



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD PREAPPROVAL
OF MANUFACTURER'S CERTIFICATION (OPM)

OFFICE USE ONLY

APPLICATION #: OPM-0399-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: ☒ New ☐ Renewal ☒ Update to Pre-CBC 2013 OPA Number: OPA-1575-07 to OPA-1577-07

Manufacturer Information

Manufacturer: Trumpf Medical Systems, Inc.

Manufacturer's Technical Representative: Andrew Knight

Mailing Address: 1046 LeGrand Blvd., Charleston, SC 29492

Telephone: 843-416-1377 Email: Andrew.Knight@trumpfmedical.com

Product Information

Product Name: Overhead Arm Systems

Product Type: Light, Flat Panel, Video Tower Accessory

Product Model Number: Various

General Description: Single, Dual, Triple, Quad, Single Hybrid, Dual Hybrid Arm Systems and Ceiling Mounted Exam Light.

Applicant Information

Applicant Company Name: Trumpf Medical Systems, Inc.

Contact Person: Andrew Knight

Mailing Address: 1046 LeGrand Blvd., Charleston, SC 29492

Telephone: 843-416-1377 Email: Andrew.Knight@trumpfmedical.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant:  Date: 12/13/2016

Title: Product Manager Company Name: Trumpf Medical Systems, Inc.

"Access to Safe. Quality Healthcare Environments that Meet

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
OSH-FD-700 (REV 12/16/15)



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

Registered Design Professional Preparing Engineering Recommendations

Company Name: CYS Structural Engineers, Inc.

Name: Dieter T. Siebald California License Number: S4346

Mailing Address: 2495 Natomas Park Drive, Suite 650, Sacramento, CA 95833

Telephone: 916-920-2020 Email: dieters@cyseng.com

OSHPD Special Seismic Certification Preapproval (OSP)

- ☐ Special Seismic Certification is preapproved under OSP-
(Separate application for OSP is required)
- ☒ Special Seismic Certification is not preapproved

Certification Method(s)

- ☐ Testing in accordance with: ☐ ICC-ES AC156 ☐ FM 1950-16
- ☐ Other* (Please Specify): _____

*Use of criteria other than those adopted by the California Building Standards Code, 2016 (CBSC 2016) for component supports and attachments are not permitted. For distribution system, interior partition wall, and suspended ceiling seismic bracings, test criteria other than those adopted in the CBSC 2016 may be used when approved by OSHPD prior to testing.

- ☐ Analysis
- ☐ Experience Data
- ☐ Combination of Testing, Analysis, and/or Experience Data (Please Specify): _____

List of Attachments Supporting the Manufacturer's Certification

- ☐ Test Report ☒ Drawings ☒ Calculations ☐ Manufacturer's Catalog
- ☐ Other(s) (Please Specify): _____

OFFICE USE ONLY – OSHPD APPROVAL VALID FOR CBC 2016 & ALL PRE-2016 CODE BASED PROJECTS

Signature: William Staehlin Date: 10-11-2018

Print Name: William Staehlin

Title: SSE

Condition of Approval (if applicable): _____

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
OSH-FD-700 (REV 12/16/15)



OSHPD

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- NOTES:**
1. THESE DRAWINGS ARE PREPARED FOR TRUMPF MEDICAL SYSTEMS, INC., CHARLESTON, SOUTH CAROLINA.
 2. THE CONTRACTOR & INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE OSHPD PRE-APPROVAL PROGRAMS WEBSITE.
 3. THIS PRE-APPROVAL COVERS THE SUPPORTS & ATTACHMENTS OF THE SURGICAL LIGHTS TO THE SUPPORTING STRUCTURE. THE SURGICAL LIGHTS & SURGICAL LIGHT BASE PLATE WITH CONNECTION HARDWARE ARE SUPPLIED BY TRUMPF. ALL THREADED RODS, MOUNTING PLATE & REQUIRED ABOVE CEILING SUPPORT ELEMENTS SHALL BE SUPPLIED & INSTALLED BY THE CONTRACTOR.



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CYS STRUCTURAL ENGINEERS, INC.

2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

TEL (916) 920-2020
www.cyseng.com

Job No:	16070.02
Date:	06-22-2018
Page:	1 of 26

GENERAL NOTES:

1. THIS OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2016. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2016.
2. IT IS THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD (SEOR) OF A SITE SPECIFIC PROJECT TO VERIFY:
 - A. THE ADEQUACY OF THE NEW OR EXISTING STRUCTURE TO RESIST THE FORCES & WT SPECIFIED FOR EA EQUIP IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS AS REQ.
 - B. THAT THE ANCHORS INTO THE SOFFIT OF CONCRETE OVER METAL DECK FLOOR AND ROOF ASSEMBLIES ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPENINGS.
 - C. THAT THE ANCHORS INTO THE SOFFIT OF CONCRETE OVER METAL DECK FLOOR AND ROOF ASSEMBLIES ARE AT AN ADEQUATE DISTANCE FROM ANY NEW OR EXISTING ANCHORS. THE SPACING SHOWN IN THE TEST TORQUE TABLE ON PG 3 IS THE REQUIRED MINIMUM SPACING OF THE GIVEN DIAMETER ANCHORS. THE REQUIRED SPACING FROM ANCHORS OF OTHER DIAMETERS & EMBEDMENTS MAY VARY & SHALL BE EVALUATED BY THE SEOR.
 - D. THAT THE INSTALLATION IS IN CONFORMANCE W/ THE CBC 2016 & W/ THE DETAILS SHOWN IN THIS PRE-APPROVAL.
 - E. THAT THE ACTUAL EQUIP'S WT, CENTER OF GRAVITY (CG) LOCATION, SUPPORT & ATTACHMENT LOCATIONS, SUPPORT & ATTACHMENT DETAILS, & THE MATERIAL & GA OF THE EQUIP WHERE ATTACHMENTS ARE MADE, AGREE W/ THE INFORMATION SHOWN ON THE PRE-APPROVAL DOCUMENTS.
3. EXPANSION ANCHORS INSTALLED IN NWC OR SLWC SHALL BE CARBON STEEL HILTI KB-TZ EXPANSION ANCHORS COMPLYING W/ ESR-1917 REISSUED MAY 2015 AND REVISED SEPTEMBER 2016.
 - A. INSTALLATION: INSTALL THE EXPANSION ANCHORS IN ACCORDANCE W/ THE REQUIREMENTS GIVEN IN THE ICC EVALUATION REPORT FOR THE SPECIFIC ANCHOR & THE PARAMETERS GIVEN IN THE TABLE ON PG 3.
 - B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOBSITE TESTING IN ACCORDANCE W/ THE TEST LOAD TABLE PROVIDED IN THIS DOCUMENT. TEST 50% OF THE INSTALLED ANCHORS. THE TEST LOAD MAY BE APPLIED BY ANY METHOD THAT WILL EFFECTIVELY MEASURE THE TORQUE IN THE ANCHOR SUCH AS CALIBRATED TORQUE WRENCH METHOD. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE INSPECTOR OF RECORD (IOR). IF ANY ANCHOR FAILS THE TEST, TEST ALL ANCHORS. THE TEST SHALL BE PERFORMED 24 HOURS OR MORE AFTER INSTALLATION. TESTING MAY BE DONE PRIOR TO EQUIP INSTALLATION. ALSO REFER TO CBC 1910A.5 "FIELD TESTS FOR POST-INSTALLED ANCHORS IN CONCRETE".
 - C. FAILURE/ACCEPTANCE CRITERIA: THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS:
 - TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN THE FOLLOWING LIMITS:
WEDGE TYPE: ONE-HALF (½) TURN OF THE NUT.



SHEET TITLE: GENERAL NOTES



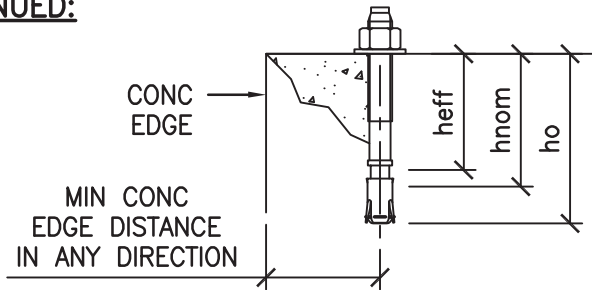
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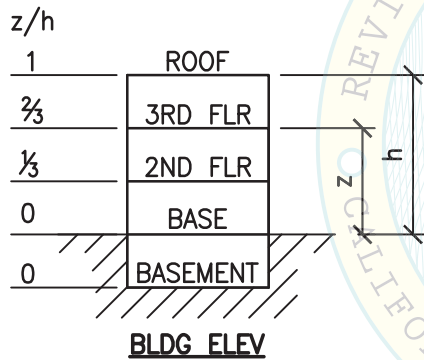
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GENERAL NOTES CONTINUED:



ANCHOR DIA (INCH)	INSTALLATION EMBED (INCH) hnom	EFFECTIVE EMBED (INCH) heff	HOLE DEPTH (INCH) ho	MIN CONC THK (INCH) h	MIN CONC EDGE DISTANCE (INCH)	MIN ANCHOR SPCG (INCH)	TEST TORQUE (FT-LBS)
1/2	3 5/8	3 1/4	4	6	4.5	10	40

4. A SINGLE CASE OF ATTACHMENT IS SPECIFIED & PRESENTED IN THIS PRE-APPROVAL:



ATTACHMENT DETAILS LOCATED AT UPPER FLRS & ROOF ABV THE BASE OF A BLDG. THE FLRS & ROOFS ARE ASSUMED TO BE BUILT OF A MIN 3/4" SLWC TOPPING OVER 3" DEEP MIN 20 GA MTL DECK ($f'_c = 3000$ PSI, MIN). FOR z/h RATIOS & S_{ps} VALUES SEE DESIGN CRITERIA & COMPONENT DWGS

DATE: 10/11/2018

5. THIS PRE-APPROVAL MAY BE USED AT ANY GEOGRAPHICAL LOCATION IN THE STATE OF CALIFORNIA. WHERE S_{ps} IS LESS THAN OR EQ TO MAX S_{ps} VALUE AT EACH COMPONENT AS NOTED ON DRAWINGS.



SHEET TITLE: GENERAL NOTES (CONTINUED)



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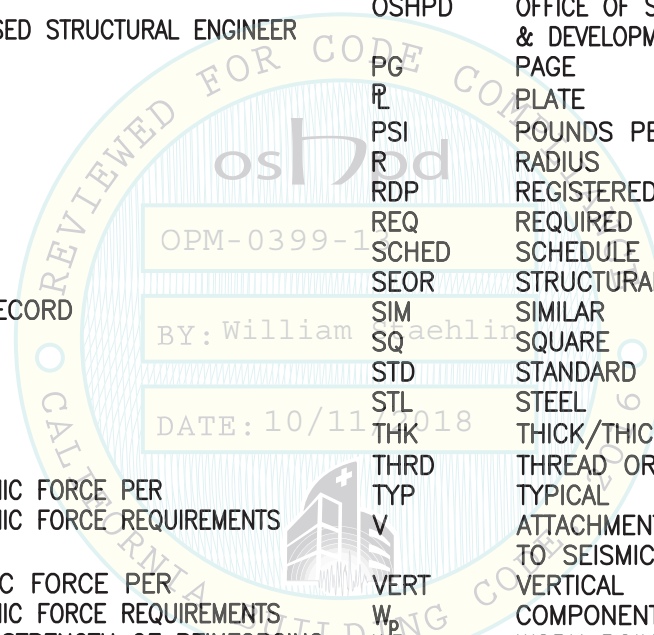
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ABBREVIATIONS:

@	AT	ICC	INTERNATIONAL CODE COUNCIL
AB	ANCHOR BOLT	IN (")	INCH
ABV	ABOVE	KSI	KIPS PER SQUARE INCH
ASD	ALLOWABLE STRENGTH DESIGN	LBS	POUNDS
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS	LRFD	LOAD & RESISTANCE FACTOR DESIGN
BLDG	BUILDING	LWC	LIGHT WEIGHT CONCRETE
BLW	BELOW	MAX	MAXIMUM
BOTT	BOTTOM	MFR	MANUFACTURER
BRCG	BRACING	MIN	MINIMUM
BRG	BEARING	MTL	METAL
BTW	BETWEEN	NWC	NORMAL WEIGHT CONCRETE
CBC	CALIFORNIA BUILDING CODE	OPG	OPENING
CG	CENTER OF GRAVITY	OPM	OSHPD PRE-APPROVAL OF
CLG	CEILING		MANUFACTURER'S CERTIFICATION
CLR	CLEAR	OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING
CLSE	CALIFORNIA LICENSED STRUCTURAL ENGINEER		& DEVELOPMENT
CL	CENTERLINE	PG	PAGE
CONN	CONNECTION	PL	PLATE
DBL	DOUBLE	PSI	POUNDS PER SQUARE INCH
DEG	DEGREE	R	RADIUS
DTL(S)	DETAIL(S)	RDP	REGISTERED DESIGN PROFESSIONAL
DIA (φ)	DIAMETER	REQ	REQUIRED
EA	EACH	SCHED	SCHEDULE
ELEV	ELEVATION	SEOR	STRUCTURAL ENGINEER OF RECORD
EOR	ENGINEER OF RECORD	SIM	SIMILAR
EQ	EQUAL	SQ	SQUARE
EQUIP	EQUIPMENT	STD	STANDARD
ES	EACH SIDE	STL	STEEL
FIN	FINISH	THK	THICK/THICKNESS
FLR	FLOOR	THRD	THREAD OR THREADED
Fp	HORIZONTAL SEISMIC FORCE PER	TYP	TYPICAL
	ASCE 7-10 SEISMIC FORCE REQUIREMENTS	V	ATTACHMENT SHEAR REACTION DUE
FT (')	FOOT/FEET		TO SEISMIC FORCE
F _{pv}	VERTICAL SEISMIC FORCE PER	VERT	VERTICAL
	ASCE 7-10 SEISMIC FORCE REQUIREMENTS	W _p	COMPONENT OPERATING WEIGHT
F _y	SPECIFIED YIELD STRENGTH OF REINFORCING,	WP	WORK POINT
	PSI OR SPECIFIED MINIMUM YIELD STRESS	WT	WEIGHT
	OF STEEL, KSI	W/	WITH
GA	GAUGE		



SHEET TITLE: ABBREVIATIONS

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SUPPORT & ATTACHMENT DESIGN CRITERIA

DESIGN FOR OVERHEAD EXAM LIGHTS IS PER 2016 CBC AT LRFD LEVEL FORCES.

$$\begin{aligned} W_p &= \text{AS PROVIDED ON ELEVS} \\ z/h &= \text{SEE COMPONENT DWGS} \quad \text{UPPER FLRS ABV THE BASE} \\ S_{DS} &= \text{SEE COMPONENT DWGS} \\ I_p &= 1.5 \\ q_p &= 2.5 \\ R_p &= 2.5 \\ \Omega_o &= 2.5 \\ \text{MIN } F_p &= 0.30 S_{DS} I_p W_p = \\ \text{MAX } F_p &= 1.60 S_{DS} I_p W_p = \\ F_p &= 0.4 q_p S_{DS} I_p W_p (1+2 z/h)/R_p = \\ F_{pv} &= \pm 0.20 S_{DS} W_p = \end{aligned}$$

DESIGN FOR CEILING MOUNTED EXAM LIGHT

$$\begin{aligned} W_p &= \text{AS PROVIDED ON ELEVS} \\ z/h &\leq 1.0 \quad \text{UPPER FLRS ABV THE BASE} \\ S_{DS} &= 2.50 \\ I_p &= 1.5 \\ q_p &= 2.5 \\ R_p &= 2.5 \\ \text{MIN } F_p &= 0.30 S_{DS} I_p W_p = 1.125 W_p \\ \text{MAX } F_p &= 1.60 S_{DS} I_p W_p = 6.000 W_p \\ F_p &= 0.4 q_p S_{DS} I_p W_p (1+2 z/h)/R_p = 4.5 W_p \\ F_{pv} &= \pm 0.20 S_{DS} W_p = \pm 0.50 W_p \end{aligned}$$

DESIGN FOR CEILING MOUNTED EXAM LIGHT

$$\begin{aligned} W_p &= \text{AS PROVIDED ON ELEVS} \\ z/h &\leq 0.5 \quad \text{UPPER FLRS ABV THE BASE} \\ S_{DS} &= 2.50 \\ I_p &= 1.5 \\ q_p &= 2.5 \\ R_p &= 2.5 \\ \text{MIN } F_p &= 0.30 S_{DS} I_p W_p = 1.125 W_p \\ \text{MAX } F_p &= 1.60 S_{DS} I_p W_p = 6.000 W_p \\ F_p &= 0.4 q_p S_{DS} I_p W_p (1+2 z/h)/R_p = 3.0 W_p \\ F_{pv} &= \pm 0.20 S_{DS} W_p = \pm 0.50 W_p \end{aligned}$$

LOAD COMBINATIONS

$$\begin{aligned} (0.9 - 0.2 S_{DS}) D - F_p \\ (1.2 + 0.2 S_{DS}) D + F_p \text{ CRITICAL} \end{aligned}$$

COMPONENT FORCES (LRFD W/O Ω_o)

$$\begin{aligned} T_u &= \text{TENSION} \\ V_u &= \text{SHEAR} \\ M_u &= \text{MOMENT} \\ M_{UT} &= \text{TORSIONAL MOMENT} \end{aligned}$$



SHEET TITLE: DESIGN CRITERIA

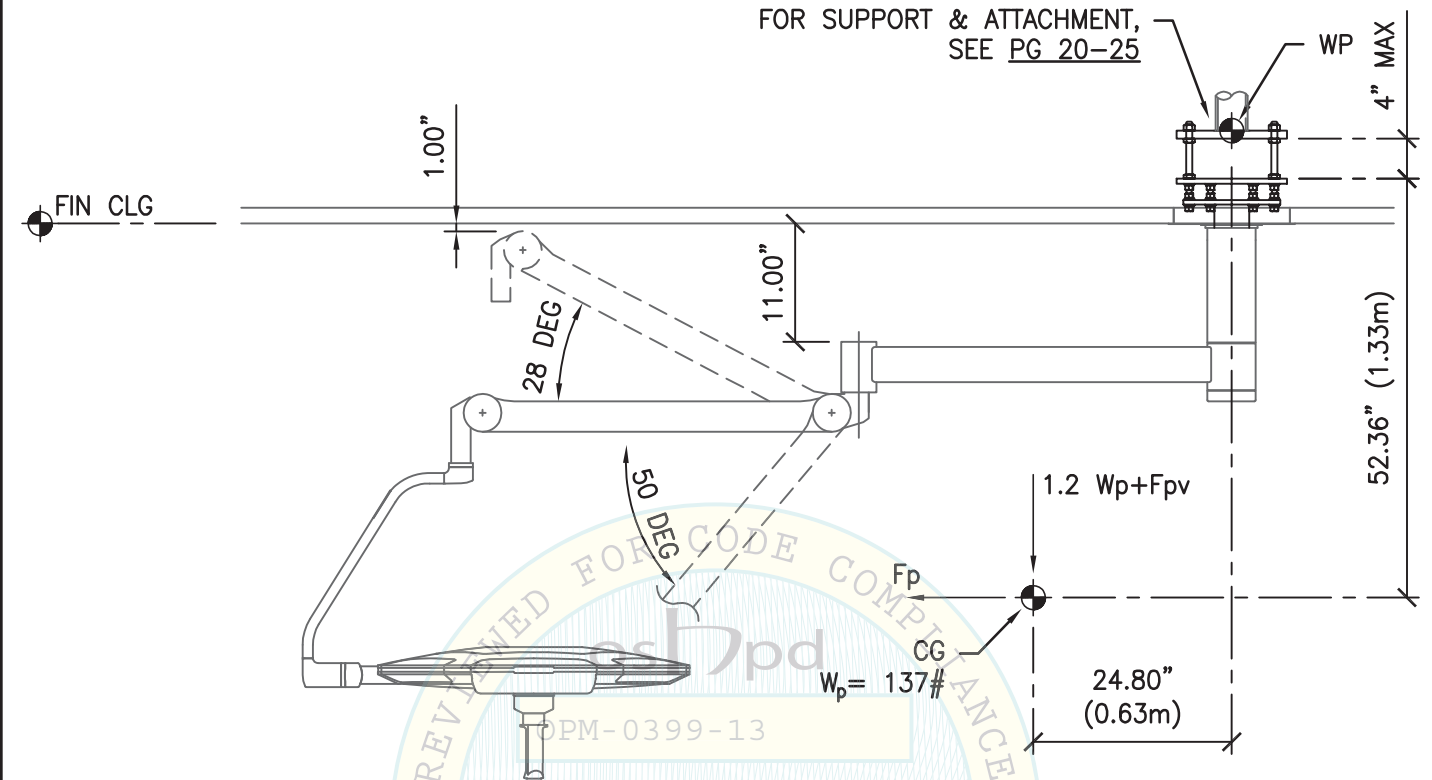


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z/h	MAX S _{DS}	T _u (lbs)	V _u (lbs)	M _u (in-lbs)	M _{UT} (in-lbs)
1	2.5	233	617	40,524	15,291
0.5	2.5	233	411	28,942	10,194

LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

1. CG WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: SINGLE ARM SYSTEM
LIGHT

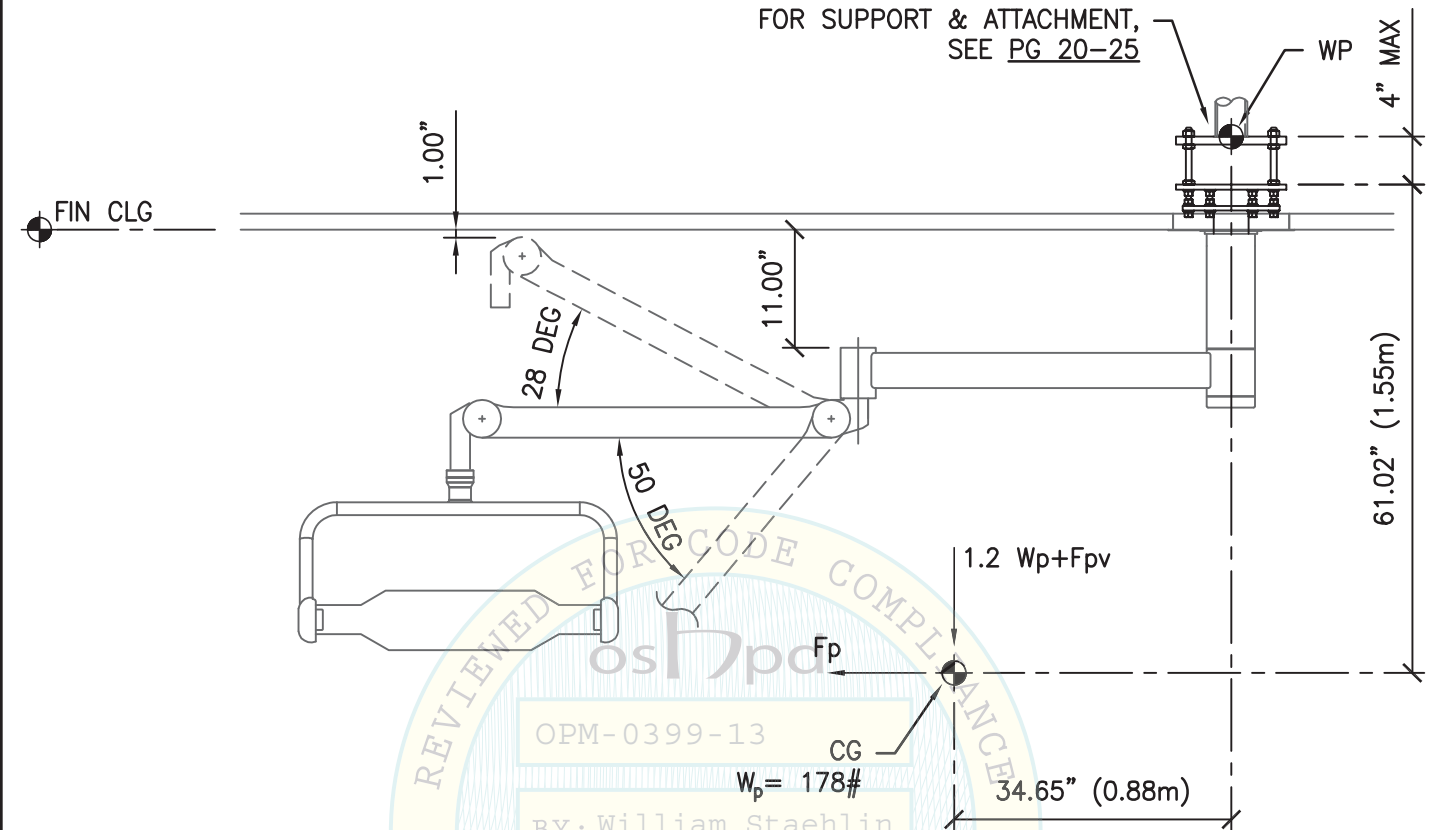


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z/h	MAX S_{DS}	Tu (lbs)	Vu (lbs)	Mu (in-lbs)	M _{UT} (in-lbs)
1	2.5	303	801	62,568	27,751
0.5	2.5	303	534	45,206	18,501

LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

1. CG WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: SINGLE ARM SYSTEM
FLAT PANEL

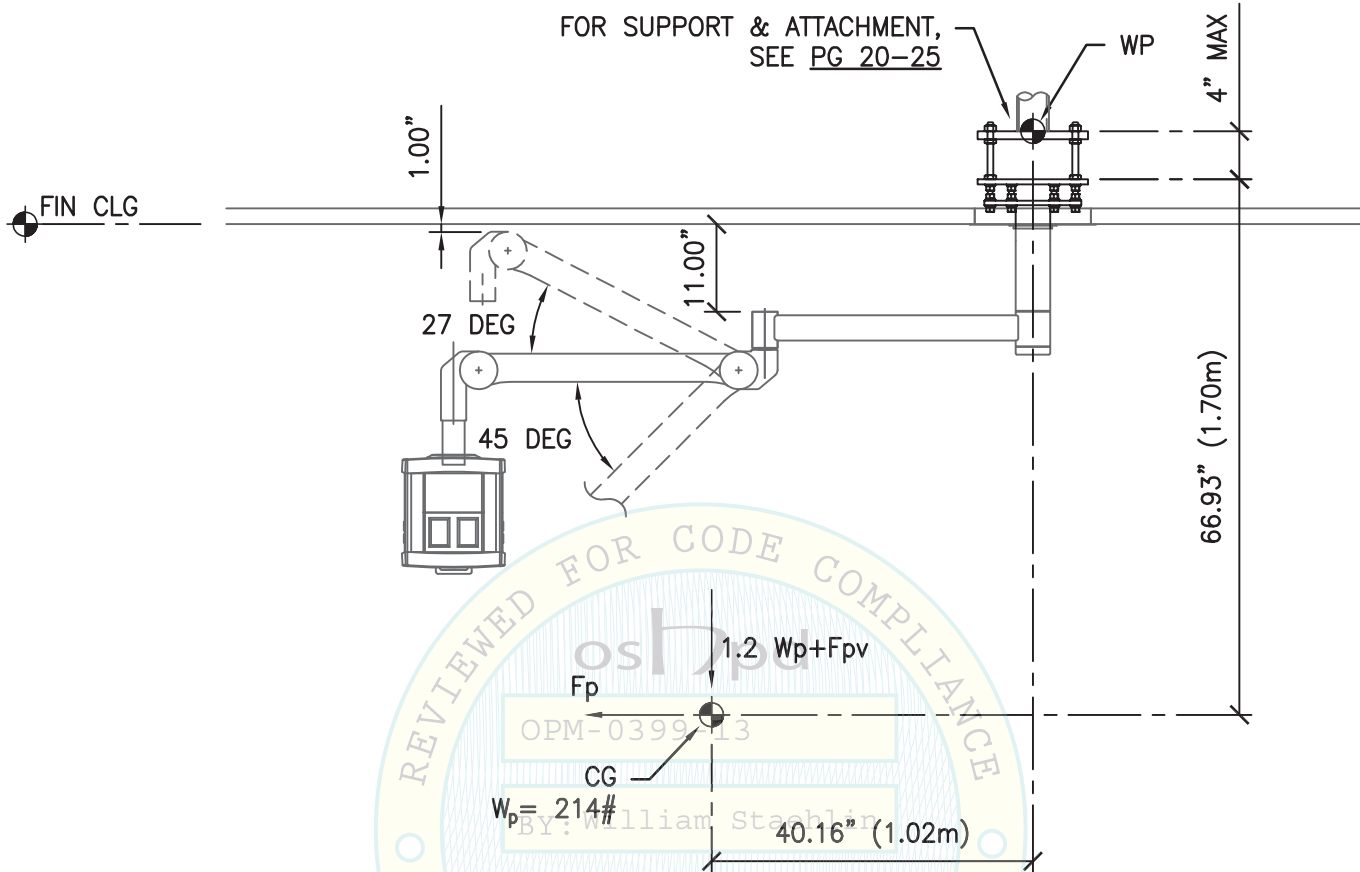


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z/h	MAX S _{DS}	T _u (lbs)	V _u (lbs)	M _u (in-lbs)	M _{UT} (in-lbs)
1	2.02	343	778	68,975	31,247
0.5	2.5	364	642	60,146	25,781

LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

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- SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
- THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: SINGLE ARM SYSTEM
VIDEO TOWER ACCESSORY (VPA)

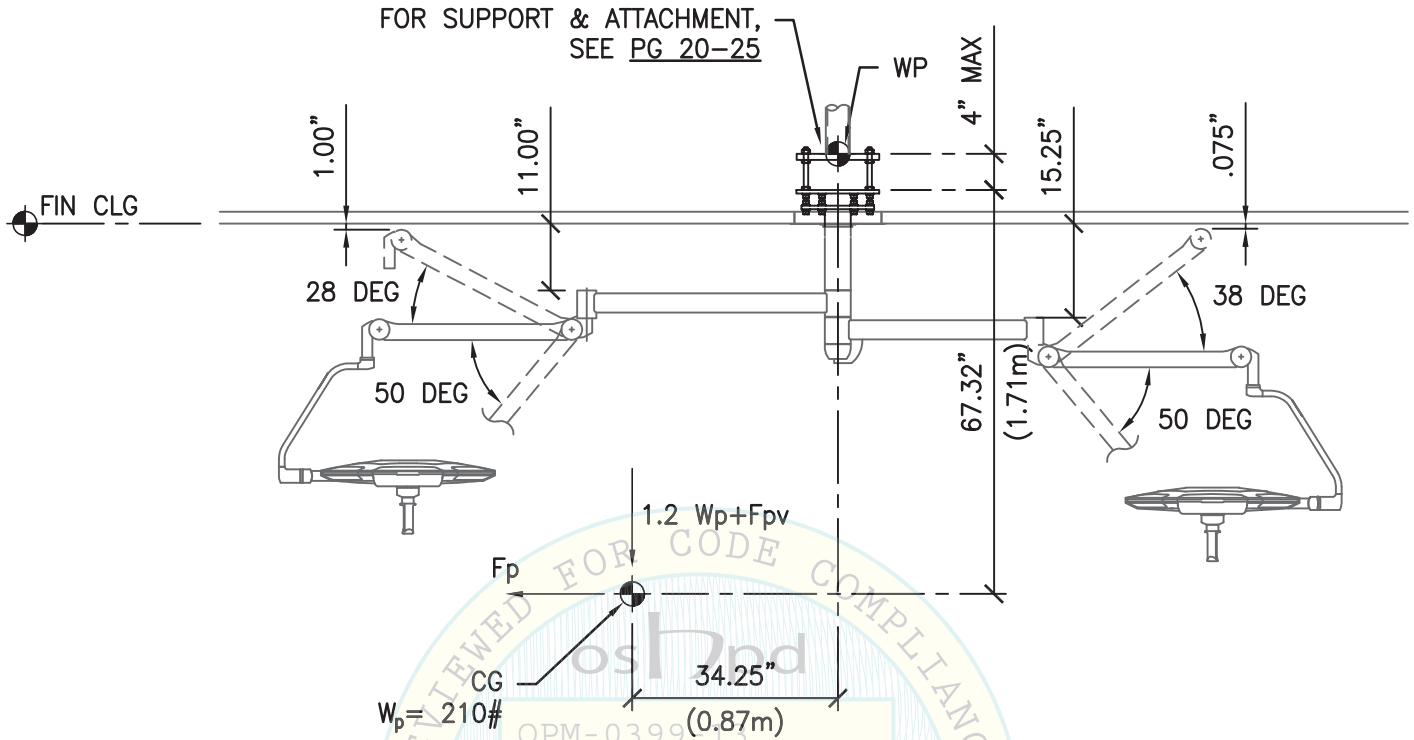


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z/h	MAX S _{DS}	T _u (lbs)	V _u (lbs)	M _u (in-lbs)	M _{UT} (in-lbs)
1	2.13	341	805	69,121	27,578
0.5	2.5	357	630	57,161	21,579

LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

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- SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
- THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: DUAL ARM SYSTEM
LIGHT-LIGHT

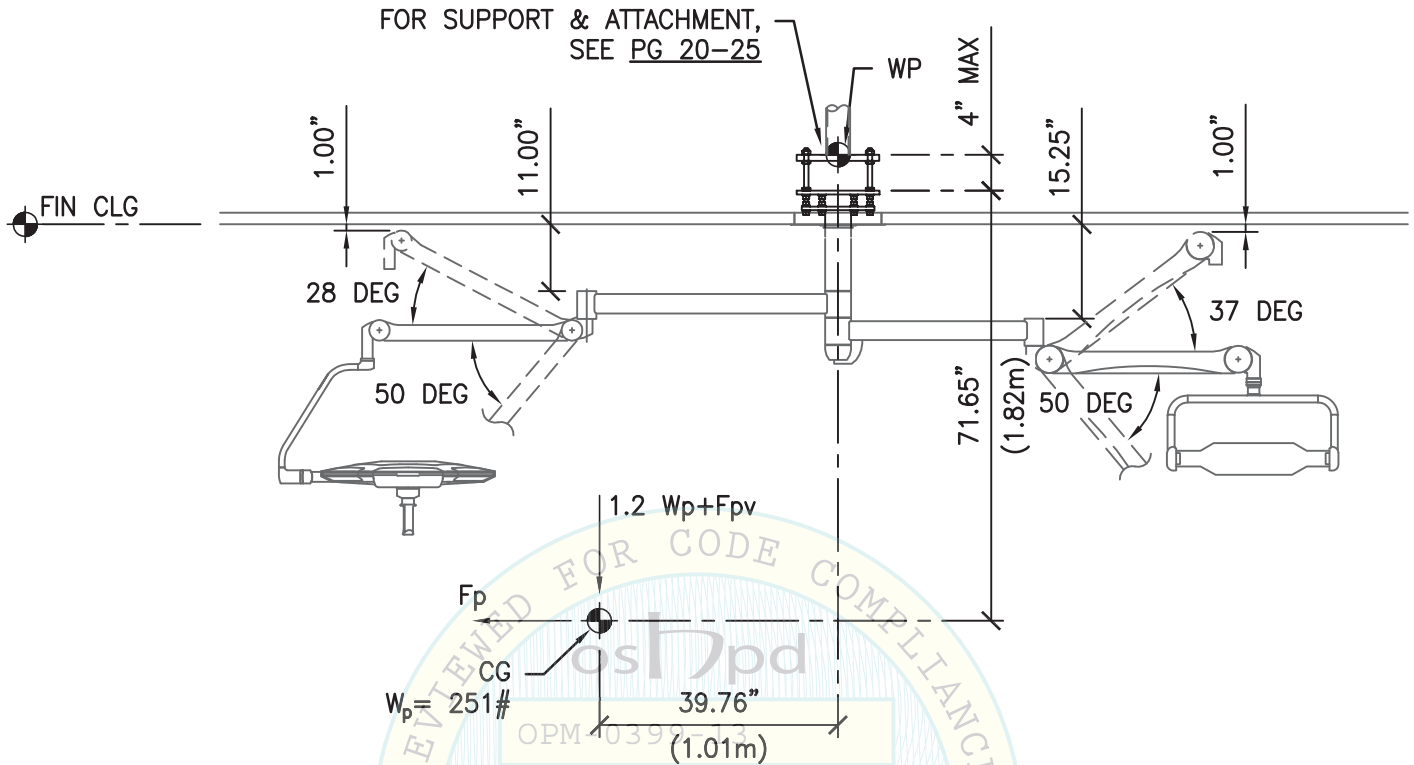


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z/h	MAX S_{DS}	T_u (lbs)	V_u (lbs)	M_u (in-lbs)	M_{UT} (in-lbs)
1	1.57	380	709	68,774	28,205
0.5	2.28	416	687	68,482	27,307

LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

1. CG WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: DUAL ARM SYSTEM
LIGHT-FLAT PANEL

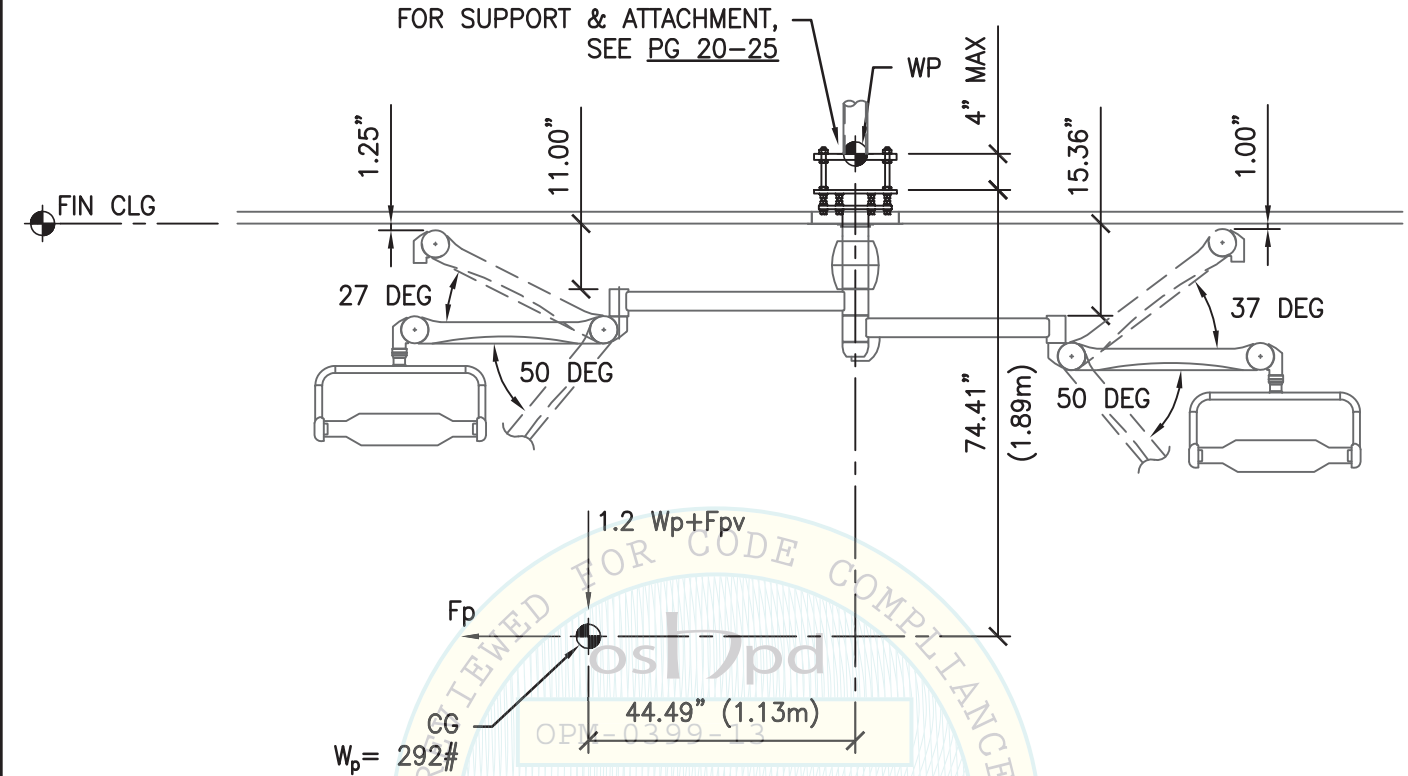


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z/h	MAX S_{DS}	T_u (lbs)	V_u (lbs)	M_u (in-lbs)	M_{UT} (in-lbs)
1	1.2	420	631	68,161	28,060
0.5	1.74	452	610	67,915	27,124

LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

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- THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: DUAL ARM SYSTEM
FLAT PANEL-FLAT PANEL

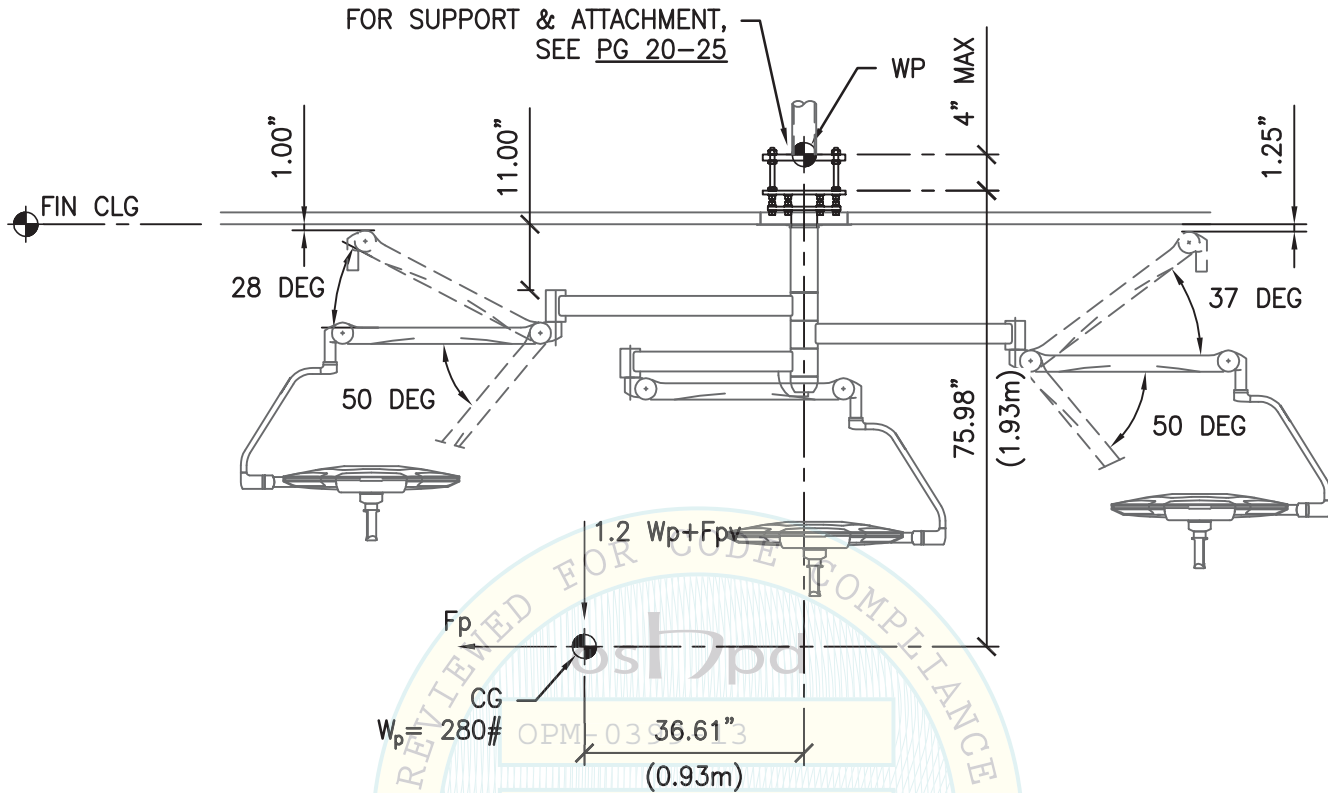


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z/h	MAX S_{DS}	T_u (lbs)	V_u (lbs)	M_u (in-lbs)	M_{UT} (in-lbs)
1	1.32	410	665	68,221	24,359
0.5	1.93	444	648	68,128	23,744

LRFD FORCES W/O Ω_b . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

1. CG WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: TRIPLE ARM SYSTEM
LIGHT-LIGHT-LIGHT

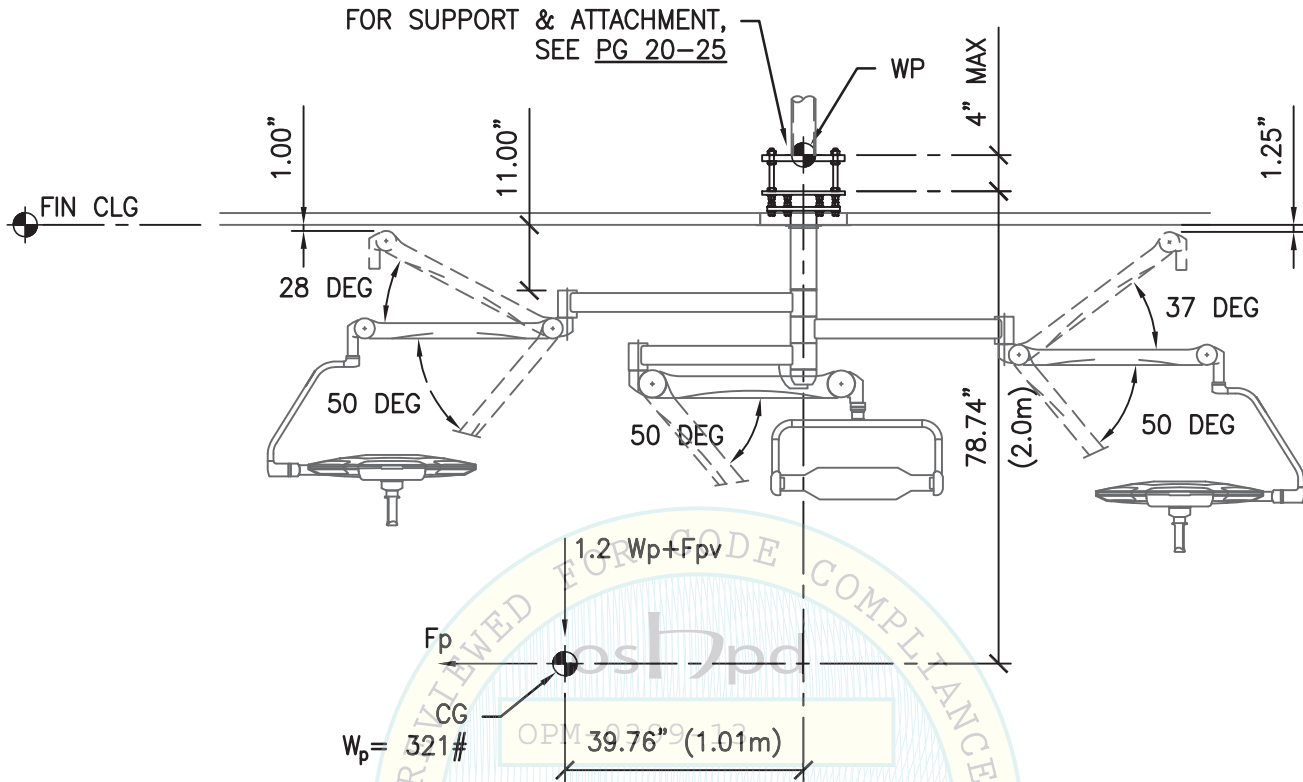


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z/h	MAX S_{DS}	T_u (lbs)	V_u (lbs)	M_u (in-lbs)	M_{UT} (in-lbs)
1	1.04	452	601	67,692	23,895
0.5	1.53	483	589	67,986	23,435

LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

1. CG WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: TRIPLE ARM SYSTEM
LIGHT-LIGHT-FLAT PANEL

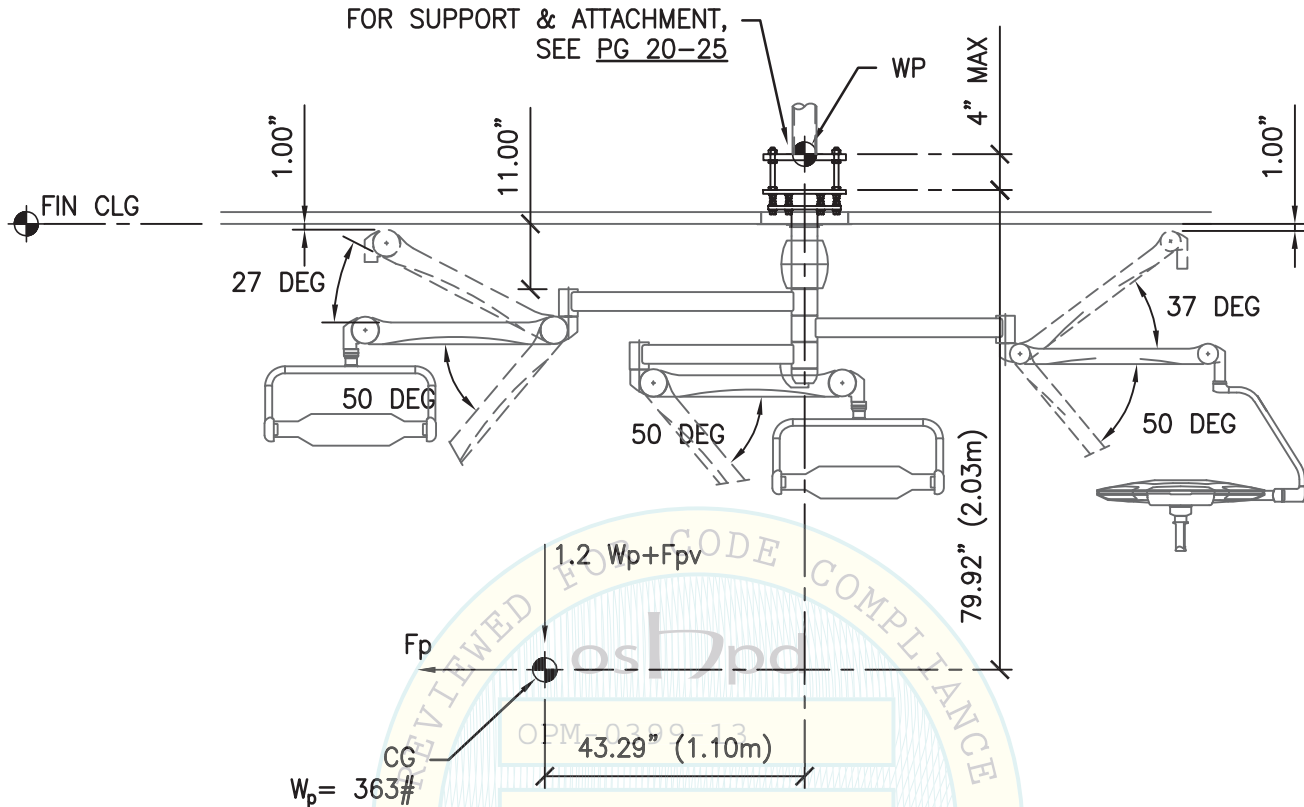


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SACRAMENTO, CA 95833

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z/h	MAX S_{DS}	T_u (lbs)	V_u (lbs)	M_u (in-lbs)	M_{UT} (in-lbs)
1	0.84	497	549	67,566	23,769
0.5	1.22	524	531	67,299	23,015

LRFD FORCES W/O Ω_b . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

1. CG WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: TRIPLE ARM SYSTEM
FLAT PANEL-LIGHT-FLAT PANEL

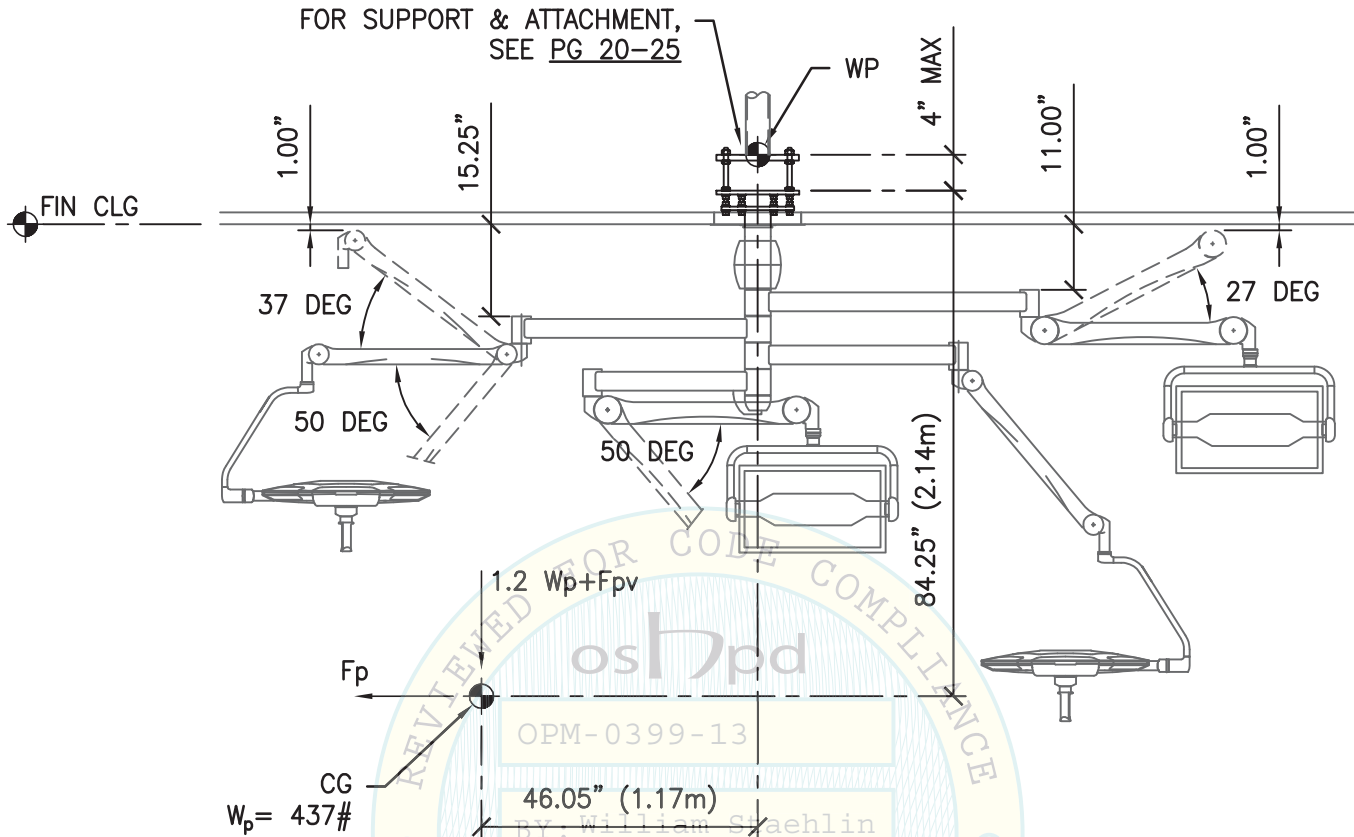


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z/h	MAX S_{DS}	T_u (lbs)	V_u (lbs)	M_u (in-lbs)	M_{UT} (in-lbs)
1	0.58	575	456	66,753	21,015
0.5	0.85	599	446	66,915	20,532

LRFD FORCES W/O Ω_b . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

1. CG WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: QUAD ARM SYSTEM

FLAT PANEL-LIGHT-LIGHT-FLAT PANEL

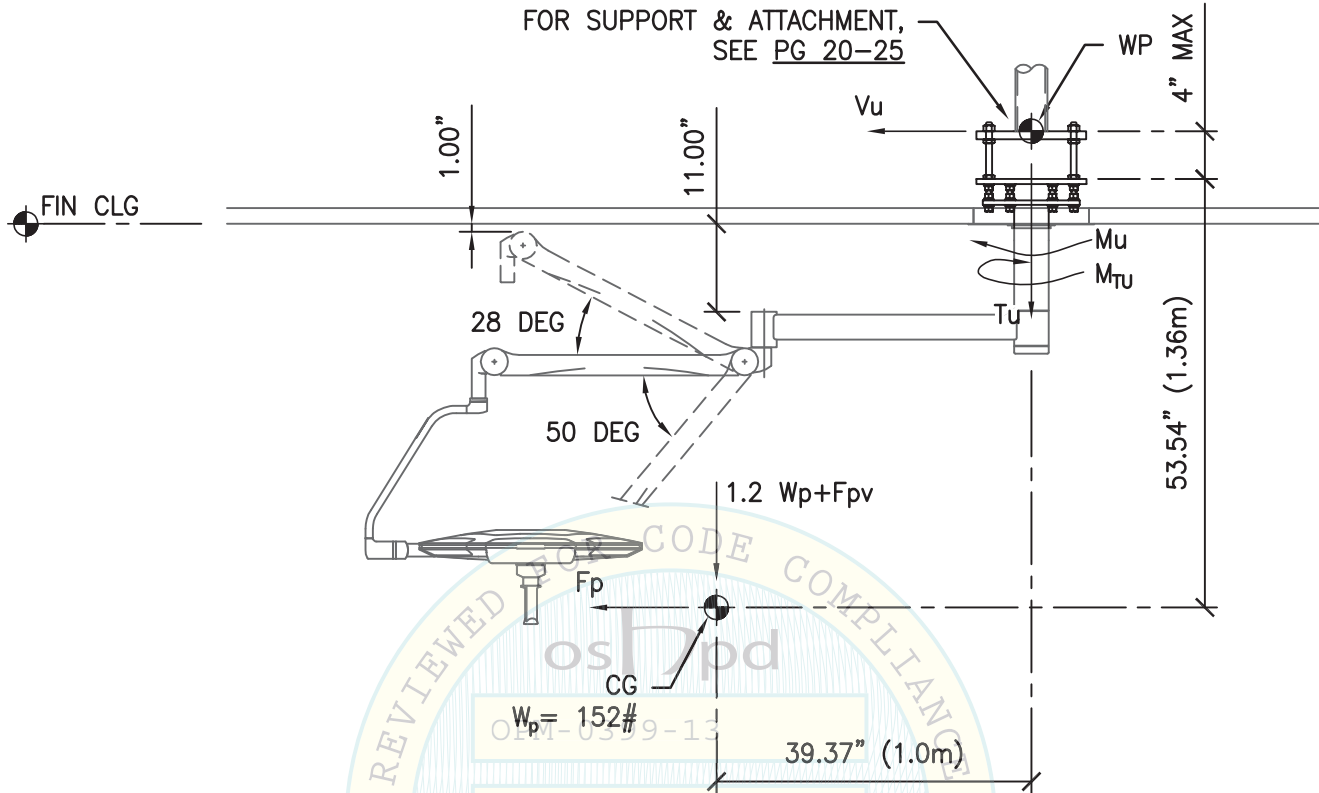


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z/h	MAX S_{ps}	T_u (lbs)	V_u (lbs)	M_u (in-lbs)	M_{TU} (in-lbs)
1	2.5	258	684	49,533	26,929
0.5	2.5	258	456	36,413	17,953

LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

1. CG WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: SINGLE HYBRID ARM SYSTEM
LIGHT

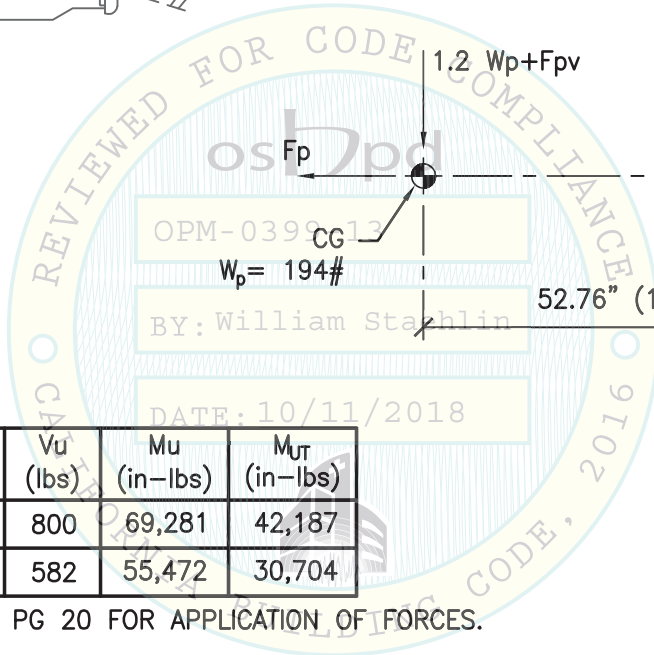


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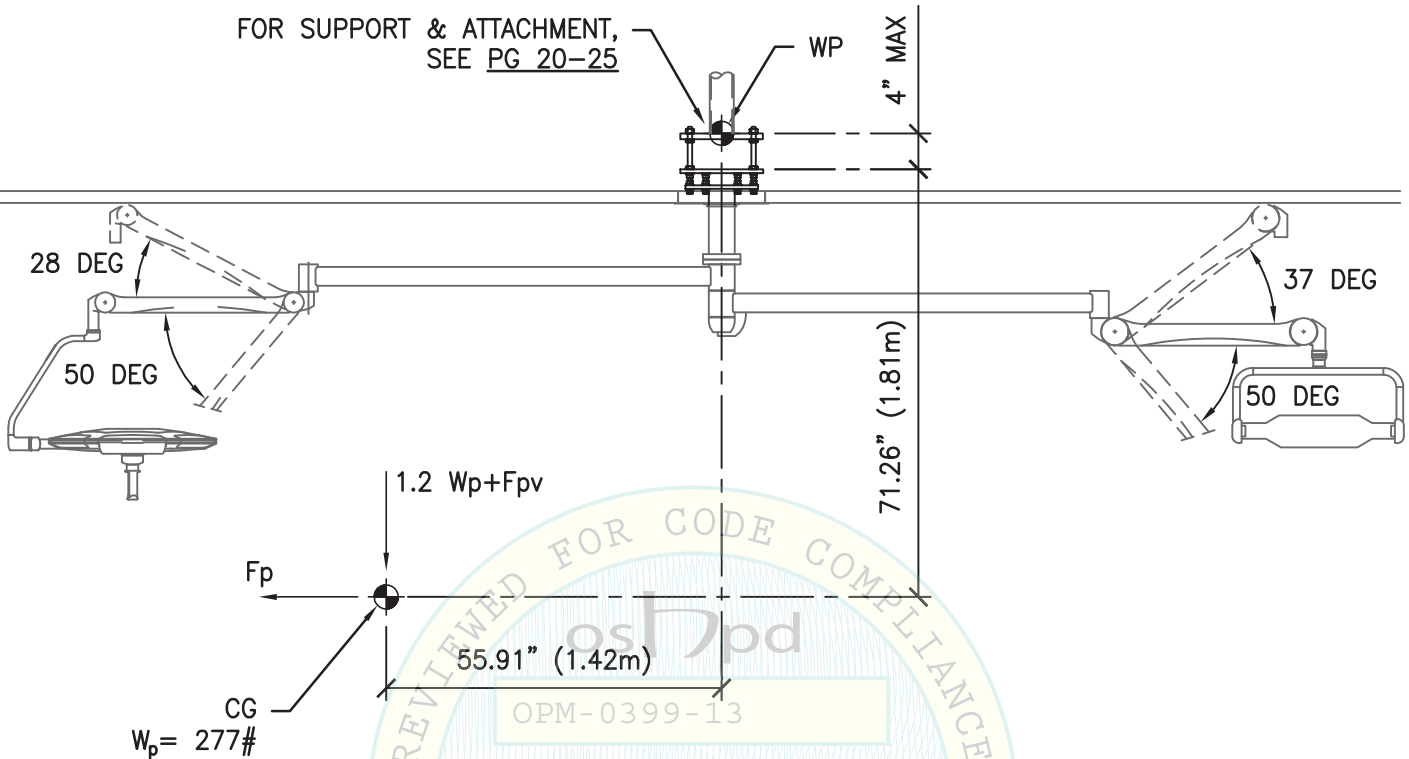


LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

1. CG WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



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z/h	MAX S_{DS}	T_u (lbs)	V_u (lbs)	M_u (in-lbs)	M_{UT} (in-lbs)
1	1.22	400	608	68,141	34,007
0.5	1.76	430	585	68,063	32,706

LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

1. CG WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: DUAL HYBRID ARM SYSTEM
LIGHT-FLAT PANEL

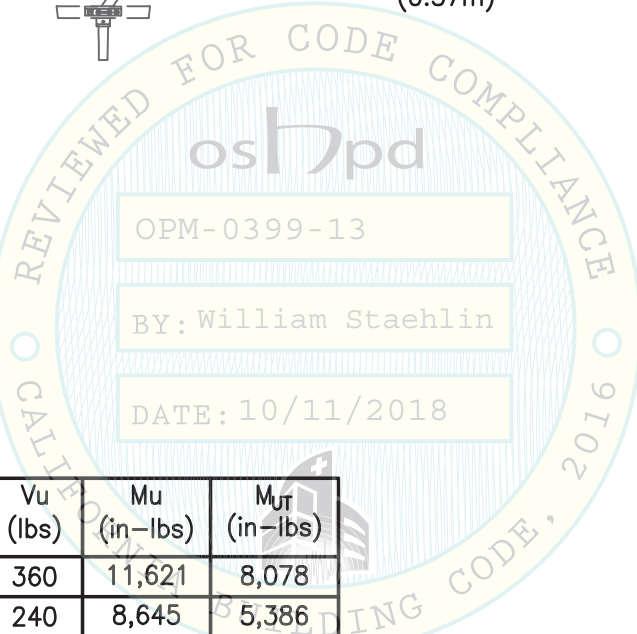
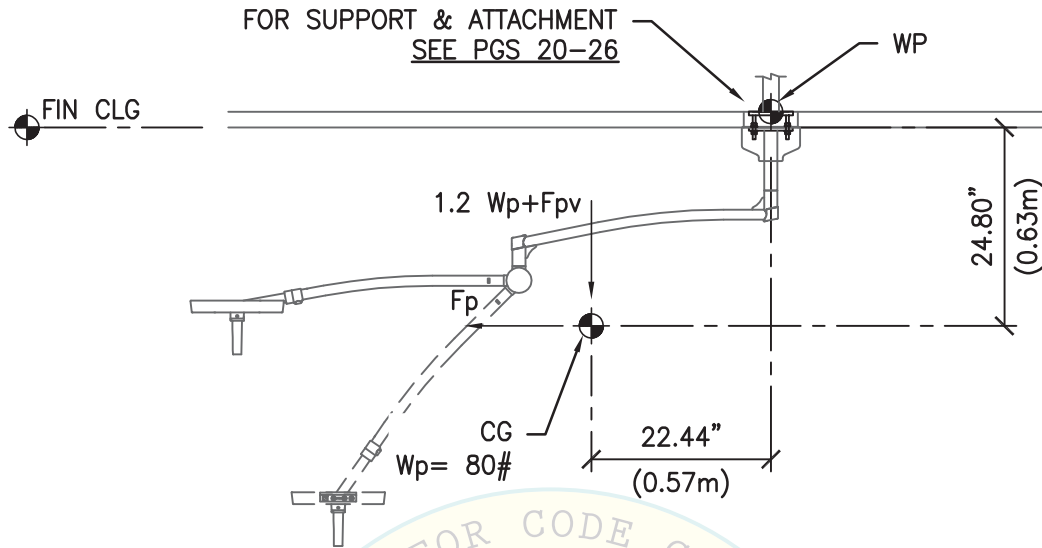


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z/h	MAX S_{DS}	Tu (lbs)	Vu (lbs)	Mu (in-lbs)	M _{UT} (in-lbs)
1	2.5	136	360	11,621	8,078
0.5	2.5	136	240	8,645	5,386

LRFD FORCES W/O Ω_o . SEE PG 20 FOR APPLICATION OF FORCES.

NOTES:

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2. SEOR FOR THE BLDG SHALL PROVIDE SUPPORTING STRUCTURE DESIGNED TO SUPPORT WTS & FORCES SHOWN, IN ADDITION TO ALL OTHER LOADS.
3. THIS OPM CONSIDERS THAT THE COMPONENT IS IN A LOCKED POSITION.



SHEET TITLE: CEILING MOUNTED EXAM LIGHT

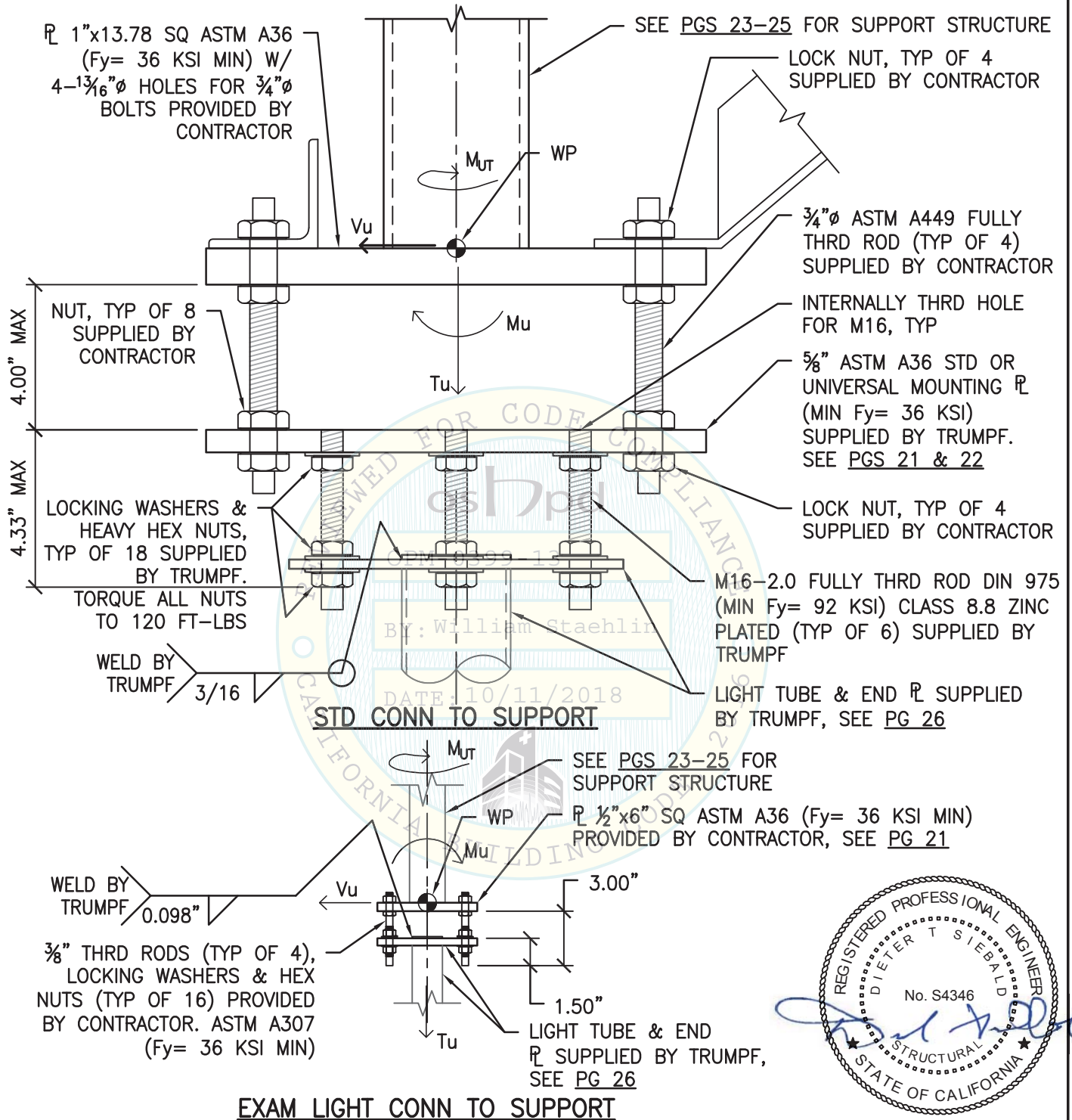


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SHEET TITLE: TYPICAL SUPPORT & ATTACHMENT DETAILS
CONNECTIONS TO SUPPORT STRUCTURE

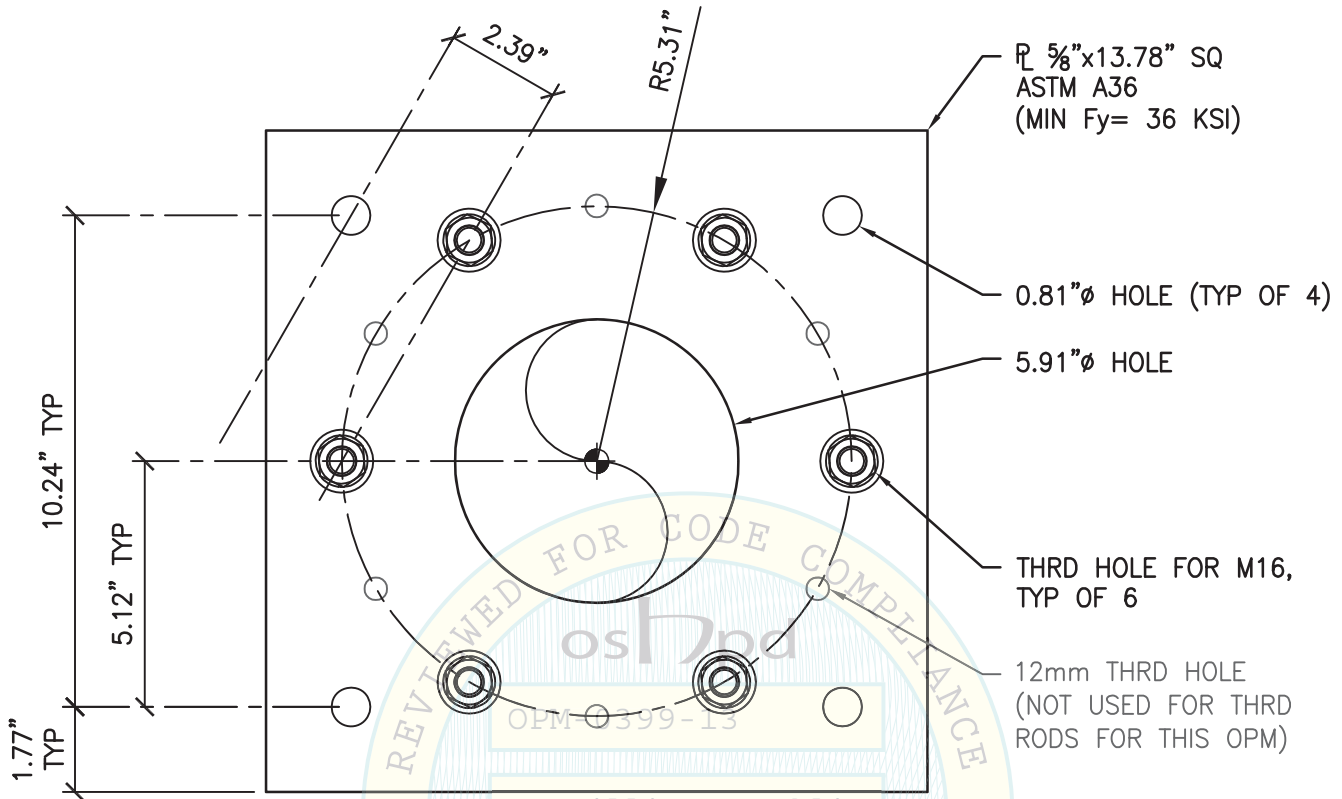


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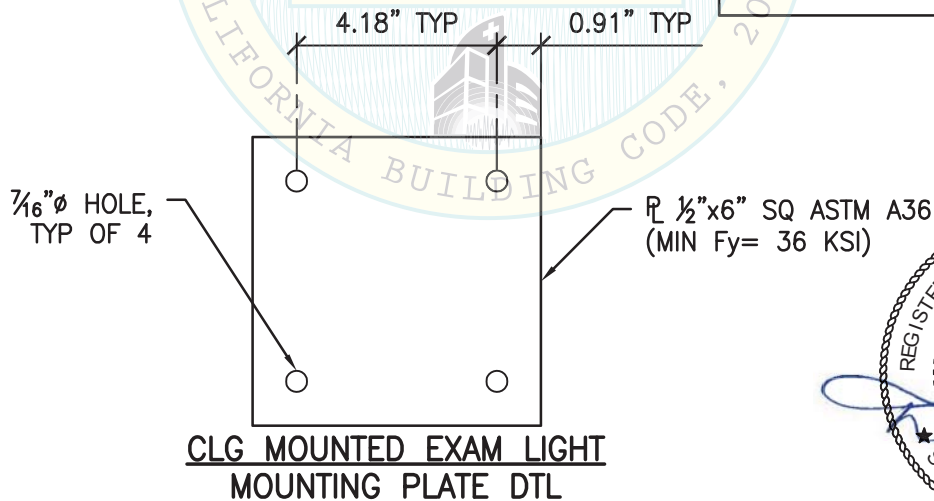
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STANDARD MOUNTING PLATE DTL

NOTE:

THE STD LIGHT MOUNTING PL IS
USED FOR NEW CONSTRUCTION



SHEET TITLE: TYPICAL SUPPORT & ATTACHMENT DETAILS
MOUNTING PLATE DETAILS

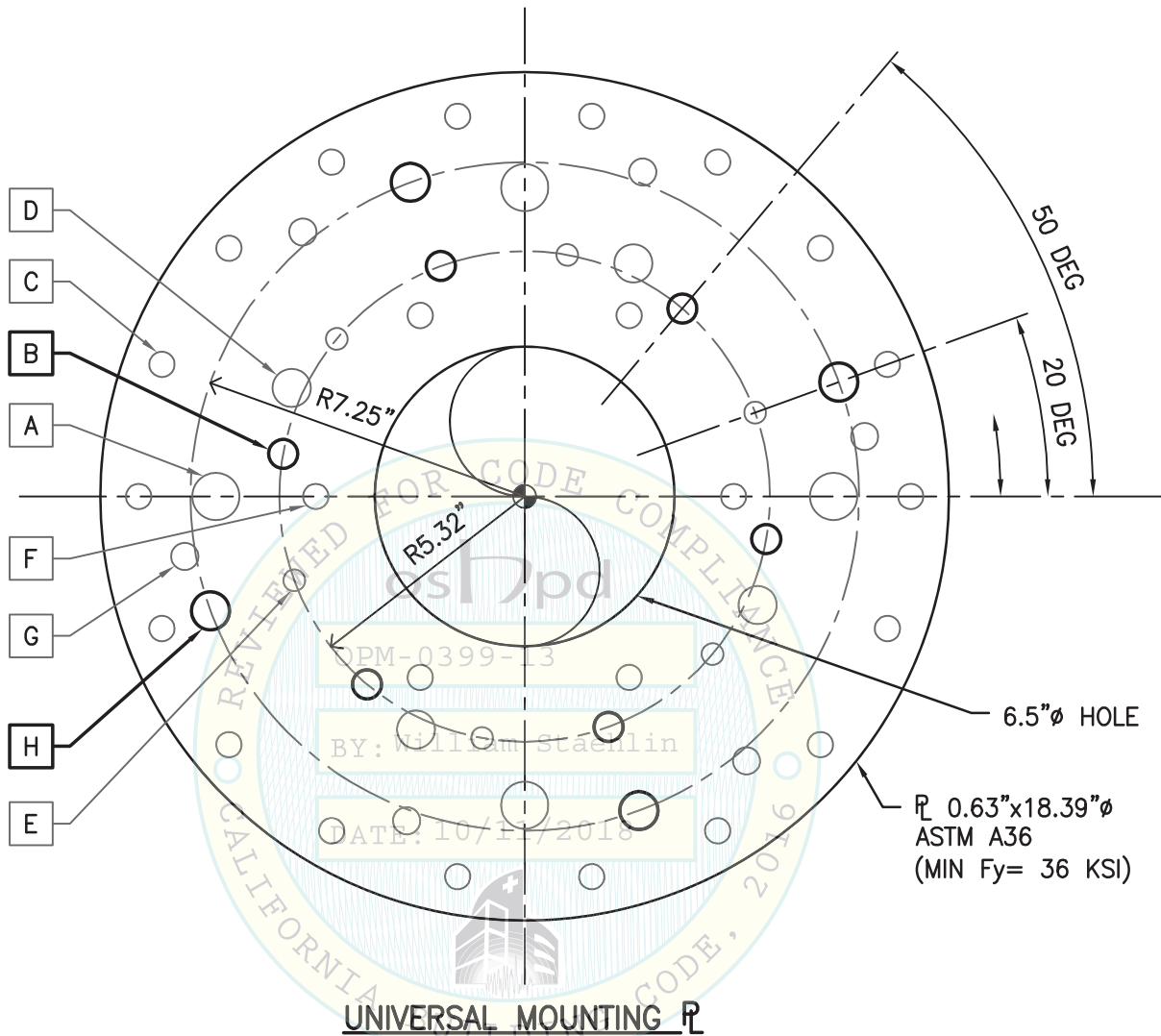


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Pattern Use	HOLE PATTERN	HOLE DIAMETER (mm)	PATTERN DIAMETER [mm (In.)]	START ANGLE FROM X-AXIS (DEGREES)	NUMBER OF HOLES (QTY.)	ANGULAR SPACING (DEGREES)
Optional Mounting Pattern	A	26	340 (13 3/8")	0	4	90
* For TRUMPF use - With Hardware	B	M16-2.0 TAPPED	270 (10 5/8")	50	6	60
Optional Mounting Pattern	C	14	425 (16 3/4")	0	18	20
Optional Mounting Pattern	D	21	283 (11 1/8")	65	4	90
For TRUMPF use	E	M12-1.75 TAPPED	270 (10 5/8")	20	6	60
Optional Mounting Pattern	F	14	230 (9")	0	6	60
Optional Mounting Pattern	G	15	380 (15")	10	6	60
* Ideal Mounting Pattern	H	21	368 (14 1/2")	20	4	90



SHEET TITLE: TYPICAL SUPPORT & ATTACHMENT DETAILS
MOUNTING PLATE DETAILS

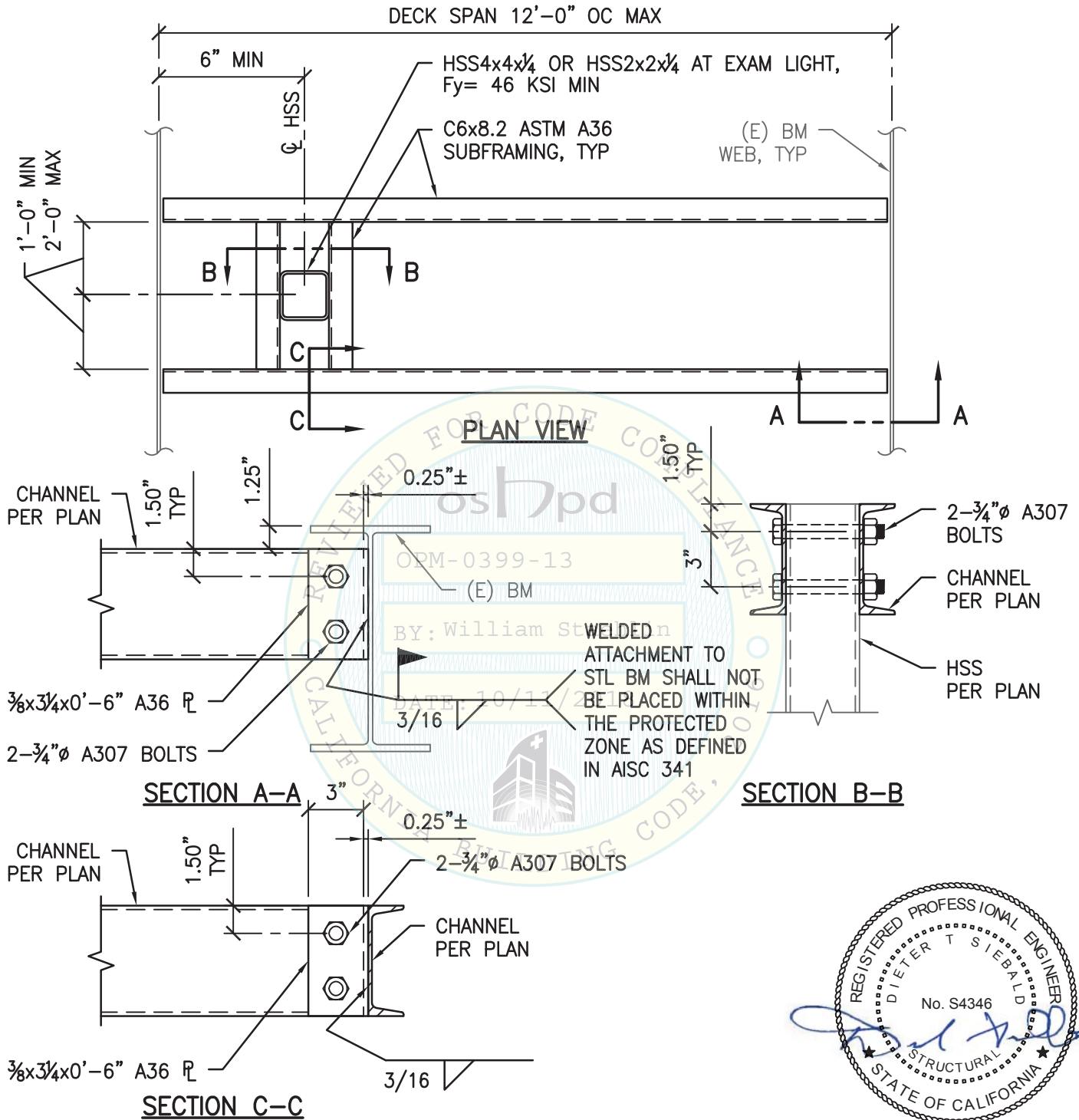


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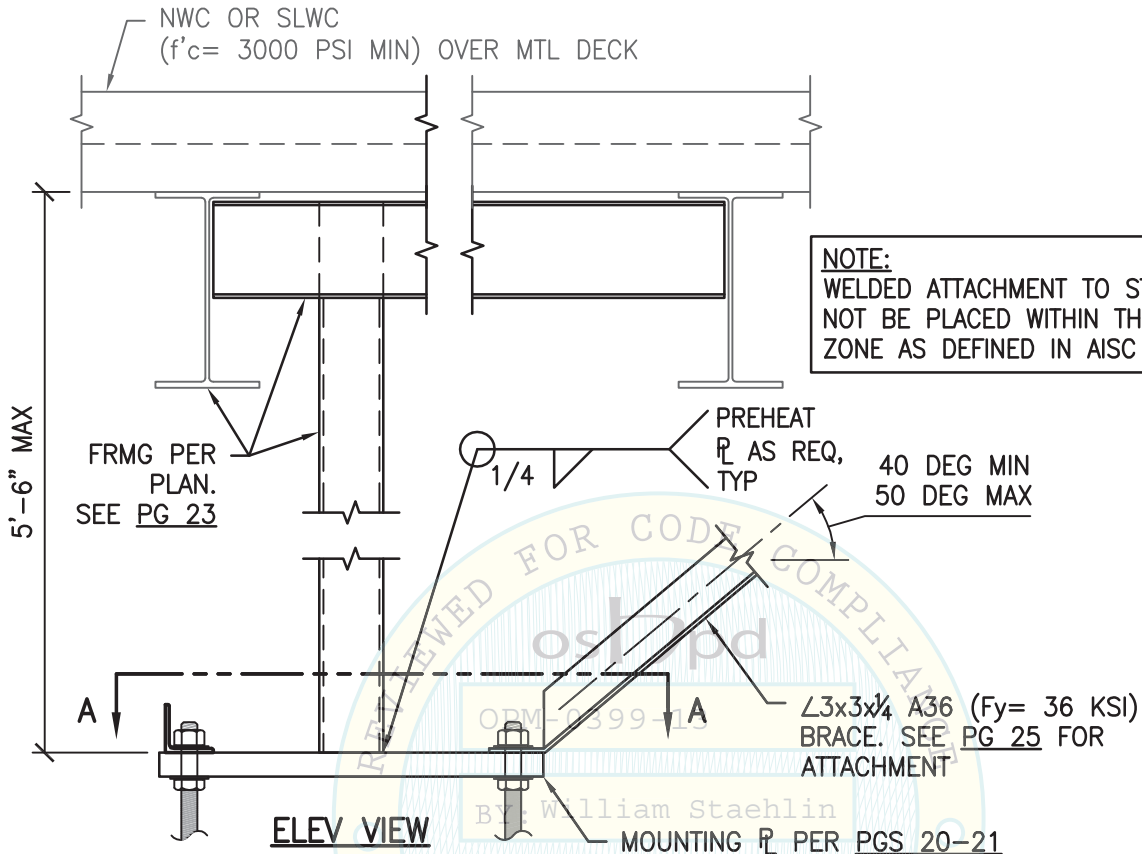
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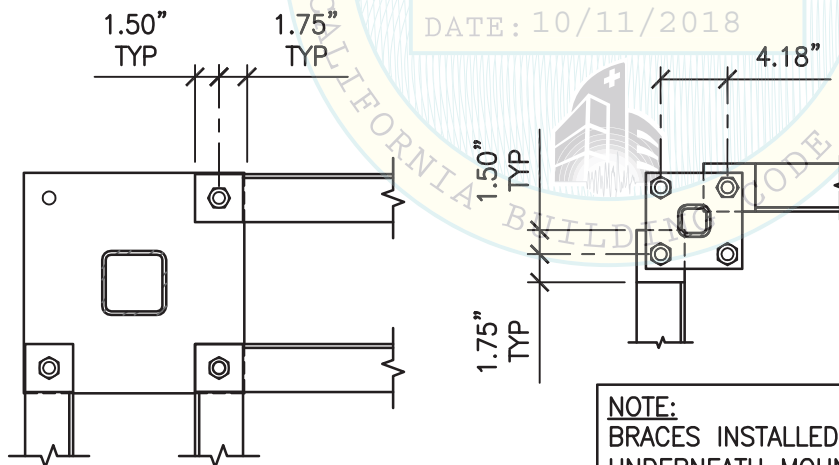


SHEET TITLE: TYPICAL SUPPORT & ATTACHMENT DETAILS
SUPPORT DETAILS

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NOTE:
WELDED ATTACHMENT TO STL BM SHALL
NOT BE PLACED WITHIN THE PROTECTED
ZONE AS DEFINED IN AISC 341.



NOTE:
BRACES INSTALLED
UNDERNEATH MOUNTING ℓ



SHEET TITLE: TYPICAL SUPPORT & ATTACHMENT DETAILS
SUPPORT DETAILS



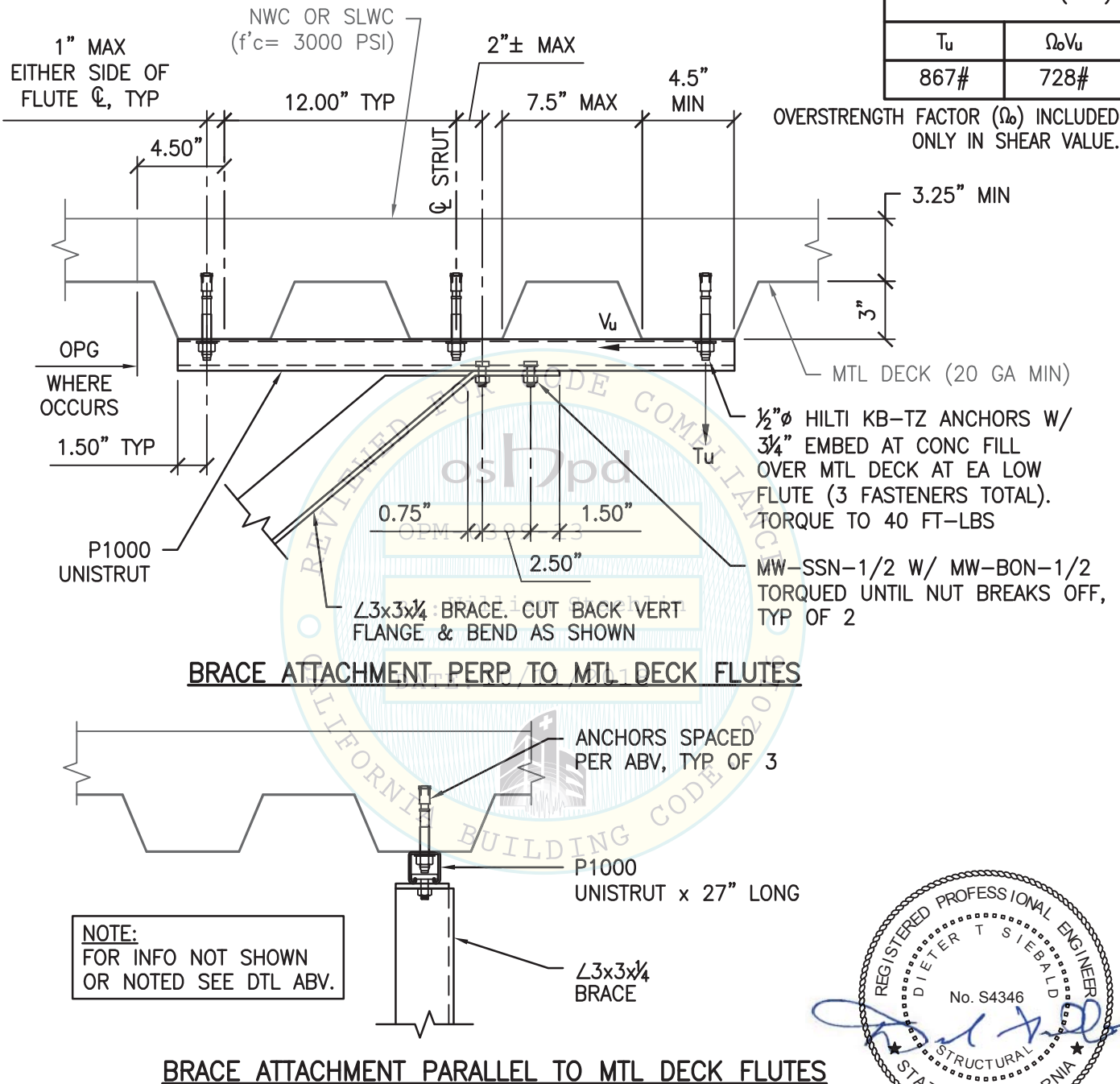
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OVERSTRENGTH FACTOR (Ω_o) INCLUDED
ONLY IN SHEAR VALUE.

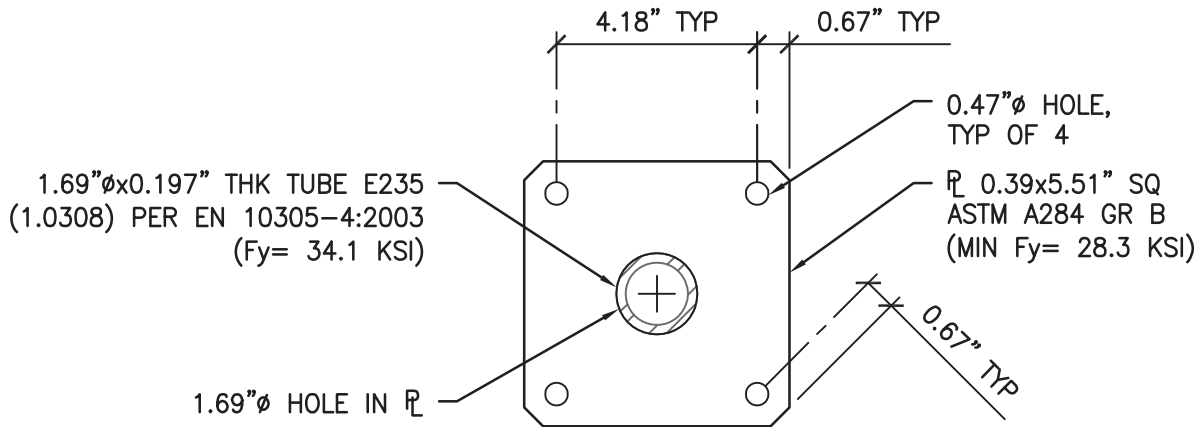


BRACE ATTACHMENT PARALLEL TO MTL DECK FLUTES

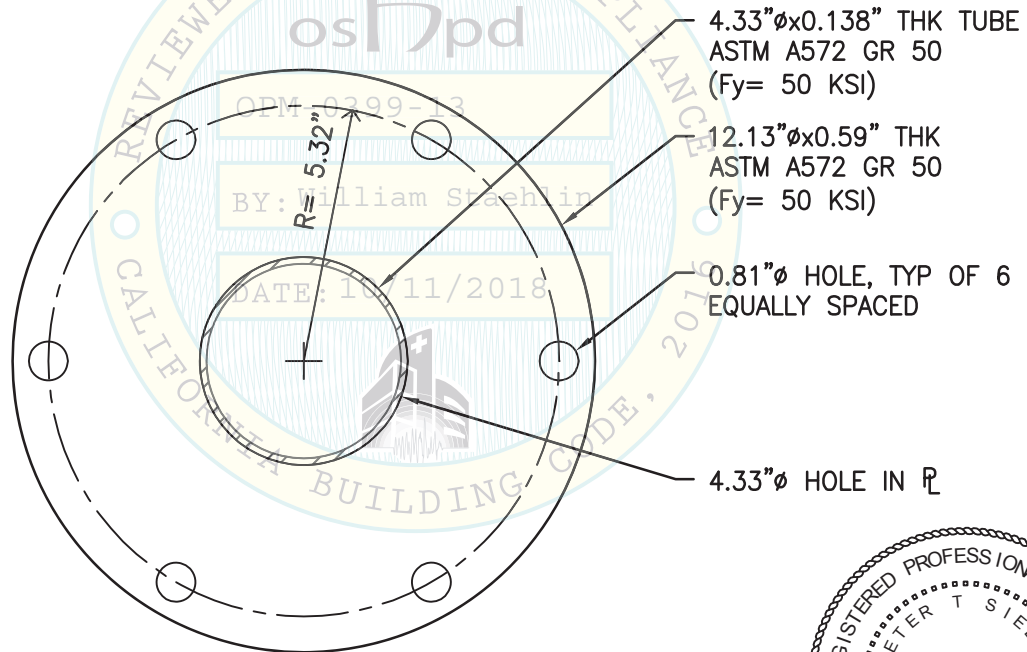


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LIGHT TUBE & END PLATE
(EXAM LIGHT ONLY)



LIGHT TUBE & END PLATE
(STANDARD)



SHEET TITLE: TYPICAL SUPPORT & ATTACHMENT DETAILS
LIGHT TUBE & END PLATE DETAILS



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