

ESB '83 0506 205

TENNESSEE VALLEY AUTHORITY

DIVISION OF ENGINEERING DESIGN

WATTS BAR NUCLEAR PLANT

830531T0301

6

CONSTRUCTION SPECIFICATION

NO. N3C-928

FOR LOCATING ATTACHMENTS ON
EMBEDDED PLATES

	REVISION 0	R1	R2	R3	R4	R5
EFFECTIVE DATE	February 10, 1983	6-2-83				
PREPARED	<i>Marvin Conner</i>	<i>MAC</i>				
REVIEWED	<i>Larry J. Kathan</i>	<i>REB</i>				
SPONSORED	<i>R.H. Anderson</i>	<i>RHA</i>				
SUBMITTED	<i>X. Roberts</i>	<i>ERT</i>				
RECOMMENDED (SPONSOR BR. CHIEF)	<i>W. Bennett</i>	<i>WB</i>				
CONCURRED	<i>J. Standiford</i>	<i>JS</i>				
APPROVED (MGR. of CONST)	<i>C. Ginn</i>	<i>CG</i>				
APPROVED (MGR. of EN DES)	<i>M. N. Spruance</i>	<i>MNS</i>				

TVA 10574A (EN DES - 1-82) MEDS, WSPB, CK

8506070507 850605
PDR ADOCK 05000390
A PDR

REVISION LOG

Title: LOCATING ATTACHMENTS ON EMBEDDED PLATES

N3C-928

Revision No.	DESCRIPTION OF REVISION	Date Approved
1	Revised to incorporate provisions of WBN FCR H-9521 (WBN 830314 323) which specifically clarifies information to be included in a field change request.	6-2-83

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1.0 GENERAL

This Watts Bar Nuclear Plant project construction specification provides requirements for locating attachments on embedded plates. (See reference 5.1.)

2.0 LOCATION OF ATTACHMENTS

2.1 Minimum Edge Distance

The minimum edge distances given in section 3.0 shall be applied to the location of an attachment to an embedded plate unless a Division of Engineering Design (EN DES) approved drawing, which shows both the attachment and the plate edge, specifically calls for a closer edge distance.

2.2 Minimum Spacing Between Attachments

The minimum spacing given in section 4.0 shall be applied to the spacing between attachments on an embedded plate unless an EN DES drawing which shows both attachments specifically calls for a closer spacing.

2.3 Minimum Spacing Between Expansion Anchors and Attachments

The minimum spacing between expansion anchors and attachments to embedded plates shall be in accordance with TVA General Construction Specification No. G-32, "Bolt Anchors Set in Hardened Concrete." Attachment location tolerances shall not be used to reduce the minimum edge distances or spacing.

2.4 Exemptions

2.4.1 If conformance to the requirements for edge distance or the requirements for spacing between attachments on the embedded plate is impractical, a Field Change Request (FCR) shall be submitted to EN DES. The FCR shall include the following:

2.4.1.1 The unique identification number for the embedded plate.

2.4.1.2 A sketch showing the location on the embedded plate of new attachments which do not meet the edge distance requirements and of existing attachments which are spaced closer than the minimum to the new attachment. If the new attachment is less than 18 inches from any edge of the plate, the sketch shall also show all expansion anchors adjacent to those edges which are:

- (a) spaced closer to the edges of the embedded plate than the minimum given in TVA General Construction Specification No. G-32; and

2.0 LOCATION OF ATTACHMENTS (Continued)

2.4 Exemptions (Continued)

- (b) spaced within a clear distance of 24 inches from the new attachment (measured parallel to the plate edge from both faces of the attachment).

1

The sketch shall include enough information for EN DES to determine the location and loading on each attachment.

- 2.4.2 Some specific sizes and types of attachments may be exempted from the requirements of this construction specification. The exempted attachments shall be those listed on EN DES drawings. Exempt attachments do not require review of their location by EN DES and need not be shown on sketches submitted to EN DES.

3.0 EDGE DISTANCE

In general, the minimum clear distance between an attachment and the long edge of a rectangular plate or the edge of a square plate shall be 2 inches. The minimum clear distance between an attachment and the short edge of a rectangular plate shall be 6 inches. For a specific plate, the minimum clear distance may be reduced to the distance from the plate edge to the centerline of the row of studs parallel to the edge. (See Figure 1.)

4.0 SPACING

4.1 General

In general, the clear distance between attachments to embedded plates shall be determined by two measurements. Each measurement shall be taken parallel to a plate edge as shown in Figure 1.

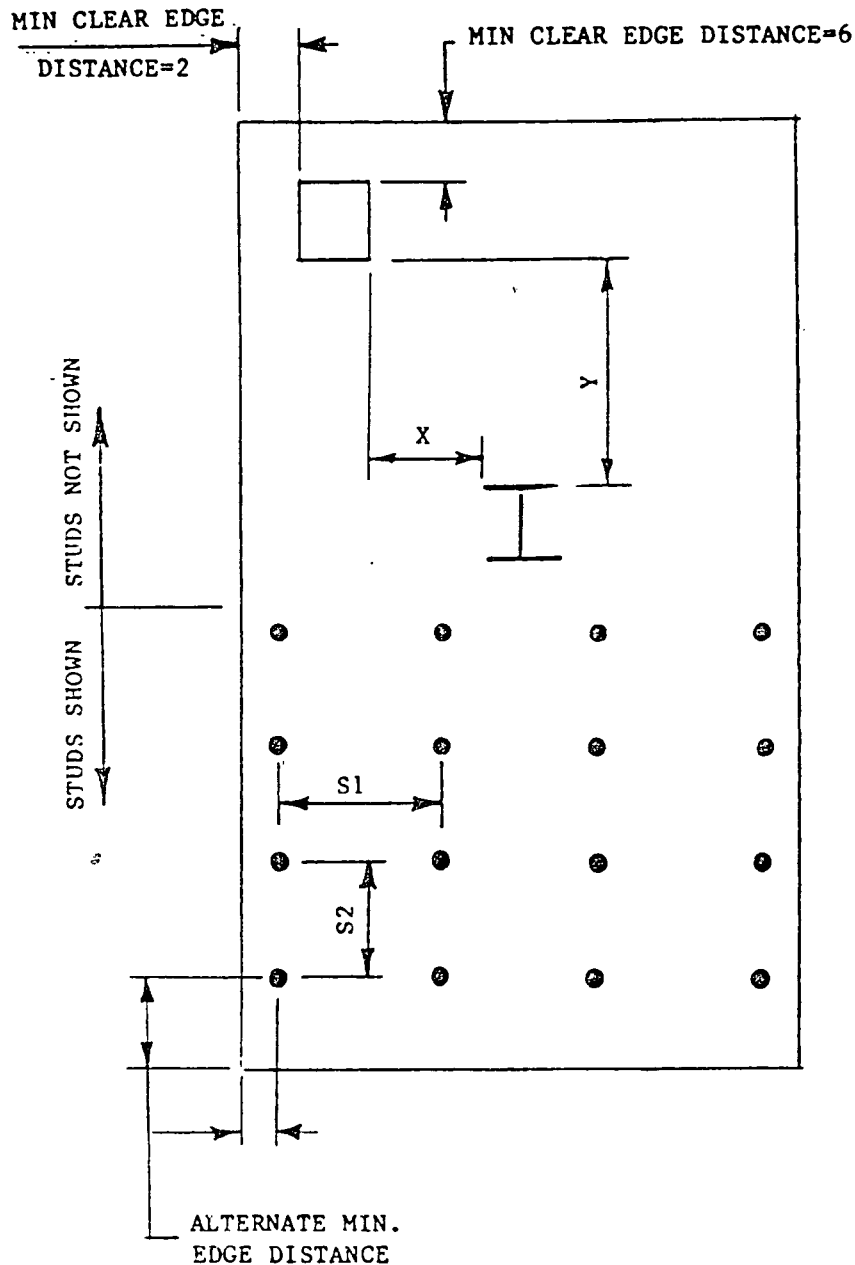
4.2 Minimum Clear Distance

The minimum clear distance in at least one direction parallel to a plate edge shall be 24 inches. For a specific plate, the minimum clear distance may be reduced to two times the spacing of the stud rows which are perpendicular to the direction of measurement. (See Figure 1.)

5.0 REFERENCES

- 5.1 Memo from J. C. Standifer to Guenter Wadewitz, dated November 10, 1982, subject, "Watts Bar Nuclear Plant - Interim Requirements for Locating Attachments on Embedded Plates - Quality Information" (CEB 321110 017)
- 5.2 TVA General Construction Specification No. G-32 (R8), "Bolt Anchors Set in Hardened Concrete"

1



GENERAL REQUIREMENTS FOR SPACING

SPACING BETWEEN
ATTACHMENTS IS
ACCEPTABLE IF
EITHER X OR Y
IS GREATER THAN
OR EQUAL TO 24

ALTERNATE REQUIREMENTS FOR SPACING

SPACING BETWEEN
ATTACHMENTS IS
ACCEPTABLE IF
EITHER X OR Y
IS GREATER THAN
2 TIMES S1 OR
2 TIMES S2
RESPECTIVELY

FIGURE 1

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

OQA '84 0425 508

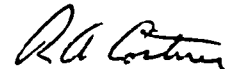
TO : R. W. Cantrell, Acting Manager of Engineering Design, W11A9 C-K
FROM : R. A. Costner, Chief, Design Quality Assurance Branch, M173 MIB-K
DATE : APR 25 1984
SUBJECT: DEVIATION REPORT TRANSMITTAL - DEVIATION REPORT C03-S-84-0089-D01

840430X0524 (1)

The purpose of this memorandum is to provide you with the attached deviation report and request corrective action for the deviation detailed on the report form.

You are requested to provide your corrective action response within 30 days from the date of this memorandum. Please provide your response on part 3 of the attached deviation report and include your expected completion date(s) for accomplishing the corrective action(s). In the event the accomplishment of corrective action will take more than 30 days from the date of this memorandum, please provide a justification.

Please provide notification upon completion of corrective action(s).



R. A. Costner

TLB:DDM

Attachment


cc (Attachment):

J. S. Colley, M172 C-K
Deviation Report Working File
R. W. Dibeler, M125 MIB-K
G. W. Killian, 401 UBB-C
MEDS, W5B63 C-K
J. C. Standifer, 204 GB-K
J. A. Thompson, M147 MIB-K



OQA '840425 508

DEVIATION REPORT

Office of Quality Assurance 	Audit	<input type="checkbox"/>	Deviation Report No.:	C03-S-84-0089-D01
	Surveillance	<input checked="" type="checkbox"/>	Date of Identification:	March 22, 1984
	Review	<input type="checkbox"/>	Type:	3
			Key:	N08

Organization EN DESLocation Watts Bar Nuclear Plant

840430X0525

Activity Field Change Requests on Multiple Attachments to Embedded Plates (1)Lead OQA Branch/Staff Construction Quality Assurance Branch

Requirement(s):

10CFR50 Appendix B, Criterion III, Design Control, states: ...design changes, including field change, shall be subject to design control measures commensurate with those applied to the original design...

1. Deviation:

Failure to document technical basis for approval of EP FCRs.

Summary:

Appendix No. 4 to EN DES EP 4.03 does not require any technical rationale/justification to be documented for EP FCR approval (by EN DES field representatives) for those attachments judged by these representatives not to require sketches or further evaluation. Interviews with EN DES field representatives indicated that this technical rationale/justification is used/performed for each EP FCR but is not written down or retained in the associated records.

Request for Corrective Action:

Request EN DES to revise Appendix No. 4 to EN DES-EP 4.03 to require calculations and/or comparisons as used as the basis for approval of EP FCRs to be documented and retained in accordance with EN DES-EP 3.03. Also, request EN DES to generate such documentation for those already approved EP FCRs.

2. Participating Organization Notified to Initiate Reportability Processing:

☐

Yes

☐

No

Cognizant Evaluator: [Signature]Date: 3/22/84QIS Analyst: [Signature]Date: 3/22/84

Participating Organization/Representative:

Note: This deviation has been discussed with the participating organization representative and it is acknowledged that a deviation has been identified but is not necessarily agreed with.

Signature of Originator: [Signature]Date: 3/22/84Concurrence/Approval Signature: [Signature]Date: 3/22/84

CEB 840523 008

J. W. Anderson, Manager of Quality Assurance, 255 SPB-K

R. W. Cantrell, Manager of Engineering Design (Acting), W11A9 C-K

MAY 25 1984

840531T0227

①

DEVIATION REPORT C03-S-84-0089-D01

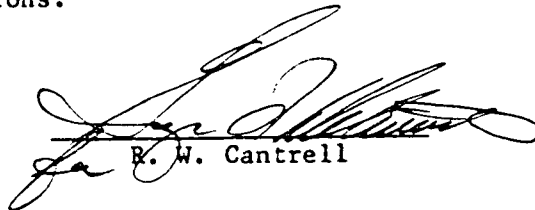
Reference: R. A. Costner's memorandum to me dated April 25, 1984
(OQA 840425 50R)

We have evaluated your concerns and discussed them with your John von Weisenstein and John Walton. As a result, the following actions have been implemented:

1. Design calculations supporting the guidelines provided in Appendix 4 of EN DES-EP 4.03 have been developed (WBP 840515 212).
2. The FCR forms describe the attachment(s). The EN DES representatives will note the basis for approval on the form. There is no need for any calculations to be performed on a case-by-case basis.

The provisions of Appendix 4 direct the EN DES representative to have CONST sketch the plate and perform further evaluation if the deviation cannot be visually approved.

We must continue to depend on the judgment of experienced engineers to determine which situations call for further evaluation. The guidelines given in Appendix 4 must of necessity be flexible, and cannot cover all possible field situations.


R. W. Cantrell

ROB:ROH:TT


cc: R. O. Barnett, W9D224 C-K (2)

L. J. Cooney, W6D224 C-K

MEDS, W5B63 C-K

J. C. Standifer, 204 GB-K

Principally Prepared By: R. O. Hernandez, Extension 3868

BC/PM: 

MO: _____

024137.01

Memorandum

TENNESSEE VALLEY AUTHORITY

OQA '84 0604 507

TO : R. W. Cantrell, Acting Manager of Engineering Design, J11A9 C-K

FROM : R. A. Costner, Chief, Design Quality Assurance Branch, 362 SPB-K

DATE : JUN 4 1984

840607H0275

①

SUBJECT: EVALUATION OF CORRECTIVE ACTION RESPONSE - DEVIATION REPORT NO. C03-S-84-0089-D01

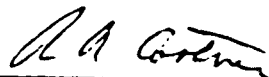
Reference: Your memorandum to J. W. Anderson dated May 23, 1984,
"Deviation Report C03-S-84-0089-D01" (CEB 840523 008)

We have evaluated the referenced response to this deviation report and reviewed the calculation document (WBP 840515 212) supporting the guidelines for approving a field change request (FCR) by visual examination as stated in Appendix 4 of EN DES-EP 4.03 R9. The calculations are acceptable in satisfying the technical requirements and providing adequate documentation for the guidelines referenced in the procedure. We also reviewed a sampling of FCR forms which have been approved by a visual examination and agree the basis for approval by examination should be noted on the FCR form. However, we request the following actions to ensure the requirements as stated in the referenced memorandum are adequately documented and properly implemented:

1. Revise EN DES-EP 4.03 R9, Appendix 4, to require the EN DES representatives to note the basis for visual examination approval on the FCR form.
2. Revise EN DES-EP 4.03 R9, Appendix 4, to provide adequate instructions for documenting the basis for visual examination approval, EN DES representative's signature and date, and the EN DES independent reviewer's signature and date on the FCR form. These instructions should be explicitly stated to reduce the possibility of the information on the FCR form being misinterpreted by a reviewer.

These recommendations have been coordinated with Ruben Hernandez and Asgeir Jonsson. You are requested to provide a response within 30 days from the date of this memorandum. In the event there are any questions regarding this information, contact John Walton, extension 7708.

Please provide notification upon completion of corrective action.



R. A. Costner

JLW:MBP

cc: J. W. Anderson, 255 SPB-K
Deviation Report Working File
MEDS, W5B63 C-K



CEB '84 0625 006

J. W. Anderson, Manager of Quality Assurance, 255 SPB-K

R. W. Cantrell, Manager of Engineering Design (Acting), W11A9 C-K

JUN 25 1984

EVALUATION OF CORRECTIVE ACTION RESPONSE - DEVIATION REPORT
003-S-84-0089-D01

840706H0303

(2)

Reference: R. A. Costner's memorandum to me dated June 4, 1984
(OQA 840604 507)

Our staff has met with John Walton and, as agreed, the attached memorandum from A. Jonsson to WBP Civil Engineering Personnel represents how we will incorporate OQA's concerns.

signed by
R. W. Cantrell

R. W. Cantrell

ROB:ROH:TT

Attachment

cc (Attachment):

R. O. Barnett, W9D224 C-K (2)

L. J. Cooney, W6D224 C-K

MEDS, W5B63 C-K

J. C. Standifer, 204 GB-K

Principally Prepared By: R. O. Hernandez, Extension 3868

BC/PM: R. O. Hernandez

AIO: _____

024171.02

WBP Civil Engineering Personnel

A. Jonsson, Civil Project Engineer, W2D220 C-K

EN DES-EP 4.03 - APPENDIX 4

In order to clarify the use of the FCR forms for the visual inspection/approval of attachments to embedded plates, implement the following on inspections after the date of this memorandum:

1. Note the basis for visual examination approval (i.e., small load attachment, minor load variation, etc.) on the FCR form.
2. Ensure that both EN DES Representative and EN DES Independent Reviewer sign the FCR form delineating who is making the judgment, and who is reviewing it.

Sample

SECTION II - EN DES REPLY/RESOLUTION

ECN No. _____ Date Issued _____

Resolution:

~~Drawing No.~~ OK by visual inspection — Minor loads added (refer to
EN DES-EP 4.03, Appendix 4)

Prepared:

~~Change Complete~~ W. W. Wilson 5/21/84
Reviewed: M. G. Rievley 5/21/84

A. Jonsson

ROH:TT

cc: R. O. Barnett, W9D224 C-K
MEDS, W5B63 C-K
J. C. Standifer, 204 GB-K

024170.02

UNITED STATES GOVERNMENT

Memorandum

841004T0407 ①

TENNESSEE VALLEY AUTHORITY

QMS '841003 204

TO : J. C. Standifer, Project Manager, Watts Bar Engineering Project, P-104 SB-K

FROM : E. Gray Beasley, Chief, Quality Management Staff, W12B21 C-K

DATE : OCT 3 1984

SUBJECT: DEVIATION REPORT NO. C03-S-84-0089-D01 - CORRECTIVE ACTION VERIFICATION

The Quality Management Staff (QMS) has performed verification of corrective action taken for this deviation. Adequate corrective action has been completed for this deviation and it is now closed.

E. Gray Beasley
E. Gray Beasley

JAH
JAH:MBP
cc: D. B. Bowen, W11A8 C-K
L. J. Cooney, W6D224 C-K
~~MEDS W5B63 C-K~~
QMS Audit File
T. W. Roberts, W9C135 C-K

Principally Prepared By: J. A. Hare, Jr. (7696)

01750



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UNITED STATES GOVERNMENT

Memorandum

841004T0407 (1)

TENNESSEE VALLEY AUTHORITY

QMS

'841003 20 h

TO : J. C. Standifer, Project Manager, Watts Bar Engineering Project, P-104 SB-K

FROM : E. Gray Beasley, Chief, Quality Management Staff, W12B21 C-K

DATE : OCT 3 1984

SUBJECT: DEVIATION REPORT NO. C03-S-84-G089-D01 - CORRECTIVE ACTION VERIFICATION

The Quality Management Staff (QMS) has performed verification of corrective action taken for this deviation. Adequate corrective action has been completed for this deviation and it is now closed.

E. Gray Beasley
E. Gray Beasley

JAH
JAH:MSP

cc: D. Bowen, W11A8 C-K
L. J. Cooney, W6D224 C-K
~~WSPS W5B63 C-K~~
QMS Audit File
T. W. Roberts, W9C135 C-K

Principally Prepared By: J. A. Hare, Jr. (7596)

01750



ESB '83 12 13 209

TENNESSEE VALLEY AUTHORITY

DIVISION OF ENGINEERING DESIGN

WATTS BAR NUCLEAR PLANT

83122310484

(7)

CONSTRUCTION SPECIFICATION

NO. 100-445

FOR 2.00000 ATTACHMENTS 1
AMERICAN PLATES

	REVISION 0	R1	R2	R3	R4	R5
EFFECTIVE DATE	February 1, 1983	6-2-83	1-6-84			
PREPARED	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>			
REVIEWED	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>			
SPONSORED	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>			
SUBMITTED	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>			
RECOMMENDED (SPONSOR BR. CHIEF)	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>			
CONCURRED	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>			
APPROVED (MGR. of CONST)	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>			
APPROVED (MGR. of EN DES)	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>	<i>W. H. Anderson</i>			

MEDS USER
W7A60 C.H.

REVISION LOG

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1.0 GENERAL

This Watts Bar Nuclear Plant project construction specification provides requirements for locating attachments on embedded plates. (See reference 5.1.)

2.0 LOCATION OF ATTACHMENTS

2.1 Minimum Edge Distance

The minimum edge distances given in section 3.0 shall be applied to the location of an attachment to an embedded plate unless a Division of Engineering Design (EN DES) approved drawing, which shows both the attachment and the plate edge, specifically calls for a closer edge distance.

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2.4 Exemptions

2.4.1 If conformance to the requirements for edge distance or the requirements for spacing between attachments on the embedded plate is impractical, a Field Change Request (FCR) shall be submitted to EN DES. The FCR shall include the following:

2.4.1.1 The unique identification number for the embedded plate.

2.4.1.2 A sketch showing the location on the embedded plate of new attachments which do not meet the edge distance requirements and of existing attachments which are spaced closer than the minimum to the new attachment. If the new attachment is less than 18 inches from any edge of the plate, the sketch shall also show all expansion anchors adjacent to those edges which are:

- (a) spaced closer to the edges of the embedded plate than the minimum given in TVA General Construction Specification No. G-32; and

2.0 LOCATION OF ATTACHMENTS (Continued)

2.4 Exemptions (Continued)

- (b) spaced within a clear distance of 24 inches from the new attachment (measured parallel to the plate edge from both faces of the attachment).

The sketch shall include enough information for EN DES to determine the location and loading on each attachment.

- 2.4.2 Some specific sizes and types of attachments may be exempted from the requirements of this construction specification. The exempted attachments shall be those listed on EN DES drawings. Exempt attachments do not require review of their location by EN DES and need not be shown on sketches submitted to EN DES.

- 2.4.3 An FCR may be approved by EN DES representatives onsite without a sketch if they determine by visual examination that a detailed evaluation of the plate is not required.

2

3.0 EDGE DISTANCE

In general, the minimum clear distance between an attachment and the long edge of a rectangular plate or the edge of a square plate shall be 2 inches. The minimum clear distance between an attachment and the short edge of a rectangular plate shall be 6 inches. For a specific plate, the minimum clear distance may be reduced to the distance from the plate edge to the centerline of the row of studs parallel to the edge. (See Figure 1.)

4.0 SPACING

4.1 General

In general, the clear distance between attachments to embedded plates shall be determined by two measurements. Each measurement shall be taken parallel to a plate edge as shown in Figure 1.

4.2 Minimum Clear Distance

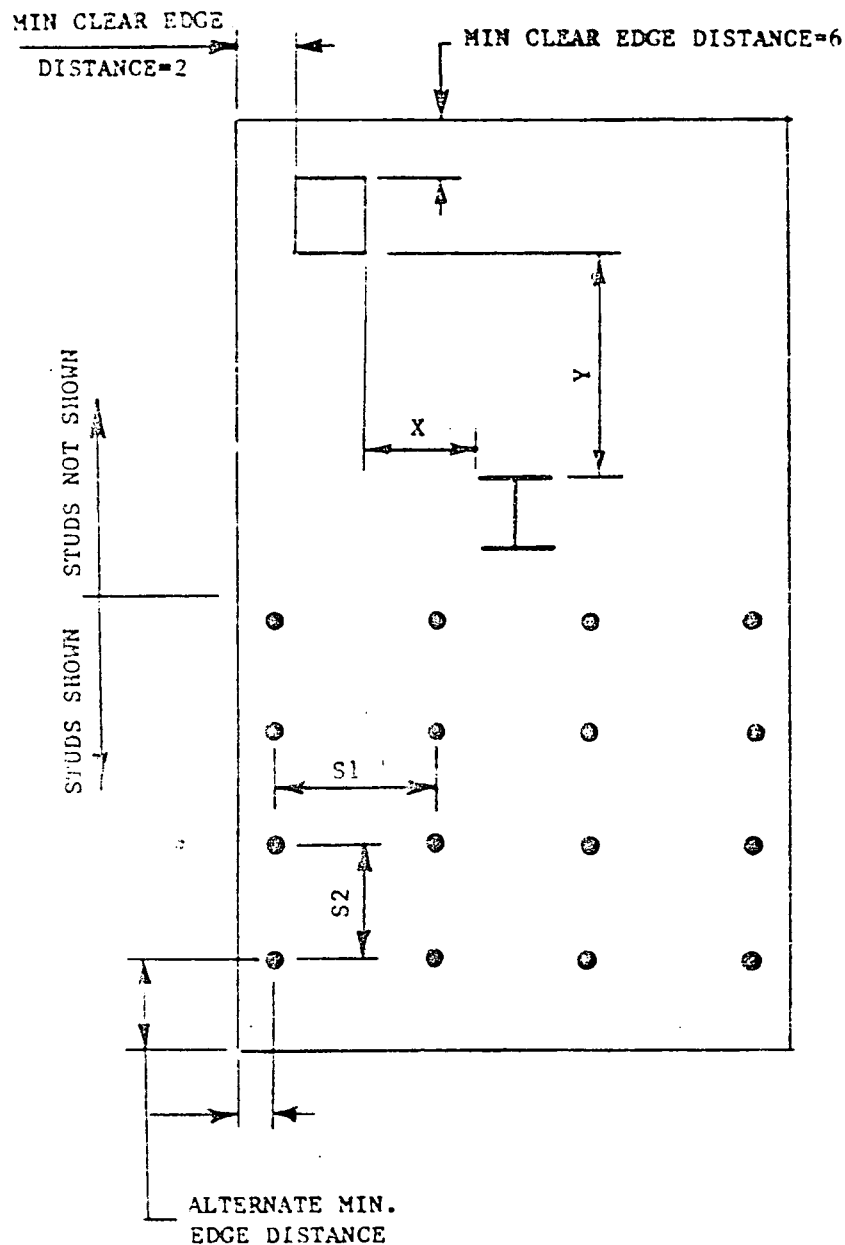
The minimum clear distance in at least one direction parallel to a plate edge shall be 24 inches. For a specific plate, the minimum clear distance may be reduced to two times the spacing of the stud rows which are perpendicular to the direction of measurement. (See Figure 1.)

LOCATING ATTACHMENTS ON EMBEDDED PLATES

N3C-928

5.0 REFERENCES

- 5.1 Memo from J. C. Standifer to Guenter Wadewitz, dated November 10, 1982, subject, "Watts Bar Nuclear Plant - Interim Requirements for Locating Attachments on Embedded Plates - Quality Information" (CEB 821110 017)
- 5.2 TVA General Construction Specification No. G-32 (R8), "Bolt Anchors Set in Hardened Concrete"

GENERAL REQUIREMENTS
FOR SPACING

SPACING BETWEEN ATTACHMENTS IS ACCEPTABLE IF EITHER X OR Y IS GREATER THAN OR EQUAL TO 24

ALTERNATE REQUIREMENTS
FOR SPACING

SPACING BETWEEN ATTACHMENTS IS ACCEPTABLE IF EITHER X OR Y IS GREATER THAN 2 TIMES S1 OR 2 TIMES S2 RESPECTIVELY

Figure 1