

**GENERAL NOTES**

1. ALL STRUCTURAL WORK SHALL BE COORDINATED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SHALL CONFORM TO THE PROJECT SPECIFICATIONS, INCLUDING THE 2021 INTERNATIONAL EXISTING BUILDING CODE AND 2021 INTERNATIONAL BUILDING CODE. ALL GOVERNING STANDARDS LISTED IN THESE NOTES SHALL BE THE EDITION REFERENCED IN THESE GOVERNING CODES.
2. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING, BRACING, AND SHEETING AND SHALL MAKE SAFE ALL FLOORS, ROOFS, WALLS, AND ADJACENT PROPERTY AS PROJECT CONDITIONS REQUIRE. SHORING AND SHEETING SHALL BE DESIGNED BY THE CONTRACTOR'S ENGINEER LICENSED IN THE PROJECT JURISDICTION, HIRED BY THE CONTRACTOR, WHO SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR THE OWNER'S REVIEW.
3. DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION GIVEN IN STRUCTURAL DRAWINGS ARE BASED ON INFORMATION CONTAINED IN VARIOUS DOCUMENTATION, EXCLUDING ORIGINAL DESIGN DRAWINGS, PROVIDED BY THE OWNER, AND LIMITED FIELD OBSERVATIONS AND MEASUREMENTS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION PERTAINING TO EXISTING CONDITIONS BY ACTUAL MEASUREMENT AND OBSERVATION AT THE SITE. ALL DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE SHOWN IN THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE CONTRACTING OFFICER FOR EVALUATION BEFORE THE AFFECTED CONSTRUCTION IS PUT IN PLACE.
4. THE CONTRACT DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. THESE NOTES HIGHLIGHT RATHER THAN REPLACE THE SPECIFICATIONS CONTAINED IN THE PROJECT MANUAL.

**CONCRETE**

1. ALL CONCRETE WORK SHALL CONFORM TO THE FOLLOWING GOVERNING STANDARDS:
  - A. AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR CONCRETE" (ACI 318)
  - B. ACI COLLECTION, LATEST EDITION
  - C. CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STANDARD PRACTICE"
2. ALL OTHER CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL SUBMIT A PROJECT-SPECIFIC SIGNED AND SEALED CONCRETE MIX DESIGN FOR EACH CONCRETE TYPE SPECIFIED IN THE CONTRACT DOCUMENTS. WHERE 033000 SPECIFICATIONS HAVE BEEN INCLUDED IN THE CONTRACT DOCUMENTS, REFER TO THAT SPECIFICATION SECTION FOR BALANCE OF MIX DESIGN REQUIREMENTS (AGGREGATES, ADMIXTURES, W/C RATIO, AIR CONTENT, ETC.)
4. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 OR A775 EPOXY COATED WHEN CALLED OUT ON PLAN. REINFORCING STEEL SHALL BE DETAILED ACCORDING TO THE ACI "DETAILS AND DETAILING OF REINFORCEMENT" (ACI 315).
5. REINFORCING STEEL TO BE WELDED TO CONFORM TO ASTM A706 GRADE 60.
6. MINIMUM CONCRETE COVER FOR REINFORCING STEEL IN CAST-IN-PLACE NON-PRESTRESSED MEMBERS SHALL BE AS FOLLOWS:
  - A. ALL CONCRETE CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND: 3"
  - B. ALL CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
    - a. 1-1/2" (#5 BAR, W31 OR D31 WIRE, AND SMALLER)
  - C. NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
    - a. SLABS, JOISTS, AND WALLS:
      - 3/4" (#11 BAR AND SMALLER)
7. CLEAN AND ROUGHEN TO 1/4" AMPLITUDE ALL EXISTING CONCRETE SURFACES TO RECEIVE NEW CONCRETE PRIOR TO PLACEMENT.
8. SEE OTHER DRAWINGS IN THIS PROJECT FOR SIZE AND LOCATIONS OF EQUIPMENT PADS, LADDERS, FLAGPOLES, INSERT AND EMBED ITEMS.
9. REINFORCING DOWELS, WATER STOPS, AND OTHER EMBED ITEMS SHALL BE INSTALLED AND SECURED PRIOR TO CONCRETE PLACEMENT. "WET-SETTING" OF EMBEDDED ITEMS IS NOT PERMITTED.

**POST-INSTALLED ADHESIVE AND MECHANICAL ANCHORS**

1. POST INSTALLED ANCHORAGE SHALL BE INSTALLED BY QUALIFIED PERSONNEL PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII), AS INCLUDED IN THE ANCHOR PACKAGING, TO INTACT BASE MATERIAL. INSTALLATION OF ANCHORS SHALL BE CARRIED OUT BY AN INSTALLER TRAINED TO INSTALL THE SPECIFIED ANCHORS. NOTIFY CONTRACTING OFFICER PRIOR TO INSTALLATION IF BASE MATERIAL CONDITION DEVIATES FROM STRUCTURAL DRAWINGS OR ASSUMPTIONS AND CONDITIONS OF THE MPII. ALL HOLES SHALL BE DRY AND HAMMER DRILLED UNLESS OTHERWISE NOTED, AND ALL CONCRETE BASE MATERIAL TO RECEIVE ADHESIVE ANCHORS SHALL HAVE A MINIMUM AGE OF 21 DAYS.
2. INSTALLATION OF ADHESIVE ANCHORS IN A HORIZONTAL OR UPWARDLY INCLINED ORIENTATION AND SUPPORTING A SUSTAINED TENSION LOAD SHALL BE PERFORMED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER. CERTIFICATION SHALL INCLUDE WRITTEN AND PERFORMANCE TESTS IN ACCORDANCE WITH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM OR APPROVED EQUAL. PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS PROVIDE OWNER AND CONTRACTING OFFICER WITH DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL HORIZONTAL OR UPWARDLY INCLINED ADHESIVE ANCHORS SUPPORTING SUSTAINED TENSION LOADS ARE TRAINED AND CERTIFIED.
  - A. OVERHEAD ADHESIVE ANCHORS MUST BE INSTALLED USING THE PISTON PLUG SYSTEM SPECIFIED BY THE MPII AND PRODUCED BY THE CORRESPONDING MANUFACTURER FOR THE ANCHOR SYSTEM BEING INSTALLED.
3. EXISTING REINFORCING BARS IN THE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. REINFORCING BARS SHALL NOT BE CUT WITHOUT THE WRITTEN APPROVAL OF THE CONTRACTING OFFICER. UNLESS NOTED ON THE DRAWINGS THAT THE EXISTING REBARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS BY A MEANS APPROVED BY THE CONTRACTING OFFICER.
4. ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS, PROXIMITY OF ANCHORS TO EDGE OF CONCRETE, AND EMBEDMENT DEPTH INTO THE SUBSTRATE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING, EDGE CLEARANCES, AND EMBEDMENT DEPTHS INDICATED ON THE DRAWINGS
5. UNLESS OTHERWISE INDICATED, POST INSTALLED ANCHORAGE SHALL BE ADHESIVE TYPE HILTI HIT-HY 200-R INTO CONCRETE OR HILTI HIT-HY 270 INTO BRICK MASONRY, GROUT FILLED CMU OR UNGROUTED CMU BASE MATERIAL. PROVIDE MESH SCREEN IN UNGROUTED CMU, UNREINFORCED MASONRY CONSTRUCTION, AND BRICK MASONRY WITH HOLES OR VOIDS.
6. SUBSTITUTION REQUESTS FOR ALTERNATE ANCHORAGE PRODUCTS SHALL BE SUBMITTED TO CONTRACTING OFFICER FOR REVIEW AND APPROVAL PRIOR TO USE. THIS SHALL INCLUDE MANUFACTURER PRODUCT DATA AND CALCULATIONS DEMONSTRATING THAT THE PROPOSED SUBSTITUTE CAN ACHIEVE THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY THE MANUFACTURER OR SUCH OTHER METHOD AS APPROVED BY THE CONTRACTING OFFICER. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC-ES EVALUATION REPORT SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE, SEISMIC USE, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF MPII. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE AND MUST PROVIDE INFORMATION ON THESE ITEMS. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE CONTRACTING OFFICER PRIOR TO USE.

**SPECIAL INSPECTIONS (IBC)**

1. REFERENCE NPS STATEMENT OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS FOR FULL LIST OF REQUIREMENTS.
2. STRUCTURAL OBSERVATIONS REQUIRED BY THE LOCAL JURISDICTION AND IBC 1704.5 SHALL BE PERFORMED BY A REGISTERED DESIGN PROFESSIONAL PROVIDED BY THE OWNER. STRUCTURAL OBSERVATIONS SHALL BE THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.
3. TESTING AGENCY FOR THE INSPECTIONS SHALL FILE ALL APPROPRIATE FORMS WITH THE BUILDING DEPARTMENT.

**STRUCTURAL SYSTEM DESCRIPTION**

NO ORIGINAL STRUCTURAL DRAWINGS HAVE BEEN FOUND. FOLLOWING WHAT HAS BEEN DOCUMENTED IN 1973 HISTORIC STRUCTURES REPORT BY CROMWELL, NEYLAND, TRUEMPER, MILLETT & GATCHELL, INC. AND VERY LIMITED SITE OBSERVATIONS PERFORMED BY SILMAN IN FEBRUARY & JULY 2023, THE STRUCTURAL DESCRIPTION IS AS FOLLOWS:  
 THE GRAVITY SYSTEM OF THE BUILDING IS GENERALLY COMPRISED OF REINFORCED CONCRETE SLABS AND BEAMS SUPPORTED BY MASONRY BEARING WALLS AND BASEMENT SLAB ON GRADE. STRUCTURAL WALLS ARE ASSUMED TO BEAR ON REINFORCED CONCRETE WALL FOOTINGS. FORDYCE BATHHOUSE WAS CONSTRUCTED IN 1914-1915. MOST BUILDINGS CONSTRUCTED IN THIS REGION AND ERA WERE NOT DESIGNED WITH AN EXPLICITLY DEFINED LATERAL FORCE RESISTING SYSTEM. AN ACCEPTABLE STRUCTURAL SYSTEM TO RESIST LATERAL FORCES WAS STEEL OR CONCRETE FRAMED BUILDINGS DESIGNED TO SUPPORT GRAVITY LOADS SURROUNDED BY WELL-PROPORTIONED MASONRY OR CONCRETE WALLS.  
 THE SCOPE OF WORK WITHIN THESE DOCUMENTS DOES NOT ALTER THE EXISTING STRUCTURAL BEHAVIORS OR LOAD PATHS. THEREFORE, PER 2021 INTERNATIONAL EXISTING BUILDING CODE SECTION 706.2 AND 1205, REPAIRS CAN BE INSTALLED TO BRING THE BUILDING BACK TO THE ORIGINAL CAPACITY AT THE TIME OF CONSTRUCTION. NO STRUCTURAL LATERAL ASSESSMENT OR RETROFIT IS REQUIRED PER IEBC OR ICSSC-RP10.

**TEMPORARY SHORING**

1. DETERMINATION OF THE FULL SCOPE AND EXTENT OF ALL TEMPORARY SHORING WORK AND SEQUENCING REQUIRED TO SAFELY EXECUTE THE STRUCTURAL WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR'S ENGINEER.
2. THE DESIGN OF TEMPORARY SHORING BY THE CONTRACTOR'S ENGINEER SHALL ABIDE BY THE REQUIREMENTS IN THE GENERAL NOTES.
3. THE DESIGN OF TEMPORARY SHORING, AND DETERMINATION OF THE EXTENT OF TEMPORARY SHORING, ARE NOT THE RESPONSIBILITY OF SILMAN.

**DESIGN PARAMETER TABLE**

GOVERNING CODES:	2021 INTERNATIONAL BUILDING CODE & 2021 INTERNATIONAL EXISTING BUILDING CODE		
RISK CATEGORY:	III (ASSUMED BASED ON THE BUILDING'S CURRENT ASSEMBLY OCCUPANCY CLASSIFICATION)		
SNOW LOAD:			
	10	Pg	GROUND SNOW LOAD
	8	Pf	FLAT-ROOF SNOW LOAD
	1.0	Ce	SNOW EXPOSURE FACTOR
	1.1	Is	SNOW LOAD IMPORTANCE FACTOR
	1.1	Ct	THERMAL FACTOR (ASSUMED FOR MAIN BUILDING)
	11	Pm	MINIMUM SNOW LOAD FOR LOW-SLOPE ROOFS
WIND LOAD:			
	111	Vult	ULTIMATE DESIGN WIND SPEED
	86	Vasd	NOMINAL DESIGN WIND SPEED
	1.0	I	WIND IMPORTANCE FACTOR
	C		WIND EXPOSURE CATEGORY
	0.18	GCPi	INTERNAL PRESSURE COEFFICIENT
SEISMIC DESIGN:			
	1.25	I	SEISMIC IMPORTANCE FACTOR
	0.237	Ss	SHORT PERIOD SPECTRAL RESPONSE ACCELERATION
	0.111	S1	1-SECOND PERIOD SPECTRAL RESPONSE ACCELERATION
	C		SITE CLASS
	0.206	S(ds)	5-% DAMPED SPECTRAL RESPONSE COEFFICIENT AT SHORT PERIODS
	0.111	S(d1)	5-% DAMPED SPECTRAL RESPONSE COEFFICIENT AT 1-SECOND PERIODS
	B		SEISMIC DESIGN CATEGORY
SEE STRUCTURAL DESCRIPTION ON S0.1. NO STRUCTURAL LATERAL ASSESSMENT OR RETROFIT IS REQUIRED PER IEBC OR ICSSC-RP10.	BASIC SEISMIC FORCE RESISTING SYSTEM		



A/E FIRMS  
 ARCH: QUINN EVANS  
 219 1/2 N. MAIN STREET  
 ANN ARBOR, MI  
 T: 734.663.5888  
 ENG: SIMAN  
 211 1/4th AVE.  
 ANN ARBOR, MI  
 T: 734.900.2460

DESIGNED: KH  
 CADD: CM  
 TECH. REVIEW: NH  
 DATE: 10.27.2023

SUB SHEET NO.  
**04**  
**S0.1**

TITLE OF SHEET  
 HOSP BUCKSTAFF + FORDYCE ROOFS  
**GENERAL STRUCTURAL**  
**NOTES & DESIGN TABLES**  
 REHABILITATE BATHHOUSES  
 HOT SPRINGS NATIONAL PARK

DRAWING NO.  
**128**  
**182951**  
 PMIS/PKG NO.  
 318915  
 SHEET  
 279 OF 286