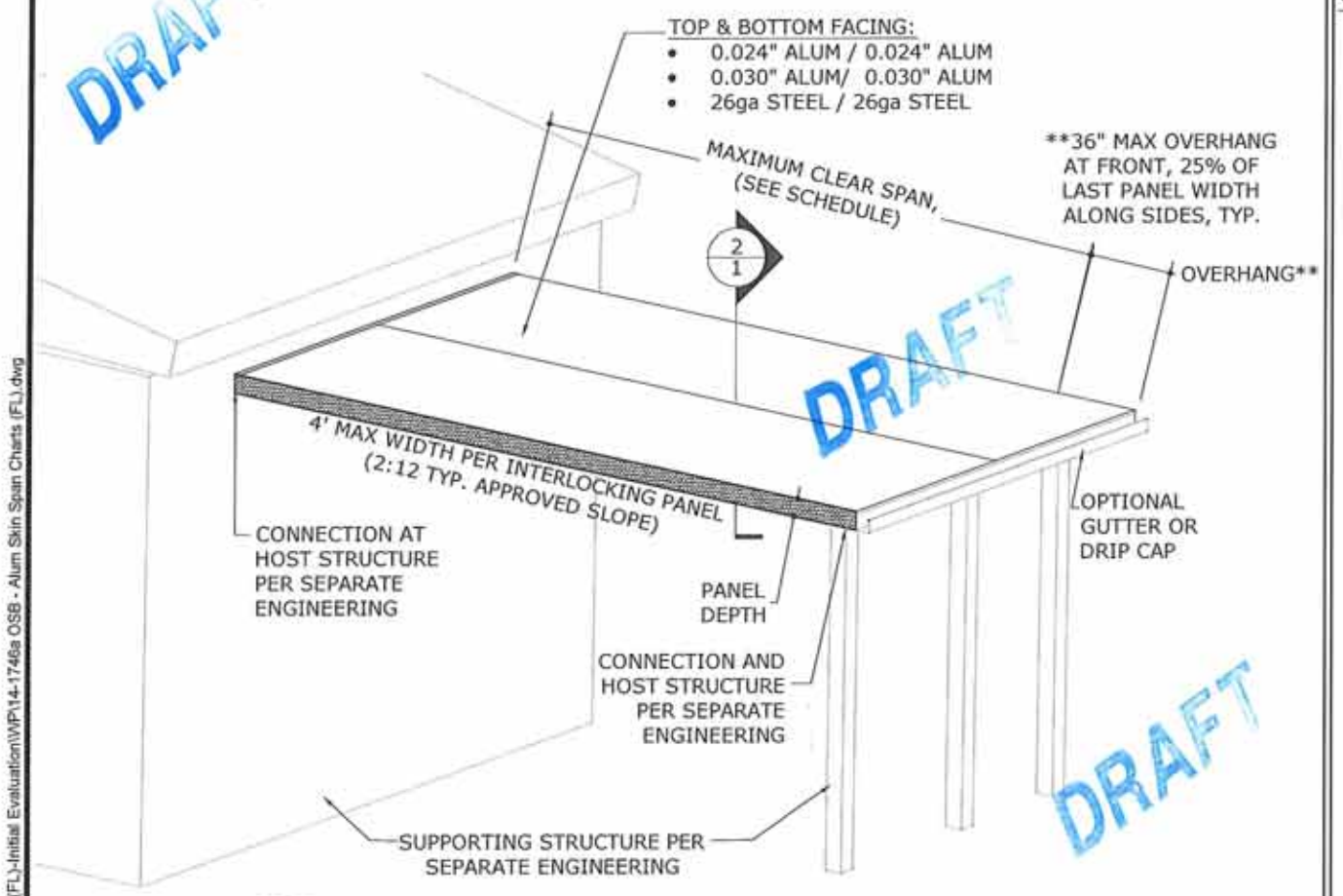
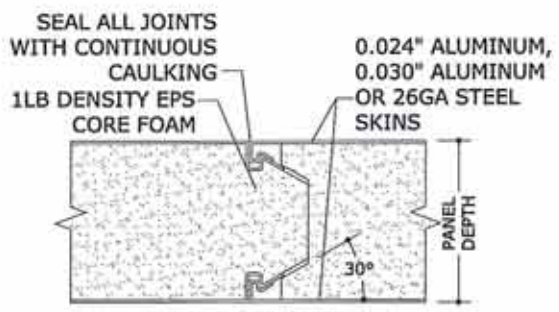
STRUCTALL BUILDING SYSTEMS

EPS/OSB FOAM CORE ROOF PANELS - METAL SKIN



1/1 CLEAR SPAN ISOMETRIC

N.T.S. ISOMETRIC



CROSS SECTION AT TYPICAL PANEL INTERLOCK

2/1 PANEL INTERLOCK DETAIL

N.T.S. DETAIL

GENERAL NOTES (OSB & SHINGLES):

1. THIS DESIGN COMPLIES WITH THE STRUCTURAL PROVISION OF THE 2010 FLORIDA BUILDING CODE.
2. THIS SHEET CERTIFIES STRUCTURAL DESIGN ONLY (WATERPROOFING BY OTHERS). TOTAL SUPERIMPOSED DEAD LOAD ON ANY PANEL SHALL NOT EXCEED 5 PSF, AND THIS WEIGHT SHALL BE SUBTRACTED FROM THE LIVE LOAD ALLOWABLE VALUES IN THE PANEL ROOF SPAN CHARTS WHEN USING THIS INSTALLATION METHOD.
   2.1. EXAMPLE: IN A 30PSF WIND PRESSURE/SNOW LOAD ZONE, WITH THE ADDITION OF THE MAXIMUM ALLOWABLE 5PSF DEAD LOAD, THE MODIFIED MAXIMUM ALLOWABLE PANEL SPAN SHALL BE GOVERNED BY LOADING CRITERIA OF 35PSF.
3. SEAL ALL SEAMS AND CONNECTIONS WITH STRUCTURAL GRADE ADHESIVE SEALANT (1500 PSI MIN. TENSILE LOAD STRENGTH), AND CLEAN ROOF OF ANY DIRT, GREASE, WATER OR OIL.
4. ALL FASTENERS TO BE #8 OR GREATER SAE GRADE 5, UNLESS NOTED OTHERWISE. FASTENERS SHALL BE CADMIUM-PLATED OR OTHERWISE CORROSION-RESISTANT MATERIAL AND SHALL COMPLY WITH "SPECIFICATIONS FOR ALUMINUM STRUCTURES" SECTION 5.2.1 BY THE ALUMINUM ASSOCIATION, INC., & ANY APPLICABLE FEDERAL, STATE, AND/OR LOCAL CODES.
5. THE CONTRACTOR SHALL CAREFULLY CONSIDER POSSIBLE IMPOSING LOADS ON ROOF, INCLUDING BUT NOT LIMITED TO ANY CONCENTRATED LOADS WHICH MAY JUSTIFY GREATER DESIGN CRITERIA. THIS ADDITIONAL ROOF LOAD CRITERIA SHALL BE PROPERLY ANALYZED BY A LICENSED ENGINEER OR REGISTERED ARCHITECT.
6. THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS, I.E. ALUMINUM PER F.B.C. 2003.8.4.
7. PANELS TO BE BY STRUCTALL BUILDING SYSTEMS ONLY. EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.
8. THIS DETAIL ONLY VALID WHEN SIGNED AND SEALED BY FRANK L. BENNARDO, P.E.
9. ENGINEER SEAL AFFIXED HERE TO VALIDATES STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, & CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE, & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN.
10. ENGINEERING EXPRESS HAS NOT VISITED THIS JOBSITE. INFORMATION CONTAINED HEREIN IS BASED ON CONTRACTOR SUPPLIED DATA AND MEASUREMENTS. ENGINEERING EXPRESS SHALL NOT BE HELD RESPONSIBLE OR LIABLE IN ANY WAY FOR ERRONEOUS OR INACCURATE DATA OR MEASUREMENTS. WORK SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. ENGINEERING EXPRESS SHALL BE NOTIFIED AND GIVEN AN OPPORTUNITY TO REEVALUATE OUR WORK UPON DISCOVERY OF ANY INACCURATE INFORMATION PRIOR TO MODIFICATION OF EXISTING FIELD CONDITIONS AND FABRICATION AND INSTALLATION OF MATERIALS.
11. ** ALTERATIONS, ADDITIONS, OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

MAXIMUM ALLOWABLE DESIGN PRESSURES:

AS NOTED IN CLEAR SPAN TABLE

DESIGN NOTES:

POSITIVE AND NEGATIVE DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED BY OTHERS ON A JOB-SPECIFIC BASIS IN ACCORDANCE WITH THE GOVERNING CODE. SITE-SPECIFIC PRESSURE REQUIREMENTS AS DETERMINED IN ACCORDANCE WITH ASCE 7-10 AND CHAPTER 1609 OF THE 2010 FLORIDA BUILDING CODE SHALL BE LESS THAN OR EQUAL TO THE POSITIVE OR NEGATIVE DESIGN PRESSURE CAPACITY VALUES LISTED HEREIN FOR ANY ASSEMBLY AS SHOWN.

GENERAL NOTES:

1. THIS SPECIFICATION HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2010 FLORIDA BUILDING CODE FOR USE OUTSIDE THE HVHZ ONLY. COMPOSITE ROOF PANELS SHALL COMPLY WITH CHAPTER 7 SECTION 719, CHAPTER 8 SECTION 803, CLASS A INTERIOR FINISH, AND CHAPTER 26 SECTION 2603 OF THE 2010 FBC.
2. CONTRACTOR SHALL INVESTIGATE AND CONFORM TO ALL LOCAL BUILDING CODE AMENDMENTS WHICH MAY APPLY. DESIGN CRITERIA BEYOND AS STATED HEREIN MAY REQUIRE ADDITIONAL SITE-SPECIFIC SEALED ENGINEERING.
3. NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM.
4. DESIGN PRESSURES AS NOTED HEREIN ARE BASED ON A MAXIMUM TESTED PRESSURE DIVIDED BY A 2.0 FACTOR OF SAFETY.
5. THE ARCHITECT/ENGINEER OF RECORD FOR THE PROJECT SUPERSTRUCTURE WITH WHICH THIS DESIGN IS USED SHALL BE RESPONSIBLE FOR THE INTEGRITY OF ALL SUPPORTING SURFACES TO THIS DESIGN WHICH SHALL BE COORDINATED BY THE PERMITTING CONTRACTOR.
6. SEPARATE 'SITE-SPECIFIC' SEALED ENGINEERING SHALL BE REQUIRED IN ORDER TO DEVIATE FROM LOADS, DEFLECTIONS, OR SPANS CONTAINED HEREIN. LINEAR INTERPOLATION OF THE ALLOWABLE SPAN TABLES LISTED HEREIN SHALL NOT BE PERMITTED. CONTACT THIS ENGINEER FOR ALTERNATE SPAN CALCULATIONS AS MAY BE REQUIRED.
7. THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.
8. THE CONTRACTOR SHALL CAREFULLY CONSIDER POSSIBLE IMPOSING LOADS ON ROOF, INCLUDING BUT NOT LIMITED TO ANY CONCENTRATED LOADS WHICH MAY JUSTIFY GREATER DESIGN CRITERIA. THIS ADDITIONAL ROOF LOAD CRITERIA SHALL BE PROPERLY ANALYZED BY A LICENSED ENGINEER OR REGISTERED ARCHITECT.
9. EPS CORE COMPOSITE PANELS SHALL BE CONSTRUCTED USING TYPE 3105-H254 ALUMINUM FACINGS OR ASTM A653, CS, TYPE B HOT DIP GALVANIZED G90 COATED STEEL FACINGS. EXPANDED POLYSTYRENE FOAM SHALL HAVE TYPICAL DENSITY OF 1.0 PCF. THE EPS FOAM SHALL BE ADHERED TO THE ALUMINUM FACING WITH MORAD M640 SERIES ADHESIVE (BY ROHM AND HAAS COMPANY). FABRICATION SHALL BE IN ACCORDANCE WITH APPROVED FABRICATION METHODS BY MANUFACTURER FOR ALL PANELS.
10. THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS, I.E. ALUMINUM PER F.B.C. 2003.8.4.
11. ENGINEER SEAL AFFIXED HERE TO VALIDATES STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, & CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE, & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN.
12. EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.
13. ALTERATIONS, ADDITIONS, OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE THIS CERTIFICATION.

TABLE VALUE DERIVATIONS:

PANEL PROPERTIES:

1. PANEL STRUCTURAL PROPERTIES DERIVED FROM CERTIFIED TEST REPORTS Nos. TT-506027B, 506027C, 506027D, 509014A, 509014B BY TERRAPIN TESTING, ESP012351P-1, ESP012351P-2, ESP012351P-3, ESP012351P-3A, ESP012351P-4, ESP012351P-5, ESP012351P-6, EXP012351P-6A, ESP012351P-7, ESP012351P-8, ESP012351P-9, ESP012351P-9A BY ELEMENT MATERIALS TECHNOLOGY.
2. PANEL DEAD LOADS HAVE BEEN FACTORED INTO CALCULATIONS FOR LIVE LOADS OR UPLIFT AS WELL AS CALCULATIONS FOR PANEL PROPERTIES.

FRANK L. BENNARDO, P.E.
FL # PE0046349

08/07/2014

VALID FOR (1) JOB(s) ONLY
VALID ONLY WITH ORIGINAL ENGINEER SEAL

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EPS FOAM CORE COMPOSITE PANELS
OSB-ALUMINUM & STEEL METAL SKINS
FLORIDA STATEWIDE APPROVAL #FL 1549.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	TSB	08/05/14

14-1746

SCALE: SEE DETAILS

PAGE DESCRIPTION:

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08/07/2014 - 3:33pm ricken V:\Projects\14-1746 OSB-Aluminum Skin Span Charts (FL)-Initial Evaluation\WP\14-1746a OSB - Alum Skin Span Charts (FL).dwg

MAXIMUM ALLOWABLE CLEAR SPAN TABLE:

Live Load &/or Uplift w/ 5/8" Max OSB	Deflection Limit (L/...)	3" Panels		4" Panels			6" Panels		
		0.024" Alum Skin	0.030" Alum Skin	0.024" Alum Skin	0.030" Alum Skin	26ga Steel Skin	0.024" Alum Skin	0.030" Alum Skin	26ga Steel Skin
		1-LB EPS	1-LB EPS	1-LB EPS	1-LB EPS	1-LB EPS	1-LB EPS	1-LB EPS	1-LB EPS
+/- 13 psf	120	12'-12"	16'-0"	15'-4"	17'-3"	16'-6"	18'-1"	20'-2"	20'-5"
+/- 13 psf	180	11'-4"	15'-1"	13'-5"	15'-1"	16'-2"	16'-7"	18'-8"	19'-11"
+/- 13 psf	240	10'-4"	13'-9"	12'-2"	13'-9"	14'-8"	15'-1"	16'-12"	18'-1"
+/- 18 psf	120	11'-9"	13'-11"	13'-11"	15'-3"	14'-4"	15'-8"	17'-6"	17'-8"
+/- 18 psf	180	10'-4"	13'-9"	12'-2"	13'-9"	14'-4"	15'-1"	16'-12"	17'-8"
+/- 18 psf	240	9'-4"	12'-6"	11'-1"	12'-6"	13'-4"	13'-9"	15'-5"	16'-6"
+/- 23 psf	120	10'-11"	12'-5"	12'-9"	13'-8"	12'-10"	14'-0"	15'-8"	15'-10"
+/- 23 psf	180	9'-7"	12'-5"	11'-3"	12'-9"	12'-10"	14'-0"	15'-8"	15'-10"
+/- 23 psf	240	8'-8"	11'-7"	10'-3"	11'-7"	12'-5"	12'-9"	14'-4"	15'-3"
+/- 28 psf	120	10'-0"	11'-4"	11'-8"	12'-6"	11'-8"	12'-9"	14'-3"	14'-5"
+/- 28 psf	180	8'-12"	11'-4"	10'-7"	11'-12"	11'-8"	12'-9"	14'-3"	14'-5"
+/- 28 psf	240	8'-2"	10'-11"	9'-8"	10'-11"	11'-8"	11'-12"	13'-6"	14'-5"
+/- 33 psf	120	9'-3"	10'-6"	10'-9"	11'-7"	10'-10"	11'-10"	13'-3"	13'-4"
+/- 33 psf	180	8'-7"	10'-6"	10'-1"	11'-5"	10'-10"	11'-10"	13'-3"	13'-4"
+/- 33 psf	240	7'-9"	10'-4"	9'-2"	10'-4"	10'-10"	11'-5"	12'-9"	13'-4"
+/- 37 psf	120	8'-10"	9'-11"	10'-3"	10'-11"	10'-3"	11'-3"	12'-6"	12'-8"
+/- 37 psf	180	8'-3"	9'-11"	9'-9"	10'-11"	10'-3"	11'-3"	12'-6"	12'-8"
+/- 37 psf	240	7'-6"	9'-11"	8'-10"	9'-12"	10'-3"	10'-12"	12'-4"	12'-8"
+/- 43 psf	120	8'-2"	9'-3"	9'-6"	10'-2"	9'-6"	10'-5"	11'-8"	11'-9"
+/- 43 psf	180	7'-10"	9'-3"	9'-3"	10'-2"	9'-6"	10'-5"	11'-8"	11'-9"
+/- 43 psf	240	7'-2"	9'-3"	8'-5"	9'-6"	9'-6"	10'-5"	11'-8"	11'-9"
+/- 48 psf	120			9'-0"	9'-8"	9'-1"	9'-11"	11'-1"	11'-2"
+/- 48 psf	180			8'-12"	9'-8"	9'-1"	9'-11"	11'-1"	11'-2"
+/- 48 psf	240			8'-2"	9'-2"	9'-1"	9'-11"	11'-1"	11'-2"
+/- 53 psf	120			8'-7"	9'-3"	8'-7"	9'-5"	10'-7"	10'-8"
+/- 53 psf	180			8'-7"	9'-3"	8'-7"	9'-5"	10'-7"	10'-8"
+/- 53 psf	240			7'-11"	8'-11"	8'-7"	9'-5"	10'-7"	10'-8"
+/- 58 psf	120			8'-3"	8'-10"	8'-3"	9'-0"	10'-1"	10'-2"
+/- 58 psf	180			8'-3"	8'-10"	8'-3"	9'-0"	10'-1"	10'-2"
+/- 58 psf	240			7'-8"	8'-8"	8'-3"	9'-0"	10'-1"	10'-2"
+/- 63 psf	120			7'-10"	7'-10"	7'-11"	8'-8"	9'-8"	9'-10"
+/- 63 psf	180			7'-10"	7'-10"	7'-11"	8'-8"	9'-8"	9'-10"
+/- 63 psf	240			7'-6"	7'-6"	7'-11"	8'-8"	9'-8"	9'-10"
+/- 68 psf	120			7'-3"	7'-3"	7'-8"	8'-4"	9'-4"	9'-5"
+/- 68 psf	180			7'-3"	7'-3"	7'-8"	8'-4"	9'-4"	9'-5"
+/- 68 psf	240			7'-3"	7'-3"	7'-8"	8'-4"	9'-4"	9'-5"
+/- 76 psf	120					7'-3"	7'-11"	8'-10"	8'-11"
+/- 76 psf	180					7'-3"	7'-11"	8'-10"	8'-11"
+/- 76 psf	240					7'-3"	7'-11"	8'-10"	8'-11"
+/- 78 psf	120							8'-9"	8'-10"
+/- 78 psf	180							8'-9"	8'-10"
+/- 78 psf	240							8'-9"	8'-10"
+/- 83 psf	120							8'-6"	8'-7"
+/- 83 psf	180							8'-6"	8'-7"
+/- 83 psf	240							8'-6"	8'-7"
+/- 88 psf	120							8'-3"	8'-4"
+/- 88 psf	180							8'-3"	8'-4"
+/- 88 psf	240							8'-3"	8'-4"
+/- 93 psf	120							8'-0"	8'-1"
+/- 93 psf	180							8'-0"	8'-1"
+/- 93 psf	240							8'-0"	8'-1"

*OSB SELF WEIGHT NOT TO EXCEED 2.08 PSF

OTHER CONSIDERATIONS:

1. FRONT OVERHANG MAY BE UP TO 3'-0" WITH VALUES LISTED HEREIN. MAXIMUM UNSUPPORTED SIDE OVERHANG IS 25% OF LAST PANEL WIDTH (i.e. 12" MAX FOR 48" PANEL WIDTH).
2. ROOF PITCH NOT TO EXCEED 3:12

DRAFT

CLEAR SPAN TABLE USE INSTRUCTIONS:

1. DETERMINE TYPE OF ENCLOSURE TO BE COVERED (OPEN, SCREENED WALLS, OR FULLY ENCLOSED).
2. DETERMINE THE SITE SPECIFIC REQUIRED DESIGN WIND PRESSURE PROVIDED BY SEPARATE ENGINEERING, BY A LICENSED ENGINEER OR REGISTERED ARCHITECT, IN ACCORDANCE WITH THE 2010 FLORIDA BUILDING CODE.
3. FIND ALLOWABLE COMPOSITE PANEL CLEAR SPAN IN TABLES FOR APPROPRIATE PANEL DEPTH, FACING THICKNESS, AND EPS CORE DENSITY SELECTED.
4. ////// INDICATES VALUES NOT VALID FOR USE.

DEFLECTION NOTES:

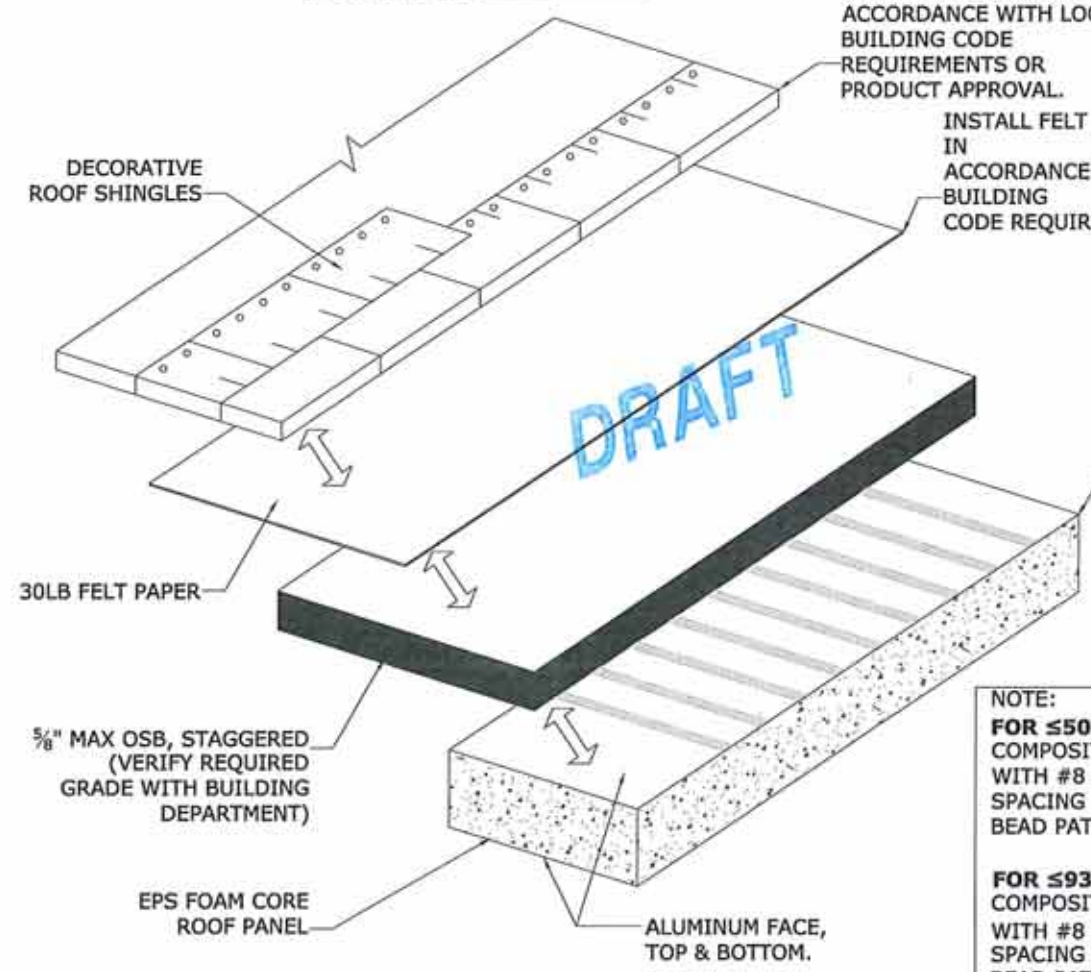
1. USE L/120 FOR ALL MEMBERS SUPPORTING ROOFS OVER AN OPEN OR SCREEN-WALLED ROOM.
2. USE L/180 FOR ALL MEMBERS SUPPORTING ROOFS WITH A NON-PLASTERED CEILING OVER AN ENCLOSED ROOM.
3. USE L/240 FOR ALL MEMBERS SUPPORTING ROOFS WITH A PLASTERED CEILING OVER AN ENCLOSED ROOM, PER 2010 FBC TABLE 1604.3.

DRAFT

MECHANICAL APPLICATION OF OSB AND SHINGLES TO EPS PANEL

SCALE: N.T.S.

ROOF SLOPE: PER ROOFING MANUFACTURER



OSB & SHINGLE ATTACHMENT DETAILS ILLUSTRATED HEREIN ARE INTENDED FOR USE WITH NON-HABITABLE SPACE ONLY.

MAXIMUM ALLOWABLE UPLIFT -/+93.00 PSF

NOTE:

FOR ≤50 PSF - ADHERE ⅝" OSB, STAGGERED, ON COMPOSITE PANEL AS SHOWN HEREIN. FASTEN OSB WITH #8 DRYWALL SCREWS WITH 10" MIN. FOR SPACING FOLLOWING THE CONTINUOUS ADHESIVE BEAD PATTERN.

FOR ≤93 PSF - ADHERE ⅝" OSB, STAGGERED, ON COMPOSITE PANEL AS SHOWN HEREIN. FASTEN OSB WITH #8 DRYWALL SCREWS WITH 5¼" MIN. FOR SPACING FOLLOWING THE CONTINUOUS ADHESIVE BEAD PATTERN.

DRAFT

SHINGLE NOTES: (APPLICABLE TO THIS DETAIL ONLY)

SHINGLES MUST HAVE 0.65 OR GREATER SOLAR REFLECTANCE AS RATED BY SHINGLE MANUFACTURER.

STARTER ROWS OF SHINGLES SHALL HAVE TWO LINES AT MID TAB AREA. SHINGLE ROW INSTALLED WITH TABS FACING IN THE UPWARD DIRECTION OF THE ROOF SLOPE.

SUBSEQUENT ROWS OF SHINGLES INSTALLED WITH THE TABS FACING IN THE DOWNWARD DIRECTION OF THE ROOF SLOPE WITH ONE LINE OF ADHESIVE UNDER THE SHINGLE AT MID COVERED AREA.

DRAFT

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08/07/2014

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14-1746

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