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

OFFICE USE ONLY
APPLICATION #: OPM-0166-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: ☒ 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 Ergon II

Product Type: Hospital Ceiling Mounted Booms

Product Model Number: E2FPM48, Q2FPM36, LC2ALFX-RAY/AUT7TV-1300, ECT2FPM48/2AFC2/AUT7TV5, ETM2SCM36-PF60/2FPM48, ETM2FPM48/2EPM48, EC2FPM48/AUT7TV5, ECT2FVBM36/2AFC1/AUT5, LCT2AFC2/2AFC2/AUT7TV5

General Description: Skytron's Ergon II ceiling mounted booms are mounted from a single point of attachment. Multiple booms at different elevations are used for equipment, monitors and 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, 2013.

Signature of Applicant: WV Joerger Date: November 12, 2014

Title: Principal Structural Engineer Company Name: ISAT Seismic Bracing

Registered Design Professional Preparing Engineering Recommendations

Company Name: ISAT Seismic Bracing

Name: William V Joerger California License Number: S4545

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 no preapproved

Certification Method(s)

☐ Testing in accordance with: ☐ ICC-ES AC156 ☐ FM 1950-10

☐ Other* (Please Specify):

Equipment is considered to be rugged. OPM is for anchorage to concrete slabs.

*Use of criteria other than those adopted by the California Building Standards Code, 2013 (CBSC 2013) 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 2013 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 2013 ONLY

Signature: Date: 08-17-2015

Print Name: William Staehlin

Title: Senior Structural Engineer

Condition of Approval (if applicable):

INTERNATIONAL SEISMIC APPLICATION TECHNOLOGY

A Division of Tomarco Contractor Specialties

Submittal Documents

OSHPD OPM-0166-13

SUPPORT AND ATTACHMENT CALCULATIONS FOR SKYTRON ERGON II BOOMS

SKYTRON, LLC

ISAT
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Matthews, N.C. 28105
704-841-4080

REGISTERED PROFESSIONAL ENGINEER
WILLIAM V. JOERGER
S 4545
EXP. 06/30/2016
17 Aug 15
STRUCTURAL
CALIFORNIA

FILE NO.: CLT-1014-148 ***"Empowered by Experience"*** REV 4

OSHPD OPM-0166-13 DWG - i

INTERNATIONAL SEISMIC APPLICATION TECHNOLOGY

OSHPD OPM-0166-13

CALCULATION INDEX

INDEX

OSHPD OPM-0166-13

MANUFACTURE: SKYTRON

EQUIPMENT TYPE: CEILING MOUNTED BOOM

GENERAL NOTES:

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2013. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2013.
2. SEISMIC CRITERIA USED: S_{DS} = 2.5 I_P = 1.5 ap = 2.5 Rp = 2.5 z/h ≤ 1.0 FpH = 4.50 AND FpV = 0.50.
3. SUPPORT AND ATTACHMENT FORCES ARE DETERMINED USING ASCE 7-10 CHAPTER 13 "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". AN OVERSTRENGTH FACTOR Ω_0 = 2.5 IS USED FOR CONCRETE MATERIALS PER ASCE 7-10 SUPPLEMENT 1 TABLE 13.6-1. LOADS SHOWN ARE STRENGTH DESIGN LOADS PER CBC 2013 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, ROUND HSS ASTM A500 GRADE B (FY = 42 KSI), RECTANGULAR HSS ASTM A500 GRADE B (FY = 46 KSI), WELDING ELECTROIDS E70XX. ALL THREAD ROD ASTM A36, NUTS ASTM A563, WASHERS ASTM F436. 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 IS 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 4 3/4" MIN. HOLE DEPTH (4" 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 EXISITNG STRUCTURE IS ADEQUATE FOR THE IMPOSED DEAD, LATERAL AND TENSION FORCES SHOWN IN ADDTION TO ALL OTHER LOADS.
5. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH CBC 2013 AND WITH THE OPM-0166-13 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 (Eh AND Ev) DO NOT EXCEED THE VALUES SHOWN IN THESE DETAILS.

OPM-0166-13 SKYTRON ERGON II GENERAL NOTES

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SCALE N.T.S.	**PAGE** GEN NOTES

OSHPD OPM-0166-13

MANUFACTURE: SKYTRON

EQUIPMENT TYPE: CEILING MOUNTED BOOM

ATTACHMENT NOTES:

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2013. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2013.
2. BRACE ARM INCLINATION MAY VARY FROM 30° TO 45° FROM HORIZONTAL.
3. PERIODIC SPECIAL INSPECTION PER CBC 2013 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 2013 CALIFONIA BUILDING CODE SECTION 1913A.7.2 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 ENGORCEMENT AGENGY. THE SEOR SHALL POVIDE 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 Ω PER ACI 318-11 WHERE REQUIRED FOR ATTACHMENT TO CONCRETE.
6. EXCERCISE DUE CARE WHEN DRILLING POST-INSTALLED ANCHORS TO AVOID DAMAGING CONCRETE REINFORCEMENT OR TENDONS.

OPM-0166-13 SKYTRON ERGON 3 ATTACHMENT NOTES

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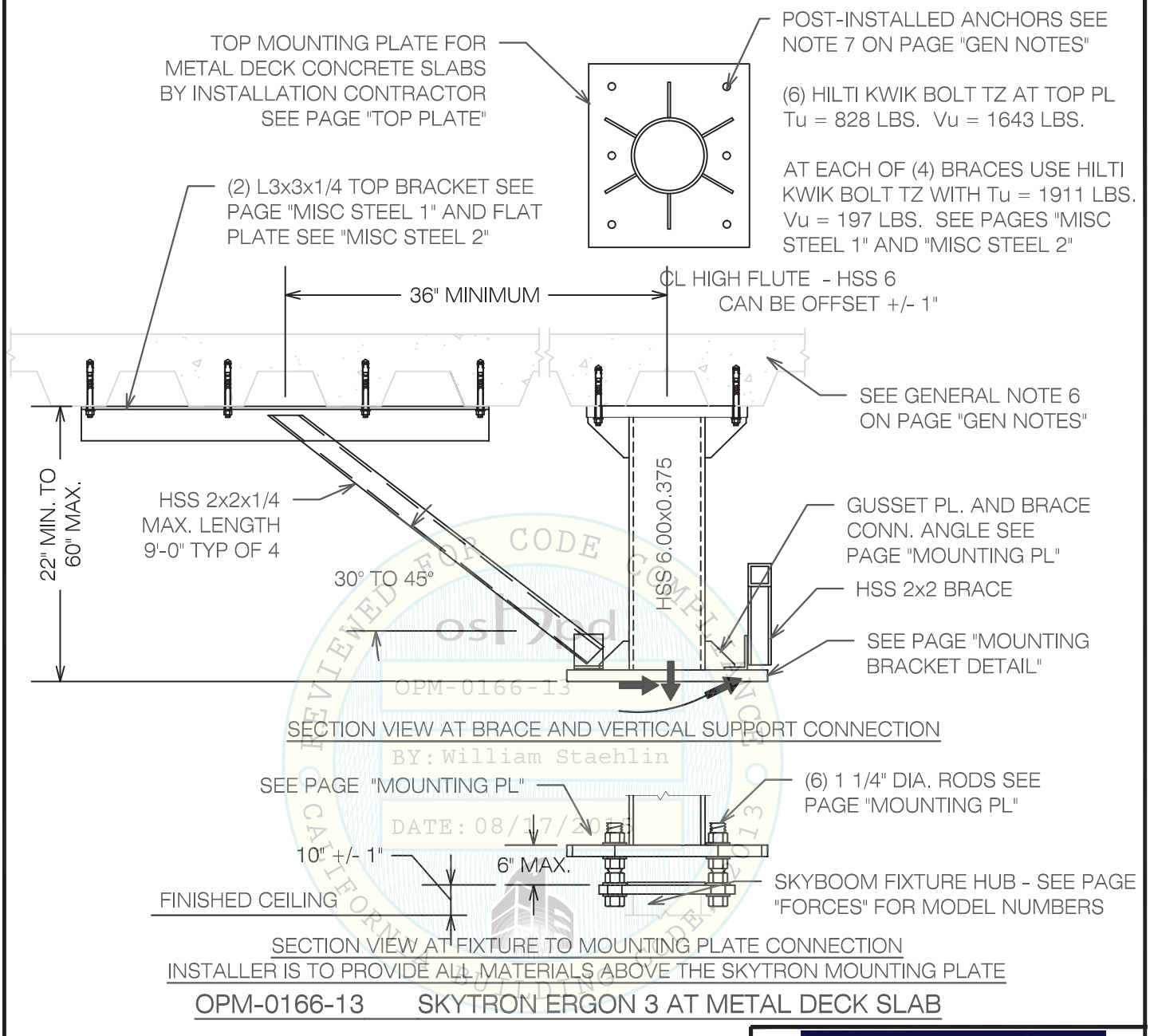
SCALE N.T.S.	**PAGE** ATTACH NOTES



OPM-0166-13 SKYTRON ERGON 3 AT METAL DECK SLAB

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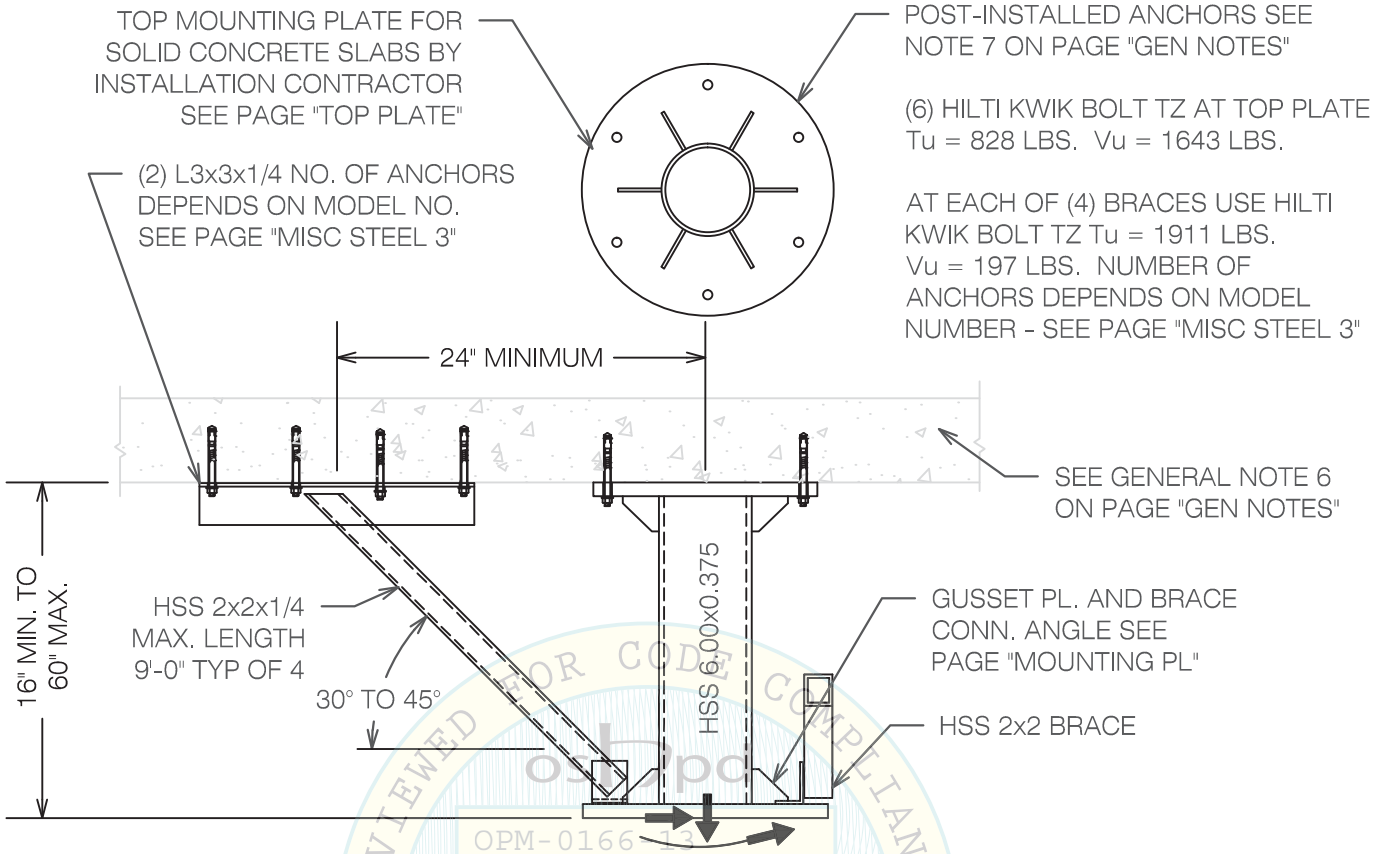
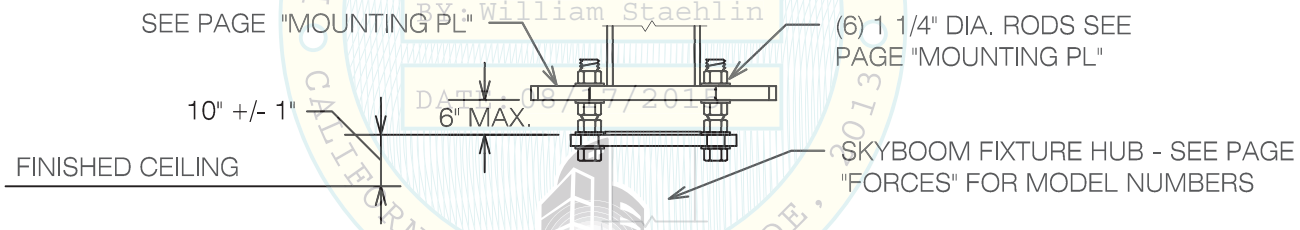


SECTION VIEW AT BRACE AND VERTICAL SUPPORT CONNECTION



SECTION VIEW AT FIXTURE TO MOUNTING PLATE CONNECTION

INSTALLER IS TO PROVIDE ALL MATERIALS ABOVE THE SKYTRON MOUNTING PLATE

OPM-0166-13 SKYTRON ERGON II AT SOLID CONCRETE SLAB

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SCALE N.T.S.	**PAGE** SOLID SLAB

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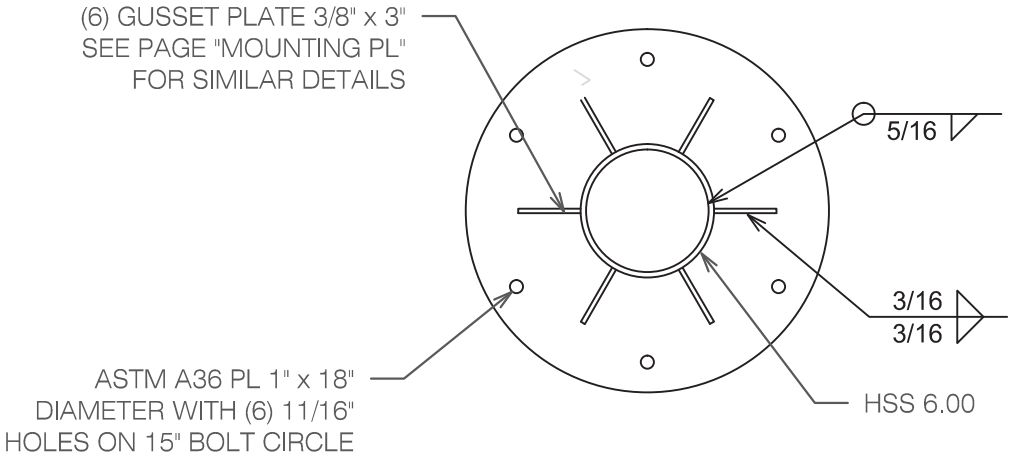
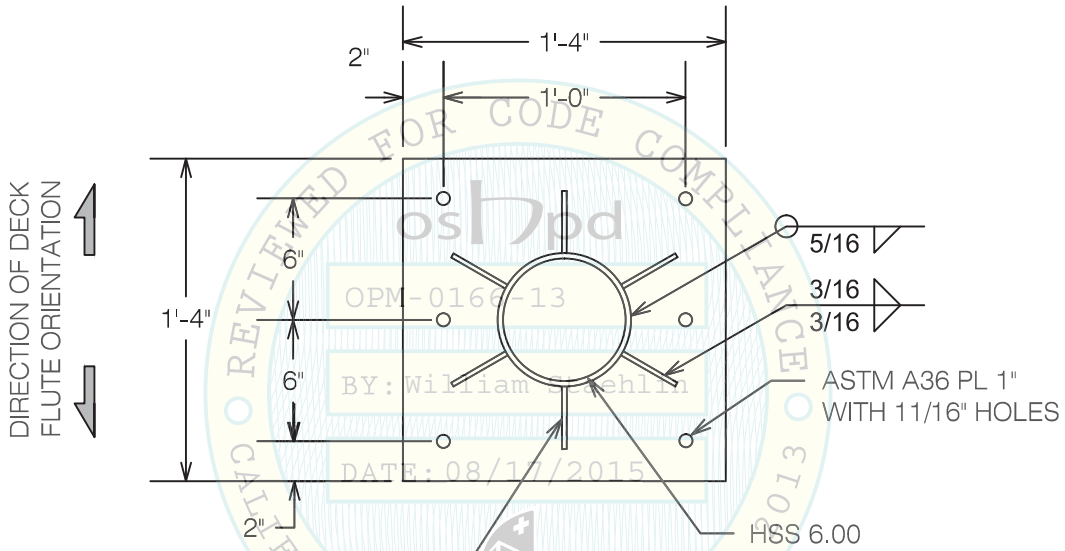


TOP PLATE AT SOLID CONCRETE SLABS



TOP PLATE AT METAL DECK SLABS

OPM-0166-13 SKYTRON ERGON 3 TOP PLATE DETAILS

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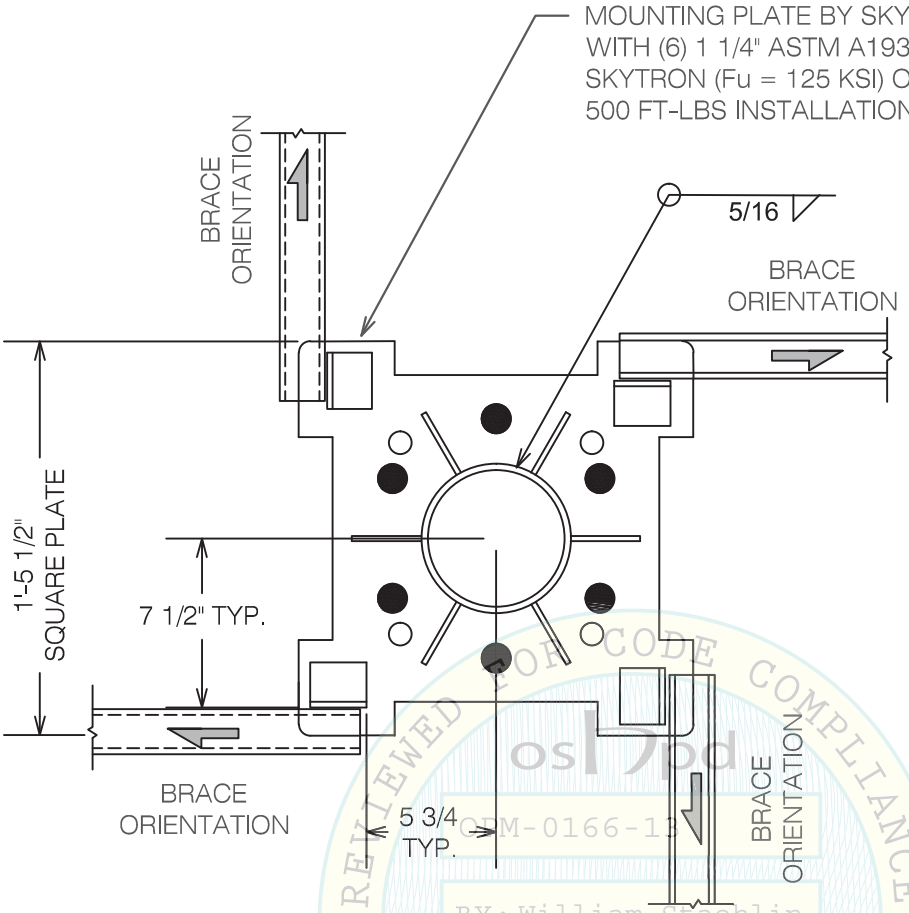
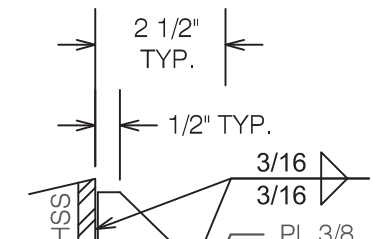
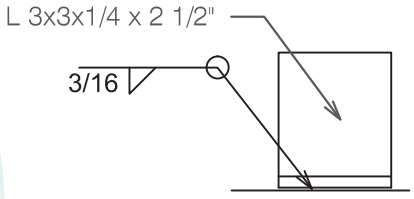
SCALE N.T.S.	**PAGE** TOP PLATE



MOUNTING PLATE PLAN



GUSSET PLATE DETAIL
(6 REQUIRED)



BRACE CONNECTION ANGLE
(4 REQUIRED)

ALL MATERIALS (EXCEPT FOR THE SKYTRON MOUNTING PLATE) ARE BY THE INSTALLATION CONTRACTOR. WELDS MAY BE FIELD WELDS OR SHOP WELDS.

OPM-0166-13 SKYTRON ERGON 3 MOUNTING PLATE DETAILS

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SCALE N.T.S.	**PAGE** MOUNTING PL

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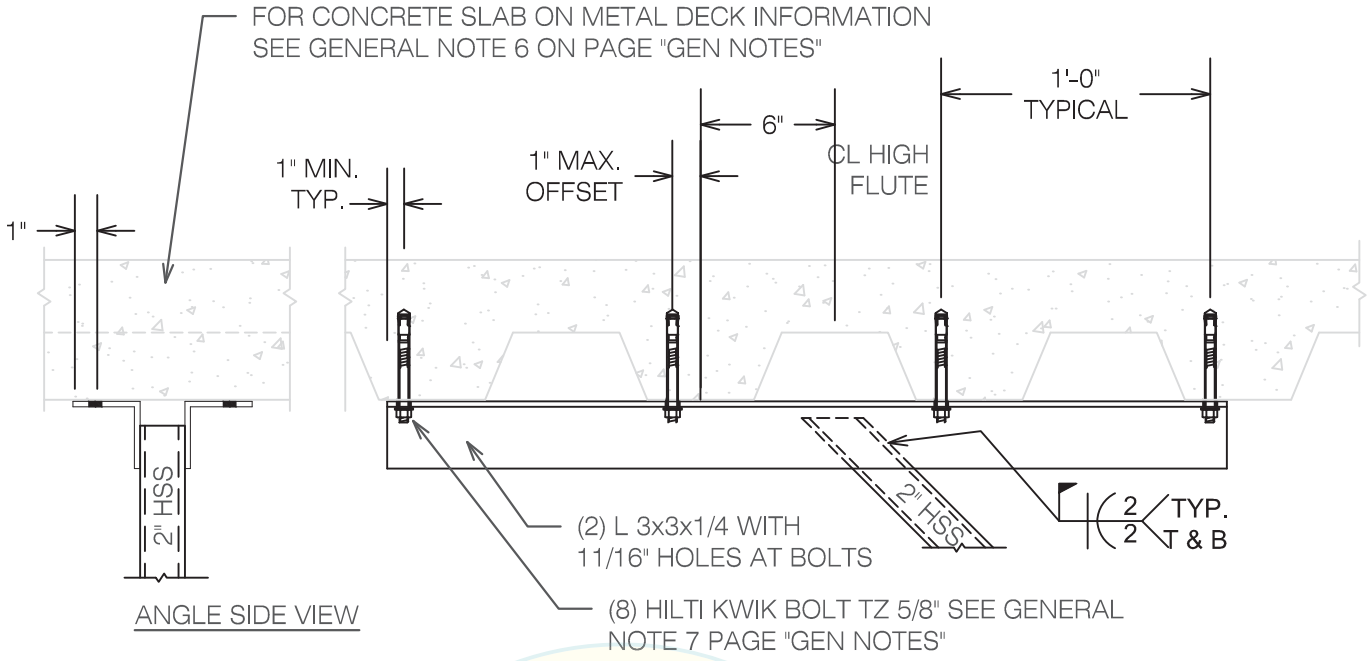
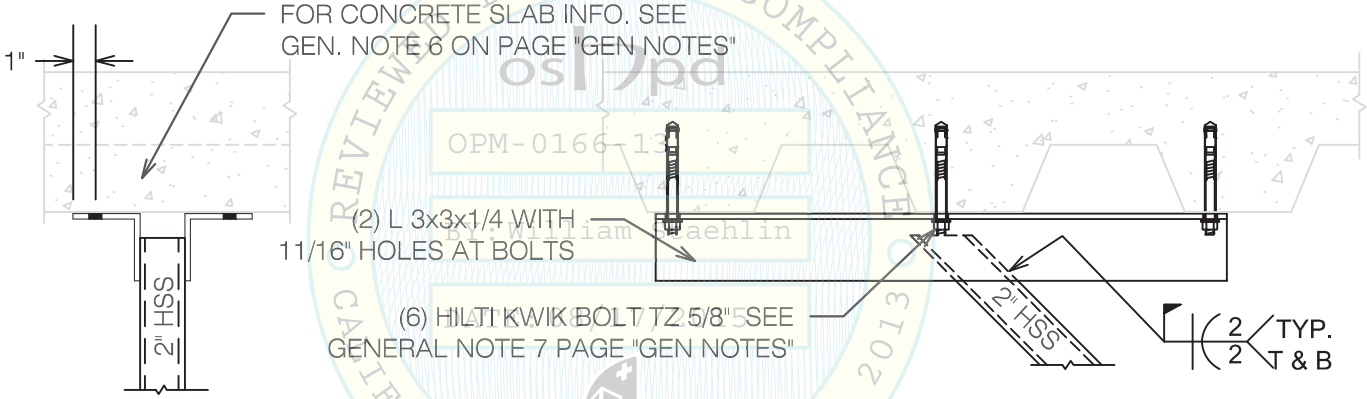


DETAIL A FOR MODELS ECT2FPM48/2FC2/AUT7TV5 ETM2SCM36-PF60/2FP48 ETM2FPM48/2EPM48



DETAIL B FOR MODELS E2FPM48 Q2FPM36 LC2ALFX-RAY/AUT7TV-1300
EC2FPM48/AUT7TV5 ECT2FVBM36/2AFC1/AUT5 LCT2AFC2/2AFC2/AUT7TV5

OPM-0166-13 SKYTRON ERGON II MISCELLANEOUS STEEL FOR METAL DECK SLABS BRACE CONNECTION PERPENDICULAR TO METAL DECK FLUTES

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SCALE N.T.S.	**PAGE** MISC. STEEL 1

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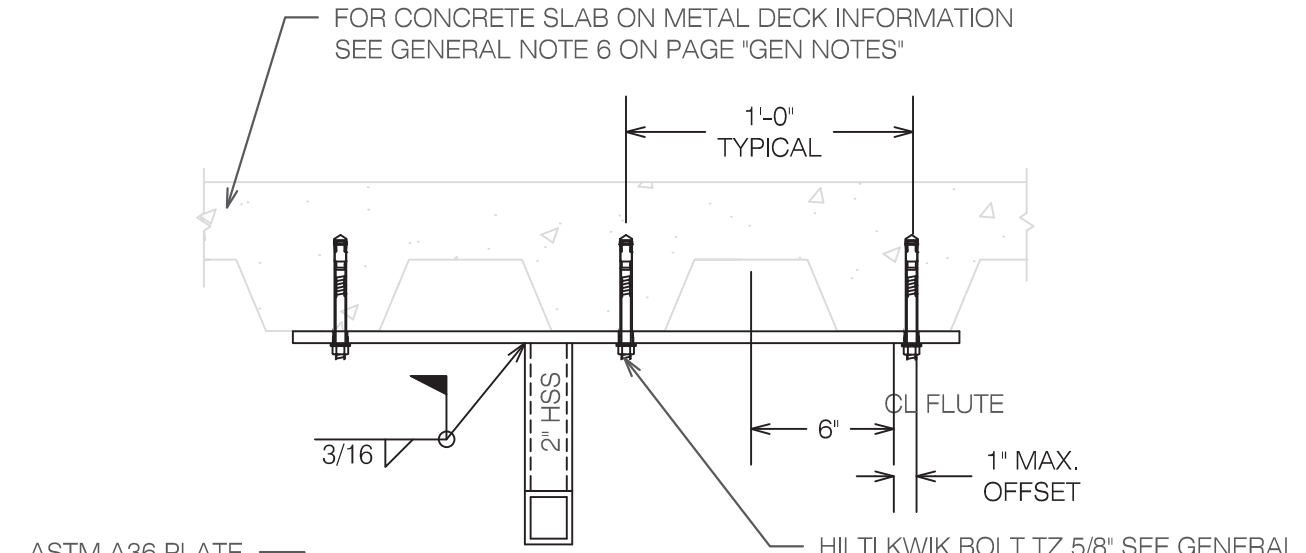

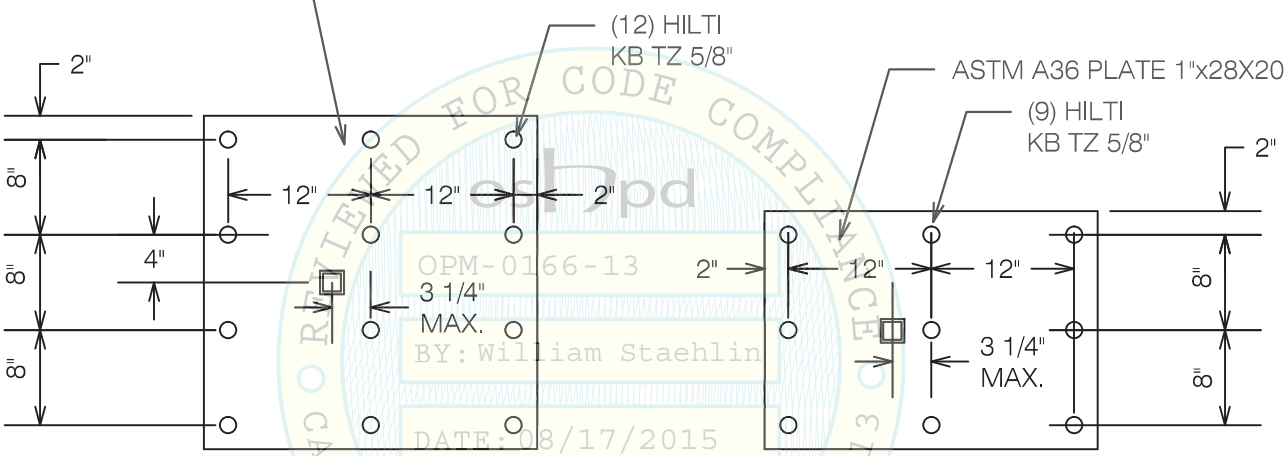

DETAIL C FOR MODELS ECT2FPM48/2FC2/AUT7TV5 ETM2SCM36-PF60/2FP48 ETM2FPM48/2EPM48

DETAIL D FOR MODELS E2FPM48 Q2FPM36 LC2ALFX-RAY/AUT7TV-1300 EC2FPM48/AUT7TV5 ECT2FVBM36/2AFC1/AUT5 LCT2AFC2/2AFC2/AUT7TV5

OPM-0166-13 SKYTRON ERGON II MISCELLANEOUS STEEL FOR METAL DECK SLABS BRACE CONNECTION PARALLEL TO METAL DECK FLUTES

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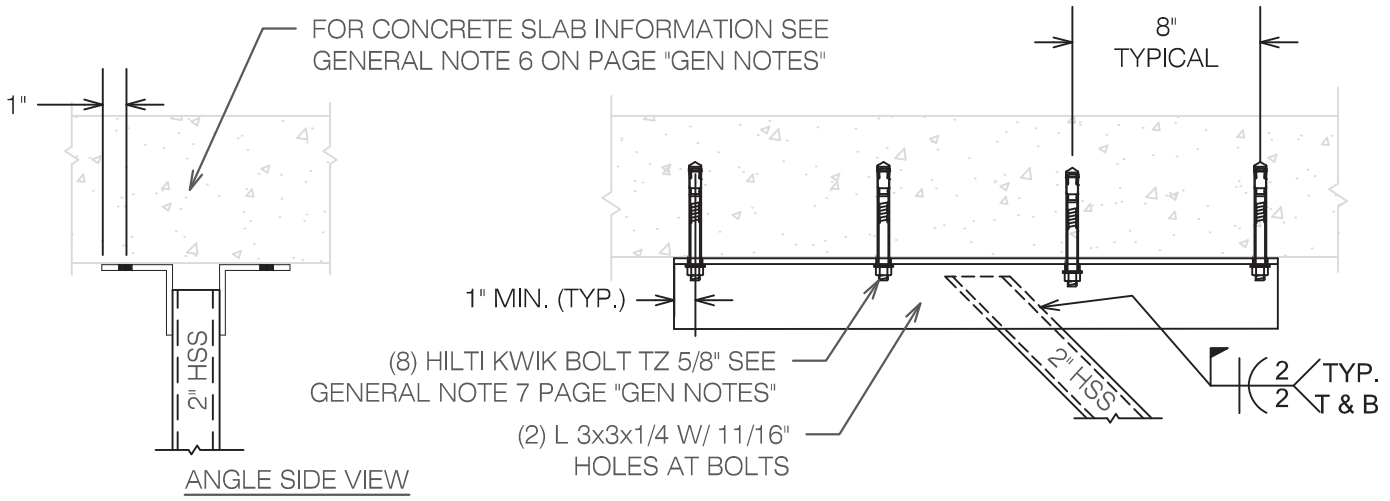
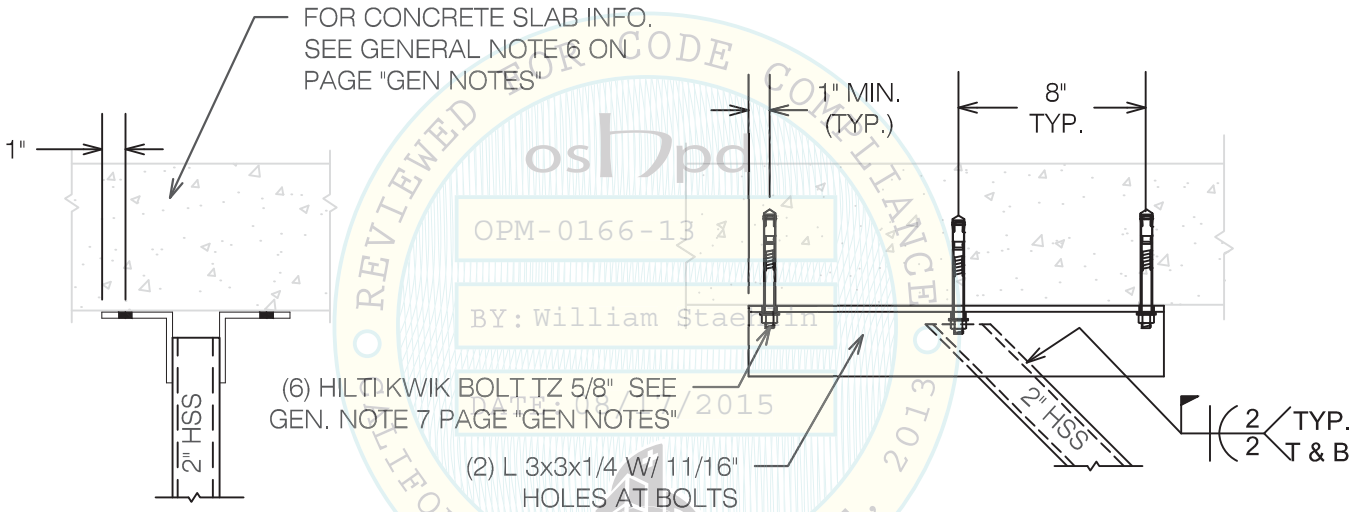


DETAIL E FOR MODELS ECT2FPM48/2FC2/AUT7TV5 ETM2SCM36-PF60/2FP48 ETM2FPM48/2EPM48



DETAIL F FOR MODELS E2FPM48 Q2FPM36 LC2ALFX-RAY/AUT7TV-1300
EC2FPM48/AUT7TV5 ECT2FVBM36/2AFC1/AUT5 LCT2AFC2/2AFC2/AUT7TV5

OPM-0166-13 SKYTRON ERGON II MISCELLANEOUS STEEL FOR SOLID SLABS

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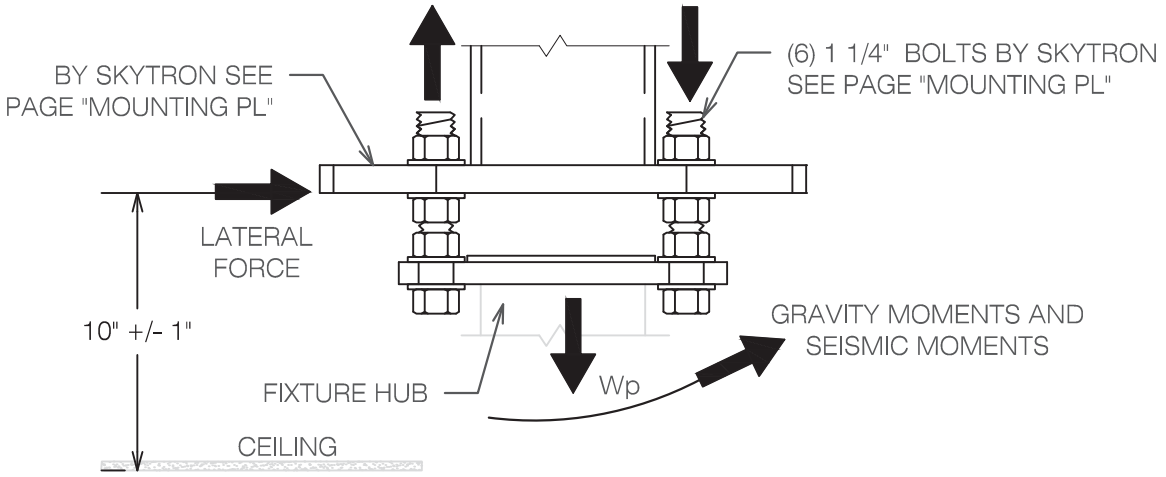
SCALE N.T.S.	**PAGE** MISC. STEEL 3



Model Number	Weight (lbs.)	Lateral force (lbs.)	Mx (ft.-lbs.)	My (ft.-lbs.)
E2FPM48	1,023	2,709	4,861	14,050
Q2FPM36	697	1,845	3,063	7,682
LC2ALFX-RAY/AUT7TV-1300	588	1,557	1,789	5,397
ECT2FPM48/2AFC2/AUT7TV5	1,256	3,326	7,151	19,224
ETM2SCM36-PF60/2FPM48	1,338	3,542	8,484	18,404
ETM2FPM48/2EPM48	1,836	4,860	10,311	24,611
EC2FPM48/AUT7TV5	1,039	2,750	6,115	16,857
ECT2FVBM36/2AFC1/AUT5	1,537	4,068	8,220	16,680
LCT2AFC2/2AFC2/AUT7TV5	598	1,584	2,631	8,578

1. WEIGHTS AND MOMENTS ARE FACTORED LOADS USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: DL = 1.2, FpV = 0.5 AND FpH = 4.5.
2. Mx ARE MOMENTS IN THE HORIZONTAL AXIS DUE TO COMPONENT WEIGHT TIMES THE MAXIMUM HORIZONTAL ECCENTRICITY.
3. My ARE MOMENTS IN THE HORIZONTAL AXIS DUE TO THE COMPONENT WEIGHT TIMES THE LATERAL ACCELERATION (FpH) TIMES THE MAXIMUM VERTICAL ECCENTRICITY.

OPM-0166-13 SKYTRON ERGON ii FORCES AND MOMENTS

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SCALE N.T.S.	**PAGE** FORCES