

**STRUCTURAL – GENERAL NOTES**

- TO THE BEST OF OUR KNOWLEDGE, THE STRUCTURAL PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE FOLLOWING GOVERNING DESIGN CODES:
  - AMERICAN CONCRETE INSTITUTE, MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315)
  - INTERNATIONAL BUILDING CODE, 2015 (IBC-15)
  - UFC 1-200-01 GENERAL BUILDING REQUIREMENTS
  - UFC 3-301-01 STRUCTURAL ENGINEERING
  - UFC 4-010-01 DoD MIN ANTITERRORISM STANDARDS FOR BUILDINGS, WITH CHANGE 1
  - AISC STEEL CONSTRUCTION MANUAL (14TH EDITION)
  - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, (ACI 318)
  - MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE 7-10)
  - NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURE MEMBERS (NAS-01)
  - STRUCTURAL WELDING CODE AWS D1.1, 2008
- THE CONTRACTOR SHALL REVIEW ALL CONTRACT DOCUMENTS, INCLUDING DIMENSIONS, AND SITE CONDITIONS AND COORDINATE WITH FIELD DIMENSIONS AND PROJECT SHOP DRAWINGS PRIOR TO CONSTRUCTION. ANY AND ALL DISCREPANCIES SHALL BE SUBMITTED IN WRITING TO ARCHITECT / ENGINEER. DO NOT MODIFY OR CHANGE THE SIZE OR DIMENSIONS OF STRUCTURAL MEMBERS WITHOUT WRITTEN INSTRUCTIONS FROM THE STRUCTURAL ENGINEER OF RECORD.
- RESOLVE ANY CONFLICTS ON THE DRAWINGS OR SPECIFICATIONS DISCOVERED DURING THE BIDDING PERIOD WITH THE ARCHITECT / ENGINEER. THESE SHALL BE IMMEDIATELY COMMUNICATED IN WRITING TO THE ARCHITECT / ENGINEER.
- IT SHALL BE THE RESPONSIBILITY OF THE SUBCONTRACTOR TO LOCATE ANY AND ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT, AND TO PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITY LINES FROM ALL DAMAGE. EACH CONTRACTOR SHALL PROTECT HIS WORK, ADJACENT PROPERTY AND THE PUBLIC. EACH CONTRACTOR IS SOLELY RESPONSIBLE FOR DAMAGE OR INJURY DUE TO HIS ACT OR NEGLIGENCE.
- WHERE A CONSTRUCTION DETAIL IS NOT SHOWN OR NOTED, THE DETAIL SHALL BE THE SAME AS FOR OTHER SIMILAR WORK. DETAILS LABELED "TYPICAL DETAILS" ON THE DRAWINGS APPLY TO ALL SITUATIONS THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY DETAILED. ANY QUESTIONS REGARDING APPLICABILITY OF TYPICAL DETAILS SHALL BE RESOLVED BY THE ARCHITECT / ENGINEER.
- DESIGN LOAD CRITERIA:
  - BUILDING RISK CATEGORY: . . . . . II
  - GRAVITY LOADS:
    - ROOF LIVE LOAD . . . . . 20 PSF
    - ROOF DESIGN DEAD LOAD . . . . . BUILDING WEIGHT
    - SUPERIMPOSED DEAD LOAD (ELECTRICAL) . . . . . 2 PSF
    - COLLATERAL LOAD . . . . . 8 PSF
    - STAIR LIVE LOAD . . . . . 100 PSF DISTRIBUTED / 300 LB CONCENTRATED
  - WIND LOADS:
    - Vult WIND SPEED . . . . . 145 MPH
    - Vbasic WIND SPEED . . . . . 112 MPH
    - WIND EXPOSURE CATEGORY . . . . . C
    - INTERNAL PRESSURE COEFFICIENT . . . . . +/- 0.18 (ENCLOSED)
  - SEISMIC DESIGN CRITERIA:
    - SEISMIC IMPORTANCE FACTOR Ie . . . . . 1.0
    - SEISMIC RESPONSE, Ss . . . . . (0.08) 8.0%
    - SEISMIC RESPONSE, S1 . . . . . (0.05) 5.0%
    - SPECTRAL RESPONSE, Sds . . . . . 0.085g
    - SPECTRAL RESPONSE, Sd1 . . . . . 0.080g
    - SEISMIC FORCE RESIST. SYSTEM . . . . . STEEL ORDINARY MOMENT FRAMES
    - DESIGN BASE SHEAR . . . . . N/A
    - SEISMIC RESPONSE COEFFICIENT, Cs . . . . . (0.024) 2.4%
    - RESPONSE MODIFICATION COEFFICIENT, R . . . . . 3.5
    - SEISMIC DESIGN CATEGORY . . . . . A
    - ANALYSIS PROCEDURE . . . . . EQUIVALENT LATERAL FORCE
- FOR THE MINIMUM CRITERIA STATED, INCLUDE ALL APPROPRIATE SHAPE, HEIGHT, AND GUST FACTORS FOR THE COMPONENTS & CLADDING (C&C). FOR DETERMINATION OF ROOF UPLIFT, USE A DEAD LOAD OF 5 PSF IN CONJUNCTION WITH THE WIND UPLIFT PRESSURES INDICATED ON THE C&C DIAGRAMS. FOR ALL ROOF ATTACHMENTS USE THE C&C LOADS DIRECTLY FROM THE C&C DIAGRAM.
- THE SPECIALTY ENGINEER, DEFINED AS – A PROFESSIONAL ENGINEER, LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED, WHO PERFORMS SPECIALTY STRUCTURAL ENGINEERING SERVICES FOR SELECTED SPECIALTY-ENGINEERED ELEMENTS IDENTIFIED IN THE CONTRACT DOCUMENTS, AND WHO HAS EXPERIENCE AND TRAINING IN THE SPECIALTY. DOCUMENTS SIGNED AND SEALED BY THE SPECIALTY ENGINEER SHALL BE COMPLETED BY OR UNDER THE DIRECT SUPERVISION OF THE SPECIALTY ENGINEER. AT MINIMUM, METAL BUILDING SUPERSTRUCTURE, CLAZING, DOORS, AWNINGS, ROOFING, ETC AND THEIR ATTACHMENTS TO THE STRUCTURE SHALL BE DESIGNED BY A SPECIALTY ENGINEER TO CONFORM TO ALL LOADING REQUIREMENTS INCLUDING WIND RESISTANCE.
- DO NOT SCALE THE DRAWINGS, USE DIMENSIONS SHOWN ON PLAN IN CONJUNCTION WITH THE ARCHITECTURAL DOCUMENTS. IF A CONFLICT EXISTS, NOTIFY THE ARCHITECT/ ENGINEER IN WRITING FOR RESOLUTION OF ANY AND ALL CONFLICTS.

**REINFORCED CONCRETE**

- ALL CAST-IN-PLACE CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 318 CURRENT REFERENCE AND ACI 301, EXCEPT AS MODIFIED BY THE PROJECT CONSTRUCTION DOCUMENTS.
- ALL CONCRETE SHALL MEET THE PROJECT SPECIFICATIONS AND SHALL DEVELOP COMPRESSIVE STRENGTHS AS FOLLOWS (28 DAY STRENGTH):
  - NORMAL WEIGHT CONCRETE (145 PCF)
  - FOUNDATIONS (FOOTINGS, PILASTERS) . . . . . 3000 PSI
  - INTERIOR SLABS-ON-GRADE . . . . . 3500 PSI

PROVIDE CURRENT (MAX. 1 YEAR OLD) STATISTICAL DATA FOR EACH CONCRETE MIX SUBMITTED IN ACCORDANCE WITH ACI 318.
- ALL REINFORCING BARS FOR CONCRETE SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND MEET THE REQUIREMENTS OF ASTM A-615. FOR PLACEMENT OF REINFORCING CONFORM TO ACI-301, ACI-315, ACI-318, AND CRSI "MANUAL OF STANDARD PRACTICE". ALL REINFORCING SHALL BE ACCURATELY PLACED, RIGIDLY SUPPORTED, AND FIRMLY TIED IN PLACE WITH BAR SUPPORTS AND SPACERS IN ACCORDANCE WITH THE ABOVE REQUIREMENTS. PROVIDE CLASS "B" LAP SPLICE FOR CONTINUOUS BARS. USE THE FOLLOWING COVER:
  - CONCRETE COVER REQUIREMENTS FOR REINFORCEMENT, U.N.O.
    - CONCRETE CAST AGAINST EARTH. . . . . 3"
    - CONCRETE POURED IN FORMS BUT EXPOSED TO WEATHER OR EARTH:
      - #5 REINFORCEMENT AND SMALLER. . . . . 1 1/2"
      - REINFORCEMENT LARGER THAN #5. . . . . 2"
      - WELDED WIRE FABRIC . . . . . AS SHOWN ON PLANS
- NO CONDUIT PLACED IN CONCRETE SLAB SHALL HAVE AN OUTSIDE DIAMETER GREATER THAN 1/3 THE THICKNESS OF THE SLAB. NO CONDUIT SHALL BE EMBED IN A SLAB THAT IS LESS THAN 4" THICK. MINIMUM CLEAR DISTANCE SHALL BE IN ACCORDANCE WITH ACI 318.
- ALL REINFORCING BARS, ANCHOR BOLTS, DOWELS AND OTHER CONCRETE INSERTS SHALL BE SECURED ADEQUATELY IN POSITION PRIOR TO PLACEMENT OF CONCRETE. CONTRACTOR SHALL USE TEMPLATES TO INSURE ACCURATE PLACEMENT OF ANCHOR BOLTS, DOWELS, ETC.
- PROVIDE CONT. REINFORCEMENT WHEN APPLICABLE. CONTRACTOR SHALL PROVIDE FULL TENSION SPLICE OF ALL REINFORCING (CLASS B). STAGGER SPLICES WHEN APPLICABLE AND TERMINATE ALL BARS WITH STANDARD 90° HOOKS.
- CHAMFER OR ROUND ALL EXPOSED CORNERS A MINIMUM OF 3/4".

**SLABS ON GRADE**

- SUBGRADE SHALL BE PREPARED PER THE REQUIREMENTS SET FORTH IN THE GEOTECHNICAL REPORT BY LMJ FILE #16-243 DATED NOVEMBER 10, 2016.
- ENSURE THAT REINFORCEMENT IS LOCATED IN SLAB CORRECTLY BY CHAIRING REINFORCING ADEQUATELY DURING CONCRETE PLACEMENT.
- USE VAPOR BARRIER (ASTM E1745) CLASS "B" REINFORCED, MULTI-PLY VAPOR RETARDER SHEETING BETWEEN COMPACTED SOIL AND CONCRETE SLAB. SEE HURLBURT BASE SPECIFICATIONS FOR REQUIREMENTS INCLUDING VAPOR RESISTANCE, TENSILE STRENGTH AND PUNCTURE RESISTANCE. MINIMUM 10 MIL VAPOR BARRIER REQUIRED.
- COORDINATE W/ GEOTECHNICAL ENGINEER FOR UTILIZATION OF EXISTING FILL MATERIAL, OR PROVIDE 6" POROUS DRAINAGE LAYER UNDER INTERIOR PORTIONS OF SLAB ON GRADE. STRUCTURAL FILL SHALL CONSIST OF MATERIAL CONTAINING NO MORE THAN 10 PERCENT BY WEIGHT FINER THAN A NO. 200 SIEVE. THIS MATERIAL SHALL BE INORGANIC.
- PLACE JOINTS IN SLAB AS LOCATED ON PLAN AND PER THE SCOPE OF WORK. SEE CONSTRUCTION DETAILS FOR CONTROL JOINT TYPE AND ARRANGEMENT.
- PROVIDE SLAB ON GRADE REINFORCEMENT, WHICH SHALL INCLUDE AT MINIMUM #3 @12" O.C.

**SHOP DRAWINGS REQUIRING ENGINEERING INPUT BY SPECIALTY ENGINEER**

- THE FOLLOWING SYSTEMS AND COMPONENTS AS A MINIMUM REQUIRE SPECIALTY ENGINEERED ERECTION AND FABRICATION DRAWINGS WITH INPUT BY A SPECIALTY ENGINEER, BUT ARE NOT LIMITED TO: METAL BUILDING STRUCTURE, ROOF SYSTEMS, LIGHT GAGE FRAMING, ETC.
- THE SPECIALTY ENGINEER OR SUPPLIER SHALL DESIGN AND INSTALL THEIR COMPLETED SYSTEM IN ITS ENTIRETY TO THE PRIMARY STRUCTURE PER THE CRITERIA NOTED ON THESE CONSTRUCTION DOCUMENTS. THE SPECIALTY ENGINEER SHALL ADHERE TO ALL REQUIREMENTS OF THE APPLICABLE BUILDING CODE OR THESE NOTES, WHICHEVER IS MORE STRINGENT.

**SHALLOW FOUNDATIONS**

- FOUNDATION DESIGN HAS BEEN PERFORMED BASED ON THE REPORT BY LMJ, FILE #16-243 AND SOIL BEARING CAPACITY SHALL NOT EXCEED 2000 PSF FOR FOOTINGS. THE SOIL SHALL BE COMPACTED TO MINIMUM REQUIREMENTS SET FORTH IN THE REPORT BY LMJ BEFORE PLACEMENT OF CONCRETE.
- IF BEARING SOIL IS DISTURBED DURING FOUNDATION PREPARATION, THE CONTRACTOR SHALL RECOMPACT TO REQUIRED DENSITY, AS DEFINED BY THE GEOTECHNICAL ENGINEER.
- ALL WALLS AND COLUMNS SHALL BE CENTERED ON THE FOOTINGS U.N.O., SEE PLANS
- DO NOT EXCAVATE FOR ANY PURPOSE WITHIN ONE FOOT OF THE ANGLE OF REPOSE OF ANY SOIL BEARING FOOTING OR FOUNDATION UNLESS FOOTING OR FOUNDATION IS FIRST PROPERLY PROTECTED AGAINST SETTLEMENT.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DISPOSAL OF ALL ACCUMULATED WATER FROM EXCAVATIONS AND DEWATERING OPERATIONS IN SUCH A WAY AS NOT TO CAUSE INCONVENIENCE TO THE WORK AND DAMAGE TO THE STRUCTURAL ELEMENTS.

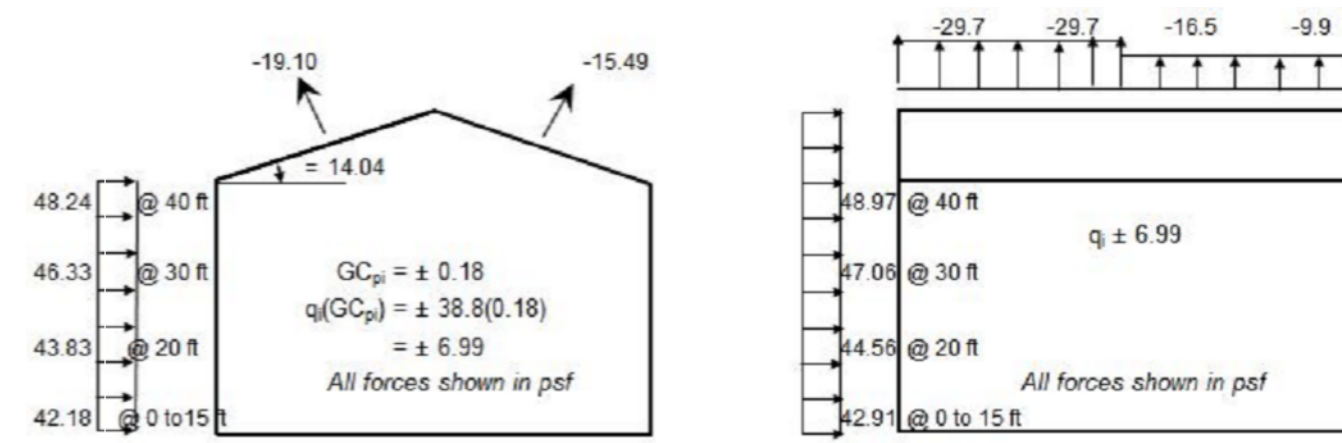
**PRE-ENGINEERED METAL BUILDING**

- THE METAL BUILDING SHALL BE DESIGNED AND INSTALLED ACCORDING TO THE LATEST METAL BUILDING STRUCTURAL CODE(S) AND SPECIFICATION REQUIREMENTS.
- THE M.B.M. SHALL PROVIDE CALCULATIONS WHICH ARE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA. THIS REGISTERED ENGINEER SHALL BE RESPONSIBLE FOR ALL COMPONENTS RELATED THE SUPERSTRUCTURE.
- CALCULATIONS PROVIDED TO THE EOR FOR REVIEW SHALL INCLUDE DEFLECTION AND CAMBER REQUIREMENTS, DEAD LOADS, LIVE LOADS, AND ALL SUPERIMPOSED LOADS. TOTAL BUILDING DRIFT SHALL NOT EXCEED H/100. TOTAL DEFLECTION OF WIND BEAMS AND SOFFIT PANELS SHALL NOT EXCEED L/120 FOR SHEET ROCK AND L/180 FOR METAL PANELS. ANY MEMBER SUPPORTING MASONRY OR BRICK SHALL SHALL NOT EXCEED L/600.
- PROVIDE SUPPORT FOR ALL WALLS BY CONTRACTOR AT EAVES AND DESIGN FRAMES FOR WIND LOAD INDUCED BY WALLS ACCORDING THE WIND LOADS PROVIDED. THIS SHALL BE PROVIDED BY THE MBM SPECIALTY ENGINEER.
- THE BUILDING SYSTEM SHALL CONSIST OF RIGID FRAMES WITH STRAIGHT COLUMNS, STRAIGHT END COLUMNS, AND OTHER COMPONENTS AS DETAILED OR REQUIRED.
- MATERIALS (FRAMING)
  - STRUCTURAL STEEL MEMBERS: ASTM A36.
  - STRUCTURAL TUBING: ASTM A501.
  - PLATE OR BAR STOCK: ASTM A529.
  - ANCHOR BOLTS: ASTM A307, GALVANIZED TO ASTM A123, CLASS B.
  - BOLTS, NUTS, AND WASHERS: ASTM A325.
  - WELDING MATERIALS: AWS D1.1; TYPE REQUIRED FOR MATERIALS BEING WELDED.
  - PRIMER: SSPC 15, TYPE 1, RED OXIDE.
  - GROUT: NON-SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS, CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 2400 PSI IN TWO DAYS AND 7000 PSI IN 28 DAYS.

**LIGHT GAUGE FRAMING**

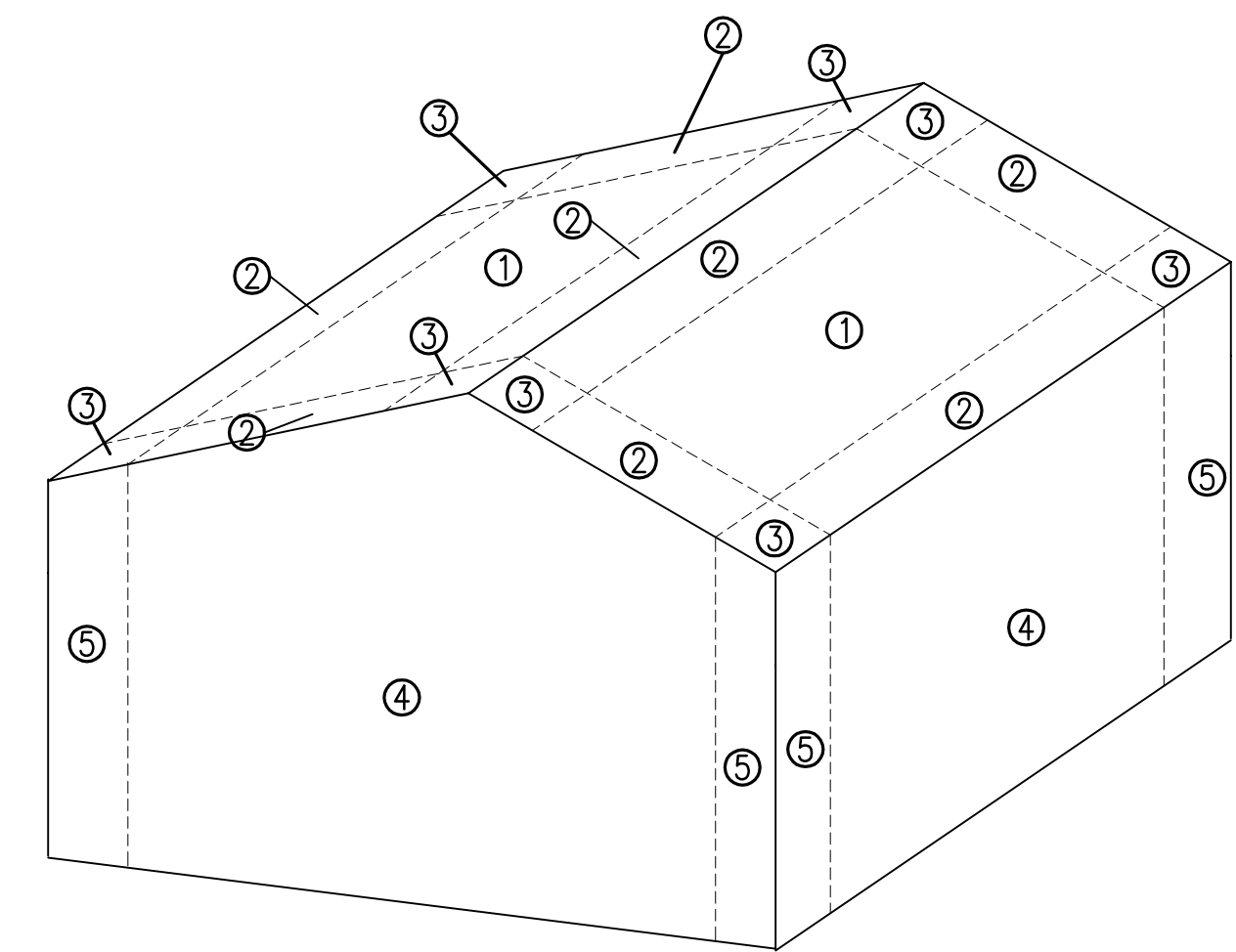
- COLD-FORMED METAL FRAMING SHALL BE DESIGNED IN ACCORDANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE (AISI) "SPECIFICATION FOR THE DESIGN OF COLD FORMED STRUCTURAL MEMBERS."
- COLD-FORMED METAL FRAMING SHALL BE GALVANIZED G90 COATING MEETING THE REQUIREMENTS OF ASTM A446 GRADE A WITH A MINIMUM YIELD STRENGTH AS SPECIFIED BELOW SHALL BE PRODUCED BY A MEMBER OF THE STEEL STUD MANUFACTURES ASSOCIATION (SSMA).
- JOINTS AND CONNECTIONS SHALL BE MADE WITH SCREWS OR BOLTS. UNLESS NOTED ON THE DRAWINGS, PROVIDE SUFFICIENT NUMBER OF SCREWS AT EACH CONNECTION TO SUPPORT ALL APPLIED LOADS.

**MWFRS LOADS**

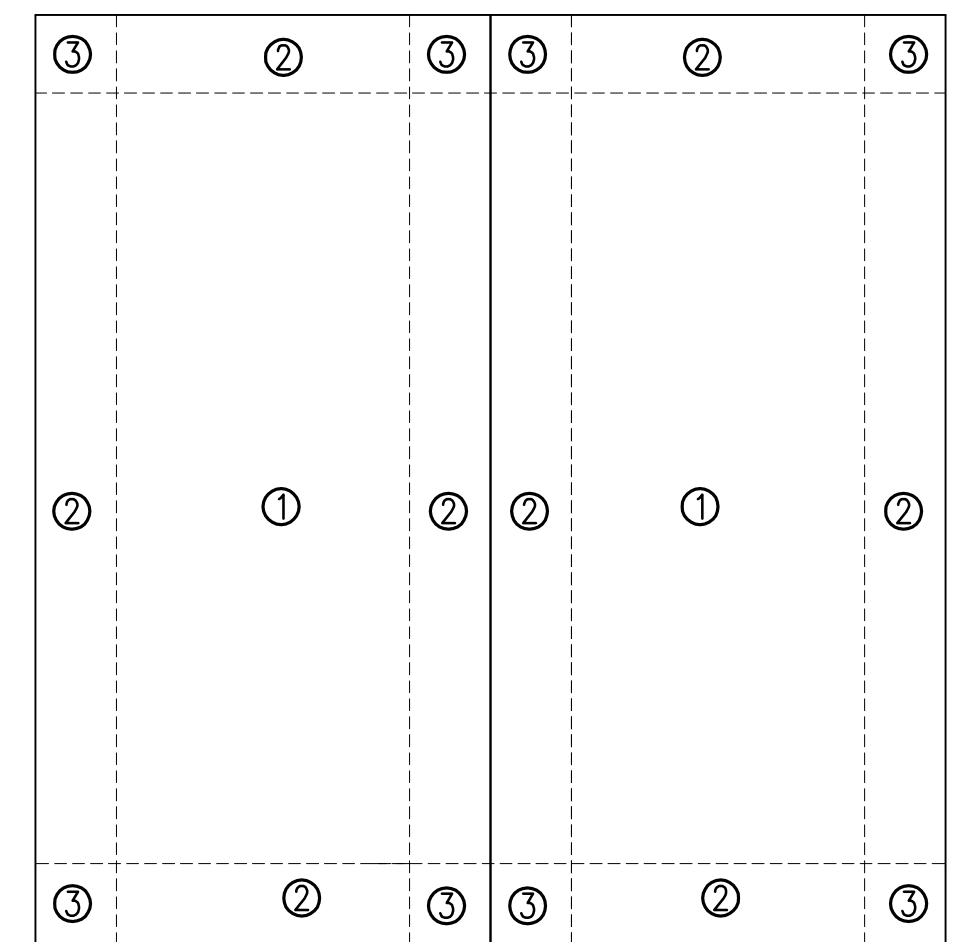


- NOTES:
- POSITIVE SIGN INDICATES THAT THE PRESSURE IS ACTING TOWARDS THE SURFACE. NEGATIVE SIGN INDICATES THAT THE PRESSURE IS ACTING AWAY FROM THE STRUCTURE.
  - THE WIND LOADS SHOWN HAVE BEEN CALCULATED INTERNATIONAL BUILDING CODE 2015 EDITION AND ASCE 7-10. LINEAR INTERPRETATION MAY BE APPLIED FOR LOADING AREAS BETWEEN THE PROVIDED. ALL WIND LOADS SHOWN ARE Vult AND MAY BE REDUCED AS REQUIRED FOR ALLOWABLE STRESS DESIGN.

**WIND PRESSURE DIAGRAM**



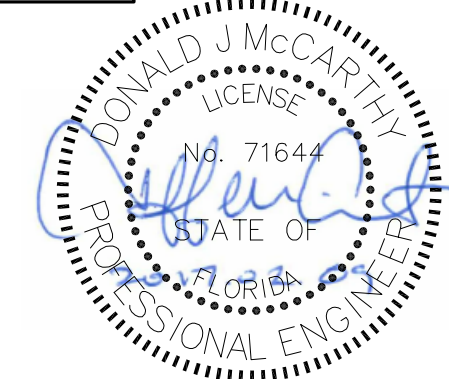
**ROOF WIND PRESSURE DIAGRAM**



**WIND PRESSURE LOADING TABLE**

NOTE: a=5'-0"

CLADDING WIND PRESSURES			
WIND VELOCITY (MPH)			
145			
LOCATION	ZONE	PRESSURES (PSF)	
ROOF 10 SF	1	-46.0	29.0
	2	-80.1	
	3	-118.4	
ROOF 20 SF	1	-44.7	26.4
	2	-73.7	
	3	-110.8	
ROOF 50 SF	1	-43.0	23.0
	2	-65.2	
	3	-100.5	
ROOF 100 SF	1	-41.7	20.4
	2	-58.8	
	3	-92.9	
WALL 10 SF	4	-54.5	50.3
	5	-67.3	
	6	-92.9	
WALL 20 SF	4	-52.4	48.1
	5	-62.6	
	6	-89.4	
WALL 50 SF	4	-49.4	45.2
	5	-56.7	
	6	-80.9	
WALL 100 SF	4	-46.9	42.6
	5	-54.2	
	6	-77.6	



APPROVED	DESCRIPTION	DATE	REV #
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CONSTRUCT TRAINING FACILITY 2 CWSS BUILDING 91068

GENERAL NOTES

AIR FORCE SPECIAL OPERATIONS COMMAND  
1 SPECIAL OPERATIONS CIVIL ENGINEER SQUADRON  
HURLBURT FIELD, FLORIDA

DATE: 14 FEB 2017  
DESIGNED BY: DJM  
DRAWN BY: WEH  
BUILDING NO.: 91068  
PROJECT NO.: FETV16-1066  
SHEET REF.: S1  
SHEET NO.: 7 OF 48