

6. UNLESS NOTED OTHERWISE, THE BEAMS SHALL BE AS FOLLOWS:
 a) TOP OF WALLS: DOUBLE COURSE OF KNOCK OUT BLOCKS WITH (1) #5 BAR IN EACH COURSE.
 7. VERTICAL BARS SHALL BE HELD IN POSITION AT THE TOP AND BOTTOM OF BAR AND AT 8" O.C. MAXIMUM WITH A MINIMUM CLEARANCE OF 1/2" FROM MASONRY. THE CLEAR DISTANCE BETWEEN BARS SHALL NOT BE LESS THAN ONE BAR DIAMETER, NOR LESS THAN 1" CENTER BARS IN WALLS U.N.O.
 8. VERTICAL REINFORCING SHALL BE AS SHOWN ON THE DRAWINGS. FILL CELLS WITH COARSE GROUT AS SPECIFIED. PROVIDE ACI 90 DEGREE STANDARD HOOKS INTO FOOTING AND ROOF TIE BEAM. LAP SPLICE VERTICAL REINFORCEMENT ABOVE FOOTING AND ABOVE EACH FLOOR LEVEL. UNLESS NOTED OTHERWISE, MAINTAIN VERTICAL REINFORCING SHOWN ON PLANS ABOVE AND BELOW MASONRY OPENINGS EXCEEDING 10" CLEAR. CONTINUE FOUNDATION DOWELS BELOW ALL MASONRY OPENINGS.
 9. ALL REINFORCED FILL CELLS ARE TO BE CLEAN AND FREE OF ANY FOREIGN MATERIAL OR DEBRIS. REMOVE ANY INSULATING MATERIAL FROM CELLS, INCLUDING POLYSTYRENE INSULATING INSERTS, PRIOR TO GROUT POUR.
 10. REINFORCING BARS SHALL BE STRAIGHT EXCEPT FOR BENDS AROUND CORNERS AND WHERE BENDS OR HOOKS ARE DETAILED ON THE PLANS.
 11. REINFORCING BARS SHALL BE LAPPED PER SCHEDULE WHERE SPLICED AND SHALL BE WIRED TOGETHER.
 12. WHEN A FOUNDATION DOWEL DOES NOT LINE UP WITH A VERTICAL CORE, IT SHALL NOT BE SLOPED MORE THAN ONE HORIZONTAL IN SIX VERTICALS. DOWELS SHALL BE GROUTED INTO A CORE IN VERTICAL ALIGNMENT, EVEN THOUGH IT IS IN AN ADJACENT CELL TO THE VERTICAL WALL REINFORCEMENT.
 13. PROVIDE HORIZONTAL WALL REINFORCING (9 GA.) GALVANIZED LADER TYPE DUR O WALL (OR EQUIVALENT) AT 16" O.C. JOINT REINFORCING SHALL CONFORM TO ASTM A 951.
 14. PROVIDE HORIZONTAL JOINT REINFORCEMENT AT DOORS AND WINDOWS FOR FIRST AND SECOND BLOCK COURSE ABOVE AND BELOW APERTURES. RUN REINFORCING CONTINUOUS OR EXTEND TWO FEET FROM APERTURE EDGE.
 15. WIRE REINFORCEMENT SHALL BE LAPPED AT LEAST 6" AT SPLICES AND SHALL CONTAIN AT LEAST ONE CROSS WIRE OF EACH PIECE OF REINFORCEMENT IN THE LAPPED DISTANCE.
 16. CLEANOUTS SHALL BE PROVIDED IN THE BOTTOM COURSE OF MASONRY IN EACH GROUT POUR WHEN THE POUR HEIGHT EXCEEDS 5'. CLEANOUTS TO BE SAW CUT 4" X 4".
 17. GROUT POUR HEIGHT SHALL NOT EXCEED 24'. PLACE GROUT IN 5' MAXIMUM LIFTS HEIGHTS.
 18. CONSOLIDATE GROUT POURS AT THE TIME OF PLACEMENT BY MECHANICAL MEANS AND RECONSOLIDATE AFTER INITIAL WATER LOSS AND SETTLEMENT.
 19. STORE BLOCKS ON PALLETS AND COVER WITH VISQUEEN OR EQUAL.
 20. PLACE ALL MASONRY IN RUNNING BOND WITH 3/8" MORTAR JOINTS. PROVIDE COMPLETE COVERAGE FACE SHELL MORTAR BEDDING, HORIZONTAL AND VERTICAL. FULLY MORTAR WEBS IN ALL COURSES OF PIERS, COLUMNS, AND PILASTERS AND ADJACENT TO GROUTED CELLS.
 21. SEE DRAWINGS FOR MASONRY CONTROL JOINT LOCATIONS. SPACE AT 26" O.C. AT EXTERIOR WALLS, 32" O.C. AT INTERIOR WALLS UNLESS NOTED OTHERWISE.

23. SUBMITTALS:
 a) SUBMIT PROPOSED GROUT MIX DESIGN PRIOR TO CONSTRUCTION.
 b) SUBMIT PROPOSED MORTAR MIX DESIGN PRIOR TO CONSTRUCTION.
 c) SUBMIT DETAILED SHOP DRAWINGS OF REINFORCING BARS SHOWING NUMBER, SIZE, AND LOCATION. INCLUDE BAR LISTS AND BEND DIAGRAMS. INCLUDE ALL REQUIRED DIMENSIONS AND ELEVATIONS.
 d) SUBMIT COMPRESSIVE STRENGTH TESTS OF PROPOSED MASONRY UNITS PRIOR TO CONSTRUCTION. MASONRY UNITS ARE TO BE TESTED IN ACCORDANCE WITH ASTM C140.
 24. A QUALIFIED TESTING LABORATORY SHALL BE RETAINED TO PERFORM THE FOLLOWING TESTS:
 a) SAMPLE AND TEST GROUT IN ACCORDANCE WITH ASTM C1019 FOR EACH 5000 SQ. FT. OF MASONRY.
 b) SLUMP TESTS: ASTM C143.

25. PROVIDE 8" DEEP PRECAST REINFORCED CONCRETE LINTELS OVER ALL MASONRY OPENINGS NOT SHOWN TO HAVE A STRUCTURAL BEAM. MINIMUM END BEARING = 8". LINTEL WIDTH TO MATCH MASONRY WIDTH.

26. TOPS OF PARTIALLY CONSTRUCTED WALLS SHALL BE COVERED WITH VISQUEEN WHENEVER RAIN OCCURS AND AT THE END OF THE WORK DAY.

DRILL-IN BOLTS, SCREWS AND DOWELS

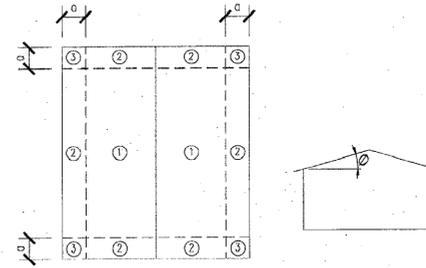
1. EPOXY BOLTS SHALL BE ASTM A307 THREADED BOLTS WITH NUTS AND WASHERS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PROVIDE "EPOXY TIE SET" ANCHORS BY SIMPSON STRONG-TIE OR EQUAL.
 2. ANCHORING ADHESIVE SHALL BE A TWO COMPONENT SOLID EPOXY BASED SYSTEM SUPPLIED IN MANUFACTURER'S STANDARD SIDE BY SIDE CARTRIDGE AND DISPENSED THROUGH A STATIC MIXING NOZZLE SUPPLIED BY THE MANUFACTURER. EPOXY SHALL MEET THE MINIMUM REQUIREMENTS OF ASTM C 681 SPECIFICATION FOR TYPE I, II, IV AND V, GRADE 3, CLASS B, C AND D AND MUST DEVELOP A MINIMUM 12,650 PSI COMPRESSIVE YIELD STRENGTH AFTER 7 DAY CURE.
 3. EXPANSION BOLTS SHALL BE "WEDGE ALL" ANCHORS BY SIMPSON STRONG TIE OR EQUAL.

4. EXPANSION BOLTS SHALL BE NON BOTTOM BEARING, WEDGE STYLE EXPANSION ANCHOR FOR USE IN SOLID CONCRETE OR GROUT FILLED MASONRY WITH A ONE PIECE CLIP FOR UNIFORM HOLDING CAPACITY THAT INCREASES AS TENSION IS APPLIED. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 5. MASONRY SCREWS SHALL BE 1/4" DIAMETER WITH 1 1/2" MINIMUM EMBEDMENT INSTALLED IN DRILLED HOLES USING AN APPROPRIATE BIT DIAMETER.
 6. SCREWS SHALL BE MADE FROM TEN HUNDRED SERIES COLD ROLLED STEEL AND SHALL BE FLUOROCARBON COATED. PROVIDE "TITAN" SCREWS BY SIMPSON STRONG TIE OR EQUAL.
 7. DRILL IN REBAR DOWELS SHALL BE SET USING A TWO PART EPOXY AS DESCRIBED ABOVE.

PRE-ENGINEERED METAL BUILDING

1. PRE-ENGINEERED METAL BUILDING SHALL INCLUDE, BUT NOT BE LIMITED TO, TAPERED OR STRAIGHT WEB STRUCTURAL STEEL FRAMES, GIRTS, PURLINS, LATERAL BRACING, ROOF SHEETS, WALL SHEETS, ANCHOR BOLTS, TRIM, CLOSURES, ETC.
 2. THE FABRICATION AND ERECTION DRAWINGS SHALL INDICATE ALL MEMBER SIZES, CONNECTION DETAILS, OPENINGS, AND OTHER SPECIAL DETAILS, AND THEY SHALL SHOW THE MAGNITUDE AND LOCATION OF BUILDING REACTIONS ON THE FOUNDATION.
 3. METAL SYSTEMS BUILDING CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF THE AISC METAL BUILDING CERTIFICATION PROGRAM, CATEGORY MB CERTIFIED.
 4. ALL STRUCTURAL STEEL SECTIONS AND WELDED PLATE MEMBERS SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF AISC, "SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STEEL FOR BUILDINGS". ALL BUILDING FRAMES TO BE DESIGNED W/ PINNED BASE.
 5. ALL COLD FORMED STRUCTURAL MEMBERS AND EXTERIOR COVERING SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISI, "SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS".
 6. THE ENTIRE PRE-ENGINEERED METAL BUILDING SHALL BE DESIGNED BY THE MANUFACTURER'S DELEGATED ENGINEER. SEE MISCELLANEOUS SECTION FOR LOADS AND THE REFERENCED CODE FOR LOAD COMBINATIONS. ALL FRAMES TO BE DESIGNED WITH PINNED BASE.
 7. CALCULATIONS FOR DEFLECTION SHALL BE DONE USING ONLY THE BARE FRAME METHOD. REDUCTIONS BASED ON ENGINEERING JUDGMENT USING THE ASSUMED COMPOSITE STIFFNESS OF THE BUILDING ENVELOPE SHALL NOT BE ALLOWED. DRIFT SHALL FOLLOW AISC SERVICEABILITY DESIGN CONSIDERATIONS FOR LOW-RISE BUILDINGS.
 8. METAL BUILDING DESIGN SHALL INCLUDE COLLATERAL LOADS SHOWN ON ARCHITECTURAL, MECHANICAL AND STRUCTURAL DRAWINGS INCLUDING, BUT NOT LIMITED TO:
 A) MECHANICAL EQUIPMENT AND DUCTWORK
 B) PIPES
 C) CEILING
 D) SUSPENDED PARTITIONS
 E) EXTERIOR MASONRY OR STUD WALLS
 9. UPWARD OR OUTWARD FORCES OF WIND ARE TO BE CALCULATED WITHOUT LIVE AND COLLATERAL LOADS. WHEN DOWNWARD OR INWARD FORCES CAUSED BY WIND ARE INVOLVED, THE DEAD FORCES PLUS COLLATERAL LOAD FORCES MUST BE COMBINED BUT THE ROOF LIVE LOAD MAY BE OMITTED.
 10. ALL SHOP CONNECTIONS SHALL BE WELDED IN ACCORDANCE WITH THE AWS "STRUCTURAL WELDING CODE", LATEST EDITION. WELDING SHALL BE BY SUBMERGED ARC OR GAS SHIELDED ARC PROCESS.
 11. ALL FIELD CONNECTIONS SHALL BE BOLTED WITH HIGH-STRENGTH BOLTS IN ACCORDANCE WITH AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
 12. METAL BUILDING SYSTEM, INCLUDING FRAMES, GIRTS AND PURLINS, SHALL BE DESIGNED FOR LATERAL WIND REACTIONS FROM EXTERIOR MASONRY AND METAL STUD WALLS WHERE SHOWN ON THE DRAWINGS.
 13. EXTERIOR MASONRY WALLS, WHERE SHOWN ON THE DRAWINGS, SHALL BE PROPERLY CONNECTED TO THE METAL BUILDING SYSTEM.
 14. LATERAL WIND BRACING SHALL CONSIST OF DIAGONAL BRACING IN THE ROOF PLANE AND DIAGONAL WALL BRACING, WIND POSTS OR RIGID BENTS.
 15. CABLES SHALL NOT BE USED AS LATERAL BRACING. OTHER LATERAL BRACING, WHEN USED, SHALL HAVE A SLENDERNESS RATIO OF 300 OR LESS.
 16. COMPRESSION FLANGES OF ALL PRIMARY AND SECONDARY FRAMING MEMBERS MUST BE ADEQUATELY BRACED AGAINST BUCKLING.
 17. CLIP-MOUNTED STANDING-SEAM ROOF SHEETS SHALL NOT BE USED AS DIAPHRAGMS NOR SHALL THEY BE CONSIDERED AS ADEQUATE LATERAL BRACING OF THE FLANGE OF THE SECONDARY MEMBER TO WHICH THEY ARE ATTACHED UNLESS ONE OR BOTH OF THESE FEATURES ARE DESIGNED INTO THE SHEATHING SYSTEM AND THE MANUFACTURER CAN CERTIFY BY TESTING AND/OR ANALYSIS THAT SUCH CAPABILITIES EXIST AND ARE APPROPRIATELY DEFINED.
 18. STRUCTURAL STANDING-SEAM ROOF SHEETS SHALL BE A MINIMUM OF 24 GAUGE (0.0239 INCH NOMINAL) IN THICKNESS.
 19. ANCHOR BOLTS SHALL RESIST 100 PERCENT OF THE CRITICAL COLUMN REACTIONS (SHEAR AND TENSION) DETERMINED FROM THE LOAD COMBINATIONS. THE MANUFACTURER IS RESPONSIBLE FOR THE NUMBER OF BOLTS, ANCHOR BOLT DIAMETER AND PROJECTION ABOVE THE CONCRETE FOUNDATION.
 20. EXTEND ALL ANCHOR BOLTS TO AN EMBEDMENT DEPTH OF 3" ABOVE BOTTOM OF FOOTING.

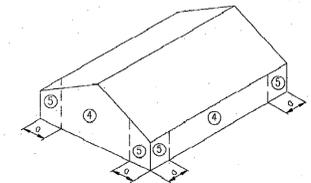
21. TEMPORARY BRACING SHALL BE PROVIDED DURING ERECTION AND SHALL REMAIN IN PLACE UNTIL THE ENTIRE PRE-ENGINEERED METAL BUILDING IS COMPLETED.
 22. SUBMITTALS: METAL BUILDING MANUFACTURER SHALL SUBMIT THE FOLLOWING DOCUMENTS, SIGNED AND SEALED, BY THE DELEGATED ENGINEER:
 A) COLUMN FOUNDATION REACTIONS
 B) FABRICATION AND ERECTION DRAWINGS
 C) DESIGN CALCULATIONS
 D) PROVIDE A LETTER CERTIFYING THAT THE BUILDING HAS BEEN DESIGNED AND FABRICATED IN ACCORDANCE WITH THE REFERENCED STANDARDS.



GABLE ROOF ($\theta < 10^\circ$)

COMPONENT AND CLADDING: LOADING DIAGRAMS

1. $a = 5'-0"$
 2. THIS BUILDING IS DESIGNED AS AN ENCLOSED STRUCTURE. ALL EXTERIOR COMPONENTS (DOORS, WINDOWS, ETC.) MUST BE DESIGNED TO WITHSTAND THE WIND LOADINGS SPECIFIED FOR THE DESIGN OF COMPONENTS AND CLADDING IN THE TABLES. IN ADDITION, ALL AREAS OF EXTERIOR GLAZING MUST BE CERTIFIED FOR MISSILE IMPACT OR PROTECTED BY WIND-BORNE DEBRIS BY A SCREEN BARRIER.



DOORS, WINDOWS & WALLS

ULTIMATE WIND LOADS MAIN ROOF ROOF SHEETING			
COMPONENTS AND CLADDING	ROOF ZONE		
	1	2	3
PRESSURE (psf)	+21.1	+21.1	+21.1
SUCTION (psf)	-51.8	-86.9	-130.8

ULTIMATE WIND LOADS MAIN FRAMES + PURLINS			
COMPONENTS AND CLADDING	ROOF ZONE		
	1	2	3
PRESSURE (psf)	+16.7	+16.7	+16.7
SUCTION (psf)	-47.4	-56.2	-56.2

ULTIMATE WIND PRESSURES [PSF] EXTERIOR DOORS, WINDOWS, WALLS				
EFFECTIVE AREA (ft ²)	ZONE 4		ZONE 5	
	PRESSURE	SUCTION	PRESSURE	SUCTION
1 TO 20	+47.4	-51.4	+47.4	-63.2
21 TO 50	+45.2	-49.2	+45.2	-58.8
51 TO 100	+42.6	-46.5	+42.6	-53.6
101 TO 150	+40.4	-44.3	+40.4	-49.2
151 TO 250	+39.1	-43.0	+39.1	-47.0
251 TO 500	+37.8	-41.7	+37.8	-43.9
501 + ABOVE	+35.1	-39.5	+35.1	-39.5

MASONRY REINF. LAP SCHEDULE	
BAR SIZE	LAP LENGTH
#3 BAR	18"
#4 BAR	24"
#5 BAR	30"
#6 BAR	36"
#7 BAR	42"

NOTE:
 1. LAPS BASED ON 48 BAR DIAMETERS
 2. BAR STRESSES DO NOT EXCEED 80%

VERTICAL REINF. BAR LAP SCHEDULE - MASONRY

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Issue Date	3/6/2012
Revisions	
Project Number	12003

STRUCTURAL SPECIFICATIONS + WIND TABLES

RECEIVED
 JUN 19 2012

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