DAIRYLAND POWER COOPERATIVE • P.O. BOX 817 • 2615 EAST AV SOUTH • LA CROSSE, WISCONSIN 54601
(608) 788-4000

May 30, 1980

In reply, please
refer to LAC-6960

DOCKET NO. 50-409

Office of Nuclear Reactor Regulation
ATTN: Mr. Darrell G. Eisenhut, Acting Director
Operating Reactors Branch #2
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: DAIRYLAND POWER COOPERATIVE
LA CROSSE BOILING WATER REACTOR (LACBWR)
PROVISIONAL OPERATING LICENSE NO. DPR-45
SEISMIC DESIGN EVALUATION FOR ANCHORAGE AND
SUPPORT OF SAFETY RELATED ELECTRICAL EQUIPMENT

REFERENCE: (1) NRC Letter, Eisenhut to Linder,
dated January 1, 1980

Dear Mr. Eisenhut:

We have inspected all safety related and non-safety related electrical equipment to determine that positive anchorage exists (load carrying mechanism other than friction).

The following list of electrical equipment within the Containment Building was inspected and we have determined that positive anchorage does exist:

(1) In Core Flux Drive System: Bolted and welded to steel grouted in floor.

(2) Reactor Building Motor Control Center 1A: Bolted and welded to steel grouted in floor.

(3) Control Rod Drive Gas Readout Panel: Bolted to floor.

(4) Shield Cooling Pumps: Bolted and grouted in floor.

(5) Portable Hoist: Bolted and welded, has rail stops.

(6) Control Rod Drive Mechanism: Bolted to pressure vessel.

(7) Seal Injection Pump Motors: Bolted and grouted in floor.

(8) Air Conditioner Units 1A and 1B: Bolted to floor.

(9) Emergency Core Cooling Pumps 1A and 1B: Bolted to frame grouted in floor.

(10) Motor Control Center 1C, 1B: Bolted and welded to steel grouted in floor.

(11) Fuel Storage Well Pump 1A and 1B: Bolted to frame grouted in floor.

The following list of electrical equipment within the Turbine Building and inspected and we have determined that positive anchorage does exist:

(1) 480-Volt 1A and 1B Switchgear: Bolted to steel grouted in floor.

(2) 1A and 1B Switchgear Transformers: Welded to steel grouted in floor.

(3) Unit Auxiliary Transformer: Bolted to steel grouted in floor.

(4) Resistor Bank: Bolted to floor anchors.

(5) Demineralizer Panel: Welded to steel grouted in floor.

(6) Laundry Equipment Transformer: Bolted to floor anchors.

(7) Turbine Building Motor Control Center 1B, 1C, 1D, 1E: Bolted and welded to steel grouted in floor.

(8) Laundry Equipment: Bolted to floor anchors.

(9) Auxiliary Building Transformer: Bolted to wall steel supports to "I" beam.

(10) All Auxiliary Miscellaneous Motors: Bolted to steel grouted in floor.

(11) Generator Switchgear: Bolted to steel grouted in floor.

The following list of electrical equipment within the Electrical Room beneath the Control Room was inspected and we have determined that positive anchorage does exist.

(1) Generator Plant Battery Rack: Floor mounted and bolted to wall.

(2) Reactor Plant Battery Rack: Bolted to floor.

(3) Generator Plant Battery Charger: Bolted to floor top conduit supports.

(4) Reactor Plant Battery Charger: Bolted to floor top conduit supports.

(5) Reactor Relay Panel: Bolted to floor.

(6) 1A, 1C, Small Inverters: Bolted to wall.

(7) Turbine Building Motor Control Center 1A: Bolted to floor.

(8) Control Room Air Conditioner: Bolted to floor.

(9) Generator Plant Protective Relay Panel: Shock mounts bolted to floor, upper panel support shock mounts bolted to wall.

The following list of electrical equipment within the 1B Electrical Equipment Room was inspected and we have determined that positive anchorage does exist.

(1) 480-Volt Essential Switchgear 1A and 1B: Bolted to steel grouted in floor.

(2) 1B Inverter: Bolted and welded to steel grouted in floor.

(3) 1B Battery Charger: Bolted and welded to steel grouted in floor.

(4) Electrical Switchgear: Bolted and welded to steel grouted in floor.

(5) 1B Battery Rack: Bolted to floor.

(6) 1B Diesel Generator Control Panel: Bolted and welded to steel grouted in floor.

A vertical control panel is one continuous unit bolted section to section and floor supported. The panel is bolted to shock mounts that are welded to steel grouted to the floor. The upper section is back supported by bolted shock mounts to wall.

The benchboard control panel is one continuous unit bolted section to section and floor supported-the panel is bolted to shock mounts that are welded to steel grouted to the floor.

Other miscellaneous motor control centers located in the Crib House and the Waste Treatment Building are bolted and welded to steel grouted in the floor.

Attachment 1 to this letter contains a copy of an internal plant memo dealing with our response action to IE Information Notice No. 80-21, "Anchorage and Support of Safety Related Electrical Equipment." This attachment includes copies of Sargent and Lundy Engineers mounting standards utilized at this plant.

If you have any questions about this information, please contact us.

Very truly yours,

DAIRYLAND POWER COOPERATIVE

Frank Linder abs

Frank Linder, General Manager

WRN:abs

Enclosure: Attachment 1

ATTACHMENT 1

MAY 30, 1980

TO: R. E. SHIMSHAK, LACBWR SUPERINTENDENT

FROM: W. R. NOWICKI, LACBWR INSTRUMENT & ELECTRICAL SUPERVISOR

SUBJECT: IE INFORMATION NOTICE NO. 80-21 - ANCHORAGE AND SUPPORT OF SAFETY-RELATED ELECTRICAL EQUIPMENT

REF.: (1) NRC Letter, Eisenhut to Linder, dated January 1, 1980, Regarding Seismic Design Evaluation for Anchorage and Support of Safety Related Electrical Equipment.

(2) DPC Linder to Eisenhut, dated May 30, 1980, LAC-6960, (attached).

(3) Sargent & Lundy Standards EB-122, 133, 135; EE-138, 142, 173; EF-241, 246, 248, 249; EB-686 (attached).

In addition to the inspection conducted in mid May 1980, for evidence of positive anchorage of electrical equipment, the following items listed in the NRC IE Information Notice No. 80-21 were inspected.

(1) Emergency Diesel Generator 1A and 1B Room Heaters consist of a metal frame bolted to anchors in concrete wall.

(2) Emergency Diesel Generator Start Batteries in metal frame bolted to anchors in concrete wall and floor.

(3) Emergency Diesel Water Pump Start Batteries in metal frame bolted to wall and anchors in concrete floor.

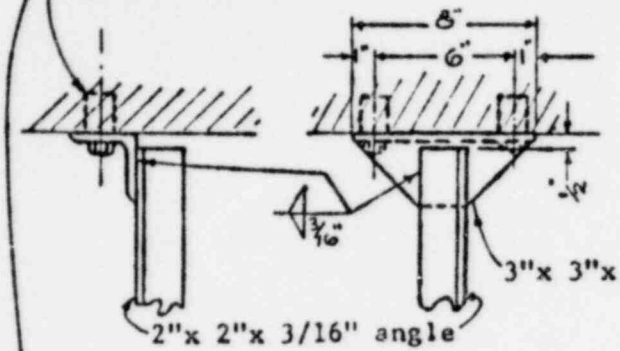
(4) Cable Trays are secured by unistrut bolted to "I" beams or threaded rod secured to "I" beams or anchored to concrete.

(5) Instrument Air System Dryers are bolted and grouted to the concrete floor. Upper end supported by piping.

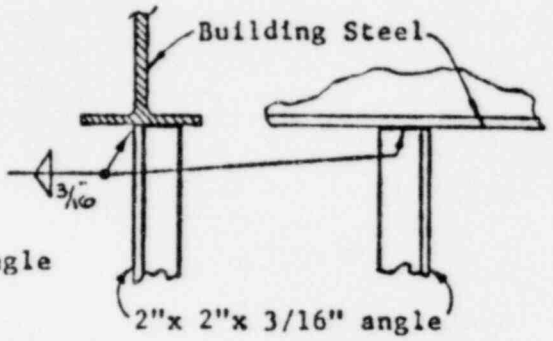
By my observation and the review of the Sargent & Lundy Standards which governed the installation of our equipment, the components at the LACBWR seem to be well anchored.

WRN:abs

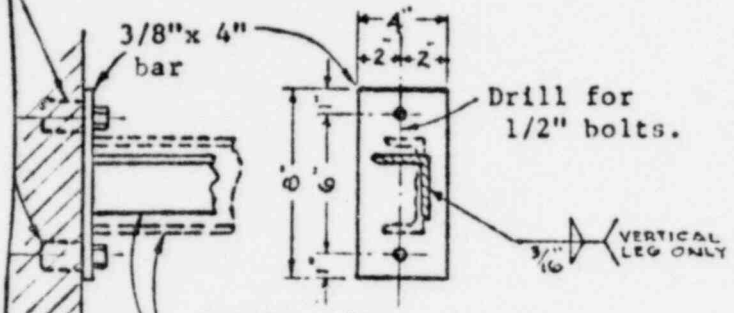
1/2" - 2 unit Cinch anchors, &
1/2"x 1-3/4" Hexagon head bolt.
See STD-EF-163.



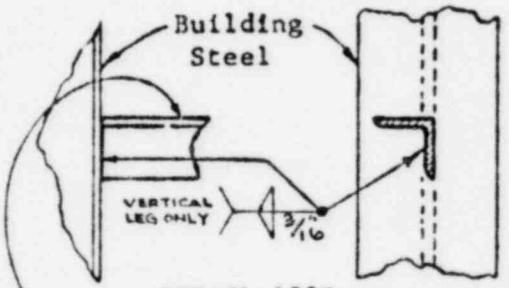
DETAIL 122A



DETAIL 122F

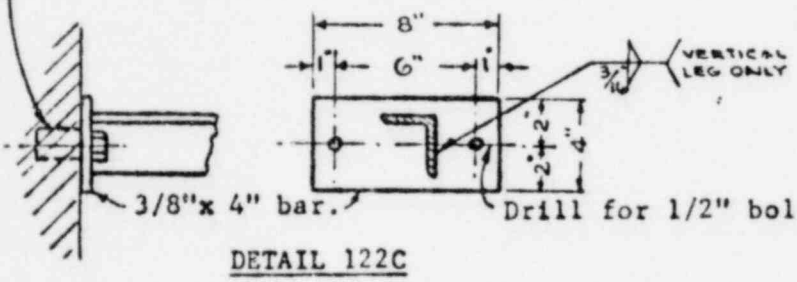


DETAIL 122B



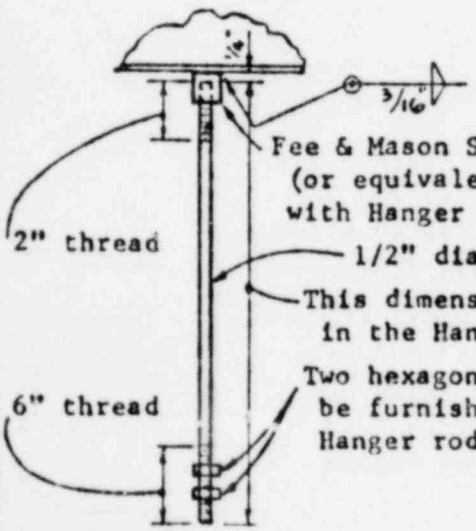
DETAIL 122G

The size of the horizontal Hanger angle or channel is specified in the Hanger Tabulation.

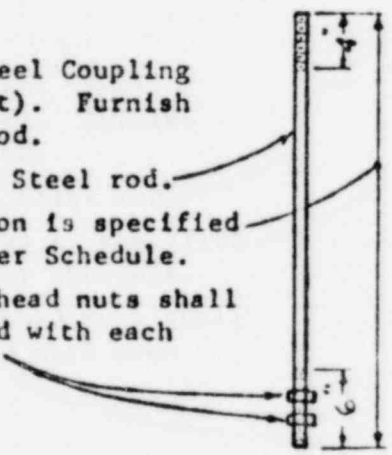


DETAIL 122C

NOTES:
1. All Field welds to building steel must always be parallel to the web of the column or beam.
2. See STD-EB-121 for Hanger Specifications.



DETAIL 122D



DETAIL 122E

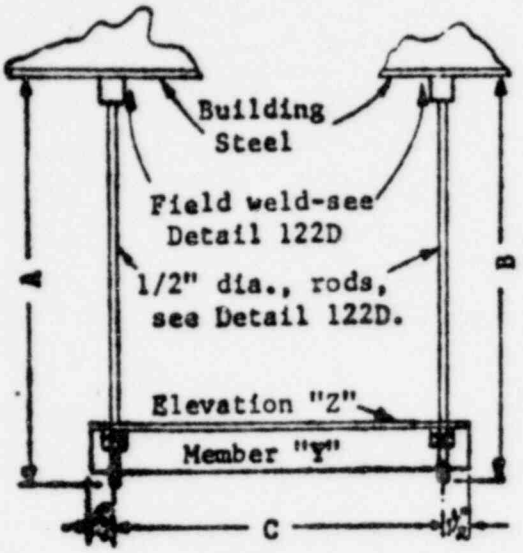
HANGER DETAILS

SCALE . NONE .....
DRAWN .....
APPROVED .....
DATE . 10-1-59 .....
REVISED .....

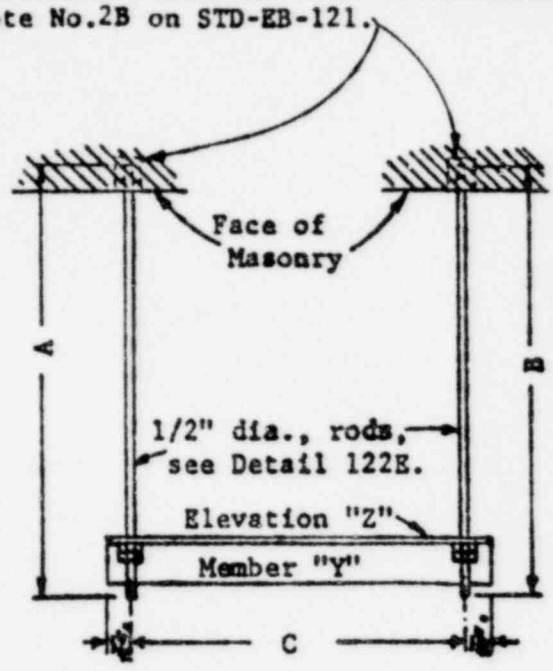
BARGENT & LUNDY
ENGINEERS
CHICAGO

STANDARD

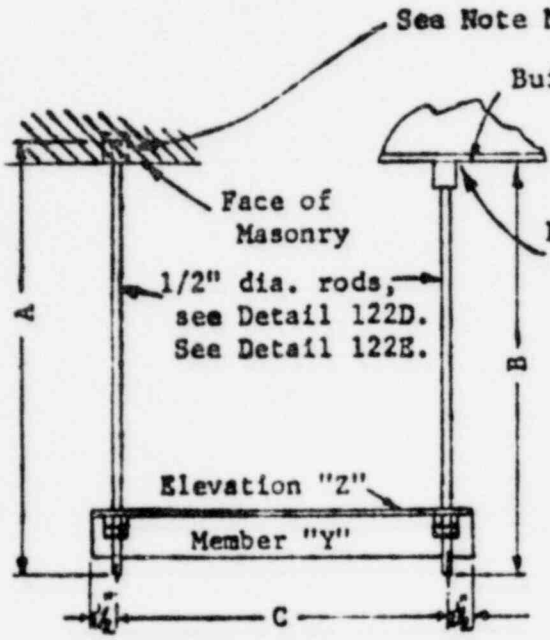
STD-EB-122



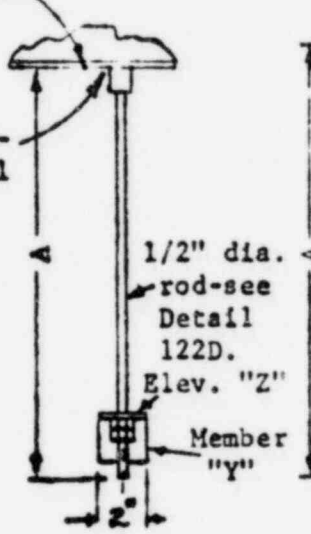
DETAIL 133A



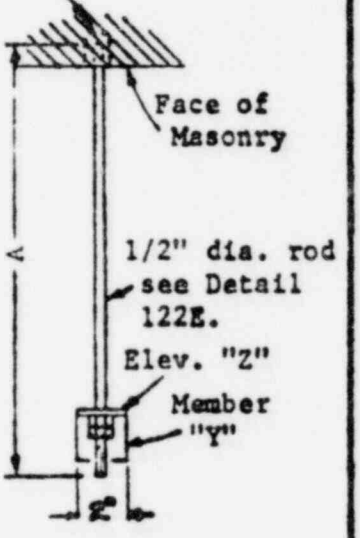
DETAIL 133B



DETAIL 133C



DETAIL 133D



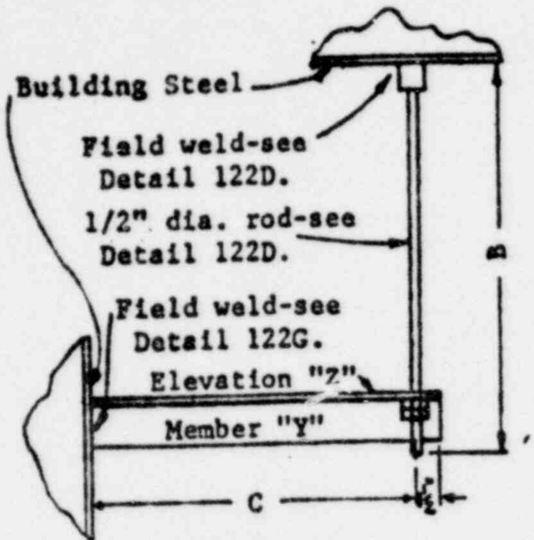
DETAIL 133E

NOTES:

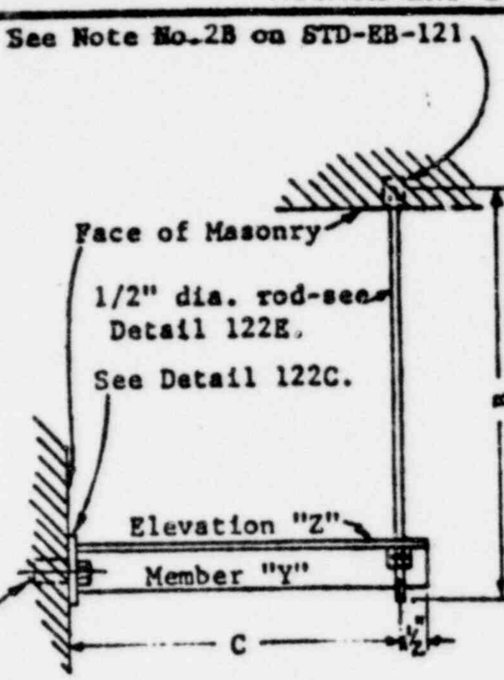
1. See STD-EB-121 for specifications.
2. For Details No. 122A thru 122G, see STD-EB-122.
3. The size of Member "Y", and the elevation "Z", the quantities, and the dimensions A,B,C,etc., are shown on the Hanger Tabulation.
4. Sargent & Lundy's erection drawing shows the location and identifying numbers of the hangers.

HANGERS
ROD VERTICALS

SCALE NONE DRAWN EGA APPROVED EBR DATE 2-1-44 REVISED 5-1-52 10-1-59 4-20-61	SARGENT & LUNDY ENGINEERS CHICAGO STANDARD STD-EB-133

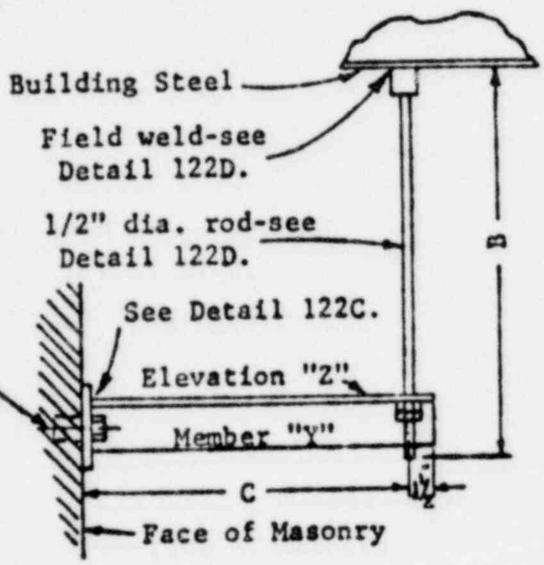


DETAIL 135A

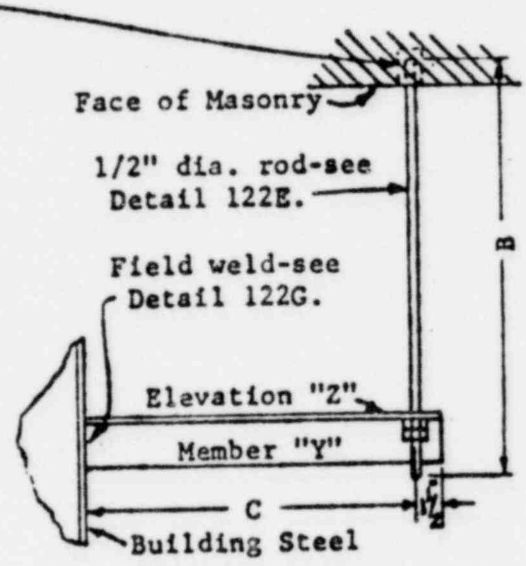


DETAIL 135B

See Note No.2B on STD-EB-121



DETAIL 135C



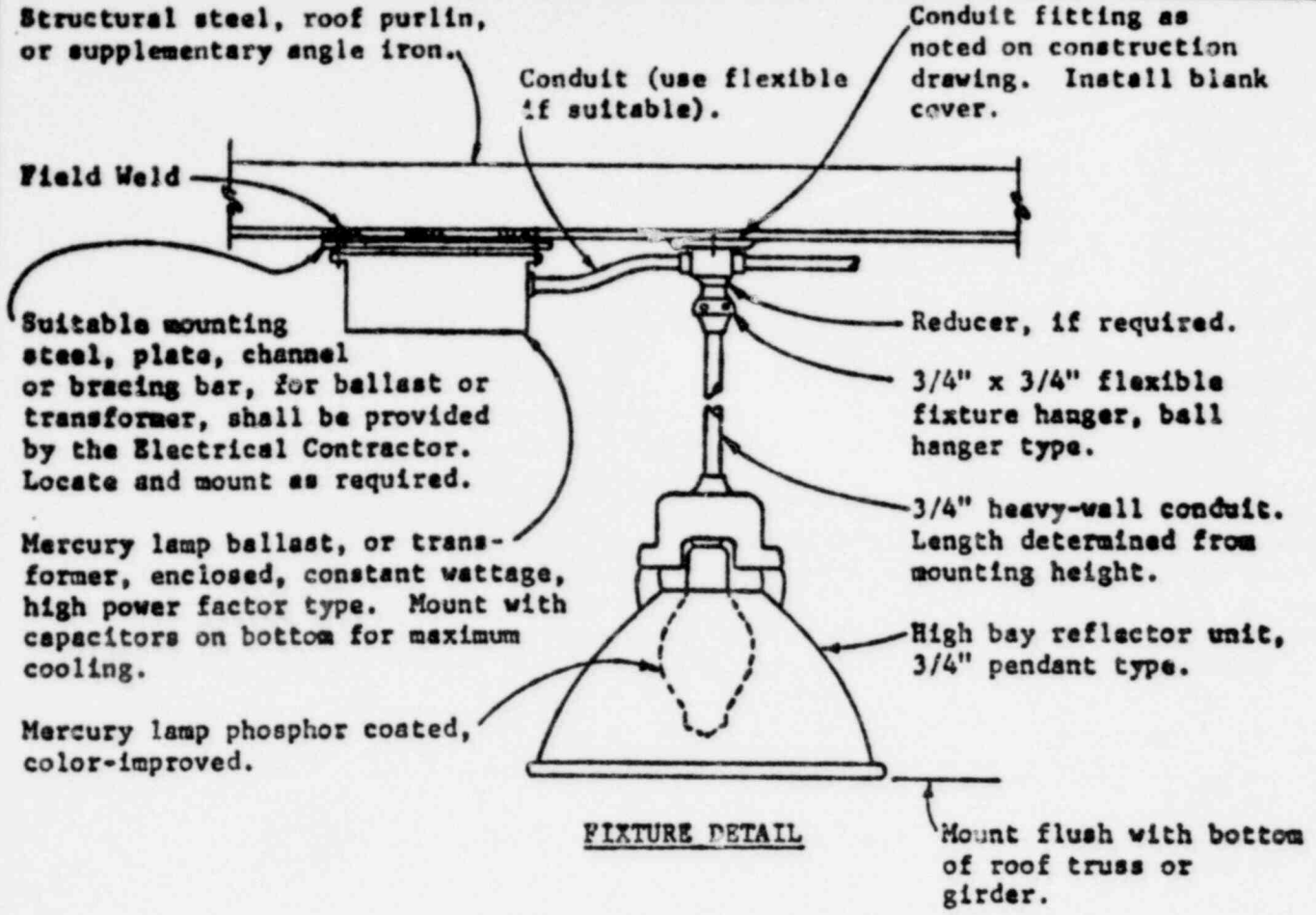
DETAIL 135D

NOTES:

1. See STD-EB-121 for specifications.
2. For Details No. 122A thru 122G, see STD-EB-122.
3. The size of Member "Y", and the elevation "Z", the quantities, and the dimensions A,B,C, etc., are shown on the Hanger Tabulation.
4. Sargent & Lundy's erection drawing shows the location and identifying numbers of the hangers.

HANGERS
ROD VERTICALS

SCALE NONE	SARGENT & LUNDY ENGINEERS CHICAGO
DRAWN R.G.	
APPROVED Z.G.A.	STANDARD
DATE 2-1-46	
REVISED 5-1-52, 10-1-59, 9-20-61	STD-EB-135



FIXTURE DETAIL

S&L Fixture No.	Lamp Size	Ballast Rating	Approx. Watts *
F 166	400 W.	400 W.	450
F 167	700 W.	700 W.	770
F 168	1000 W.	1000 W.	1100

NOTE: Wiring connections shall be made in accordance with the diagram on the nameplate.

* Includes ballast loss

MERCURY HIGH BAY REFLECTOR UNIT
F 166 TO F 168

SCALE ....
DRAWN E.G.A.
APPROVED E.A.R.
DATE 12-18-60
REVISED 2-2-64

SARGENT & LUNDY ENGINEERS CHICAGO

STANDARD

STD-EE-138

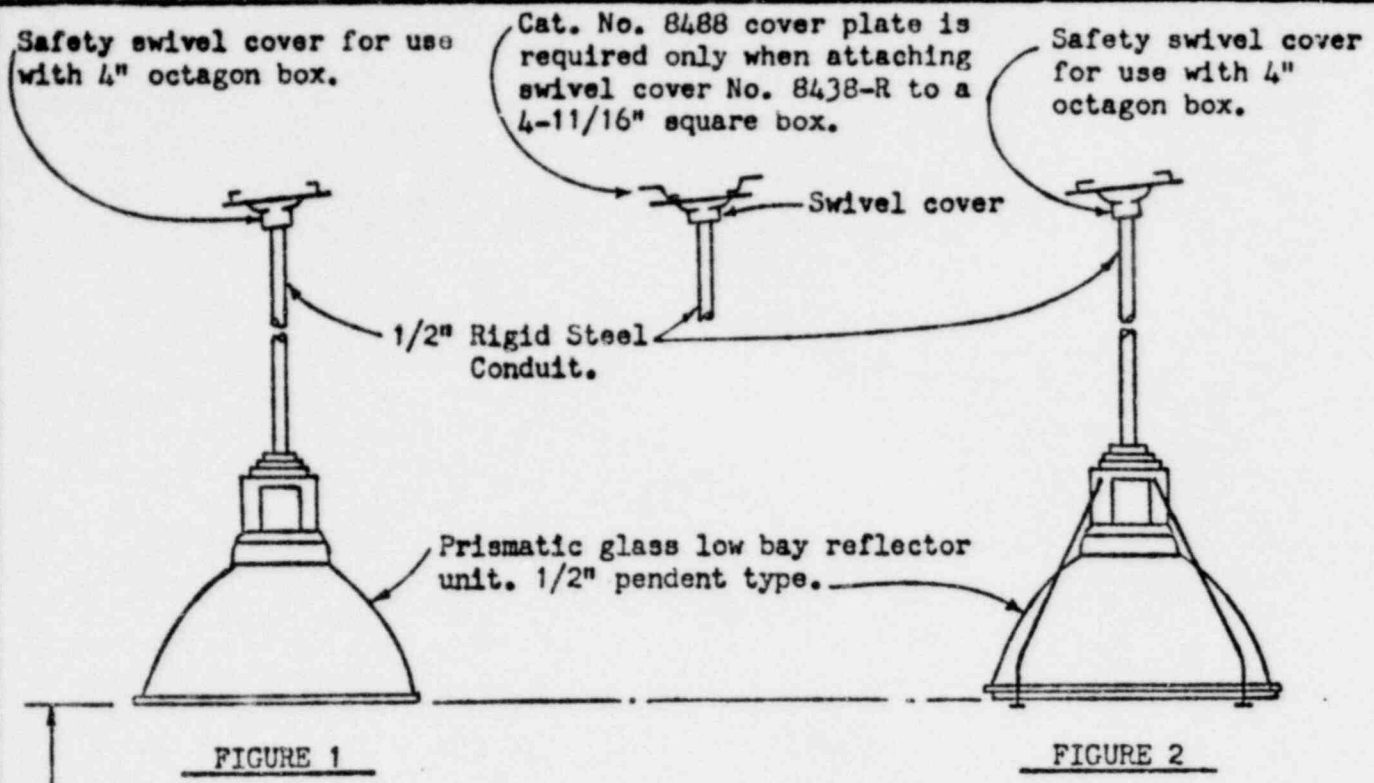


FIGURE 1

FIGURE 2

S&L Fixture No.	Fig. No.	Lamp Size	Appleton Elec.Co Swivel Cover	Appleton Elec.Co Adapter Cover	For Use With	Holophane Cat. No.
F 175	1	100W.	8435-R	-		615*
F 176	1	150W.	"	-		615
F 177	2	200W.	"	-	4" Octagon Box	684
F 178	2	300W.	"	-		685
F 179	2	500W.	"	-		685
F 180	1	100W.	8438-R	8488		615*
F 181	1	150W.	"	"		615
F 182	2	200W.	"	"	4-11/16" Square	684
F 183	2	300W.	"	"	Box	685
F 184	2	500W.	"	"		685

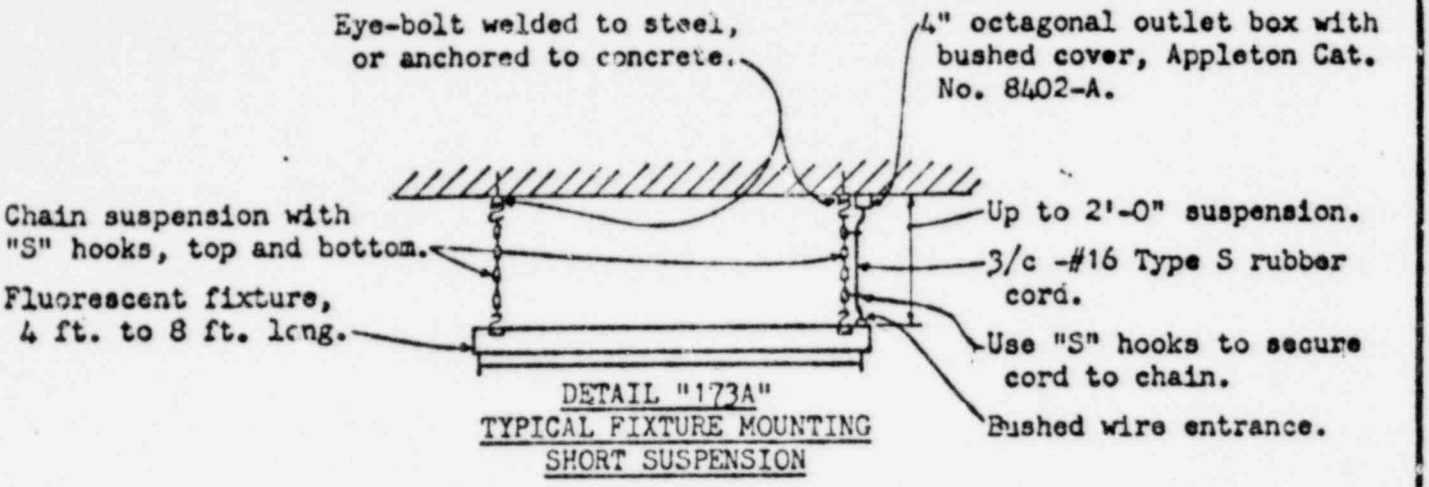
*Use medium base socket extension, Benjamin Cat. No. 91

NOTES:

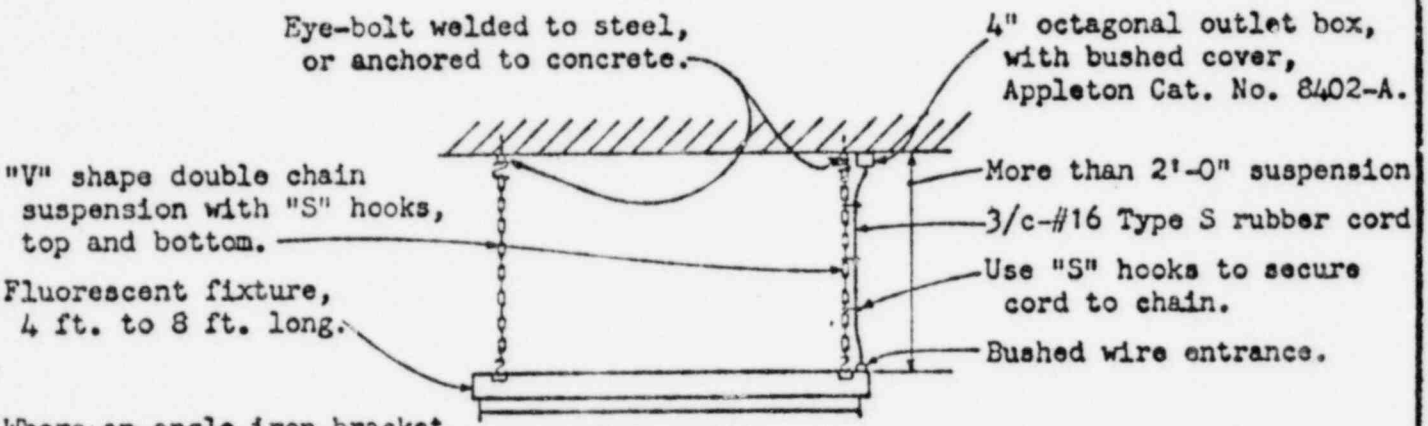
1. Mounting height of fixture is given on the Construction Drawing.

LOW BAY
REFLECTOR UNIT
F 175 TO F 184

SCALE ..NONE.....	SARGENT & LUNDY ENGINEERS CHICAGO
DRAWN E.G.A.	
APPROVED E.E.L.	
DATE 11-1-45	
REVISED ...4-1-49	STANDARD
...7-19-57	
..12-19-69	STD-EE-142

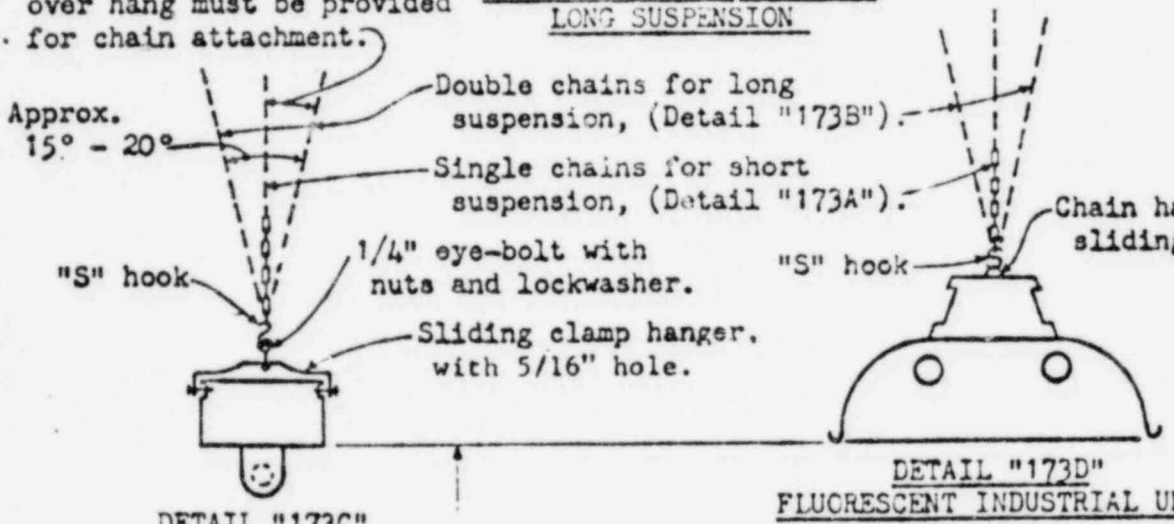


DETAIL "173A"
TYPICAL FIXTURE MOUNTING
SHORT SUSPENSION



DETAIL "173B"
TYPICAL FIXTURE MOUNTING
LONG SUSPENSION

Where an angle iron bracket is required, sufficient over hang must be provided for chain attachment.



DETAIL "173C"
FLUORESCENT STRIP UNIT

DETAIL "173D"
FLUORESCENT INDUSTRIAL UNIT

Mounting heights are shown on the Construction Drawings.

NOTES:

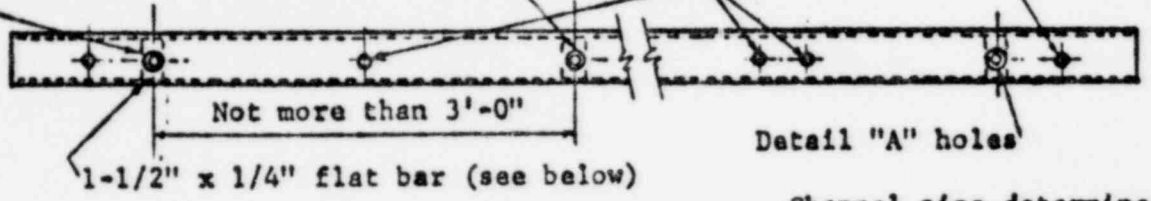
1. Fixture chain shall be Tenso or Brown type chain No. 3, sherardized finish, 400 lb. tensile strength, wire gauge .083", with link length of ½".
2. Chain, "S" hooks, eye-bolts, anchors, and bushed wire entrances, shall be furnished by the Electrical Contractor.

FLUORESCENT INDUSTRIAL & STRIP UNIT MOUNTING DETAILS NON-DISCONNECTING TYPE

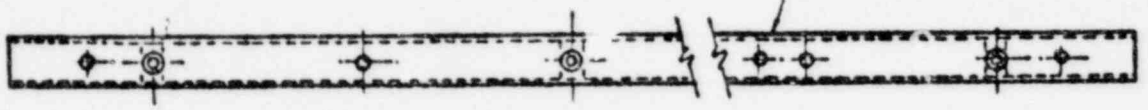
SCALE	SARGENT & LUNDY ENGINEERS CHICAGO
DRAWN E.S.A.	
APPROVED E.G.A.	
DATE 8-14-61	STANDARD
REVISED 3-2-64	
.....	STD-EE-173
.....	

Detail "A" holes are used only for anchoring the base in position, in or on the floor, and for filling the channel with grout after the channel base is anchored. These holes must not be used for fastening equipment or housing to the base. They may be spaced to suit the manufacturer, but to not more than 3'-0".

Detail "B" holes are used only when the housing is to be bolted to the base, and are spaced by the manufacturer to suit the equipment to be mounted.



Channel size determined by manufacturer.



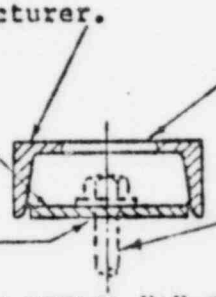
PLAN OF CHANNEL BASE

Channel size determined by manufacturer.

1-1/2" x 1/4" flat steel bar, welded to toes of channel, on center line of grout holes. Drill 9/16" dia. hole on center line of grout hole, for 1/2" dia. anchoring bolts.

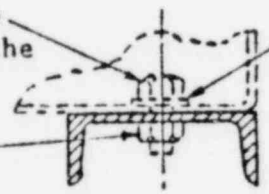
Grout hole shall be not less than 1-1/2" dia., but 2" dia. grout holes are preferred when size of channel permits.

1/2" dia. base anchoring bolts will be supplied by Purchaser.



SHOWING DETAIL "A" OR GROUT AND BASE ANCHORING HOLE

Bolted Mounting:
When it is desired to mount the housing by bolting, holes in the channel, with nuts welded to the inside of the channel must be provided as shown. The hold-down bolts shall be furnished by the manufacturer and shipped with the channel base.



Welded Mounting:
When it is desired to mount the housing by welding, the holes in the bottom of the housing normally used for bolting, may be retained and used for spot welding the housing to the channel base.

SHOWING DETAIL "B" OR EQUIPMENT MOUNTING HOLE

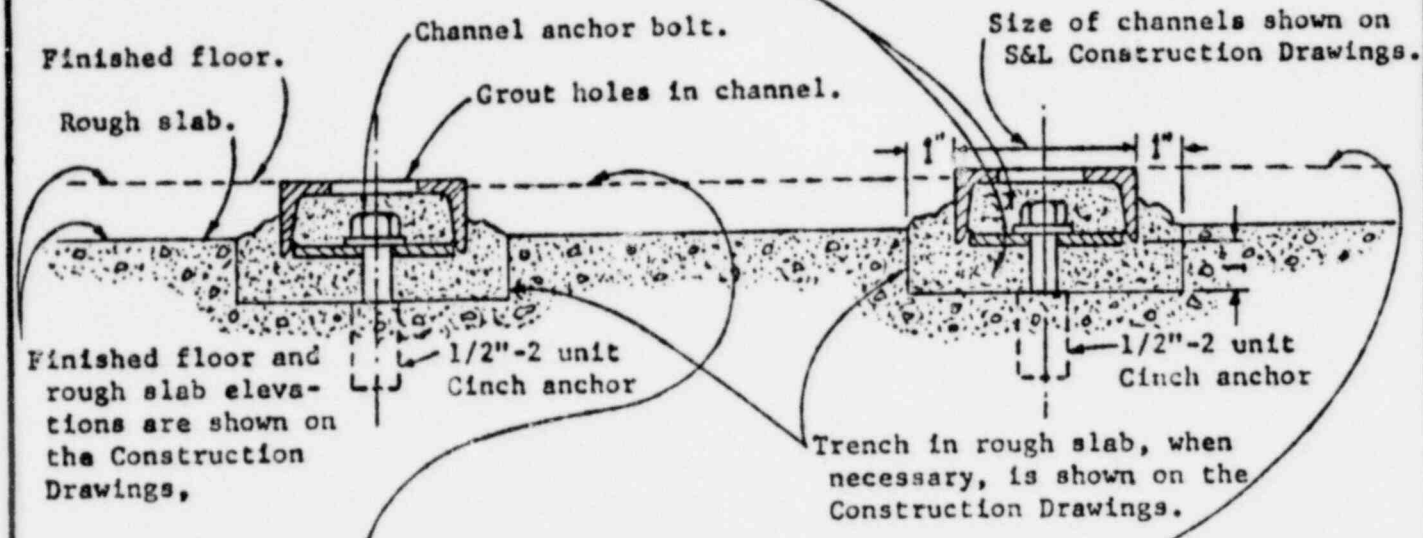
NOTES:
1. The base shown here-on is normally used when anti-vibration bases are not specified. When anti-vibration mounting is used, Detail "B" mounting shall be modified to suit the anti-vibration mounting requirements.
2. The base shall be shipped separately and in advance of the equipment, so that it may be installed and ready to mount the housing.

CHANNEL BASE FOR MOUNTING ELECTRICAL EQUIP. -WEB HORIZONTAL-

SCALE	SARGENT & LUNDY ENGINEERS CHICAGO
DRAWN EGA	
APPROVED	
DATE 2-18-48	STANDARD
REVISED ... 1-25-60	
.....	STD-EF-241
.....	

The channel bases must be shimmed to a true and level horizontal plane, while being securely bolted down in place. This should be checked with a dependable spirit level, applied to each channel, and between channels at front and rear, before the channels are grouted in place.

Before any equipment is mounted on the channels, a grout consisting of one part sand and one part cement, with enough water so that it will flow smoothly, shall be poured thru the grout holes in the channels, until the inside of the channels, and the area below them, are entirely filled.



SECTION THRU FRONT AND REAR CHANNELS

The space between the front and rear channels may be poured at the same time as the channels are filled with grout, but care must be taken that the surface of this floor inside of the housing does not project above the level of the channel base.

The level of the finished floor, outside of the channel bases, varies with the requirements of the type or make of the housing being used. See the Construction Drawing for this finished floor elevation.

NOTES:

1. The equipment or housing shall be welded to the above channels with a 3/16" weld, 1" long, on 3'-0" maximum spacing, on both front and rear.
2. For details of the equipment and plan of the channel bases, see the Construction drawings of Sargent & Lundy, and the manufacturer.
3. In this construction, the tops of the channel bases are at the same elevation as, or below the level of, the finished floor.
4. The slot in the rough slab, shown 1" below the bottom of the bars welded to the channels, is not required when the elevation of the rough slab is lower than this dimension.

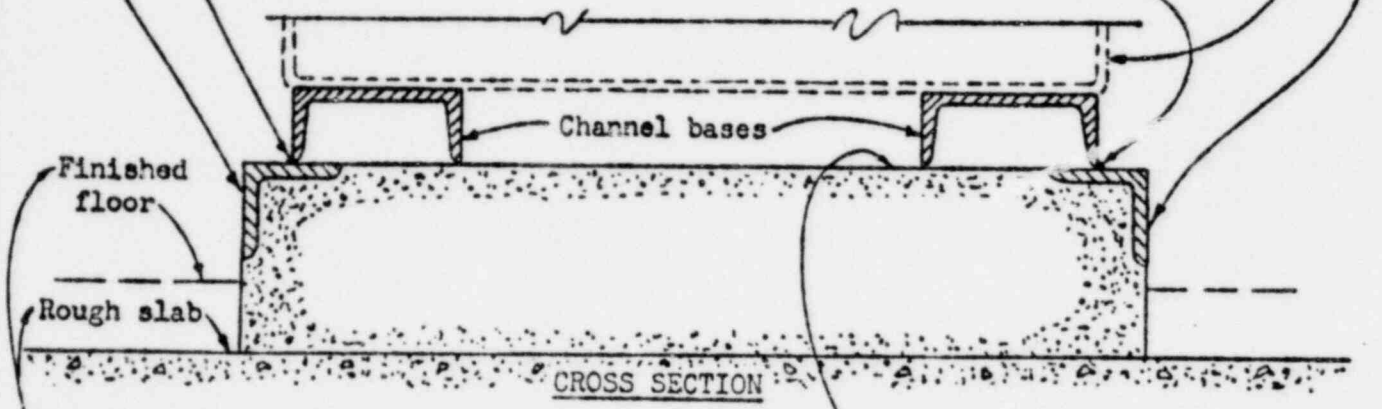
-METHOD 1-
INSTALLING CHANNEL BASES FOR MOUNTING ELEC. EQUIP.
-WEB HORIZONTAL-

SCALE ..NONE..... DRAWN E.G.A. APPROVED ... DATE .....2-18-48 REVISED 1-25-60 8-10-60	SARGENT & LUNDY ENGINEERS CHICAGO
	STANDARD
	STD-EF-246

The 2" x2" x3/16" foundation angles, which are a part of the poured pad, shall be set on a true and level plane. This shall be checked with a dependable spirit level, applied to each angle, and between angles at front and back, before the angles are concreted in place.

Fasten the front and rear channel bases to the pad angles with 1" long welds on approx. 3'-0" centers.

Equipment to be mounted.



CROSS SECTION

The elevations of the rough slab, finished floor, and the top of the pad, are specified on the Construction Drawings.

The finished concrete area of the pad between the corner angles, shall be level with the horizontal legs of the angles.

NOTES:

1. For details of the equipment, and the details and location of the foundation, see the Manufacturer's and Sargent & Lundy's Construction Drawings.

-METHOD 3-
INSTALLING CHANNEL BASE FOR MOUNTING ELEC. EQUIP.
-WEB HORIZONTAL-

SCALE	SARGENT & LUNDY ENGINEERS CHICAGO
DRAWN EGA EGL	
APPROVED	
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REVISED .. 1:25:60	STANDARD
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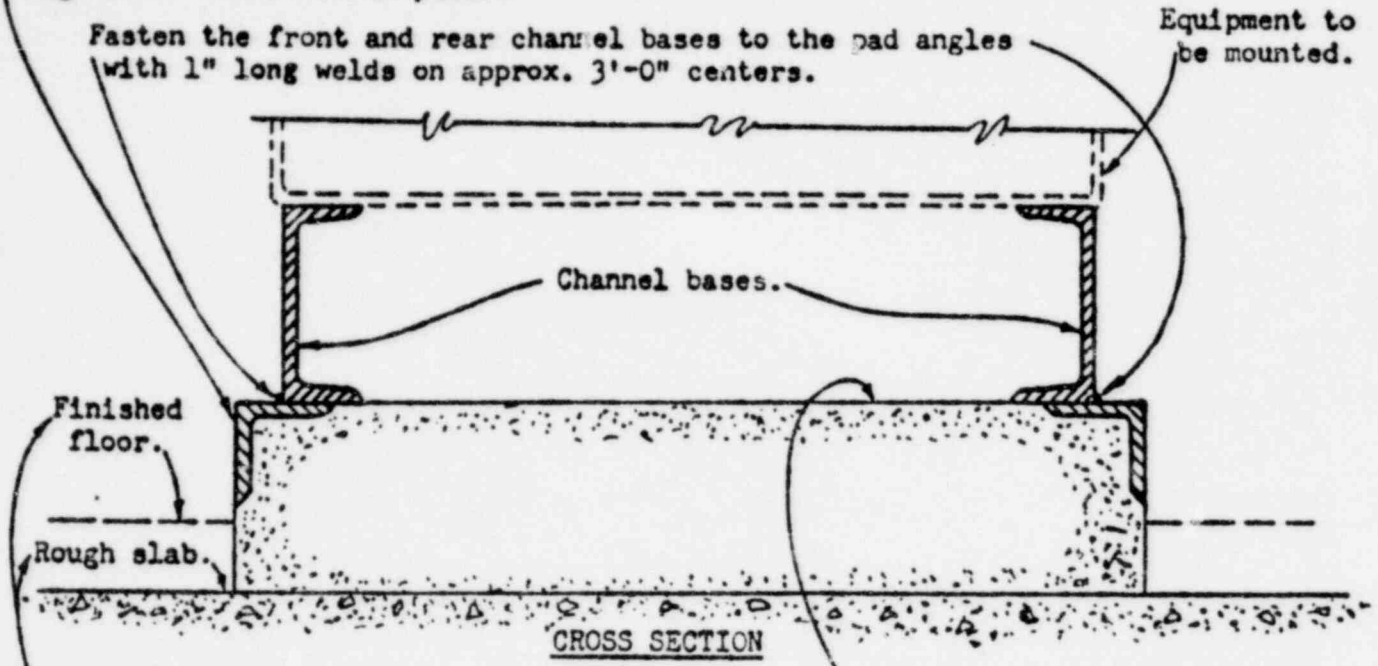
.....	STD-EF-248

The 2" x2" x3/16" foundation angles, which are a part of the poured pad, shall be set on a true and level plane. This shall be checked with a dependable spirit level, applied to each angle and between angles at front and back, before the angles are concreted in place.



CROSS SECTION

The elevations of the rough slab, Finished floor, and the top of the pad, are specified on the Construction Drawings.

The finished concrete area of the pad between the corner angles, shall be level with the horizontal legs of the angles.

NOTES:

1. For details of the equipment, and the details and location of the foundation, see the Manufacturer's and Sargent & Lundy's Construction Drawings.

-METHOD 4-
INSTALLING CHANNEL BASE FOR MOUNTING ELEC. EQUIP.
-WEB VERTICAL-

SCALE ..... —	SARGENT & LUNDY ENGINEERS CHICAGO
DRAWN GAA	
APPROVED	
DATE 1-25-60	STANDARD
REVISED	
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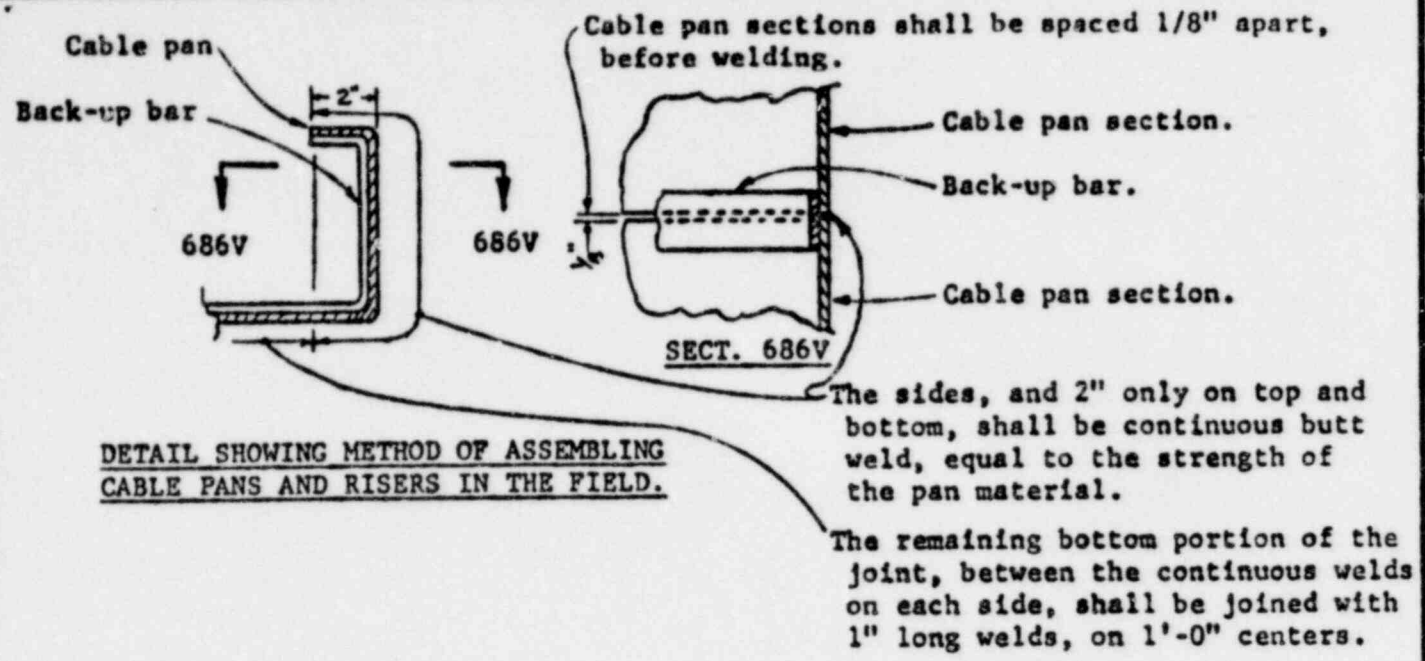
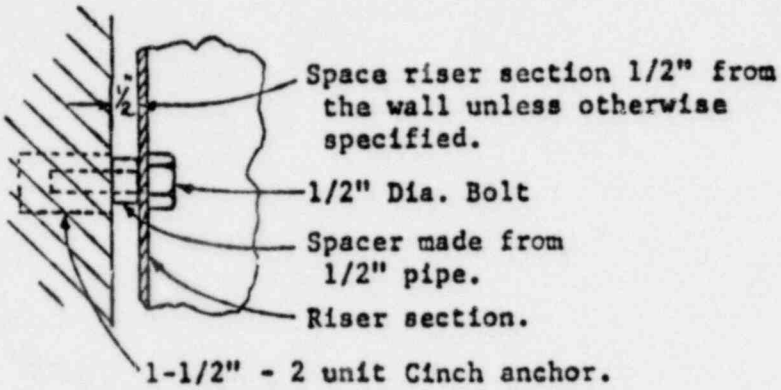


DETAIL SHOWING METHOD OF ASSEMBLING CABLE PANS AND RISERS IN THE FIELD.



DETAIL SHOWING TYPICAL METHOD OF INSTALLING RISER SECTION TO WALL

NOTES:
1. See STD-EB-603 for Cable Pan System Field Installation Specifications.

FIELD ASSEMBLY AND INSTALLATION DETAILS FOR CABLE PANS AND RISERS	
SCALE ..NONE.... DRAWN E.C. APPROVED ... DATE ..1/8/55.... REVISED	SARGENT & LUNDY ENGINEERS CHICAGO
	STANDARD
	STD-EB-686