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

OFFICE USE ONLY
APPLICATION #: OPM-0462-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: ☒ New ☐ Renewal ☐ Update to Pre-CBC 2013 OPA Number: _____

Manufacturer Information

Manufacturer: USG Interiors, LLC

Manufacturer's Technical Representative: Yelena Straight, P.E.

Mailing Address: 700 N. Highway 45, Libertyville IL, 60048

Telephone: 847-970-5152 Email: ystraight@usg.com

Product Information

Product Name: USG DONN® Brand AdvanceSpan™ Suspension System

Product Type: Long Span Acoustical Suspension System for corridors

Product Model Number: DXAS, DXTAS, US44, US44CC, DX424, DX422, DX216, DXT424, DXT422, DXT222

General Description: Acoustical Suspension Ceiling system with long unsupported spans for corridor applications where plenum space is limited and attachment of hanger wires is challenging.

Applicant Information

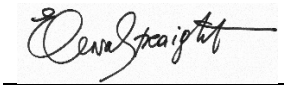
Applicant Company Name: USG Interiors, LLC

Contact Person: Yelena Straight, P.E

Mailing Address: 700 N. Highway 45, Libertyville IL, 60048

Telephone: 847-970-5152 Email: ystraight@usg.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: 12/19/2017

Title: Principal Researcher Company Name: USG Interiors, LLC

Registered Design Professional Preparing Engineering Recommendations

Company Name: Progressive Engineering, Inc

Name: Evor F. Johns California License Number: C055700

Mailing Address: 58640 State Road 15 Goshen, IN 46528

Telephone: 547-533-0337 Email: ejohns@p-e-i.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): ASTM C635, ASTM E580

*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: Date: January 10, 2019

Print Name: Jeffrey Kikumoto

Title: SSE

Condition of Approval (if applicable):

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USG INTERIORS, LLC
DONN® BRAND SUSPENDED CEILING SYSTEMS FOR LAY-IN PANELS - OPM-0462-16

RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD (SEOR):

A1. VERIFY THAT THE SITE SPECIFIC SEISMIC PARAMETERS DO NOT EXCEED THE VALUES (AS APPLICABLE TO EQ. 13.3-1 OF ASCE 7-10) THAT ARE USED IN SELECTING THE APPLICABLE DETAILS OF THIS SYSTEM.

A2. REVIEW SUBMITTAL NOTED IN B3 AND VERIFY THAT APPROPRIATE DESIGN VALUES WERE USED IN SELECTING DETAILS.

A2.1 CONFIRM THAT THE WEIGHTS AND ATTACHMENT DETAILS FOR THE COMPONENTS IDENTIFIED IN THIS SUBMITTAL ARE IN CONFORMANCE WITH THE DESIGN INTENT OF THE SUPPORTING STRUCTURE AND THAT THE SUPPORTING STRUCTURE IS ADEQUATE TO RESIST THE LOADS IMPOSED BY THIS SYSTEM IN ADDITION TO ALL OTHER LOADS.

A2.2 VERIFY THAT PROJECT SCENARIOS ALLOW FOR PLACEMENT OF SYSTEM ANCHORS AT LOCATIONS SPECIFIED.

A2.3 VERIFY THAT THE SUBSTRATES TO WHICH THIS SYSTEM IS ANCHORED MEET THE REQUIREMENTS SPECIFIED IN NOTE 5 ON SHEET 0.03.

A2.4 VERIFY THAT ALL NEW OR EXISTING ANCHORS FOR OTHER COMPONENTS AND SYSTEMS ARE AN ADEQUATE DISTANCE FROM SUPPORTS & ATTACHMENTS FOR THIS SYSTEM AND CHECK FOR INTERACTION WHERE APPROPRIATE.

A2.5 REVIEW OF PROJECT SPECIFIC ENGINEERED COMPONENTS WHICH FALL BEYOND THE SCOPE OF THESE SYSTEM DRAWINGS ARE NOT LISTED HEREIN. WHERE REQUIRED, DESIGNS SHALL BE PREPARED AND REVIEWED IN ACCORDANCE WITH THE PROJECT CONTRACT DOCUMENTS.

A2.6 REVIEW OF SUBMITTAL SHALL INCLUDE VERIFICATION OF FLOOR DEFLECTIONS AS NOTED IN NOTE 1.4 ON SHEET 0.02.

A3. VERIFY THAT INSTALLATION OF THIS SYSTEM AND SPECIAL INSPECTION IS PERFORMED IN CONFORMANCE WITH THE 2016 CALIFORNIA BUILDING CODE (2016 CBC) AND THESE SYSTEM DRAWINGS. VERIFY THAT RESULTS FROM SPECIAL INSPECTION DEMONSTRATE ACCEPTABLE PERFORMANCE OF ITEMS TESTED AND PROVIDE APPROPRIATE RESOLUTION WHERE THEY DO NOT. SPECIAL INSPECTION REQUIRED TO BE PERFORMED BY AN APPOVED AGENCY.

INSTRUCTIONS FOR SYSTEM SPECIFIER/INSTALLER

B1. FOR SITE SPECIFIC DESIGN & ANALYSIS REQUEST APPROPRIATE S_{DS} AND z/h VALUES (AS APPLICABLE TO EQ. 13.3-1 OF ASCE 7-10) FOR PROJECT FROM SEOR.

B2. PROVIDE PROJECT SPECIFIC ENGINEERED DESIGNS UNDER THE RESPONSIBLE CHARGE OF AN APPROPRIATELY LICENSED DESIGN PROFESSIONAL FOR ALL CONDITIONS AND LOCATIONS WHICH FALL BEYOND THE SCOPE OF THESE SYSTEM DRAWINGS. SEE NOTES 1.2 - 1.6 ON SHEET 0.02.

B3. PROVIDE SUBMITTAL FOR APPROVAL TO SEOR (AND OTHERS AS REQUIRED BY CONTRACT DOCUMENTS), IDENTIFYING:
- CEILING LAYOUT AND ALL COMPONENTS.
- SELECTED COMPONENTS AND DETAILS.
- ENGINEERED DESIGNS AS THEY WILL BE APPLIED TO THE PROJECT.
- LOCATIONS WHERE SYSTEM IS TO BE INSTALLED PER THESE SYSTEM DRAWINGS.
- LOCATIONS WHERE ENGINEERED DESIGNS BEYOND THE SCOPE OF THESE SYSTEM DRAWINGS ARE TO BE INSTALLED.

B4. WHERE APPROVED BY SEOR (AND OTHER APPROPRIATE PARTIES) INSTALL SYSTEM IN ACCORDANCE WITH ALL REQUIREMENTS OF THESE SYSTEM DRAWINGS, THE 2016 CBC, AND ALL REFERENCED STANDARDS THEREIN.

B5. PROVIDE SPECIAL INSPECTION IN ACCORDANCE WITH THE NOTES LISTED ON SHEET 0.03 AND THE 2016 CBC.

REGISTERED PROFESSIONAL ENGINEER
EVOR F. JOHNS
No. C055700
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA
12/20 /2018

USG INTERIORS, LLC
United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

ADVANCESPAN
OSHPD

OSHPD AdvanceSpan
DATE: 07/19/2017
Nathan Penner

0.01

1. GENERAL:

1.1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2016 CALIFORNIA BUILDING CODE (2016 CBC). THE DESIGN FORCES FOR USE WITH THIS OPM SHALL BE BASED ON THE 2016 CBC.

1.2. CONDITIONS NOT DESCRIBED OR DEPICTED WITHIN THESE SYSTEM DRAWINGS REQUIRE ENGINEERED DESIGN BY AN APPROPRIATELY LICENSED DESIGN PROFESSIONAL. THESE CONDITIONS INCLUDE BUT ARE NOT LIMITED TO:
- WALL OPENINGS - INCLUDING HEADERS, JAMBS, SILLS, FASTENING, AND ANCHORAGE.
- CEILING SYSTEMS IN ADJACENT ROOMS WHICH REQUIRE SUPPORT BY CORRIDOR WALLS.
- CEILING FRAMING SPANS GREATER THAN SHOWN IN THESE SYSTEM DRAWINGS.
- INTERRUPTIONS OF CEILING PERIMETER SUPPORTS.
- CEILINGS INTERACTION WITH CONTROL JOINTS IN THE PRIMARY STRUCTURE.

1.3. ATTACHMENTS PLACED WITHIN THE PROTECTED ZONES AS DESIGNATED BY ANSI/AISC 341-10 SHALL NOT BE PERMITTED.

1.4. CONFIRM THAT THE MAXIMUM VERTICAL DIFFERENTIAL MOVEMENT OF THE SUPPORTING STRUCTURE BELOW, RELATIVE TO THE SUPPORTING STRUCTURE ABOVE, EITHER UPWARDS OR DOWNWARDS, DOES NOT EXCEED 0.66 INCHES. MOVEMENTS THAT EXCEED THIS LIMIT ARE BEYOND THE SCOPE OF THESE SYSTEM DRAWINGS AND REQUIRE AN ENGINEERED DESIGN OF THE SLOTTED TRACK & ASSOCIATED FASTENERS TO SUPPORTING STRUCTURE ABOVE.

1.5. CONFIRM THAT WALL DEFLECTION DESIGN CRITERIA IN NOTE 3.4 ARE APPROPRIATE FOR ALL FINISHES AND ATTACHMENTS TO BE INSTALLED ON WALLS. WHERE NOT APPROPRIATE, PROVIDE AN ENGINEERED DESIGN OF THE WALL FRAMING.

1.6. SEISMIC BRACING, SUPPORTS AND ATTACHMENTS OF ALL CABINETS, SIGNAGE, APPURTENANCES, ETC. ATTACHED TO, SUPPORTED BY, OR BRACED BY WALLS IN THESE SYSTEM DRAWINGS SHALL CONFORM TO LOAD AND LOCATION LIMITS SHOWN WITHIN THE SYSTEM DRAWINGS AND SHALL BE DESIGNED BY AN APPROPRIATELY LICENSED DESIGN PROFESSIONAL.

1.7. THESE DRAWINGS ARE NOT INTENDED TO INDICATE THE MEANS AND/OR METHODS OF CONSTRUCTION: THE CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR THE SHORING, BRACING, SCAFFOLDING, RIGGING AND OTHER TEMPORARY SUPPORTS AS NEEDED TO SAFELY RESIST ALL LOADING IMPOSED UPON THE CEILING DURING ERECTION AND CONSTRUCTION.

1.8. ERECTION AND CONSTRUCTION PROCEDURES SHALL CONFORM TO THE REQUIREMENTS OF APPLICABLE ORDINANCES, REGULATIONS AND THE PROVISIONS OF THE 2016 CBC & ITS REFERENCED STANDARDS.

1.9. ALL CONSTRUCTION SHALL BE COORDINATED WITH AND SHALL BE SUBJECT TO THE SPECIAL INSPECTION REQUIREMENTS OF THESE SYSTEM DRAWINGS AND OF THE 2016 CBC.

1.10. THE CONTRACTOR SHALL COORDINATE ALL DIMENSIONS AND DETAILS BETWEEN THE SYSTEM DRAWINGS AND THAT OF OTHER TRADES PRIOR TO COMMENCING WORK. SHOULD THERE BE ANY CONFLICTS, NOTIFY THE ARCHITECT FOR CLARIFICATION.

1.11. CONSTRUCT WALLS IN ACCORDANCE WITH ASTM C754 AS REQUIRED BY 2016 CBC.

2. APPLICABLE CODES:

2.1. CALIFORNIA BUILDING CODE 2016 EDITION

2.2. ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES INCLUDING SUPPLEMENTS NO. 1 & 2

2.3. ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

2.4. AISI S100-12 NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.

3. DESIGN CRITERIA:

3.1. LIVE LOADS: MINIMUM HORIZONTAL WALL PRESSURE = 5 PSF PER 2016 CBC §1607A.14

3.2. DEAD LOADS: CABINET LOADS AS DEFINED ON SHEET 5.11

3.3. SEISMIC:
RISK CATEGORY = IV
S_{DS}= ≤ 2.0
Ip=1.5, ap=1.0, Rp=2.5, Ωo=2.5, z/h≤1.0

3.4. DEFLECTION LIMITS:
WALL LATERAL LIVE LOAD DEFLECTION: L/120
CEILING VERTICAL GRAVITY DEFLECTION: L/360

3.5. LOAD COMBINATIONS:

3.5.1. WALL FRAMING DESIGNED TO CARRY DEAD LOADS AND THE GREATER OF THE CALCULATED SEISMIC DEMAND AND THE MINIMUM HORIZONTAL WALL PRESSURE.

4. PRODUCTS AND MATERIALS:

4.1. COLD FORMED STEEL FOR WALL FRAMING

4.1.1. ALL COLD FORMED STEEL STUDS, JOIST, TRACK & MISC. SHAPES SHALL CONFORM TO ASTM C645 FOR NONSTRUCTURAL, ASTM C955 FOR STRUCTURAL MEMBERS AND BE OF MILL CERTIFIED STEEL MEETING ONE OF THE FOLLOWING AS APPLICABLE:

4.1.2. 54 MIL - ASTM A653 SS GRD 50 W/G40 GALVANIZING, 30-43 MIL - ASTM A653 SS GRD 33 W/G40 GALVANIZING, 54 MIL - ASTM A1003 ST GRD 50H W/G40 GALVANIZING, 33-43 MIL - ASTM A1003 ST GRD 33H W/G40 GALVANIZING, 30 MIL - ASTM A1003 GRD NS33H W/G40 GALVANIZING

4.1.3. ALL STEEL STUDS, JOIST & TRACK SHALL HAVE A LEGIBLE LABEL, STAMP OR EMBOSSMENT, AT A MAXIMUM OF 96 INCHES O.C., INDICATING THE MANUFACTURER'S NAME, LOGO OR INITIALS, EVALUATION SERVICE REPORT NUMBER, THE MATERIAL BASE METAL THICKNESS (UNCOATED) IN 0.001INCH AND THE YIELD STRENGTH IF DIFFERENT THAN 33 KSI.

4.1.4. MINIMUM SECTION PROPERTIES SHALL CONFORM TO ICC-ES EVALUATION REPORT ESR-3064P

4.1.5. STUDS SHALL NOT BE SPLICED.

4.1.6. FINISH MATERIAL SHALL NOT BRIDGE DEFLECTION COMPENSATION JOINTS.

4.2. THIS DOCUMENT REFERS TO FASTENER TYPE AND SIZE BUT DOES NOT SPECIFY OR ENDORSE A SPECIFIC MANUFACTURER. THE RDP IN RESPONSIBLE CHARGE SHALL SELECT A MANUFACTURER AND SELECTED FASTENER CAPACITIES SHALL MATCH OR EXCEED THE STRENGTHS LISTED HEREIN. THE FOLLOWING REQUIREMENTS SHALL ALSO BE MET:

4.2.1. FASTENERS FOR WALL FRAMING

4.2.1.1. SHEET METAL SCREWS SHALL COMPLY WITH ASTM C 1513-18, ASME B18.6.4-98 (R2005) AND ICC-ES AC 118 AND ALLOWABLE STRENGTH SHALL BE BASED ON INFORMATION PROVIDED IN 0.05. PENETRATION OF SCREWS THROUGH JOINED MATERIAL SHALL NOT BE LESS THAN THREE EXPOSED THREADS.

4.2.1.2. SEE FASTENER SPECIFIC NOTES & TABLES ON SHEET 0.05

4.2.2. POWDER-ACTUATED FASTENERS

4.2.2.1. POWER-ACTUATED FASTENERS (PAF), POWDER DRIVEN FASTENERS (PDF), POWER DRIVEN PINS (PDP) AND SHOT PINS ALL REPRESENT THE SAME FASTENER AND WILL HEREAFTER BE REFERRED TO AS POWER ACTUATED FASTENERS (PAF). PAF'S SHALL SATISFY THE CURRENT AC70-ACCEPTANCE CRITERIA FOR FASTENERS POWER-DRIVEN INTO CONCRETE, STEEL AND THE 2016 CBC SECTION 1910A.5. LISTING OF CURRENT ICC ES EVALUATION REPORTS PER SHEET 0.06.

4.2.2.2. FOR PAF INSTALLED IN STEEL THE FASTENER PENETRATION SHALL HAVE THE ENTIRE POINTED END OF THE FASTENER DRIVEN THROUGH THE STEEL MEMBER, PER SHEET 0.06.

4.2.2.3. SEE FASTENER SPECIFIC NOTES & TABLES ON SHEET 0.06

4.2.3. CONCRETE EXPANSION AND SCREW ANCHORS

4.2.3.1. POST- INSTALLED ANCHORS (E.G. EXPANSION ANCHORS AND SCREW ANCHORS) SHALL HAVE SPECIAL INSPECTION AND TESTING IN ACCORDANCE WITH THE 2016 CBC SECTIONS 1705A.3 & 1910A.5. FOR QUALIFICATION, DESIGN AND USE OF POST-INSTALLED ANCHORS IN CONCRETE SEE THE 2016 CBC SECTIONS 1616A.1.19 AND 1910A.5. LISTING OF CURRENT ICC-ES EVALUATION REPORTS LISTED ON SHEET 0.07 SHALL BE REQUIRED FOR FASTENER USED.

4.2.3.2. SEE FASTENER SPECIFIC NOTES & TABLES ON SHEET 0.07

4.3. HANGAR WIRE ANCHORS

4.3.1. HANGAR WIRE ANCHORS SHALL BE EITHER HILTI X-CX FASTENER ASSEMBLIES AS PER ICC-EVALUATION REPORT ESR-2184 OR EXPANSION ANCHOR PER NOTE 4.2.3 AND DETAIL 1/5.07 OR 4/5.07.

4.3.2. SELECTION OF X-CX SHALL BE AS SPECIFIED IN THESE SYSTEM DRAWINGS.

4.3.3. DIAMETER AND EMBEDMENT LENGTH SHALL BE AS SHOWN IN THESE SYSTEM DRAWINGS.

4.4. ADVANCE SPAN® SUSPENDED CEILING SYSTEM

4.4.1. UNLESS NOTED OTHERWISE IN THESE SYSTEM DRAWINGS, ALL SUSPENSION SYSTEM COMPONENTS SHALL BE PROVIDED AND INSTALLED PER THESE SYSTEM DRAWINGS.

4.5. ACOUSTIC CEILING TILES

4.5.1. ACOUSTIC CEILING TILES SHALL CONFORM WITH 2016 CBC §1616A.1.21 AND SHALL HAVE A WEIGHT NOT EXCEEDING 4 PSF TO INCLUDE CEILING TILES, GRID, ETC.

4.6. CLG/HANGER WIRE: 12ga (MIN 0.106"Ø) SHALL CONFORM w/ GALV SOFT ANNEALED MILD STEEL WIRE AS DEFINED IN ASTM A641 (CLASS 1 COATING); 70 ksi MIN TENSILE STRENGTH;

USG INTERIORS, LLC
United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

ADVANCESPAN
OSHPD

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DATE: 07/19/2017
Nathan Penner

0.02

REGISTERED PROFESSIONAL ENGINEER
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5. MINIMUM REQUIREMENTS FOR SUBSTRATES:

5.1. STRUCTURAL STEEL TO RECEIVE SUPPORTS AND ATTACHMENTS MUST COMPLY WITH THE MINIMUM STRENGTH REQUIREMENTS OF ASTM A36, ASTM A572 GRADE 50 OR ASTM A992, AND HAVE A NOMINAL THICKNESS GREATER THAN OR EQUAL TO 3/16 INCH.

5.2. COMPOSITE CONCRETE ON METAL DECK TO RECEIVE ANCHORAGE MUST COMPLY WITH THE FOLLOWING:

5.2.1. THE STEEL DECK PROFILE FOR 3 INCH DEEP COMPOSITE FLOOR DECK PANEL SHALL BE 20GA MIN. AND HAVE A MINIMUM FY OF 33KSI. LOWER AND UPPER FLUTE WIDTH MUST BE PER DRAWING ON SHEET 0.06 OR 0.07. CONCRETE FILL ABOVE TOP OF STEEL DECK PANEL MUST BE MINIMUM 3-1/4 INCHES THICK.

5.2.2. CONCRETE (NW OR SAND LW) FILL MUST HAVE A MINIMUM f'c PER SHEET 0.06 OR 0.07.

5.3. SOLID UNIFORM DEPTH REINFORCED CONCRETE (NW) SLABS TO RECEIVE ANCHORAGE MUST HAVE A MINIMUM f'c PER SHEET 0.06 OR 0.07 AND SHALL HAVE A MINIMUM THICKNESS OF 3-3/4 INCHES WHERE PAF'S ARE TO BE USED; AND 4-3/4 INCHES WHERE CONCRETE SCREW ANCHORS ARE TO BE USED.

5.4. EXISTING AND/OR PROPOSED CEILINGS IN ROOMS ADJACENT TO CORRIDOR MUST NOT BE DESIGNED IN SUCH A WAY AS TO BE CAPABLE OF DELIVERING LOAD TO CORRIDOR WALLS.

6. SPECIAL INSPECTION:

6.1. GENERAL REQUIREMENTS

6.1.1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL INSPECTIONS BY AN APPROVED AGENCY. PER SECTION 1704A OF THE 2016 CBC, THE CONTRACTOR WILL COORDINATE ALL SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATION WITH THE SEOR. THE CONTRACTOR SHALL BE LIABLE FOR ADDITIONAL COSTS INCURRED BY THE FAILURE OF THE CONTRACTOR TO COORDINATE INSPECTION REQUIREMENTS.

6.1.2. CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THIS SYSTEM. THIS STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTION AND THE SPECIAL INSPECTION REQUIREMENTS LISTED IN THESE SYSTEM DRAWINGS.

6.1.3. INSPECTIONS SHALL BE COMPLETED PRIOR TO FINISH ENCLOSURE.

6.2. ADVANCE SPAN® BRAND SUSPENDED CEILING SYSTEM

6.2.1. INSPECTOR SHALL VERIFY THAT THE CEILING SYSTEM IS AS DESCRIBED IN THESE SYSTEM DRAWINGS AND COMPLIES WITH THE INSTALLATION INSTRUCTIONS AS ENUMERATED IN THESE SYSTEM DRAWINGS.

6.3. PAF'S AND ASSEMBLIES

6.3.1. SPECIAL INSPECTION OF PAF'S IS NOT REQUIRED BY THE ABOVE STANDARDS, ICC-ES-ESR 1799, 2024, 2138, 2269, 2184, OR THESE SYSTEM DRAWINGS , USED TO ATTACH WALL TRACKS OF INTERIOR NON-SHEAR WALL PARTITIONS FOR SHEAR ONLY, WHERE THERE ARE AT LEAST (3) FASTENERS PER SEGMENT OF TRACK.

6.4. HILTI HUS-EZ SCREW ANCHORS & EXPANSION ANCHORS

6.4.1. PERIODIC SPECIAL INSPECTION

6.4.1.1. PERIODIC SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH 2016 CBC §1705A.1.1 AND TABLE 1705A.3. THE SPECIAL INSPECTOR MUST BE PRESENT AS OFTEN AS REQUIRED IN ACCORDANCE WITH THE PROJECT STATEMENT OF SPECIAL INSPECTION AS DICTATED BY THE SEOR. WHEN REQUIRED, THE SPECIAL INSPECTOR SHALL PERFORM SPECIAL INSPECTIONS IN ACCORDANCE WITH ICC ESR 3027, 1917, 2502, AND 3037.

6.4.2. TENSION TESTING

6.4.2.1. PER 2016 CBC §1910A.5, THESE ANCHORS SHALL BE TENSION TESTED USING THE HYDRAULIC RAM METHOD AS PER §1910A.5.5(1).

6.4.3. ACCEPTANCE CRITERIA

6.4.3.1. ANCHORS TESTED WITH A HYDRAULIC JACK OR SPRING LOADED DEVICES SHALL MAINTAIN THE TEST LOAD FOR A MINIMUM OF 15 SECONDS AND SHALL EXHIBIT NO DISCERNIBLE MOVEMENT DURING THE TENSION TEST, E.G., AS EVIDENCED BY LOOSENING OF THE WASHER UNDER THE NUT.

6.4.4. TESTING FREQUENCY

6.4.4.1. SCREW ANCHORS THROUGH BASE TRACK CONSTITUTE A SILL PLATE APPLICATION; THEREFORE, PER 2016 CBC §1910A.5.3, 10% OF THESE ANCHORS SHALL BE TESTED.

6.4.4.2. THE TEST FREQUENCY ON ALL OTHER SCREW ANCHORS SHALL INCLUDE AT LEAST 50 PERCENT OF THE ANCHORS IN EACH GROUP IN ACCORDANCE WITH 2016 CBC §1910A.5.3

6.4.4.3. IF ANY ANCHOR FAILS TESTING, ALL ANCHORS OF THE SAME TYPE SHALL BE TESTED, WHICH ARE INSTALLED BY THE SAME TRADE, NOT PREVIOUSLY TESTED UNTIL TWENTY CONSECUTIVE ANCHORS PASS, THEN RESUME THE INITIAL TEST FREQUENCY.

6.4.5. TEST LOADS

6.4.5.1. REQUIRED TEST LOADS FOR POST-INSTALLED ANCHORS SHALL BE 125% OF THE MAXIMUM DESIGN STRENGTH OF ANCHORS AS PROVIDED IN AN APPROVED ICC-ES ESR USING CRITERIA ADOPTED IN MODEL CODE; THESE ARE ENUMERATED BELOW:

FOR SCREW ANCHORS INSTALLED INTO THE SOFFIT OF A CONCRETE ON METAL DECK (LOWER FLUTE INSTALLATION):

1/4"Ø 2-1/2 INCH EMBED (h_{ef} = 1.92") KH-EZ - 1.25 X 605 = 756 LBS.

3/8"Ø 3-1/4 INCH EMBED (h_{ef} = 2.50") KH-EZ - 1.25 X 1807 = 2259 LBS

FOR SCREW ANCHORS INSTALLED INTO SOLID UNIFORM DEPTH CONCRETE SLAB:

1/4"Ø 2-1/2 INCH EMBED KH-EZ - 1.25 X 0.65 X 1165 = 947 LBS

3/8"Ø 3-1/4 INCH EMBED KH-EZ - 1.25 X 2392 = 2990 LBS

(LIGHTWEIGHT VALUE SHALL BE 0.60 x NORMAL WEIGHT VALUE)

FOR EXPANSION ANCHORS INSTALLED INTO THE SOFFIT OF:

A SAND LIGHTWEIGHT CONCRETE ON METAL DECK (LOWER FLUTE INSTALLATION):

3/8"Ø 2" EMBED (h_{ef} = 2") - 1.25 X 604 = 755 LBS

NORMAL WEIGHT CONCRETE (f'c min = 3000psi):

3/8"Ø 2" EMBED (h_{ef} = 2") - 1.25 X 961 = 1201 LBS

NORMAL WEIGHT CONCRETE ON METAL B-DECK (f'c min = 3000psi):

3/8"Ø 2" EMBED (h_{ef} = 2") - 1.25 X 522 = 652 LBS

7. ABBREVIATIONS FOR SYSTEM DRAWINGS:

BD.	- BOARD
DIA.	- DIAMETER
EA.	- EACH
FT.	- FOOT
GA	- GAUGE
GYP.	- GYPSUM
LLH	- LONG LEG HORIZONTAL
LLV	- LONG LEG VERTICAL
MAX.	- MAXIMUM
MIN.	- MINIMUM
N.T.S.	- NOT TO SCALE
O.C.	- ON CENTER
PAF	- POWDER ACTUATED FASTENER
SEOR	- STRUCTURAL ENGINEER OF RECORD
SIM.	- SIMILAR
SQ.	- SQUARE
TYP.	- TYPICAL
W/	- WITH

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USG INTERIORS, LLC
United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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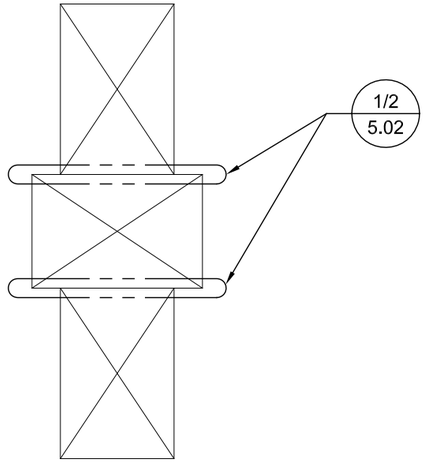

1 INTERSECTING CORRIDOR
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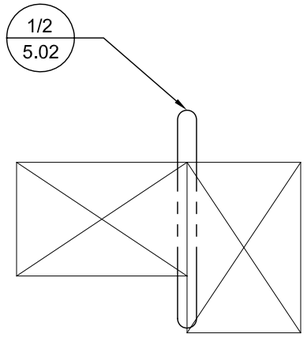

2 90° CORNER
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3 T-INTERSECTION
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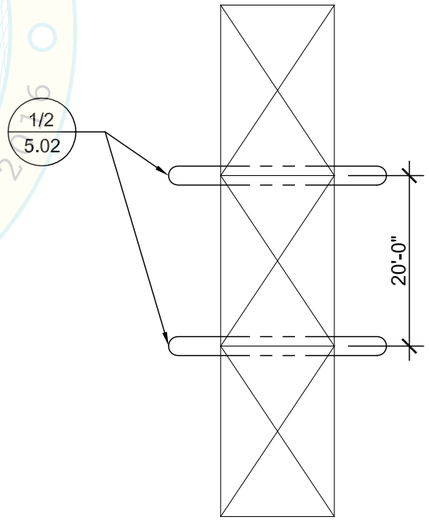

4 STRAIGHT EXTENSION
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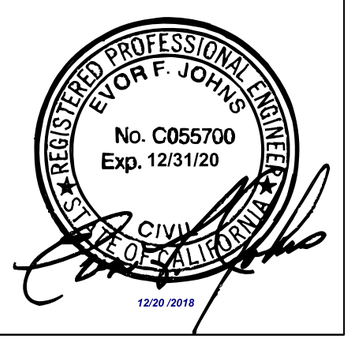

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Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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Nathan Penner

0.04

1. SHEET METAL SCREW (SMS) GENERAL NOTES

1.1. THE ALLOWABLE STRENGTHS ARE BASED UPON THE AISI S100-12 AND ARE LIMITED BY ACTUAL TESTED STRENGTH OF THE SCREWS IN TENSION AND SHEAR.

1.2. THE ALLOWABLE STRENGTHS ARE BASED UPON THE LEAST OF THE AVERAGE TESTED TENSILE AND SHEAR STRENGTHS TABULATED FROM ICC ESR'S 1976, 2196, 1408, AND THE STEEL STUD MANUFACTURER'S ASSOCIATION (SSMA). FASTENER TYPES AND SIZES APPLY TO NONPROPRIETARY FASTENER TYPES AND SIZES, AND DOES NOT ENDORSE A SPECIFIC MANUFACTURER. WHERE PROPRIETARY FASTENERS ARE SPECIFIED, NO EXCEPTIONS ARE TAKEN TO THE USE OF MANUFACTURER SPECIFIC VALUES THAT ARE BASED UPON THE AISI S100-12, SECTION E4. ALL SCREW FASTENERS SHALL SATISFY ICC-ES AC118-ACCEPTANCE CRITERIA FOR SELF TAPPING SCREW FASTENERS.

1.3. TABLE 1, SECTION 1 REPRESENTS ALLOWABLE TENSION AND SHEAR STRENGTHS FOR NON-PROPRIETARY SHEET METAL SCREWS FOR STEEL TO STEEL CONNECTIONS.

1.4. TABLE 1, SECTIONS 2 AND 3 REPRESENT ALLOWABLE TENSION AND SHEAR STRENGTHS THAT INCORPORATE THE EFFECTS OF EITHER ONE (1) OR TWO (2) LAYERS OF 5/8" GYPSUM BOARD BETWEEN FASTENER HEAD AND CONNECTING STEEL MATERIAL.

1.5. IN ORDER TO USE THE VALUES IN TABLE 1, SECTIONS 1, 2 AND 3, THE ATTACHMENTS SHALL BE DETAILED IN SUCH A WAY AS TO AVOID PRYING AND THE STUDS MUST BE STABILIZED WITH FULL-DEPTH BLOCKING WITH CONTINUOUS STRAPS ALONG THE FLANGES OR WITH BACKING BARS.

1.6. PENETRATION OF SCREWS THROUGH JOINED MATERIAL SHALL NOT BE LESS THAN THREE (3) EXPOSED THREADS.

1.7. STEEL THICKNESSES JOINED ARE ASSUMED TO BE THE SAME. IF DISSIMILAR THICKNESSES ARE BEING CONNECTED, THE VALUE FOR THE THINNER PART JOINED SHALL BE USED.

1.8. THE MINIMUM SPACING BETWEEN CENTERS OF FASTENERS SHALL NOT BE LESS THAN 3 X FASTENER DIAMETER. THE MINIMUM EDGE DISTANCE FROM THE CENTER OF A FASTENER TO THE EDGE OF ANY PART SHALL NOT BE LESS THAN 1.5 X FASTENER DIAMETER. WHERE THE END DISTANCE IS PARALLEL TO THE FORCE ON THE FASTENER, THE NOMINAL SHEAR STRENGTH SHALL BE LIMITED BY SECTION E4.3.2 OF THE AISI S100-12.

1.9. GALVANIZED METAL STUDS, TRACK AND SHEET STEEL SHALL CONFORM TO ASTM A653-17 OR A1003-15 MATERIAL WITH A MINIMUM YIELD STRENGTH OF 33 KSI FOR 43 MIL (18 GA) AND LIGHTER, AND MINIMUM YIELD STRENGTH OF 50 KSI FOR 54 MIL (16 GA) & HEAVIER.

1.10. WHERE VALUES ARE NOT GIVEN, SUCH COMBINATIONS OF SCREW SIZES & MATERIAL THICKNESS ARE NOT RECOMMENDED.

1.11. IF THE ATTACHMENT DETAILS RESULT IN PRYING WITH A MOMENT ARM NOT TO EXCEED 1-5/8", THE VALUES IN TABLE 1, SECTION 4 MAY BE USED. IF THE ATTACHMENT DETAILS RESULT IN PRYING WITH A MOMENT ARM THAT EXCEEDS 1-5/8", THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE OF THE PROJECT SHALL DETERMINE THE ALLOWABLE VALUES AND SUBMIT SUBSTANTIATION FOR THEM TO OSHPD FOR REVIEW.

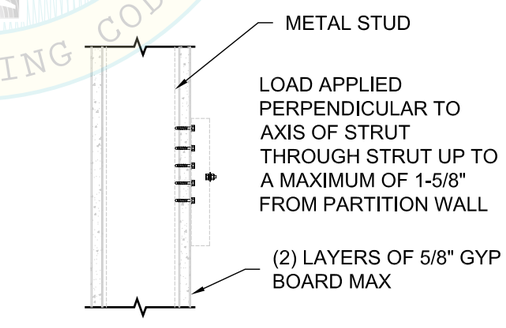
1.12. INTERACTION OF SHEAR AND TENSION SHALL BE BASED ON $T/T_{ALL} + V/V_{ALL} \leq 1.0$

1.13. REFER TO NOTE 4.2 ON 0.02 FOR ADDITIONAL SHEET METAL SCREW REQUIREMENTS.

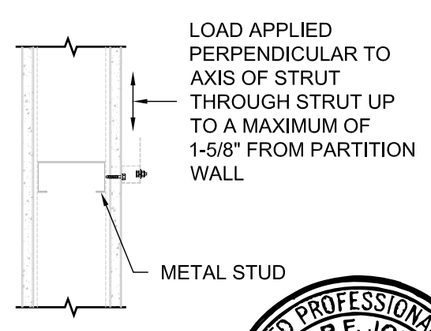
TABLE 1
SHEET METAL SCREW ALLOWABLE STRENGTHS FOR

CONDITION:	Fy (KSI)	MIL (STEEL GA)	NO. 14 0.250 IN		NO. 12 0.216 IN		NO. 10 0.190 IN		NO. 8 0.164 IN		NO. 6 0.138 IN	
			SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)
SECTION 1: STEEL TO STEEL CONNECTIONS. WITH NO GYP BOARD BETWEEN STEEL SURFACES	50	97 (12)	704	275	525	205	-	-	-	-	-	-
		68 (14)	704	275	525	205	405	159	-	-	-	-
		54 (16)	613	261	525	205	405	159	303	118	-	-
	33	43 (18)	302	144	280	124	263	109	244	94	165	79
		33 (20)	-	-	-	-	177	84	164	72	151	61
SECTION 2 - (NON PRYING CONDITION): STEEL TO STEEL CONNECTIONS. WITH ONE LAYER OF 5/8" GYP BOARD BETWEEN STEEL SURFACES.	50	97 (12)	226	275	180	205	-	-	-	-	-	-
		68 (14)	226	275	180	205	140	159	-	-	-	-
		54 (16)	226	261	180	205	140	159	120	118	-	-
	33	43 (18)	226	144	180	124	140	109	120	94	60	79
		33 (20)	-	-	-	-	100	84	80	72	60	61
SECTION 3 - (NON PRYING CONDITION): STEEL TO STEEL CONNECTIONS WITH TWO LAYERS OF 5/8" GYP BOARD BETWEEN STEEL SURFACES.	50	97 (12)	166	275	130	205	-	-	-	-	-	-
		68 (14)	166	275	130	205	100	159	-	-	-	-
		54 (16)	166	261	130	205	100	159	80	118	-	-
	33	43 (18)	166	144	130	124	100	109	80	94	50	79
		33 (20)	-	-	-	-	70	84	50	72	40	61
SECTION 4 - (PRYING CONDITION): STEEL TO STEEL CONNECTIONS WITH ONE OR TWO LAYERS OF 5/8" GRP BOARD BETWEEN STEEL SURFACES AND MAXIMUM PRYING MOMENT ARM OF 1-5/8"	50	97 (12)	40	275	30	205	-	-	-	-	-	-
		68 (14)	40	275	30	205	25	159	-	-	-	-
		54 (16)	40	261	30	205	25	159	20	118	-	-
	33	43 (18)	40	144	30	124	25	109	20	94	10	79
		33 (20)	-	-	-	-	15	84	15	72	10	61

NOTES:
1. ALLOWABLE STRENGTH VALUES DO NOT ACCOUNT FOR EFFECTS FROM PRYING. THE RDP IN RESPONSIBLE CHARGE OF THE PROJECT SHALL PROVIDE ADEQUATE BLOCKING/RESTRAINT TO PREVENT PRYING ACTION. WHERE PRYING OCCURS, THE VALUES AND CONSTRAINTS USE SECTION 4
2. ALLOWABLE STRENGTH VALUES LISTED IN SECTION 4 ARE BASED UPON A LIMITED TEST ASSEMBLY WHERE THE ORIGIN AND DIRECTION OF THE LOAD RESULTS IN PRYING UPON THE FASTENER. THE MAGNITUDE OF THIS PRYING EFFECT SHALL BE LIMITED TO A MOMENT ARM OF 1 5/8" FROM THE FASTENER. STRUT CAN BE HORIZONTAL OR VERTICAL.



WALL ELEVATION WITH LOAD APPLIED THROUGH STRUT



PLAN VIEW

USG INTERIORS, LLC
United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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DATE: 07/19/2017
Nathan Penner

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REGISTERED PROFESSIONAL ENGINEER
EVOR F. JOHNS
No. C055700
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA
12/20 /2018

1. POWDER-ACTUATED FASTENERS

1.1. LOW VELOCITY FASTENERS (LVF), POWDER DRIVEN FASTENERS (PDF), POWDER DRIVEN PINS (PDP) AND SHOT PINS ALL REPRESENT THE SAME ATTACHMENT METHOD AND WILL HEREAFTER BE REFERRED TO AS POWDER-ACTUATED FASTENERS (PAF).

1.2. ALL PAF SHALL CONFORM TO 2016 CBC §1616A.1.20, ASCE 7, SECTION 13.4.5, BE PER NOTE 4.2.2 ON SHEET 0.02 AND PER ICC-ES EVALUATION REPORT ESR 1799, 2024, 2138, 2269.

1.3. EMBEDMENT DEPTH SHALL BE 1-1/4" MINIMUM FOR CONCRETE APPLICATIONS. FOR STRUCTURAL STEEL APPLICATIONS EMBEDMENT DEPTH SHALL BE AS REQUIRED TO PROVIDE FOR FULL PENETRATION OF POINTED END OF FASTENER THROUGH STEEL.

1.4. FOR MAXIMUM AND MINIMUM SPACING AND MINIMUM EDGE DISTANCES, SEE TABLES

2. PAF INSTALLED IN CONCRETE OVER METAL DECK OR CONC SLAB - GENERAL NOTES

2.1. ALLOWABLE STRENGTHS SHALL BE COMPARED TO ALLOWABLE STRESS DESIGN (ASD) LEVEL DEMAND IN ACCORDANCE WITH THE 2016 CBC SECTION 1605A.3.1.

2.2. POWER ACTUATED FASTENER INSTALLED THROUGH LOW FLUTES OF THE METAL DECK SHALL MEET THE REQUIREMENTS OF THE INSTALLATION CRITERIA AND SECTIONS BELOW.

2.3. PAF SHALL NOT BE USED TO RESIST SEISMIC SHEAR FORCES EXCEPT AT INTERIOR NON-LOAD BEARING, NON-SHEAR WALL PARTITION WALLS (AS PERMITTED BY 2016 CBC SECTION 1910A.5) AND COMPONENTS EXEMPT FROM CONSTRUCTION DOCUMENT REVIEW BY 2016 CBC SECTION 1616A.1.18 (NOT PERMITTED TO TAKE SEISMIC SHEAR BY ICC-ES AC70 FOR ANY OTHER CONDITIONS). PAF SHALL NOT BE USED TO CARRY SUSTAINED TENSION LOADS .

2.4. PAF SHALL NOT BE USED IN PRE-STRESSED CONCRETE UNLESS NON-DESTRUCTIVE TESTING METHODS ARE USED TO LOCATE STRAND AND REINFORCEMENT PRIOR TO FASTENER INSTALLATION.

2.5. PAF INSTALLATION SHALL NOT NICK OR DAMAGE EXISTING CONCRETE REINFORCEMENT. SHOULD THIS OCCUR THE RDP IN RESPONSIBLE CHARGE SHALL BE NOTIFIED IMMEDIATELY. PAF SHALL BE INSTALLED 1" CLEAR OF EXISTING REINFORCEMENT. THIS MAY REQUIRE NON-DESTRUCTIVE TESTING.

2.6. PAF SHALL BE INSTALLED PER CURRENT ICC-ES EVALUATION REPORTS.

2.7. TESTING OF PAF SHALL BE IN ACCORDANCE WITH 2016 CBC SECTION 1910A.5. MINIMUM CONCRETE SUBSTRATE THICKNESS SHALL BE THREE TIMES THE PAF PENETRATION INTO THE CONCRETE SUBSTRATE.

2.8. TESTING IS NOT REQUIRED FOR PAF USED TO ATTACH TRACKS OF INTERIOR NON-SHEAR WALL PARTITIONS FOR SHEAR ONLY WHERE THERE ARE AT LEAST THREE FASTENERS PER SEGMENT OF TRACK.

2.9. TOTAL ALLOWABLE LOADS IN TENSION, SHEAR OR TENSION SHEAR COMBINATIONS SHALL NOT EXCEED 90 LBS AS PERMITTED BY EXCEPTION TO ASCE 7-10 SECTION 13.4.5.

2.10. REFER TO NOTE 4.2.2 ON 0.02 FOR ADDITIONAL PAF REQUIREMENTS.

3. PAF INSTALLED IN CONCRETE OVER STEEL W-DECK

3.1. ALLOWABLE STRENGTHS ARE FOR A SINGLE FASTENER WHICH MEET REQUIREMENTS IN SECTIONS BELOW AND TABLES. THE ALLOWABLE STRENGTHS ARE BASED UPON THE LEAST OF THE ALLOWABLE STRENGTHS LISTED IN THE ICC ESRS 1799, 2024, 2138 & 2269.

3.2. MINIMUM CONCRETE STRENGTH f'c =2000 PSI FOR NORMAL WEIGHT CONCRETE AND f'c =3000 PSI FOR ALL SAND LIGHTWEIGHT CONCRETE UNLESS OTHERWISE NOTED.

3.3. MINIMUM EDGE DISTANCE OF 1 1/8" FROM THE EDGE OF METAL DECK WEB AND 4" FROM THE EDGE OF THE DECK.

3.4. STEEL DECK TO BE A MINIMUM OF 20GA.

3.5. CONCRETE FILL DEPTH ABOVE THE TOP OF METAL DECK SHALL BE A MINIMUM OF 3 1/4" SAND LIGHTWEIGHT CONCRETE.

4. PAF INSTALLED IN CONCRETE OVER STEEL B-DECK

4.1. ALLOWABLE STRENGTHS ARE FOR A SINGLE FASTENER WHICH MEET REQUIREMENTS PER SECTION BELOW AND TABLES. THE ALLOWABLE STRENGTHS ARE BASED UPON THE LEAST OF THE ALLOWABLE STRENGTHS LISTED IN ICC ESRS 2024, 2138, & 2269.

4.2. MINIMUM CONCRETE STRENGTH f'c = 3000 PSI FOR NORMAL WEIGHT CONCRETE AND f'c = 3000 PSI FOR ALL SAND LIGHTWEIGHT CONCRETE UNLESS NOTED OTHERWISE.

4.3. MINIMUM EDGE DISTANCE OF 7/8" FROM THE EDGE OF METAL DECK WEB AND 4" FROM THE EDGE OF THE DECK.

4.4. STEEL DECK TO BE A MINIMUM OF 20 GA. B-DECK.

4.5. CONCRETE FILL DEPTH ABOVE THE TOP OF METAL DECK MUST BE A MINIMUM OF 2 1/2" AT NORMAL WEIGHT OR SAND LIGHTWEIGHT CONCRETE COMPOSITE METAL DECK.

PAF ALLOWABLE STRENGTHS

INSTALLED INTO:	NOMINAL SHANK DIAMETER (IN)	MIN EMBED (IN)	MIN SPACING (IN)	MIN EDGE DISTANCE (IN)	TENSIONS (LB) (SEE NOTE 2.9)	SHEAR (LB) (SEE NOTE 2.9)
UNDERSIDE OF SAND LIGHTWEIGHT CONCRETE THROUGH W-DECK (f'c MIN=3000 PSI) (LOWER FLUTE INSTALL)	0.145 MIN (0.157 MIN FOR ESR 2269)	1 1/4	4	4	90	90
STRUCTURAL SAND LIGHTWEIGHT CONCRETE (f'c MIN=3000 PSI)	0.145 MIN (0.157 MIN FOR ESR 2269)	1 1/4	4	4	90	90
NORMAL-WEIGHT CONCRETE (f'c MIN=2000 PSI)	0.145 MIN (0.157 MIN FOR ESR 2269)	1 1/4	4 (5.1 FOR ESR 1799)	4	90	90
UNDERSIDE OF NORMAL WEIGHT OR SAND LIGHTWEIGHT CONCRETE THROUGH B-DECK (f'c MIN=3000 PSI) (LOWER FLUTE INSTALL)	0.157 MIN	1	4 (5.1 FOR ESR 1799)	4	90	90

5. PAF INSTALLED IN STEEL

5.1. MINIMUM STEEL TENSILE STRENGTH F_u =58KSI

5.2. MINIMUM SPACING 1".

5.3. MINIMUM EDGE DISTANCE 1/2".

5.4. USE KNURLED SHANK.

5.5. POWER ACTUATED FASTENERS (PAF) SHALL BE INSTALLED PER CURRENT ICC-ES EVALUATION EVALUATION REPORTS.

5.6. SEE GENERAL NOTE 4.2 ON 0.02 FOR PAF REQUIREMENTS & ATTACHMENT TO STEEL.

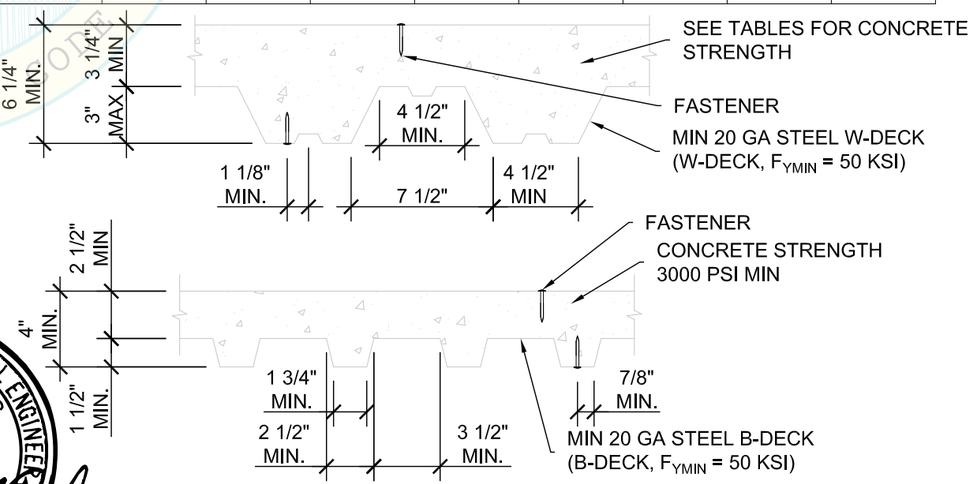
5.7. ALLOWABLE STRENGTHS SHALL BE COMPARED TO ALLOWABLE STRESS DESIGN (ASD) LEVEL DEMAND IN ACCORDANCE WITH THE 2016 CBC SECTION 1605A.3.1.

5.8. ALLOWABLE STRENGTHS ARE FOR SINGLE FASTENERS, WHICH MEET THE REQUIREMENTS PER NOTES ABOVE. THE ALLOWABLE STRENGTHS ARE BASED UPON THE LEAST OF THE ALLOWABLE STRENGTHS LISTED IN THE ESRS 1799, 2024, 2138 & 2269.

5.9. TOTAL ALLOWABLE TENSION, SHEAR OR TENSION SHEAR COMBINATION SHALL NOT EXCEED 250 LBS. AS PERMITTED BY THE EXCEPTION TO ASCE 7-10 SECTION 13.4.5.

PAF ALLOWABLE STRENGTHS INTO STEEL

NOMINAL SHANK DIAMETER (IN)	STEEL THICKNESS (IN)							
	3/16		1/4		3/8		1/2	
	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)
0.145 MIN	155	250	230	250	250	250	190	220



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Fax (574) 533-9736
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Nathan Penner

0.06

1. CONCRETE EXPANSION AND SCREW ANCHORS

1.1. ALL CONCRETE SCREW ANCHORS SHALL BE HILTI KWIK HUS-EZ (KH-EZ) PER ICC-EVALUATION REPORT ESR-3027. ALL EXPANSION ANCHORS SHALL BE PER ESR 1917, 2502 OR 3037.

1.2. DIAMETER AND EMBEDMENT LENGTH SHALL BE AS SHOWN IN THESE SYSTEM DRAWINGS.

1.3. FOR MAXIMUM AND MINIMUM SPACING AND MINIMUM EDGE DISTANCES, SEE TABLES

2. EXPANSION ANCHOR INSTALLED IN CONCRETE OVER METAL DECK OR CONCRETE SLAB - GENERAL NOTES

2.1. ALLOWABLE STRENGTHS SHALL BE COMPARED TO ALLOWABLE STRESS DESIGN (ASD) LEVEL DEMAND IN ACCORDANCE WITH THE 2016 CBC SECTION 1605A.3.1.

2.2. ALLOWABLE STRENGTHS ARE FOR SINGLE ANCHORS WHICH MEET MIN. REQUIREMENTS IN ACCORDANCE WITH THE TABLE & SECTION BELOW.

2.3. MINIMUM CONCRETE STRENGTH f'c =3000 PSI FOR ALL NORMAL WEIGHT OR LIGHTWEIGHT CONCRETE AND f'c = 3000 PSI FOR ALL SAND LIGHTWEIGHT CONCRETE UNLESS OTHERWISE NOTED.

2.4. MINIMUM CONCRETE FILL DEPTH ABOVE THE TOP OF METAL DECK IN ACCORDANCE WITH THE SECTION AND INSTALLATION CRITERIA BELOW.

2.5. EXPANSION ANCHORS SHALL NOT BE USED IN PRE-STRESSED CONCRETE UNLESS NON-DESTRUCTIVE TESTING METHODS ARE USED TO LOCATE STRAND & REINFORCING PRIOR TO ANCHOR INSTALLATION.

2.6. EXPANSION ANCHOR INSTALLATION SHALL NOT NICK OR DAMAGE EXISTING REINFORCEMENT. SHOULD THIS OCCUR THE RDP IN RESPONSIBLE CHARGE SHALL BE NOTIFIED IMMEDIATELY. EXPANSION ANCHORS SHALL BE INSTALLED 1" CLEAR OF EXISTING REINFORCEMENT.

2.7. EXPANSION ANCHORS SHALL BE INSTALLED PER CURRENT ICC-ES EVALUATION REPORT.

2.8. TESTING OF EXPANSION ANCHORS SHALL BE IN ACCORDANCE WITH 2016 CBC SECTION 1910A.5.

2.9. EXPANSION ANCHORS SHALL BE INSTALLED TO COMPLY WITH THE MINIMUM SLAB THICKNESS REQUIREMENTS ESTABLISHED BY THE ICC-ESR FOR THE SPECIFIED ANCHOR.

2.10. REFER TO NOTE 4.2.3 ON 0.02 FOR ADDITIONAL EXPANSION ANCHOR REQUIREMENTS.

2.11. ALL VALUES IN THE TABLE REFLECT ALLOWABLE STRENGTHS WITH 20% STRESS INCREASE FOR LOAD COMBINATIONS WITH OVERSTRENGTH FACTOR IN ACCORDANCE WITH ASCE 7-10 SECTION 12.4.3.3.

3. EXPANSION ANCHOR INSTALLED IN CONCRETE OVER STEEL DECK OR CONCRETE SLAB

3.1. EXPANSION ANCHORS INSTALLED THROUGH UPPER OR LOWER FLUTES OF METAL DECK SHALL MEET THE REQUIREMENTS OF THE INSTALLATION CRITERIA AND SECTION BELOW.

3.2. STEEL DECK TO BE MIN. 20 GA. W-DECK.

3.3. ALL VALUES IN TABLES ARE FOR CRACKED CONCRETE & INCLUDE REDUCTION BASED ON ACI 318-14 SECTION 17.2.3.4.4 REQUIREMENTS. THE ALLOWABLE STRENGTHS ARE BASED UPON THE LEAST OF THE ALLOWABLE STRENGTHS CALCULATED USING THE ICC ESRS 1917, 2502 AND 3037 AND USING AN ALLOWABLE STRENGTH CONVERSION FACTOR OF 1.4.

4. EXPANSION ANCHOR INSTALLED IN CONCRETE OVER STEEL B-DECK

4.1. EXPANSION ANCHORS INSTALLED THROUGH LOWER FLUTES OF METAL DECK SHALL MEET THE REQUIREMENTS OF THE INSTALLATION CRITERIA AND SECTION BELOW.

4.2. STEEL DECK TO BE MIN 20 GA. B-DECK.

4.3. ALL VALUES IN TABLES ARE FOR CRACKED CONCRETE & INCLUDE REDUCTION BASED ON ACI 318-14 SECTION 17.2.3.4.4 REQUIREMENTS. THE ALLOWABLE STRENGTHS ARE BASED UPON THE LEAST OF THE ALLOWABLE STRENGTHS CALCULATED USING THE ICC ESRS 1917 AND 2502 AND USING AN ALLOWABLE STRENGTH CONVERSION FACTOR OF 1.4.

EXPANSION ANCHORS INSTALLATION CRITERIA CONCRETE OVER STEEL DECK AND CONCRETE SLAB

	NOMINAL ANCHOR DIAMETER (IN)						
	ESR 1917, 2502, OR 3037					ESR 3027	
	3/8	1/2		5/8		1/4	3/8
EFFECTIVE MIN EMBEDMENT (IN)	2	2 1/4	3 1/4	3 1/8	4	1.92	2 1/2
MEMBER THICKNESS NWC SLAB OR BEAM ONLY (IN)	4 1/2	4 1/2	6	6	7 1/4	4 1/2	4 3/4
ANCHOR SPACING (3 X EMBED) (IN)	6 3/4	6 3/4	9 3/4	9 3/8	12	3	3
MIN EDGE DISTANCE (IN)	6	7	7 1/2	6 1/2	8 3/4	3 3/4	3 3/4

EXPANSION ANCHOR ALLOWABLE STRENGTHS

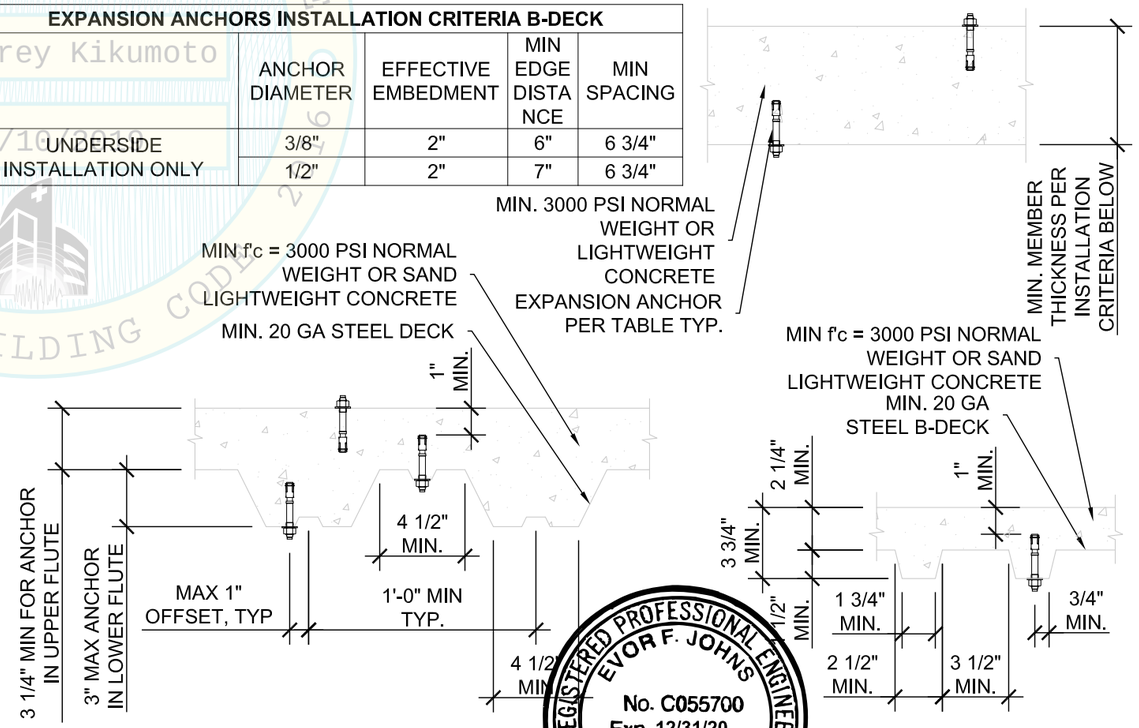
INSTALLED INTO:	ANCHOR DIA. (IN)	EMBED hef (IN)	SHEAR (LB)	TENSION (LB)
UNDERSIDE OF STRUCTURAL SAND LIGHTWEIGHT CONCRETE (f'c MIN=3000 PSI) OVER METAL DECK	3/8	2	747	579
	1/2	2 1/4	1070	794
	1/2	3 1/4	2265	1449
	5/8	3 1/4	1323	1114
	5/8	4 1/4	2477	2159
TOP OF STRUCTURAL SAND LIGHTWEIGHT CONCRETE (f'c MIN=3000 PSI) OVER METAL DECK	3/8	2	1003	634
	1/2	2 1/4	1282	893
NORMAL WEIGHT CONCRETE (f'c MIN=3000 PSI)	3/8	2	1003	932
	1/2	2 1/4	1885	1313
	1/2	3 1/4	2683	1710
	5/8	3 1/4	3262	2149
	5/8	4 1/4	3772	3113
UNDERSIDE OF NORMAL WEIGHT CONCRETE THROUGH B-DECK (f'c MIN = 3000 PSI)	3/8	2	955	696
	1/2	2	1440	738

SCREW ANCHORS

INSTALLED INTO:	ANCHOR DIA. (IN)	EMBED hef (IN)	SHEAR (LB)	TENSION (LB)
UNDERSIDE OF NORMAL WEIGHT OR SAND LIGHTWEIGHT CONCRETE WITH METAL W-DECK (f'c MIN=3000 PSI)	1/4	1.92	1023	518
	3/8	2.5	1113	1549
NORMAL WEIGHT CONCRETE (f'c MIN=3000 PSI)	1/4	1.92	778	533
	3/8	2.5	1374	1538
LIGHTWEIGHT CONCRETE (f'c MIN=3000 PSI)	1/4	1.92	674	362
	3/8	2.5	824	923

EXPANSION ANCHORS INSTALLATION CRITERIA B-DECK

	ANCHOR DIAMETER	EFFECTIVE EMBEDMENT	MIN EDGE DISTANCE	MIN SPACING
UNDERSIDE INSTALLATION ONLY	3/8"	2"	6"	6 3/4"
	1/2"	2"	7"	6 3/4"



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United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
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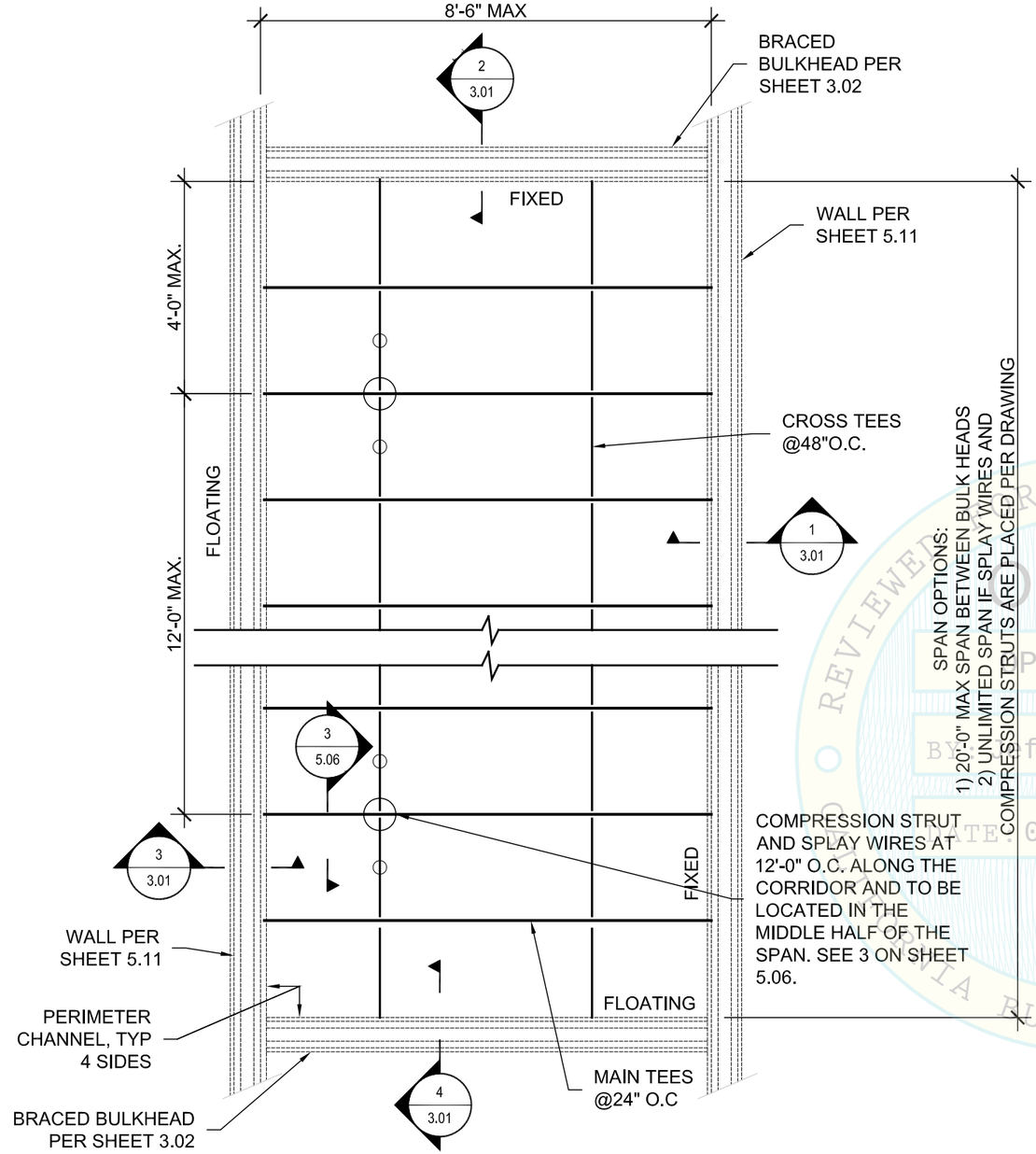
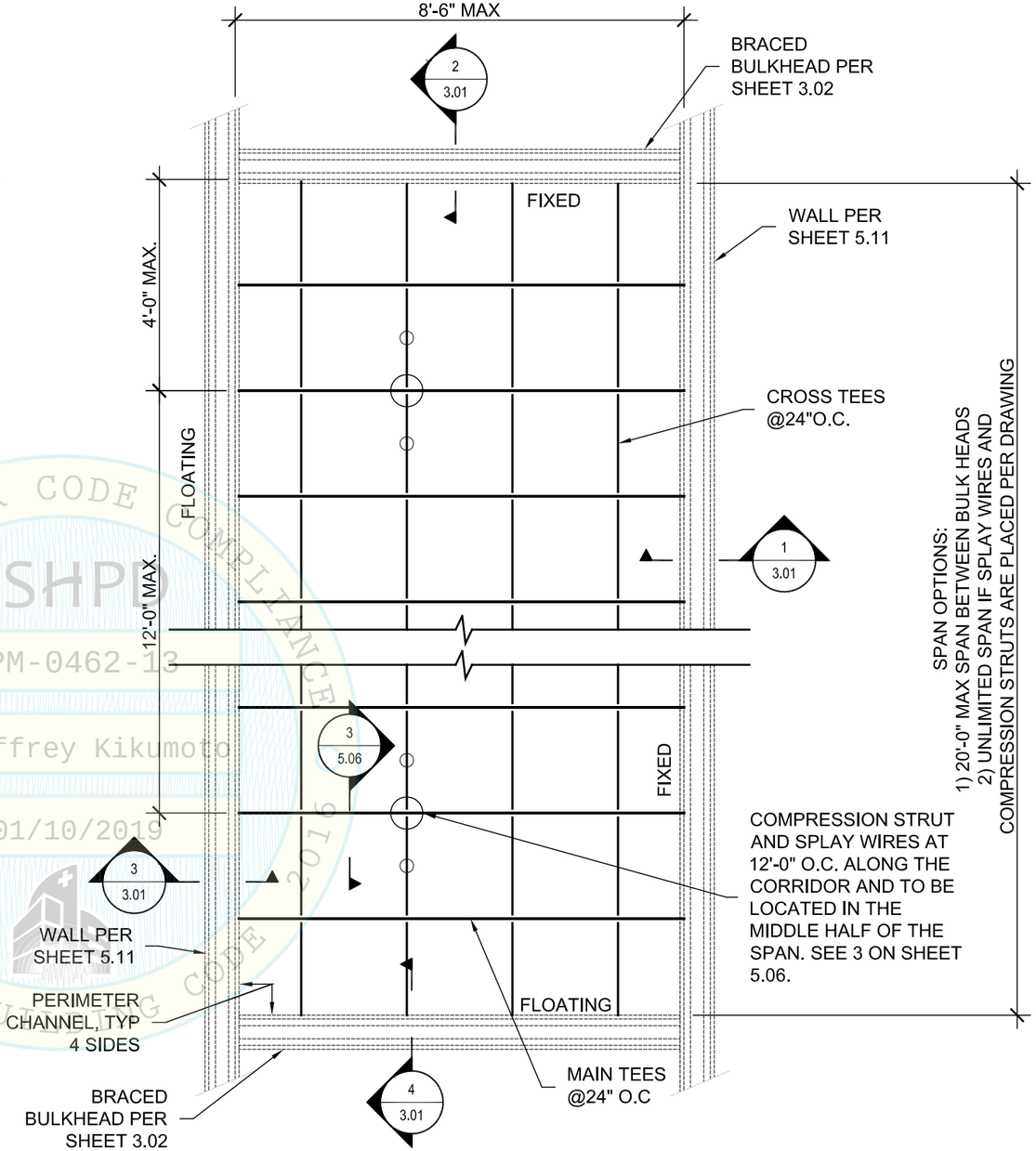


CEILING LAYOUT FOR CORRIDORS W/ MAIN TEES AT 2'-0" O.C FOR $S_{DS} \leq 2.0$

1A — SCALE: 3/8" = 1'-0" — DXAS SUSPENSION SYSTEM



CEILING LAYOUT FOR CORRIDORS W/ MAIN TEES AT 2'-0" O.C FOR $S_{DS} \leq 2.0$

1B — SCALE: 3/8" = 1'-0" — DXAS OR DXTAS SUSPENSION SYSTEM

NOTE:
1. THE LAYOUT OF MAIN TEES IS CRITICAL.
2. THE LAYOUT OF CROSS TEES MAY VARY DEPENDING ON THE TILE SIZE AND AESTHETIC REQUIREMENTS

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United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
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Exp. 12/31/20
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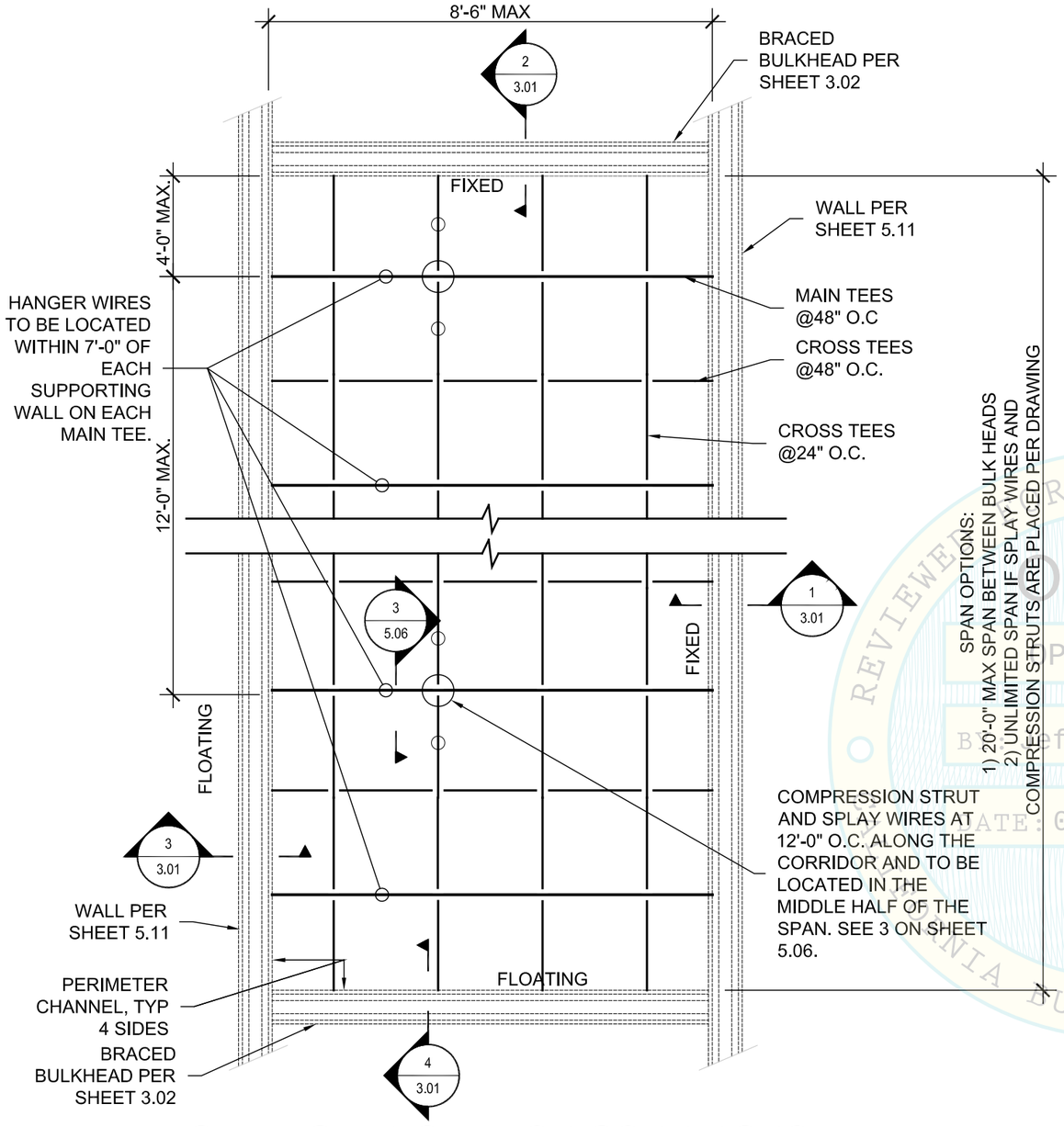

CEILING LAYOUT FOR CORRIDORS W/ MAIN TEES AT 4'-0" O.C FOR $S_{DS} \leq 2.0$

1A

SCALE: 3/8" = 1'-0" DXAS OR DXTAS SUSPENSION SYSTEM

NOTE:
1. THE LAYOUT OF MAIN TEES IS CRITICAL.
2. THE LAYOUT OF CROSS TEES MAY VARY DEPENDING ON THE TILE SIZE AND AESTHETIC REQUIREMENTS

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United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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No. C055700
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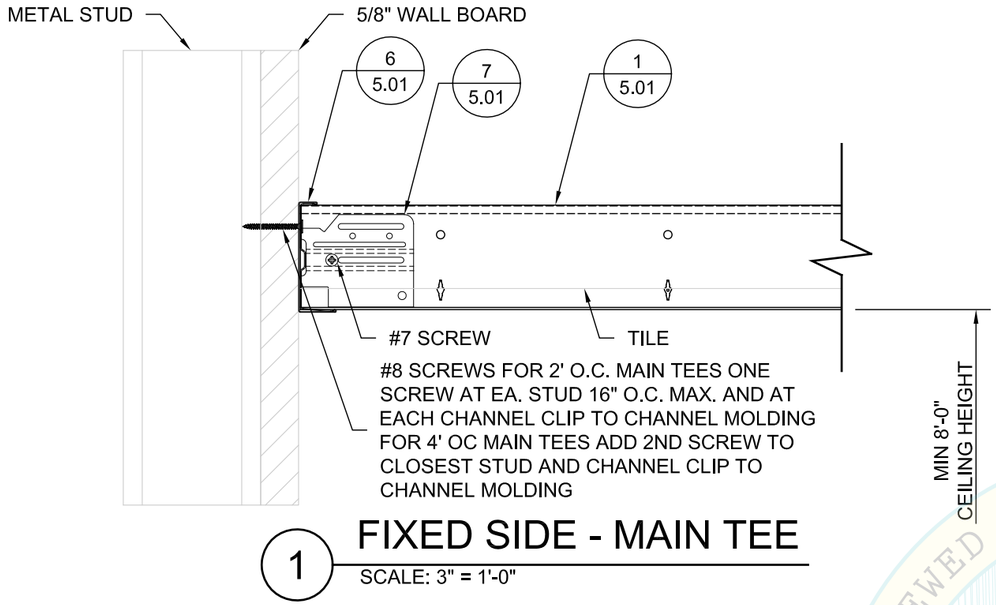
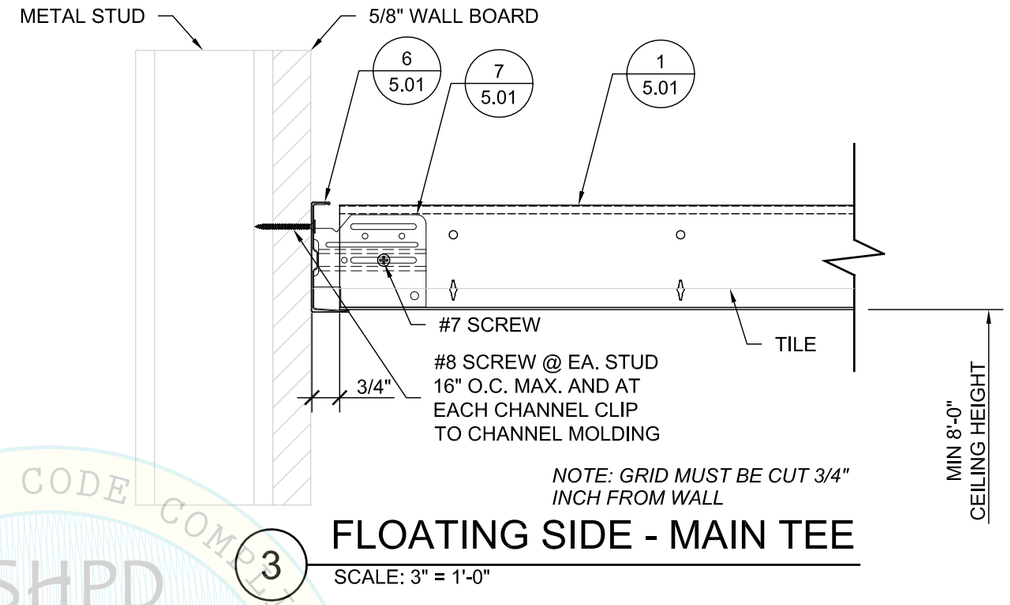


1 FIXED SIDE - MAIN TEE

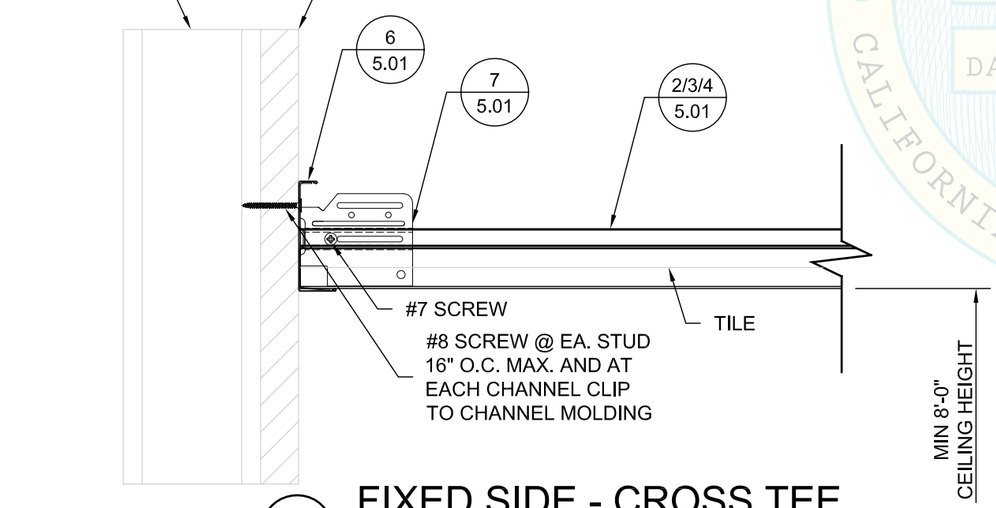
SCALE: 3" = 1'-0"



NOTE: GRID MUST BE CUT 3/4" INCH FROM WALL

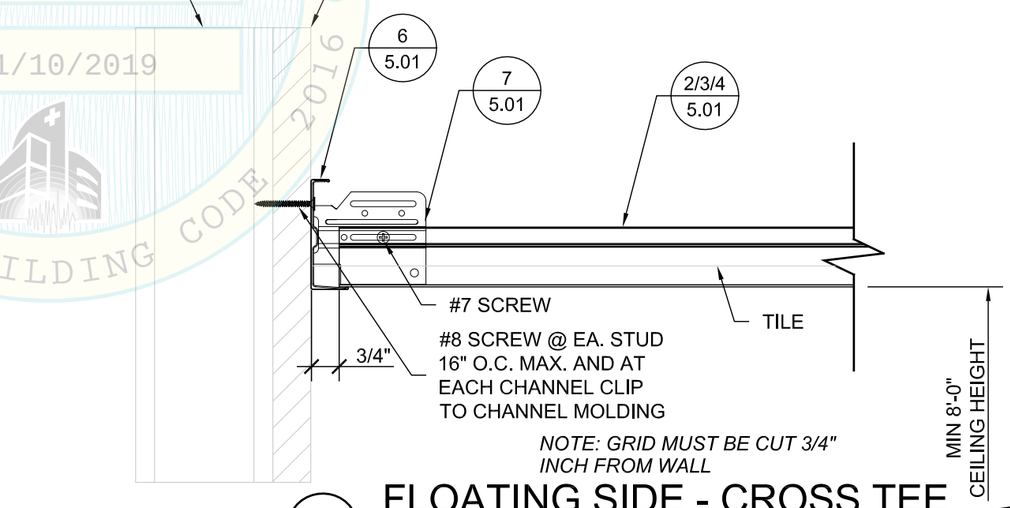
3 FLOATING SIDE - MAIN TEE

SCALE: 3" = 1'-0"



2 FIXED SIDE - CROSS TEE

SCALE: 3" = 1'-0"



NOTE: GRID MUST BE CUT 3/4" INCH FROM WALL

4 FLOATING SIDE - CROSS TEE

SCALE: 3" = 1'-0"

ADVANCESPAN - FIXED SIDE
CAT. D,E,F INSTALLATION HEAVY DUTY

NOTE: SEE NOTE 1.2 ON SHEET 0.02 AND NOTE 5.4 ON SHEET 0.03 REGARDING CEILINGS IN ROOMS ADJACENT TO THE CORRIDOR, TYP ALL

ADVANCESPAN - FLOATING SIDE
CAT. **D,E,F** INSTALLATION HEAVY DUTY

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United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
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58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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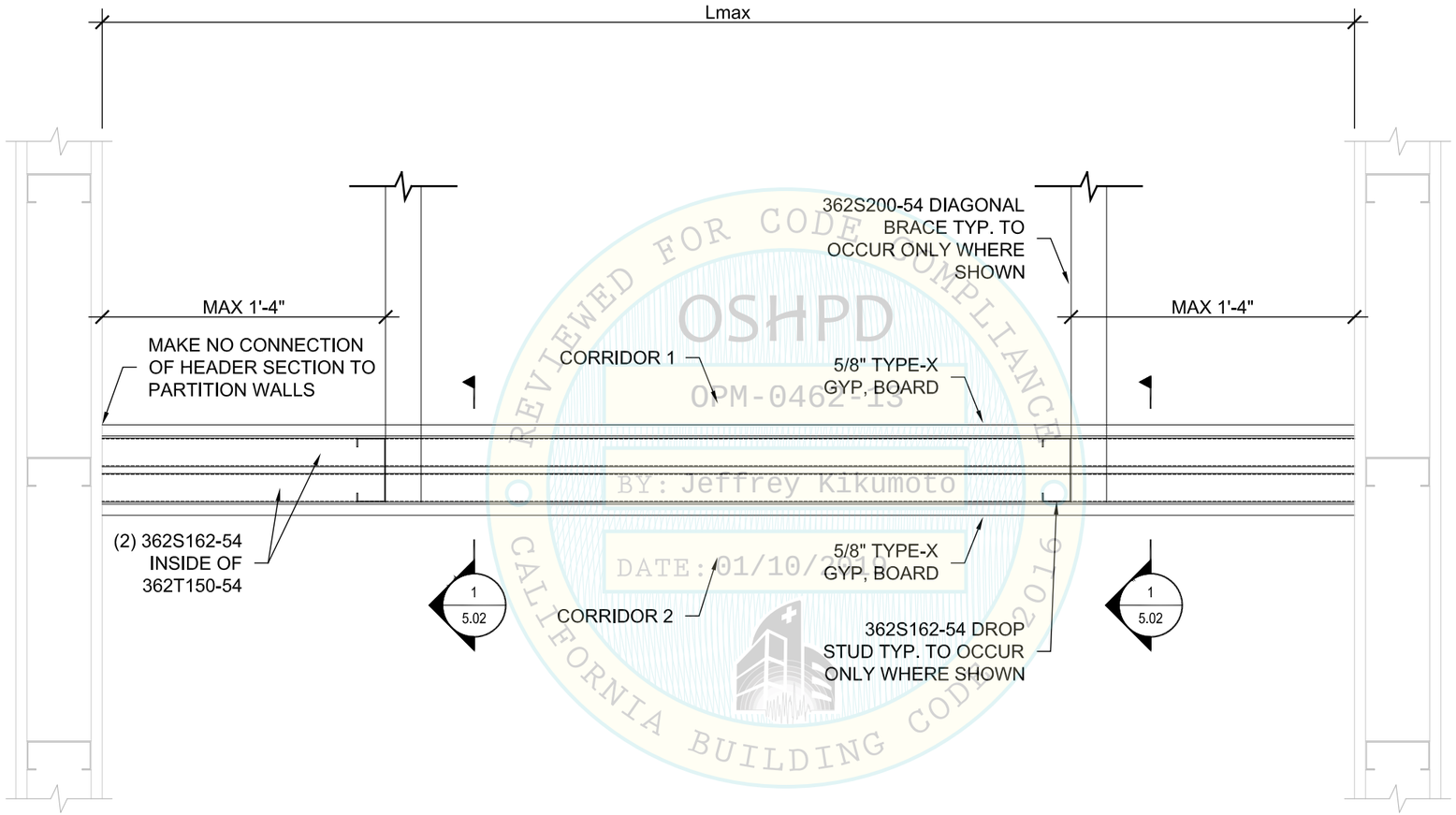

1 BULKHEAD (PLAN VIEW); Lmax = 8.5'

SCALE: 1 1/2" = 1'-0"

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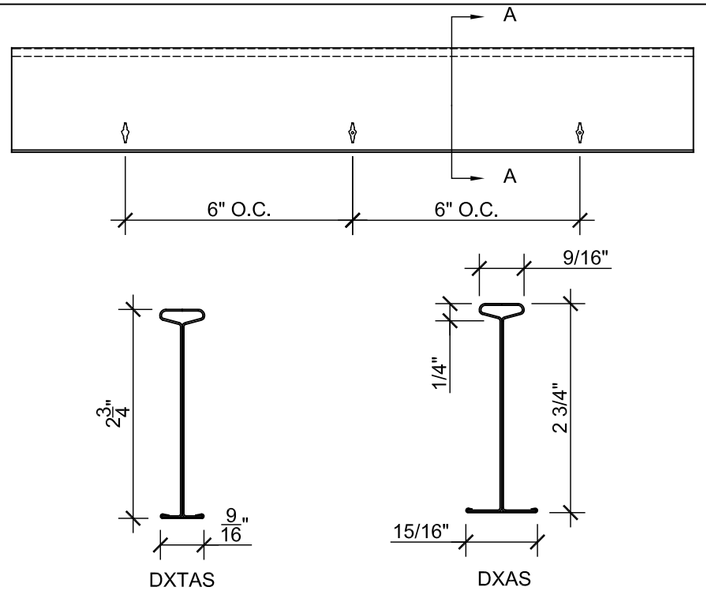
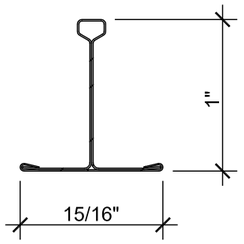
3.02



1 ADVANCESPAN MAIN TEE

SCALE: 6" = 1'-0"



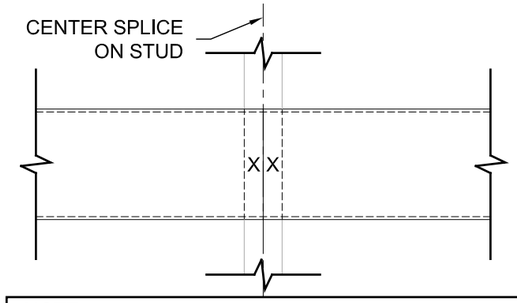
4 DX216

SCALE: 1'-0" = 1'-0"

- DX216 FOR 2' LONG SECTIONS BETWEEN TEES

5 DX OR DXT CROSS TEES

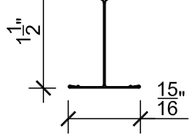
SCALE: 3" = 1'-0"



NOTE:
CHANNEL MOLDING SHALL BE SPLICED AT STUD
WITH #8 SCREW THRU EACH CHANNEL MOLDING

6A CHANNEL MOLDING SPLICE

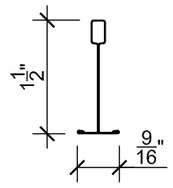
SCALE: 3" = 1'-0"



- DX422 FOR 4' LONG SECTIONS BETWEEN TEES AND AT PERIMETER CHANNEL SUPPORTS (CUT TO REQUIRED LENGTH WITH US44CC AT END)
- DX424 FOR FIRE RATED ASSEMBLY AND MAY SUBSTITUTE DX422

2 DX424/DX422

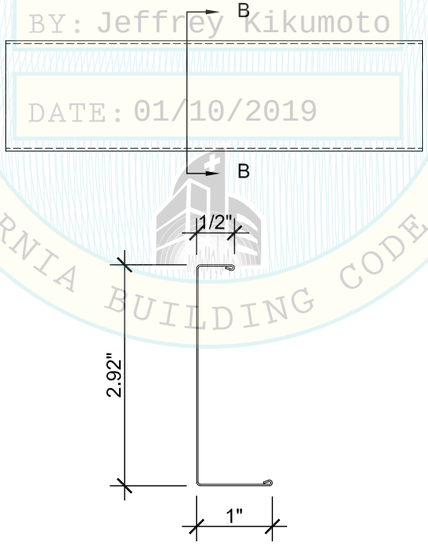
SCALE: 6" = 1'-0"



- DXT422 FOR 4' LONG SECTIONS BETWEEN TEES AND AT PERIMETER CHANNEL SUPPORTS (CUT TO REQUIRED LENGTH WITH US44CC AT END)
- DXT424 FOR FIRE RATED ASSEMBLY AND MAY SUBSTITUTE DXT422
- DXT222 FOR 2' LONG SECTIONS BETWEEN TEES AND AT PERIMETER CHANNEL SUPPORTS (REPLACE CLIP ON ONE END WITH US44CC)

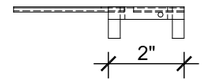
3 DXT424/DXT422/DXT222

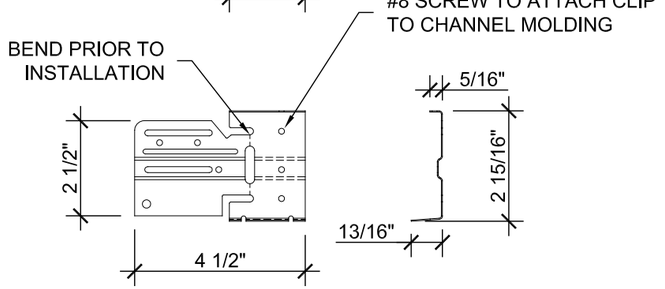
SCALE: 6" = 1'-0"



6 US44 CHANNEL MOLDING

SCALE: 6" = 1'-0"





7 US44CC CHANNEL CLIP

SCALE: 3" = 1'-0"

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Phone (574) 533-0337
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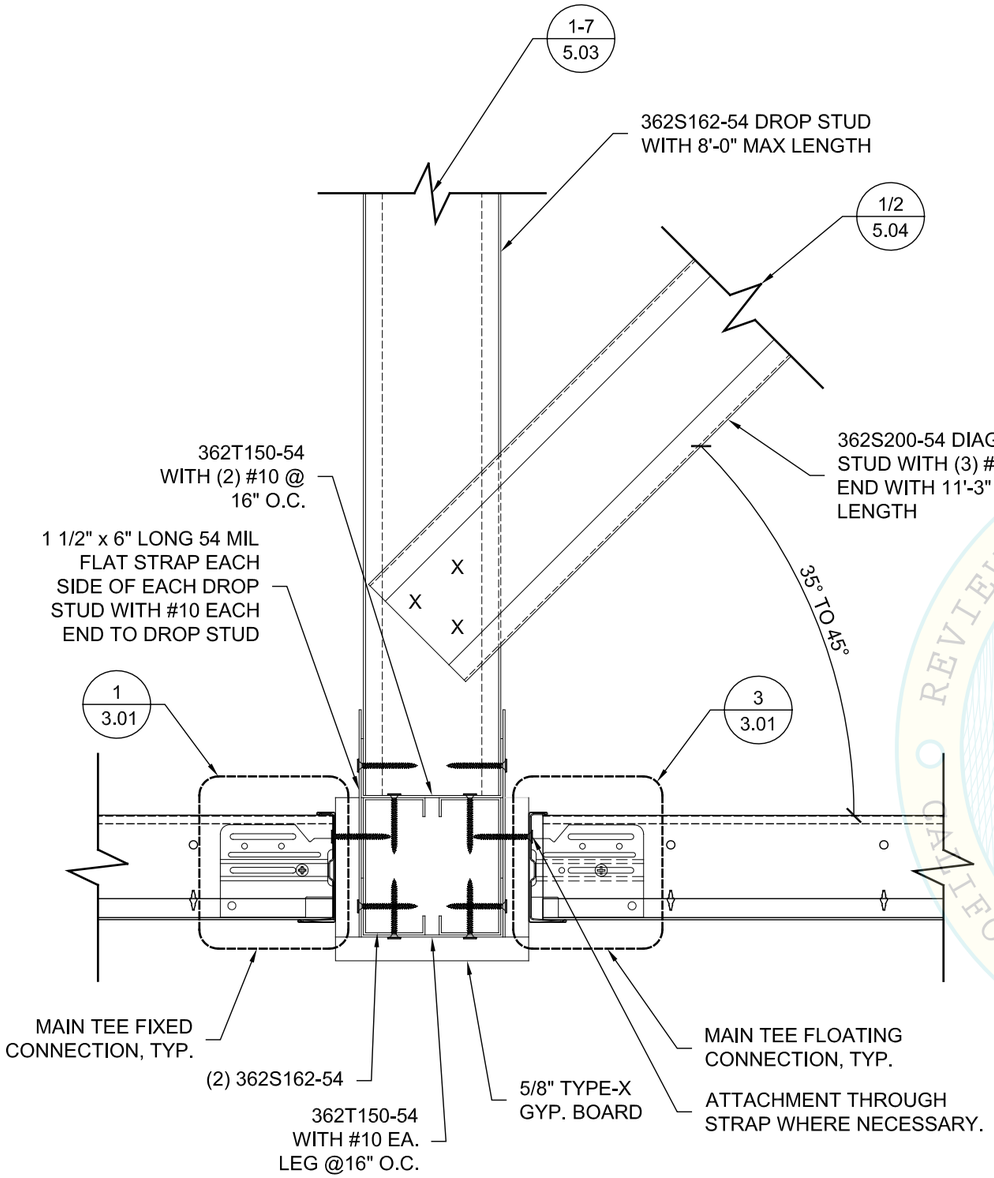
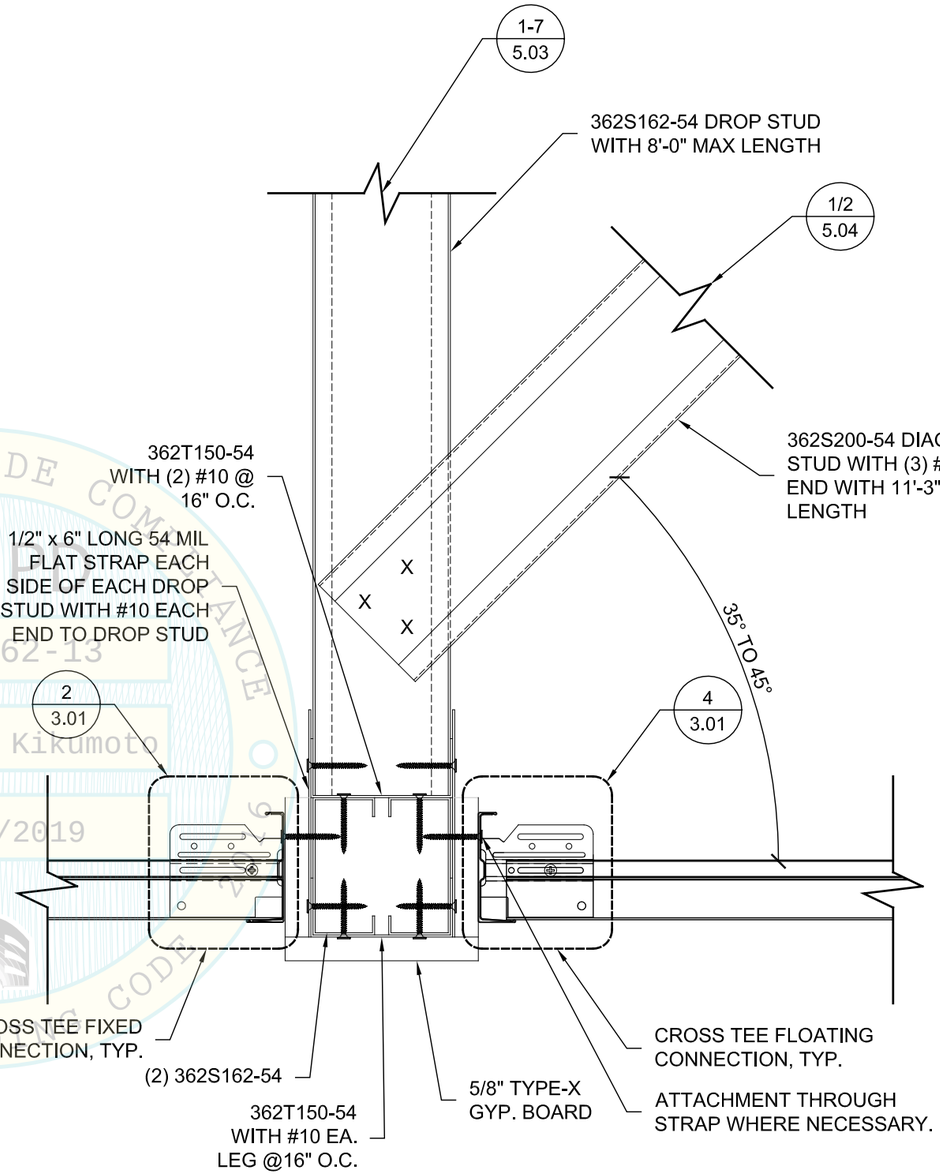


LATERALLY BRACED BULKHEAD AND TYP. MAIN TEE CONNECTIONS

1 SCALE: 3" = 1'-0"



LATERALLY BRACED BULKHEAD AND TYP. CROSS TEE CONNECTIONS

2 SCALE: 3" = 1'-0"

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Progressive Engineering Inc.
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Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
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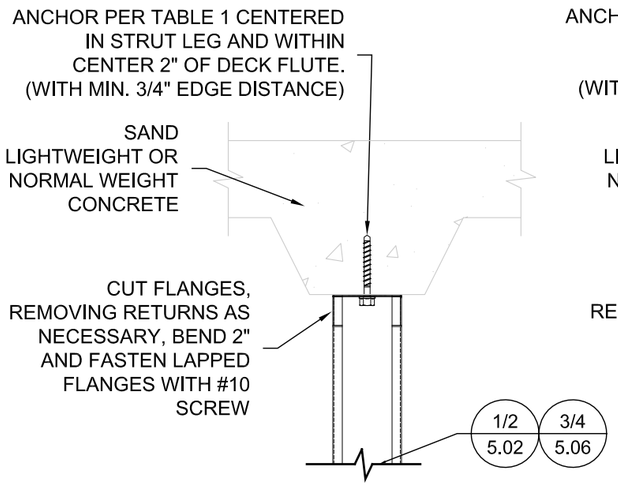
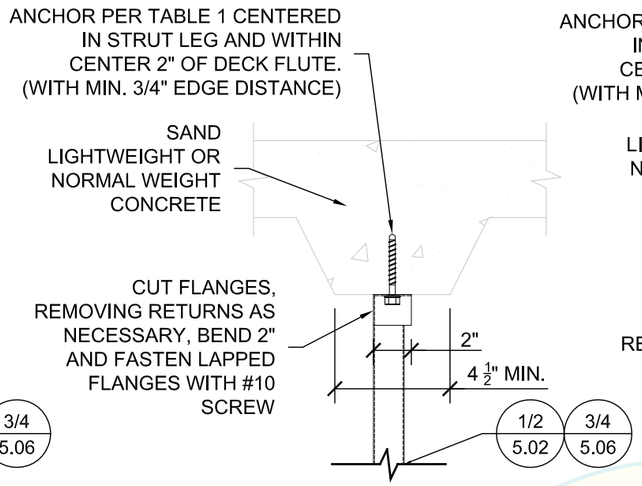


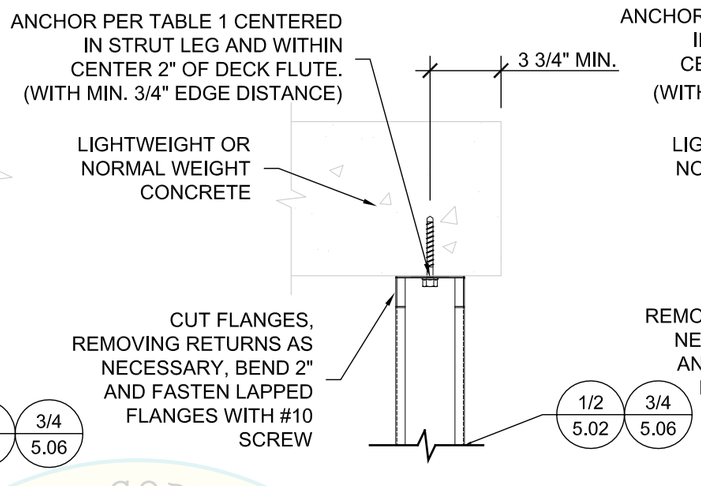
1 ANCHOR CENTERED IN FLUTE

SCALE: 1 1/2" = 1'-0"



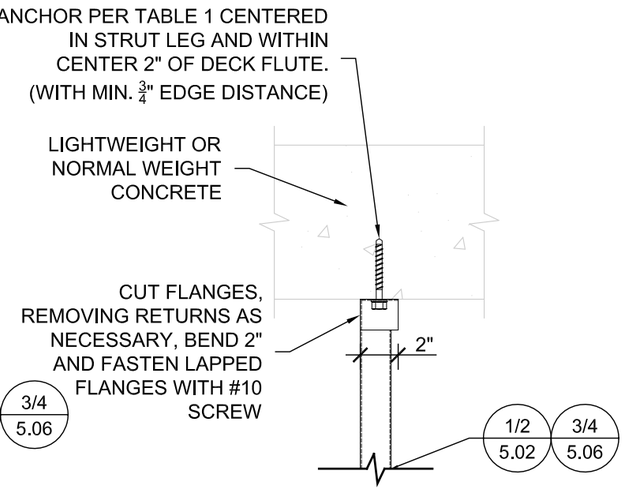
2 ANCHOR CENTERED IN FLUTE

SCALE: 1 1/2" = 1'-0"



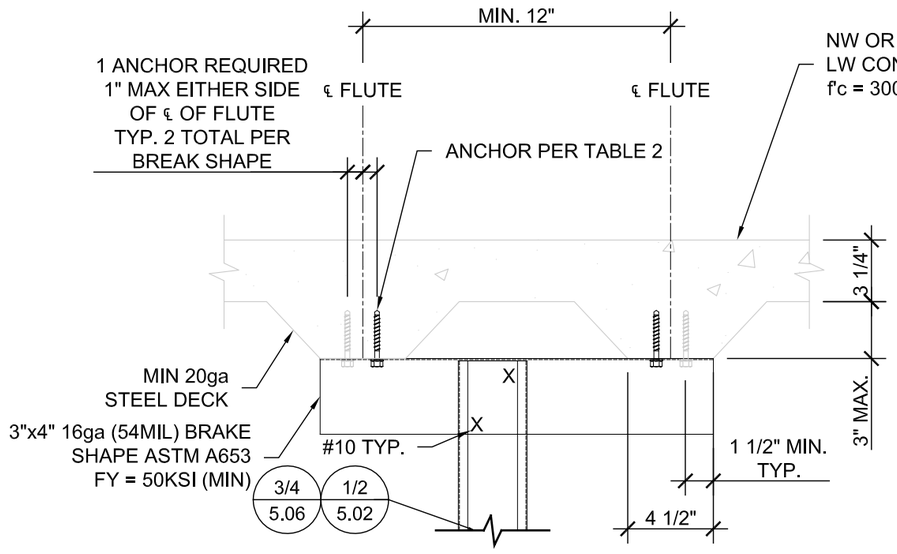
3 CONC. SLAB

SCALE: 1 1/2" = 1'-0"



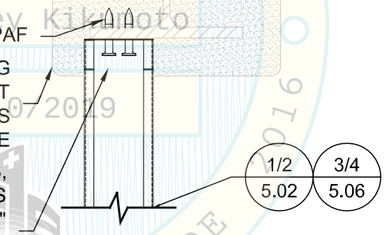
4 CONC. SLAB

SCALE: 1 1/2" = 1'-0"



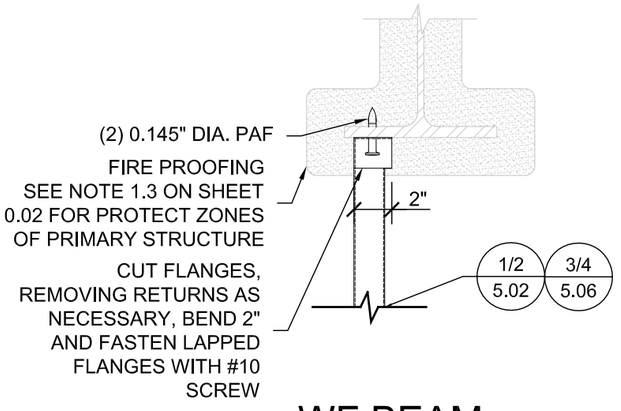
5 ANCHOR OFFSET FROM FLUTE

SCALE: 1 1/2" = 1'-0"



6 WF BEAM

SCALE: 1 1/2" = 1'-0"



7 WF BEAM

SCALE: 1 1/2" = 1'-0"

BULKHEAD/STRUT CONNECTIONS

TABLE 1	TABLE 2
CONCRETE ANCHOR OPTIONS	**CONCRETE ANCHOR OPTIONS**
3/8"Ø X 3 1/4" EMBED (H_{ef} = 2 1/2") HILTI HUS-EZ PER 0.07	1/4"Ø X 2 1/2" (hef = 1.92") EMBED HILTI HUS-EZ @ LOW FLUTE PER 0.07
3/8"Ø EXPANSION ANCHOR PER 0.07	3/8"Ø EXPANSION ANCHOR PER 0.07

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United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
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Phone (574) 533-0337
Fax (574) 533-9736
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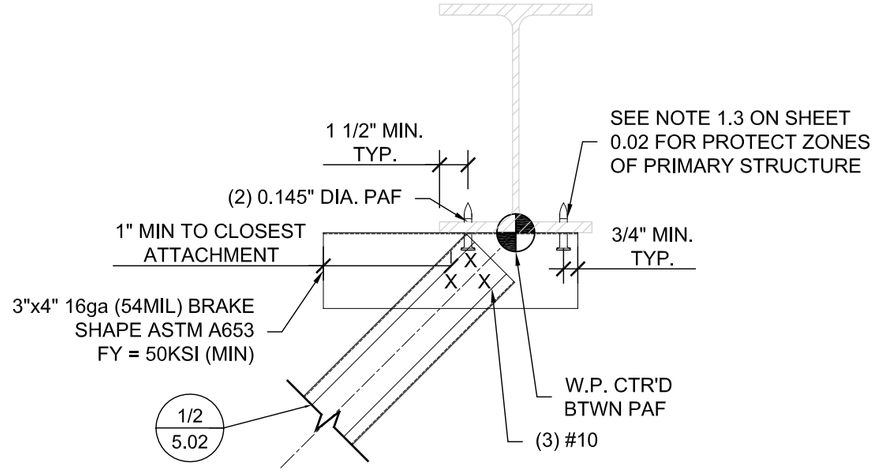
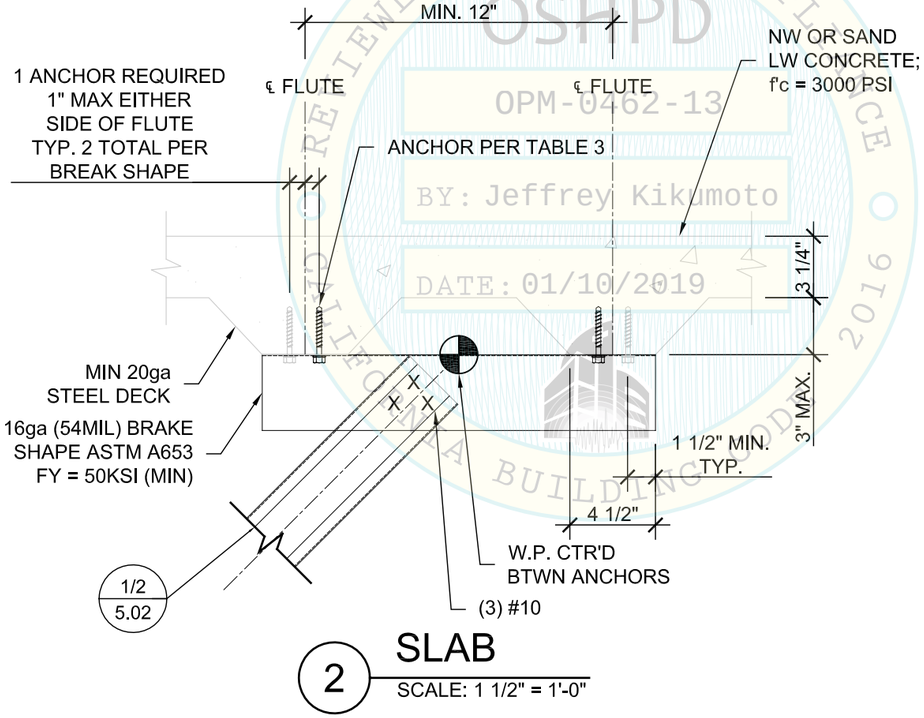


1 WF BEAM

SCALE: 1 1/2" = 1'-0"



2 SLAB

SCALE: 1 1/2" = 1'-0"

RIGID BRACE CONNECTIONS

CONCRETE ANCHOR OPTIONS
TABLE 3
1/4"Ø X 2 1/2" EMBED HILTI HUS-EZ @ LOW FLUTE PER 0.07
3/8"Ø EXPANSION ANCHOR PER 0.07

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United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
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EVOR F. JOHNS
No. C055700
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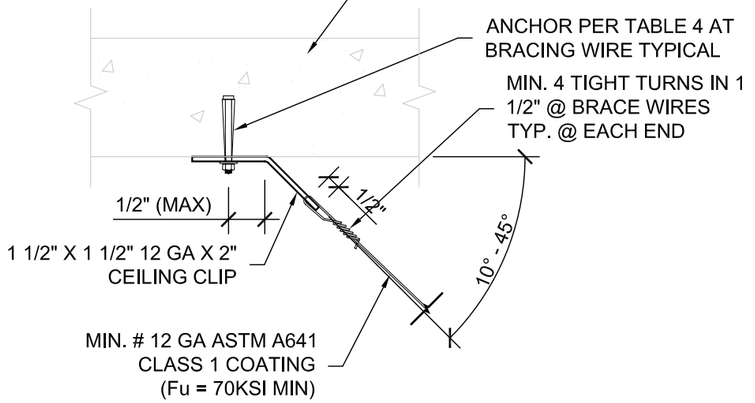
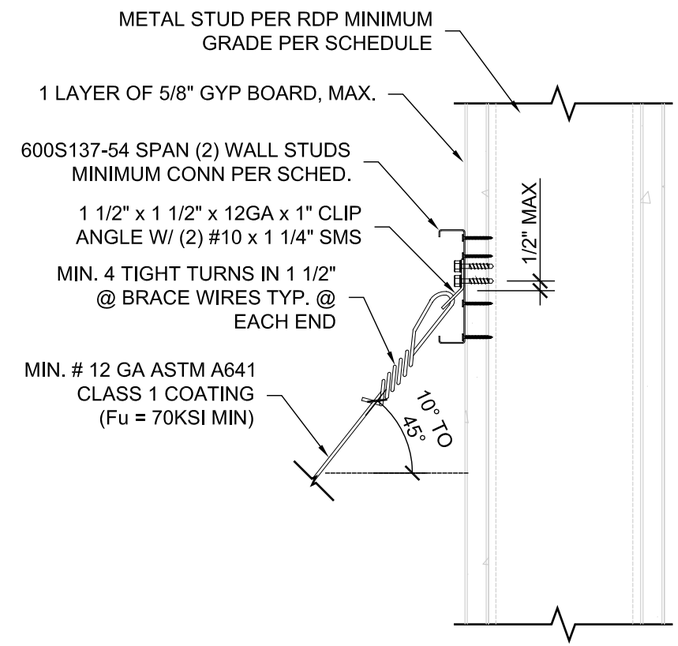


1 SPLAY BRACE

CONCRETE ANCHOR OPTIONS		
TABLE 4		
ANCHOR BOLT SIZE	**SPLAY BRACE/COMP POST SPACING**	**S_{DS} (g) RANGE (z/h ≤ 1.0)**
5/8"Ø X 4 1/4" hef EMBED	12'	$0<S_{DS}<2.0$
3/8"Ø X 2" hef EMBED	12'	$0<S_{DS}<1.24$ (IN LIEU OF S_{DS} SHOWN ABOVE)

NOTES:
1. WHEN DRILLED-IN CONCRETE ANCHORS ARE USED FOR BRACING WIRES, 1 OUT OF 2 WIRE/ANCHOR ASSEMBLIES SHALL BE FIELD TESTED FOR 440 LBS. IN TENSION IN THE DIRECTION OF THE WIRE. PAF IN CONCRETE ARE NOT PERMITTED FOR BRACING WIRES.

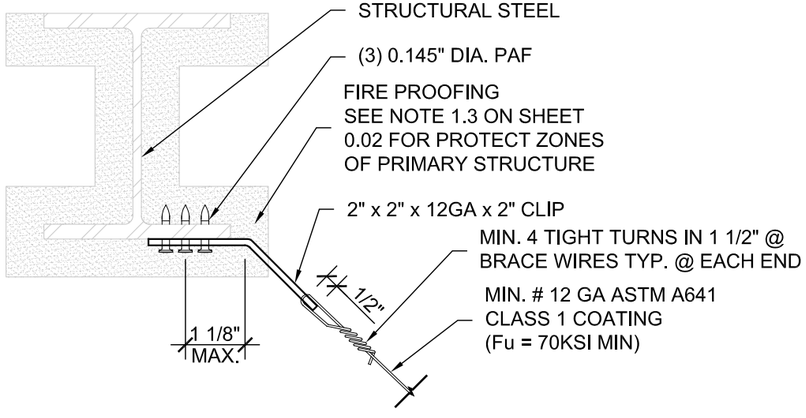


WALL STUD GAUGE	CONN TO EACH WALL STUD	CONN TO EACH WALL STUD ALT[3]
20 GA	(5) #10 x 1 1/4" SMS	(3) #10 x 1 1/4" SMS
18 GA	(4) #10 x 1 1/4" SMS	(2) #10 x 1 1/4" SMS

NOTES:
1. RDP SHALL DESIGN FRAMING WALL TO CARRY THE CEILING LOAD PER NOTE #2.
2. SEISMIC SPLAY BRACE WIRE FORCE = 473 LBS (LRFD LOAD). BRACING WIRE SHALL HAVE A MINIMUM STRETCH LENGTH (CLEAR LENGTH BETWEEN TURNS) OF 12", WHEN USED AT FREE JOINT.
3. APPLIES WHERE CLIP ATTACHED DIRECTLY TO WALL STUD. (#10 CLIP ANGLE SCREWS FASTENS TO 600S HORIZONTAL MEMBER AND VERTICAL STUD FLANGE)

SPLAY BRACE CONNECTION TO METAL STUD WALL

3



SPLAY BRACE

2

NOTES :
1. BEAM FLANGE THICKNESS SHALL NOT BE LESS THAN 3/16" OR MORE THAN 3/8"
2. FRAMING MEMBERS SHALL BE DESIGNED TO CARRY THE CEILING LOADS, RDP TO VERIFY
3. RDP IN RESPONSIBLE CHARGE, I.O.R. AND CONTRACTOR SHALL VERIFY THAT NO PAF IS INSTALLED IN THE PROTECTED ZONE OF ANY STEEL MEMBER, AS DEFINED IN ANSI/AISC 341-10.

SPLAY WIRES

REGISTERED PROFESSIONAL ENGINEER
EVOR F. JOHNS
No. C055700
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA
12/20 /2018

USG INTERIORS, LLC
United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839
USG

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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Nathan Penner

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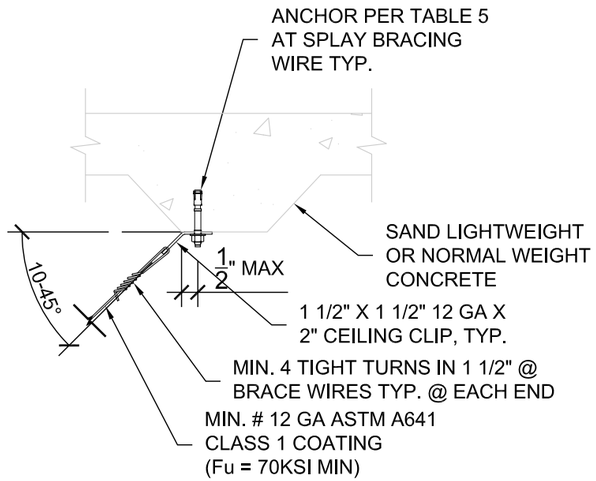
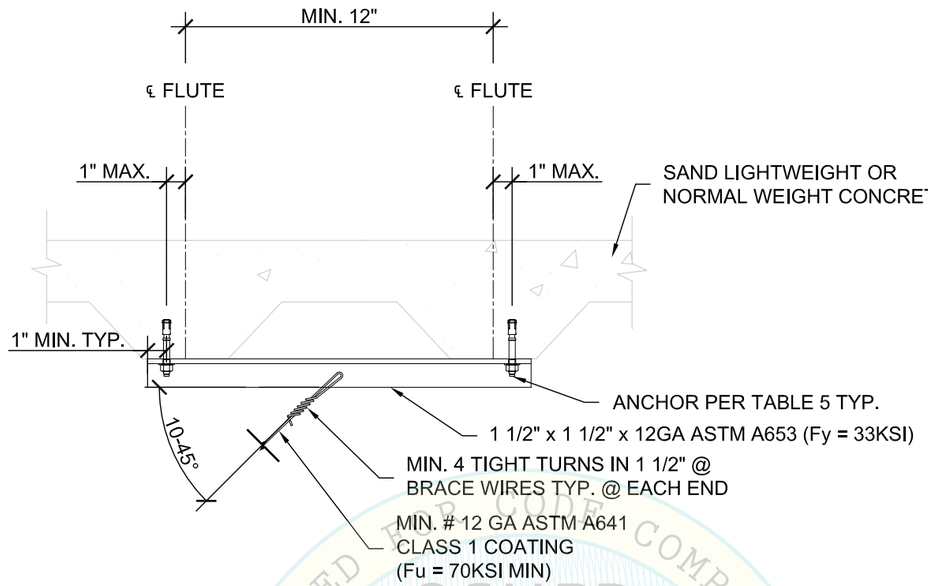


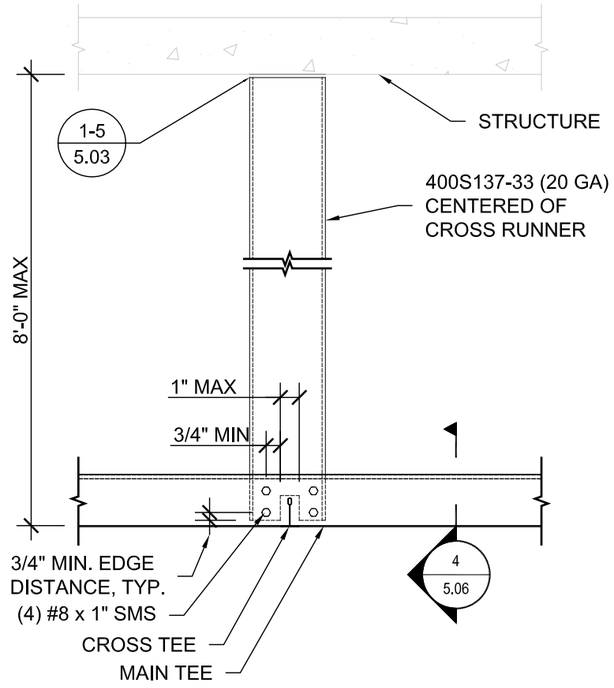
1 SPLAY BRACE



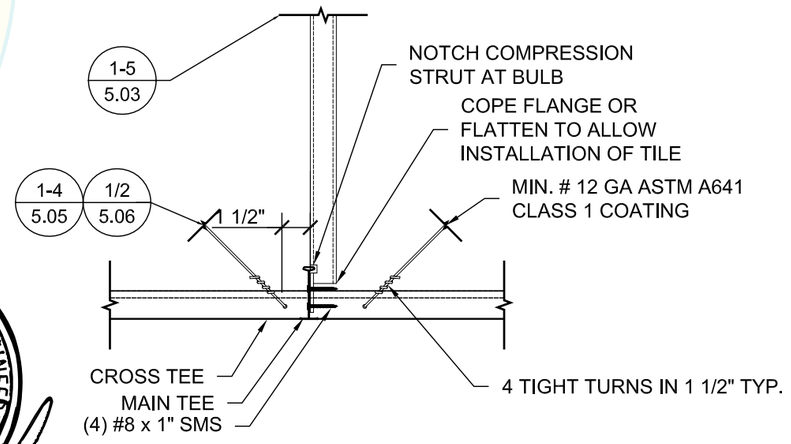
2 SPLAY BRACE

CONCRETE ANCHOR OPTIONS TABLE 5			
ANCHOR BOLT SIZE	**SPLAY BRACE/COMP POST SPACING**	**S_{DS} (g) RANGE (z/h ≤ 1.0)**	**DECK TYPE**
5/8"Ø X 4 1/4" hef EMBED	12'	$0<S_{DS}<2.0$	W3 + 3 1/4: MIN PER 0.07
3/8"Ø X 2" hef EMBED	12'	$0<S_{DS}<1.14$ (IN LIEU OF S_{DS} SHOWN ABOVE)	W3 + 3 1/4" MIN PER 0.07 B 1 1/2" + 2 1/4" MIN. PER 0.07

NOTES:
1. WHEN DRILLED-IN CONCRETE ANCHORS ARE USED FOR BRACING WIRES, 1 OUT OF 2 WIRE/ANCHOR ASSEMBLIES SHALL BE FIELD TESTED FOR 440 LBS. IN TENSION IN THE DIRECTION OF THE WIRE. PAF IN CONCRETE ARE NOT PERMITTED FOR BRACING WIRES.



3 COMPRESSION STRUT



4 COMPRESSION STRUT SECTION

SPLAY WIRES

USG INTERIORS, LLC
United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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Nathan Penner

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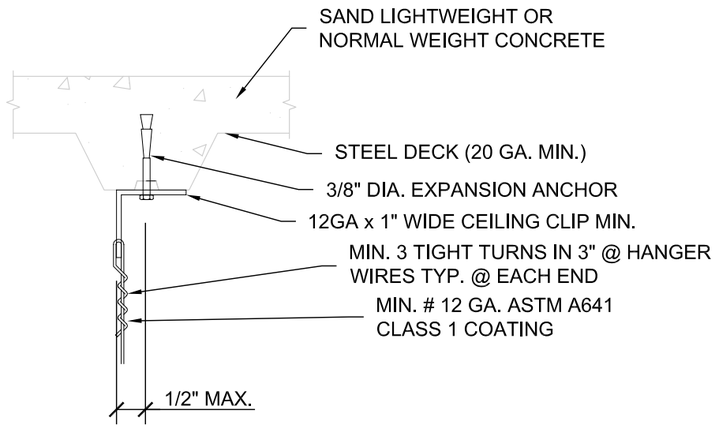
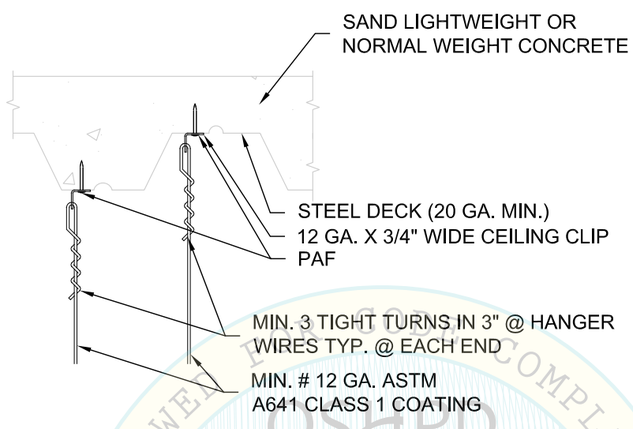
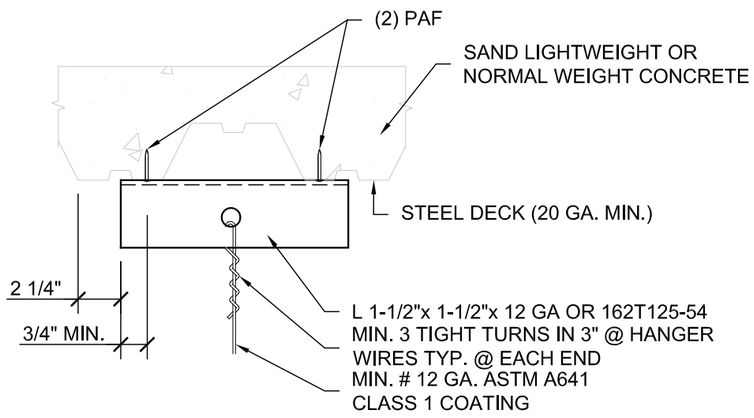
NOTE:
1. WHEN DRILLED-IN CONCRETE ANCHORS OR PAF ARE USED IN REINFORCED CONCRETE FOR HANGER WIRES, 1 OUT OF 10 WIRE/ANCHOR ASSEMBLIES SHALL BE FIELD TESTED FOR 200 LBS. IN TENSION.
2. LOAD TEST IN ACCORDANCE WITH GENERAL NOTE 6.4.5, PAGE 0.03 SHALL BE REQUIRED
3. WHEN APPLICABLE PRIOR TO INSTALLATION, REINFORCING/PRESTRESSING BAR LOCATIONS SHALL BE DETERMINED BY NON-DESTRUCTIVE TESTING



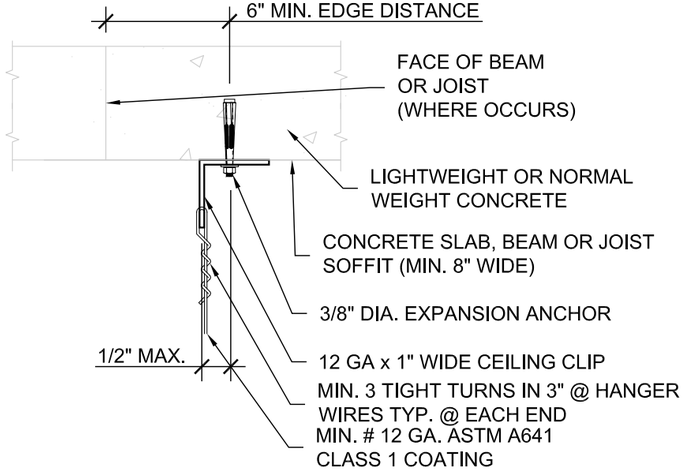
1 HANGER WIRE



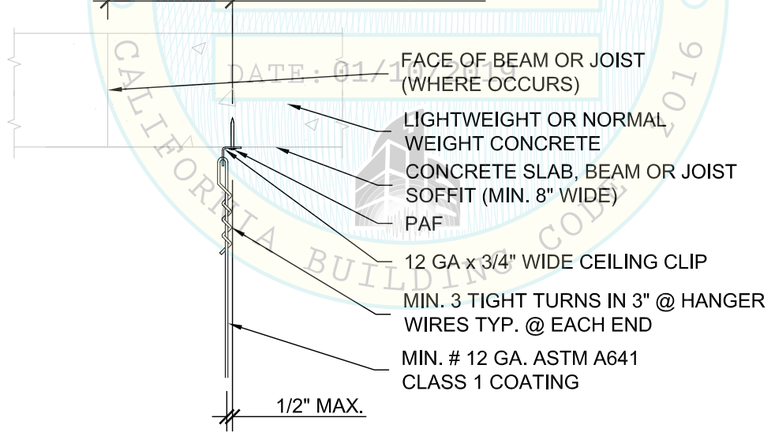
2 HANGER WIRE



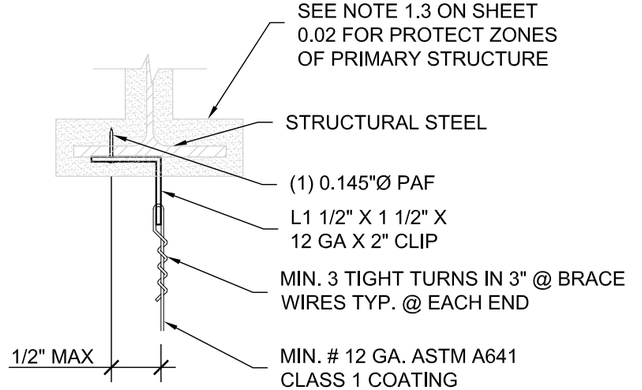
3 HANGER WIRE



4 HANGER WIRE



5 HANGER WIRE



6 HANGER WIRE

HANGER WIRE

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United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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Nathan Penner

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REGISTERED PROFESSIONAL ENGINEER
EVOR F. JOHNS
No. C055700
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA
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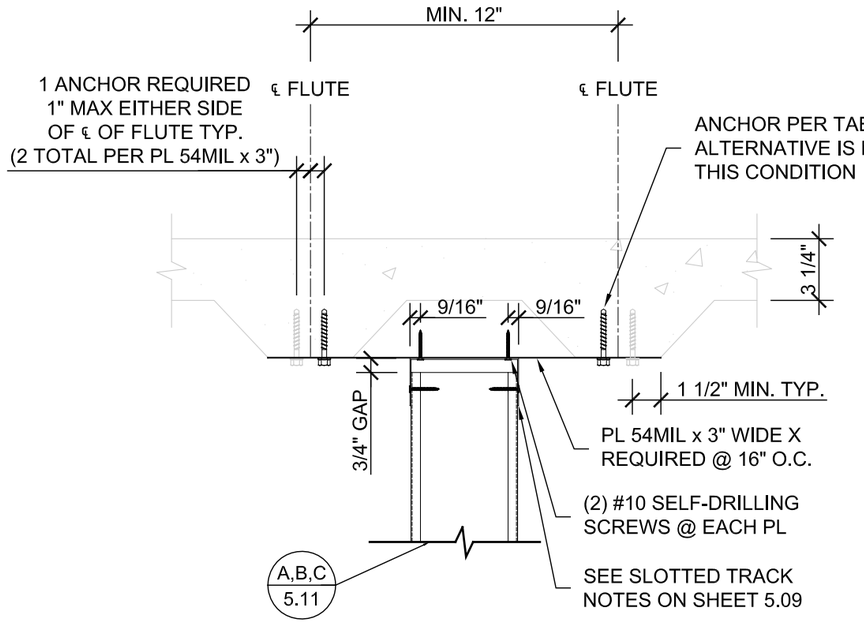
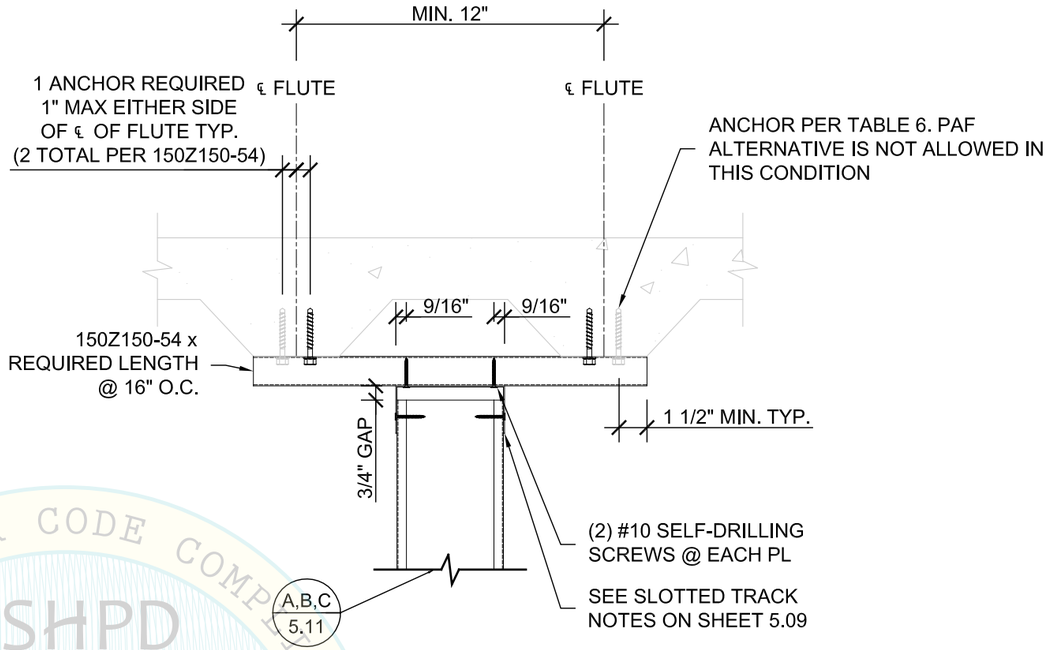


1 PARALLEL TO METAL DECK

SCALE: 1 1/2" = 1'-0"

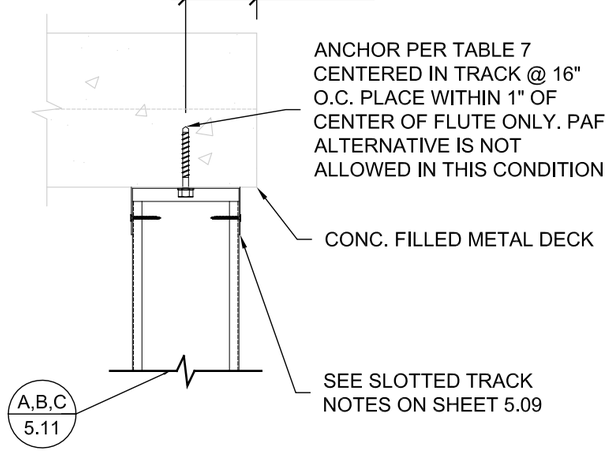
SEE SHEET 0.03 NOTE 5.2 FOR OTHER DECK PARAMETERS



2 PARALLEL TO METAL DECK WITH ZEE

SCALE: 1 1/2" = 1'-0"

SEE SHEET 0.03 NOTE 5.2 FOR OTHER DECK PARAMETERS

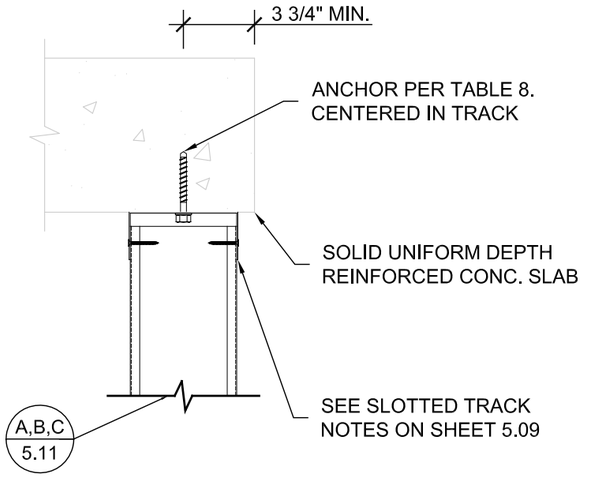


3 PERPENDICULAR TO METAL DECK

SCALE: 1 1/2" = 1'-0"

SEE SHEET 0.03 NOTE 5.2 FOR OTHER DECK PARAMETERS

CONCRETE ANCHOR OPTIONS		
TABLE 6	**TABLE 7**	**TABLE 8**
1/4"Ø x 21/2" EMBED (h_{ef} = 1.92") HILTI HUS-EZ @ LOW FLUTE. PER 0.07	3/8"Ø x 3 1/4" EMBED (h_{ef} = 2 1/2") HILTI HUS-EZ. PER 0.07	3/8"Ø x 3 1/4" EMBED (h_{ef} = 2 1/2") HILTI HUS-EZ @ 16" O.C. PER 0.07
3/8"Ø EXPANSION ANCHOR PER 0.07	3/8"Ø EXPANSION ANCHOR PER 0.07	3/8"Ø EXPANSION ANCHOR PER 0.07 @ 16" O.C.
		(2) PAF @ 4" O.C.



4 CONC. SLAB

SCALE: 1 1/2" = 1'-0"

SEE SHEET 0.03 NOTE 5.3 FOR OTHER SLAB PARAMETERS

TOP OF WALL SLOTTED TRACK CONNECTIONS

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United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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Nathan Penner

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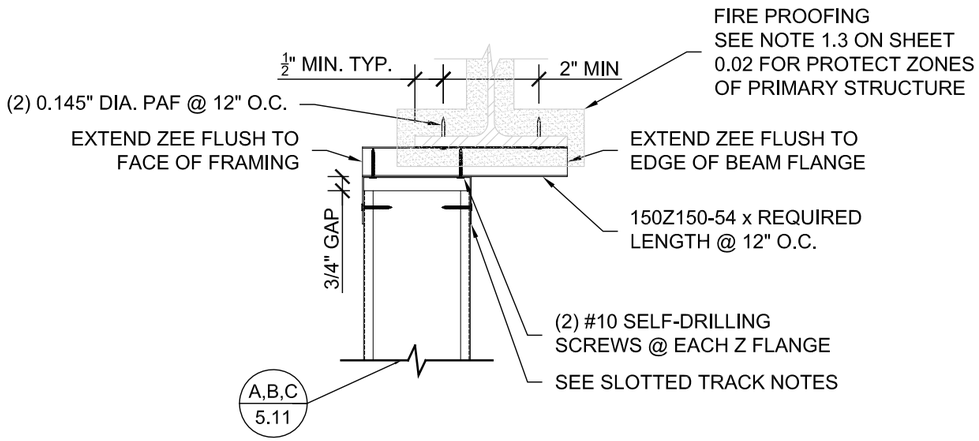
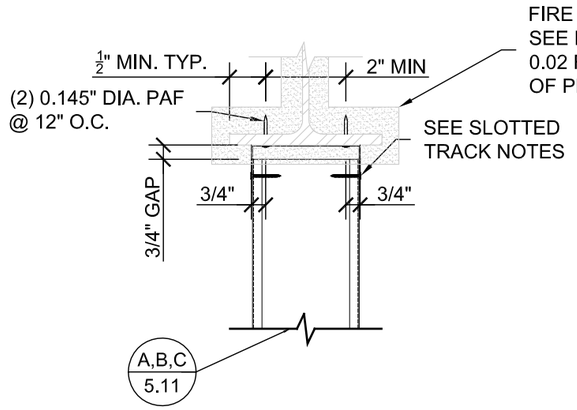
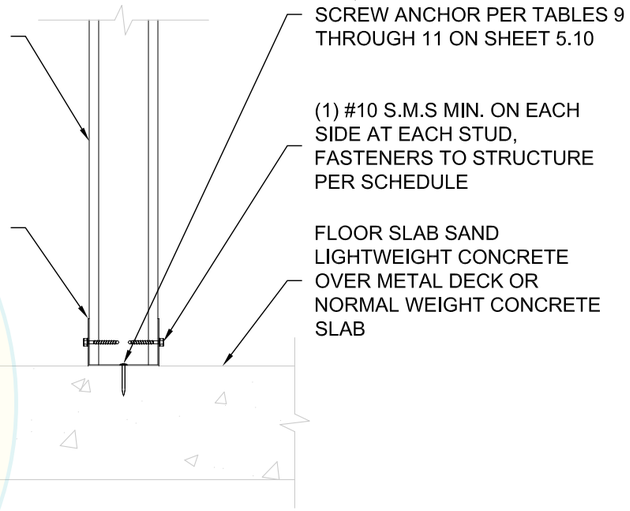


1 WF BEAM WITH ZEE



2 WF BEAM



3 CORRIDOR WALL BOTTOM TRACK ANCHORAGE

1. SEE SHEET 0.06 AND NOTE 4.2.2 ON SHEET 0.02 FOR PAF REQUIREMENT. SEE SHEET 0.07 AND NOTE 4.2.3 ON SHEET 0.02 FOR EXPANSION ANCHOR AND SCREW REQUIREMENTS
2. SEE SHEET 5.11 FOR PARTITION WALL STUD SCHEDULE

SLOTTED TRACK CONNECTION NOTES (APPLICABLE TO THIS SHEET AND SHEET 5.08):

1. 16 GA SLOTTED TRACK WITH 2 1/2" LEGS WITH 1 1/2" SLOTS CENTERED IN LEG WITH #8 SELF-DRILLING SCREWS EACH LEG (CENTER IN SLOT).
2. MAKE NO CONNECTION OF FINISH TO TRACK.
3. SEE SECTION 5 OF GENERAL NOTES FOR MINIMUM SUBSTRATE REQUIREMENTS
4. CONFIRM SLAB REINFORCEMENT & LOCATE AS REQUIRED PER ANCHOR NOTES ON 0.02 & 0.03 PRIOR TO ANCHOR INSTALLATION.
5. LOAD TEST IN ACCORDANCE WITH GENERAL NOTE 6.4.5 PAGE 0.03 SHALL BE REQUIRED.

TOP OF WALL SLOTTED TRACK CONNECTIONS

REGISTERED PROFESSIONAL ENGINEER
EVOR F. JOHNS
No. C055700
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA
12/20 /2018

USG INTERIORS, LLC
United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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DATE: 07/19/2017
Nathan Penner

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TABLE 9 - FASTENER MAX SPACING SCHEDULE (SCENARIO A) (NORMAL WEIGHT CONCRETE / LIGHTWEIGHT CONCRETE)

MAX PARTITION WALL HEIGHT	S_{DS}	PAF	3/8"Ø EXPANSION ANCHOR WITH 2" EMBED	1/2"Ø EXPANSION ANCHOR WITH 2 1/4" EMBED	1/2"Ø EXPANSION ANCHOR WITH 2 1/2" EMBED
9'	0.25-0.99	32 / 32	32 / 32	32 / 32	32 / 32
	1.00-1.25	24 / 24	32 / 32	32 / 32	32 / 32
	1.26-1.45	16 / 16	32 / 32	32 / 32	32 / 32
	1.46-2.00	16 / 16	32 / 32	32 / 32	32 / 32
12	0.25-0.99	24 / 24	32 / 32	32 / 32	32 / 32
	1.00-1.25	16 / 16	32 / 32	32 / 32	32 / 32
	1.26-1.45	16 / 16	32 / 32	32 / 32	32 / 32
	1.46-2.00	8 / 8	32 / 32	32 / 32	32 / 32
16	0.25-0.99	16 / 16	32 / 32	32 / 32	32 / 32
	1.00-1.25	8 / 8	32 / 32	32 / 32	32 / 32
	1.26-1.45	8 / 8	32 / 32	32 / 32	32 / 32
	1.46-2.00	8 / 8	32 / 32	32 / 32	32 / 32

TABLE 10 - FASTENER MAX SPACING SCHEDULE (SCENARIO B) (NORMAL WEIGHT CONCRETE / LIGHTWEIGHT CONCRETE)

MAX PARTITION WALL HEIGHT	S_{DS}	PAF	3/8"Ø EXPANSION ANCHOR WITH 2" EMBED	1/2"Ø EXPANSION ANCHOR WITH 2 1/4" EMBED	1/2"Ø EXPANSION ANCHOR WITH 2 1/2" EMBED
9'	0.25-0.99	16 / 16	32 / 32	32 / 32	32 / 32
	1.00-1.25	16 / 16	32 / 32	32 / 32	32 / 32
	1.26-1.45	8 / 8	32 / 32	32 / 32	32 / 32
	1.46-2.00	8 / 8	32 / 32	32 / 32	32 / 32
12	0.25-0.99	16 / 16	32 / 32	32 / 32	32 / 32
	1.00-1.25	8 / 8	32 / 32	32 / 32	32 / 32
	1.26-1.45	8 / 8	32 / 32	32 / 32	32 / 32
	1.46-2.00	8 / 8	32 / 32	32 / 32	32 / 32
16	0.25-0.99	8 / 8	32 / 32	32 / 32	32 / 32
	1.00-1.25	8 / 8	32 / 32	32 / 32	32 / 32
	1.26-1.45	8 / 8	32 / 32	32 / 32	32 / 32
	1.46-2.00	-	32 / 32	32 / 32	32 / 32

TABLE 11 - FASTENER MAX SPACING SCHEDULE (SCENARIO C) (NORMAL WEIGHT CONCRETE / LIGHTWEIGHT CONCRETE)

MAX PARTITION WALL HEIGHT	S_{DS}	PAF	3/8"Ø EXPANSION ANCHOR WITH 2" EMBED	1/2"Ø EXPANSION ANCHOR WITH 2 1/4" EMBED	1/2"Ø EXPANSION ANCHOR WITH 2 1/2" EMBED
9'	0.25-0.99	-	32 / 32	32 / 32	32 / 32
	1.00-1.25	-	32 / 32	32 / 32	32 / 32
	1.26-1.45	-	32 / 32	32 / 32	32 / 24
	1.46-2.00	-	32 / 24	32 / 32	32 / 16
12	0.25-0.99	-	32 / 32	32 / 32	32 / 32
	1.00-1.25	-	32 / 32	32 / 32	32 / 24
	1.26-1.45	-	32 / 24	32 / 32	32 / 24
	1.46-2.00	-	24 / 16	32 / 32	24 / 16
16	0.25-0.99	-	32 / 32	32 / 32	32 / 24
	1.00-1.25	-	32 / 32	32 / 32	32 / 24
	1.26-1.45	-	32 / 24	32 / 32	32 / 16
	1.46-2.00	-	24 / 16	32 / 32	24 / 16

NOTES:

1. SEE SHEET 0.06 AND NOTE 4.2.2 ON SHEET 0.02 FOR PAF REQUIREMENTS
2. SEE SHEET 0.07 AND NOTE 4.2.3 ON SHEET 0.02 FOR EXPANSION ANCHORS AND SCREW ANCHOR REQUIREMENTS
3. XX / YY INDICATES XX" O.C. SPACING OF ANCHORS IN NORMAL WEIGHT CONCRETE OR YY" O.C. SPACING OF ANCHORS IN SAND LIGHTWEIGHT OR LIGHTWEIGHT CONCRETE.

REGISTERED PROFESSIONAL ENGINEER
EVOR F. JOHNS
No. C055700
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA
12/20 /2018

1 FASTENER MAX SPACING TABLES

USG INTERIORS, LLC
United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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Nathan Penner

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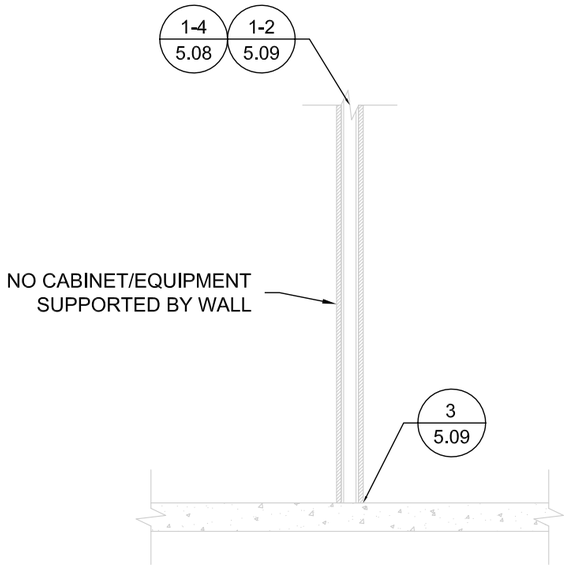
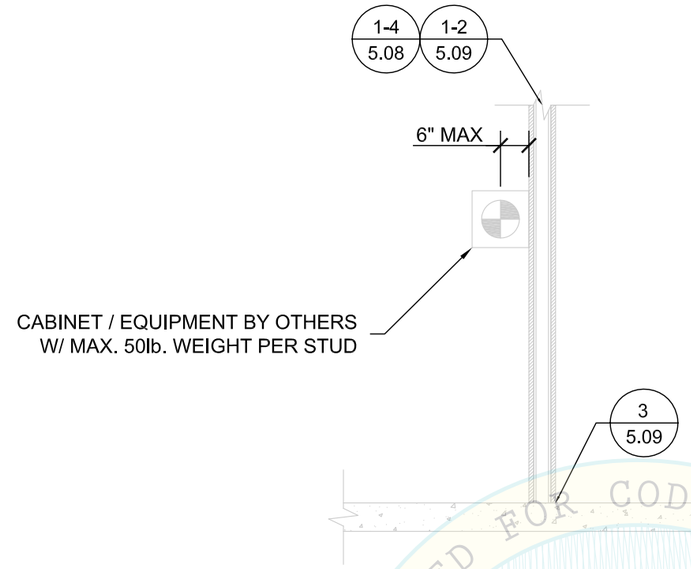


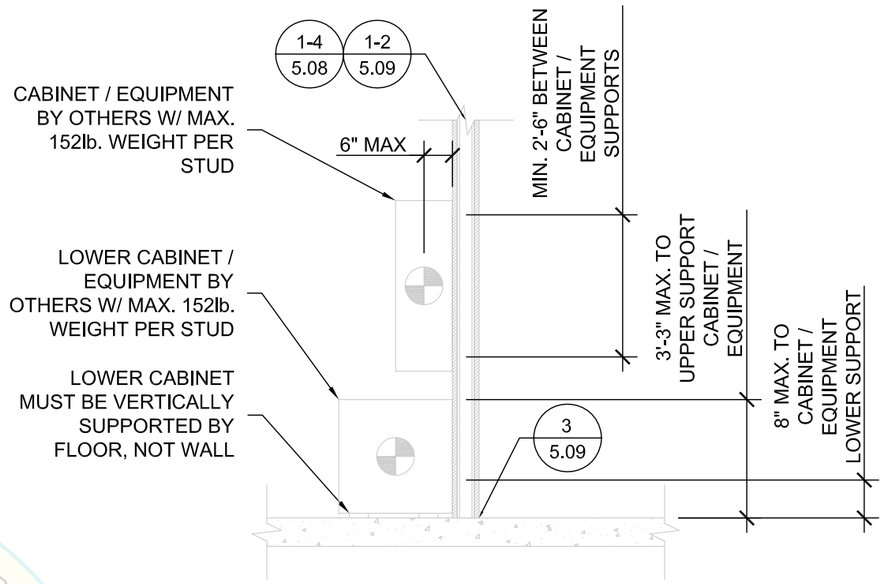
A CORRIDOR WALL - SCENARIO A

SCALE: 1 1/2" = 1'-0"



B CORRIDOR WALL - SCENARIO B

SCALE: 1 1/2" = 1'-0"



C CORRIDOR WALL - SCENARIO C

SCALE: 1 1/2" = 1'-0"

PARTITION WALL STUD SUMMARY TABLE[4,5]

MAXIMUM WALL HEIGHT (FT)	S_{DS}	3.625" STUD DEPTH			4" STUD DEPTH			6" STUD DEPTH		
		A[1]	B[2]	C[3]	A[1]	B[2]	C[3]	A[1]	B[2]	C[3]
9	≤ 1.15g	362S125-30	362S125-30	362S137-43	400S125-30	400S125-30	400S137-43	600S125-33	600S125-43	600-125-43
	≤ 1.73g	362S125-30	362S125-43	362S162-43[6]	400S125-33	400S125-43	400S137-43	600S125-43	600S125-43	600S125-54
	≤ 2.00g	362S125-33	362S125-43	362S162-54	400S125-33	400S137-43	400S137-54	600S125-43	600S125-43	600S125-54
12	≤ 1.15g	362S125-30	362S137-33	362S162-43	400S125-30	400S125-43[6]	400S137-43	600S125-33	600S125-43	600S125-43
	≤ 1.73g	362S137-33	362S137-43	362S162-54	400S125-33	400S125-43	400S137-54	600S125-43	600S125-43	600S125-54
	≤ 2.00g	362S137-43	362S137-43	362S200-54	400S137-43	400S137-43	400S162-54	600S125-43	600S125-43	600S125-54
16	≤ 1.15g	362S125-43	362S162-43	362S162-54	400S137-33	400S137-43	400S137-54	600S125-43	600S125-43	600S125-54
	≤ 1.73g	362S162-43	362S162-54	362S200-54	400S137-43	400S137-54	400S200-54	600S137-43	600S125-43	600S125-54
	≤ 2.00g	362S137-54	362S162-54	N/A	400S162-43	400S137-54	400S200-54	600S137-43	600S137-54	600S125-54

NOTES:
1. SCENARIO A: PARTITION WALL SUPPORTS USG ADVANCESPAN CEILING ONLY. MAXIMUM 8'-6" SINGLE CORRIDOR SPAN.
2. SCENARIO B: PARTITION WALL SUPPORTS USG ADVANCESPAN CEILING (8'-6" MAXIMUM CORRIDOR SPAN) AND WALL SUPPORTED CABINETS OR EQUIPMENT WITH A MAXIMUM 50 POUND WEIGHT PER STUD.
3. SCENARIO C: PARTITION WALL SUPPORTS USG ADVANCESPAN CEILING (8'-6" MAXIMUM CORRIDOR SPAN), WALL SUPPORTED CABINETS OR EQUIPMENT WITH A MAXIMUM 152 POUND WEIGHT PER STUD, AND FLOOR SUPPORTED CABINETS OR EQUIPMENT WITH A MAXIMUM 152 POUND WEIGHT PER STUD.
4. PARTITION WALLS SHALL HAVE LATERAL BRACING AT 48" O.C. OR BE FULLY SHEATHED FULL HEIGHT ON BOTH SIDES WITH MINIMUM 5/8" TYPE X GYPSUM BOARD IN ACCORDANCE WITH ASTM C840 AND WALL STUDS SHALL BE SPACED AT A MAXIMUM OF 16" O.C. (PROJECT SPECIFIC REQUIREMENTS MAY WARRANT A MORE RESTRICTIVE DESIGN.)
5. COMBINED BENDING AND AXIAL, COMBINED BENDING AND SHEAR, AND WEB CRIPPLING DESIGN CHECKS WERE USED TO GENERATE THIS TABLE. GRAY BOXES INDICATE STUD SIZES CONTROLLED BY WEB CRIPPLING DESIGN. ALL OTHERS ARE CONTROLLED BY COMBINED BENDING AND AXIAL OR SHEAR DESIGN.
6. STUD SIZE INCREASE DUE TO INTERSTORY DRIFT BASED ON WALL DRIFT OF 1.5% WALL HEIGHT WITH AXIAL LOAD FROM CORRIDOR SUSPENDED CEILING AND CABINET / EQUIPMENT WEIGHT PER SCENARIO A, B, OR C

USG INTERIORS, LLC
United States Gypsum Company
550 W. ADAMS ST. CHICAGO, IL 60606
800-950-3839

Progressive Engineering Inc.
58640 State Road 15
Goshen, IN 46528
Phone (574) 533-0337
Fax (574) 533-9736
www.p-e-i.com

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DATE: 07/19/2017
Nathan Penner

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