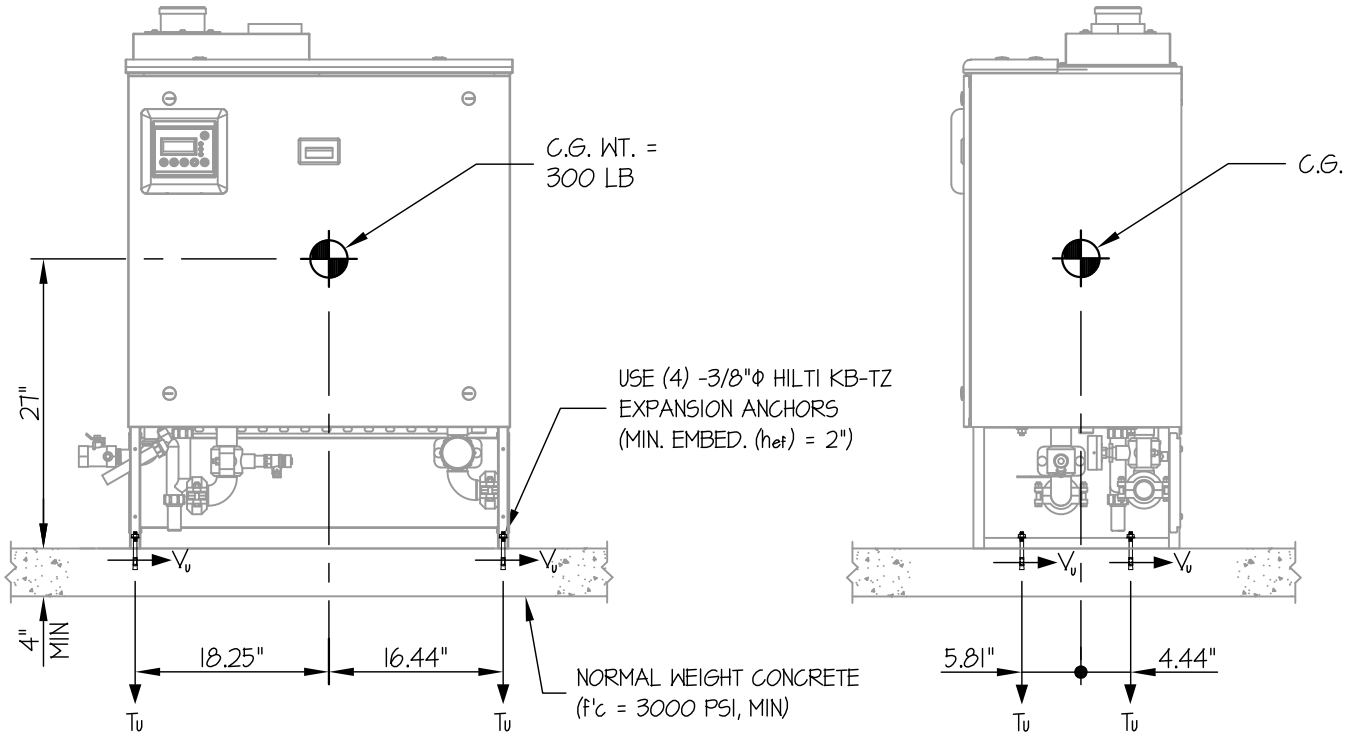
EASE EQUIPMENT ANCHORAGE & SEISMIC ENGINEERING www.equipmentanchorage.com		
PATTERSON-KELLEY CO.	DES. J. ROBERSON	SHEET 1
	JOB NO. 11-1313	
MACH MODELS CM300, CM399 & CM500	DATE 2/25/13	OF 1 SHEET

SEISMIC ANCHORAGE

CONCRETE SLAB



FRONT ELEVATION

SIDE ELEVATION

LOADS: PER 2010 CALIFORNIA BUILDING CODE AND ASCE 7-05
(STRENGTH DESIGN IS USED) (S_{DS} = 2.00, a_p = 1.0, I_p = 1.5, R_p = 2.5, z/h = 0.0)
WEIGHT = 300 LB
HORIZONTAL FORCE (E_h) = 0.90 W_p = 270 LB
VERTICAL FORCE (E_v) = 0.40 W_p = 120 LB

T_U = 367 LB/BOLT (MAX)
V_U = 77 LB/BOLT (MAX)

BOLT FORCES:

TENSION (T)

$$T_{MAXIMUM} = \left[\frac{270\#(27'')(4.44'')}{1_{BOLT}(34.69'')(10.25'')} \times (0.3)\right] + \frac{270\#(27'')(18.25'')}{1_{BOLT}(10.25'')(34.69'')} - \frac{(300\#(0.9) - 120\#)(4.44'')(18.25'')}{1_{BOLT}(10.25'')(34.69'')} = 367 \text{ LB/BOLT (MAX)}$$

(HORIZ. - SIDE TO SIDE) (HORIZ. - FRONT TO BACK) (WEIGHT (0.9) - E_v)

SHEAR (V)

$$V_{MAXIMUM} = \frac{270\#(5.81'')}{2_{BOLTS}(10.25'')} = 77 \text{ LB/BOLT (MAX)}$$

REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
EXP. 6-30-2014
2/25/13
STRUCTURAL
STATE OF CALIFORNIA

NOT STRUCTURAL ENGINEER OF RECORD

NOTE:
STRUCTURAL ENGINEER OF RECORD SHALL PROVIDE DESIGN OF SUPPORT STRUCTURE TO SUPPORT WEIGHTS AND FORCES SHOWN.

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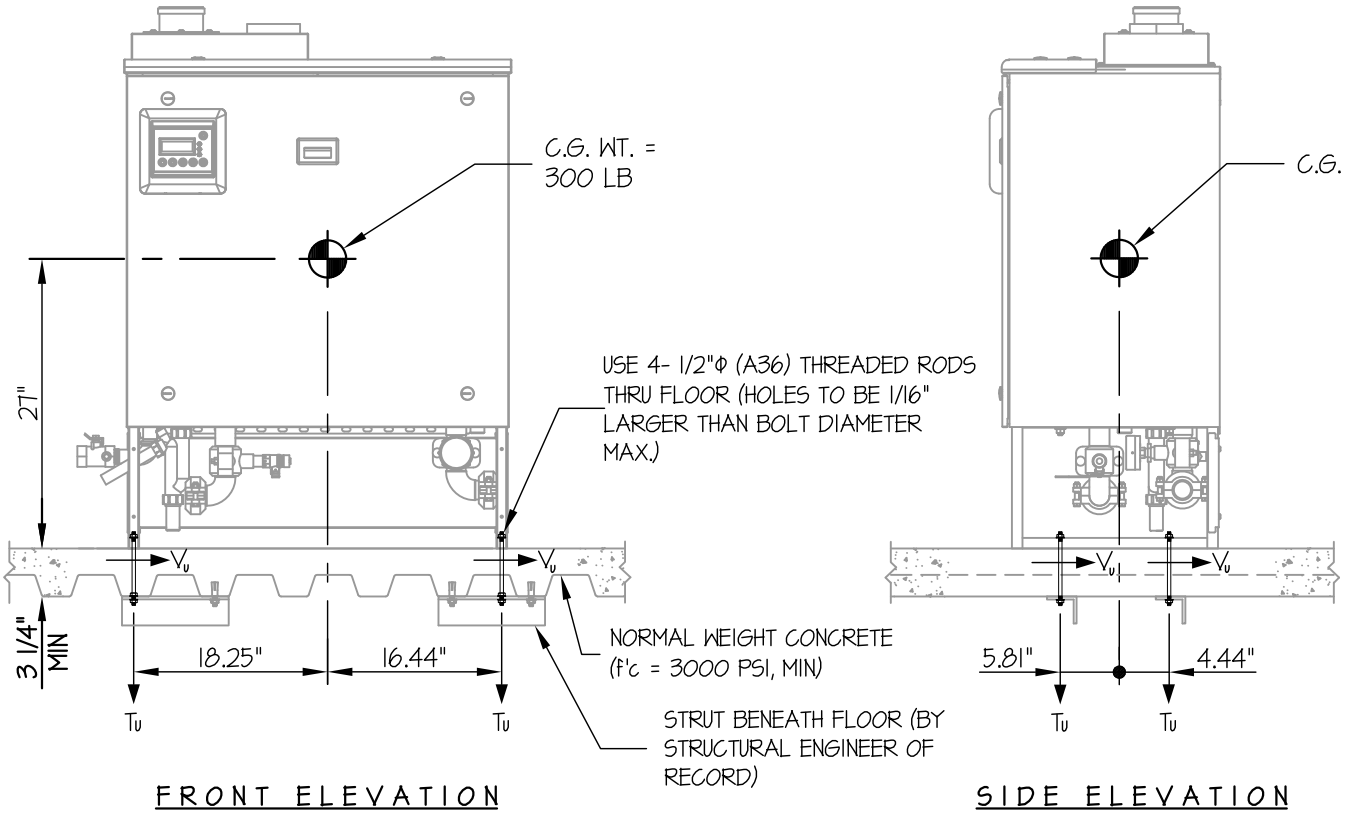
MACH MODELS CM300, CM399 & CM500

DES. J. ROBERSON
JOB NO. 11-1313
DATE 2/25/13
SHEET 1 OF 1 SHEET

SEISMIC ANCHORAGE

CONCRETE SLAB ON METAL DECK



LOADS: PER 2010 CALIFORNIA BUILDING CODE AND ASCE 7-05
(STRENGTH DESIGN IS USED) (S_{DS} = 2.00, a_p = 1.0, I_p = 1.5, R_p = 2.5, z/h ≤ 1.0)

WEIGHT = 300 LB
HORIZONTAL FORCE (E_h) = 1.44 W_p = 432 LB
VERTICAL FORCE (E_v) = 0.40 W_p = 120 LB

Tu = 611 LB/BOLT (MAX)
Vu = 122 LB/BOLT (MAX)

BOLT FORCES:

TENSION (T)

$$T_{MAXIMUM} = \left[\frac{432\#(27'')(5.81'')}{1_{BOLT}(34.69'')(10.25'')} \times (0.3)\right] + \frac{432\#(27'')(18.25'')}{1_{BOLT}(10.25'')(34.69'')} - \frac{(300\#(0.9) - 120\#)(5.81'')(18.25'')}{1_{BOLT}(10.25'')(34.69'')} = 611 \text{ LB/BOLT (MAX)}$$

(HORIZ. - SIDE TO SIDE) (HORIZ. - FRONT TO BACK) (WEIGHT (0.9) - E_v)

SHEAR (V)

$$V_{MAXIMUM} = \frac{432\#(5.81'')}{2_{BOLTS}(10.25'')} = 122 \text{ LB/BOLT (MAX)}$$

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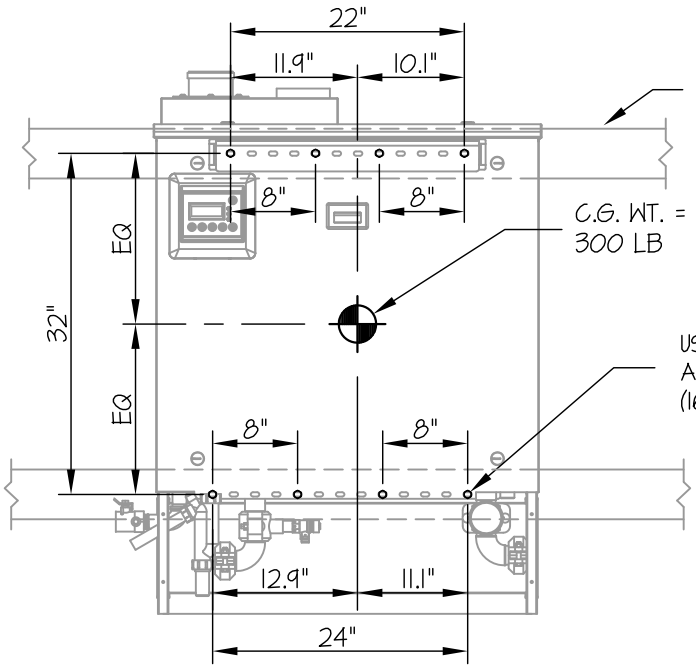
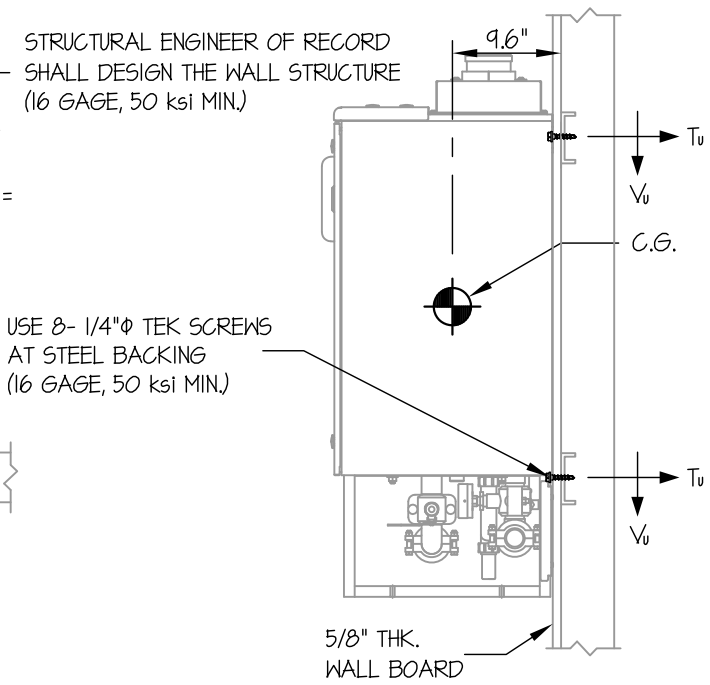
SEISMIC ANCHORAGE

WALL MOUNTED



FRONT ELEVATION



SIDE ELEVATION

LOADS:

WEIGHT = 300 LB (MAX OPERATING WEIGHT)

HORIZONTAL FORCE (E_h) = 1.44 W_p = 432 LB

VERTICAL FORCE (E_v) = 0.40 W_p = 120 LB

BOLT FORCES:

TENSION (T)

$$T_{u\ VERTICAL} = \frac{(1.2(300\#) + 120\#)(9.6'')(11.9'')}{2\ SCREWS(32'')(22'')} = 39\ LB$$

$$T_{u\ PARALLEL} = \frac{432\#(9.6'')}{2\ SCREWS(22'')} = 95\ LB$$

$$T_{u\ PERP.} = \frac{432\#(11.9'')}{4\ SCREWS(22'')} = 59\ LB$$

$$T_u = 39\# + 0.3(59\#) + 95\# = 152\ LB/SCREW\ (MAX)$$

SHEAR (V)

$$V_u = \sqrt{\left(\frac{(1.2(300\#) + 120\#)(11.9'')}{2\ SCREWS\ (22'')}\right)^2 + \left(\frac{432\#(11.9'')}{4\ SCREWS(22'')}\right)^2} = 143\ LB/SCREW\ (MAX)$$

T_u = 152 LB/BOLT (MAX)

V_u = 143 LB/BOLT (MAX)

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