EQUIPMENT & CANYON) (Cont'd.)

The following modifies the information contained in Revision 41, 4/1/54 on sheets 41 and 41a to permit alternate acceptable procedures.

(a) Nut - D127558 (410 S.S.) Nuts already Amercoated may remain so.

(b) Jaw Guide - W127530
The 3 1/8" diameter surface on top and the 2 1/16" diameter counter bore may be greased, instead of Amercoated in cases where the remainder of painting has already been done.

The hole for body of bolts may remain Amercoated provided Amercoated bolts will pass thru freely.

(c) Vertical Connector Guide D127546
Where these units have been already satisfactorily Amercoated, except for machined top surface and inside level surface, it will be acceptable to roughen up these machined surfaces with a rasp or rotary file instead of sandblasting.

(d) Horizontal Connector Guide D127551
Same as for (c) above.

ITEM	REFERENCES	DESCRIPTION	MATERIAL PARAGRAPH NO.
THERMOMETER WELL CONNECTOR			
For parts not given see description of pipe connector	W145707		6.0300 6.1600
Thermometer	D127523 D127522	Yellow outside except gasket surfaces. See drawing for coating inside surfaces.	6.0100 6.1600
SWIMMING POOL			
Floor and walls above stainless steel	Room #149	White	6.0400 6.1600
Platform and railing		Red	6.0300 6.1600
HOT & WARM CANYON SHOPS			
All surfaces except stainless steel	Rooms #112 and 151	White	6.0400 6.1600

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SECTION BR-6 (Cont'd.)

BUILDING 221-B&H (PAINTING FOR EQUIPMENT & CANYON) (Cont'd.)

ITEM	REFERENCES	DESCRIPTION	MATERIAL PARAGRAPH NO.
DECONTAMINATION ROOM (lined with stainless steel not painted.)	Rooms #115 & #154	Exposed Concrete White	6.0400 6.1600
TRUCK WELL All surfaces	Room #214	White	6.0400 6.1600
BUCKET STORAGE Walls stainless steel.	Room #150	Exposed Concrete White	6.0400 6.1600
STORAGE All concrete surfaces	Rooms #107 & #213	White	6.0400 6.1600
PIPE RACKS Walls except stainless steel plates and stainless steel floor	Rooms #315 & #320	White Unpainted surfaces cleaned of all loose particles and dust	6.0400 6.1600
CRANE MAINT. SHIELDING DOORS	W148807 W148378	Below 7' south side south door, gray (Machine enamel all other surfaces)	6.0100) See 6.1400) Note 4 Sheet 44a
STAIRS	Rooms #4 & #19	Walls - white Ceilings white Floors & Landings gray Threads & Riser - gray 8" Base - gray	6.0400 6.1600
RAILROAD WELL	Room #108	White	6.0400 6.1600
CRANES	Room #105 BPF 201183 (Warm Canyon) BPF 201391 (Hot Canyon) BPF 201449 (Paint. Bridge)	No paint required	
Exterior of cabs, bridge traveler, etc.		Black	See Note 1

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BUILDING 221 F&H (PAINTING FOR EQUIPMENT & CANYON) (Cont'd.)

ITEM	REFERENCES	DESCRIPTION	MATERIAL PARAGRAPH NO.
CRANES (Cont'd.)			
		Gray-Floors	6.0200 6.1400
Interior of cabs - metal surfaces		and all other Surfaces See Note 2.	
Crane Maintenance Walkway	Room 412	No paint required	Surfaces cleaned of all loose particles and dust.
Crane Cab Runway	Room 414	No paint required	Same as above

Accoustical Treatment
(not Canyon Cab Only)

NOTE 1:
Flat Black on Steel

Surface preparation - 2.10 or 2.20 Section BR-2
Apply one coat of 3.103 Section BR-3 (if not primed)
For Black, apply two coats of 3.209 Section BR-3
Prime Coat only, by vendor

Apply in strict accordance with manufacturer's directions.
Material manufactured by others but equal to above may be used.

NOTE 2:
Light Grey on Steel

Surface preparation 2.10 or 2.20 Section BR-3
Apply one coat of primer. 3.103 Section BR-3 (if not primed)
Apply two coats of 3.205 and finish coat of 3.206 Section BR-3
Prime coat only, by Vendor.

41 Rev. 4/1/54 Ceiling and wall insulation to be painted with 6.1400 - light, light grey.

(Light, light grey is a mixture of white and grey to correspond approximately to W.W.P.& S. color #33).

Before painting, all holes in insulation are to be repaired. Paint is to be sprayed, not brushed.

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BLDG. 221F&H (PAINTING FOR EQUIPMENT & CANYON) (Cont'd.)

NOTE 3:

Painting of Copper Lubrication Lines of Canyon Equipment

Surface Preparation shall consist of removing all traces of oil or grease by washing with a solvent using Xylol or Amercoat No. 65 thinner. Wipe dry with a clean cloth. Sandblasting will not be required but all rough or sharp edges shall be smoothed by filing or grinding.

After surface is thoroughly dry apply one coat of Amercoat #60 solution in strict accordance with manufacturer's directions. Thoroughly brushing or wiping it into the metal surface. After surface is thoroughly dry, apply Amercoat #1574 in accordance with 6.1600. Finishing color shall be gray.

NOTE 4:

Please note that immediately before placing a plate in position, the film must be inspected for coverage and the coating reapplied if necessary. Also, on mating surfaces, care must be taken to prevent the buildup of too thick a coat in order to be sure of a tight and accurate assembly.

If the preventive coating on the inside faces has been broken in transit, the exposed parts can be wire brushed and coated with a water displacement type rust preventive such as Shell Ensis 211, Houghton Rust Veto 266, Nox-Rust 310-AC or Freedom-Valvoline Tectyl 472. Then the hard coating type rust preventive can be reapplied over the broken areas by the field.

In addition, if the outside is painted after erection, the rust preventive on the outside surfaces must be removed by solvent wiping only. If the plates are painted before assembly, care must be taken to prevent damage to the paint film and touch-up painting after erection will be required if inspection reveals any breaks in the paint film.

NOTE 5:

Amercoat 33 white, 7'-0" high on walls behind and 4'-0" both sides of counters and dirty clothes hampers (Rooms 119 and 132)

NOTE 6:

Amercoat 33 white, 7'-0" high on walls in process end of corridor 130

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SECTION BR-5 (Cont'd.)

BLDG. 221F&H (OTHER THAN PAINTING FOR EQUIPMENT AND CANYON)

ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
CHEMICAL STORAGE	Room #102	Floors - gray 8" Base - gray	6.0400 6.1400
COLD FEED PEEPARATION	Room #110	Walls - white 7' high Floors - gray 8" Base - gray	6.0400 6.1400 6.1600 Flr. only
Ladders, Platforms Stairs, Handrails, etc.	Room #110	Gray	6.0300 6.1600
ENTRY	Room #113	Floors - grey 8" Base - gray Walls - 7' high Conventional Paint	6.0400 6.1400
WOMENS CORRIDORS	Room #124	Same as above	6.0400 6.1400
CORRIDOR	Room #116	Walls - white 7' high Floors - gray 8" Base - gray	6.0400 6.1400
JANITORS TOILET ROOM	Room #117	Floors - gray 8" Base - gray Ceiling & Wall Conventional Paint	6.0400 6.1400
JANITORS LOCKER ROOM	Room #118	Same as above	6.0400 6.1400
JANITORS MONITOR ROOM	Room #119	Same as above	6.0400 See Note 5 6.1400
WOMENS MONITOR ROOM	Room #120	Same as above	6.0400 6.1400
WOMENS LOUNGE	Room #121	Same as above	6.0400 6.1400
WOMENS TOILET ROOM	Room #122	Same as above	6.0400 6.1400
WOMENS LOCKER ROOM	Room #123	Same as above	6.0400 6.1400
TOILET ROOM	Room #125	Same as above	6.0400 6.1400
ELEVATOR MACHINERY ROOM	Room #101	No paint required	

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SECTION BR-6 (Cont'd.)

BUILDING 221F&H (OTHER THAN PAINTING FOR EQUIPMENT AND CANYON) (Cont'd.)

ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
PERSONNEL DECONTAMINATION	Room #126	Walls - white Ceilings - white Floors - gray 8" Base - gray	6.0400 6.1400
COUNTING ROOM	Room #127	Same as above	Same as above
HEALTH & INST. OFFICE	Room #128	Floors - gray 8" Base - gray Walls & Ceilings Conventional Paint	Same as above
EXHAUST AIR DUCT	Room #155	Sealer Coater only all surfaces	
EXHAUST AIR DUCT	Room #158	Same as above	
HEALTH & INSTR. STORAGE	Room #129	Floors - gray 8" Base - gray Walls - 7' high Conventional Paint	6.0400 6.1400 6.1400
CORRIDOR	Room #130	Same as above	Same as above See Note 6
MASK STORAGE	Room #131	Same as above	6.0400 6.1400
CORRIDOR	Room #153	Same as above	Same as above
MEN'S MONITOR ROOM	Room #132	Floors - gray 8" Base - gray Ceiling and Wall Conventional Paint	Same as above See Note 5
MEN'S WASH ROOM	Room #133	Same as above	Same as above
MEN'S TOILET ROOM	Room #134	Same as above	Same as above
MEN'S SHOWER ROOM	Room #135	Same as above	Same as above
MEN'S LOCKER ROOM	Room #136	Same as above	Same as above

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SECTION BR-6 (Cont'd.)

BUILDING 221F&H (OTHER THAN PAINTING FOR EQUIPMENT AND CANYON) (Cont'd.)

ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
STORAGE ROOM	Room #201	Walls - white 7' high Floors - gray 8" Base - gray Conventional Paint Walls and Ceilings above 7'	6.0400 6.1400
REGULATED SHOP	Room #205	Same as above	Same as above
INSTRUMENT SHOP	Room #207	Same as above	Same as above
FAN ROOM	Room #204	No paint required	
CORRIDOR	Room #206	Floors - gray 8" Base - gray Walls - 7' high Conventional Paint	Same as above
ENTRY	Room #210A	Walls - white 7' high Floors - gray 8" Base - gray	Same as above
TOOL DECONTAMINATION RM.	Room #208	Walls - white 7' high Floor - gray 8" Base - gray Ceilings & Walls above 7' Surf. Prep.	Same as above 6.0400
MASK DECONTAMINATION RM.	Room #209	Same as above	Same as above
VALVE ROOM	Room #218	Same as above except no surface preparation on walls and ceilings above 7'	6.0400 6.1400
EXHAUST FAN ROOM	Room #219	No paint required	

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BUILDING 221/AM (OTHER THAN PAINTING FOR EQUIPMENT AND CANYONS) (Cont'd.)

ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
Cang Valves	Room #215	North, South & East walls - white Floors - gray 8" Base - gray on all walls	6.0400 6.1400
Cang Valves	Room #217	North, South & West walls - white Floors - gray 8" Base - gray on all walls	Same as above
Cold Piping	Room #216	Walls - white to clg. Cols. white 7'-0" high ion chamber slots. painted all accessible surfaces Floors - gray 8" Base - gray	6.1400 6.0400 6.1600 Flr. Flr. only
Feed Tanks Gallery	Room #317	Walls - white - 7' high Floors - gray 8" Base - gray	Same as above
Corridor	Room #314	Same as above	6.0400 6.1400
_____	Room #322	Same as above	Same as above
Corridor	Room #323	Same as above	Same As above
Chemical Storage	Room #301	Floors only gray 8" Base- gray	Same as above
Corridor	Room #305A	Same as above	Same as above
Ventilating Equip. Rm.	Room #304	No special paint	
Air Duct Space	Room #303	No paint required	----------
Food Preparation	Room #302	Walls - white Floor - gray 8" Base - gray Sealer Coater on Ceiling	6.0400 6.1400
Corridor	Room #305	Walls - white Ceiling - white (except where covered by duct use Sealer Coater only) Floors - gray 8" Base - gray	Same as above
"B" Line Process Rm. A B	Room #306 (F area only) (H area) no paint.	Walls - white Ceilings - white Floor - gray 8" Base - gray	6.0300 6.0400 6.1400 6.1400

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BUILDING 221F&H (OTHER THAN PAINTING FOR EQUIPMENT AND CANYON) (Cont'd.)

ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
"B" Line Process Rm. A B	Room #307	Walls - white Ceilings - white Floor - gray 8" Base - gray	6.0300 6.0400 6.1400
Sample Aisle	Room #316	Same as above	Same as above & 6.1600 flr. only
Sample Aisle	Room #318	Same as above	Same as above
Pipe Space	Room #325	Same as above	Same as above
Final Concentration	Room #311	Same as above	6.0400 6.1600
Corridor A B C	Room #308	Same as above (except Ceilings covered by Duct use Sealer Coater only)	6.0400 6.1400
Vault	Room #309	Walls - white - 7' high Floors - gray 8" Base - gray Sealer Coater on Ceilings and Walls above 7'	Same as above
Health Inst. Storage	Room #310	Floors - gray 8" Base - gray Walls - conventional Pt. Sealer Coater Ceilings	Same as above
Supervisor's Office	Room #310A	Same as above	Same as above
Corridor	Room #312	Walls - white 7' high Floors - gray 8" Base - gray Sealer Coater Walls and Ceilings above 7'	6.0400 6.1400
Janitor's Closet	Room #313	Same as above	Same as above
Tank Room	Room #324	Walls - white 7' high - Floors - gray 8" Base - gray	6.0400 6.1400
"B" Line Process Rm. A B	Room #306 (F area only) Room #307 (F&H area only) Upper portion of B" Line - white barrier W-147523 - W-149123		6.0300 6.1400

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BUILDING 221F&H (OTHER THAN PAINTING FOR EQUIPMENT AND CANYON) (Cont'd.)

ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
RECEIVING ROOM & AIR LOCK	Room #401	Walls - white 7' high Floors - gray 8" Base - gray	6.0400 6.1400 [illegible]
SERVICE SPACE	Room #401B	Same as above	Same as above
DOOR OPERATOR'S ROOM	Room #401C	Same as above	Same as above
HOT CANYON CRANE MAINTENANCE	Room #403	Same as above	Same as above
WORK SHOP	Room #404	Same as above	Same as above
WARM CAYNON CRANE MAINTENANCE	Room #405	Same as above	Same as above
DOOR OPERATOR'S ROOM	Room #407	Same as above	Same as above
(PERSONNEL) TUNNEL East half only to Col. line X	#1		
(PERNONNEL) TUNNEL and West half Tunnel #1 from Col. line X	#5	No paint required	
TOILET	Room #401A	Floors - gray 8" Base - gray Walls and Ceilings Conventional Pt.	Same as above
STORAGE	Room #402	Floors - gray 8" Base - gray	Same as above
TOILET	Room #409	Walls - white 7' high Floor - gray 8" Base - gray Walls and ceiling above 7' conventional paint	Same as above
"B" LINE WASTE RECOVERY	Room #410	Walls - white Ceilings - white Floor - gray 8" Base - gray	Same as above
CORRIDOR	Room #413	Walls - white 7' high Floor - gray 8" Base - gray Sealer Coater MT1:8 and ceiling above 7'	Same as above

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SECTION BR-6 (Cont'd.)

BUILDING 221F&H (OTHER THAN PAINTING FOR EQUIPMENT AND CANYON)(Cont'd.)

ITEM	REFERENCES	DESCRIPTION	MATERIAL PARAGRAPH
STAIRWAY	Nos. 2,18	Walls-white Ceilings - white Floors & Landings Gray Treads & Risers - Gray 8" Base - Gray	6.04CC 6.14CC
41 Rev. 4/1/54 STAIRWAY	Nos. 1,5,17	Gray Treads & Risers only 8" base - gray Landings (if any) - gray	Same as above
STAIRWAY	Nos. 3,6,7,8, 11,28	Walls - white 7' high Floors, Landings gray Treads & Risers 8" Base - gray	Same as above
STAIRWAY	Nos. 20,21,22 23,24,25	No Paint required	

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SECTION BR-6 (Cont'd.)

BUILDING 221F&H (OTHER THAN PAINTING FOR EQUIPMENT AND CANYON) (Cont'd.)

ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
CEM. ASH BOARD PARTITIONS	As called for in rooms lister herein	White	6.1400 6.1[illegible]
TOILET PARTITIONS	As called for in rooms listed herein	White	6.0000 6.1400
DUCTS & GRILLES (other than s/s and Galv. Iron)	As called for in rooms listed herein	White to 7'-0" above floor line	6.0300 6.1400
DOORS & FRAMES	As called for in rooms listed herein	Gray	6.0300 6.1400
ELEVATORS Cabs-interior Freight & Sample	Bldg. Sections 1, 18	Walls - white Ceilings - white Floors - [illegible] 8" Base - gray	6.0300 6.1400
IDENTIFICATION			
All piping except 221 Bldg. Canyon AIR TUNNEL TO BLDG. 292 (complete exhaust air ducts from air intake filter to 180' beyond 221 Bldg. Line)	Eng'r. Std. S-3-0 Specification 3018 W148133	[illegible] [illegible] 3018 [illegible] Surfaces [illegible] Coater	
AIR LOCKS	Rooms No's. 114, 210, 211, 415, [illegible] 450	Walls - white 7' high Floors - gray 8" Base - gray	6.0400 6.1400
AIR LOCKS	Rooms No's. 141, 148, 159	Floors - gray 8" Base - gray Walls conventional paint 7' high	6.0400 6.1400
AIR LOCKS	Rooms No's. 109, 152, 406, 408, [illegible] 419, 429, 434, 436, 439, 440, 445	Floors - gray 8" Base - gray	6.0400 6.1400
CONCRETE SUPPORTS FOR TANKS & VESSELS		All surfaces	Same as Rm. Flr. Paint
CARBON STEEL SUPPORTS FOR TANKS & VESSESLS		All surfaces	Same as Rm. Flr. Paint
CARBON STEEL OR CAST IRON MOUNTING BASES FOR FLOOR MOUNTED PUMPS		All surfaces	Same as Rm. Flr. Paint

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SECTION FR-6 (Cont'd.)

COLOR IDENTIFICATION FOR 200 AREA

BUILDING 221FAH-MATERIAL AND APPLICATION METHOD FOR CANYON IDENTIFICATION

IDENTIFICATION Applied to	Background	Number
Uncoated Stainless Steel	6.0300, 6.1600	1 coat 6.1606
Uncoated Carbon Steel	6.0300, 6.1600	1 coat 6.1606
Coated Carbon Steel	1 coat 6.1606	1 coat 6.1606
Uncoated Concrete	6.0400, 6.1600	1 coat 6.1606
Coated Concrete	1 coat 6.1606	1 coat 6.1606

GENERAL NOTES - CANYON IDENTIFICATION

1. Numbering system to be furnished to Construction by AED Field Group.

2. Color of background and color, size, and location of numbers to be determined by AED Field Group with Construction assistance.

3. Numbering system to be applied by Construction under the direction of the AED Field Group.

4. Marking around positioning dowels where a horizontal surface on the proper unit is available and visible to the crane operator a 2-1/2" diameter "dot" near the long dowel is a recommended symbol. Where a horizontal surface is not available and an adjacent visible vertical surface is available an elongated picture of a dowel is a recommended symbol. Where no other surface is available the cone portion of the dowel may be painted yellow for this identification.

200 AREA IDENTIFICATION EXCEPT BUILDINGS 221FAH CANYON IDENTIFICATION

GENERAL NOTES

1. Material, method of application, location, size and system to be furnished to Construction by AED Field Group except as already specified in Spec. 3018, Part III.

2. Application to be applied by Construction under the direction of the AED Field Group.

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BUILDING 211

	ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
	WATER HANDLING SYSTEM			
Rev. 27 9/19/52	Concrete basin including curbs, saddles sump, misc. foundations and piers above grade	W149118-F W148851-H	Oxide Red	6.1500 6.0400
Rev.27 9/19/52	Structural steel framing, supports checkered plate, grating, handrails.	W149119-F & H	Gray	6.1400 6.0300
	EVAPORATOR TANKAGE FACILITIES			
Rev. 27 9/19/52	Concrete basin including curbs, saddles, sump misc. foundations and piers above grade.	W146751-F	Gray	6.1400 6.0400
Rev. 27 9/19/52	Structural steel framing, supports checkered plate, grating, handrails	W146756-F	Gray	6.1400 6.0300
	GENERAL PURPOSE EVAPORATOR FACILITIES			
Rev. 27 9/19/52	Concrete basin including curbs, pads, piers, sump and exposed secs. of foundations.	W146757-F W149122-H	Gray	6.1400 6.1400
Rev. 27 9/19/52	Struc. steel framing supports, ladders, checkered plate, grating, handrail	W146174-F W146245-F W149120-H W149121-H	Gray	6.1400 6.0300

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SECTION SS-6 (Cont'd.)

RIDO. 211 (Cont'd.)

	ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
	RECOVERY FACILITIES			
27 Rev. 9/19/52	Concrete basin including curbs, saddles, sump, pads and piers above grade	W146626-F	Grey	6.1400 6.0400
27 Rev. 9/19/52	Structural steel framing, supports, ladders, checkered plate, grating handrail	W148247-F&H W148411-F&H	Grey	6.1400 6.0300
27 Rev. 9/19/52	Pump bases and grout in stainless steel pans	D128085	Grey	.1400 6.0300 6.0400
	TRANSFER TANK ARRANGEMENT			
27 Rev. 9/19/52	Concrete basin, curbs and equip. pads above grade	W146714-F W148857-H	White	6.1400 6.0400
27 Rev. 9/19/52	Structural Steel supports ladders, handrails, etc.	W148258-F&H	Grey	6.1400 6.0300
	CONTROL HOUSE & RECYCLE MATERIALS DRAIN SUMP			
27 Rev. 9/19/52	Concrete Floor and pads in Control House	W146663-F W148858-H	Grey	6.1400
27 Rev. 9/19/52	Cement Asbestos board finish in Control House	W146662-F	No paint	
	Panel Board	BPF	Machinery Enamel	
27 Rev. 9/19/52	Underside off recycle sump cover	W146663-F W148858-H	White	6.1400 6.0400
27 Rev. 9/19/52	Waste Line encasement and overflow drain line pipe sleeve	W148229-F	No paint	

SECTION BR-6 (Cont'd.)

BUILDING 211 (Cont'd.)

ITEM	REFERENCES	DESCRIPTION	MATERIAL PARAGRAPH NO.
27 Rev 9/19/52	WASTE HANDLING FACILITIES		
Concrete Pit including saddles, pads and under-sides of covers	W148277 W148274		6.0400 6.1600
Concrete floors other than stainless steel and miscellaneous exposed concrete	W149222	Gray	6.0400 6.1600
Structural columns below ceiling, stair and platform framing, hand-rail, checkered plate and grating in Truck Unloading Stalls.	W149216	Gray	6.0300 6.1600
Masonite wainscot, cement asbestos board walls and ceilings.	W149215	White	6.1400 6.1411
Pump bases and grout in stainless steel pans	D128088	Gray	6.0300 6.0400 6.1400
27 Rev. 9/19/52	CHEMICAL STORAGE FACILITIES	W147708	
All exposed portions of carbon steel pans, grout pump bases to elevation of top of pan and carbon steel tanks as follows:			
E.P. 351.20 E.P. 351.21-1 E.P. 351.21-2		Du Pont Tank White or equal	
E.P. 351.22-1 E.P. 351.22-2 E.P. 351.22-3		Prime coat by Vendor Insulation by Field	

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SECTION BR-6 (Cont'd.)

BUILDING 235

ITEM	•REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH
RADIOGRAPH	Room #101	Walls - white Ceilings - white Floors - gray 8" Base - gray	6.040C 6.140C
VAULT	Room #102	Same as above	Same as above
SHIFT SUPERINTENDENT OFFICE	Room #105	Walls- white 7' high Floors gray 8" Base - gray Ceiling and Wall above 7' - conventional paint	Same as above
PROCESS ROOM #1	Room #107	Walls - white Ceilings - white Floors - gray 8" Base - gray	Same as above
BAG SEALER ROOM	Room #108	Walls - white 7' high Floors - gray 8" Base - gray Ceilings & wall above 7' - conventional paint	Same as above
PRODUCT INSPECTION ROOM	Room #109	Walls - white Ceilings - white Floors - gray 8" Base - gray	Same as above
PHYSICAL TESTING & FILM READING ROOM	Room #112	Floors - gray 8" Base - gray Walls and ceilings Conventional Paint	Same as above
JANITORS CLOSET #3	Room #114	Walls - white 7' high Floors gray 8" Base - gray Ceiling and Wall above 7' - conventional paint	Same as above
INSPECTION OFFICE	Room #115	Walls - white Ceilings - white Floors - gray 8" Base - gray	Same as above
MATERIAL CORRIDOR	Room #116	Walls - white 7' high Floors - gray 8" Base - gray Ceiling and Wall above 7' - conventional paint	Same as above
PROCESS ROOM #2 (Future)	Room #106	No paint required.	
A.R. Room	Room #110	Walls, floors, ceilings, black	Same as above
DARK ROOM	Room #111	Same as above	Same as above

• See [redacted] and W146619

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BUILDING 235 (Cont'd.)

ITEM	*REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
MENS MONITOR ROOM	Room #117	Walls - white 7' high Floors - gray 8" Base - gray Ceiling Walls above 7' high Conventional Paint	6.0400 6.1400
MENS CHANGE	Room #118	Floors - gray 8" Base - gray Ceilings & Walls conventional paint	Same as above
MENS SHOWER	Room #119	Same as above	Same as above
TOWEL ROOM	Room #120	Same as above	Same as above
MENS TOILET #2	Room #122	Same as above	Same as above
PERSONNEL CORRIDOR #2	Room #126	Walls - white Ceilings - white Floors - gray 8" Base - gray	Same as above
COUNTING ROOM	Room #129	Same as above	Same as above
HEALTH INSTR. ROOM	Room #130	Same as above	Same as above
PERSONNEL DECONTAMINATION	Room #131	Same as above	Same as above
TOILET	Room #132	Walls - white 7' high Floors- gray 8" Base - gray Ceiling - Walls above 7' high Conventional Paint	Same as above

* See Drawings W146615 and W146619

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BUILDING 235 (Cont'd.)

ITEM	*REFERENCE	DESCRIPTION	INTERIOR PARAGRAPH NO.
Women's Toilet #1	Room #138	Floors - gray 8" Base - gray Ceilings & walls Conventional Pt.	6.0400 6.1400
Women's Rest Room #2	Room #139	Same as above	Same as above
Women's Monitor Room	Room #140	Walls - white 7' high Floors - gray 8" Base - gray Ceilings & Walls above 7' conventional paint	Same as above
Janitor's Change & Monitor Room	Room #149	Same as above	Same as above
Janitor's Supplies	Room #151	Same as above	Same as above
Women's Change	Room #141	Floors - gray 8" Base - gray Ceilings & Walls conventional paint	Same as above
Women's Towel Room	Room #142	Same as above	Same as above
Janitor's Toilet #2	Room #150	Same as above	Same as above
Service Corridor	Room #158	Walls - white Ceilings - white Floors - gray 8" Base - gray	Same as above
Decontamination & Inspection Room	Room #159	Same as above	Same as above
Instrument Room	Room #160	Same as above	Same as above
Decontamination & Inspection Room (Future)	Room #161	Same as above	Same as above
Regulated Shop	Room #162	Same as above	Same as above
Stairs #4	Room #204	Same as above	Same as above

* See Drawings W146615, W146745 and W146619.

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BUILDING 235 (Cont'd.)

ITEM	*REFERENCE	DESCRIPTION	PAINTING SCHEDULE PARAGRAPH NO
Filter Transfer & Unloading Area	Room #201	No paint required	
Unloading Area & Air Lock	Room #205	Same as above	
Heating & Vent Equip. Room #3	Room #226	Same as above	
Stairs No. 5	Room #231	Same as above	
Heat & Vent Equip. Area #4 Inert Gas System Equip. Area #1 and Service Corridor	Room #204	Floor only - gray 8" Base - gray	6.0400 6.1400
Filter Room #2	Room #225	Floors conventional paint - Sealer coat walls and ceilings.	

* See Drawings W146619 and W146745

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SECTION BR-6 (Cont'd.)

BUILDING 235 (Cont'd.)

ITEM	*REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO
CEMENT ASBESTOS BOARD PARTITIONS	As called for in rooms listed herein	White	6.1400 6.1411
TOILET PARTITIONS	Same as above	White	6.1400 6.0000
DOORS & FRAMES	Same as above	Gray	6.1400 6.0300
DUCTS AND GRILLES other than stainless steel and Galv. iron	Same as above	White to 7' above floor	6.1400 6.0300
UPPER PORTION OF BARRIER FOR C LINE	W147958	White	6.1400 6.0300
SUPPORTS FRAMING FOR "C" LINE CABINETS	D114421	Gray	6.1400 6.0300
AIR LOCK	Room #103	Walls - White Ceiling - White Floors - Gray 8" Base - Gray	6.1400 6.0400
AIR LOCK	Room #113	Walls - White 7' high Floors - Gray 8" Base - Gray Ceilings & Wall above 7' conventional paint	6.0400 6.1400
AIR LOCKS	Rooms 121,127, 143,148,157	Floors - Gray 8" Base - Gray Wall to 7' high conventional paint	6.1400 6.0400
AIR LOCK	228	No paint required.	
CONCRETE SUPPORTS FOR TANKS AND VESSELS		All surfaces	Same as room floor paint
CARBON STEEL SUPPORTS FOR TANKS AND VESSELS		Same as above	Same as above
CARBON STEEL OR CAST IRON MOUNTING BASES FOR FLOOR MOUNTED PUMPS		Same as above	Same as above

*See drawings W146615, W146745 and W146619

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SECTION BH-6 (CONT'D) (Cont'd.)
BUILDING 241 F&H

ITEM	REFERENCES	DESCRIPTION	MATERIAL PARAGRAPH NO.
DIVERSION BOX			
Nozzle Pit	W146968-F W147544-H	Floors - white Walls - white	6.0400 6.1400
Pipe Pit	Same as above	Same as above	Same as above
Jumper Storage	Same as above	Same as above	Same as above
Cross-Over Encasement	Same as above	Same as above	Same as above
Covers	W147581-F W158081-H	White	Same as above
41 Rev. 4/1/54	Cover slabs for jumper storage and nozzle pit, two lower layers, type B-1,2,3, C-1,2,3, are to be Amercoated all over. Top layer slabs, A-1,2,3,		
Rails on Covers	W147581-F W158081-H	Gray-all surfaces	6.0300 6.1400
Nozzle Beams	W146759-F&H	Black all surfaces	6.0100 6.1400
Outrigger Beams	Same as above	Black all surfaces	6.0100 6.1400
Kick Plates	D127505	Gray- all surfaces	6.0300 6.1400
Steel edges on Covers & Walls	W147043-F W158080-H	White	Same as above
WASTE LINE ENCASEMENT			
Diversion Box to Waste Storage Tanks	W146951-F W148228-H	No paint required	
Diversion Box to Catch Tank & Future Ext.	W148440-F W147549-H W147990-F W149756-H	Same as above	
Catch tank Encasement and Catch Tank Ejector Pit	W146075-F W148245-F W149426-H W158001-H	All exposed concrete and carbon steel surfaces in ejector pit only - white	6.0300 6.0400 6.1400
DRAIN LINE ENCASEMENT			
Waste line Encasement to catch tank	W148119-F W147542-H	No paint required	

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SECTION BR-6 (CONT'D.)

BUILDING 805 F&H

	ITEM	REFERENCE	DESCRIPTION	MATERIAL PARAGRAPH NO.
	WASTE LINE ENCASEMENTS			
27 Rev. 9/19/52	Building 221 to Diversion Box Building	W-147960-F W-148859-H W-148115-F W-149442-H	No paint required	
	Building 723 to Building 211	W-148235-F	Same as above	
	Building 772 to Building 211	W-148227-F	Same as above	
27 Rev. 9/19/52	Building 291 and Building 294 to Building 221	W-149650-F W-149827-H	Same as above	
	Retention Tank	W-158504-F W-158537-H	Same as above	
	Retention Tank Ejector Pit	W-158504-F	All exposed concrete and carbon steel surfaces in ejector pit only - white	6.0300 6.0400 6.1400

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SECTION BR-6 (Cont'd.) - FIELD PAINTING

BUILDING 105 - PROCESS AREA EQUIPMENT
For Room Finish and Color Schedule See Arch. Dwg. See General Notes BR-6

Equip. No.	Name	Reference	Description	Material Spec. No.
160.1R2	Forest Assembly	W-153158 W-153159 W-153160 W-153096 W-153130	Carbon Steel: Prime and intermediate by Vendor. Top coats by field	3062 3062
160.1R2 160TF	Guide 2 Roller Sub-Assemblies	W-151925 "	Carbon Steel: Prime and intermediate by Vendor Top coats by field	3062 3062
160TF 160.1R2	Bed Plates "	D-123806 "	Prime and intermediate by Vendor Top coats by Field	3062 3062
160TF	Bushings Plenum Template	D-142168	Prime & intermediate coats by Vendor on surfaces not plated. Top coat by field on unplated surfaces	3062 3062
161.5R2	Latch Lifting Carrier Ass'y:	W-153422 W-153423		
	Make-Up Unit Assembly	W-153318	Carbon Steel: Prime and intermediate coats by Vendor Top coats by field	3062 3062
	Support Tube (8-1/2" O.D.) Assemblies & Forest Latches	W-153398	Carbon Steel: Prime, intermmediate, & top coats by field on unplated surfaces below elev. plus 66' Above elev. plus 66' **3062 optional	 3062 3019**
161.6R2 161.7R2	Telescope Hanging Guide Assembly	W-153787 W-153788 W-153072-A D-119907 D-119900 D-119899	Carbon Steel: Prime & intermediate coats by Vendor Top coats by field (except on plates surfaces)	3062 3062

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SECTION BR-6 (Cont'd) - FIELD PAINTING

BUILDING 105 - PROCESS AREA EQUIPMENT
For Room Finish and Color Schedule See Arch. Dwg. See General Notes 6 (Cont'd)

Equip. No.	Name	Reference	Description	Material Spec
160.1	Floor Insert	BPF120399 (R) BPF120468 (P,L,K,C)	Prime, intermediate & top coats by field	30 -
171	Charging Crane		Finished by Vendor	306-
171	Conveyor-Wash & Process Rm.		Prime & Inter-Vendor Finish Gray-Vendor	306-
172	Discharging Crane		Finished by Vendor	306-
172	Conveyor-Wash & Process Rm.		Prime & Inter-Vendor Finish Gray-Vendor	
174	120 Ton Crane		Shipped-Vendor's Prime Field-Amercoat Primer 48 3 Coats-Amercoat 33 or equal - Gray	301- BR- 6.- 6.-
176	Dep. & Exit. Conveyor	Boom W-152457	Finished by Vendor " " "	303
	"	Drive	" " "	306-
180	Crane Repair Room Doors	BPF-120090 Dravo-26608	Shop painting & Field painting - White	3019 3062
190	Observation Windows Control	W-130674 W-130675	Inside of sash clear Glyptal Outside of sash Inside of sash: Exposed Steel Process Room - White	3062 3062 3019 BR-6 6.0300 6.1800

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SECTION BR-6 (Cont'd.) FIELD PAINTING

BUILDING 105 - PROCESS AREA EQUIPMENT (Cont'd.)
For Room Finish and Color Schedule see Arch. Dwg. See General Notes BR-6 (Cont'd.)

Equip. No.	Name	Reference	Description	Material Spec. No.
191	Observation Windows Pump Rooms	W-130754	Inside of sash	
		W-130772	Clear Glyptal	
			Outside of sash	3062
			Inside of frame	3062
			Exposed steel - Instrument Rm. - White	3019 BR-6
			-	6.0300 6.1400
			Exposed Steel - Pump Rm. - White	Same
175	In Conveyor		Prime and intermediate coats by Vendor. Top coat by Field	3062 3062

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SECTION BR - 6 (Cont'd) FIELD PAINTING

BUILDING 105 DISASSEMBLY AREA (EQUIPMENT)

(Room Finish and Color Schedule See Arch. Dwg. - See General Notes BR-1.)

EQUIP. NO.	NAME	REFERENCE	DESCRIPTION	SPEC. OR MAT'L. PAR NO.
319	Control Frame Ass'y.		Vendor-Prime Field-Finish Gray	Spec. 3062
	Walk Assembly		Same	Spec. 3062
	Pump Unit		Same	Spec. 3062
356	Control Cabinet Assembly		Vendor-Prime Field-Finish Gray	Spec. 3062
375	Cask		Zinc Spraying	Spec. 3033
376	Cask - Bucket		Outside only Black	Spec. 3062
378	Transfer Car Tank	Spec. on D-114896	Inside-Gray Outside-Black by field	Spec. 3019 BR-6 6.0300 6.1100
381	Steel Drums	Spec. on D-114481	By Vendor	-
381-1	Special Cover	Spec. on D-114481	Inside-Gray Outside-Black by field	6.0300
385	Window Tanks	Spec. on D-130995	Inside 7-coats-Amercoat by field	Spec. 3019 Br-6 6.0300
			Exposed steel-Field Cave side-Amercoat 33 White	6.0300 6.1100
			Observer's side- Gray	Spec. 3019 BR-5
391	Test Stand		Vendor-Prime Field-Finish Gray	Spec 3062
392	Acid Wash Tank		Outside-only Black	Spec. 3062
399	Dryer		Inside & Outside Black	Spec. 3062

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SECTION BR-6 (Cont'd.)

BUILDING 105

VENTILATION - EQUIPMENT AND DUCTWORK

Equip. Piece #105-903, 910 and 920 are to be painted in accordance with the following specification.

Where Fan room walls are Amercoated Fan wheels and casing, inside and outside where Vendor has applied an unacceptable prime coat, follow procedure as outlined in paragraph 6.0300 for sand blasting metal surface and follow with three (3) coats of Amercoat #33 an accordance with paragraph 6.1400. Where Vendor has applied an acceptable prime coat or finish coat received in good condition Amercoat Special Primer #48 may be used followed with three (3) coats of Amercoat 33 in accordance with paragraph 6.1400. Where Fan room walls are not Amercoated, paint fan wheels and inside surfaces as above, but exterior surfaces shall be painted in accordance with sheet 35, Section BR-5.

Black iron ductwork for the above equipment is to be painted inside and outside in accordance with above procedure except, however, for E.P. 105-902 and E.P. 105-903 for R & P Areas, inside surfaces of 18 inch diameter steel supply and exhaust pipes and 19" x 9" exhaust ducts in concrete walls are to be swabbed with two coats of Bitumastic No. 50, minimum thickness 1/32 inch, after cleaning of loose scale and rust. Exterior surfaces shall not be painted. For L, K and C Area, inside surfaces of 18 in. diameter supply ducts to main tank room from E.P. 105-902 shall be painted with Bitumastic 70B enamel in accordance with Du Pont Eng. Std. SB-2R for interior surfaces, "A". External surfaces shall not be painted.

Galvanized ducts and casings are not to be painted. However, where flaking of coating occurs, follow instructions on Sheet 6, Specification No. 3027.

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SECTION BR-6 (Cont'd)

BUILDING 105 (ALL AREAS)

GENERAL NOTES:

1. In rooms finished with special protective costings, instrument equipment and electric equipment, including electric motors, transformers, switchgear and motors control centers finished by Vendors with conventional paints, require no special protective coatings unless specifically called for on plans. No field painting required unless received in poor condition.

2. Instrument racks in observation and instrument rooms, which contain instrument connected to process, are to be finished with Special Protective Coatings, Amer-Coat 33 or equal, for Bldgs. 105R and 105P. Instrument racks in observation and instrument rooms in Buildings 105 L, K. C to be machinery gray.

SECTION BR-6 (Cont'd.)

GENERAL NOTES:

1. Interior concrete surfaces serving as boundaries of exhaust ducts and casings in 100 and 200 areas shall be painted white with same special protective coating as used on adjoining metal ducts and casings.

SECTION BR 6 (Cont'd.)

Cell Color Identification System for the Purification Area of Buildings 105C-K-L-P-R.

ITEM	COLOR
I. Cell Structure	
A. Cell Floor	* White (See Drawing W143043)
B. Cell Walls	* White, except for vertical surface of top step which is to be yellow (final seal coat only). (See Drawing W143043)
1. Nozzle Numbers	
a. Vertical	* 2-1/2" black on wall above nozzles.
b. Horizontal	* 2-1/2" black on wall above nozzles
C. Cell Covers	
1. Tops	
a. Rails	* Opening for crane hooks - white Lifting bar and edge of steel plate - yellow
b. Aligning Marks	* Yellow: Numbers and letters on aligning marks, 6" black
c. Field	* Gray
d. Border	* 6" red all sides
D. Deck around Cell Covers	* Gray
II. Cell Equipment	
A. Equipment Positioning Guides	* Red except for guiding surfaces
B. Equipment Positioning Trunnions	* Yellow
C. Trunnion Guide Frames for Laboratory Storage Tank and Surge Tank	* Black
D. Equipment Support Frames	* Gray
E. Acme Studs	* Yellow except threads
F. Storage Studs	* Green " "
G. Guide Pins	* Yellow
H. Acme Nuts	* Red except threads
I. Pumps and Motors	* Gray
1. Pump Motor Numbers	* 2" black

* Indicates Vinyl paint BR-6
** Indicates conventional paint BR-3

SECTION BR-6 (Cont'd.)

Cell Color Identification System for the Purification Area of Buildings 105C-K-L-P-R. (Cont'd.)

ITEM	COLOR
II. Cell Equipment (Cont'd.)	
J. Lifting Frame for Pumps and Surge Tank By-Pass Lifting Frame	* Gray except for trunnions which are to be yellow
K. Connectors	
1. Piping	
a. Nut and Hex Head of Connector Screw	* Yellow except threads and hold for pin
b. Jaws	* Black except for pin
c. Jaw Guide	* Yellow except surfaces in contact with screw, circular key and connector block
d. Connector Guides (Horizontal or Vertical)	* Yellow except surfaces in contact with socket head cap. screws, gaskets and 45° level.
2. Electrical	
a. Nut	* Yellow except threads and hole for pin.
b. Jaws	* Black except for pin
c. Jaw Guide	* Yellow except surfaces in contact with screw, circular key and cap
d. Cap	* Yellow except surfaces in contact with jaw guide, screw and upper holder.
e. Upper Holder	* Yellow except surfaces in contact with cap, socket head cap screws and gasket surfaces
f. Lower Holder	* Yellow except top surface
3. Thermometer Connectors	* For parts not listed, see piping connector
a. Thermometer	* Yellow except for gasket surfaces
L. Jumpers	
1. Electrical Jumpers	* Red
2. Structural Stiffeners on Piping Jumpers	* Gray
3. Jumper Numbers	* Black
4. Jumper Bails	* Yellow

* Indicates Vinyl Paint BR-6

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SECTION BA-6 (Cont'd.)

Cell Color Identification System for the Purification Area of Buildings 108C-K-L-P-R. (Cont'd.).

ITEM	COLOR
II. Cell Equipment (Cont'd.)	
H. Structural and Other Steel in Cells	
1. Miscellaneous Carbon Steel Supports	• Gray
2. Structural Supports for Piping Connectors	• Black
3. Kick Plates	• Gray
N. Miscellaneous Cell Equipment etc.	
1. Vessel Numbers	• 6" black on yellow background
2. Horizontal Blind Connector Rails	• Yellow
3. Blind Connector Rails	• Yellow
4. Dummy Covers	• Yellow
III. Crane and Accessories	
A. Crane	
1. Exterior Surfaces of Crane Crane Cab, Trolley, etc.	•• Flat Black
2. Interior of Cab	
a. All vertical surfaces, including the electrical boxes and acoustical material	•• Light green
b. Lettering on electrical boxes	•• Dark green
c. Ceiling	•• Light cream
d. Equipment hanging 7'-0" from floor	•• High visibility yellow
e. Exit doors	•• Terra Cotta

• Indicates Vinyl Paint BA-6
•• Indicates Conventional Paint BA-4

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SECTION BR-6 (Cont'd.)

Cell Color Identification System for the Purification Area of Buildings 105C-K-L-P-R. (Cont'd.)

ITEM	COLOR
III. Crane and Accessories (Cont'd.)	
A. Crane (Cont'd.)	
2. Interior of Cab (Cont'd.)	
f. Floor	** Terra Cotta
g. Console	
(1) Legs, front, back and sides	** Medium green
(2) Working surface	** Light green
NOTE: Acoustical material shall be painted with spray coat pigmented surface coating.	
3. Crane Blocks	** 3" bands, alternately black and yellow
4. Hooks	** Red
B. Accessories	
1. Impact Wrench	
a. Body	* Gray
b. Motor	* Black
c. Stop Bar	* Red
d. Suspension Device	* Gray
2. Grabber	
a. Body	* Gray
b. Motor	* Black
c. Suspension Device	* Gray
3. Lifting Yokes	
a. Body	* Gray
b. Hooks and Eyes	* Yellow
c. Numbers	* Black
4. Tool Rack	* Gray

** Indicates Conventional Paint BR-3
* Indicates Vinyl paint BR-6

SECTION BR-6 (Cont'd.)

6.1900 - APPLICATION OF NEOPRENE COATING TO CONCRETE

6.1901 - GENERAL: The intention of this specification is to provide an acid-resistant finish on the wearing surfaces of concrete slabs, curbs, etc. Where this coating is required it shall be so called for on the drawings.

6.1902 - MATERIALS: The materials used in the application of this acid-resistant finish shall be as manufactured by the Union Bay State Chemical Co., Boston, Massachusetts, as indicated below. This material is considered inflammable and should be stored in metal lockers or other suitable containers.

6.1903 - CONDITIONS FOR APPLICATION: Concrete slabs shall have at least seven days curing time before application of acid-resistant finish. After screeding and when concrete is partly set apply a wood float finish being careful to obtain a relatively smooth surface with no large particles of sand remaining. Concrete work exposed to weather shall be performed only on clear sunny days, preferably warm, with no rain impending. All concrete surfaces that are to receive coating must be clean dry, and free of all previously applied coatings, oil, grease and disintegrated or chalky material. Dustproofing liquid shall be omitted from all surfaces which are to be coated. Smoking by personnel while applying this material, or personnel near the site of the work, should not be allowed.

6.1904 - APPLICATION OF PRIME COAT: On the clean dry concrete surface apply one brush coat of No. 701 cement direct from manufacturer's container with no modification. Keep number of brush strokes to a minimum; endeavor not to brush over the same area more than once. This prime coat, of an amber or varnish color, should lose its tackiness within an hour after being applied.

6.1905 - APPLICATION OF SECOND COAT: When prime coat is dry (not tacky) brush on one coat of No. 601 cement in a manner similar to that described above (paragraph No. 6.1904 for the prime coat. Material for second coat shall be used as from manufacturer's container, without modification. Allow about two hours for drying.

6.1906 - APPLICATION OF THIRD COAT: Prepare mixture as follows:

Cement No. 601	50% by volume
" " 501	" " "
Accelerator	4 ounces

The accelerator (yellow color) is furnished by manufacturer as an ingredient in connection with the No. 501 cement.

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SECTION BR-6 (cont'd.)

6.1900 - APPLICATION OF NEOPRENE COATING TO CONCRETE (cont'd.)

6.1906 (Cont'd.) Place the above mixture in a container and mix thoroughly in a manner similar to that of mixing paint.

6.1907 - RECOMMENDATIONS REGARDING ABOVE PROCEDURES (6.1904, 6.1905, 6.1906): The prime coat and the second coat should all be applied in the morning. The third coat is applied in the afternoon, thereby completing the work to this point (considered the base course) in one day.

No. 701 and No. 601 cement left over may be saved for future use by storing in covered container. The mixed material under paragraph No. 6.1906 left over should not be used in future work.

6.1908 - APPLICATION OF FINISH COAT: The finish coat should be applied on the day following installation of the base course. Cement No. 501 and 800 troweling compound are of a putty consistency. Mix these two materials, with an accelerator, together thoroughly in the proportions that yield a consistency, of the mixture, that can be brushed on the base course surface. The proportions may be determined by trial. However, two parts by volume of No. 501 to be one part by volume of No. 800, together with the accelerator furnished by manufacture with the No. 800 Troweling compound (six ounces per gallon of the mixture) may serve as a guide.

Brush on one coat of the foregoing mixture to obtain a total thickness of protective coating of 3/16 of an inch.

Allow one week for curing of this final finish coat, during which time traffic should not be allowed on the surface.

6.1909 - CONCRETE TANK SADDLES - VERTICAL SURFACES: Apply two coats of the following mixture to the vertical surfaces of the concrete tank saddles:

No. 601
No. 701 Mix in equal parts
No. 501

To thin this mixture to a brushing consistency cut with #501 as required. Apply to surface with a brush, in two coats.

6.1910 - MATERIAL COVERAGE: Material coverage to be as per manufacturers instructions or as directed by qualified personnel.

SECTION BR-6 (Cont'd.)

6.1900 - APPLICATION OF NEOPRENE COATING TO CONCRETE (Cont'd.)

6.1911 - LIMITATIONS ON AMOUNTS TO BE MIXED AT ONE TIME: Mix in 3-4 gallon lots.

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SECTION 8T - VENETIAN BLINDS & LIGHT-PROOF SHADES

CONTENTS

Venetian Blinds and Light-Proof Shades & Frames

1. GENERAL - Standard Engineering Specification SC-1-A applies to and is a part of this specification.

2. DESCRIPTION - Venetian Blinds shall be installed on all windows where called for on the drawings. Headbox shall be fully enclosed removable type constructed of cold-rolled steel and supported on properly designed steel brackets secured to window frame or as otherwise shown on drawings.

Brackets shall allow for adequate adjustment on the head-box and shall be equipped with a snap lock feature and safety lugs to properly secure blinds. Tilting mechanism shall be concealed in the headbox and shall provide for positive action leveling device assembly including tilt shaft and bearings to assure quiet operation. Blinds shall be equipped with automatic double action, non-slip cord stop designed to hold blinds at any level.

Tapes shall be first quality with cross straps interwoven and secured to tape anchorage brackets with removable clips for adjusting or removing tape. Slats shall be full hard steel .008" thick or extra hard aluminum alloy .010" thick. Slats shall be concaved shaped, 2" wide with rounded corners, no sharp edges and with cleanly cut route holes. Operating shall be heavy gauge cold rolled steel. Blinds shall be standard pulley type assembly with cords operating over pulleys revolving on steel shafts except that where the width or area of the blind exceeds the manufacturer's allowable safe limits for this type of operation, the type of assembly shall include compound pulley operation. Metal parts, except aluminum, shall be electro-galvanized and bonderized. All metal parts shall be finished in high baked enamel in color as approved.

LIGHT-PROOF SHADES & FRAMES - shall be applied to all windows where indicated on the drawings. All exposed metal parts shall be of galvanized steel with black baked enamel finish. The shade cloth shall be held in a groove by a metal spline. All parts of the equipment shall be built so that they can be removed and replaced without any damage to other parts. The cloth shall be of one piece; no stitching or holes allowed.

The cloth shall be of substantial weight, built up with two layers of special fabric, thoroughly united and coated. Cloth shall be light-proof, crack and fade-proof, non-inflammable, odorless, dust free, and hygienic. The material shall remain soft and pliable under all conditions of weather and climate.

SPECIFICATION 3019

SECTION BT - Venetian Blinds & Light-Proof Shades - (Cont'd.)

Shades shall include assembly boxes, operating bars and spring locks all as required to complete the installation.

After installation all joints between shade frames and window frames shall be caulked light tight.

Light-proof shade shall be as manufactured by the Bar-Ray Product, Inc., or an approved equal.

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SECTION BC - MATERIAL SUPPLY SOURCES

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112 GENERAL - Following is a partial list of products which conform to the requirements of the Standard Engineering Specifications or Project Specifications, together with the names and addresses of their manufacturers or distributors.

This list is intended as a guide for purchasing or other field purposes and shall be used only in conjunction with the Standard Engineering Specifications or Project Specifications which shall, in all cases, determine the selection of any material.

A complete description of all products not listed must be submitted for approval before purchase.

ACID-PROOF BRICK FLOORING MATERIAL

(a) Brick

1. Clayercraft Co., Columbus, Ohio
2. Belden Brick Co., Canton, Ohio
3. Hanley Co., Inc., New York City
4. Summitville Face Brick Co., Summitville, Ohio
5. Acme Brick Co., Fort Worth, Texas

(b) Sulphur-base Joint Cements

1. "Regul-Vitrabond", Atlas Mineral Products Co., Mertztown, Pa.
2. "Portite" and "Super-Portite", U.S. Stoneware Co., Akron, Ohio
3. "Plasul Basolit", Nukem Products Corp., Buffalo, N.Y.
4. "Weldtite", Ralph V. Rulon, Inc., Philadelphia, Pa.
5. "Saucrisen No. 48", Saucrisen Cements Co., Pittsburgh, Pa.
6. "Brimstone" - Electro-Chemical Supply & Engineering Co., Emmaus, Pa.
7. "No. 6" and "No. 7" Maurice A. Knight Co., Akron, Ohio

(c) Phenol-Formaldehyde Resin Base Mortars

1. "Korez", "Carbo-Korez" - Atlas Mineral Products Co.,
2. "Nukem Resinous" - Nukem Products Corp.
3. "Asplit", "Causplit", "Pennsalt PRF and HF"-Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
4. "Haveg 41-R" - Haveg Corp., Newark Del.
5. "Syntho" - Electro-Chemical Supply & Engineering Co., Emmaus, Pa.
6. "No. 8" and "No. 9" - Maurice A. Knight, Akron, Ohio

(d) Furane Resin Base Mortar

1. "Alkor" - Atlas Mineral Products Co.
2. "Lecite" - Electro-Chemical Supply Eng. Co.
3. "Durasite" -- U. S. Stoneware Co.
4. "Permanite - Maurice A. Knight
5. "Formalok" - Ralph V. Rulon, Inc.

SECTION B2 - MATERIAL SUPPLY SOURCES - (Cont'd.)

(e) Sodium Silicate Cements (not included in Standard Engineering Specifications)

1. "Vitric-10", U. S. Stoneware Company
2. "Penchlor", Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
3. "Silicate Cement", Tukem Products Co.
4. "Glassal", Ralph V. Rulon, Inc.
5. "Vitrex", Atlas Mineral Products Co.
6. "Duro", Electro-Chemical Supply & Eng. Co., Emmaus, Pa.
7. "No. 2", Maurice A. Knight Co.

(f) Concrete Primer

1. "Rulon Asphalt Primer" Ralph V. Rulon, Inc.
2. "Atlantic Primer," Atlas Mineral Products Co.
3. "Rukun Asphalt Primer", Rubon Products Corp.
4. "Nomo", Electro-Chemical Supply & Eng. Co.

(g) Matrix Asphalt

1. "Acid-proof Matrix", Ralph V. Rulon, Inc.
2. "Nu-Mastic" Eukem Products Corp.
3. "Atlastic No. 31" - Atlas Mineral Products Co.
4. "Calktite" -- U.S. Stoneware Co.
5. "Komo" - Electro-Chemical Supply & Eng. Co., Emmaus, Pa.

(h) Fiber Glass Cloth

1. "Glasply", Ralph V. Rulon, Inc.
2. "Glasfab", Lesington Supply Co., Cleveland, Ohio

ACID-PROOF MASTIC FLOORING MATERIALS

1. Ralph V. Rulon, Inc., Philadelphia, Pa.
2. Johns-Manville, New York City
3. Philip Carey Co., Cincinnati, Ohio
4. Vulcan Asphalt Co., Inc., Buffalo, N.Y.

ACOUSTRICAL MATERIAL

(a) Mineral Fiber Type

1. "Accoustical-Celotex (M. Series)", Celotex Corp., Chicago, Ill.
2. "Acoustone" - U.S. Gypsum Co., Chicago, Ill.
3. "Permacoustic" - Johns-Manville, New York City
4. "Fiberglas" -- Owens-Corning Fiberglas Corp., Toledo, Ohio
5. "Travertone" & "Cushiontone-P" - Armstrong Cork Co., Lancaster, Pa.
6. "[illegible]" - Certain-Teed Products Co., Ardmore, Pa.
7. "Fissuretone" - Celotex Corp.

SECTION 12 - MATERIAL SUPPLY SOURCES (Cont'd)

(b) Cork Type

1. Armstrong Cork Company

(c) Metal Pan Type

1. "Perfatone"- U.S. Gypsum Company
2. "Sanacoustic"- Johns-Manville
3. "Perforated Acoustic Fan"- E. F. Hauserman Co., Cleveland Ohio
4. "Simplex"- Simplex--Coiling Company. New York 19, N. Y.
5. "Arrestone"- Armstrong Cork Company
6. "Acousteel" - Celotex Corporation

WATERPROOF ADHESIVES

1. Benjamin Foster Company, Philadelphia, Pa.
2. Armstrong Cork Company, Lancaster, Pa.
3. Miracle Adhesives Corporation, Newark, N. J.
4. Atlas Supply Company Manayunk, Phila. 27, Pa.

ADMIXTURES, CONCRETE

(a) Accelerators

1. "Sika 3A" - Sika Chemical Corp., Passaic, N. J.
2. "Trimix" - L. Sonneborn Sons, Inc. N.Y.C.
3. "Tormix" - Toch Bros., Inc., Chicago, Ill.

(b) Plasticizers, Densifiers, Water-Repellents

1. "Omicrom" - Master Builders Company
2. "Medusa Waterproofing Paste or Powder", Medusa Portland Cement, Cleveland, Ohio.
3. "Zilicon" - Truscon Laboratories, Inc., Detroit, Mich.
4. "Hydrocide" - L. Sonneborn Sons, Inc.

(c) Slag Cement

1. Southern Cement Co., Birmingham, Alabama

(d) Sulphate - Resistant Compounds

1. "Plastiment" - Sika Chemical Corporation
2. "Pozzolith" - Master Builders Company
3. "Tox-Co-Mix #2" - Toch Bros., Inc.

SECTION 82 - MATERIAL SUPPLY SOURCES - (Cont'd)

(e) Sulphate - Resistant Compounds - (Cont'd)

4. "Plasticrete" - Industrial Plastics Company

(f) Hardening, Waterproofing, Acid Resisting Compounds

1. "Trip-L-Seal" - Trip-L-Seal, Inc., Washington, D.C.
2. "Concrete Sika" - Sika Chemical Corp.
3. "Fluresit" - American Fluresit Co., Cincinnati, Ohio
4. "Hydroment" - Upco Company, Cleveland, Ohio

ADMIXTURES, WATERPROOFING - FOR MASONRY MORTARS

1. "Mortar Toxement" - Toch Bros., Inc.
2. "Ondcron" - Master Builders Company
3. "Trimix" - L. Sonneborn Sons, Inc.
4. "Hydratite Plus" - A.C. Horn Company, L.I.C., N.Y.
5. "Plasticrete" - Industrial Plastics Co., Jacksonville, Fla.

AGGREGATES, ABRASIVE

1. "Alundum" - Norton Co., Worcester, Mass.
2. "Duromit" - American Fluresit Co., Inc. Cincinnati, Ohio
3. "Courtland Emery" - Walter Maguire Co., Inc., N.Y.C.
4. "Frictex" - L. Sonneborn Sons, Inc.
5. "Lundite" - General Abrasives Co., Inc., Niagara Falls, N.Y.
6. "Emri Grits" - Empire Emergy Corp., N.Y.C.

AGGREGATES, METALLIC

1. "Euco" - The Euclid Chemical Co., Cleveland, Ohio
2. "Embeco" & "Metalicron" - Master Builders Co., Cleveland, Ohio
3. "Ferrolith H" - L. Sonneborn Sons, Inc.
4. "Ferro-Fax" - A.C. Horn Co., L.I.C., N.Y.
5. "Preservatex-Metallic" - Kedmont Mfg. & Waterproofing Company Chicago, Ill.

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AGGREGATES, METALLIC - FOR GROUTING MIXTURES

1. "Embeco" - The Master Builders Company
2. "Vibrofoil" - A.C. Horn Company
3. "Toch-Co-Mix #1 - Toch Bros., Inc., Chicago, Ill.
4. "Kedlex" - Kedmont Mfg. & Waterproofing Co., Chicago, Ill.

ASPHALT PLANT

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1. Johns-Manville Company, N.Y.C.
2. Philip Carey Co., Cincinnati, Ohio
3. Servicised Products Corp., Chicago, Ill.

SECTION BZ - MATERIAL SUPPLY SOURCES - (Cont'd)

BLINDS - VENETIAN

1. Columbia Mills, Inc., Syracuse, N.Y.
2. "Flexalum" Hunter Douglas Corp., N.Y.C. 7, N.Y.
3. Kirsch Co. 700 Murphy Avenue, Atlanta, Georgia

(a) Light-proof Shades

1. "Bar-Ray" Bar-Ray Products, Brooklyn, N.Y.
2. "Ray-Proof" Ray-Proof Corp., N.Y.C.

CAULKING COMPOUNDS

1. "Valsatex" - A.C. Horn Co., L.I.C., N.Y.
2. "Elastic" - H.B. Fred Kuhla - Brooklyn 20, N.Y.
3. "Tremco" - Tremco Mfg. Co., Cleveland, Ohio
4. "Plasticon" - B.F. Goodrich Co., Watertown, Mass.
5. "Armstrong" - Armstrong Co., Detroit, Mich.
6. "Pecora" - Pecora Paint Co., Philadelphia, Pa.
7. "HIW Caulking Compound" - Toch Bros., Inc., Chicago, Ill.
8. "Concord" - Concord Paint Co., Inc. N.Y.C., 59 N.Y.
9. "Moores Black" - Benjamin Moore Co., 511 Canal St. N.Y.C.

CURING COMPOUNDS, EMULSION

1. "Ritecure - C" - Johnson-March Corp. N.Y.C.
2. "Masterkure" - The Master Builders Co., Cleveland, Ohio
3. "Hydrocide" - L. Sonneborn Sons, Inc. N.Y.C.
4. "Toxkure" - Toch Bros. Inc., Chicago, Ill.
5. "Preservacure" - Kedmont Mfg. & Waterproofing Co., Chicago, Ill.

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DOORS, STEEL

(a) Type "F"

1. "No. 647 Fyerward" - Richards Wilcox Co., Aurora, Ill.

(b) Type "SP"

1. E.F. Hauserman Co., Cleveland, Ohio
2. Dahlstrom Metallic Door Co., Jamestown, N.Y.
3. Art Metal Construction Co., Jamestown, N.Y.
4. Metal Door & Trim Co., La Porte, Ind.
5. Trussbilt Steel Doors, Inc., St. Paul, Minn.
6. Jamestown Metal Corp., Jamestown, N.Y.
7. Virginia Metal Products Corp. Orange, Va.

SECTION B2 - MATERIAL SUPPLY SOURCES - (Cont'd)

(c) Type "T"

1. Richards - Wilcox Co., Aurora, Ill.
2. Richmond Fire Proof Door Co., Richmond, Ind.
3. Lenderking Metal Products Co., Baltimore, Md.
4. Coburn Trolley Track Mfg. Co., Holyoke, Mass.

(d) Vertical Rolling Doors

1. Kinnear Mfg. Co., Columbus, Ohio
2. J.G.Wilson Co., N.Y.C.
3. Cornell Iron Works, Inc., L.I.C., N.Y.
4. R.C.Mahon Co., Chicago, Ill.
5. Moeschl - Edwards Corrugating Co., Cincinnati, Ohio

(e) Flush Wood Doors

1. "Bradley", Bradley Plywood Corp., Savannah, Georgia
2. "Crooks" - W.D. Crook & Sons, Williamsport, Pa.
3. "Roddiscraft" - Rodis Plywood Corp., Marshfield, Wis.

DOORS, WOOD - LAMINATED PANEL

1. "No.546" - Richards-Wilcox Company, Aurora, Ill.

WATERPROOFING LIQUIDS

1. "Lapidolith" - L. Sonneborn Sons, Inc., N.Y.C.
2. "Sanisea1" - The Master Builders Co., Cleveland, Ohio
3. "Magnesium Fluosilicate" - E.I.duPont de Nemours & Co.
4. "Tamacrete" - Fort Pitt Chemical Co., Pittsburgh, Pa.
5. "Euco Crystals" - The Euclid Chemical Co., Cleveland, Ohio
6. "Hornstone" - A.C.Horn Co., L.I.C., N.Y.
7. "Purigo No. 5" - Sika Chemical Corp., Passaic, N.J.
8. "Presarvater" - Kedmont Mfg. & Waterproofing Co., Chicago, Ill.

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FABRICS

(a) Bituminous - Saturated Cotton

1. Ralph W. Rulon, Inc., Philadelphia, Pa.
2. Minwax Co., Inc., 11 W. 42nd St., N.Y.C.
3. Johns-Manville, N.Y.C.
4. Barrett Div., Allied Chemical & Dye Corp., N.Y.C.
5. Koppers Company, Inc., Pittsburgh, Pa.
6. The Flinkote Company, Rockerfeller Plaza, N.Y.C.

SECTION B2 - MATERIAL SUPPLY SOURCES - (Cont'd.)

FLOORING - LINOLEUM AND APPLICATION MATERIALS

1. Armstrong Cork Co.
2. Congoleum-Nairn
3. Paraffine Companies, Inc., San Francisco, Calif.
4. Sloane Blabon Corp., Philadelphia, Pa.

FLOORING - WOOD BLOCK

1. Jennison - Wright Corp., Toledo, Ohio
2. Pacific Lumber Co., Chicago, Ill.
3. Worth Lumber Co., Seattle, Washington
4. Koppers Co., Century Wood Preserving Div., Phila. Pa.

GLASS - INSULATING

1. Thermopane - Libbey-Owens-Ford
2. "Twindo" - Pittsburgh Plate Glass Co.

GLASS - HEAT ASBORBING

1. "Alko" - Libbey-Owens-Ford
2. "Coolite" - Pittsburgh Plate Glass

GRATING

1. Blaw-Knox Company, Pittsburgh, Pa.
2. Irving Subway Grating Co., Inc., L.I.C., N.Y.
3. Kerlow Steel Flooring Co., Jersey City, N.J.
4. Klemp Company, Chicago, Ill.

INSERTS - CONCRETE

(a) Slotted Inserts
1. "Conveyor" - Concrete Steel Co., Philadelphia, Pa.
2. "Truscon" - Truscon Sales & Eng. Co., Youngstown, Ohio
3. "Midwest" - Midwest Steel & Supply Co., Bradford, Pa.

(b) Individual Inserts
1. "Security" - Security Insert Co., Phila., Pa.
2. "Truscon" - Truscon Sales & Eng. Company
3. "Dayton" - Dayton Sure-Grip & Shore Co., Dayton, Ohio

JOINT FILLERS - PERFORMED

1. "Asphalt Type" - Servicized Products Corp., Chicago, Illinois

SECTION B2 - MATERIAL SUPPLY SOURCES - (Cont'd.)

JOINT FILLERS - PERFORMED - (Cont'd.)

2. "Keystone" - Premoulded Asphalt Expansion Joints - Keystone Asphalt Products Co., Chicago, Ill.
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3. "Elastite" Espansion Joint - Philip Carey Mfg. Co., Cincinnati, Ohio
4. "Safe-T-Joint" - Flintkote Company, N.Y.C.
5. "Rubber Type" - B. F. Goodrich Co., Watertown, Mass.
6. "Korkpak" - Servicized Products Corp., Chicago, Ill.

JOINT FILLERS - POURING TYPE

1. "Flintseal" - Flintkote Company, N.Y.C.
2. "Nervastral J.F." - Rubber & Plastics Compound Co., Inc., N.Y.C.
3. "Paraplastic" - Servicized Products Corp.
4. "Zero-Lastic" - Rubberized Oil Plastics, Inc., Chicago, Ill.
5. "Kapco No. 336" - Keystone Asphalt Products Col, Chicago, Ill.
6. "Careylastic" - The Philip Carey Company, Cincinnati, Ohio

INSULATION

(a) Corkboard

1. Armstrong Cork Co., Lancaster, Pa.
2. Cork Import Corporation, N.Y.C.
3. Cork Insulation Company, Inc., N.Y.
4. Mitchell & Smith, Inc., Detroit, Michigan
5. Mundet Cork Corp., N.Y.C.
6. Armor Insulating Co., Atlanta, Ga.

(b) Glass Fiber Board

1. Owens - Corning Fiberglas Corp., Toledo, Ohio

(c) Cellular Insulation

1. "Foamglas" - Pittsburgh, Corning Corp., Pittsburgh, Pa.

(d) Mineral Wool Batts & Blankets

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1. U.S. Gypsum Company Company, Chicago, Ill.
2. Owens-Corning Fiberglas Corp.
3. Armstrong Cork Co.

(e) Vegetable Wool Blanket

1. Wood Conversion Co., St. Paul, Minn.
2. Kimberly-Clark Corp., Neenah, Wisconsin
3. Reynolds Metals Company, Richmond, Va.
4. Lockport Cotton Batting Co., Lockport, N.Y.
5. Barnhardt Mfg. Co., Charlotte, N.C.

SECTION 8Z - MATERIAL SUPPLY SOURCES - (Cont'd.)

(f) Insulating Fiber Board

1. Armstrong Cork Co.
2. Celotex Corp., Chicago, Ill.
3. Firtex Insulating Board Co., Portland, Oregon
4. Insulite Company, Minneapolis, Minn.
5. U.S. Gypsum Company
6. Wood Conversion Company
7. Masonite Corporation, Chicago, Ill.
8. Masonite Company, Trenton, N.J.

(g) Insulation Application Materials Primers and Asphalt Adhesive

1. Johns-Manville, N.Y.C.
2. Armstrong Cork Company Lancaster, Pa.
3. Philip Carey Co., Cincinnati, Ohio

LEAD INSULATION

(a) Partition Blocks

1. "Bar-Ray" - Bar-Ray Products, Brooklyn, N.Y.
2. "Ray-Proof", Ray-Proof Corp., N.Y.C., N.Y.
3. General Lead Construction, Kearny, N.J.

(b) Lead Insulated Doors

1. Same supply sources as "Partition Blocks"

(c) Lead Insulated Window Frames and Glass

1. Same supply source as "Partition Blocks"

LOUVERS - PREFABRICATED

1. The Airolite Co., Marietta, Ohio
2. H. H. W. Bergman Co., N.Y.C.
3. Richards-Wilcox Co., Pittsburgh, Pa.
4. H. H. Robertson Company, Pittsburgh, Pa.
5. The Ventilouvre Co., Inc., N.Y.C.

PARTITIONS, METAL

(a) Office and Factory

1. F. F. Hauserman Co., Cleveland, Ohio
2. Art Metal Construction

SECTION B2 - MATERIAL SUPPLY SOURCES - (Cont'd)

(c) Type "T"

1. Richards - Wilcox Co., Aurora, Ill.
2. Richmond Fire Proof Door Co., Richmond, Ind.
3. Lenderking Metal Products Co., Baltimore, Md.
4. Coburn Trolley Track Mfg. Co., Holyoke, Mass.

(d) Vertical Rolling Doors

1. Kinnear Mfg. Co., Columbus, Ohio
2. J.G.Wilson Co., N.Y.C.
3. Cornell Iron Works, Inc., L.I.C., N.Y.
4. R.C.Mahon Co., Chicago, Ill.
5. Moeschl - Edwards Corrugating Co., Cincinnati, Ohio

(e) Flush Wood Doors

1. "Bradley", Bradley Plywood Corp., Savannah, Georgia
2. "Crooks" - W.D. Crook & Sons, Williamsport, Pa.
3. "Roddiscraft" - Rodis Plywood Corp., Marshfield, Wis.

DOORS, WOOD - LAMINATED PANEL

1. "No.546" - Richards-Wilcox Company, Aurora, Ill.

WATERPROOFING LIQUIDS

1. "Lapidolith" - L. Sonneborn Sons, Inc., N.Y.C.
2. "Sanisealⁿ - The Master Builders Co., Cleveland, Ohio
3. "Magnesium Fluosilicate" - E.I.duPont de Nemours & Co.
4. "Tamparete" - Fort Pitt Chemical Co., Pittsburgh, Pa.
5. "Euco Crystals" - The Euclid Chemical Co., Cleveland, Ohio
6. "Hornstone" - A.C.Horn Co., L.I.C., N.Y.
7. "Purigo No. 5" - Sika Chemical Corp., Passaic, N.J.
8. "Presarvater" - Kedmont Mfg. & Waterproofing Co., Chicago, Ill.

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FABRICS

(a) Bituminous - Saturated Cotton

1. Ralph V. Rulon, Inc., Philadelphia, Pa.
2. Minwax Co., Inc., 11 W. 42nd St., N.Y.C.
3. Johns-Manville, N.Y.C.
4. Barrett Div., Allied Chemical & Dye Corp., N.Y.C.
5. Koppers Company, Inc., Pittsburgh, Pa.
6. The Flinkote Company, Rockerfeller Plaza, N.Y.C.

SECTION 8Z - MATERIAL SUPPLY SOURCES (Cont'd.)

(b.) Bituminous Control Fiber Glass

1. Ralph V. Rulon, Inc.
2. Lexington Supply Co., Cleveland, Ohio

FLASHING & COUNTERFLASHING MATERIAL

(a) Copper

1. Revere Copper & Brass, Inc., N.Y.C.
2. The Cheny Company, Phila, Pa.
3. Chase Brass & Copper Co., Waterbury, Conn.
4. The American Brass Co., Waterbury, Conn.

(b) Metal-Reinforced Fabric Type

1. "Keystone" - Keystone Flashing Co., Phila., Pa.
2. Wasco - Wasco Flashing Co., Cambridge, Mass.
3. "Rubberseal Copper" - Mitchell - Rand Mfg. Co., N.Y.C.
4. "Bendell Type S" - Sandell Mfg. Corp., Watertown, Mass.
5. "Copper Armored Sisal-Kraft - 2 oz. Sisalkraft Co., Chicago, Ill.
6. "Copperskin" - Angler Corp., Framingham, Mass.

(c) Asphalt - Fabric Type

1. "Asbestos Base Flashing" - Johns-Manville, N.Y.C.
2. "Double Coated Waterproofing Fabric - Type "C", Johns-Manville
3. "M-R" Heavy Rubberseal cloth - Mitchell-Rand Mfg. Co.

(d) Asbestos Protected Metal

1. "ROW" - H. H. Robertson Co., Pittsburgh, Pa.

FLOORING - ASPHALT TILE & APPLICATION MATERIALS

1. Armstrong Cork Company, Lancaster, Pa.
2. Johns-Manville, N.Y.C.
3. Tile-Tex Company, Inc., Chicago Heights, Illinois
4. David E. Kennedy, Inc. Brooklyn, New York
5. Congoleus - Bairn, Kearney, N.J.
6. Backmeister, Inc., Pittsburgh, Pa.
7. Reed Rubber Co., Div. of B. F. Goodrich, Watertown, Mass.

FLOORING - RUBBER TILE & APPLICATION MATERIALS

1. Reed Rubber Co., Watertown, Mass.
2. Armstrong Cork Co.,
3. American Tile & Rubber Co., Trenton, N. J.
4. Goodyear Tire & Rubber Co., Akron, Ohio
5. David E. Kennedy, Inc., Brooklyn, N. Y.
6. Wright - Taylor Mfg. Co., Milwaukee, Wis.

SECTION B2 - MATERIAL SUPPLY SOURCES - (Cont'd.)

FLOORING - LINOLEUM AND APPLICATION MATERIALS

1. Armstrong Cork Co.
2. Congoleum-Nairn
3. Paraffine Companies, Inc., San Francisco, Calif.
4. Sloane Blabon Corp., Philadelphia, Pa.

FLOORING - WOOD BLOCK

1. Jamison - Wright Corp., Toledo, Ohio
2. Pacific Lumber Co., Chicago, Ill.
3. Worth Lumber Co., Seattle, Washington
4. Koppers Co., Century Wood Preserving Div., Phila. Pa.

GLASS - INSULATING

1. Thermopane - Libbey-Owens-Ford
2. "Twindo" - Pittsburgh Plate Glass Co.

GLASS - HEAT ASBORBING

1. "Alko" - Libbey-Owens-Ford
2. "Coolite" - Pittsburgh Plate Glass

GRATING

1. Blaw-Knox Company, Pittsburgh, Pa.
2. Irving Subway Grating Co., Inc., L.I.C., N.Y.
3. Kerlow Steel Flooring Co., Jersey City, N.J.
4. Klemp Company, Chicago, Ill.

INSERTS - CONCRETE

(a) Slotted Inserts
1. "Conveyor" - Concrete Steel Co., Philadelphia, Pa.
2. "Truscon" - Truscon Sales & Eng. Co., Youngstown, Ohio
3. "Midwest" - Midwest Steel & Supply Co., Bradford, Pa.

(b) Individual Inserts
1. "Security" - Security Insert Co., Phila., Pa.
2. "Truscon" - Truscon Sales & Eng. Company
3. "Dayton" - Dayton Sure-Grip & Shore Co., Dayton, Ohio

JOINT FILLERS - PERFORMED

1. "Asphalt Type" - Servicized Products Corp., Chicago, Illinois

SECTION 8Z - MATERIAL SUPPLY SOURCES - (Cont'd.)

JOINT FILLERS - PERFORMED - (Cont'd.)

2. "Keystone" - Premoulded Asphalt Expansion Joints - Keystone Asphalt Products Co., Chicago, Ill.
3. "Elastite" Expansion Joint - Philip Carey Mfg. Co., Cincinnati, Ohio
4. "Safe-T-Joint" - Flintkote Company, N.Y.C.
5. "Rubber Type" - B. F. Goodrich Co., Watertown, Mass.
6. "Korkpak" - Servicized Products Corp., Chicago, Ill.

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JOINT FILLERS - POURING TYPE

1. "Flintseal" - Flintkote Company, N.Y.C.
2. "Nervastral J.F." - Rubber & Plastics Compound Co., Inc., N.Y.C.
3. "Servisplastic" - Servicized Products Corp.
4. "Zero-Lastic" - Rubberized Oil Plastics, Inc., Chicago, Ill.
5. "Kapco No. 336" - Keystone Asphalt Products Co., Chicago, Ill.
6. "Careylastic" - The Philip Carey Company, Cincinnati, Ohio

INSULATION

(a) Corkboard

1. Armstrong Cork Co., Lancaster, Pa.
2. Cork Import Corporation, N.Y.C.
3. Cork Insulation Company, Inc., N.Y.
4. Mitchell & Smith, Inc., Detroit, Michigan
5. Mundet Cork Corp., N.Y.C.
6. Armor Insulating Co., Atlanta, Ga.

(b) Glass Fiber Board

1. Owens - Corning Fiberglas Corp., Toledo, Ohio

(c) Cellular Insulation

1. "Foamglas" - Pittsburgh, Corning Corp., Pittsburgh, Pa.

(d) Mineral Wool Batts & Blankets

1. U.S. Gypsum Company Company, Chicago, Ill.
2. Owens-Corning Fiberglas Corp.
3. Armstrong Cork Co.

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(e) Vegetable Wool Blanket

1. Wood Conversion Co., St. Paul, Minn.
2. Kimberly-Clark Corp., Neenah, Wisconsin
3. Reynolds Metals Company, Richmond, Va.
4. Lockport Cotton Batting Co., Lockport, N.Y.
5. Barnhardt Mfg. Co., Charlotte, N.C.

SECTION B2 - MATERIAL SUPPLY SOURCES - (Cont'd.)

(f) Insulating Fiber Board

1. Armstrong Cork Co.
2. Celotex Corp., Chicago, Ill.
3. Firtex Insulating Board Co., Portland, Oregon
4. Insulite Company, Minneapolis, Minn.
5. U.S. Gypsum Company
6. Wood Conversion Company
7. Masonite Corporation, Chicago, Ill.
8. Masonite Company, Trenton, N.J.

(g) Insulation Application Materials Primers and Asphalt Adhesive

1. Johns-Manville, N.Y.C.
2. Armstrong Cork Company Lancaster, Pa.
3. Philip Carey Co., Cincinnati, Ohio

LEAD INSULATION

(a) Partition Blocks

1. "Bar-Ray" - Bar-Ray Products, Brooklyn, N.Y.
2. "Ray-Proof", Ray-Proof Corp., N.Y.C., N.Y.
3. General Lead Construction, Kearny, N.J.

(b) Lead Insulated Doors

1. Same supply sources as "Partition Blocks"

(c) Lead Insulated Window Frames and Glass

1. Same supply source as "Partition Blocks"

LOUVERS - PREFABRICATED

1. The Airolite Co., Marietta, Ohio
2. H. H. W. Bergman Co., N.Y.C.
3. Richards-Wilcox Co., Pittsburgh, Pa.
4. H. H. Robertson Company, Pittsburgh, Pa.
5. The Ventilouvre Co., Inc., N.Y.C.

PARTITIONS, METAL

(a) Office and Factory

1. E. F. Hauserman Co., Cleveland, Ohio
2. Art Metal Construction

[redacted]

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SECTION 17 – MATERIAL SUPPLY SOURCES – (Cont'd.)

(a) Office & Factory (Cont'd.)

- The Mills Co., Cleveland, Ohio
- Martin-Parry Corp., Detroit, Mich.
- Virginia Metal Products Corp., Orange, Va.
- National Steel Partition Co., Inc., N.Y.C.

(b) Toilet Partitions

1. Sanymetal Products Co., Cleveland, Ohio
2. Henry Weiss Mfg. Co., Elkhart, Ind.
3. The Mills Co., Cleveland, Ohio
4. Milwaukee Stamping Company, Milwaukee, Wis.
5. "Flat" – Flat Metal Manufacturing Co., L.I.C., N.Y.

(c) Expanded Metal Partitions

1. Kentucky Metal Products Co., Louisville, Ky.
2. Acme Wire and Iron Works, Detroit, Mich.
3. Page Steel and Wire Div., N.Y.C.
4. Consolidated Expanded Metal Co., Wheeling, W. Va.
5. [illegible] Metal Co., Inc., Parkersburg, W. Va.

[illegible]

1. "Orange Label Sisalkraft" – Sisalkraft Co., Chicago, Ill.
2. "Absolute" – Angier Corp., Framingham, Mass.
3. "[illegible]" – National Waterproof Paper Co., Camden, N. J.
4. "Heavy Reinforced" – Graham Paper Co., St. Louis, Mo.

[illegible] MESH – CONCRETE

(a) 1. "[illegible]" – Pittsburgh Steel Corp., Pittsburgh, Pa.

(b) [illegible]

1. "[illegible]" – [illegible] Metal Co., N.Y.C., N.Y.
2. "[illegible]" – Youngstown Steel, Youngstown, Ohio
3. "[illegible]" – National Gypsum Co., Buffalo, N.Y.

[illegible] MESH – CONCRETE – BLOCK WALLS

1. "[illegible]" – [illegible] Corp., Kansas City, Mo.
2. "[illegible]" – Cedar Rapids [illegible] Co., Cedar Rapids, Iowa

SECTION 02 - MATERIAL SUPPLY SOURCES - (Cont'd)

ROOFING & SIDING - CORRUGATED

(a) Corrugated and Flat Asbestos

1. Johns-Manville, N. Y. C.
2. Philip Carey Co., Cincinnati, Ohio
3. Keasby-Mattison Co., Ambler, Pa.
4. Ruberoid Company, N. Y. C.
5. Asbestone Corp., New Orleans, La.
6. Asbestos, Shingle, Slate & Sheathing Co., Ambler, Pa.

(b) Aluminum

1. Aluminum Co. of America, Pittsburgh, Pa.
2. Reynolds Metals Co., Inc., Louisville, Ky.

(c) Asbestos Protected Metal

1. "RGM" ("Galbestos") - H. H. Robertson Co., Pittsburgh, Pa.

ROOF SLABS, PRECAST CONCRETE

1. "Lastik" - Lastic Products Co., Inc., Pittsburgh, Pa.
2. "Truscon" - Truscon Laboratories, Inc., Detroit, Mich.
3. "Rackle" - The George Rackle & Sons Co., Cleveland, Ohio
4. "Poroto" - Poroto Mfg. Co., North Arlington, N. J.
5. "Featherweight" - Federal American Cement Tile Co., Chicago, Ill.
6. "Precast Roof Slabs" - Concrete Products Co., Brunswick, Ga.

SASH, METAL

(a) Steel Projected and Pivoted Industrial

1. Wm. Bayley Co., Springfield, Ohio
2. Toco Steel Products Co., Chicago, Ill.
3. Crittall - Federal, Inc. Waukesha, Wisc.
4. Detroit Steel Products Co., Detroit, Mich.
5. J. S. Thorn Co., Phila., Pa.
6. Michael Flynn Mfg. Co., Philadelphia, Pa.
7. Truscon Steel Co., Youngston, Ohio
8. Hope Windows, Inc., Jamestown, N. Y.
9. Hasker Bros., St. Louis, Mo.

(b) Aluminum Projected & Pivoted Industrial

1. J. S. Thorn Co.
2. Wm. Bayley Co.

STEEL BAR JOISTS

1. Bethlehem Steel Co., Bethlehem, Pa.
2. Truscon Steel Co., Youngstown, Ohio

SECTION 8Z -- MATERIAL SUPPLY SOURCES - (Cont'd)

STEEL BAR JOISTS - (Cont'd)

3. Coco Steel Products Corp., Chicago, Ill.
4. Macomber, Inc., Canton, Ohio

THRESHOLDS, METAL

1. American Abrasive Metals Co., Irvington, N. J.
2. American Mason Safety Tread Co., Lowell, Mass.
3. Safe Tread Co., Inc., N. Y. C.
4. Wooster Products, Inc., Wooster, Ohio

TRIM, METAL

(a) Type "A"

1. Art Metal Construction Co., Jamestown, N. Y.
2. Dahlstrom Metallic Door Co., Jamestown, N. Y.
3. Jamestown, Metal Corp., Jamestown, N. Y.

(b) Type "B"

1. Mitchell Steel Co., Milwaukee, Wisc.
2. Knapp Bros. Mfg. Co., Joliet, Ill.

VENTILATORS, ROOF

(a) Asbestos Protected Metal

1. H. H. Robertson Co., Pittsburgh, Pa.

WALLBOARD ASBESTOS

Same as manufacturers of Corrugated Asbestos Roofing & Siding.

WALLBOARD ASBESTOS - ENCASED INSULATING

1. "Cemesto Board" - Celotex Corp., Chicago, Ill.
2. "Transite" - Johns-Manville, N. Y. C.
   - Philip Carey Co., Cincinnati, Ohio

WALLBOARD, GYPSUM

1. "Cale-Rock" - The Celotex Corp.
2. "Gold Bond" - National Gypsum Co.
3. "Sheetrock" - U. S. Gypsum Co.

SECTION 8Z - MATERIAL SUPPLY SOURCES - (Cont'd.)

WATERPROOFING LIQUIDS, COLORLESS - FOR MASONRY

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(a) Wax Type

1. "Conservado No. 5" - Sika Chemical Corp., Passaic, N.J.
2. "Hydrocide Colorless" - L. Sonneborn Sons, Inc. N.Y.C.
3. "masterseal" - Master Builders Co., Cleveland, Ohio
4. "Toxlorpore" - Toch Bros., Inc.
5. "Haynes Formula 6HO" - Haynes Products Co., Chicago, Ill.
6. "Copeseal" - C. G. Cope, Schaff Bldg., Philadelphia, Pa.

(b) Silicone Type

1. "Crystal Silicone" - Murdock Chemical Co., St. Louis, Mo.
2. "Hydrocide SX" - L. Sonneborn Sons, Inc.

WATERPROOFERS FOR CONCRETE BLOCK WORK

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1. "Thoroseal" - Standard Dry Wall Products Co., New Eagle, Pa.

WINDOWS, DOUBLE HUNG STEEL

1. S. H. Pomeroy Co., Inc., N. Y.C.
2. Truscon Steel Co., Youngstown, Ohio

[redacted]

SECTION BAA - PLUMBING

CONTENTS

MODIFICATIONS & ADDITIONS

WATERCLOSETS

Type "A"

WATERCLOSETS - TYPE "A" shall be vitreous china, syphon jet floor type, with elongated rim and 1-1/2" top inlet spud and china boltcaps.

WATERCLOSETS shall be similar to:

Crane Company - Santon 3-300
Standard Sanitary Mfg. Co. -Madera F-2223
Kohler Company - Rockwell K-3800 ET.

Flush Valves - chrome plated brass hand operated type with 1" screw driver angle stop, vacuum breaker, 1-1/2" flush connection with spud flange and wall flange.

FLUSH VALVES shall be similar to:

20	Sloan Valve Company #110-F-YV Royal
Rev.	Speakman Company #K-9000-BSP (Mod.)
3/23/52	Coyne & Delaney Company #202-YB Flushboy (Mod)

[redacted]

SECTION 3AA - PLUMBING - (Cont'd.)

Seats - Black hard rubber open front seats with check-hinge similar to Church #2500 or equal. White open front seats for women's toilets similar to church #9500 or equal. Floor flange cast brass 14 ounce with gasket bolts, nuts and washers or cast iron deep slotted floor flange.

WATERCLOSETS

Type "B"

WATERCLOSETS - Type "B" shall be vitreous china syphon jet wall hung type with elongated rim and 1-1/2" back inlet spud.

WATERCLOSETS shall be similar to:

Crane Company - Walton 3-4565
Standard Sanitary Mfg. Co. - Glenco F-2489
Kohler Company - Kingston K-2489

Supports - Single combination horizontal closet fitting with vent connection and slotted face. Vertical adjustment and universal bolt adjustment, fitting shall be hub and spigot type with bolts and chrome plated nuts and washers similar to ZURN Z-1205 or Z-1206 SH or equal.

Double combination vertical closet fitting with vent connection and slotted face. Vertical adjustment ZURN Z-1205 or Z-1206
13 SH P as required or equal. Bolts shall be provided with tubular rigidity
Rev. members.
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Flush Valves - Concealed type with rough brass body and 1" screw driver angle stop vacuum breaker, 1-1/2" rough brass flush connection and nickel silver combination hand pedal.

FLUSH VALVES shall be similar to:

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Sloan Valve Company - Royal #313 YW
Coyne & Delaney- Flushboy #704 VB (Mod.)
Speakman Company - SiFlp - K-9140 BSP (Mod)

Seats - Sani black hard rubber open front with check hinges similar to Church Seat Company #2500 or equal.

URINALS

Type "A"

URINALS - Type "A" shall be 18" vitreous china straight front stall type with integral flush spreader.

SECTION DAA - PLUMBING - (Cont'd.)

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URINALS shall be similar to:
Crane Company - Sanitor 7-40
Standard Sanitary Mfg. Co. F-6000
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Kohler Company - Branham K-4910

Flush Valves - Chrome plated brass hand operated type with 3/4" screw driver straight stop, vacuum breaker, and 3/4" flush connection with flange.

FLUSH VALVE shall be similar to:
Sloan Valve Company - Royal #185F-YV (modified)
Speakman Company - Si Flow K-9082 (mod.)
Coyne & Delaney - Flushboy #451 (mod.)

Drain-Chrome plated brass with slotted strainer and cast iron outlet connection similar to ZURN Z-477 D.C. or JOSAM 383 XX or equal.

URINALS

Type "B"

URINALS - Type "B" shall be 18" vitreous china wall hung washout type with concealed shields and integral flush spreader and trap with 2" outlet connections and top inlet spud.

URINALS shall be similar to:
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Crane Company - Correcto - 7-37
Standard Sanitary Mfg. Co. - Washal F-6200
Kohler Company - Bardon K-4977

Supports - Concealed cast iron support with tubular uprights, adjustable headers and bolts less foot supports similar to SUBH Z-1221 or equal.

Flush Valve - Concealed rough brass flush valve with 3/4" screw driver angle stop, 1" female I.P.S. union outlet, vacuum breaker, nickel silver foot pedal and exposed chrome plate elbow connection to top spud.

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FLUSH VALVES shall be similar to:
Sloan Valve Co. - Royal 323
Speakman Co. - Si Flo #K-9140 BSP (modified)
Coyne & Delaney - Flushboy #492 (mod.).

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URINALS

Type "C"

Urinals - Type "C" shall be vitreous china wall hung washout type with flushing rim integral strainer, 1-1/2" outlet spud with 1-1/2" O.S. tailpiece 3/4" top inlet spud and supporting bolts similar to Standard F-6281 or equal. Trap-Same as for Lavatory Type "A" but 1-1/2" x 1-1/2".

Flush Valves - Chrome plated brass hand operated type with 3/4" screw driver straight stop vacuum breaker, 3/4" flush connection with spud flange and wall flange.

FLUSH VALVES shall be similar to:
13
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Sloan Valve Company #186 F-YV Royal (modified)
Speakman Company #K-9000-BSP
Coyne & Delaney Company #451VB Flushboy (modified)

[redacted]

SECTION RAA - PLUMBING - (Cont'd.)

LAVATORIES

Type "A"

LAVATORIES - Type "A" shall be vitreous china size 20 x 18" with integral back, vitreous china leg and wall hanger.

LAVATORIES shall be similar to :

Crane Co. - Norwich 1-220
Standard Sanitary Mfg. Co. - Randall F-267
Kohler Company - Greenwich K-1945

Lavatory Fitting -- Chrome plated combination compression type with raised spout and integral rose spray, indexed hooded lever handles and 1/4" union tailpieces.

FITTINGS shall be similar to:

Crane Co. - Dialese #8-127
Standard Sanitary Mfg. Co. - Re Nu #704
Speakman Company - S-4071 -- Less chain and stopper

Drain Plug - Chrome plated cast brass perforated type with tailpiece similar to Crane Co. #8-353 or equal.

Supply Pipes - Chrome plated 3/8" angle or straight type as required with loose key stops, couplings and wall flanges similar to Crane #8-300 Mod. or equal.

Trap - Chrome plated 1-1/2" x 1-1/4" brass "P" type with I.P.S. nipple to wall and cast brass wall flange similar to Crane #8-410 or equal.

Rev. Soap Dispensers by others.

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SECTION BAA - PLUMBING - (Cont'd.)

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LAVATORIES

Type "B"

LAVATORIES - Type "B" - vitreous china wall hung, 20 x 18" with rectangular basin, splash lip.

LAVATORIES shall be similar to:

Crane Co. - Norwich 1-190
Standard Sanitary Mfg. Co. - Buena F-357
Kohler Co. - Ancora K-1806

Supports - Heavy Steel supporting plate with concealed type arms similar to ZURN Z-1251 or equal.

Lavatory Fittings - Chrome plated combination compression type with raised spout and integral spray, indexed hooded lever handles and 1/4" union tailpiece.

FITTINGS shall be similar to:

Crane Company - Dialese #8-127
Standard Sanitary Mfg. Co. - Re Nu #704
Speakman - S-4071 Less chain and stopper

Drain Plug - Chrome plated cast brass perforated type with tailpiece similar to Crane Company #8-353 or equal.

Supply Pipes - Chrome plated 3/8" angle or straight type as required with loose key stops, couplings and wall flanges, similar to Crane Company #8-300 Mod. or equal.

Trap - Chrome plated 1-1/2" x 1-1/4" "P" type with I.P.S. nipple to wall and cast brass wall flange, similar to Crane Company #8-410, or equal.

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Soap Dispensers by others.

[redacted]

SECTION BAA - PLUMBING - (Cont'd.)

LABATORIES

20
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Type "E"

LABATORIES - Type "E" vitreous china 17" corner type with back and hanger similar to Standard Sanitary F-387 or equal.

Fittings - Chrome plated compression faucets similar to Standard Sanitary B-1011 or equal.

Drain Plug - Chrome plated cast brass perforated type, similar to Standard Sanitary B-758 or equal.

Supply Pipes - Chrome plated 3/8" straight or angle supply pipes with stops and escutcheons similar to Standard Sanitary B-820 or B-824.

Traps - Chrome Plated 1-1/2" x 1-1/4" brass "P" trap with I.P.S. nipple to wall and escutcheon similar to Standard Sanitary B-970 or equal.

SHOWER STALL - Shower Stall shall be 36" wide x 36" deep x 78" high. Wall shall be constructed of not less than No. 18 U.S. gauge extra smooth, bonderized galvanized steel, finished in high-temperature baked enamel inside and outside. Color shall conform to Henry Weis Manufacturing Company's K-404. Receptors shall be constructed of not less than No. 14 U.S. gauge enameling iron, finished in vitreous porcelain enamel or precast terrazzo composed of black and white marble chips and white cement.

Stalls shall be similar and equal to "Weisway Standard" shower cabinets as manufactured by Henry Weis Manufacturing Company, Inc. or "Cadet" shower cabinet as manufactured by Fiat Metal Manufacturing Company.

Fittings - Waste Outlet shall be chromium plated cast brass with strainer and 2" outlet arranged for inside caulking. Soap dish shall be chromium plated cast brass, wall mounted.

Curtain rod shall be 1" O.D. chromium plated brass or strain-less steel with chromium plated curtain hooks. Curtain shall be 8 oz. white duck.

Shower Heads and controls not included.

Where shower stalls occur in a battery, they shall be set as closely together as possible and a metal cover strip shall be provided to cover the joint between stalls.

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SECTION BAA - PLUMBING - (Cont'd.)

Dressing Compartments - shall be manufactured standard bonderized galvanized steel panel and post construction with headrail and sets, all finished as specified for shower stalls. Dressing compartment shall be of the size shown on drawings of same width and height as shower stalls and shall be equipped with two chromium plated brass coat hooks, curtain rods, curtain hooks and white duck curtain as specified for showers.

SCREENING - shall be standard expanded 16 gauge mesh size 1-1/2 x 1" tack welded to angles and reinforced with 3" channel as indicated in the drawings.

TROUGH - shall be fabricated of 14 gauge galvanized sheet metal with brass strainer and long tailpiece supported on steel angle wall brackets as indicated on the drawings.

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DRAINS

Type "A" Floor drain shall have cast iron body with seepage holes and cast iron grate, outlet shall be for inside caulking, clamping rings shall be provided where required. Drain shall be similar to ZURN Z-510 JOSAM 51 0X or equal.

Type "E" Floor drain shall have cast iron body with removable perforated sediment bucket and cast Iron strainer, outlet shall be for inside caulking, clamping rings shall be provided where required. Drain shall be similar to ZURN A-540 JOSAM 5420X or equal.

Type "F" Floor drains shall have cast iron body with deep removable perforated sediment bucket and outlet shall be for inside caulking, cast iron strainer and clamping rings shall be provided where required. Drain shall be similar to ZURN - Z - 542, JOSAM 544 0X or equal.

Type "H" Floor drain shall be of Hi Sil Acid resisting iron with removable strainer and caulked outlet similar to Duriron 5501B or equal.

Type "S" Shower drains shall have cast iron body and chrome plated bar strainer, outlet shall be for inside caulking and drain similar to ZURN Z-415, JOSAM Series 300X or equal.

Type "T" Group Shower Drains shall be of the rectangular gutter type with bottom outlet for inside caulking and with cast iron grate similar to ZURN Z-575, or JOSAM Series - 0500 or equal.

SECTION 8AA - PLUMBING (Cont'd.)

DRAINS (Cont'd.)

Type "U" Roof drains shall be of the non-clogging type with extra large mushroom type dome strainer and side outlet connection similar to ZURN Z-115 or JOSAM #Z-490.

Type "W" Area drain shall be of the continuous flow with secondary strainer and slotted grate, similar to ZURN Z-500 screwed out of Z-510 caulked outlet or JOSAM #544 or 544X or equal.

Type "Y" shall be of the non-clogged triple drainage area drains with outlet for inside caulking. Drains shall be furnished with sediment bucket and heavy grate similar to JOSAM Mfg. Co. #5554 or equal.

Type "Z" shall be cast iron floor drains with double drainage flange, round top, and loose anti-tilting grate with side outlet connection for inside caulking similar to JOSAM #5514X or equal.

Type "AA" Area drains shall be of the continuous flow, solids retaining type, drain shall be constructed of cast iron with removable
20 perforated sediment bucket and outlet for inside caulking similar to Z...
Rev. Z-541 or JOSAM #25440.
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20 Type "BB" Heavy Gutter Drain for Group Showers with soap
Rev. pan and bronze rim and grate, similar to ZURN Z-530 or JOSAM #3650 KK.

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SECTION BAA - PLUMBING - (Cont'd)

WALL HYDRANTS

Wall Hydrants shall be of the non-freeze type with brass wall casing and brass wall plate. A loose key shall be provided, length of wall casing shall be as required and shall be similar to ZURN Z-1395 JOSAM Y-200 or equal

FIRE HOSE CABINETS

Fire Hose Cabinets shall be of the recessed type and shall be fabricated of #16 Gauge steel with clear wire glass panel door. Cabinet shall be provided with 75 ft. of 1-1/2" Underwriters' approved first grade "Flax Line" unlined linen hose and shall be made up to twenty-five (25) and fifty (50) foot lengths with brass hose nozzle 1-1/2 x 12 x 1/2". Hose racks shall be sime-automatic type, aluminum finish for 1-1/2" hose with 1-1/2" rack nipple and 1-1/2" Underwriters' approved brass angle hose valve. Size of cabinet shall be 25-1/2" with a wall opening size of 21-1/2" x 31-1/2" x 6-1/16" deep, similar to W.D.Allen #262 or an approved equivalent.

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APPROVED MANUFACTURERS

W. D. Allen Mfg. Co.
Wirt & Knox Mfg. Co.
U. S. Rubber Hose
Elkhart Brass Mfg. Co.

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ROOF DRAINS

Roof Drains shall be japanned cast iron type with removable dome strainer, internal expansion joint clamping device and deck clamp, similar and equal to JOSAM Series 4640-D, or ZURN Z-120.

ROOF VENT CONNECTIONS

All plumbing vents passing through flat roofs of concrete shall extend through JOSAM 1870-A Series, ZURN, or approved equal, roof vent connections of sizes shown on drawings. Vent connections shall have locking dogs for poured concrete slabs, and adjustable locking collar for other types of roof slabs.

PLUMBING (Cont'd.)

DRAINS - ROOF, FLOOR & AREA

See Sheet 7A for Drains.

SINKS

Type "A", Surgical Scrub Up Sinks shall be vitreous china with legs and iron anchoring brackets with enameled finish, Re Nu elbow control fitting with integral stops, 6" handles, 2" rose spray, chrome drain plug and 1-1/2" chrome trap with nipple and escutcheon similar to Standard Sanitary HF-12095-N or equal - size 30 x 20".

Type "B" - Pantry Sink shall be acid resisting enameled iron flat rim double compartment type with chrome combination faucet with hose and spray, chrome dual drain, and waste king pulverator, chrome, continuous waste and 1-1/2" "P" trap with nipple to wall and escutcheon, enameled steel cabinet, similar to Standard Sanitary P-7015A Modified or equal. Size as indicated on the drawings.

Type "C" - Pantry Sink shall be acid resisting enameled iron with double sink and double drainboard, cast iron wall hangers and enameled iron legs. Sink shall be furnished with chrome plated combination faucet, hose and spray, aerator and lift off soap dish. Dual drain and 1-1/2" chrome plated swivel tubing trap to wall or floor. Size of sink shall be 60" x 25" and shall be similar to Standard Sanitary P-6585A or equal.

Type "D" - Kitchen Sink shall be enameled iron acid resisting, double compartment type same as Type "C" except with enameled steel cabinet similar to Standard P65850A or equal.

Type "E" - Lunch Room Sinks shall be enameled iron acid resisting with drainboard and integral back, cast iron wall hanger, chrome combination faucet with soap dish, chrome dual drain and 1-1/2" chrome "P" trap with nipple to wall and escutcheon similar to Standard Sanitary P-6816A or P-6815A or equal size as indicated on the drawings.

SECTION B&A - PLUMBING - (Cont'd.)

FOOT BATH

Foot Bath shall be of the duraclay vitreous glazed earthenware free standing type with C-3496 chrome plated 1/2" gooseneck spout overrim supply fixture with brace to bath and FA-7599 chrome plated 1-1/2" pop up waste. Bath shall be size 25" long x 21" wide x 15" deep inside end shall be similar to Crane Co., C-6496 or equal.

TRIMMINGS FOR MISCELLANEOUS SINKS

FAUCETS

Faucets shall be chrome plated combination type with swing spout and lift off soap dish similar to Standard Sanitary B-9048 for wall mounting or B8785 for deck mounting or equal.

TRAPS

Traps shall be chrome plated adjustable swivel trap to wall or floor as required.

Traps for acid waste shall be of the drum type, made of high silicon iron and shall be provided with front cleanout. Similar to Duriron Co. 2552 BP. or equal.

PLUMBING	ENGINEERING SPECIFICATIONS	
	Issued JULY 1, 1946	
	Revised	SB-1.1-AA

PLUMBING FIXTURES

All fixtures shall be new. Vitreous chinaware and porcelainware shall be "A" grade with hard white glaze. Enameledware shall be "A" grade, white procelain enameled on heavy cast iron. Catalog numbers specified are illustrative of the type, design, and quality required. Fixtures of other makes must be similar in type and design and equal in quality to those specified.

Brassware exposed to view shall be polished and chromium plated except where otherwise specifically noted in the Engineering Specifications. Brassware concealed below finished surfaces of fixtures shall be rough finish, not plated.

Letters "A", "B", "C", etc. in fixture titles refer to similar notations on the drawings and are used to identify the individual fixtures as they occur in their various locations.

PLUMBING	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JULY 18, 1949	
	Revised	SB-6-AA

SERVICE SINKS

KEY TO TYPES

Eng. Specs.	Type	Water Service	Sink	Trap Standard
SB-6.1-AA	"AV"	Hot & Cold	Vitreous China	S
	"AE"	" "	Enameled Cast Iron	S
SB-6.2-AA	"BV"	Hot & Cold	Vitreous China	P
	"BE"	" "	Enameled Cast Iron	P
SB-6.3-AA	"CV"	Cold only	Vitreous China	S
	"CE"	" "	Enameled Cast Iron	S
SB-6.4-AA	"DV"	Cold only	Vitreous China	P
	"DE"	" "	Enameled Cast Iron	P

PLUMBING
SERVICE SINKS
TYPES AE TO DV

STANDARD ENGINEERING SPECIFICATIONS

ISSUED 7-1-46
REVISED MAY 1951

SB 6.1 AA

Formerly SB6.1AA to SB6.4AA

1. SINK

(a) "Duraclay" or vitreous china, approximately 22 inches by 20 inches with integral back.

(b) Cast iron with acid-resisting enamel inside, approximately 24 inches by 20 inches with integral back, roll rim, and concealed wall hanger. Outside of sink to be painted white.

2. TRAP STANDARD

(c) and (d) Cast iron, enameled inside, adjustable P-trap standard with 3-inch female I.P.S. outlet, rough brass cleanout plug, chromium-plate waste strainer, and gaskets. Trap outlet to face to right (cold-water) side of sink; to left (hot-water) side of sink; or straight back to wall, as required by the plans. Outside of trap to be painted white.

(e) and (f) Cast iron enameled inside, adjustable S-trap standard with spigot outlet for 3-inch soil-pipe connection, rough brass cleanout plug, chromium-plate waste strainer, and gaskets. Outside of trap to be painted white.

3. FAUCET

(g) Double faucet, rough finish nickel- or chromium-plated brass, with renewable seats, rigid spout with hose end and pail hook, 4-arm indexed metal handles, and 1/2-inch female I.P.S. union supply connections.

(h) Single faucet, rough finish nickel- or chromium-plated brass, with renewable seats, hose end, indexed lever handle, and 1/2-inch I.P.S. male inlet with adjustable flange.

4. FAUCET HOLE COVER

(For drilled opening for hot-water faucet) One chromium-plated cast-brass faucet-hole cover with nut and washer.

5. RIM GUARDS

(j) and (k) Spring sheet chromium-plated brass, or stainless steel, for front and both sides.

For separate specification numbers and table of materials required for various service-sink assemblies, SEE PAGE 2.

Old Specification Numbers

Number	Type
SB 6.1 AA	AV and AE
SB 6.2 AA	BV and BE
SB 6.3 AA	CV and CE
SB 6.4 AA	DV and DE

PLUMBING	STANDARD ENGINEERING SPECIFICATIONS	
	Issued DEC. 21, 1945	
	Revised	SB-7-AA

WASHFOUNTAINS
KEY TO TYPES

Eng. Std. Spec.	Type	Description
SB-7.1-AA	"A"	54" Circular - Overhead Supplies and Vent.
	"C"	36" Circular - Overhead Supplies and Vent.
SB-7.2-AA	"B"	54" Semi-circular - Overhead Supplies and Vent.
	"D"	36" Semi-circular - Overhead Supplies and Vent.
SB-7.3-AA	"E"	54" Circular - Overhead Supplies and Plain Waste.
	"G"	36" Circular - Overhead Supplies and Plain Waste.
SB-7.4-AA	"F"	54" Semi-circular - Overhead Supplies and Plain Waste
	"H"	36" Semi-circular - Overhead Supplies and Plain Waste
SB-7.5-AA	"J"	54" Circular - Underground Supplies and Overhead Vent.
	"L"	36" Circular - Underground Supplies and Overhead Vent.
SB-7.6-AA	"K"	54" Semi-circular - Undergrour Supplies and Overhead Vent.
	"M"	36" Semi-circular - Undergrour Supplies and Overhead Vent.
SB-7.7-AA	"N"	54" Circular - Underground Supplies and Plain Waste.
	"R"	36" Circular - Underground Supplies and Plain Waste.
SB-7.8-AA	"P"	54" Semi-circular - Undergroun Supplies and Plain Waste.
	"S"	36" Semi-circular - Undergroun Supplies and Plain Waste.

PLUMBING WASH FOUNTAINS TYPES A TO S	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED 10-2-44	SB 7.1 AA to SB 7.8 AA Page 1 of 2
	REVISED DECEMBER 1950	

1. FOUNTAIN

(a) Circular type, constructed of precast non-porous limestone with a tinted binder, ground and polished inside and outside. Equipped with two metal access panels in pedestal; and a manually operated mixing and volume control valve.

(b) Semi-circular type, but otherwise of same construction and finish as (a), except having only one access panel in pedestal.

2. SUPPLIES

(c) Fixture to be arranged for 3/4 inch hot- and cold-water supplies from overhead with 1/2 inch connections to mixing valve, and 1 1/2 inch vent from overhead, and a 2 inch drain through floor.

(d) Fixture to be arranged for 3/4 inch hot- and cold-water supplies from below (through wall or floor), with 1/2 inch connections to mixing valve, a 1 1/2 inch vent *from* overhead, and a 2 inch drain through floor.

3. SOAP DISPENSERS

(e) Liquid (for fountains A to S *inclusive*) cylindrical brass dispenser with die cast zinc base and brass push-up type liquid soap valves.

(f) Powdered (for fountains AP to SP inclusive) cylindrical brass dispenser with die cast zinc base and brass side swing action soap valves.

(g) For all types of dispensers (for fountains AM to SM inclusive). Fixture to have an all-metal block on spray head column for mounting of individual liquid, powdered, or shaved soap dispensers provided by Purchaser.

4. TRAP

(h) Two inch vented S-trap with cleanout.

5. FINISH

All exposed metal parts to be satin-finish chromium-plated brass.

For separate specification numbers and table of materials required for various wash-fountain assemblies, see Page 2.

PLUMBING	STANDARD ENGINEERING SPECIFICATIONS	
	Issued JULY 1, 1946	SB-8.1-AA
	Revised JULY 18, 1949	

GROUP SHOWER FITTINGS "A" AND "AS"

"A" - For Men
"AS" - For Women

Shower - Industrial type, combination valve shower with four-arm metal indexed handles, renewable seats, swivel discs, encased washers with monel metal screws, and 3/4" male union couplings on supplies; a 1/2" iron-pipe-size red-brass pipe gooseneck; a cast-brass, self-cleaning, adjustable-spray shower head with integral ball joint and screw-driver volume control; and a cast-brass wall flange for support of gooseneck, (on Type "A" only). Bottom of shower head to be set 21" above center of shower valve for type "A", and 9" above center of shower valve for type "AS". All metal parts to be rough finish, chromium plated. Fixture to be arranged for connection of union couplings at rear to tees in exposed horizontal supply pipes. Center of valve to be set 4'-6" above floor. Supplies not included.

Soap Dish - Chromium-plated cast brass with drain holes and clamp for mounting on gooseneck riser pipe.

	Mfrs'. Catalog Numbers of Acceptable Equipment			
Items	Crane Co.	Kohler Co.	Speakman Co.	Standard Sanitary Corp.
Shower Valve	*C-4680	*K-7618	*S-2060	*B-258
Shower Head	*9-231	*K-7722	S-2425	*B-267
Soap Dish	"Crane"	"Kohler"	"Speakman"	"Standard"

*Modified

Approved list does not include all manufacturers of acceptable equipment. However, no substitutions are to be made without the written approval of the Principal Architectural and Civil Engineer.

PLUMBING	STANDARD ENGINEERING SPECIFICATION:	
	Issued OCT. 2, 1946	SB-9.1-AA
	Revised JULY 18, 1949	

STALL SHOWER FITTINGS "A" AND "AS"

"A" - For Men
"AS" - For Women

Shower - Exposed type, with non-scalding mixing valve having metal lever handle; cast brass self-cleaning adjustable spray shower head with integral ball joint and screw-driver volume control on a 1/2" (iron pipe size) red brass gooseneck mixing column pipe with wall flange; screw-driver corner controlling valves with renewable seats and discs; and 1/2" (iron pipe size) red brass exposed supplies 36" long, from above. All exposed parts to be chromium plated.

Bottom of shower head to be set 1'-9" above center of shower valve for fittings "A" and 9" for fittings "AS". Shower valve to be set 4'-6" above floor.

Curtain, Rod and Hooks - 8-oz. white duck, with a 1" O.D. straight curtain rod of chromium-plated brass and with wall flanges, curtain hooks, and hold-back hook.

Soap Dish - Chromium-plated cast-brass, for wall mounting, with drain hole.

Mfrs'. Catalog Numbers of Acceptable Equipment

Items	Crane Co.	Hall-Mack Co.	Chas. Parker Co.	Speakman Co.	Symmons Eng. Co.	Standard Sanitary Corp.
Shower Fixture	--	--	--	*S-1720	*E-3510	--
Shower Head	--	--	--	S-2425	200	--
Shower Valve	--	--	--	S-1725	510-3	--
Curtain	C-4970	--	--	S-2670	--	--
Curtain Rod	*C-4962	--	--	S-2600	--	B-293
Curtain Hooks	C-4980	--	--	S-2660	--	--
Hold-Back Hook	C-4986	--	--	S-2530	--	B-298
Soap Dish	--	620	210	--	--	--

*Modified

Approved list does not include all manufacturers of acceptable equipment. However, no substitutions are to be made without the written approval of the Principal Architectural and Civil Engineer.

PLUMBING HOSE BIBB	STANDARD ENGINEERING SPECIFICATIONS	
	ISSUED 7-1-46	SB 18.1 AA
	REVISED DECEMBER 1950	

Bibb - Rough brass compression faucet with 3/4 inch hose end, tee handle, and 1/2 inch male I.P. hexagon shoulder.

ACCEPTABLE MANUFACTURERS	CATALOG NUMBER
Glauber Brass Company	G-104
Republic Brass Company	J-102
H. B. Sherman Manufacturing Company	No. 601
Standard Sanitary Corporation	B-1101

Approved list does not include all manufacturers of acceptable equipment; however, no substitutions are to be made without the written approval of the Principal Architectural and Civil Engineer.

PLUMBING	ENGINEERING SPECIFICATIONS	
	Issued JULY 1, 1946	
	Revised	SB-19.1-AA

SURGEON'S LAVATORY

Bowl - White vitreous china, 28" x 20" with integral back, rectangular basin, center leg and concealed wall hanger.

Waste Fitting - Knee-action pop-up waste with blade handle, white enameled wall bracket and 1-1/2" tailpiece.

Supply Fitting - Knee-action mixing valve with renewable seats, stirrup handle, white enameled wall bracket and 3/8" union inlets and outlets; and a gooseneck spout with plain nozzle.

Trap - Cast brass adjustable "P" trap with 1-1/2" O.D. inlet, 1-1/2" female I.P. outlet and cleanout plug.

Supplies - 3/8" I.P.S. red brass supplies with loose key stop and a 3/8" I.P.S. red brass supply pipe from mixing valve to spout.

	Acceptable Mfgs. Catalog Numbers
Items	Crane Co.
Bowl	C-5354
Waste Fitting	C-7803-W
Supply Fitting	C-7635
Gooseneck Spout	C-7522
Trap	C-33-988
Supplies	C-7620 and C-7626

Approved list does not include all manufacturers of acceptable equipment. However, no substitutions are to be made without the written approval of the Principal Architectural and Civil Engineer.

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SECTION BCC - PLUMBING

CONTENTS

SPECIFICATION 3019

PLUMBING	ENGINEERING SPECIFICATIONS	
	Issued 10/2/46	[illegible]
	Revised	SB-1.1-CC Sheet 1 of 2

STEAM WATER HEATERS - STORAGE TYPES "S" & "E"

Type - Cylindrical storage type, horizontal or vertical as noted on the plans.

Capacity - Storage and water heating capacity, temperature range, and steam operating pressure shall be as noted on the drawings.

Construction, Test, and Approval - Heater shall be constructed and tested in accordance with requirements of the current A.S.M.E. Code for Unfired Pressure Vessels, Paragraph U-69

Heater shall be designed and built for a working water pressure of 125 lb/sq. in., except as otherwise specifically noted on the drawings.

Heater shall be inspected and approved by the Inspection Division, Engineering Department, E. I. du Pont de Nemours & Co., Inc.

Tank - Heater shell and heads shall be constructed of flange quality steel plates for type "S" and of "Everdur", or equal approved non-ferrous alloy for type "E". Heater shall be of all-welded construction with all longitudinal seams butt welded. Welding shall be done by operators qualified under the A.S.M.E. Code.

Each heater, 18" to 24" in diameter, shall have a 6" x 8" hand-hole with yoke and cover in rear head of horizontal tank or in top head of vertical tank.

Each heater 30" or greater in diameter, shall have an 11" x 15" manhole in rear head of horizontal tank or in top head of vertical tank.

Heater shall be provided with reinforced openings tapped (iron pipe size) for 2" mud blow; 1" water relief valve; 3/4" thermometer; 1-1/4" temperature regulator bulb; and circulating water connections for cold water, hot water, and hot water return.

Heating Section - Heating section for horizontal heaters shall consist of 1-1/4" O.D. seamless drawn copper U-bend tubes not lighter than 16 B.W.G. (0.065").

Heating section for vertical heaters shall consist of 3/4" O.D. seamless drawn copper U-bend tubes not lighter than 17 B.W.G. (0.058")

Ends of all tubes shall be expanded into a rolled steel tube-sheet for type "S" and a bronze tube-sheet for type "E". Vendor must clearly state the amount of tube surface to be supplied with each heater in order to adequately heat the specified quantity of water through the temperature range and at the steam operating pressure required.

STEAM WATER HEATERS - STORAGE TYPES "S" & "E" (CONT.)

Heating section shall be properly supported in shell with steel supports for type "S", and brass or bronze supports for type "E".

Steam Head - Cast iron flanged type with outlets for steam supply and condensate connections, and with openings tapped (iron pipe size) for 1/2" vacuum breaker and 1/2" air relief connections.

Supports - Each vertical heater shall be provided with three or more steel or cast iron legs of proper length to set bottom of heater 18" above floor line.

Each horizontal heater shall be provided with two heavy cast iron or welded steel cradles for bottom supports, unless otherwise noted.

SECTION BCC-1 PLUMBING

CONTENTS

STEAM WATER HEATERS STORAGE TYPES "S" & "E"

TYPE - Cylindrical storage type, horizontal or vertical as noted on the plans.

CAPACITY - Storage and Water Heating capacity, temperature range, and steam operating pressure shall be as noted on the drawings.

CONSTRUCTION, TEST AND APPROVAL - Heater shall be constructed and tested in accordance with requirements of the current A.S.M.E. Code for unfired pressure vessels, Paragraph U-69.

Heater shall be designed and built for a working water pressure of 125 Lb./Sq. In., except as otherwise specifically noted on the drawings.

Heater shall be inspected and approved by the Inspection Division, Engineering Department, E.I. du pont De Nemours and Company, Incorporated.

TANK - Heater shell and heads shall be constructed of flange quality steel plates for Type "S" and of "Everdur", or equal approved non-ferrous alloy for Type "E". Heater shall be of all-welded construction with all longitudinal seams butt welded. Welding shall be done by operators qualified under the A.S.M.E. Code.

Each heater, 18" to 24" in diameter, shall have a 6" X 8" hand-hole with yoke and cover in rear head of horizontal tank or in top head of vertical tank.

Each heater 30" or greater in diameter, shall have an 11" X 15" manhole in rear head of Horizontal Tank or in top head of Vertical Tank.

STEAM WATER HEATERS - STORAGE TYPES "S" & "E"

TANK - Continued - Heater shall be provided with reinforced openings tapped (iron pipe size) for 2" mud blow; 1" water relief valve; 3/4" thermometer; 1-1/4" temperature regulator bulb; and circulating water connections for cold water, hot water, and hot water return arranged as shown on Exhibit No. 1 and 2.

HEATING SECTION - Heating section for horizontal heaters shall consist of 1-1/4" O.D. Seamless drawn Copper U-Bend Tubes not lighter than 16 B.W.G. (0.065").

Heating section for vertical heaters shall consist of 3/4" O.D. seamless drawn Copper U-Bend Tubes not lighter than 17 B.W.G. (0.058")

Ends of all tubes shall be expanded into a rolled steel Tube-Sheet for Type "S" and a Bronze Tube-Sheet for Type "E". Vendor must clearly state the amount of tube surface to be supplied with each heater in order to adequately heat the specified quantity of water through the temperature range and at the steam operating pressure required.

Heating section shall be properly supported in shell with steel supports for type "S" and Brass or Bronze supports for Type "E".

STEAM HEAD - Cast iron flanged type with outlets for steam supply and condensate connections, and with openings tapped (Iron Pipe Size) for 1/2" vacuum breaker and 1/2" air relief connections.

SUPPORTS - Each vertical heater shall be provided with three or more steel or cast iron legs of proper length to set bottom of heater 12" above floor line.

Each horizontal heater shall be provided with two heavy cast iron or welded steel cradles for bottom support, unless otherwise noted.

SECTION BCC-2 PLUMBING

CONTENTS

ELECTRIC WATER HEATERS

TYPE - Vertical Cylindrical Storage Type.

TANK - Galvanized Copper-Bearing steel of all welded construction, designed for a working pressure of 125 Lb./Sq. In. with necessary reinforced openings for all connections. Storage capacity to be as noted on plans.

HEATING ELEMENT - One immersion type Electric, placed horizontally in tank with screwed or flanged connection to tank shell. Wattage of element to be as noted on plans.

CONTROLS AND ELECTRICAL CONNECTIONS - Snap-action thermostat, adjustable between 120° and 180°; and an outlet box for Electrical connections located conveniently on outer jacket. Also, all Electrical conduit and wiring between controls, Heating Element, and outlet box.

CURRENT CHARACTERISTICS - Unless otherwise specified, all Electrical Heaters having a current consumption of 1800 Watts, or less, shall be designed for use on 110 Volt 60 Cycle Single-phase alternating current and all heaters having a current consumption of more than 1800 Watts shall be designed for use on 220 Volts 60-Cycle Three-phase alternating current.

INSULATION - Tank to be insulated with rock wool (or equal approved material), and have not less than three inches on side walls, five inches on top, and with concave bottom completely filled.

ELECTRIC WATER HEATERS - Continued

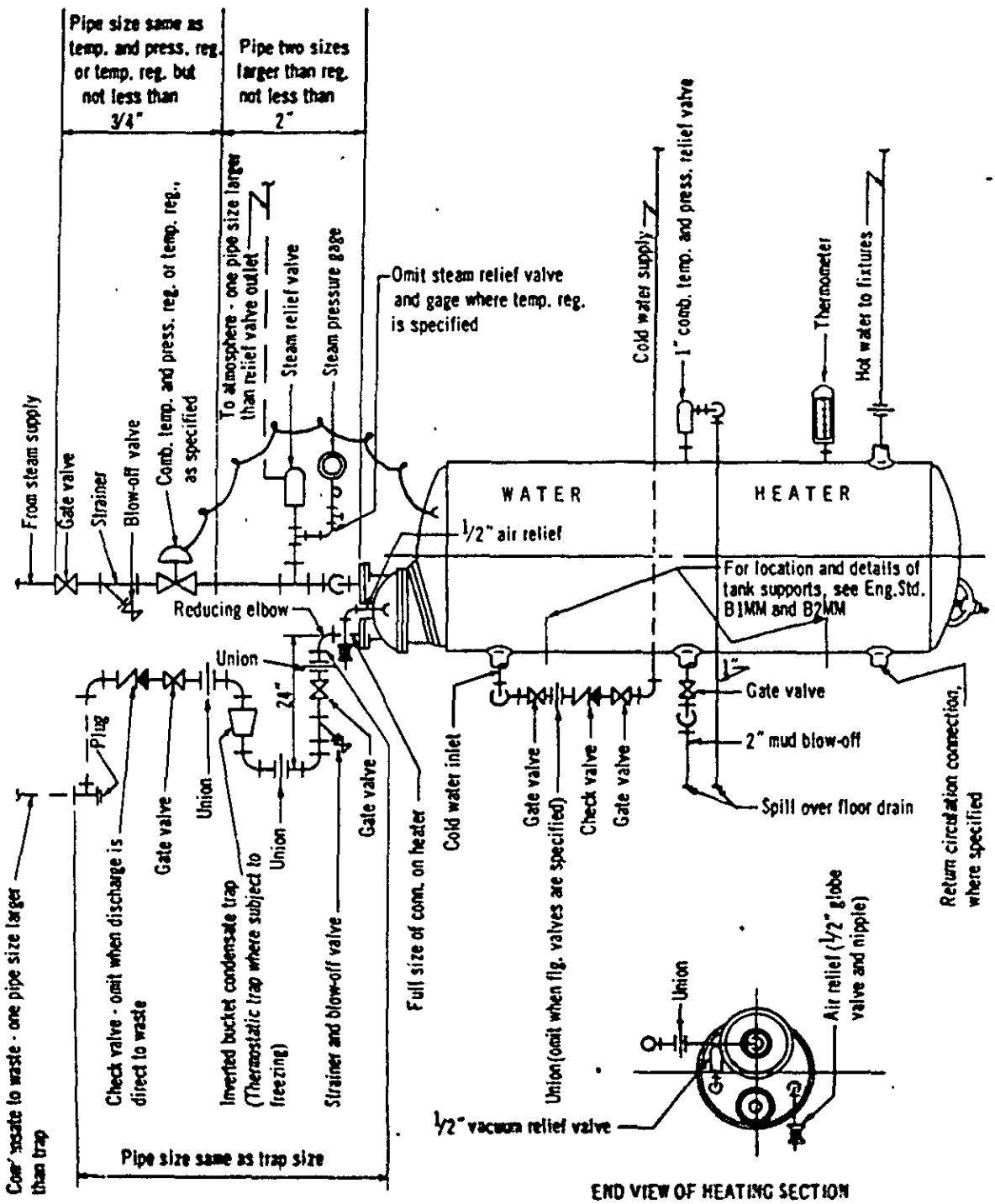
JACKET - Insulated Heater to be encased in a cylindrical heavy-gage steel jacket with baked enamel finish. Jacket to have removable access panels for heating element and thermostat.

LEGS - Heater to be mounted on three or more pressed steel or cast iron legs not less than 6" high.

PLUMBING CONNECTIONS - A drain valve, threaded for hose connection, to be provided in bottom of heater. Tapped connections not less than 3/4" (Iron pipe size). To be provided for Hot water outlet and cold water inlet, arranged as shown on Exhibit No. 3.

PLUMBING
HORIZONTAL STEAM WATER HEATER
TYPICAL CONNECTIONS

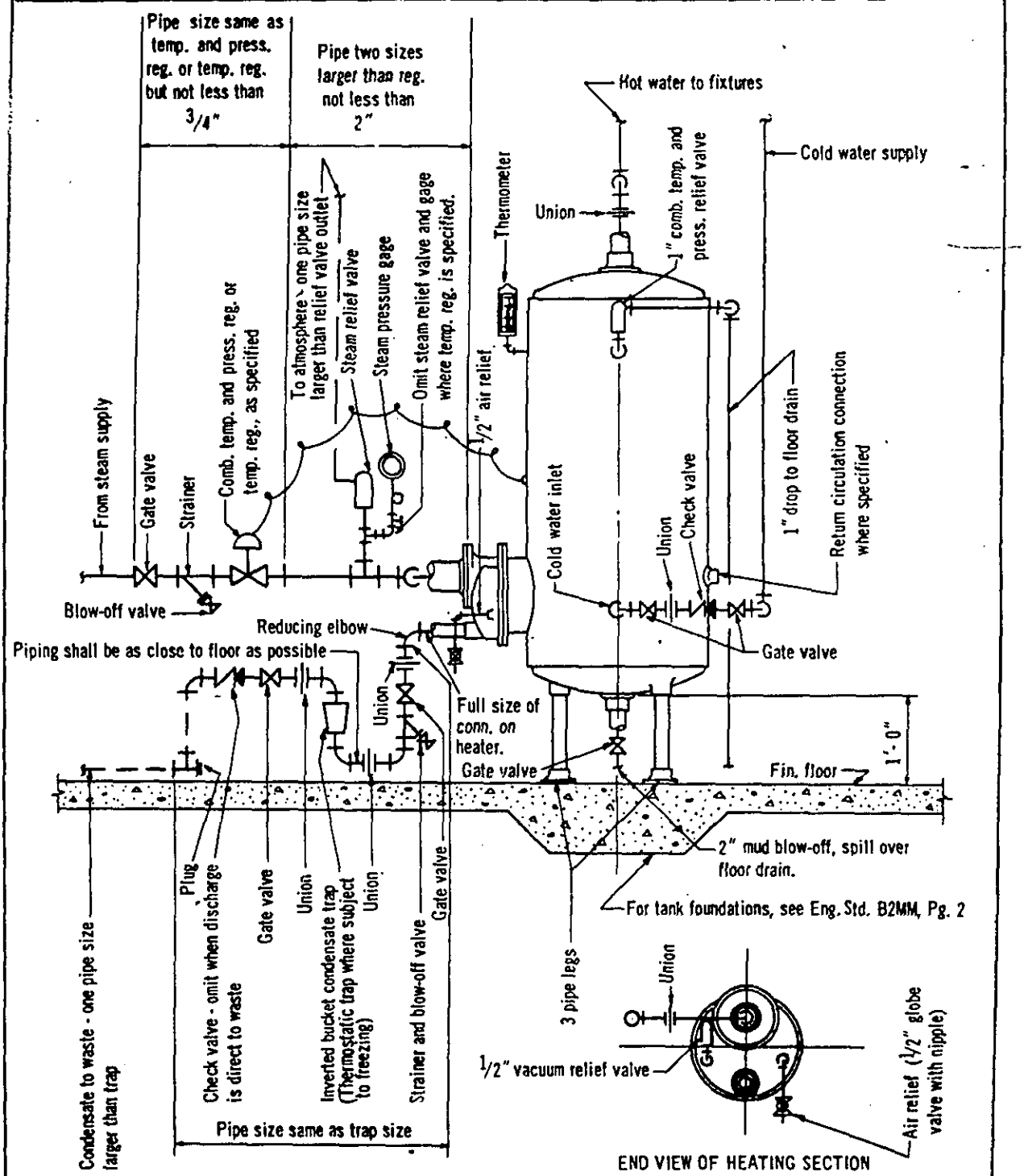
EXHIBIT No. 1



NOTE: All piping materials, trim, and controls, as specified

PLUMBING
VERTICAL STEAM WATER HEATER
TYPICAL CONNECTIONS

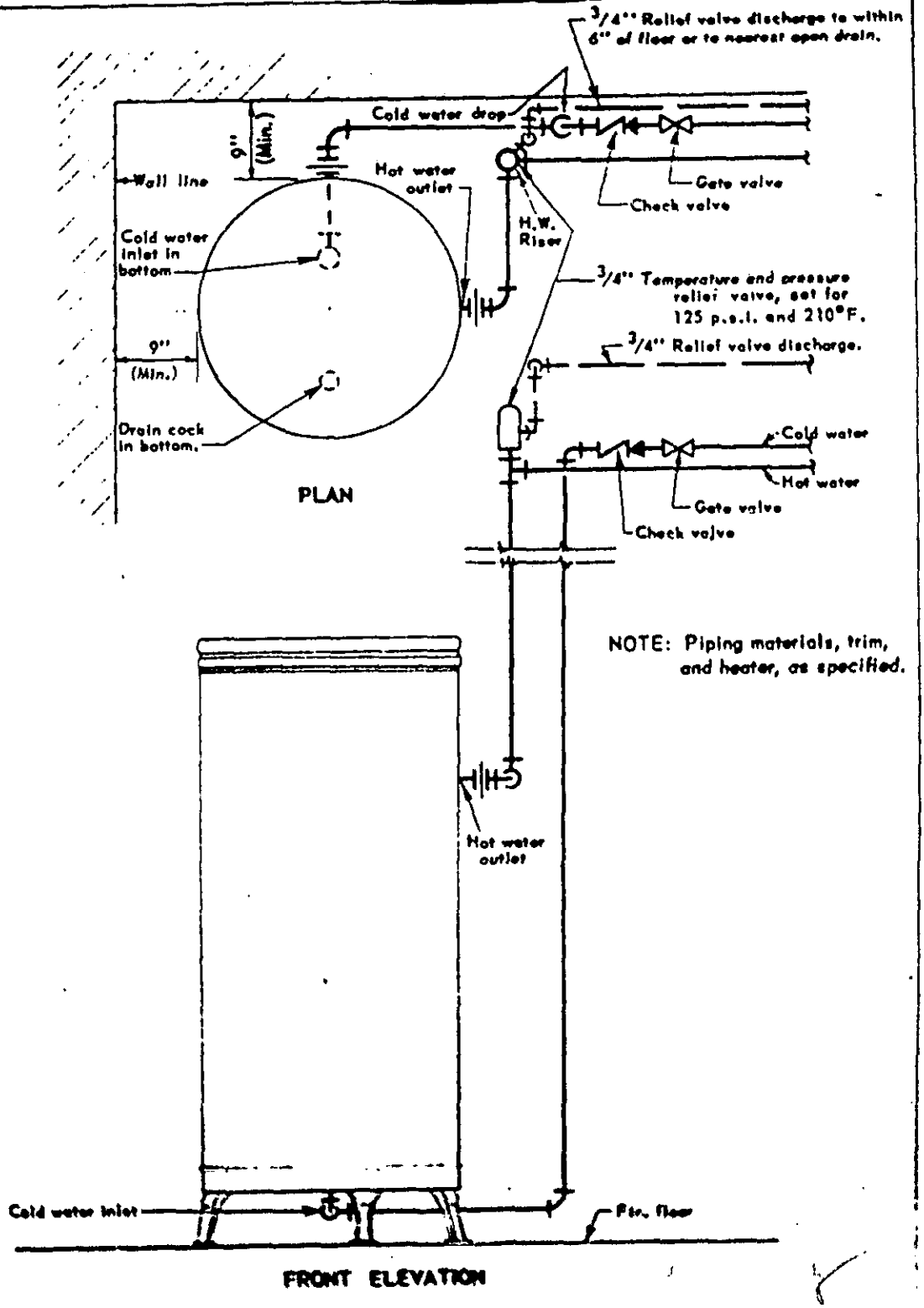
EXHIBIT No. 2



NOTE: All piping materials, trim, and controls, as specified.

PLUMBING
ELECTRIC WATER HEATER
TYPICAL PIPING CONNECTIONS

EXHIBIT No. 3



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SECTION BDD - ELECTRIC WATER COOLERS

CONTENTS

GENERAL - Standard Engineering Specifications SC-1-A applies to and is a part of this specification.

ELECTRIC WATER COOLERS "A"

Capacity - 5 gal/hr of water cooled from 80° F. to 50° F. with ambient temperature at 90° F. and with 60% waste through drain. Cooling chamber to have storage capacity of not less than three (3) quarts.

Condensing Unit - Air Cooled, hermetically sealed.

Refrigerant - Freon - 12

Motor - 115 volts, 60 cycles, single phase, A.C.

Controls - Automatic, adjustable water temperature and thermal overload with automatic stop and restart.

Cord and Plug - #16 AWG, three conductor Type SO rubber insulated and neoprene jacketed cord with Hubbell #9413 or approved equal, three prong plug.

Cabinet - Sheet steel, enamel finished, with vitreous china or stainless steel top.

Bubbler - (H) Chromium plated brass hand operated bubbler with adjustable stream regulator or (F) foot pedal operated bubbler with adjustable stream regulator, as ordered.

Glass Filler - Chromium plated brass hand operated glass filler to be furnished as additional equipment when ordered.

Remote Bubbler - Trapped outlet in rear of cabinet for remote bubbler connection.

Guarantee - One year on complete cooler plus four years free replacement of hermetically sealed unit.

SECTION BDD - ELECTRIC WATER COOLERS "A" (Cont'd.)

ACCEPTABLE MANUFACTURERS

Westinghouse Electric Corp.
General Electric Co.
Ebco Manufacturing Co.
Cordley & Hayes
G.M.C. (Frigidaire Div.)

ELECTRIC WATER COOLERS "B"

Capacity - 9.5 gal/hr. of water cooled from 80° F. to 50° F. with ambient temperature at 90° F. and with 60% waste through drain. Cooling chamber to have storage capacity of not less than 3 quarts.

Condensing Unit - Air cooler, hermetically sealed.

Refrigerant - Freon - 12

Motor - 115 volt, 60 cycle, single phase, A.C.

Controls - Automatic, adjustable water temperature, and thermal overload, with automatic stop and restart.

Cord and Plug - #16 AWG, three conductor type SO rubber insulated and neoprene jacketed cord with Hubbell #9413, or approved equal, three prong plug.

Cabinet - Sheet steel, enamel finished, with vitreous china or stainless steel top.

Bubbler - (H) Chromium plated brass hand operated with adjustable stream regulator, or "F" foot pedal operated bubbler with adjustable stream regulator as ordered.

Glass Filler - Chromium plated brass hand operated glass filler. To be furnished as additional equipment when ordered.

Remote Bubbler - Trapped outlet in rear of cabinet for remote bubbler connection.

Guarantee - One year on complete cooler plus four years free replacement of hermetically sealed unit.

SECTION BDR - ELECTRIC WATER COOLERS "B" (Cont'd.)

ACCEPTABLE MANUFACTURERS

Westinghouse Electric Corp.
General Electric Co.
Ebco. Mfg. Co.
Cordley & Hayes
G.M.C. (Frigidaire Div.)

ELECTRIC WATER COOLERS "X"

Capacity - 5-1/2 Gal./hr. of water cooled from 80 F. to 50 F. with a drinking and condensing water inlet temperature of 80 F., and ambient temperature of 90 F. and 60% waste through drain. Cooling chamber to have capacity of not less than four (4) quarts.

Condensing Unit - Counter flow water, or static air cooled, hermetically sealed.

Refrigerant - Freon - 12

Motor - 115 volts, 60 cycles, single phase, A.C.

Controls - Automatic, adjustable water temperature, and thermal overload, with automatic stop and restart; and with automatic CONDENSING WATER REGULATOR for Water cooled UNITS only.

Explosion Proof Enclosure - Compressor terminals, water temperature control, automatic reset and condenser water controls to be enclosed in a welded steel explosion-proof box mounted in cabinet. Wiring from box to outlet at back of cooler to be run in explosion-proof rigid conduit.

Cabinet - Sheet steel, enamel finished with vitreous china or stainless steel top.

Bubbler - (H) Chromium plated brass hand operated with adjustable stream regulator or (F) foot pedal operated bubbler with adjustable stream regulator.

Remote Bubbler - Tapped outlet in rear of cabinet for remote bubbler connection.

Guarantee - One year on complete cooler plus four years free replacement of hermetically sealed unit.

Underwriter's Approval - Cooler to have Underwriter's Laboratories approval for Class I. Group D and Class II, Groups F & G applications.

SECTION 800D - ELECTRIC WATER COOLERS "X" (Cont'd.)

ACCEPTABLE MANUFACTURERS

Westinghouse Electric Corp.
Ebco Manufacturing Co.
Cordley & Hayes

ELECTRIC WATER COOLERS "B-W" & "B-WPT"

Capacity - 5-1/2 gal./hr. of water cooled from 80° F. to 50° F. with and inlet condensing water temperature of 80° F. and with no waste through drain. Cooling chamber to have storage capacity of not less than 4 quarts.

Condensing Unit - Counter flow, water cooled hermetically sealed.

Refrigerant - Freon - 12

Motor - 115 volts, 60 cycle, single phase, A. C.

Controls - Automatic, adjustable water temperature and thermal overload, with automatic stop and restart; and with automatic regulator for condensing water.

Cord and Plug - #16 AWG, three conductor type SO rubber insulated and Neoprene Jacketed Cord with Hubbell #9413, or approved equal, three prong plug.

Cabinet - Sheet steel, enamel finished.

Top - (For "B-W" only) Vitreous china or stainless steel with (H) chromium plated brass hand operated bubbler and adjustable stream regulator, or (F) foot pedal operated bubbler with adjustable stream regulator. As ordered chromium plated brass hand operated glass filler to be furnished as additional equipment, when ordered.

Top - (For "B-WPT" only) Plain sheet steel, enamel finished, no bubbler.

Remote Bubbler - Tapped outlet in rear of cabinet for remote bubbler connection.

Guarantee - One year on complete cooler plus four years free replacement of hermetically sealed unit.

ACCEPTABLE MANUFACTURERS
Westinghouse Electric Corp.
General Electric Co.
Ebco Mfg. Co.
Cordley & Hayes
G. M. C. (Frigidaire Div.)

SECTION: EDD - ELECTRIC WATER COOLERS (Cont'd.)

ELECTRIC BOTTLE WATER COOLERS "C"

Capacity - 7 Gal/Hr. of water cooled from 90° F. to 50° F. with ambient temperature at 90° F. Cooling chamber to have storage capacity of not less than 2 quarts.

Condensing Unit - Air Cooled, Hermetically sealed.

Refrigerant - Freon - 12

Motor - 115 volt, 60 cycle, single phase, A. C.

Controls - Automatic, adjustable water temperature, and thermal overload, with automatic stop and restart.

Cord and Plug - #16 AWG, three conductor type SO rubber insulated and neoprene jacketed cord with Hubbell #9113, or approved equal, three prong plug.

Cabinet - Sheet steel, enamel finished, with gasketed opening in top for 5 gallon bottle.

Faucet - Chromium plated brass push-button type.

Waste Receptor - Detachable, anti-splash type.

Guarantee - One year on complete cooler plus four years free replacement of Hermetically Sealed Unit.

ACCEPTABLE MANUFACTURERS

Westinghouse Electric Corp.
General Electric Co.
Ebco Manufacturing Co.
Cordley & Hayes
G. M. C. (Frigidaire Div.)

REVISED PRELIMINARY TAKEOFF OF HARDWARE LISTS [redacted]

for

PROJECT 8980 - SAVANNAH RIVER PLANT

LIST	BUILDINGS																			
		320M	313M	701.2D	122R	701D	717A	608G	772D	702A	717D	613G	704D	713A	704M	672G			TOTAL
2																			
4			4									2			2				8
7							4								1				5
		1								1									2
1[illegible]												1							1
13		1																	1
14																3			3
-							1												1
2[illegible]																1			1
32							1							1					2
33							3	2						5					10
34										1		5							6
35											2								2
36				1												1			2
37		20	7				19			3		4		6	7				66
38																7			7
39		2					1			1				1	1				6
40																5			5
41		5	3				2			3				2	4				19
42																5			5
45		3	2							2		1		3	1				12
47																4			4

307

[redacted]

REVISED PRELIMINARY TAKEOFF OF HAZARDS LISTS

for

PROJECT 8900 - SAVANNAH RIVER PLANT

BUILDINGS

LIST	320H	313H	701.2D	122F	791D	717A	608G	772D	702A	717D	616G	704D	713A	704H	679G			TOTALS
48										1								1
50									2									2
53									1									1
57	2														1			3
60														2				1
69															2			2
70																		2
71										3								3
72						1												1
74			1															1
76	2																	2
77											1							1
79									1			2		4				7
80	3																	3
85										2								2
88															1			1
97										2		6			2			10
98												5						5
99												1						1
100												2						2
101												1			1			2

REVISED PRELIMINARY TAKEOFF OF HARDWARE LISTS

for

PROJECT 6980 - SAVANNAH RIVER PLANT

LIST	BUILDINGS																	
		320M	313M	701.2D	122M	701D	717A	608G	772D	702A	717D	618G	704D	713A	704M	679G	TOTAL
102											17		62				79
103											2		18				20
104											4					5	9
105																3	3
106																8	8
107											1					1	2
108																5	5
109											7						7
110											1						1
111											1						1

309