



EASE
EQUIPMENT ANCHORAGE & SEISMIC ENGINEERING
 2801 Connery Way Ste. B
 Missoula, MT 59808
 Phn: (406) 541-3273 Fax: (406) 541-3274

Office of Statewide Health Planning and Development
ANCHORAGE PRE-APPROVAL

OPA-2103-07

Equipment Manufacturer: Chief Manufacturing Inc.

Equipment Type: PCS Single. PDC Dual Ceiling Mount (Not to be used in patient rooms)

GENERAL NOTES

1. FORCES PER ASCE 7-05 SECTION 13.3.1, EQUATIONS 13.3-1, 13.3-2 & 13.3-3, WHERE $S_{DS} = 1.93$, $a_p = 2.5$, $I_p = 1.5$ & $R_p = 2.5$
2. THIS PRE-APPROVAL CONFORMS TO THE 2007 CALIFORNIA BUILDING CODE.
3. THE DETAILS IN THIS PRE-APPROVAL MAY BE USED AT ANY LOCATION IN THE STATE OF CALIFORNIA.
 THE ELEVATED FLOOR DETAILS MAY BE USED AT ANY HEIGHT IN A BUILDING.
4. ALL ANCHOR FORCES SHOWN ON THE DRAWINGS ARE WORKING LOADS (AS OPPOSED TO STRENGTH LEVEL LOADS)
 AND MAY BE USED FOR ALLOWABLE STRESS DESIGN.
5. PER CAN 2-1708A.5, THIS UNIT DOES NOT REQUIRE "SPECIAL SEISMIC CERTIFICATION".

RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD

6. DESIGN BACKING BARS, STUDS, ETC. WHICH THE UNITS ARE ATTACHED TO AS NOTED ON THE DRAWINGS.
 THE SEOR SHALL ALSO VERIFY THE ADEQUACY OF THE STRUCTURES (SUCH AS WALLS AND FLOORS)
 WHICH SUPPORT THE UNITS FOR THE LOADS IMPOSED ON THEM BY THE UNITS AS WELL AS ALL OTHER LOADS.
7. PROVIDE ANY SUPPORTING STRUCTURE REQUIRED TO SUPPORT WEIGHTS AND FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
8. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH THE 2007 CBC AND WITH THE DETAILS SHOWN IN THIS PRE-APPROVAL.
 VERIFY THAT THE ACTUAL EQUIPMENT'S WEIGHT, CG LOCATION, ANCHOR LOCATIONS, ANCHOR DETAILS AND THE MATERIAL AND
 GAGE OF THE UNIT WHERE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN ON THE PRE-APPROVAL DOCUMENTS.



CHIEF MANUFACTURING INC.

PCS SINGLE/PDC DUAL CEILING MOUNT

DES. **R. LA BRIE**

EASE JOB NO. **11-0851**

DATE **10/7/09**

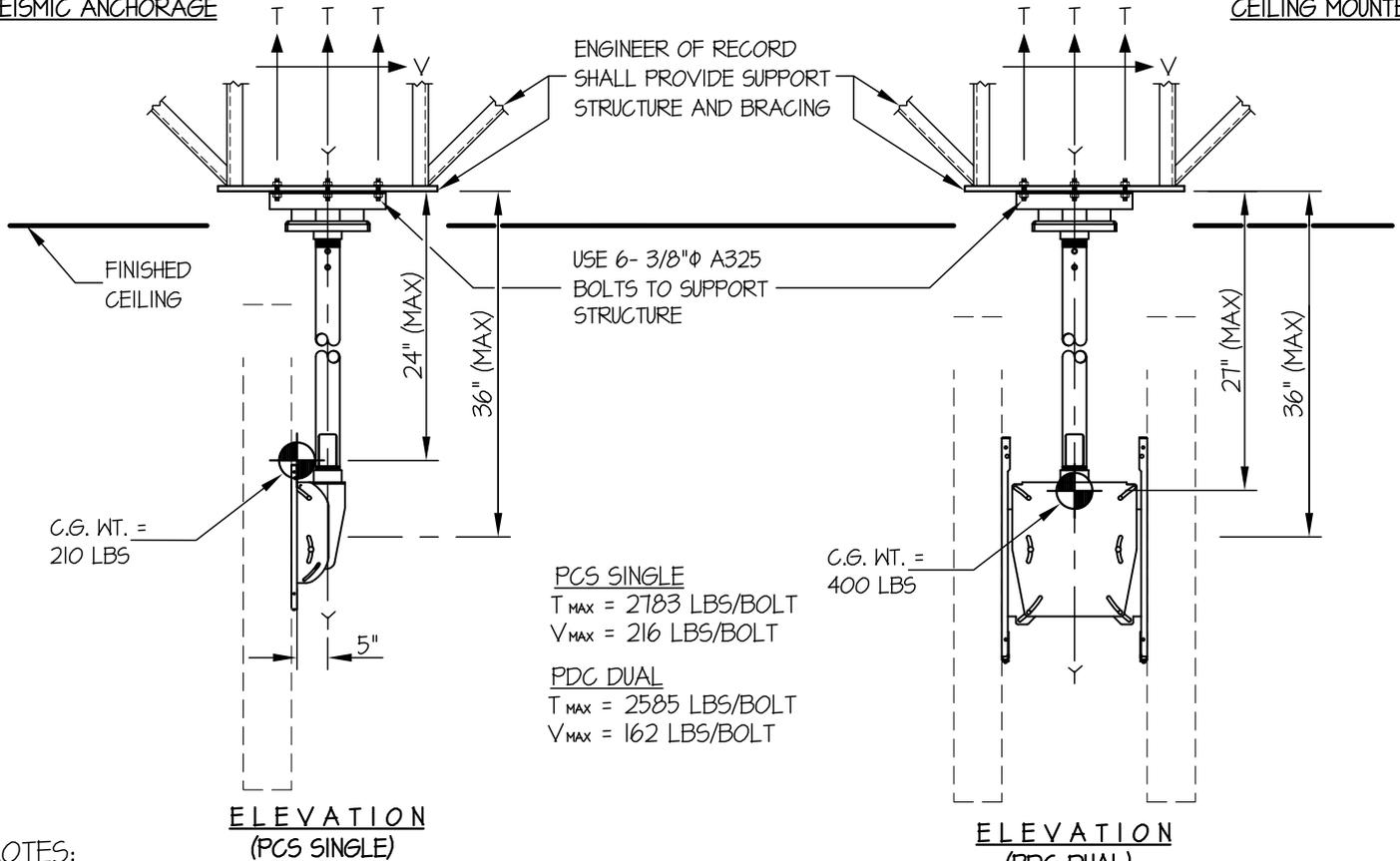
SHEET

2

OF **4** SHEETS

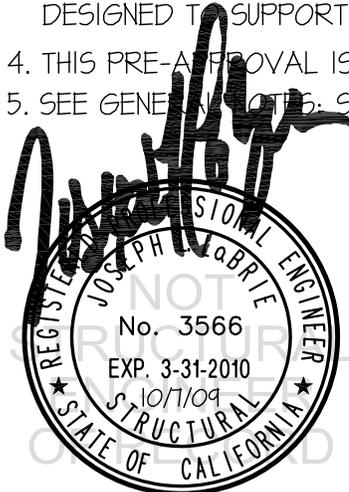
SEISMIC ANCHORAGE

CEILING MOUNTED



NOTES:

- ANCHORAGE DESIGN PER 2007 CALIFORNIA BUILDING CODE - SECTION 1613A AND ASCE 7-05 SECTIONS 12 AND 13. ALLOWABLE STRESS DESIGN IS USED.
HORIZONTAL FORCE (E_h) = $2.43 W_p (S_{Ds} = 1.93, I_p = 1.5, a_p = 2.5, R_p = 2.5)$
VERTICAL FORCE (E_v) = $0.27 W_p$
- CENTER OF GRAVITY (C.G.) WEIGHT IS A MAXIMUM. THIS PRE-APPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
- ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
- THIS PRE-APPROVAL IS NOT VALID FOR INSTALLATIONS IN PATIENT ROOMS
- SEE GENERAL NOTES: SHEET 1



CHIEF MANUFACTURING INC.

DES. **R. LA BRIE**

SHEET
3

PCS SINGLE/PDC DUAL CEILING MOUNT

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DATE **10/7/09**

OF **4** SHEETS

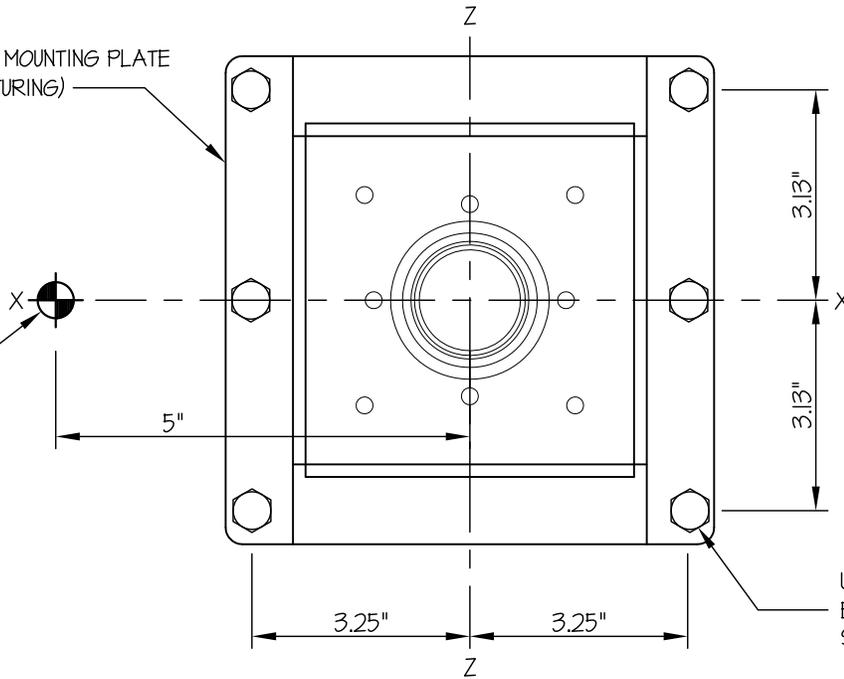
SEISMIC ANCHORAGE

PCS SINGLE

CEILING MOUNTED

PRE-MANUFACTURED MOUNTING PLATE
 (BY CHIEF MANUFACTURING)
 (7 GA., 50 ksi (MIN.))

C.G. WT. =
 210 LBS
 (Y = 24" MAX)



USE 6- 3/8"φ A325
 BOLTS TO SUPPORT
 STRUCTURE

PLAN AT CEILING PLATE



CHIEF MANUFACTURING INC.

DES. **R. LA BRIE**

SHEET

4

EASE JOB NO. **11-0851**

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OF **4** SHEETS

PCS SINGLE/PDC DUAL CEILING MOUNT

SEISMIC ANCHORAGE

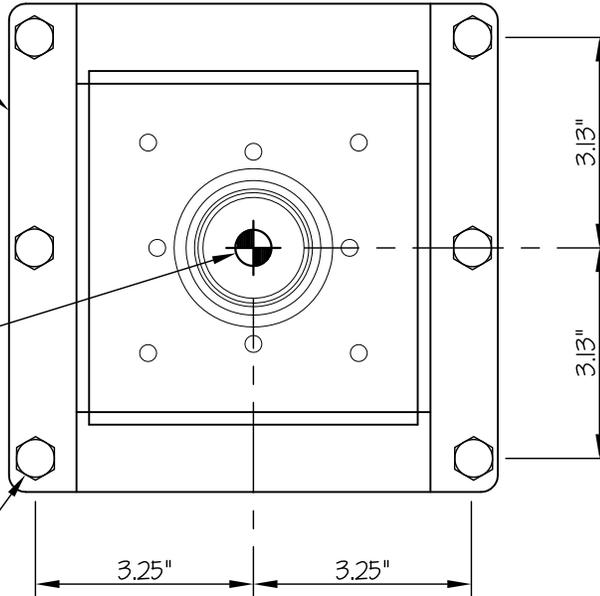
PDC DUAL

CEILING MOUNTED

PRE-MANUFACTURED MOUNTING PLATE
 (BY CHIEF MANUFACTURING)
 (7 GA., 50 ksi (MIN.))

C.G. WT. =
 400 LBS
 (L = 27" MAX)

USE 6- 3/8"φ A325
 BOLTS TO SUPPORT
 STRUCTURE



PLAN AT CEILING PLATE



CHIEF MANUFACTURING INC.

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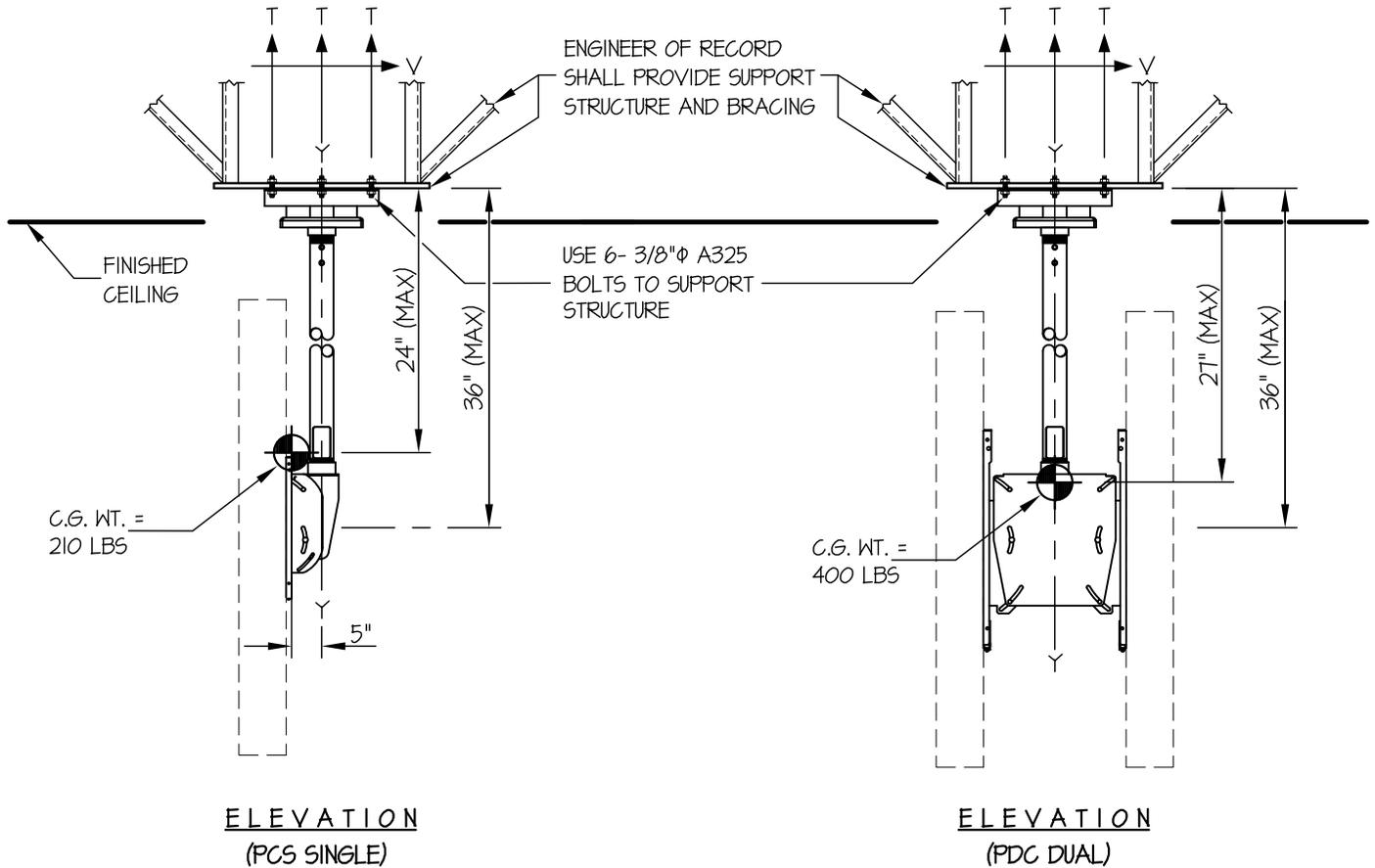
SHEET

1

OF **3** SHEETS

SEISMIC ANCHORAGE

CEILING MOUNTED



ELEVATION
(PCS SINGLE)

ELEVATION
(PDC DUAL)

NOTES:

1. FORCES ARE DETERMINED PER 2007 CALIFORNIA BUILDING CODE SECTION 1613A AND ASCE 7-05 SECTIONS 12 AND 13. ALLOWABLE STRESS DESIGN IS USED.

HORIZONTAL FORCE (E_h) = $2.43 W_p$ ($S_{DS} = 1.93$, $a_p = 2.5$, $I_p = 1.5$, $R_p = 2.5$)

VERTICAL FORCE (E_v) = $0.27 W_p$

2. CENTER OF GRAVITY (C.G.) WEIGHT IS A MAXIMUM. THIS CALCULATION ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. ARCHITECT OR STRUCTURAL ENGINEER OF RECORD SHALL PROVIDE SUPPORT STRUCTURE TO SUPPORT WEIGHTS AND FORCES SHOWN.



CHIEF MANUFACTURING INC.

PCS SINGLE/PDC DUAL CEILING MOUNT

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SHEET

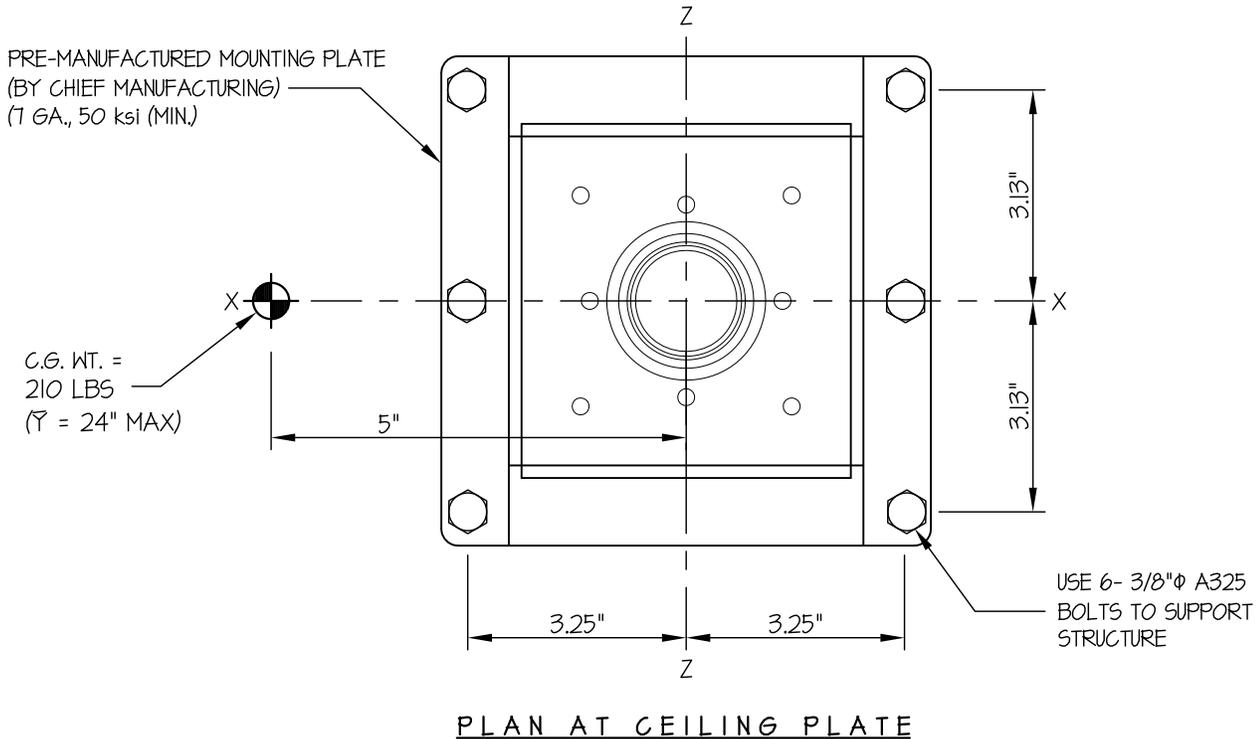
2

OF **3** SHEETS

SEISMIC ANCHORAGE

PCS SINGLE

CEILING MOUNTED



LOADS:

WEIGHT = 210 LBS (INCLUDES 175 LB MONITOR)

HORIZONTAL FORCE (E_h) = 510 LBS

VERTICAL FORCE (E_v) = 57 LBS

BOLT FORCES:

TENSION (T)

$$T_{\text{MAXIMUM}} = \left[\frac{510\#(24")}{3 \text{ BOLTS}(6.5")} \times (0.3) \right] + \frac{510\#(24")(8.25")}{(6.26")(6.5")} + \frac{(210\# + 57\#)(8.25")}{3 \text{ BOLTS}(6.5")} = 2783 \text{ LBS/BOLT (MAX)}$$

(HORIZ - SIDE TO SIDE) (HORIZ - FRONT TO BACK) (WEIGHT + E_v)

SHEAR (V)

$$V_{\text{MAXIMUM}} = \frac{510\#(8.25")}{3 \text{ BOLTS}(6.5")} = 216 \text{ LBS/BOLT (MAX)}$$

CHIEF MANUFACTURING INC.

DES. **R. LA BRIE**

SHEET

3

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OF **3** SHEETS

PCS SINGLE/PDC DUAL CEILING MOUNT

SEISMIC ANCHORAGE

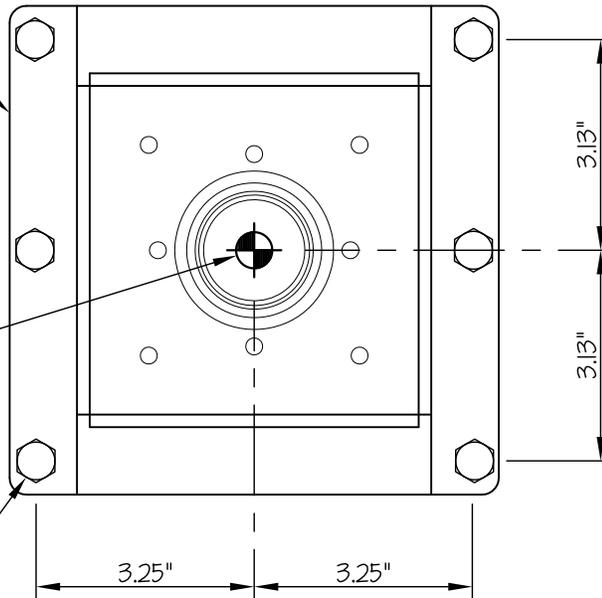
PDC DUAL

CEILING MOUNTED

PRE-MANUFACTURED MOUNTING PLATE
(BY CHIEF MANUFACTURING)
(1 GA., 50 ksi (MIN.))

C.G. WT. =
400 LBS
(\bar{Y} = 27" MAX)

USE 6- 3/8" ϕ A325
BOLTS TO SUPPORT
STRUCTURE



PLAN AT CEILING PLATE

LOADS:

WEIGHT = 400 LBS (INCLUDES 350 LB MONITOR)

HORIZONTAL FORCE (E_h) = 972 LBS

VERTICAL FORCE (E_v) = 108 LBS

BOLT FORCES:

TENSION (T)

$$T_{\text{MAXIMUM}} = \left[\frac{972\#(27\text{'})}{3 \text{ BOLTS}(6.5\text{'})} \times (0.3) \right] + \frac{972\#(27\text{'})}{2 \text{ BOLTS}(6.26\text{'})} + \frac{400\# + 108\#}{6 \text{ BOLTS}} = 2585 \text{ LBS/BOLT (MAX)}$$

(HORIZ - SIDE TO SIDE) (HORIZ - FRONT TO BACK) (WEIGHT + E_v)

SHEAR (V)

$$V_{\text{MAXIMUM}} = \frac{972\#}{6 \text{ BOLTS}} = 162 \text{ LBS/BOLT (MAX)}$$