



**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-2105-07**

Equipment Manufacturer: Chief Manufacturing Inc.

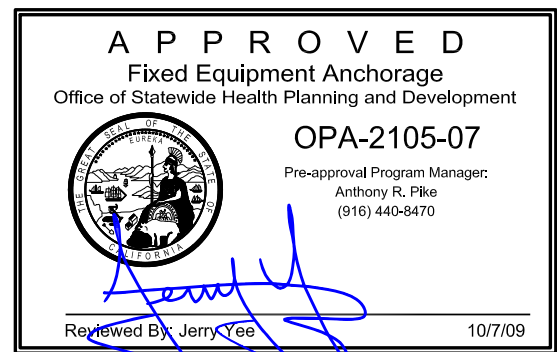
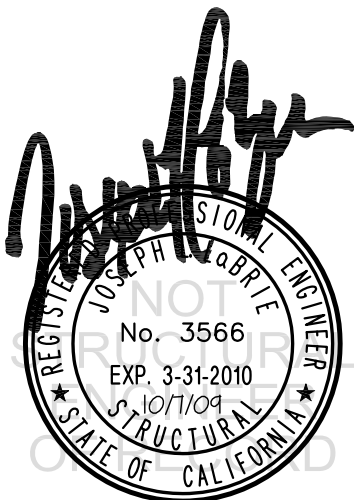
Equipment Type: MCS Single. MCD Dual Ceiling Mount (Not to be used in patient rooms)

**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.**

**MCS SINGLE/MCD DUAL CEILING MOUNT**

DES. **R. LA BRIE**

EASE JOB NO. **11-0851**

DATE **10/7/09**

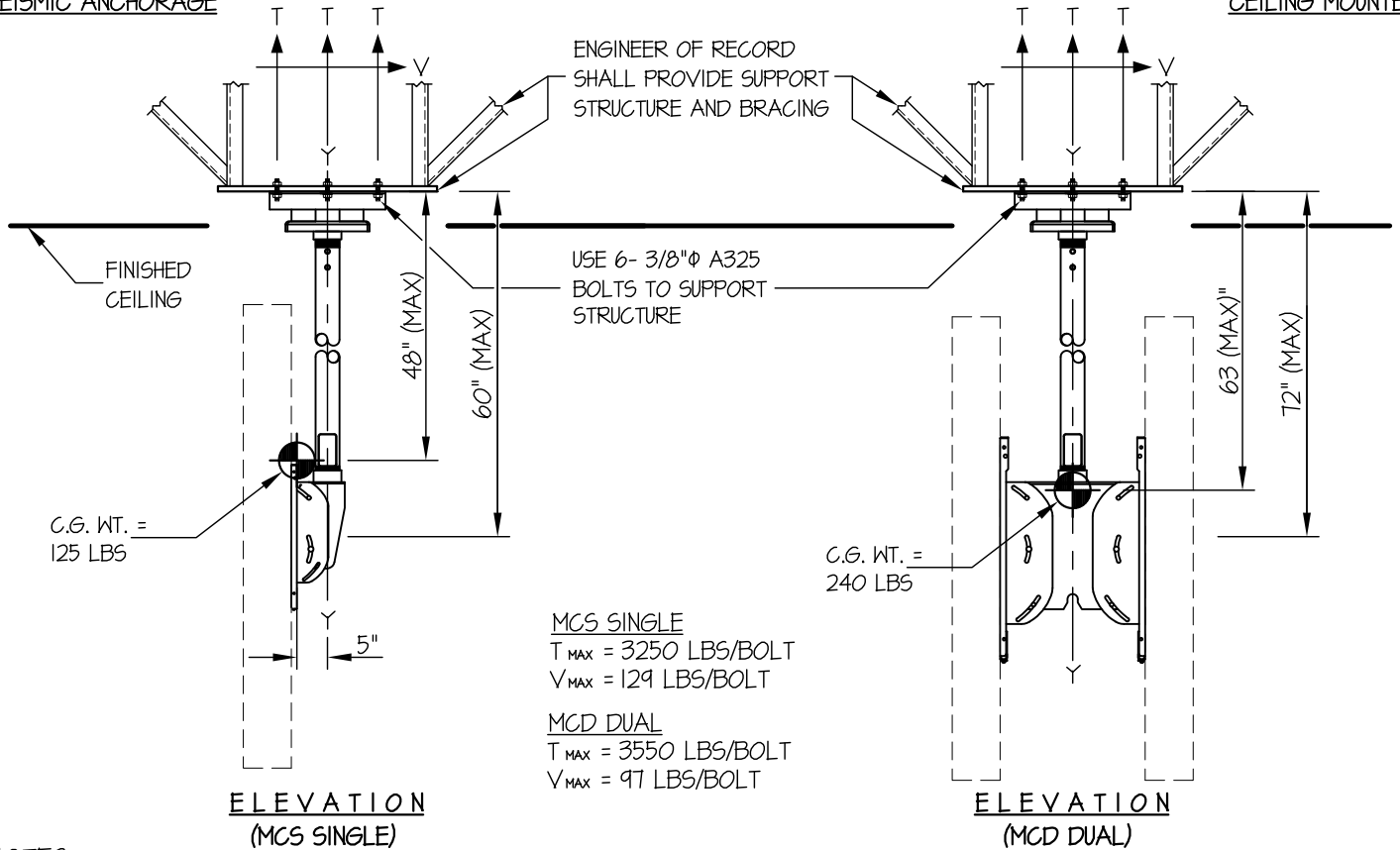
SHEET

**2**

OF **4** SHEETS

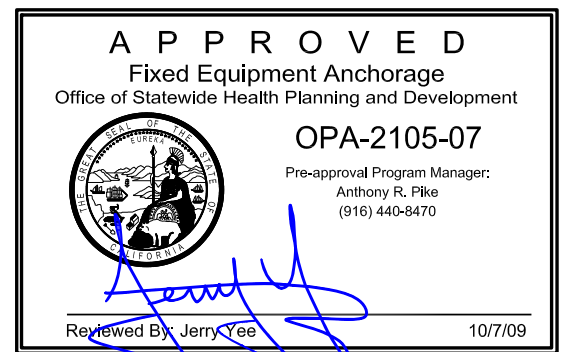
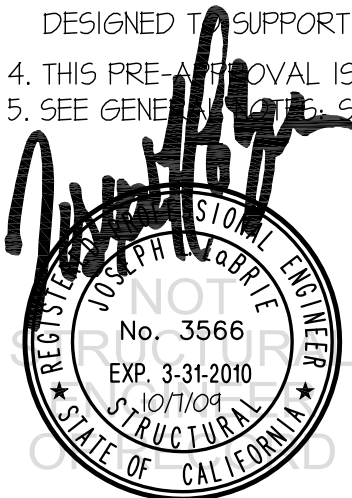
SEISMIC ANCHORAGE

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**

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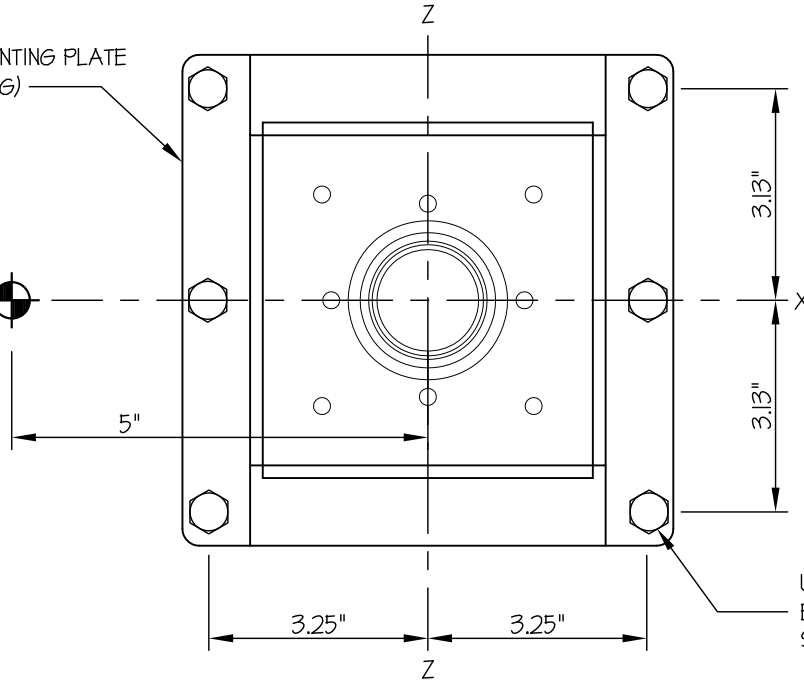
SEISMIC ANCHORAGE

MCS SINGLE

CEILING MOUNTED

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

C.G. WT. =  
 125 LBS  
 (Y = 48" MAX)



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

PLAN AT CEILING PLATE



**CHIEF MANUFACTURING INC.**

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SHEET

**4**

OF **4** SHEETS

SEISMIC ANCHORAGE

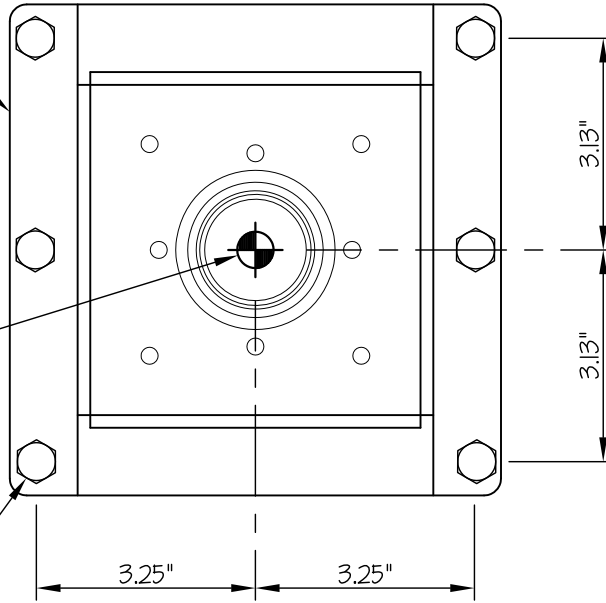
MCD DUAL

CEILING MOUNTED

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

C.G. WT. =  
 240 LBS  
 (L = 63" MAX)

USE 6- 3/8"  $\phi$  A325  
 BOLTS TO SUPPORT  
 STRUCTURE



PLAN AT CEILING PLATE



**A P P R O V E D**  
 Fixed Equipment Anchorage  
 Office of Statewide Health Planning and Development

**OPA-2105-07**

Pre-approval Program Manager:  
 Anthony R. Pike  
 (916) 440-8470



Reviewed By: *Jerry Yee* 10/7/09

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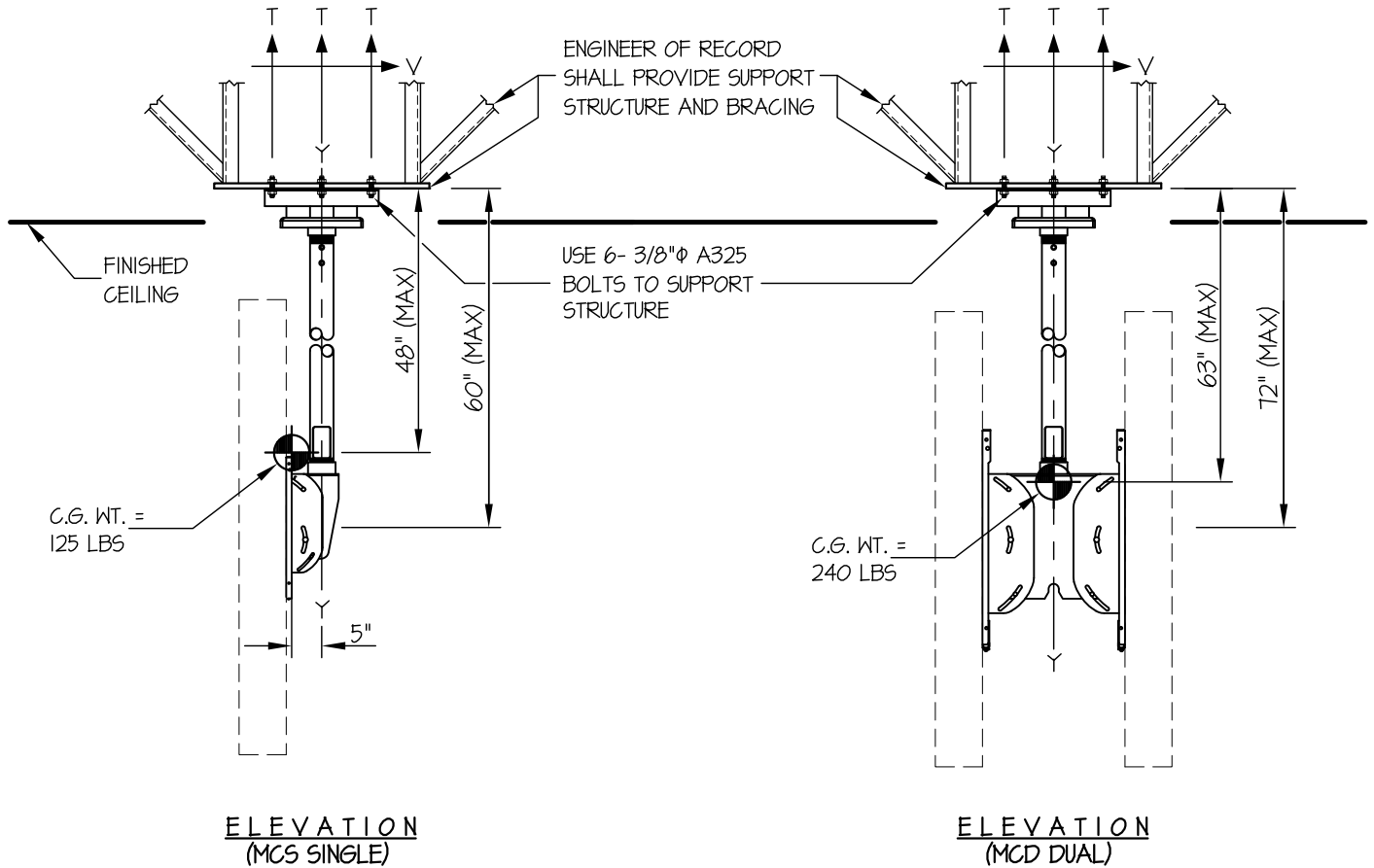
SHEET

**1**

OF **3** SHEETS

SEISMIC ANCHORAGE

CEILING MOUNTED



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.



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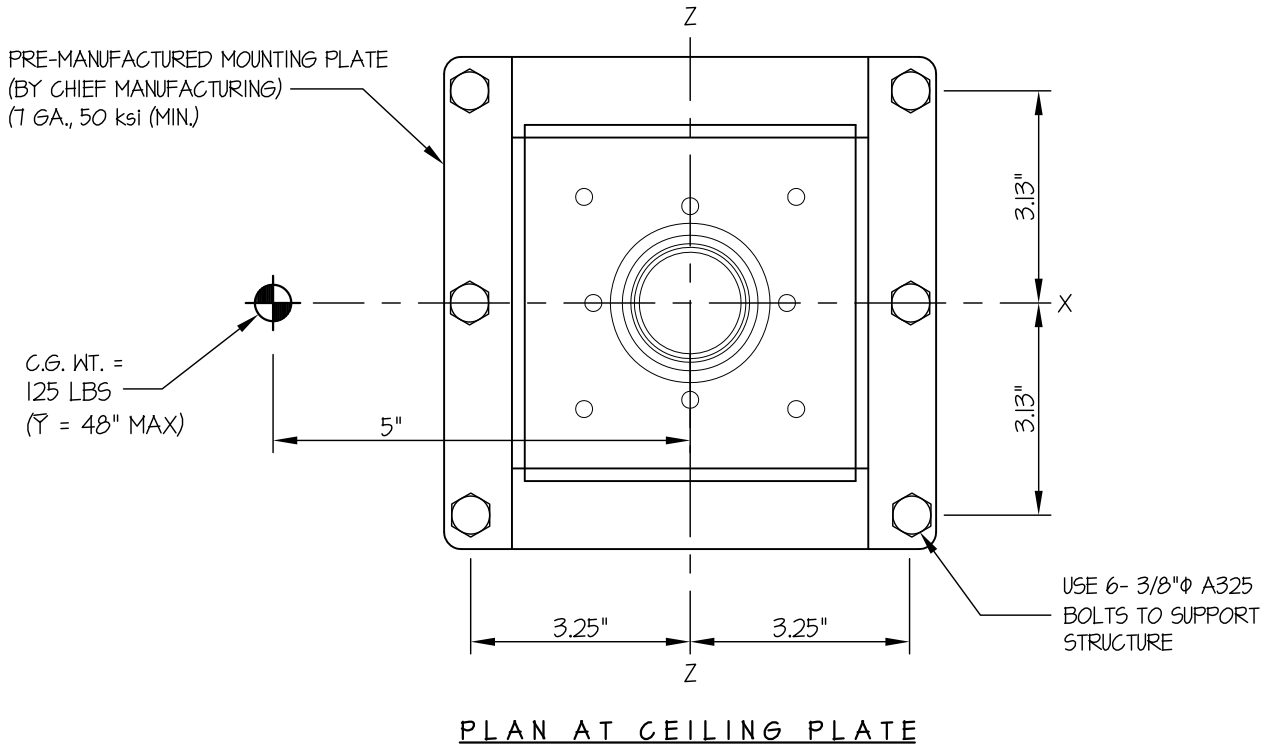
**2**

OF **3** SHEETS

SEISMIC ANCHORAGE

MCS SINGLE

CEILING MOUNTED



LOADS:

WEIGHT = 125 LBS (INCLUDES 100 LB MONITOR)

HORIZONTAL FORCE ( $E_h$ ) = 304 LBS

VERTICAL FORCE ( $E_v$ ) = 34 LBS

BOLT FORCES:

TENSION (T)

$$T_{\text{MAXIMUM}} = \left[ \frac{304\#(48")}{3 \text{ BOLTS}(6.5")} \times (0.3) \right] + \frac{304\#(48")(8.25")}{(6.26")(6.5")} + \frac{(125\# + 34\#)(8.25")}{3 \text{ BOLTS}(6.5")} = 3250 \text{ LBS/BOLT (MAX)}$$

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

SHEAR (V)

$$V_{\text{MAXIMUM}} = \frac{304\#(8.25")}{3 \text{ BOLTS}(6.5")} = 129 \text{ LBS/BOLT (MAX)}$$

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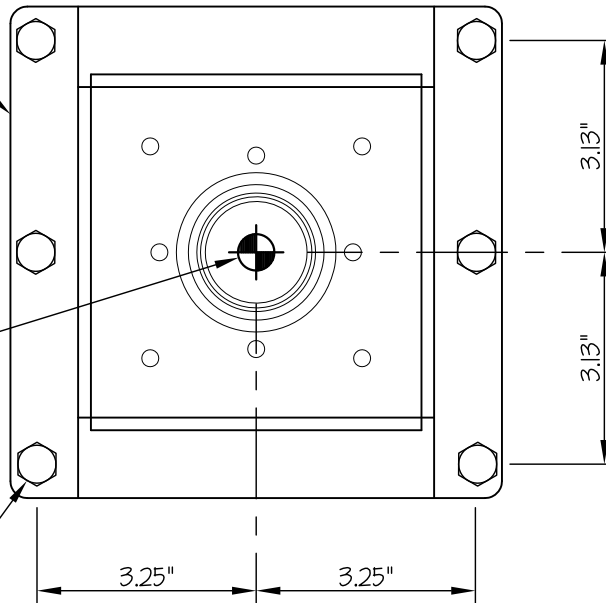
MCD DUAL

CEILING MOUNTED

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

C.G. WT. =  
 240 LBS  
 (Y = 63" MAX)

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



PLAN AT CEILING PLATE

LOADS:

WEIGHT = 240 LBS (INCLUDES 200 LB MONITORS)

HORIZONTAL FORCE (E<sub>h</sub>) = 583 LBS

VERTICAL FORCE (E<sub>v</sub>) = 65 LBS

BOLT FORCES:

TENSION (T)

$$T_{\text{MAXIMUM}} = \left[ \frac{583\#(63")}{3 \text{ BOLTS}(6.5")} \times (0.3) \right] + \frac{583\#(63")}{2 \text{ BOLTS}(6.26")} + \frac{240\# + 65\#}{6 \text{ BOLTS}} = 3550 \text{ LBS/BOLT (MAX)}$$

( HORIZ - SIDE TO SIDE )      ( HORIZ - FRONT TO BACK )      ( WEIGHT + E<sub>v</sub> )

SHEAR (V)

$$V_{\text{MAXIMUM}} = \frac{583\#}{6 \text{ BOLTS}} = 97 \text{ LBS/BOLT (MAX)}$$