



**1** STRUCTURAL PLAN  
SCALE: 1/16" = 1'-0"

**01000 GENERAL**

- THE CONTRACT STRUCTURAL DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION. PROVIDE ALL MEASURES REQUIRED TO PROTECT THE STRUCTURE, WORKMEN AND OTHER PERSONS DURING CONSTRUCTION. PROVIDE ADEQUATE BRACING, SHORING FOR CONSTRUCTION EQUIPMENT AND FOR THE BUILDING, FORMWORK AND SCAFFOLDING, SHEETING AND BRACING OF EXCAVATIONS AND OTHER TEMPORARY SUPPORTS AS REQUIRED.
- THE CONTRACTOR SHALL ENGAGE A GEOTECHNICAL TESTING FIRM TO VERIFY THE SOIL BEARING CAPACITY BENEATH FOUNDATIONS. MINIMUM 3000 PSF BEARING CAPACITY IS REQUIRED.
- COMPLY WITH APPLICABLE REQUIREMENTS OF THE OSHA CODE, STATE CODES, LOCAL CODES AND OTHER MISCELLANEOUS REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AT THE SITE.
- THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE EXISTING FIELD CONDITIONS AND MAKE NECESSARY FIELD SURVEYS AS REQUIRED FOR PROPER EXECUTION OF THE WORK. BEFORE PROCEEDING WITH THE DETAILS, CAREFULLY EXAMINE AND SURVEY ALL EXISTING STRUCTURES AND CONDITIONS TO VERIFY DIMENSIONS AND SIZES THAT ARE SHOWN ON THE DRAWINGS. REPORT ANY DISCREPANCIES IN THE EXISTING CONDITIONS IMMEDIATELY TO THE ENGINEER.
- TESTING OF SUBGRADE, BACKFILL, CONCRETE, AND ANY OTHER TESTING REQUIRED WILL BE PERFORMED BY A CONSULTANT SELECTED BY THE CONTRACTOR AND APPROVED BY THE OWNER. TESTING COSTS SHALL BE PAID BY THE CONTRACTOR.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND PRODUCT DATA AT LEAST (2) WEEKS BEFORE THEIR APPROVAL. IMPEDES ON THE CONTRACTOR'S SCHEDULE. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK UNTIL SHOP DRAWINGS ARE APPROVED BY THE OWNER. EACH SUBMITTAL SHALL BEAR THE CONTRACTOR'S REVIEW STAMP AND REVIEWER'S INITIALS INDICATING THAT THE MATERIAL OR EQUIPMENT BEING SUPPLIED IS IN COMPLIANCE WITH THE CONTRACT DOCUMENTS. RESUBMITTED DRAWINGS SHALL HAVE REVISIONS CLOUDED.
- DESIGN CRITERIA:**  
MICHIGAN BUILDING CODE 2012  
RISK CATEGORY II

DEAD LOADS		FLOOR	
ROOF		FINISH	2 PSF
ROOFING/INSULATION	5 PSF	DECK	3 PSF
DECK	3 PSF	FRAMING	5 PSF
FRAMING	5 PSF	CEILING/LIGHTS	3 PSF
CEILING/LIGHTS	2 PSF	MECHANICAL	7 PSF
MECHANICAL	5 PSF	TOTAL	20 PSF
TOTAL	20 PSF		

  

LIVE LOADS	
FLOOR (ASSUMED)	125 PSF (FIRST FLOOR)

  

SNOW LOADS	
GROUND SNOW LOAD, P <sub>s</sub>	35 PSF
FLAT ROOF SNOW LOAD, P <sub>f</sub>	25 PSF
C <sub>e</sub> =1.0, C <sub>d</sub> =1.0, C <sub>w</sub> =1.0	

**03300 CAST-IN-PLACE CONCRETE**

- DESIGN, DETAILING, AND CONSTRUCTION OF REINFORCED CONCRETE SHALL CONFORM TO THE CURRENT EDITION OF ALL APPLICABLE ACI PUBLICATIONS, INCLUDING:  
ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"  
ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"  
ACI 306 "GUIDE TO COLD WEATHER CONCRETING"  
ACI 305 "GUIDE TO HOT WEATHER CONCRETING"
  - SUBMITTALS**  
2.1. PROPOSED MIX DESIGN PREPARED BY AN APPROVED INDEPENDENT TESTING FIRM  
2.2. REINFORCING STEEL SHOP DRAWINGS  
2.3. CERTIFICATION OF THE CEMENT, AGGREGATE, ADMIXTURES, AND REINFORCEMENT  
2.4. TEST REPORTS
  - MATERIALS**  
REINFORCING STEEL ASTM A615 GR 60 Fy=60 KSI  
REINFORCING STEEL (WELDABLE) ASTM A706 GR 60 Fy=60 KSI  
WELDED WIRE FABRIC ASTM A1064 Fy=80 KSI  
AGGREGATES ASTM C33 CLEAN, UNIFORMLY GRADED  
CEMENT ASTM C150 OR ASTM C595  
FLY ASH ASTM C618, TYPE F  
MIXING WATER CLEAN, FRESH, AND POTABLE  
PREMOLDED JOINT FILLER ASTM D752, NON-EXTRUDING, NON-BITUMINOUS TYPE
  - ADMIXTURES**  
DO NOT USE ADMIXTURES CONTAINING CALCIUM CHLORIDE.  
AIR ENTRAINING ADMIXTURES ASTM C260  
SUPERPLASTICIZER ADMIXTURES ASTM C494 TYPE F OR G  
WATER REDUCER/RETAINERS C494, TYPE A OR D
  - MIX DESIGNS**
- | SIZE                       | F/C (PSI) | WATER/CEMENT RATIO | SUMP  | LARGE AGGREGATE |
|----------------------------|-----------|--------------------|-------|-----------------|
| INTERIOR 4" SLAB-ON-GROUND | 4000      | 0.44               | 3"±1" | 1"              |
| FOUNDATIONS                | 3500      | 0.50               | 4"±1" | 1"              |
| EXTERIOR CONCRETE          | 4000      | 0.45               | 3"±1" | 1"              |
- EXTERIOR CONCRETE SHALL CONTAIN A MINIMUM 564 LBS/CYD CEMENTITIOUS MATERIAL.  
FLY ASH MAY BE SUBSTITUTED FOR CEMENT AT A MAXIMUM OF 20% BY WEIGHT  
EXTERIOR CONCRETE SHALL BE AIR-ENTRAINED TO 6% ± 1%  
VERIFY COMPATIBILITY OF CONCRETE ADMIXTURES, CURING METHODS, FLOORING AND ADHESIVES.
  - ALL REINFORCING IN CONCRETE WALLS, SLABS AND FOOTINGS SHALL BE CONTINUOUS UNLESS NOTED OTHERWISE. LAP SPLICES SHALL BE CLASS "B" TOP SPLICE PER ACI 318 AND LOCATED IN REGIONS OF LOW STRESS, UNLESS SHOWN OTHERWISE. WELDED WIRE FABRIC SHALL BE LAPPED ONE MESH SPACE + 2" (NOT LESS THAN 6")
  - PROVIDE 3'-0" X 3'-0" CORNER BARS TO MATCH SIZE AND SPACING OF HORIZONTAL WALL REINFORCING STEEL. HORIZONTAL WALL REINFORCING SHALL BE CONTINUOUS THROUGH PIERS AND PILLASTERS.
  - PROVIDE (2) DIAGONAL #4 X 4'-0" BARS PER 4" OF THICKNESS IN WALLS AND SLABS AT RE-ENTRANT CORNERS AROUND OPENINGS, PITS AND GRADE WALLS.
  - COORDINATE PLACEMENT OF COLUMN ANCHOR RODS WITH FOUNDATION REINFORCING. INSTALL ANCHOR RODS USING TEMPLATES AND SETTING DRAWINGS. TILTED OR MISPLACED BOLTS WILL NOT BE ACCEPTED. NOTIFY ENGINEER FOR APPROVAL OF ANY CORRECTIVE ACTION. TOLERANCES FOR THE INSTALLATION OF THE ANCHOR BOLTS SHALL BE IN ACCORDANCE WITH AISC "CODE OF STANDARD PRACTICE" GUIDELINES.
  - CURE CONCRETE WITH WET BURLAP FOR 7 DAYS PER ACI RECOMMENDED PRACTICE.

**05120 STRUCTURAL STEEL**

- DESIGN, DETAILING, AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE CURRENT EDITION OF THE FOLLOWING PUBLICATIONS UNLESS OTHERWISE NOTED:  
AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"  
AISC 325 "STEEL CONSTRUCTION MANUAL"  
AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"  
RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS"  
AWS D1.1 "STRUCTURAL WELDING CODE"
- SUBMITTALS:**  
CONTRACTOR TO SUBMIT ALL SHOP DRAWINGS FOR MISCELLANEOUS METALS & STRUCTURAL STEEL. SHOP DRAWINGS ARE TO BE PREPARED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER.
- MATERIAL PROPERTIES:**  
WIDE FLANGE BEAMS ASTM A992 Fy=50 KSI  
OTHER SHAPES (S,M,HP,C,MCL, PLATES) ASTM A36 Fy=36 KSI  
ANCHOR BOLTS ASTM F1554 Fy=36 KSI  
WELDING ELECTRODES E70XX  
GROUT ASTM C1107/CRD-C621 f'c= 5 KSI  
NON-SHRINK, NON-METALLIC
- FABRICATOR TO DESIGN BEAM CONNECTIONS FOR 1/2 THE MAXIMUM TOTAL UNIFORM LOAD GIVEN IN THE LOAD TABLES IN CHAPTER 3 OF THE MANUAL OF STEEL CONSTRUCTION (UNLESS NOTED OTHERWISE.) CONNECTIONS SHALL BE SHOP WELDED AND FIELD BOLTED.
- BOLTS SHALL BE 3/4" DIAMETER A325-N INSTALLED SNUG TIGHT (ALL PILES IN CONTACT) UNLESS NOTED OTHERWISE.
- ALL SHOP AND FIELD WELDS SHALL BE PREQUALIFIED WELDS PERFORMED BY CERTIFIED WELDERS.
- PROVIDE SHELF ANGLES AT COLUMNS AS REQUIRED TO SUPPORT METAL DECK, STEEL GRATING, CHECKERED PLATE, ETC.
- ALL NEW BOLT HOLES IN EXISTING STEEL SHALL BE FIELD DRILLED. DO NOT FLAME CUT HOLES.
- FIELD CUTTING OR ALTERING STRUCTURAL STEEL MEMBERS AND CONNECTIONS IS NOT PERMITTED WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.
- THE STRUCTURAL STEEL CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AS REQUIRED UNTIL ALL CONNECTIONS AND GROUTING UNDER THE BASE PLATES HAS BEEN COMPLETED.
- LOADINGS**  
11.1. PROVIDE ONE SHOP COAT OF RUST INHIBITING PRIMER (2 MILS THICKNESS) ON ALL STEEL EXCEPT ITEMS TO BE HOT DIPPED GALVANIZED OR SPRAY FIREPROOFED. DO NOT PAINT PORTIONS EMBEDDED IN CONCRETE. PREPARE SURFACES PER SSPC-SP2 "HAND TOOL CLEANING" AT A MINIMUM.  
11.2. ALL EXTERIOR ELEMENTS AND ELEMENTS NOTED IN DRAWINGS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123. PROVIDE HOT DIPPED GALVANIZED BOLTS, WASHERS & NUTS.  
11.3. FIELD TOUCH UP ALL DAMAGED SURFACES.

**05502 POST INSTALLED ANCHORS**

- EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT III ANCHORS UNLESS NOTED OTHERWISE.
- EPOXY ANCHORS SHALL BE HILTI HAS RODS INSTALLED WITH HY-200 EPOXY FOR CONCRETE INSTALLATIONS. HY-70 EPOXY SHALL BE USED AT MASONRY (INSTALLED WITH SCREEN TUBES AT HOLLOW MASONRY).
- EQUIVALENT ANCHORS MAY BE SUBMITTED FOR THE ENGINEER'S APPROVAL. SUBMITTALS ARE THE CONTRACTOR'S RESPONSIBILITY AND MUST INCLUDE EVALUATION REPORTS (ESR) FROM THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS.
- HOLES FOR ANCHORS SHALL BE DRILLED, NOT CORED.
- ANCHORS SHALL BE INSTALLED IN CONCRETE WHICH HAS REACHED 2500 PSI AND IS AT LEAST 21 DAYS OLD.
- INSTALLATION OF POST-INSTALLED ANCHORS SHALL BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS BY PERSONNEL TRAINED BY THE MANUFACTURER.

FOUNDATION SCHEDULE		
MARK #	SIZE L x W x T	REINFORCING
F4.0	4'-0"x4'-0"x12"	6#4 EW
F4.5	4'-6"x4'-6"x12"	7#4 EW
F5.0	5'-0"x5'-0"x12"	7#4 EW
F5.5	5'-6"x5'-6"x13"	6#5 EW
F6.0	6'-0"x6'-0"x14"	7#5 EW
F6.5	6'-6"x6'-6"x16"	8#5 EW

**PLAN NOTES:**  
(DENOTED ON SHEET BY ◊)

- DEMO EXISTING WOOD COLUMN. REPAIR CONCRETE SLAB TO MATCH.
- DEMO EXISTING WOOD COLUMN AND REPLACE WITH NEW W8x35 COLUMN (PAINTED). ALSO PROVIDE NEW CONCRETE REINFORCED FOOTING.
- NEW W8x35 COLUMN (PAINTED). ALSO PROVIDE NEW CONCRETE REINFORCED FOOTING..
- PROVIDE BEAM POCKET IN EXISTING MASONRY WALL. 3/4"x14"x14" BEARING PLATE WITH (2) 1/2"x 6" LONG HAS STUD ANCHORS. GROUT WALL SOLID BELOW BEARING PLATE. GROUT PACK POCKET SOLID AFTER INSTALLATION OF W24 BEAM.
- PROVIDE NEW 13'-0"W X 9'-0"H OPENING IN WALL WITH A W16x40x5/16"x16" PLATE LITTEL (PAINTED) WITH 8" BEARING AT EACH END. FULLY GROUT WALL SOLID UNDER BEARING LOCATIONS. PROVIDE 3/16" BENT PLATE CLOSURE BOLTED TO WALL TO COVER SAWCUT AT WALL JAMBS.
- ENLARGE EXISTING OPENING TO 13'-0"W X 9'-0"H AND PROVIDE A W8x31x5/16"x16" PLATE LITTEL (PAINTED) WITH 8" BEARING AT EACH END. FULLY GROUT WALL SOLID UNDER BEARING LOCATIONS. PROVIDE 3/16" BENT PLATE CLOSURE BOLTED TO WALL TO COVER SAWCUT AT WALL JAMBS.