



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY
APPLICATION #: OPM-0407-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: [X] New [ ] Renewal [ ] Update to Pre-CBC 2013 OPA Number:

Manufacturer Information

Manufacturer: Skytron LLC.

Manufacturer's Technical Representative: Bob Vreeland

Mailing Address: Skytron US, 5085 Corporate Exchange Blvd SE, Grand Rapids, MI 49512

Telephone: (616) 656-1189 Email: bvreeland@skytron.us

Product Information

Product Name: Skytron Astro

Product Type: Surgical Lights

Product Model Number: AUA3-895, AUA3-1090, AUA3-1285, AUA33-895/700, AUA33-1090/895, AUA33-1285/1090, AUA3-EA-1500, AUA3-EA-2000, AUA33-EA-1500/1300, AUA33-EA-2000/1500, AUA3-EH-895, AUA3-EH-1090, AUA3-EH-1285, AUA3-EH-895/700, AUA33-EH-1090/895, AUA33-EH-1285/1090, AUA3-EH-1500, AUA3-EH-2000, AUA33-EH-1500/1300, AUA33-EH-2000/1500, LFSUAU3, LFSUAU33, LFSLFSUAU3, LFSLFSUAU33, AUA3-HY-895, AUA3-HY-1090, AUA3-HY-1285, AUA3-HY-1500

General Description: Ceiling mounted surgical lights.

Applicant Information

Applicant Company Name: ISAT Seismic Bracing

Contact Person: William V Joerger

Mailing Address: 1020 Crews Road, Suite Q, Matthews NC 28105

Telephone: 510-714-0216 Email: wvjoerger@isatsb.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: [Signature] Date: 03/01/2017

Title: Principal Structural Engineer Company Name: ISAT Seismic Bracing



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
FACILITIES DEVELOPMENT DIVISION**

**Registered Design Professional Preparing Engineering Recommendations**

Company Name: ISAT Seismic Bracing  
Name: William V Joerger California License Number: SE4545  
Mailing Address: 1020 Crews Rd, Matthews NC 28105  
Telephone: 510-714-0216 Email: wvjoerger@isatsb.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: 09-05-2017  
Print Name: William Staehlin  
Title: SSE  
Condition of Approval (if applicable): \_\_\_\_\_

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





# INTERNATIONAL SEISMIC APPLICATION TECHNOLOGY

A Division of Tomarco Contractor Specialties

## Submittal Documents

OPM-0407-13

## OSHPD OPM-0407-13

# SUPPORT AND ATTACHMENT CONSTRUCTION DRAWINGS ASTRO SURGICAL LIGHTS

**SKYTRON, LLC**

ISAT  
1020 Crews Road Suite Q  
Matthews, N.C. 28105  
704-841-4080



*WV 26 Jun 17*

FILE NO.: CLT-0217-023

***"Empowered by Experience"***

REV 2

OSHPD OPM-0407-13 DWG - i



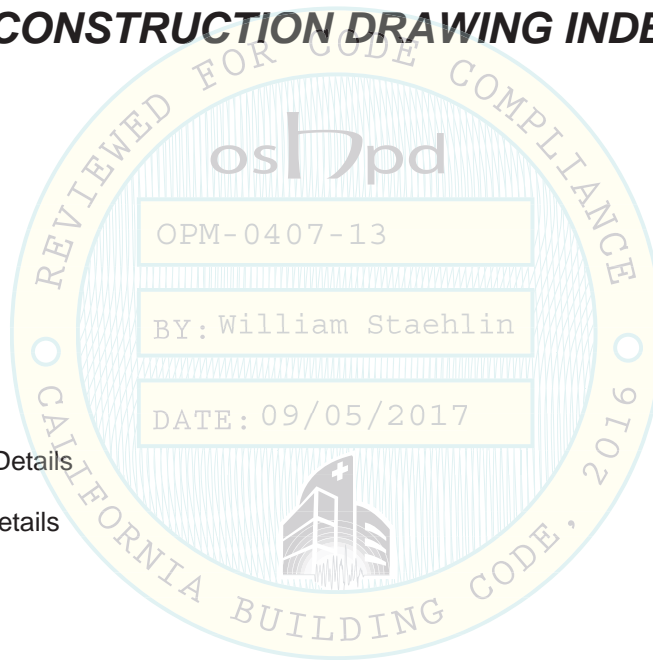
# OSHPD OPM-0407-13

## SKYTRON ASTRO SURGICAL LIGHTS

### CONSTRUCTION DRAWING INDEX

#### INDEX

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**OSHDP OPM-0407-13**

MANUFACTURE: SKYTRON

EQUIPMENT TYPE: SURGICAL LIGHTS


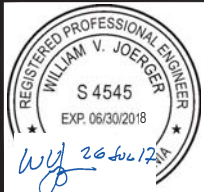
**GENERAL NOTES:**

1. THIS OSHDP PREAPPROVAL 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. SEISMIC CRITERIA USED:  $S_{DS} = 2.5$   $I_p = 1.5$   $a_p = 1.0$   $R_p = 1.5$   $z/h \leq 1.0$   $F_pH = 3.0$  AND  $F_pV = 0.50$ .
3. SUPPORT AND ATTACHMENT FORCES ARE DETERMINED USING ASCE 7-10 CHAPTER 13 "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". AN OVERSTRENGTH FACTOR  $\Omega_0 = 1.5$  IS USED FOR CONCRETE MATERIALS PER ASCE 7-10 SUPPLEMENT 1 TABLE 13.6-1. LOADS SHOWN ARE STRENGTH DESIGN LOADS PER CBC 2016 SECTION 1909A.
4. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
5. STEEL MATERIALS: ANGLES AND PLATE ASTM A36, HSS ASTM A500 GRADE B ( $F_y = 46$  KSI), PIPE ASTM A53 GRADE B ( $F_y = 35$  KSI), WELDING ELECTROIDS E70XX, ALL THREAD ROD AND BOLTS ASTM A193-B7 ( $F_u = 125$  KSI). BOLTS SUPPLIED BY SKYTRON ARE ASTM A193 B7.
6. CONCRETE SLABS:
  - a. FOR ELEVATED SOLID CONCRETE SLABS: 6" THICKNESS OF NORMAL WEIGHT CONCRETE WITH 4000 PSI MINIMUM STRENGTH.
  - b. METAL DECK: 3" DEEP COMPOSITE STEEL DECK, 20 GAGE MINIMUM, 4 1/2 INCH MINIMUM BOTTOM FLUTE WIDTH AND FLUTE SPACING OF 12", WITH 3 1/4 INCH SAND LIGHT WEIGHT CONCRETE CONCRETE COVER AT 4000 PSI MINIMUM STRENGTH.
7. POST-INSTALLED CONCRETE ANCHORS: HILTI KWIK BOLT TZ (ESR-1917) 5/8" DIAMETER x 3 3/4" MIN. HOLE DEPTH (3 1/8" EFFECTIVE EMBEDMENT) AND 65 FT-LBS INSTALLATION TORQUE.

**RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD**

1. CONFIRM THE MATERIAL PROPERTIES AND THICKNESS OF THE CONCRETE SLAB TO WHICH THE EQUIPMENT IS ATTACHED MEETS THE REQUIREMENTS OF THIS OPM.
2. PROVIDE A PLAN FOR INSPECTION OF SUPPORTS AND ATTACHMENTS AND VERIFY ITS IMPLEMENTATION.
3. CONFIRM THE SPECIFIED MINIMUM CONCRETE EDGE DISTANCES ARE MAINTAINED BASED ON THE ACTUAL EQUIPMENT LOCATION. VERIFY THAT EXISTING OR NEW ANCHORS ARE AN ADEQUATE DISTANCE FROM THIS UNIT'S ATTACHMENT.
4. VERIFY THAT THE EXISTING STRUCTURE IS ADEQUATE FOR THE IMPOSED DEAD, LATERAL AND TENSION FORCES SHOWN IN ADDITION TO ALL OTHER LOADS.
5. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH CBC 2016 AND WITH THE OPM-0407-13 DETAILS INCLUDING MATERIALS AND DIMENSIONS OF THE SUPPORT WHERE THE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN.
6. VERIFY THAT THE PROJECT SPECIFIC  $S_{DS}$  AND  $z/h$  VALUES RESULT IN SEISMIC FORCES ( $E_h$  AND  $E_v$ ) DO NOT EXCEED THE VALUES SHOWN IN THESE DETAILS.

OPM-0407-13 SKYTRON ASTRO LIGHTS GENERAL NOTES

 <b>A Division of Tomarco Contractor Specialties International Seismic Application Technology</b> 1020 Crews Road, Suite Q, Matthews, NC 28105 704-841-4080 www.isatsb.com		
 <i>WVJ 26 Jun 17</i>	<b>DRAWN BY:</b> WVJ <b>DATE:</b> 03/09/17	
	<b>REVISED BY:</b> WVJ <b>DATE:</b> 07/26/17 <b>REV NO:</b> 2	
	<table border="1"> <tr> <td><b>SCALE</b> N.T.S.</td> <td><b>PAGE</b> GEN NOTES</td> </tr> </table>	<b>SCALE</b> N.T.S.
<b>SCALE</b> N.T.S.	<b>PAGE</b> GEN NOTES	

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**OSHPD OPM-0407-13**

MANUFACTURE: SKYTRON


EQUIPMENT TYPE: SURGICAL LIGHTS

**ATTACHMENT NOTES:**

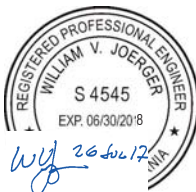
1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2016. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2016.
2. BRACE ARM INCLINATION MAY VARY FROM 30° TO 60° FROM HORIZONTAL.
3. PERIODIC SPECIAL INSPECTION PER CBC 2016 SECTION 1705A AND TABLE 1705A.3 INCLUDING VERIFICATION OF ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, ANCHOR SPACING, EDGE DISTANCES, CONCRETE MEMBER THICKNESS, TIGHTENING TORQUE, HOLE DIMENSIONS, ANCHOR EMBEDMENT AND ADHERENCE TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. IN ADDITION, FOLLOW THE PROVISIONS OF THE 2016 CALIFORNIA BUILDING CODE SECTION 1910A.5 BY CONFIRMING THE INSTALLATION TORQUE SPECIFIED BY THE MANUFACTURER. TESTING IS NOT TO OCCUR UNTIL A MINIMUM OF 24 HOURS HAS ELAPSED AFTER THE INSTALLATION OF THE SUBJECT ANCHORS. TESTING SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR. TEST 50% OF THE ANCHORS FOR EACH PIECE OF EQUIPMENT. USING A CALIBRATED TORQUE WRENCH VERIFY THE INSTALLATION TORQUE IS OBTAINED WITHIN 1/2 TURN OF THE NUT. REPORT OF TEST RESULTS ARE TO BE SUBMITTED TO THE ENFORCEMENT AGENCY. THE SEOR SHALL PROVIDE REMEDIAL ANCHORAGE DETAILS IN THE EVENT THAT AN ANCHOR FAILS TO MEET THE TEST REQUIREMENTS.
4. WELDS ARE TO BE VISUALLY INSPECTED BY A QUALIFIED WELDING INSPECTOR.
5. STRENGTH DESIGN WAS USED FOR ANCHOR FORCE CALCULATIONS INCLUDING  $\Omega$  PER ACI 318-14 WHERE REQUIRED FOR ATTACHMENT TO CONCRETE.
6. EXERCISE DUE CARE WHEN DRILLING POST-INSTALLED ANCHORS TO AVOID DAMAGING CONCRETE REINFORCEMENT OR TENDONS.
7. PROVIDE FOR FULL THREAD ENGAGEMENT OF NUT AND WASHER.

SERIES	MODELS INCLUDED IN OPM-0407-13
ASTRO STANDARD	AUA3-895, AUA3-1090, AUA3-1285, AUA33-895/700, AUA33-1090/895, AUA33-1285/1090
EXTENDED ARM - SINGLE	AUA3-EA-1500, AUA3-EA-2000
EXTENDED ARM - DUAL	AUA33-EA-1500/1300, AUA33-EA-2000/1500
EXTENDED HUB	AUA3-EH-895, AUA3-EH-1090, AUA3-EH-1285, AUA3-EH-895/700, AUA33-EH-1090/895, AUA33-EH-1285/1090
EXTENDED HUB/EXTENDED ARM	AUA3-EH-1500, AUA3-EH-2000, AUA33-EH-1500/1300, AUA33-EH-2000/1500
LFS WITH ASTRO	LFSUA3, LFSUA33
LFSLFS WITH ASTRO	LFSLFSUA3, LFSLFSUA33
HY	AUA3-HY-895, AUA3-HY-1090, AUA3-HY-1285, AUA3-HY-1500

OPM-0407-13 SKYTRON ASTRO LIGHTS ATTACHMENT NOTES



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OSHPD OPM-0407-13 DWG - 2

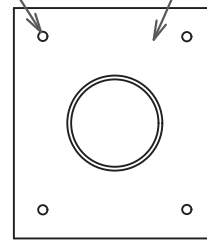
POST-INSTALLED ANCHORS  
SEE GEN. NOTE 7 ON PAGE "GEN NOTES"

(4) HILTI KWIK BOLT TZ AT TOP PL  $T_u = 670$  LBS.  
AND  $V_u = 605$  LBS. PER ANCHOR

AT EACH OF (4) BRACES USE (4) HILTI KWIK BOLT TZ  
WITH  $T_u = 930$  LBS.  $V_u = 1400$  LBS. PER ANCHOR

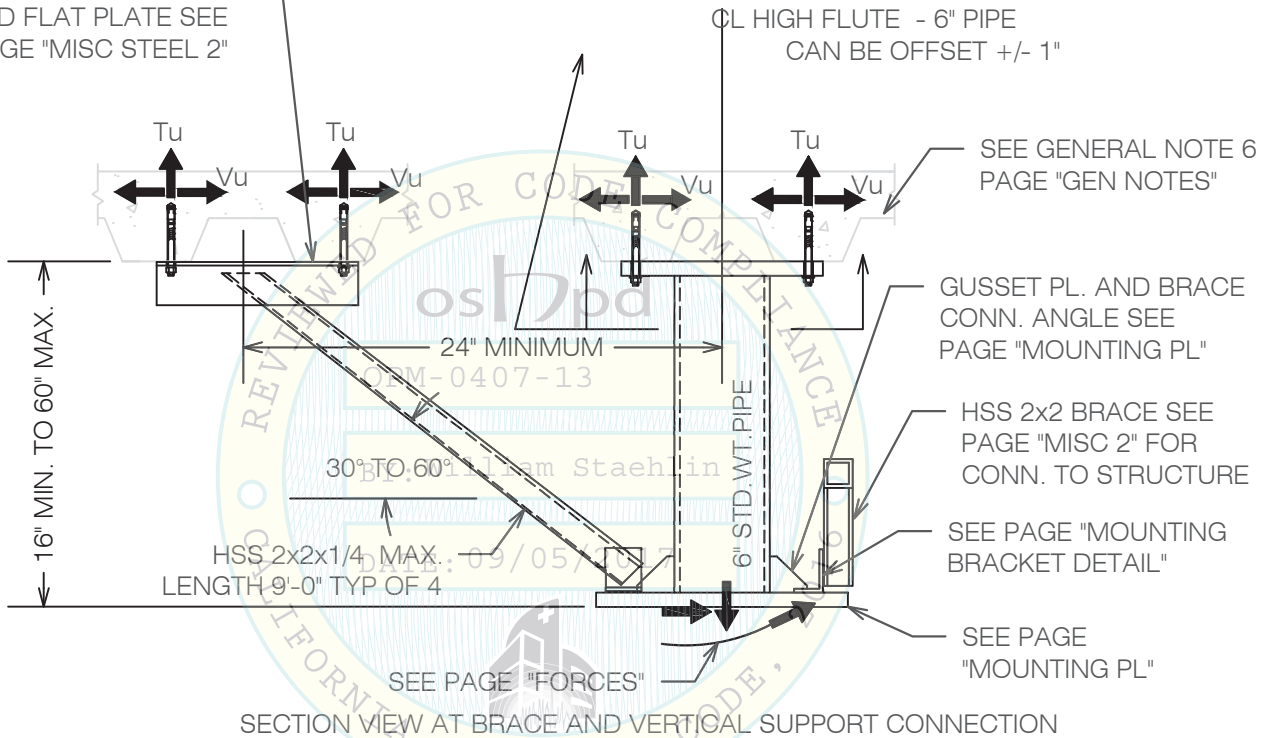
SEE PAGES "MISC STEEL 1" AND "MISC STEEL 2"

TOP MOUNTING PLATE FOR  
METAL DECK CONCRETE SLABS  
BY INSTALLATION CONTRACTOR  
SEE PAGE "TOP PLATE"



TOP PLATE PLAN VIEW

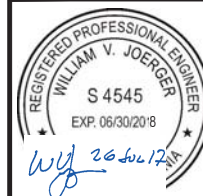
(2) L3x3x1/4 TOP BRACKET  
SEE PAGE "MISC STEEL 1"  
AND FLAT PLATE SEE  
PAGE "MISC STEEL 2"



OPM-0407-13 SKYTRON ASTRO LIGHTS AT METAL DECK SLAB



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SCALE N.T.S. PAGE METAL DECK

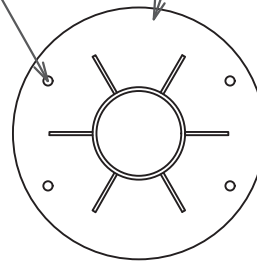
POST-INSTALLED ANCHORS  
SEE GEN. NOTE 7 ON PAGE "GEN NOTES"

(4) HILTI KWIK BOLT TZ AT TOP PL  $T_u = 670$  LBS.  
AND  $V_u = 605$  LBS. PER ANCHOR

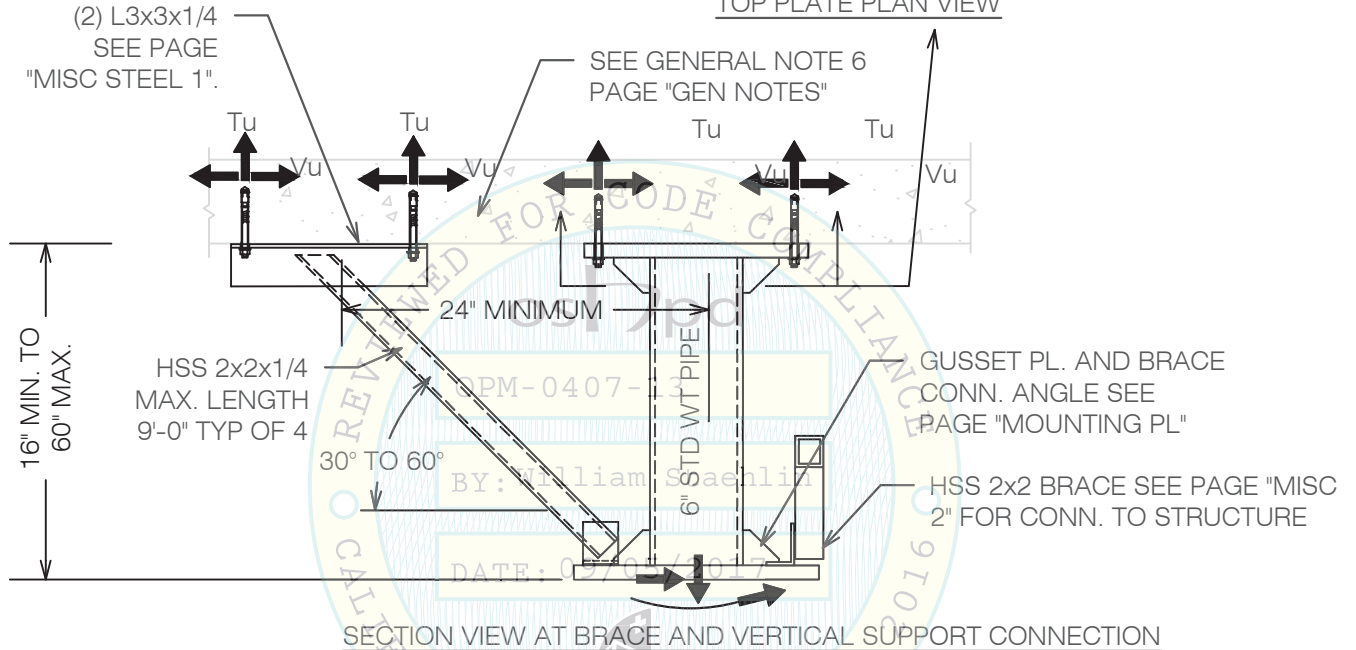
AT EACH OF (4) BRACES USE (4) HILTI KWIK BOLT TZ  
WITH  $T_u = 930$  LBS.  $V_u = 1400$  LBS. PER ANCHOR

SEE PAGES "MISC STEEL1"

TOP MOUNTING PLATE FOR  
SOLID CONCRETE SLABS BY  
INSTALLATION CONTRACTOR  
SEE PAGE "TOP PLATE"



TOP PLATE PLAN VIEW

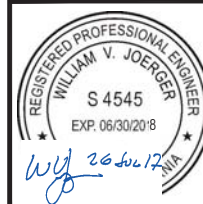


INSTALLATION DETAILS FOR ALL MODELS. ALL MATERIALS PROVIDED BY THE INSTALLATION CONTRACTOR.

OPM-0407-13 SKYTRON ASTRO LIGHTS AT SOLID CONCRETE SLAB



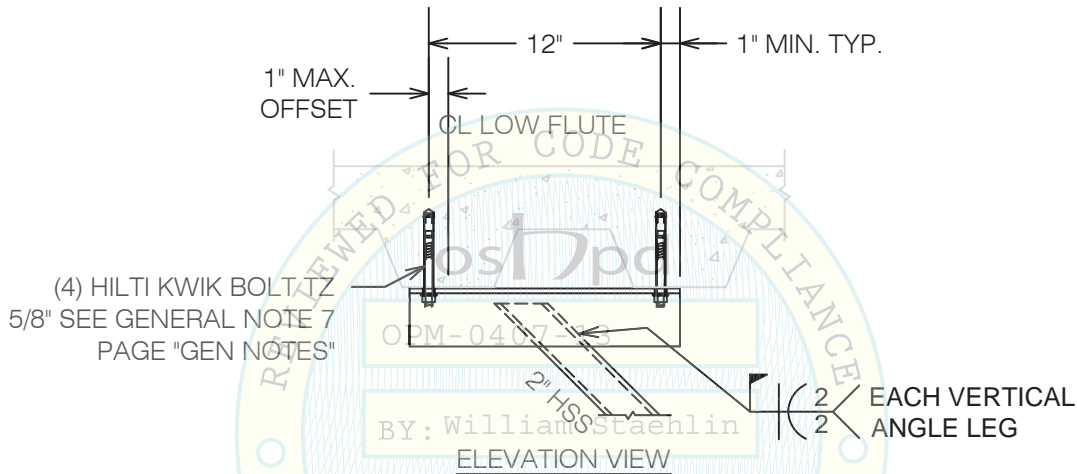
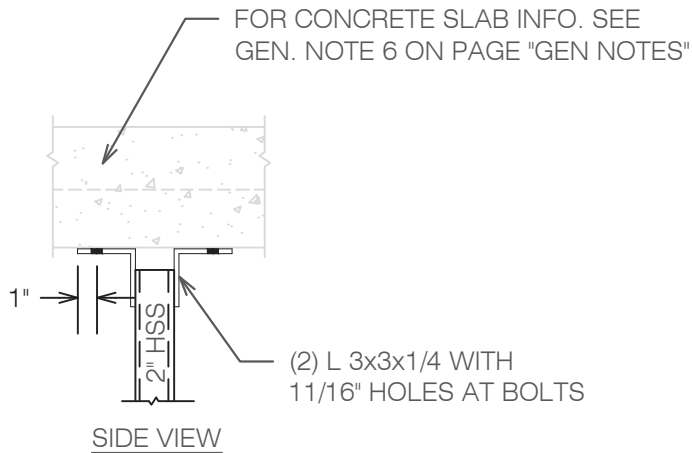
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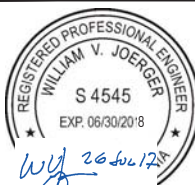
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PAGE  
SOLID SLAB



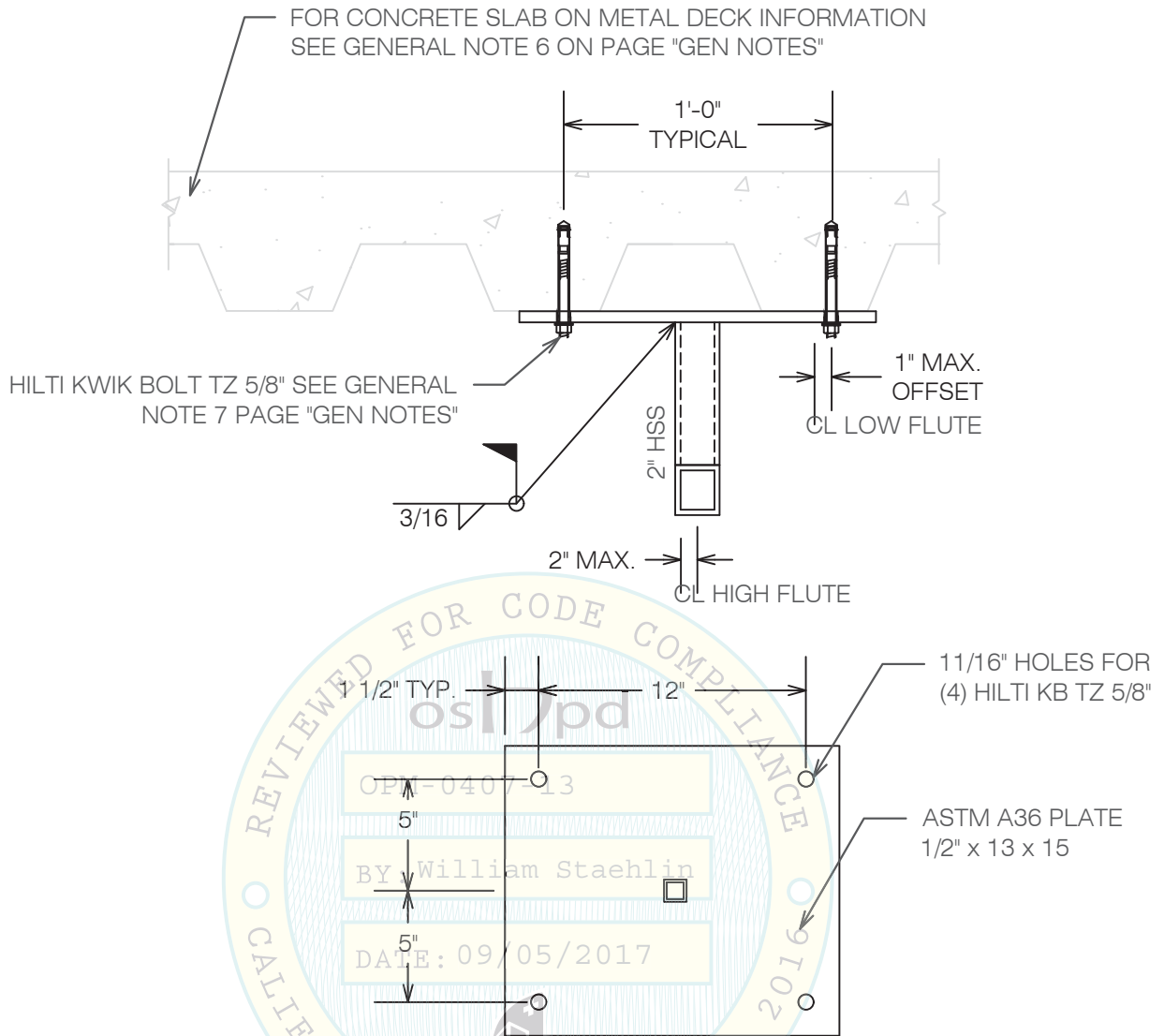
DETAIL A FOR CONNECTION OF ALL MODELS TO METAL DECK SLABS OR A SOLID CONCRETE SLAB

OPM-0407-13 SKYTRON ASTRO LIGHTS  
MISCELLANEOUS STEEL FOR SOLID CONCRETE SLABS AND METAL DECK SLABS WITH  
BRACE CONNECTION PERPENDICULAR TO METAL DECK FLUTES

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DETAIL B FOR CONNECTION OF ALL MODELS TO METAL DECK SLABS

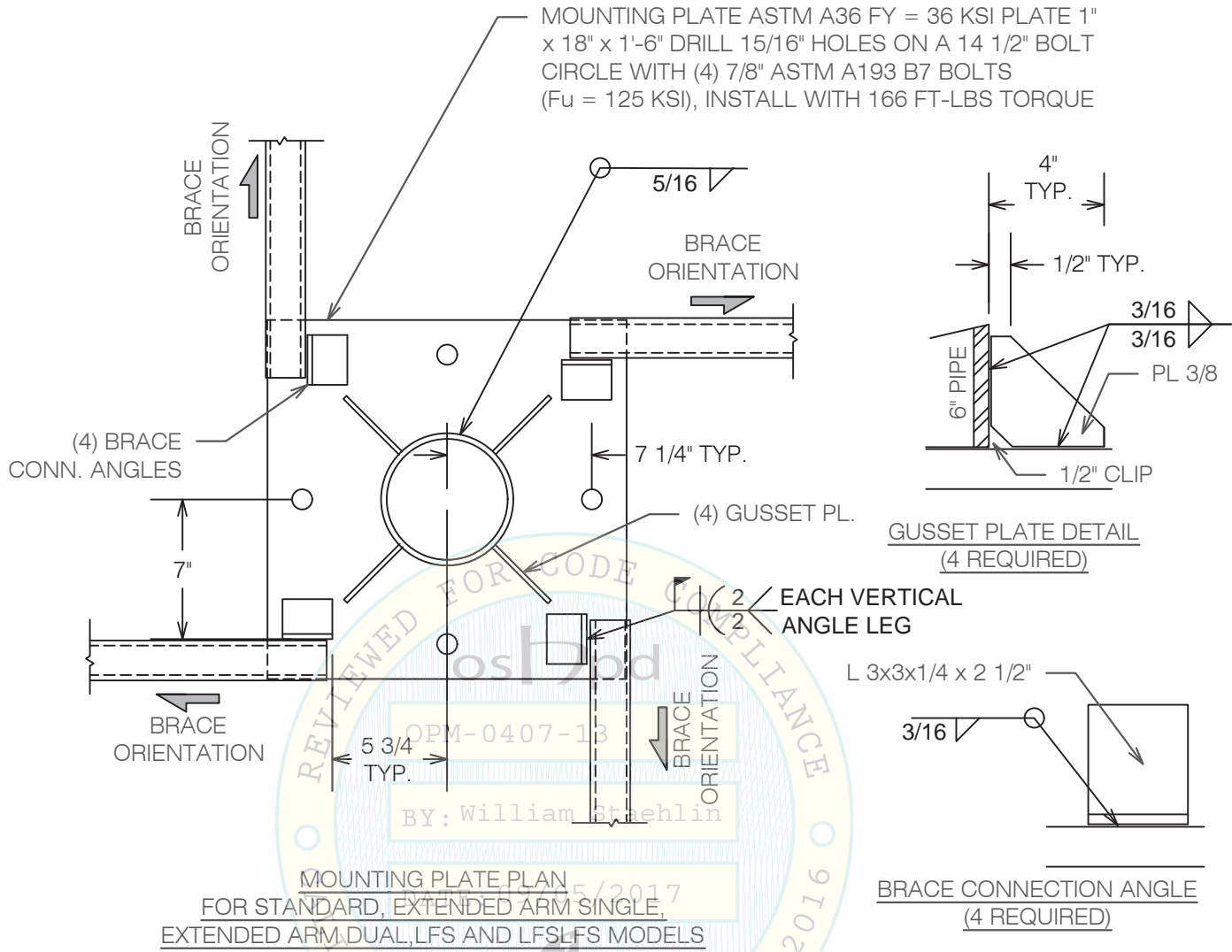
OPM-0407-13 SKYTRON ASTRO LIGHTS MISCELLANEOUS STEEL FOR METAL  
DECK SLABS BRACE CONNECTION PARALLEL TO METAL DECK FLUTES

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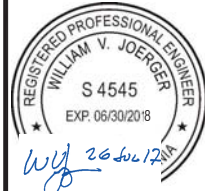


ALL MATERIALS ARE BY THE INSTALLATION CONTRACTOR.  
 WELDS TO THE PLATE TO BE SHOP WELDS. HSS BRACE WELDS ARE FIELD WELDS

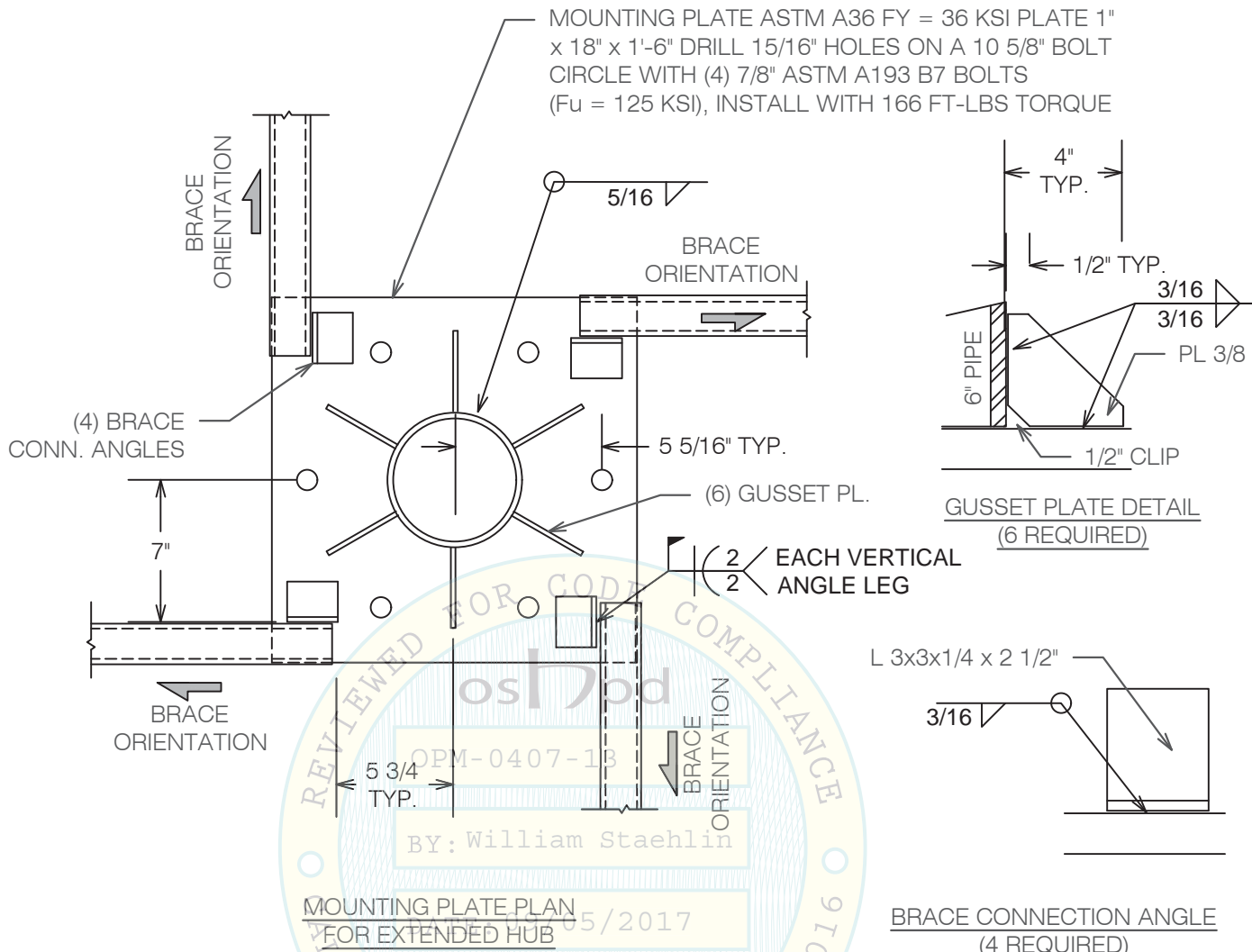
OPM-0407-13 SKYTRON ASTRO LIGHTS MOUNTING PLATE DETAILS



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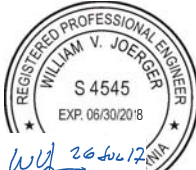


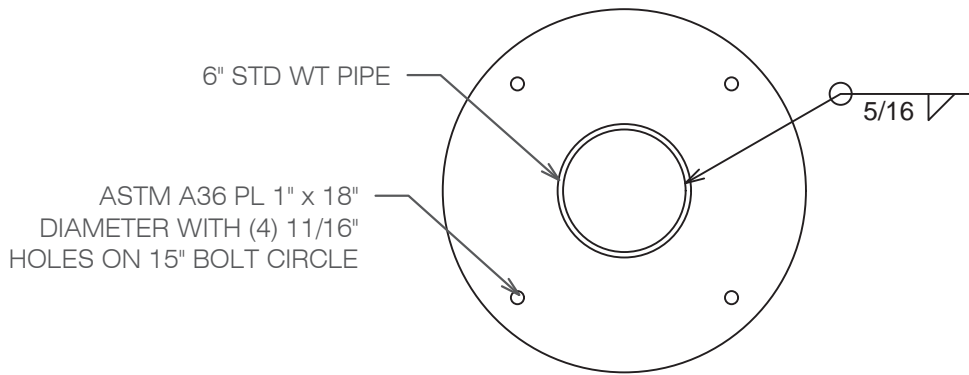
ALL MATERIALS ARE BY THE INSTALLATION CONTRACTOR.  
 WELDS TO THE PLATE TO BE SHOP WELDS. HSS BRACE WELDS ARE FIELD WELDS

OPM-0407-13 SKYTRON ASTRO LIGHTS MOUNTING PLATE DETAILS FOR EXTENDED HUB

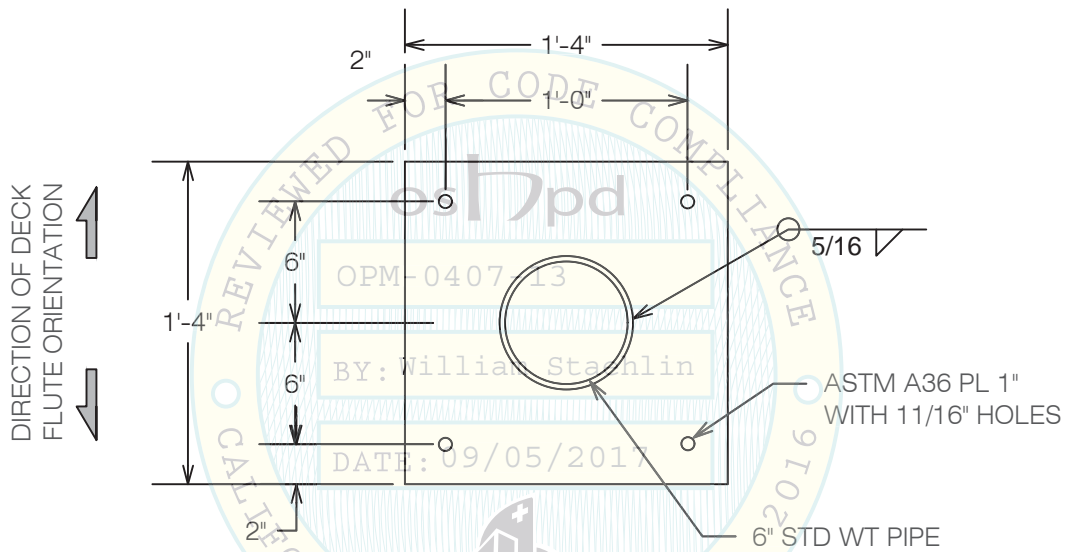


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TOP PLATE AT SOLID CONCRETE SLABS

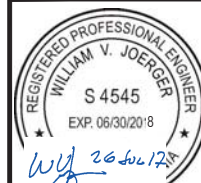


TOP PLATE AT METAL DECK SLABS

OPM-0407-13 SKYTRON ASTRO LIGHTS TOP PLATE DETAILS



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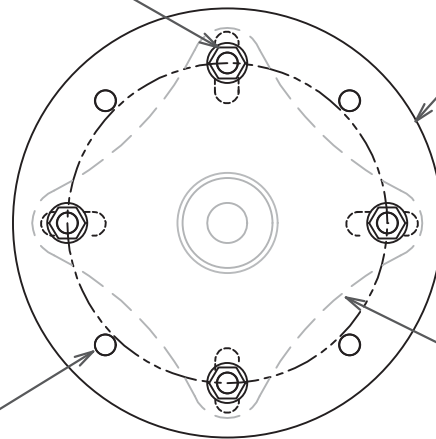
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**REV NO:** 2

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N.T.S. TOP PLATE

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(4) 7/8" SAE J429 GRADE 5 BOLTS  
(Fu = 120 KSI) BY INSTALLATION  
CONTRACTOR ON 13.354" BOLT  
CIRCLE DIAMETER FOR  
CONNECTION OF HUB PLATE TO  
THE UNIVERSAL ADAPTER PLATE.  
INSTALL WITH 150 FT-LBS TORQUE.



UNIVERSAL ADAPTER PLATE  
7/8" x 18" DIAMETER ASTM A36  
(BY SKYTRON)

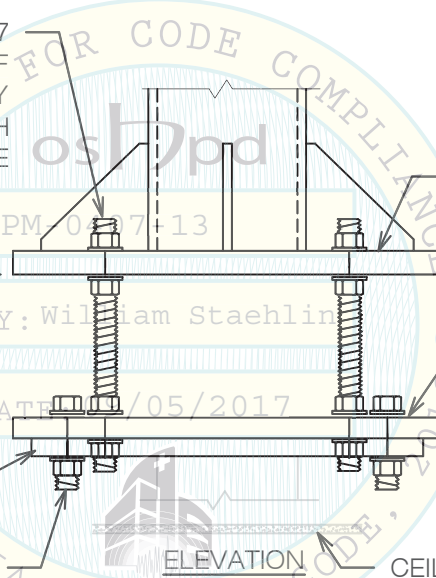
(4) 15/16" HOLES SEE PAGE  
"MOUNTING PLATE"

DUCTILE IRON CASTING HUB PL  
BELOW (BY SKYTRON) JIS G3101  
SS400; Fy = 34 KSI  
STD HUB OR CUSTOM LONG  
DOUBLE HUB

PLAN AT ADAPTER PLATE

BY INSTALLATION  
CONTRACTOR

(4) 7/8" ASTM A193 B7  
BOLTS WITH (4) SETS OF  
WASHERS AND HEAVY  
HEX NUTS. INSTALL WITH  
200 FT-LBS TORQUE



SEE PAGE "MOUNTING PL"

UNIVERSAL ADAPTER  
PLATE BY SKYTRON

USE THIS DETAIL FOR  
EXTENDED ARM SINGLE,  
EXTENDED ARM DUAL,  
LFS AND LFSLFS MODELS

HUB PLATE BY SKYTRON  
(SEE PLAN FOR MAT'L)

(4) 7/8" SAE J429 BOLTS

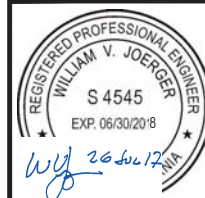
CEILING BELOW - ELEVATION VARIES

OPM-0407-13 SKYTRON ASTRO LIGHTS CONFIGURATION 1

HUB PLATE AND UNIVERSAL ADAPTER PLATE DETAILS



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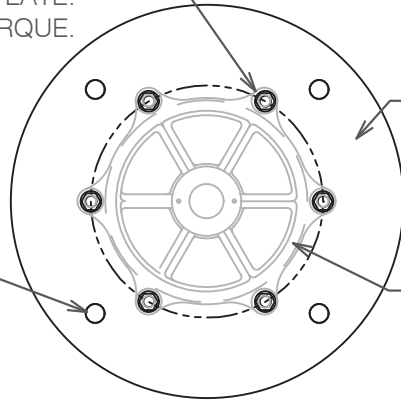


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DATE: 03/09/17  
REVISED BY: WVJ  
DATE: 07/26/17  
REV NO: 2

SCALE N.T.S. PAGE CONFIG 1

(6) 1/2" SAE J429 GRADE 5 (Fu = 120 KSI) BY INSTALLATION CONTRACTOR ON 10.63" BOLT CIRCLE DIAMETER FOR CONNECTION OF HUB PLATE TO THE UNIVERSAL ADAPTER PLATE. INSTALL WITH 44 FT-LBS TORQUE.

(4) 15/16" HOLES SEE PAGE "MOUNTING PLATE"



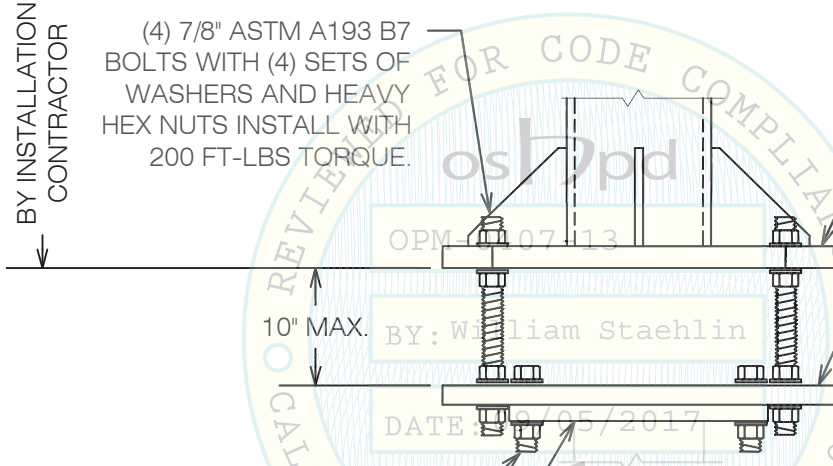
UNIVERSAL ADAPTER PLATE  
7/8" x 18" DIAMETER ASTM A36  
(BY SKYTRON)

DUCTILE IRON CASTING HUB PL  
BELOW (BY SKYTRON) JIS G3101  
SS400; Fy = 34 KSI

PLAN AT ADAPTER PLATE

BY INSTALLATION CONTRACTOR

(4) 7/8" ASTM A193 B7 BOLTS WITH (4) SETS OF WASHERS AND HEAVY HEX NUTS INSTALL WITH 200 FT-LBS TORQUE.



SEE PAGE "MOUNTING PL"

UNIVERSAL ADAPTER PLATE BY SKYTRON

USE THIS DETAIL FOR STANDARD MODELS

(6) 1/2" SAE J429 GRADE 5 BOLTS

HUB PLATE BY SKYTRON (SEE PLAN FOR MAT'L)

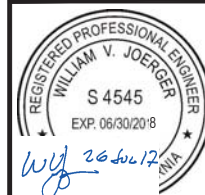
ELEVATION

CEILING BELOW - ELEVATION VARIES

OPM-0407-13 SKYTRON STELLAR XL CONFIGURATION 2  
HUB PLATE AND UNIVERSAL ADAPTER PLATE DETAILS



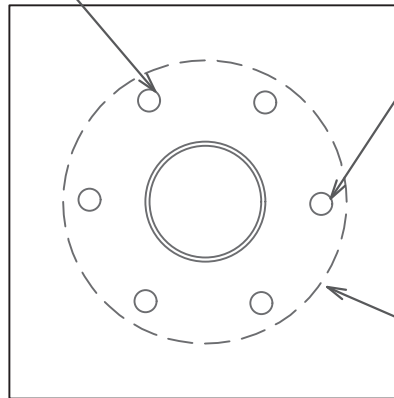
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(6) 7/8" SAE J429 GRADE 5 (Fu = 120 KSI) BOLTS BY INSTALLATION CONTRACTOR ON 10.63" BOLT CIRCLE DIAMETER FOR CONNECTION OF HUB PLATE TO THE MOUNTING PLATE. INSTALL WITH 150 FT-LBS TORQUE.

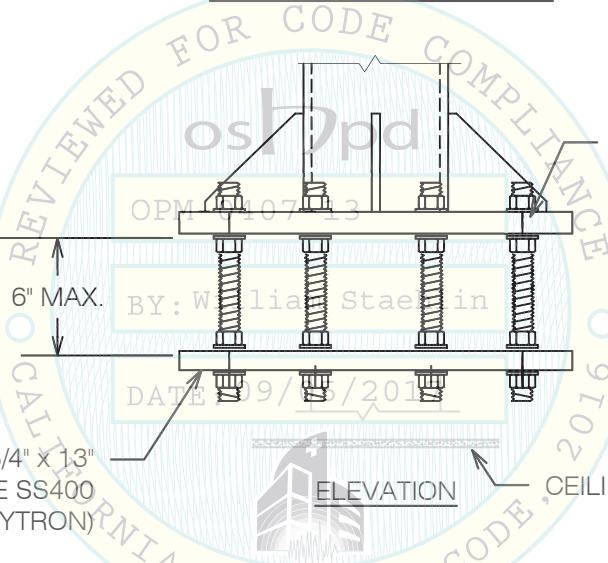


(6) 15/16" HOLES SEE PAGE "EXT HUB PL"

EXTENDED HUB PLATE BELOW (BY SKYTRON)

PLAN AT MOUNTING PLATE

BY INSTALLATION CONTRACTOR



SEE PAGE "EXT HUB PL"

REVIEWED FOR CODE COMPLIANCE  
 OPM-0407-13  
 BY: William Staehlin  
 DATE: 09/15/2017  
 CALIFORNIA STATE BOARD OF PROFESSIONAL ENGINEERS  
 REGISTERED PROFESSIONAL ENGINEER  
 WILLIAM V. JOERGER  
 S 4545  
 EXP. 06/30/2018  
 WJ 26 Jul 17


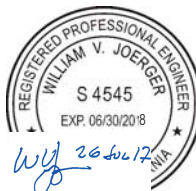
USE THIS DETAIL FOR EXTENDED HUB AND EXTENDED HUB/EXTENDED ARM MODELS

EXTENDED HUB PLATE 3/4" x 13"  
 JIS G 3101 GRADE SS400  
 Fy = 34.1 KSI MIN. (BY SKYTRON)

ELEVATION

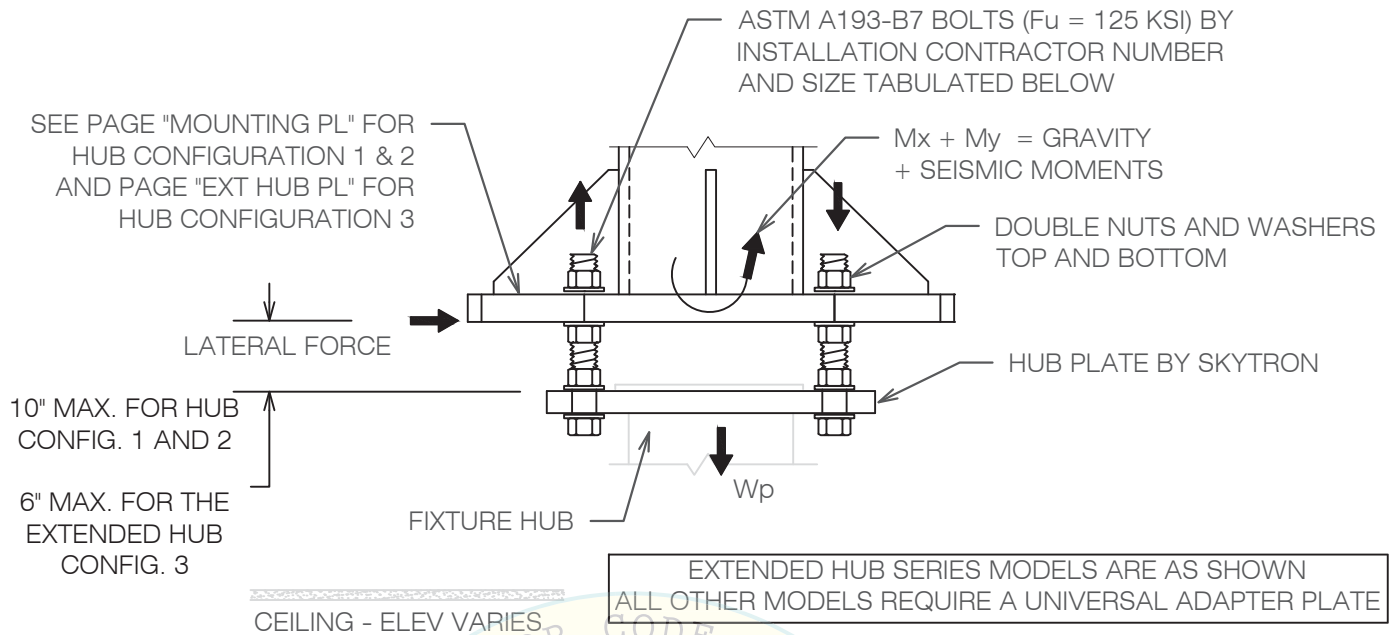
CEILING BELOW - ELEVATION VARIES

OPM-0407-13 SKYTRON ASTRO LIGHTS CONFIGURATION 3  
 HUB PLATE DETAILS

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 <i>WJ 26 Jul 17</i>	<b>DRAWN BY:</b> WVJ <b>DATE:</b> 03/09/17	
	<b>REVISED BY:</b> WVJ <b>DATE:</b> 07/26/17 <b>REV NO:</b> 2	
	<table border="1"> <tr> <td><b>SCALE</b> N.T.S.</td> <td><b>PAGE</b> CONFIG 3</td> </tr> </table>	<b>SCALE</b> N.T.S.
<b>SCALE</b> N.T.S.	<b>PAGE</b> CONFIG 3	

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EXTENDED HUB SERIES MODELS ARE AS SHOWN  
ALL OTHER MODELS REQUIRE A UNIVERSAL ADAPTER PLATE

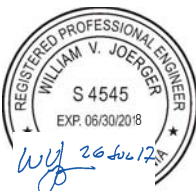
Equipment Data						Seismic Design Forces at Ultimate Loads			
Model Series	Model Number Used for Design	Hub Conf. No.	Bolts at at Hub	Bolts at Mount. Pl.	Weight at 1g lbs.	Vertical Force DL + FpV lbs.	Lateral Force FpH x Wp lbs.	Mx ft.-lbs.	My ft.-lbs.
ASTRO STANDARD	AUA3-1285	2	(6) 1/2"	(4) 7/8"	182	309	546	1,335	1,588
EXTENDED ARM SINGLE	AUA33-1285/1090	1	(4) 7/8"	(4) 7/8"	133	226	399	1,232	1,077
EXTENDED ARM DUAL	AUA33-EA-2000/1500	1	(4) 7/8"	(4) 7/8"	231	393	693	2,030	2,018
EXTENDED HUB	AUA33-EH-1285/1090	3	(6) 7/8"	---	182	309	546	1,336	3,130
EXTENDED HUB/ARM	AUA33-EH-2000/1500	3	(6) 7/8"	---	229	389	687	2,042	3,786
LFS WITH ASTRO	LFSUAUA33	1	(4) 7/8"	(4) 7/8"	306	520	918	2,206	2,916
LFLSFS WITH ASTRO	LFLSUAUA33	1	(4) 7/8"	(4) 7/8"	415	706	1,245	2,896	4,075
HY	AUA3-HY-1500	1	(4) 7/8"	(4) 7/8"	136	231	408	985	1,127

WEIGHTS AND MOMENTS ARE FACTORED LOADS USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: DL = 1.2, FpV = 0.5 AND FpH = 3.0.  
Mx ARE MOMENTS IN THE HORIZONTAL AXIS DUE TO COMPONENT WEIGHT TIMES THE MAXIMUM HORIZONTAL ECCENTRICITY.  
My ARE MOMENTS IN THE HORIZONTAL AXIS DUE TO COMPONENT LATERAL FORCE TIMES THE MAXIMUM VERTICAL ECCENTRICITY.  
MODEL NUMBER TABULATED YIELDS THE WORST CASE LOADING FOR THE MODEL SERIES.  
EXTENDED HUB MODELS DO NOT HAVE A UNIVERSAL MOUNTING PLATE.  
SEE PAGE "ATTACH NOTES" FOR A LISTING OF THE MODEL NUMBERS INCLUDED WITHIN A GIVEN MODEL SERIES.

OPM-0407-13 SKYTRON ASTRO LIGHTS FORCES AND MOMENTS



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