MECHANICALLY OPERATED LOUVERED PERGOLA
FREESTANDING OR HOST ATTACHED
PERFORMANCE EVALUATION

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SUNDANCE LOUVERED ROOFS

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ALUMINUM LOUVERED PERGOLA MASTER PLAN
FREESTANDING OR HOST ATTACHED
FBC 7TH ED (2020), IBC (2018)

REMARKS	DRWN	CHKD	DATE
INIT ISSUE (18-5564)	RWN	TSB	8/24/18
2018 IBC (20-2543)	EPR	RWN	5/11/20
2022 UPDATE (22-51200)	CCB	RWN	4/22/22
UPDATED LOUVER SECTION	CCB	RWN	8/10/22
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GENERAL NOTES

SCOPE OF WORK:

DESIGN & INSTALLATION OF A NEW MECHANICALLY OPENING, FREESTANDING OR HOST ATTACHED, LOUVERED PERGOLA AS DESIGNED HEREIN

EXCLUSIONS:

THE DESIGN OF THE EXISTING HOST STRUCTURE, MECHANICAL ELEMENTS, EGRESS, WATERPROOFING ELECTRICAL, WIRING, FAN BEAMS, FANS, OR ANY ACCESSORY ATTACHMENTS ARE NOT INCLUDED WITH THIS DESIGN OR CERTIFICATION U.N.O

DESIGN CRITERIA:

INTERNATIONAL BUILDING CODE (2018)
& BUILDING CODES AS NOTED
ASCE 7-16 LOAD COMBINATIONS

1. DEAD LOADING
   - 1.1. ROOF DEAD LOAD..... 5 PSF
2. LIVE LOADING
   - 2.1. ROOF LIVE LOAD..... 20 PSF
3. SNOW LOADING
   - 3.1. GROUND SNOW LOAD..... 0 - 50 PSF
   - 3.2. SNOW EXPOSURE FACTOR..... 1.0
   - 3.3. SNOW LOAD IMPORTANCE FACTOR.... 1.0
   - 3.4. THERMAL FACTOR..... 1.2
   - 3.5. SNOW DRIFT..... PER CODE
4. ICE LOADING
   - 4.1. DESIGN ICE THICKNESS..... 0.0 - 1.0 IN
   - 4.2. IMPORTANCE FACTOR..... 1.0
   - 4.3. ICE DENSITY..... 56 PCF
   - 4.4. UNIFORM ICE LOADING (LOUVER)..... 8 PLF
5. WIND LOADING INPUTS
   - 5.1. METHODOLOGY..... OPEN STRUCTURE
   - 5.2. ULTIMATE WIND SPEED..... PER SHEET 3 (ASD = SQRT(O.6)*Vult)
   - 5.3. WIND EXPOSURE FACTOR..... B - D
   - 5.4. WIND RISK CATEGORY..... II
   - 5.5. DIRECTIONALITY/OTHER FACTORS..... Kd=0.85, G=0.85, Kz=0.85, Kzt=1.0
   - 5.6. MEAN ROOF HEIGHT..... UP TO 12 FT
   - 5.7. SYSTEM MOUNTING HEIGHT..... 0 FT (AT GRADE)
   - 5.8. RESULTANT WIND LOADING
     - 5.8.1. GRAVITY (+)..... MAX 60 PSF
     - 5.8.2. UPLIFT (-)..... MAX -20 PSF
     - 5.8.3. LATERAL..... MAX 30 PSF

ROOF DESIGN LOADS SHOWN HEREIN INCLUDE A REDUCTION IN TOTAL WIND PRESSURE AND ROOF SNOW LOAD TO ACCOUNT FOR A POROUS ROOF SURFACE AREA EXPOSED TO WIND AND SNOW (SUCH AS A TRELLIS OR OPERABLE LOUVERED ROOF WHEN IN THE FULLY OPENED POSITION). TO UTILIZE THESE VALUES, ROOF STRUCTURE SHOULD BE CLEAR OF OBSTRUCTION, AND ANY LOUVERS SHALL REMAIN FULLY OPENED BEFORE ANY NAMED STORM OR SIMILAR HIGH-WIND OR HIGH-SNOW EVENT. IF THE ROOF IS NOT POROUS OR REMAINS CLOSED DURING THESE EVENTS, THEN THIS CERTIFICATION DOES NOT APPLY AND ADDITIONAL ENGINEERING IS REQUIRED.

THIS SYSTEM IS DESIGNED AS AN OPEN STRUCTURE. WALLED OR SCREENED ENCLOSURES ARE BEYOND THE SCOPE OF THIS DOCUMENT AND REQUIRE ADDITIONAL ENGINEERING REVIEW.

GENERAL

1. THIS STRUCTURE HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE STRUCTURAL PROVISIONS OF THE ABOVE REFERENCED BUILDING CODE. STRUCTURE SHALL BE FABRICATED IN ACCORDANCE WITH ALL GOVERNING CODES. CONTRACTOR SHALL INVESTIGATE AND CONFORM TO ALL LOCAL BUILDING CODE AMENDMENTS WHICH MAY APPLY AND GOVERN. DESIGN CRITERIA OR SPANS BEYOND STATED HEREIN MAY REQUIRE ADDITIONAL SITE SPECIFIC SEALED ENGINEERING.
2. ANY EXISTING HOST STRUCTURE MUST BE CAPABLE OF SUPPORTING THE LOADED SYSTEM AS VERIFIED BY THE ENGINEER & OR ARCHITECT OF RECORD, et.al. THE HOST STRUCTURE WHICH IS DESIGNED, CERTIFIED, AND INSPECTED BY OTHERS MUST PROVIDE SUFFICIENT, CAPACITY FOR THIS SPECIFIED SYSTEM. NO WARRANTY OR GUARANTEE TO THESE CONDITIONS, EITHER EXPRESSED OR IMPLIED, IS OFFERED WITH THIS CERTIFICATION.
3. THE CONTRACTOR SHALL CAREFULLY CONSIDER POSSIBLE IMPOSING LOADS ON ROOF, INCLUDING BUT NOT LIMITED TO ANY CONCENTRATED LOADS WHICH MAY JUSTIFY GREATER DESIGN CRITERIA. ALL STRUCTURAL MEMBERS AS SHOWN HAVE BEEN DESIGNED TO CARRY IN PLACE DESIGN LOADS ONLY; THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPORT OF ANY ADDITIONAL LOADS AND FORCES IMPOSED DURING MANUFACTURING, TRUCKING, ERECTING, AND HANDLING.
4. SPECIAL INSPECTIONS MAY BE REQUESTED OR REQUIRED AT THE DISCRETION OF THE AUTHORITY HAVING JURISDICTION.

LOUVERED PERGOLA DESIGN & OPERATION:

1. LOUVERS SHALL BE SPACED SUCH THAT THEY ALLOW 50% SYSTEM POROSITY WHEN FULLY OPENED.
2. SYSTEM NOT DESIGNED TO HANDLE CONCENTRATED LOADS FROM HUMAN ACTIVITY.
3. **LOUVERS SHALL BE ROTATED TO A 90 DEGREE 'OPEN' POSITION DURING ANY NAMED STORM OR WEATHER DESIGN EVENT TO PREVENT EXCESSIVE FORCE TO THIS STRUCTURE. THE OWNER SHALL BE NOTIFIED IN WRITING OF THIS AND THAT CARE SHALL BE TAKEN TO AVOID BUILDUP OF SNOW, DEBRIS, CONSTRUCTION LOADS, & ANY OTHER FORCES THAT CAN AFFECT THE INTEGRITY OF THIS DESIGN.**
4. THE STRUCTURE SHALL BE POSTED WITH A LEGIBLE AND READILY VISIBLE DECAL OR PAINTED INSTRUCTIONS TO THE OWNER OR TENANT STATING TO REPOSITION THE LOUVERS AND WINDSCREENS DURING WIND OR SNOW ADVISORIES. THE CANOPY OWNER SHALL BE NOTIFIED OF THESE CONDITIONS BY THE PERMIT HOLDER AT THE TIME OF SALE.
5. LOUVERED ROOF SYSTEM SHALL BE PER MANUFACTURER MAXIMUM SPANS OR BY OTHERS.
6. NO CERTIFICATION IS OFFERED FOR WATERPROOFING, SIZING, OR OPERATION OF GUTTERS.
7. SYSTEM NOT DESIGNED FOR WATERSHED OF RAINFALL FROM ADJACENT ROOFS UNLESS SPECIFICALLY SHOWN HEREIN, TYP.

STRUCTURAL MATERIALS AND CONNECTIONS

STRUCTURAL ALUMINUM & ALUMINUM WELDING:

1. ALL COMPONENTS SHALL BE STRUCTURAL ALUMINUM (U.N.O.) AND SHALL BE FABRICATED AND ERECTED ACCORDING TO THE GOVERNING BUILDING CODE AND MATERIAL STANDARDS REFERENCED ON THIS SHEET.
2. UNLESS OTHERWISE NOTED, ALL STRUCTURAL ALUMINUM SHALL BE MIN 1/8" THICK AND BE OF THE FOLLOWING ALLOY AND TEMPER:
   - 2.1. BEAMS, PURLINS, COLUMNS 6063-T6
   - 2.2. ALL OTHER EXTRUSIONS 6063-T6
   - 2.3. FASTENERS ..... SS 304
3. STRUCTURAL ALUMINUM SHALL BE FRAMED PLUMB AND TRUE AND ADEQUATELY BRACED DURING CONSTRUCTION.
4. ALL BEAMS SHALL HAVE A MINIMUM 1 1/2" DEPTH FULL BEARING SUPPORT UNLESS NOTED OTHERWISE.
5. WHERE ALUMINUM IS IN CONTACT WITH OTHER METALS EXCEPT 300 SERIES STAINLESS STEEL, ZINC OR CADMIUM AND THE FAYING SURFACES ARE EXPOSED TO MOISTURE, THE OTHER METALS SHALL BE PAINTED OR COATED WITH ZINC, CADMIUM, OR ALUMINUM.
6. UNCOATED ALUMINUM SHALL NOT BE EXPOSED TO MOISTURE OR RUNOFF THAT HAS COME IN CONTACT WITH OTHER UNCOATED METALS EXCEPT 300 SERIES STAINLESS STEEL, ZINC, OR CADMIUM. ALUMINUM SURFACES TO BE PLACED IN CONTACT WITH MASONRY, CONCRETE, WOOD, FIBERBOARD, OR OTHER POROUS MATERIAL THAT ABSORBS WATER SHALL BE PAINTED.
7. FOR ALUMINUM IN CONTACT WITH CONCRETE: ACCEPTABLE PAINTS: PRIMING PAINT (ONE COAT), SUCH AS ZINC MOLYBDATE PRIMER IN ACCORDANCE WITH FEDERAL SPECIFICATION TT-P-645B ("GOOD QUALITY", NO LEAD CONTENT). ALT: HEAVY COATING OF ALKALI RESISTANT BITUMINOUS PAINT. ALT: WRAP ALUMINUM WITH A SUITABLE PLASTIC TAPE APPLIED IN SUCH A MANNER AS TO PROVIDE ADEQUATE PROTECTION AT THE OVERLAPS.
8. ALUMINUM SHALL NOT BE EMBEDDED IN CONCRETE TO WHICH CORROSIVE COMPONENTS SUCH AS CHLORIDES HAVE BEEN ADDED IF THE ALUMINUM WILL BE ELECTRICALLY CONNECTED TO STEEL. EMBEDDED ALUMINUM ELEMENTS WILL BE COVERED WITH PLASTIC TAPE OR OTHERWISE PROTECTED AS PER 2015 ADM M.7.3.
9. BOLT HOLES SHALL BE DRILLED THE SAME NOMINAL DIAMETER AS THE BOLT + 1/16".
10. ALUMINUM WELDING SHALL BE PERFORMED IN ACCORDANCE WITH WELD FILLER ALLOYS MEETING ANSI/AWS A5.10 STANDARDS TO ACHIEVE ULTIMATE DESIGN STRENGTH IN ACCORDANCE WITH THE ALUMINUM DESIGN MANUAL PART I-A, TABLE 7.3.1. ALL ALUMINUM CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE TOLERANCES, QUALITY, AND METHODS OF CONSTRUCTION AS SET FORTH IN THE AMERICAN WELDING SOCIETY'S STRUCTURAL WELDING CODE-ALUMINUM (D1.2). MINIMUM WELD IS 1/8" THROAT FULL PERIMETER FILLET WELD UNLESS OTHERWISE NOTED.
11. STAINLESS STEEL FASTENERS SHALL BE ASTM F593 316 SS COLD WORKED CONDITION. PROVIDE (5) PITCHES MINIMUM PAST THE THREAD PLANE FOR ALL SCREW CONNECTIONS. ALL FASTENER CONNECTIONS TO METAL SHALL PROVIDE 2xDIAMETER EDGE DISTANCE AND 3xDIAMETER SPACING.
12. SELF-DRILLING SCREWS SHALL BE TEK BRAND / ALL POINTS FASTENERS OF SIZE #14, STAINLESS STEEL 300 SERIES, WITH MINIMUM 1/2" THREAD ENGAGEMENT BEYOND THE CONNECTED PART, UNLESS OTHERWISE NOTED.
13. THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.
14. ELECTRICAL GROUND, WHEN REQUIRED, TO BE DESIGNED & INSTALLED BY OTHERS.

STRUCTURAL WOOD (AS APPLICABLE):

1. ALL DIMENSION LUMBER SHALL BE STRUCTURAL GRADE #2 SOUTHERN YELLOW PINE OR BETTER MEETING APPLICABLE REQUIREMENTS OF THE SOUTHERN PINE INSPECTION BUREAU (SPIB) AND PRESSURE-IMPREGNATED (PT) BY AN APPROVED PROCESS (ACQ 0.4 PRESSURE TREATED) PRESERVATIVE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE BUILDING CODE AND AMERICAN WOOD PRESERVERS ASSN (AWPA) "BOOK OF STANDARDS" OR 0.55 SPECIFIC GRAVITY MIN.
2. ALL METAL CONNECTORS IN CONTACT WITH WOOD USED IN LOCATIONS EXPOSED TO WEATHER SHALL BE GALVANIZED.
3. NAILS SHALL PENETRATE THE SECOND MEMBER A DISTANCE EQUAL TO THE THICKNESS OF THE MEMBER BEING NAILED THERETO. THERE SHALL BE NOT LESS THAN 2 NAILS IN ANY CONNECTION.
4. MEMBERS SHALL BE FREE OF CRACKS AND KNOTS. MOISTURE CONTENT SHALL BE 19% OR LESS.
5. WOOD THAT IS IN CONTACT WITH CONCRETE OR MASONRY, AND AT OTHER LOCATIONS AS SHOWN ON STRUCTURAL DRAWINGS, SHALL BE PROTECTED WITH 30 # FELT (UNLESS NOTED OTHERWISE) OR PRESSURE TREATED IN ACCORDANCE WITH AITC-109. MEMBER SIZE SHOWN ARE NOMINAL UNLESS NOTED OTHERWISE.

OTHER MATERIALS (AS APPLICABLE)

1. ANY SPECIFIED LIGHT GAUGE STEEL MEMBERS SHALL CONFORM TO ASTM A36 AND CURRENT EDITION OF AISC WITH MINIMUM Fy = 36KSI
2. GLASS PANELS (IF SHOWN) SHALL BE MIN 3/8" FULLY TEMPERED GLASS & MUST COMPLY WITH ANSI Z97.1 / CATEGORY II CPSC 16 CFR 1201 AS CERTIFIED BY GLASS MANUFACTURER

ANCHORS & FASTENERS

1. ALL FASTENERS TO BE #14 OR GREATER ASTM F593 COLD WORKED 304 STAINLESS STEEL, UNLESS NOTED OTHERWISE. FASTENERS SHALL BE CADMIUM-PLATED OR OTHERWISE CORROSION-RESISTANT MATERIAL AND SHALL COMPLY WITH "SPECIFICATIONS FOR ALUMINUM STRUCTURES" BY THE ALUMINUM ASSOCIATION, INC., & ANY APPLICABLE FEDERAL, STATE, AND/OR LOCAL CODES.
2. ALL METAL CONNECTORS USED IN LOCATIONS EXPOSED TO WEATHER SHALL BE HOT-DIP GALVANIZED.
3. ALL FASTENERS SHALL BE SPACED WITH 2x DIAMETER END DISTANCE AND 2.5xDIAMETER MIN. SPACING TO ADJACENT FASTENERS, UNLESS NOTED OTHERWISE. PROVIDE (5) PITCHES MINIMUM PAST THE THREAD PLANE FOR ALL FASTENERS.
4. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE AS NOTED HEREIN. MINIMUM EMBEDMENT AND EDGE DISTANCE ARE DEPTHS INTO SOLID SUBSTRATE AND DO NOT INCLUDE THICKNESS OF STUCCO, FOAM, BRICK, AND OTHER WALL FINISHES. ALL CONCRETE ANCHORS SHALL BE INSTALLED TO NON-CRACKED CONCRETE ONLY.
5. ANCHOR QUANTITIES INDICATED IN DETAILS ARE FOR GRAPHICAL PURPOSES ONLY. DO NOT SCALE DIAMETER, LENGTH, OR PENETRATION(S). HEAD STYLE(S) ARE FREELY INTERCHANGEABLE.

NON-STRUCTURAL ELEMENTS:

1. THE INSTALLATION OF ANY ACCESSORIES THAT DO NOT AFFECT THE STRUCTURAL INTEGRITY OF THE STRUCTURE ARE OUTSIDE THE SCOPE OF THIS CERTIFICATION AND NOT REQUIRED TO BE CERTIFIED UNDER THIS STRUCTURAL DRAWING. THEY MAY BE INSTALLED WITHIN LIMITATIONS STATED HEREIN AND AS DESIRED PER MFR. SPECIFICATIONS. DETAILS PROVIDED HEREIN ARE FOR REFERENCE ONLY

FOUNDATION, CONCRETE, AND REINFORCEMENT

FOUNDATION & EARTHWORK

1. SURROUNDING SOIL TO BE WELL COMPACTED BY MECHANICAL MEANS TO 90% OPTIMUM DENSITY, BE FREE OF MUCK AND ORGANICS, AND ACHIEVE 2000 PSF MIN BEARING PRESSURE AND LATERAL BEARING PRESSURE BELOW NATURAL GRADE OF 150 PSF.
2. EXCAVATIONS NEAR ADJACENT FOOTINGS AND FOUNDATIONS SHALL NOT REMOVE LATERAL SUPPORT WITHOUT FIRST UNDERPINNING OR PROTECTING THE THE FOOTING OR FOUNDATION AGAINST SETTLEMENT OR LATERAL TRANSLATION.
3. SOIL SHALL BE CLASSIFIED OR VERIFIED BY OTHERS PRIOR TO CONSTRUCTION AS SAND CLASS OR BETTER. SHOULD OTHER CONDITIONS OR MATERIALS BE ENCOUNTERED THE ENGINEER OF RECORD MUST BE NOTIFIED.
4. FILL TO BE PLACED OVER THE NATURAL GROUND TO ACHIEVE THE FINISH PAD ELEVATION. BACKFILL MATERIAL SHALL CONSIST OF CLEAN GRANULAR SOILS CONTAINING LESS THAN 5% ORGANIC WITH NO MORE THAN 30% ROCK, AND NO ROCK LARGER THAN 3 INCHES IN DIAMETER AND PLACED IN LOOSE LIFTS NOT TO EXCEED 12 INCHES IN THICKNESS. ALL FILL MATERIAL FOUND AT FOUNDATION LEVEL AND BACKFILL SHALL BE COMPACTED TO 98% OF THE STANDARD PROCTOR DENSITY.

CONCRETE

1. CONCRETE MIXTURES SHALL BE DESIGNED TO REACH A COMPRESSIVE STRENGTH OF 3,000 PSI IN 28 DAYS.
2. ALL MIXING, TRANSPORTING, PLACING, & CURING OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 318.
3. NO ADMIXTURES ARE TO BE USED WITHOUT THE WRITTEN APPROVAL OF THE ABOVE-SIGNED ENGINEER.
4. CONCRETE SHALL BE TYPE 1 PORTLAND CEMENT MEETING THE REQUIREMENTS OF ASTM C150, AGGREGATES TO MEET ASTM C33. POTABLE WATER SHALL BE USED.
5. SLUMP SHALL BE A MINIMUM OF 3" AND MAXIMUM OF 5" CONCRETE DURING AND IMMEDIATELY AFTER DEPOSITING SHALL BY THOROUGHLY COMPACTED BY MEANS OF MECHANICAL VIBRATION.

REINFORCING STEEL

1. ALL REINFORCEMENT SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO CURRENT REQUIREMENTS OF ASTM A615, GRADE 60 (U.O.N.), FREE FROM OIL, LOOSE SCALE AND LOOSE RUST AND BENT, LAPPED, PLACED, SUPPORTED AND FASTENED ACCORDING TO THE "ACI DETAILING MANUAL" (SP-66) AND THE ACI 318.
2. ALL WELDING WIRE FABRIC IS TO CONFORM TO ASTM A185 MINIMUM YIELD STRENGTH OF 85 KSI.
3. CLEAR COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED:
   - FOOTINGS EXPOSED TO EARTH: 3"
   - UNFORMED FACES EXPOSED TO EARTH: 3"
   - FORMED FACES IN CONTACT WITH EARTH: 2"
   - SLABS NOT IN CONTACT WITH EARTH: 3/4"
   - SLABS EXPOSED TO WEATHER: 2"

ALL STEEL SHALL BE SECURELY HELD IN PLACE DURING POURING OF CONCRETE. IF REQUIRED, ADDITIONAL BARS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.

4. WHEN REINFORCING STEEL IS NOTED AS CONTINUOUS REINFORCING IN SLABS, WALLS, AND/OR BEAMS, SPLICE CONTINUOUS REINFORCING STEEL ONLY WHEN UNAVOIDABLE DUE TO STOCK LENGTHS.
   - 4.1. LAP CONTINUOUS REINFORCING A MINIMUM OF 48 BAR DIAMETERS IN BEAMS & COLUMNS, 36 BAR DIAMETERS IN SLABS.
   - 4.2. STAGGER ALL SPLICES A MINIMUM OF FOUR FEET. ADJACENT BAR WITH SPLICES ARE NOT ACCEPTABLE.
   - 4.3. LOCATE TOP BAR FOR SPLICES WITHIN MIDDLE HALF GO THE SPAN AND LOCATE BOTTOM BAR SPLICES AT SUPPORTS, OR BETWEEN SUPPORTS AND 1/3 SPAN POINT UNLESS NOTED OTHERWISE ON PLANS, DETAILS OR SCHEDULES.
   - 4.4. CONTINUITY AT COLUMNS SHALL BE PROVIDED BY CONTINUING HORIZONTAL REBARS THROUGH COLUMNS OR BY BENDING HORIZONTAL REINF. INTO COLUMNS A DISTANCE OF 30".
   - 4.5. PROVIDE 12" STANDARD ACI HOOK MINIMUM FOR ALL DISCONTINUOUS TOP REINFORCING.
   - 4.6. PROVIDE INTERIOR AND EXTERIOR HORIZONTAL LAPPED CORNER BARS AT ALL CORNERS TO MATCH SIZE, TYPE AND SPACING OF HORIZONTAL WALL REINFORCING IF APPLIED.
   - 4.7. PROVIDE 2- #5 X 48" DIAGONALLY AT CORNERS OF ALL OPENINGS WIDER THAN 15". EXTEND BOTTOM BARS 8" PAST OPENINGS GREATER THAN 3'-0" ON BOTH SIDES.
   - 4.8. LAP SPLICES IN WELDED WIRE FABRIC ARE TO BE MADE SUCH THAT THE OVERLAP MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET IS NOT LESS THEN THE CROSS WIRE SPACING PLUS 3"
5. SHOP DRAWINGS SHALL BE SUBMITTED FOR E.O.R. REVIEW AND APPROVAL BEFORE INSTALLATION.
6. ALL STRUCTURAL PRECAST UNITS AND THEIR ATTACHMENTS TO THE MAIN STRUCTURE SHALL BE INSPECTED AFTER ERECTION, BUT BEFORE CONCEALMENT. SUCH INSPECTIONS SHALL BE PERFORMED BY AN ARCHITECT OR PROFESSIONAL ENGINEER REGISTERED IN THE PERMITTING STATE.

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ABBREVIATIONS:

- θ = SLOPE, DEGREES
- (+) = POSITIVE (DOWN-IN) PRESSURE
- (-) = NEGATIVE (UP-OUT) PRESSURE
- Hc = CANOPY HEIGHT
- He = EAVE HEIGHT
- PSF = POUNDS PER SQUARE FOOT
- MPH = MILES PER HOUR
- TYP = TYPICAL

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PERGOLA LAYOUTS OPTIONS

(SEE SHEETS 4 AND 5 FOR BEAM TO POST ATTACHMENT DETAILS)

FREESTANDING (4 POSTS) OR HOST ATTACHED (2 POSTS)

1/3 N.T.S. PLAN

FREESTANDING (6 POSTS) OR HOST ATTACHED (3 POSTS)

2/3 N.T.S. PLAN

PERGOLA OVERHANG OPTIONS

FREESTANDING

3/3 N.T.S. PLAN

HOST ATTACHED

4/3 N.T.S. PLAN

FREESTANDING

5/3 N.T.S. PLAN

HOST ATTACHED

6/3 N.T.S. PLAN

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1/4 HOST ATTACHED
N.T.S. ELEVATION

2/4 FREESTANDING
N.T.S. ELEVATION

3/4 FREESTANDING (6 POSTS) & HOST ATTACHED (3 POSTS)
N.T.S. ELEVATION

4/4 FREESTANDING (4 POSTS) & HOST ATTACHED (2 POSTS)
N.T.S. ELEVATION

5/4 CORNER POST CUT OUT
N.T.S. ISOMETRIC

6/4 SINGLE BEAM TO CORNER POST
N.T.S. SECTION

7/4 SINGLE BEAM TO CORNER POST
N.T.S. SECTION

8/4 SINGLE BEAM TO CORNER POST
N.T.S. SECTION

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HOST ATTACHED (MULTI-BAY)

1/5 N.T.S. SIDE ELEVATION

FREESTANDING (MULTI-BAY)

2/5 N.T.S. SIDE ELEVATION

DIAGONAL BRACING REQUIREMENTS

FREESTANDING
LATERAL BRACING TO BE INSTALLED AT EACH POST, IN EACH DIRECTION

HOST ATTACHED
LATERAL BRACING TO BE INSTALLED AT EACH POST, ONLY IN PARALLEL DIRECTION TO HOST STRUCTURE (PERPENDICULAR BRACING IS PERMITTED BUT OPTIONAL)

MULTI-BAY DEFINITION

A BAY IS DEFINED IN THIS DOCUMENT AS THE RECTANGULAR REGION BETWEEN (4) NEIGHBORING POSTS OR (2) POSTS AND A SIDE SUPPORTED BY THE HOST STRUCTURE (BY OTHERS). SEE CIRCLED REGIONS BELOW.

THE DETAILS ON THE PREVIOUS PAGES DEPICT SINGLE-BAY AND DOUBLE-BAY SCENARIOS. THE DETAILS ON THIS PAGE DEPICT MULTI-BAY SCENARIOS ORGANIZED INTO A **2 x 2 MATRIX (MAXIMUM PERMITTED WITHOUT SITE-SPECIFIC PLANS).**

FREESTANDING & HOST ATTACHED (MULTI-BAY)

3/5 N.T.S. FRONT ELEVATION

HOST ATTACHED (MULTI-BAY)

4/5 N.T.S. PLAN

*SEE C/C SPAN TABLES, S9

FREESTANDING (MULTI-BAY)

5/5 N.T.S. PLAN

*SEE C/C SPAN TABLES, S9

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1/6 DOUBLE BEAM TO CORNER POST
N.T.S. SECTION

2/6 DOUBLE BEAM TO CORNER POST
N.T.S. SECTION

3/6 DOUBLE BEAM TO CORNER POST
N.T.S. SECTION

4/6 5.75" X 5.75" X 1/8" BEAM TO POST CLIP
N.T.S. 6063-T5

5/6 BEAM CORNER SLEEVE INSERT & ASSEMBLY
N.T.S. VIEW

6/6 SINGLE BEAM TO MID POST
N.T.S. SECTION

7/6 SINGLE BEAM TO MID POST
N.T.S. SECTION

8/6 SINGLE/DOUBLE BEAM TO POST (FOR OVERHANG ONLY)
N.T.S. SECTION

9/6 BEAM TO BEAM ATTACHMENT (FOR OVERHANG ONLY)
N.T.S. SECTION

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1/7 MID POST CUT OUT
N.T.S. ISOMETRIC

4/7 BEAM TO LEDGER BEAM
N.T.S. SECTION

DIAGONAL BRACING NOT REQUIRED IN EITHER DIRECTION FOR ANY POST FULLY EMBEDDED IN CONCRETE.

5/7 DIAGONAL BRACE DETAIL
SECTION

2/7 DOUBLE BEAM TO MID POST
N.T.S. SECTION

ANCHOR SCHEDULE:

TO GROUT-FILLED CONCRETE BLOCK (ASTM C-90):

- ¼" ITW TAPCON (OR EQUIV.) W/ 1¾" MIN. EMBEDMENT, 4" MIN. EDGE DISTANCE. SPACE PAIRS AT 10" O.C AND 5" FROM ENDS. HOLLOW BLOCK CONNECTIONS REQUIRE SITE-SPECIFIC EVALUATION.

TO WOOD HOST STRUCTURE (G=0.55 MIN):

- 5/16" LAG SCREWS W/ 2" MIN. THREAD PENETRATION, ¾" MIN. EDGE DISTANCE. SPACE GROUPS OF (3) AT 16" O.C. AND 6" MIN. FROM ENDS

TO CONCRETE (3000 PSI MIN):

- ¼" ITW TAPCON (OR EQUIV.) W/ 1¾" MIN. EMBEDMENT, 2½" MIN. EDGE DISTANCE. SPACE PAIRS AT 16" O.C. AND 6" MIN. FROM ENDS

ANCHOR NOTES:

1. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
2. WOOD HOST STRUCTURE SHALL BE G=0.42 OR GREATER DENSITY, AND SHALL NOT BE DIRECTLY EXPOSED TO WEATHERING ELEMENTS.
3. MINIMUM EMBEDMENT SHALL BE AS NOTED IN ANCHOR SCHEDULE. MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDES STUCCO, FOAM, BRICK, AND OTHER WALL FINISHES.
4. ALL CONCRETE ANCHORS SHALL BE INSTALLED TO NON-CRACKED CONCRETE ONLY.
5. WHERE EXISTING STRUCTURE IS WOOD FRAMING, EXISTING CONDITIONS MAY VARY. FIELD VERIFY THAT FASTENERS ARE INTO ADEQUATE WOOD FRAMING MEMBERS, NOT INTO PLYWOOD.

ANCHORAGE

TO CONCRETE: PROVIDE (2) ¼" DEWALT SCREW BOLTS PER CLIP (8 TOTAL) SPACED AS SHOWN. PROVIDE 2½" MIN. EMBEDMENT AND 3½" MIN. FROM ANY CONC. EDGE.

TO WOOD (G=0.55 MIN.): PROVIDE (2) ⅜" LAG SCREWS PER CLIP (8 TOTAL) SPACED AS SHOWN. PROVIDE 2" MIN. THREAD PENETRATION AND 1" MIN. FROM ANY WOOD EDGE.

6/7 POST CONNECTION CLIP BRACKETS
N.T.S. SECTION

ANCHORAGE

TO CONCRETE: PROVIDE (4) 3/8" Ø DEWALT SCREW BOLTS PER POST BRACKET SPACED AS SHOWN. PROVIDE 2½" MIN. EMBEDMENT AND 3½" MIN. FROM ANY CONC. EDGE.

TO WOOD (G=0.55 MIN.): PROVIDE (4) 1/2" LAG SCREWS PER POST BRACKET SPACED AS SHOWN. PROVIDE 2" MIN. THREAD PENETRATION AND 1" MIN. FROM ANY WOOD EDGE.

7/7 POST CONNECTION BASE BRACKET
NOT TO SCALE VIEW

3/7 DOUBLE BEAM TO MID POST
N.T.S. SECTION

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POST-BASE ATTACHMENT AND FOOTINGS

TABLE 8.1 - FOOTING SELECTION

USE POST SUPPORT AREA (CALCULATED FOR POST SELECTION) TO DETERMINE FOOTING # TO DETERMINE SIZE & REINFORCEMENT REQUIRED FOR EACH POST

DESIGN UPLIFT PRESSURE (-)	POST SUPPORT AREA								
	36 FT^2	50 FT^2	75 FT^2	100 FT^2	125 FT^2	150 FT^2	175 FT^2	200 FT^2	250 FT^2
-10 PSF	1	1	2	3	3	4	4	5	6
-15 PSF	1	2	3	4	5	5	6	6	8
-20 PSF	2	3	4	5	6	6	7	8	9
-25 PSF	2	3	5	6	7	8	8	9	9
-30 PSF	3	4	5	6	8	8	9	9	N/A
-35 PSF	4	4	6	7	8	9	9	N/A	N/A
-40 PSF	4	5	6	8	9	9	N/A	N/A	N/A
-45 PSF	4	5	7	8	9	N/A	N/A	N/A	N/A

TABLE 8.2 - FOOTING DETAILS

FOOTING DETAILS: USE FOOTING PER # FOUND IN TABLE ABOVE

#	WIDTH	LENGTH	DEPTH	VOLUME	WEIGHT	REINFORCEMENT			
1	24"	24"	18"	6.0 CUFT	900 LBS	2	#4 TOP & BOT EACH WAY	-	#4 VERTICAL TIES
2	30"	30"	18"	9.4 CUFT	1406 LBS	4		-	
3	30"	30"	24"	12.5 CUFT	1875 LBS	4		& 5	
4	36"	36"	24"	18.0 CUFT	2700 LBS	4		& 6	
5	36"	36"	30"	22.5 CUFT	3375 LBS	4	#5 TOP & BOT EACH WAY	& 6	
6	42"	42"	30"	30.6 CUFT	4594 LBS	4		& 8	
7	42"	42"	36"	36.8 CUFT	5513 LBS	5		& 8	
8	48"	48"	36"	48.0 CUFT	7200 LBS	6		& 11	
9	48"	48"	48"	64.0 CUFT	9600 LBS	8		& 14	

FOOTING TABLE NOTES:

1. F.S. AGAINST UPLIFT OF 33% HAS BEEN APPLIED TO ALL LOADS.
2. AT 2000PSF SOIL BEARING PRESSURE, GRAVITY DOES NOT GOVERN IN ANY CASE. ENSURE PROPER COMPACTION & EMBEDMENT FOR FROST & HEAVE REQUIREMENTS.
3. FOOTING WEIGHT CALCULATED PER 150 PCF STANDARD WEIGHT CONCRETE
4. FOOTINGS OF ALTERNATE SIZE & EQUAL OR GREATER VOLUME & WEIGHT ACCEPTABLE WITH SEPARATE FOOTING ENGINEERING
5. SITE SPECIFIC ENGINEERING REQUIRED FOR ANY VALUES, SIZES, CONCRETE TYPES, OR SOIL BEARING PRESSURES NOT COINCIDING WITH LIMITS OF THIS MASTER PLAN.

1/8 TYP FOOTING INSTALLATION
NTS ELEVATION

3KSI CONCRETE FOOTING PER FOOTING SCHEDULE. POST MAY BE EMBEDDED DIRECTLY INTO CONCRETE AS AN ALTERNATIVE TO SURFACE MOUNTING. PROVIDE 18" EMBEDMENT & A KEY HOLE FOR (1)#5 REBAR 12" LONG IN EACH DIRECTION, TYP.

2/8 POST EMBED DETAIL
NTS ELEVATION

NOTE: POST SUPPORT AREA MAY BE CALCULATED SEPARATELY FOR EACH POST. EACH POST MAY UTILIZE DIFFERENT POST AND FOOTER SELECTIONS FROM THE TABLES HEREIN BASED ON THE SITE DESIGN CONDITIONS & ITS SUPPORT AREA

3/8 POST SUPPORT AREA CALCULATION
NTS ELEVATION

FOOTER SCHEDULE NOTES:

1. FOOTERS SHALL BE 3000 PSI MINIMUM CONCRETE, BEARING ON SOIL WITH A MINIMUM BEARING CAPACITY OF 2000 PSF AS VERIFIED BY OTHERS.
2. IN LIEU OF THE FOOTERS DETAILED HEREIN, POSTS MAY BE ANCHORED TO EXISTING CONCRETE SLABS DESIGNED AND VERIFIED BY OTHERS TO SUPPORT THE CANOPY SYSTEM AS DETAILED HEREIN.
3. FOOTERS SHALL HAVE THE MINIMUM REINFORCEMENT INDICATED IN THE SCHEDULES HEREIN.
4. ALL REINFORCEMENT SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO CURRENT REQUIREMENTS OF ASTM A615, GRADE 60 (U.O.N.), FREE FROM OIL, LOOSE SCALE AND LOOSE RUST AND BENT, LAPPED, PLACED, SUPPORTED AND FASTENED ACCORDING TO THE "ACI DETAILING MANUAL" (SP-66) AND THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
5. MINIMUM REINFORCING STEEL CLEAR COVERAGE SHALL BE AS FOLLOWS. (PER ACI 318) FOOTING: TOP, SIDES, BOTTOM = 1-1/2" MIN. INSTALLED ON A SMOOTH LEVEL SURFACES ONLY. MAINTAIN 3" IF NOT IN SMOOTH FORM.
6. ALLOW 3 DAYS CURE TIME BEFORE INSTALLING ANCHORS INTO CONCRETE.
7. ALL CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS AND RECOMMENDATIONS OF ACI 318 "SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS". A CERTIFICATE OF MANUFACTURER'S MIX AND STRENGTH IS TO BE PROVIDED TO THE INSPECTOR UPON REQUEST. NO WATER TO BE ADDED AFTER TRUCK LEAVES PLANT WITHOUT APPROVAL OF ENGINEER OR PLANT ENGINEER. PLANT CONTROL IS REQUIRED. MAXIMUM MIX TIME AT POINT OF DEPOSIT IS 90 MINUTES.
8. THESE TABLES REPRESENT EMPIRICAL UPLIFT CALCULATIONS FOR FOOTING SIZES BASED ON STANDARD WEIGHT (150PCF) CONCRETE. THEY NEGLECT THE BENEFIT OF SKIN FRICTION AND OTHER BENEFICIAL SURCHARGE LOADING. NO WARRANTY, EXPRESSED OR IMPLIED, IS CONTAINED HEREIN AS TO ANY INFORMATION OTHER THAN THAT WHICH IS PUBLISHED HEREIN.
9. ALL FOOTINGS ARE TO BE INSTALLED LOWER THAN CODE REQUIRED FROST LINE. GENERAL CONTRACTOR IS RESPONSIBLE FOR ADHERENCE TO LOCAL FROST LINE REQUIREMENTS. ADDITIONALLY, TOP OF FOOTINGS ARE TO BE 8" MINIMUM BELOW GRADE IN HVHZ (DADE & BROWARD COUNTIES, FL).

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ALUMINUM LOUVERED PERGOLA MASTER PLAN
FREESTANDING OR HOST ATTACHED
FBC 7TH ED (2020), IBC (2018)

REMARKS	DRWN	CHKD	DATE
INIT ISSUE (18-5564)	RWN	TSB	8/24/18
2018 IBC (20-25436)	EPR	RWN	5/11/20
2022 UPDATE (22-51200)	CCB	RWN	4/22/22
UPDATED LOUVER SECTION	CCB	RWN	8/10/22
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TABLE 9.1: MAIN BEAM C/C SPAN SCHEDULE (PERIMETER BEAMS)

LOADED PRIMETER BEAM TYPE	LOUVER SPAN:	8 FT	9 FT	10 FT	11 FT	12 FT	13 FT	14 FT	15 FT	16 FT
	ASD ROOF LOAD COMBINATION	ALLOWABLE MAIN BEAM SPAN (FT-IN)								
SINGLE 2" X 8" X 1/8" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	21'-3"	20'-6"	19'-9"	19'-3"	18'-6"	18'-0"	17'-9"	17'-3"	17'-0"
	25 PSF	19'-9"	19'-0"	18'-3"	17'-9"	17'-3"	16'-9"	16'-6"	16'-0"	15'-6"
	30 PSF	18'-6"	18'-0"	17'-3"	16'-9"	16'-3"	15'-9"	15'-0"	14'-6"	14'-3"
	35 PSF	17'-9"	17'-0"	16'-6"	15'-9"	15'-0"	14'-6"	14'-0"	13'-6"	13'-0"
	40 PSF	17'-0"	16'-3"	15'-6"	14'-9"	14'-3"	13'-6"	13'-0"	12'-9"	12'-3"
	45 PSF	16'-3"	15'-6"	14'-6"	14'-0"	13'-3"	12'-9"	12'-3"	12'-0"	11'-6"
	50 PSF	15'-6"	14'-6"	13'-9"	13'-3"	12'-9"	12'-3"	11'-9"	11'-3"	11'-0"
	55 PSF	14'-9"	14'-0"	13'-3"	12'-6"	12'-0"	11'-6"	11'-3"	10'-9"	10'-6"
	60 PSF	14'-3"	13'-3"	12'-9"	12'-0"	11'-6"	11'-0"	10'-9"	10'-3"	10'-0"
DOUBLE 2" X 8" X 1/8" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	24'-0"	24'-0"	24'-0"	24'-0"	23'-6"	22'-9"	22'-3"	21'-9"	21'-3"
	25 PSF	24'-0"	24'-0"	23'-3"	22'-6"	21'-9"	21'-3"	20'-9"	20'-3"	19'-9"
	30 PSF	23'-6"	22'-6"	21'-9"	21'-0"	20'-6"	20'-0"	19'-6"	19'-0"	18'-6"
	35 PSF	22'-3"	21'-6"	20'-9"	20'-0"	19'-6"	19'-0"	18'-6"	18'-0"	17'-9"
	40 PSF	21'-3"	20'-6"	19'-9"	19'-3"	18'-6"	18'-0"	17'-9"	17'-3"	17'-0"
	45 PSF	20'-6"	19'-9"	19'-0"	18'-6"	18'-0"	17'-6"	17'-0"	16'-6"	16'-3"
	50 PSF	19'-9"	19'-0"	18'-3"	17'-9"	17'-3"	16'-9"	16'-6"	16'-0"	15'-6"
	55 PSF	19'-3"	18'-6"	17'-9"	17'-3"	16'-9"	16'-3"	15'-9"	15'-3"	14'-9"
	60 PSF	18'-6"	18'-0"	17'-3"	16'-9"	16'-3"	15'-9"	15'-0"	14'-6"	14'-3"
SINGLE 3" X 10" X 0.150" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	23'-9"	23'-3"
	25 PSF	24'-0"	24'-0"	24'-0"	24'-0"	23'-9"	23'-0"	22'-6"	22'-0"	21'-6"
	30 PSF	24'-0"	24'-0"	23'-9"	23'-0"	22'-3"	21'-9"	21'-3"	20'-9"	20'-3"
	35 PSF	24'-0"	23'-3"	22'-6"	21'-9"	21'-3"	20'-6"	20'-0"	19'-3"	18'-9"
	40 PSF	23'-3"	22'-3"	21'-6"	20'-9"	20'-3"	19'-6"	18'-9"	18'-0"	17'-6"
	45 PSF	22'-3"	21'-6"	20'-9"	20'-0"	19'-0"	18'-3"	17'-9"	17'-0"	16'-6"
	50 PSF	21'-6"	20'-9"	19'-9"	19'-0"	18'-0"	17'-6"	16'-9"	16'-3"	15'-9"
	55 PSF	20'-9"	20'-0"	19'-0"	18'-0"	17'-3"	16'-6"	16'-0"	15'-6"	15'-0"
	60 PSF	20'-3"	19'-0"	18'-0"	17'-3"	16'-6"	15'-9"	15'-3"	14'-9"	14'-3"
SINGLE 4" X 8" X 3/16" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	24'-0"	24'-0"	24'-0"	24'-0"	23'-9"	23'-3"	22'-9"	22'-3"	21'-9"
	25 PSF	24'-0"	24'-0"	23'-6"	22'-9"	22'-3"	21'-6"	21'-0"	20'-6"	20'-0"
	30 PSF	23'-9"	23'-0"	22'-3"	21'-6"	20'-9"	20'-3"	19'-9"	19'-3"	19'-0"
	35 PSF	22'-9"	21'-9"	21'-0"	20'-6"	19'-9"	19'-3"	18'-9"	18'-3"	18'-0"
	40 PSF	21'-9"	20'-9"	20'-0"	19'-6"	19'-0"	18'-6"	18'-0"	17'-6"	17'-3"
	45 PSF	20'-9"	20'-0"	19'-3"	18'-9"	18'-3"	17'-9"	17'-3"	17'-0"	16'-6"
	50 PSF	20'-0"	19'-3"	18'-9"	18'-0"	17'-6"	17'-0"	16'-9"	16'-3"	16'-0"
	55 PSF	19'-6"	18'-9"	18'-0"	17'-6"	17'-0"	16'-6"	16'-3"	15'-9"	15'-3"
	60 PSF	19'-0"	18'-3"	17'-6"	17'-0"	16'-6"	16'-0"	15'-6"	15'-0"	14'-6"

MAIN BEAM SPAN NOTES:

1. A MAIN BEAM SHALL BE CONSIDERED AN INTERIOR BEAM IF THERE ARE LOUVERS ON BOTH SIDES OF THE BEAM (BEYOND THE ALLOWED OVERHANG ON SHEET 8). OTHERWISE, THE BEAM IS CONSIDERED AN END BEAM.
2. ALL BEAMS, LOVERS, AND COMPONENTS MUST BE APPLICABLE FOR SITE LOADING CONDITIONS. REFER SPAN TABLES FOR ALLOWABLE BEAM & LOUVER SPANS.
3. DEFLECTION LIMIT OF L/120 USED FOR DETERMINATION OF ALLOWABLE BEAM SPANS.
4. IF IN DOUBT, USE A HIGHER PRESSURE OR LOWER SPAN.
5. CONTACT THIS OFFICE FOR HELP IN USING THIS PLAN OR ADAPTING IT TO YOUR SITE-SPECIFIC CONDITION.
6. CONTACT THIS OFFICE FOR LOADING CONDITIONS NOT INCLUDED IN THE SAMPLE CALCULATIONS

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TABLE 10.1: MAIN BEAM C/C SPAN SCHEDULE (INTERIOR BEAMS)

LOADED PRIMETER BEAM TYPE	LOUVER SPAN:	8 FT	9 FT	10 FT	11 FT	12 FT	13 FT	14 FT	15 FT	16 FT
	ASD ROOF LOAD COMBINATION	ALLOWABLE MAIN BEAM SPAN (FT-IN)								
SINGLE 2" X 8" X 1/8" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	17'-0"	16'-3"	15'-6"	14'-9"	14'-3"	13'-6"	13'-0"	12'-9"	12'-3"
	25 PSF	15'-6"	14'-6"	13'-9"	13'-3"	12'-9"	12'-3"	11'-9"	11'-3"	11'-0"
	30 PSF	14'-3"	13'-3"	12'-9"	12'-0"	11'-6"	11'-0"	10'-9"	10'-3"	10'-0"
	35 PSF	13'-0"	12'-3"	11'-9"	11'-3"	10'-9"	10'-3"	9'-9"	9'-6"	9'-3"
	40 PSF	12'-3"	11'-6"	11'-0"	10'-6"	10'-0"	9'-6"	9'-3"	9'-0"	8'-6"
	45 PSF	11'-6"	10'-9"	10'-3"	9'-9"	9'-6"	9'-0"	8'-9"	8'-6"	8'-0"
	50 PSF	11'-0"	10'-3"	9'-9"	9'-3"	9'-0"	8'-6"	8'-3"	8'-0"	7'-9"
	55 PSF	10'-6"	9'-9"	9'-3"	8'-9"	8'-6"	8'-3"	7'-9"	7'-6"	7'-3"
	60 PSF	10'-0"	9'-6"	9'-0"	8'-6"	8'-0"	7'-9"	7'-6"	7'-3"	7'-0"
DOUBLE 2" X 8" X 1/8" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	21'-3"	20'-6"	19'-9"	19'-3"	18'-6"	18'-0"	17'-9"	17'-3"	17'-0"
	25 PSF	19'-9"	19'-0"	18'-3"	17'-9"	17'-3"	16'-9"	16'-6"	16'-0"	15'-6"
	30 PSF	18'-6"	18'-0"	17'-3"	16'-9"	16'-3"	15'-9"	15'-0"	14'-6"	14'-3"
	35 PSF	17'-9"	17'-0"	16'-6"	15'-9"	15'-0"	14'-6"	14'-0"	13'-6"	13'-0"
	40 PSF	17'-0"	16'-3"	15'-6"	14'-9"	14'-3"	13'-6"	13'-0"	12'-9"	12'-3"
	45 PSF	16'-3"	15'-6"	14'-6"	14'-0"	13'-3"	12'-9"	12'-3"	12'-0"	11'-6"
	50 PSF	15'-6"	14'-6"	13'-9"	13'-3"	12'-9"	12'-3"	11'-9"	11'-3"	11'-0"
	55 PSF	14'-9"	14'-0"	13'-3"	12'-6"	12'-0"	11'-6"	11'-3"	10'-9"	10'-6"
	60 PSF	14'-3"	13'-3"	12'-9"	12'-0"	11'-6"	11'-0"	10'-9"	10'-3"	10'-0"
SINGLE 3" X 10" X 0.150" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	23'-3"	22'-3"	21'-6"	20'-9"	20'-3"	19'-6"	18'-9"	18'-0"	17'-6"
	25 PSF	21'-6"	20'-9"	19'-9"	19'-0"	18'-0"	17'-6"	16'-9"	16'-3"	15'-9"
	30 PSF	20'-3"	19'-0"	18'-0"	17'-3"	16'-6"	15'-9"	15'-3"	14'-9"	14'-3"
	35 PSF	18'-9"	17'-9"	16'-9"	16'-0"	15'-3"	14'-9"	14'-3"	13'-9"	13'-3"
	40 PSF	17'-6"	16'-6"	15'-9"	15'-0"	14'-3"	13'-9"	13'-3"	12'-9"	12'-3"
	45 PSF	16'-6"	15'-6"	14'-9"	14'-0"	13'-6"	13'-0"	12'-6"	12'-0"	11'-9"
	50 PSF	15'-9"	14'-9"	14'-0"	13'-3"	12'-9"	12'-3"	11'-9"	11'-6"	11'-0"
	55 PSF	15'-0"	14'-0"	13'-3"	12'-9"	12'-3"	11'-9"	11'-3"	11'-0"	10'-6"
	60 PSF	14'-3"	13'-6"	12'-9"	12'-3"	11'-9"	11'-3"	10'-9"	10'-6"	10'-0"
SINGLE 4" X 8" X 3/16" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	21'-9"	20'-9"	20'-0"	19'-6"	19'-0"	18'-6"	18'-0"	17'-6"	17'-3"
	25 PSF	20'-0"	19'-3"	18'-9"	18'-0"	17'-6"	17'-0"	16'-9"	16'-3"	16'-0"
	30 PSF	19'-0"	18'-3"	17'-6"	17'-0"	16'-6"	16'-0"	15'-6"	15'-0"	14'-6"
	35 PSF	18'-0"	17'-3"	16'-9"	16'-3"	15'-6"	15'-0"	14'-3"	13'-9"	13'-6"
	40 PSF	17'-3"	16'-6"	16'-0"	15'-3"	14'-6"	14'-0"	13'-6"	13'-0"	12'-6"
	45 PSF	16'-6"	15'-9"	15'-0"	14'-3"	13'-9"	13'-3"	12'-9"	12'-3"	11'-9"
	50 PSF	16'-0"	15'-0"	14'-3"	13'-6"	13'-0"	12'-6"	12'-0"	11'-6"	11'-3"
	55 PSF	15'-3"	14'-3"	13'-6"	13'-0"	12'-3"	11'-9"	11'-6"	11'-0"	10'-9"
	60 PSF	14'-6"	13'-9"	13'-0"	12'-3"	11'-9"	11'-3"	11'-0"	10'-6"	10'-3"

MAIN BEAM SPAN NOTES:

1. A MAIN BEAM SHALL BE CONSIDERED AN INTERIOR BEAM IF THERE ARE LOUVERS ON BOTH SIDES OF THE BEAM (BEYOND THE ALLOWED OVERHANG ON SHEET 8). OTHERWISE, THE BEAM IS CONSIDERED AN END BEAM.
2. ALL BEAMS, LOVERS, AND COMPONENTS MUST BE APPLICABLE FOR SITE LOADING CONDITIONS. REFER SPAN TABLES FOR ALLOWABLE BEAM & LOUVER SPANS.
3. DEFLECTION LIMIT OF L/120 USED FOR DETERMINATION OF ALLOWABLE BEAM SPANS.
4. IF IN DOUBT, USE A HIGHER PRESSURE OR LOWER SPAN.
5. CONTACT THIS OFFICE FOR HELP IN USING THIS PLAN OR ADAPTING IT TO YOUR SITE-SPECIFIC CONDITION.
6. CONTACT THIS OFFICE FOR LOADING CONDITIONS NOT INCLUDED IN THE SAMPLE CALCULATIONS

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BEAM DESIGN FOR MULTI-SPAN LAYOUT

LAYOUT NOTES:

- LOUVER SPANS MAY BE SPLIT INTO MULTIPLE BAYS WITH AN INTERIOR MAIN BEAM AS SHOWN. REFER SPAN TABLES BELOW FOR AND "LOADED PERIMETER BEAM" MAX SPANS.
- INTERIOR MAIN BEAMS MAY BE PLACED AT ANY POINT ALONG THE SPAN OF THE LOADED PERIMETER BEAM, PROVIDED ALL MEMBER SPANS ARE WITHIN THE LIMITS PROVIDED. (LOUVER SPANS ON EITHER SIDE OF INTERIOR BEAMS DO NOT NEED TO MATCH)
- ONLY 1 INTERIOR MAIN BEAM IS ALLOWED WITH THIS MASTER PLAN. FOR CONFIGURATIONS INCLUDING MULTIPLE INTERIOR MAIN BEAMS, ADDITIONAL ENGINEERING IS REQUIRED.

TABLE 11.1 - ALLOWABLE LOADED PERIMETER BEAM SPANS (2'-0" MAX OVERHANG)

LOADED PRIMETER BEAM TYPE	MAIN BEAM SPAN:	8 FT	10 FT	12 FT	14 FT	16 FT	18 FT	20 FT	22 FT	24 FT
	FACTORED ASD LOAD COMBON ROOF PRESSURE	ALLOWABLE LOADED PERIMETER BEAM SPAN (FT-IN)								
SINGLE 2" X 8" X 1/8" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	23'-0"	21'-0"	20'-0"	18'-6"	17'-0"	16'-0"	15'-6"	14'-6"	14'-0"
	25 PSF	21'-0"	19'-6"	18'-0"	16'-6"	15'-6"	14'-6"	14'-0"	13'-0"	12'-6"
	30 PSF	20'-0"	18'-0"	16'-0"	15'-0"	14'-0"	13'-0"	12'-6"	12'-0"	11'-6"
	35 PSF	18'-6"	16'-6"	15'-0"	14'-0"	13'-0"	12'-0"	11'-6"	11'-0"	10'-6"
	40 PSF	17'-0"	15'-6"	14'-0"	13'-0"	12'-0"	11'-6"	11'-0"	10'-6"	10'-0"
	45 PSF	16'-0"	14'-6"	13'-0"	12'-0"	11'-6"	11'-0"	10'-0"	9'-6"	9'-6"
	50 PSF	15'-6"	14'-0"	12'-6"	11'-6"	11'-0"	10'-0"	9'-6"	9'-0"	9'-0"
	55 PSF	14'-6"	13'-0"	12'-0"	11'-0"	10'-6"	9'-6"	9'-0"	9'-0"	8'-6"
	60 PSF	14'-0"	12'-6"	11'-6"	10'-6"	10'-0"	9'-6"	9'-0"	8'-6"	8'-0"
DOUBLE 2" X 8" X 1/8" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	24'-0"	24'-0"	24'-0"	24'-0"	23'-0"	22'-0"	21'-0"	20'-6"	20'-0"
	25 PSF	24'-0"	24'-0"	23'-6"	22'-0"	21'-0"	20'-6"	19'-6"	18'-6"	18'-0"
	30 PSF	24'-0"	23'-6"	22'-0"	21'-0"	20'-0"	19'-0"	18'-0"	17'-0"	16'-0"
	35 PSF	24'-0"	22'-0"	21'-0"	19'-6"	18'-6"	17'-6"	16'-6"	15'-6"	15'-0"
	40 PSF	23'-0"	21'-0"	20'-0"	18'-6"	17'-0"	16'-0"	15'-6"	14'-6"	14'-0"
	45 PSF	22'-0"	20'-6"	19'-0"	17'-6"	16'-0"	15'-6"	14'-6"	14'-0"	13'-0"
	50 PSF	21'-0"	19'-6"	18'-0"	16'-6"	15'-6"	14'-6"	14'-0"	13'-0"	12'-6"
	55 PSF	20'-6"	18'-6"	17'-0"	15'-6"	14'-6"	14'-0"	13'-0"	12'-6"	12'-0"
	60 PSF	20'-0"	18'-0"	16'-0"	15'-0"	14'-0"	13'-0"	12'-6"	12'-0"	11'-6"
SINGLE 3" X 10" X 0.150" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	23'-6"	22'-0"	21'-0"	20'-0"
	25 PSF	24'-0"	24'-0"	24'-0"	23'-6"	22'-0"	21'-0"	20'-0"	19'-0"	18'-0"
	30 PSF	24'-0"	24'-0"	23'-6"	21'-6"	20'-0"	19'-0"	18'-0"	17'-0"	16'-6"
	35 PSF	24'-0"	23'-6"	21'-6"	20'-0"	18'-6"	17'-6"	16'-6"	16'-0"	15'-0"
	40 PSF	24'-0"	22'-0"	20'-0"	18'-6"	17'-6"	16'-6"	15'-6"	15'-0"	14'-0"
	45 PSF	23'-6"	21'-0"	19'-0"	17'-6"	16'-6"	15'-6"	14'-6"	14'-0"	13'-6"
	50 PSF	22'-0"	20'-0"	18'-0"	16'-6"	15'-6"	14'-6"	14'-0"	13'-0"	12'-6"
	55 PSF	21'-0"	19'-0"	17'-0"	16'-0"	15'-0"	14'-0"	13'-0"	12'-6"	12'-0"
	60 PSF	20'-0"	18'-0"	16'-6"	15'-0"	14'-0"	13'-6"	12'-6"	12'-0"	11'-6"
SINGLE 4" X 8" X 3/16" STRUCTURAL BEAM (6063-T6 ALUM)	20 PSF	24'-0"	24'-0"	24'-0"	24'-0"	23'-0"	22'-6"	21'-6"	21'-0"	20'-6"
	25 PSF	24'-0"	24'-0"	24'-0"	22'-6"	21'-6"	21'-0"	20'-0"	19'-0"	18'-0"
	30 PSF	24'-0"	24'-0"	22'-6"	21'-0"	20'-6"	19'-0"	18'-0"	17'-6"	16'-6"
	35 PSF	24'-0"	22'-6"	21'-0"	20'-0"	19'-0"	18'-0"	17'-0"	16'-0"	15'-6"
	40 PSF	23'-0"	21'-6"	20'-6"	19'-0"	17'-6"	16'-6"	16'-0"	15'-0"	14'-6"
	45 PSF	22'-6"	21'-0"	19'-0"	18'-0"	16'-6"	15'-6"	15'-0"	14'-0"	13'-6"
	50 PSF	21'-6"	20'-0"	18'-0"	17'-0"	16'-0"	15'-0"	14'-0"	13'-6"	13'-0"
	55 PSF	21'-0"	19'-0"	17'-6"	16'-0"	15'-0"	14'-0"	13'-6"	13'-0"	12'-0"
	60 PSF	20'-6"	18'-0"	16'-6"	15'-6"	14'-6"	13'-6"	13'-0"	12'-0"	11'-6"

INTERIOR MAIN BEAM & LOADED PERIMETER BEAM SPAN TABLE NOTES:

1. DUAL-SPAN PERGOLA SIZING & DESIGN MUST SATISFY ALLOWABLE SPANS FOR BOTH PERIMETER MAIN BEAMS, PERIMETER MAIN BEAMS, & LOADED PERIMETER BEAMS DETAILED IN THIS MASTER PLAN.
2. DEFLECTION LIMIT OF L/120 USED IN DETERMINATION OF ALLOWABLE BEAM SPANS
3. BEAM SPANS APPLICABLE FOR FREESTANDING & HOST-ATTACHED CONFIGURATIONS

INTERIOR MAIN BEAM & LOADED PERIMETER BEAM ALLOWABLE CONFIGURATIONS & MEMBER DEFINITIONS

1/11 VIEW

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ALUMINUM LOUVERED PERGOLA MASTER PLAN
FREESTANDING OR HOST ATTACHED
FBC 7TH ED (2020), IBC (2018)

REMARKS	DRWN	CHKD	DATE
INIT ISSUE (18-5564)	RWN	TSB	8/24/18
2018 IBC (20-25436)	EPR	RWN	5/11/20
2022 UPDATE (22-51200)	CCB	RWN	4/22/22
UPDATED LOUVER SECTION	CCB	RWN	8/10/22
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1/12 SINGLE 2"X8" BEAM
NOT TO SCALE 6063-T6 ALUM

12
2/12 DOUBLE 2"X8" BEAM
NOT TO SCALE 6063-T6 ALUM

3/12 SINGLE 3"X10" BEAM
NOT TO SCALE 6063-T6 ALUM

4/12 SINGLE 4"X8" BEAM
NOT TO SCALE 6063-T6 ALUM

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1/13 LOUVER
NOT TO SCALE 6063-T6 ALUM

NOTE: MECHANICAL OPERATION OF THE SYSTEM NOT PART OF THIS STRUCTURAL DESIGN OR CERTIFICATION

TABLE 13.1
LOUVER SPAN SCHEDULE

FACTORED ASD GRAVITY LOAD COMBO PRESSURE (PSF)	ALLOWABLE LOUVER SPAN	
	L/80 DEFLECTION LIMIT	L/180 DEFLECTION LIMIT
20 PSF	16' - 0"	12' - 6"
25 PSF	15' - 6"	12' - 0"
30 PSF	14' - 6"	11' - 0"
35 PSF	14' - 0"	10' - 6"
40 PSF	13' - 6"	10' - 0"
45 PSF	12' - 6"	9' - 6"
50 PSF	12 - 0"	9' - 6"
55 PSF	12' - 0"	9' - 0"
60 PSF	11' - 6"	8' - 6"

LOUVER SPAN SCHEDULE NOTES:

1. DEFLECTION REQUIREMENT SHALL BE DETERMINED BASED ON THE INTERNATIONAL/FL BUILDING CODE ALONG WITH ANY LOCAL JURISDICTION REQUIREMENTS. IF IN DOUBT, USE L/180.
2. REFER TO YOUR SITE SPECIFIC SNOW/WIND ROOF LOADING CONDITION (BY OTHERS) OR SEE S12 FOR DETERMINATION OF ROOF LOADING.
3. THESE LOUVERS FOR USE WITH 20PSF MAX GROUND SNOW LOAD ONLY (UP TO 30PSF ROOF SNOW LOAD INCLUDING DRIFT). SITE SPECIFIC ENGINEERING REQUIRED FOR ANY VALUES EXCEEDING THE LIMITS IN THIS PLAN.
4. CONTACT THIS OFFICE FOR HELP IN USING THIS PLAN AND ADAPTING IT TO YOUR SITE-SPECIFIC CONDITION.

1/13 POST
NOT TO SCALE 6063-T6 ALUM

1/13 LOUVER BEARING
NOT TO SCALE 6063-T6 ALUM

1/13 LOUVER PIN
NOT TO SCALE 6063-T6 ALUM

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WIND SPEED TO PRESSURE LOAD COMBINATION

CONVERSION TABLES FOR CANOPIES & PERGOLAS WITH 50% ROOF POROSITY

ASD DESIGN LOAD COMBINATION PRESSURES CONSIDER DL= 3 PSF, L_R = 20 PSF, S = 20 PSF, AND WIND LOAD, W AS CALCULATED FOR THE SELECTED STRUCTURE USING ASCE 7-16 Vult WIND SPEED & ASD PRESSURE METHOD & CALCULATED AT MEAN SEA LEVEL FOR **OPEN-WALLED CANOPY STRUCTURES WITH AT LEAST 50% ROOF POROSITY**

NOTE: FOR 0% PORISITY REQUIREMENTS, MULTIPLY THE RESULTING ROOF PRESSURE FORCES BY 2.

TABLE 1: CANOPY LATERAL WIND PRESSURES

(WIND PRESSURE AGAINST SIDE OF FREESTANDING OR HOST ATTACHED STRUCTURES WITH OPEN WALLS)

DESIGN LATERAL PRESSURE		
ULT WIND SPEED (MPH)	ASCE EXPOSURE CATEGORY	LATERAL PRESSURE (PSF)
110 MPH	B	14
	C	17
120 MPH	B	17
	C	20
130 MPH	B	20
	C	24
140 MPH	B	23
	C	27
150 MPH	B	26
	C	31
160 MPH	B	30
	C	36

TABLE 2: FREESTANDING CANOPY ROOF PRESSURES

(WIND, AND LISTED GRAVITY LOADING AGAINST ROOF OF FREESTANDING STRUCTURE (+ = GRAVITY; - = UPLIFT)

DESIGN ROOF PRESSURE WITH OPEN WALLS			
ULT WIND SPEED (MPH)	ASCE EXPOSURE CATEGORY	MONOSLOPE (PSF) θ <7.5°	
		(+)	(-)
110 MPH	B	24	-10
	C	28	-10
120 MPH	B	25	-10
	C	28	-10
130 MPH	B	26	-10
	C	29	-11
140 MPH	B	27	-10
	C	31	-14
150 MPH	B	28	-10
	C	33	-16
160 MPH	B	30	-12
	C	36	-20

FOR TABLE 2

OPEN-FREESTANDING PERGOLA
MONOSLOPE ROOF ONLY
WITH 50% POROSITY (MIN)
(SUCH AS TRELLIS OR LOUVERED ROOF)

TABLE 3: ATTACHED CANOPY ROOF PRESSURES

(WIND, AND LISTED GRAVITY LOADING AGAINST ROOF OF HOST-ATTACHED STRUCTURE (+ = GRAVITY; - = UPLIFT)

DESIGN ROOF PRESSURES FOR HOST ATTACHED CANOPY					
ULTIMATE WIND SPEED	ASCE EXPOSURE CATEGORY	CANOPY ATTACHED 1FT OR MORE BELOW EAVE (hc/he)<0.9)		CANOPY ATTACHED 1FT OR LESS BELOW EAVE (0.9 ≤ (hc/he) ≤1)	
		DESIGN WIND PRESSURE (PSF)			
110 MPH	B	23	-10	23	-10
	C	23	-10	23	-10
120 MPH	B	23	-10	23	-10
	C	23	-10	23	-10
130 MPH	B	23	-10	23	-10
	C	23	-10	23	-10
140 MPH	B	23	-10	23	-10
	C	23	-10	23	-11
150 MPH	B	23	-10	23	-10
	C	24	-10	24	-13
160 MPH	B	23	-10	23	-10
	C	25	-10	25	-14

FOR TABLE 3

HOST ATTACHED CANOPY/PATIO COVER ISOMETRIC
(TABLE 3-ROOF, OPEN WALL)

ABBREVIATIONS:

θ = SLOPE, DEGREES
(+) = POSITIVE (DOWNW-IN) PRESSURE
(-) = NEGATIVE (UP-OUT) PRESSURE
Hc = CANOPY HEIGHT
He = EAVE HEIGHT
PSF = POUNDS PER SQUARE FOOT (ASD)
MPH = MILES PER HOUR (Vult)

DESIGN LOAD COMBINATION CONDITIONS

PRESSURES PROVIDED IN THE TABLES HEREIN ARE ALLOWABLE STRESS DESIGN FACTORED LOAD COMBINATIONS PER ASCE 7-16 CHAPTER 2.4 & CORRESPONDING WIND PRESSURE DESIGN CHAPTERS. THE WIND PRESSURES UTILIZED IN THESE CALCULATIONS ASSUME A CANOPY OF HEIGHT = 12FT AND AN AREA OF 100 SQFT.

ASD LOAD COMBINATIONS HEREIN ASSUME A CONSTANT DEAD LOAD OF 2 PSF, ROOF LIVE LOAD, L_R = 20 PSF, SNOW LOAD, S = 20 PSF, AND WIND LOAD, W AS CALCULATED FOR THE SELECTED STRUCTURE & SITE SPECIFIC CONDITIONS. PRESSURES LISTED ARE VALID FOR DESIGN CONDITIONS EQUAL TO OR LESS THAN THE LOAD COMBINATION CONSIDERED.

FOR LOADING CONDITIONS EXCEEDING THE CONSTANTS STATED ABOVE (SUCH AS A ROOF OR SNOW LOADING EXCEEDING 20 PSF, OR THE CONSIDERATION OF SEISMIC LOADING), USE THE ONLINE LOAD COMBINATION TOOLS FOUND AT THE QR CODE PROVIDED.

INSTRUCTIONS FOR TABLE USE:

1. IDENTIFY THE LOCAL V_{ULT} WIND VELOCITY BASED ON 3 SECOND GUST FACTOR FROM BUILDING DEPT OR PUBLISHED DATA. REFERENCED STANDARD WIND INFORMATION CAN BE FOUND AT HAZARDS.ATCOUNCIL.ORG AND AT THE QR CODE BELOW
2. CONFIRM THAT THE SITE-SPECIFIC & LOCAL MUNICIPALITY DESIGN CONDITIONS ARE WITHIN THE LIMITATIONS OF THIS MASTER PLAN AS STATED ABOVE. CONFIRM THAT THESE CONDITIONS ALSO COMPLY WITH LOCAL CODE REQUIREMENTS
3. IDENTIFY THAT THE STRUCTURE TO BE USED CONFORMS TO THE LIMITATIONS NOTED HEREIN. THIS DOCUMENT PROVIDES INFORMATION FOR OPEN-WALLED STRUCTURES THAT ARE EITHER FREESTANDING OR HOST-ATTACHED, AND HAVE A ROOF THAT IS AT LEAST 50% POROUS.
4. READ OFF POSITIVE (DOWNWARD), NEGATIVE (UPLIFT), AND LATERAL PRESSURES AS ASD DESIGN LOAD COMBINATIONS FOR DIRECT USE WITH CORRESPONDING PRESSURE-DESIGNED SYSTEMS

ADDITIONAL ENGINEERING IS REQUIRED FOR DESIGN CONDITIONS THAT EXCEED THE CONSIDERATIONS OF THIS MASTER PLAN.

CALCULATION NOTES:

1. INTERPOLATION OF THESE RESULTS ARE NOT PERMITTED WITHOUT SIGNED AND SEALED RESULTS.
2. PRESSURES HEREIN ARE VALID FOR CONDITIONS EQUAL OR LESS THAN THE DESIGN CONDITIONS LISTED. FOR CONDITIONS EXCEEDING THOSE LISTED, VISIT **ECALC.IO/WIND** TO CALCULATE A SITE SPECIFIC PRESSURE
3. TABLES USE ASCE ZONE 2 PRESSURES FOR A ROOF AREA=100FT², AND CANOPY HEIGHT Hc = 12FT, C&C METHOD, FLAT TERRAIN. FOR MORE EXACT ANSWERS USE THE MATCHING ONLINE CALCULATOR AT **ECALC.IO/WIND**.

VISIT ECALC.IO/WIND

TO ORDER ENGINEER-CERTIFIED ORIGINALS FOR PERMIT

USE OUR ONLINE CALCULATIONS WITH BETTER ANSWERS

HELPFUL EXPLANATIONS & MORE WIND RESOURCES

OR SCAN THIS CODE

DESIGN NOTES

1. PRESSURES HEREIN ARE CALCULATED IN CONFORMANCE WITH (ASD) "ALLOWABLE STRESS DESIGN METHODOLOGY" PER IBC (2018) / FBC (2020) SECTION 1605 & ASCE 7-16 SECTION 2.4.1, WITH WIND PRESSURES PER ASCE CHAPTER 30, AND LOADING CONDITIONS USING THE CODES & CRITERIA AS OUTLINED.
2. 'WORST CASE' CRITICAL CONDITIONS SHALL BE ASSUMED FOR SAFE PRESSURE RATINGS.
3. TOPOGRAPHIC FACTOR Kzt=1.0 FOR FLAT TERRAIN USE ONLY. NO HILLS SHALL BE NEARBY AREA.
4. VERIFY USE OF Kd (DIRECTIONALITY FACTOR) WITH LOCAL BUILDING DEPARTMENT, Kd=0.85 USED HEREIN. PRESSURES SHALL BE ADJUSTED AS REQUIRED BY USE OF ALTERNATE Kd VALUES.

GENERAL NOTES

5. THIS DOCUMENT IS NOT A SITE-SPECIFIC DOCUMENT & DOES NOT PERTAIN TO ANY SPECIFIC RESIDENCE.
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7. THIS DOCUMENT ILLUSTRATES ALLOWABLE DESIGN WIND PRESSURES (ASD) AS LISTED. APPLICATION OF THESE TABLES AND CORRESPONDING WIND VELOCITY (SPEED), EXPOSURE, & OTHER COEFFICIENTS LISTED HEREIN SHALL BE DICTATED AND VERIFIED BY THE GOVERNING BUILDING DEPARTMENT AND PERMIT HOLDER.
8. NO WARRANTY FOR APPLICABILITY OF THE USE OF THESE TABLES IS OFFERED HEREIN.
9. THIS SPECIFICATION DOES NOT OFFER ANY PRODUCT APPROVED CERTIFICATION. REFER TO ANY SEPARATELY SUBMITTED TEST CRITERIA AND OTHER APPROVALS FOR DESIGN & INSTALLATION INFORMATION AND APPLICABILITY OF THESE TABLE VALUES WHICH IS TO BE VERIFIED BY OTHERS IN ACCORDANCE WITH GOVERNING CODES.
10. CONTRACTOR SHALL INVESTIGATE AND CONFORM TO ALL LOCAL BUILDING CODE AMENDMENTS WHICH MAY APPLY.
11. IT IS RECOMMENDED THAT A LICENSED ENGINEER OR REGISTERED ARCHITECT PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT. SEPARATE 'SITE-SPECIFIC' SEALED ENGINEERING IS REQUIRED IN ORDER TO DEVIATE FROM LOADS OR CONFIGURATIONS CONTAINED HEREIN. CONTACT THIS ENGINEER OR A LICENSED PROFESSIONAL FOR ALTERNATE CONFIGURATION CALCULATIONS AS MAY BE REQUIRED.
12. THE CONTRACTOR SHALL CAREFULLY CONSIDER POSSIBLE IMPOSING LOADS ON ROOF, INCLUDING BUT NOT LIMITED TO ANY CONCENTRATED LOADS WHICH MAY JUSTIFY GREATER DESIGN CRITERIA. ADDITIONAL ROOF LOAD CRITERIA SHALL BE PROPERLY ANALYZED BY A PROFESSIONAL ENGINEER. RESULTS ARE WIND ONLY.
13. EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.
14. ALTERATIONS, ADDITIONS OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

NOTE: ROOF DESIGN LOADS SHOWN HEREIN INCLUDE A 50% REDUCTION IN TOTAL WIND PRESSURE TO ACCOUNT FOR A POROUS ROOF SURFACE AREA EXPOSED TO WIND AND SNOW (SUCH AS A TRELLIS OR OPERABLE LOUVERED ROOF WHEN IN THE FULLY OPENED POSITION). TO UTILIZE THESE VALUES, ROOF STRUCTURE SHOULD BE CLEAR OF OBSTRUCTION, AND ANY LOUVERS SHALL BE FULLY OPENED BEFORE ANY NAMED STORM OR SIMILAR HIGH-WIND EVENT. IF NOT, THE DESIGN PRESSURES SHOWN ABOVE SHALL BE DOUBLED BEFORE INSTALLATION & USE.

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