

**SECTION 033000 - CAST-IN-PLACE CONCRETE**

- 1.1 CONCRETE AND STEEL REINFORCEMENT
- A. Use 4,000 psi concrete and deformed-Steel Welded Wire Reinforcement: ASTM A 185 or ASTM A 1064, flat sheet.
- Minimum Compressive Strength: 4000 psi (27.6 MPa) > at 28 days.
  - Air Content: 3 percent, plus or minus percent at point of delivery for nominal maximum aggregate size greater than 3/8 inch (10 mm).
- PART 2 - EXECUTION
- 2.1 VAPOR RETARDERS
- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
- Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.
- 2.2 STEEL REINFORCEMENT
- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- 2.3 JOINTS
- A. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect. Maximum distance between saw cut joints shall be 12 feet in any direction.
- Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints by 1/4 depth of slab into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks. Saw cut joint with 4 to 12 hours of concrete placement.
- 2.4 FINISHING FLOORS AND SLABS
- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- Apply a trowel finish to surfaces to be covered with resilient flooring.
  - Finish and measure surface so gap at any point between concrete surface and an unlevelled, freestanding, 10-ft.- (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch (6 mm).
  - Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

**SECTION 042000 - UNIT MASONRY**

- 1.1 SUMMARY
- Concrete masonry units (CMU's).
- PART 2 - PRODUCTS
- 2.1 CONCRETE MASONRY UNITS
- A. CMUs: ASTM C 90.
- Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi (19.3 MPa).
  - Density Classification: Medium weight unless otherwise indicated.
- 2.2 MORTAR AND GROUT MATERIALS
- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Masonry Cement: ASTM C 91
- D. Aggregate for Mortar: ASTM C 144.
- E. Aggregate for Grout: ASTM C 404.
- F. Water: Potable.
- 2.3 REINFORCEMENT
- A. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.
- B. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.
- 2.4 TIES AND ANCHORS
- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.
- Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M; with ASTM A 153/A 153M, Class B-2 coating.
- B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch (16-mm) cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches (50 mm) parallel to face of veneer.
- C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches (100 mm) wide.

- Wire: Fabricate from 3/16-inch- (4.76-mm-) diameter, hot-dip galvanized steel wire.
- D. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
- Anchor Section for Welding to Steel Frame: Crimped 1/4-inch- (6.35-mm-) diameter, hot-dip galvanized steel wire.
  - Tie Section: Triangular-shaped wire tie, sized to extend within 1 inch (25 mm) of masonry face, made from 0.187-inch- (4.76-mm-) diameter, hot-dip galvanized steel wire.
- E. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
- Corrugated Metal Ties: Metal strips not less than 7/8 inch (22 mm) wide with corrugations having a wavelength of 0.3 to 0.5 inch (7.6 to 12.7 mm) and an amplitude of 0.06 to 0.10 inch (1.5 to 2.5 mm) made from 0.075-inch- (1.90 mm-)thick, steel sheet, galvanized after fabrication with dovetail tabs for inserting into dovetail slots in concrete and sized to extend to within 1 inch (25 mm) of masonry face.
- F. Anchor Bolts: L-shaped steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.
- 2.5 MASONRY CLEANERS
- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
- Diedrich Technologies, Inc.
  - EaCo Chem, Inc.
  - ProSoCo, Inc.
  - Or approved equal.
- 2.6 MORTAR AND GROUT MIXES
- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
- Do not use calcium chloride in mortar or grout.
  - Use portland cement-lime mortar unless otherwise indicated.
  - For exterior masonry, use portland cement-lime mortar.
  - For reinforced masonry, use portland cement-lime mortar.

- Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
- For reinforced masonry, use Type S.
  - For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
  - For interior non-load-bearing partitions, Type O may be used instead of Type N.
- D. Grout for Unit Masonry: Comply with ASTM C 476.
- Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
  - Proportion grout in accordance with ASTM C 476, but not less than 2000 psi (14 MPa).
  - Provide grout with a slump of 8 to 11 inches (203 to 279 mm) as measured according to ASTM C 143/C 143M.

**PART 3 - EXECUTION**

- 3.1 LAYING MASONRY WALLS
- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- C. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- 3.2 MORTAR BEDDING AND JOINTING
- A. Lay hollow CMUs as follows:
- With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
  - With webs fully bedded in mortar in grouted masonry, including starting course on footings.
  - With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

DOOR SCHEDULE																										
DOOR NUMBER	DRAWING NO.	DOOR TYPE	DOOR OPENING		DOOR MATERIAL	DETAILS			ACTION	FRAME MATERIAL	HARDWARE							FIRE RESISTANCE								
			WIDTH	HEIGHT		THICKNESS	HEAD	JAMB			SILL	HINGE STD. (RHS)	TRIPLE SECURITY NONREMOVABLE PINS	O.H. CLOSER	DEAD BOLT	HOLD-OPEN DEVICE	DOOR STOP (WALL MOUNTED)		DOOR STOP (FLUSH MOUNTED)	LOCK (KEYED)	LOCK (KEYED) TO TOP & BOT. OF LEAF	KICK PLATE	LATCHGUARD	WEATHER SEAL	THRESHOLD	LOCKSET ALL LEVER HANDLE
FIRST FLOOR																										
1			3'-6"	7'-0"	1-3/4"	HOLLOW METAL (INSUL.)			RHR	PRESSED METAL (INSUL.)																SEE NOTE 1
2			3'-0"	7'-0"	1-3/4"	HOLLOW METAL (INSUL.)			LHR	PRESSED METAL (INSUL.)																SEE NOTE 1
3			3'-6"	7'-0"	1-3/4"	HOLLOW METAL (INSUL.)			LH	PRESSED METAL (INSUL.)																PASSAGE
4			3'-0"	7'-0"	1-3/4"	HOLLOW METAL (INSUL.)			RHR	PRESSED METAL (INSUL.)																STORAGE (KEYED)
5			3'-0"	7'-0"	1-3/4"	WOOD (SOLID)			RHR	PRESSED METAL (INSUL.)																PRIVACY LOCK
6			2'-4"	7'-0"	1-3/4"	WOOD (SOLID)			RHR	WOOD																STORAGE (KEYED)
E1			3'-0"	7'-0"	1-3/4"	HOLLOW METAL (INSUL.)			(EXISTING)	(EXISTING)																(EXISTING)
E2			3'-0"	7'-0"	1-3/4"	HOLLOW METAL (INSUL.)			(EXISTING)	(EXISTING)																(EXISTING)

- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.
- 3.3 MASONRY JOINT REINFORCEMENT
- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).
- Space reinforcement not more than 16 inches (406 mm) o.c.
- 3.4 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE
- A. Anchor masonry to structural steel and concrete where masonry abuts or faces structural steel or concrete to comply with the following:
- Anchor masonry with anchors embedded in masonry joints and attached to structure.
  - Space anchors as indicated, but not more than 24 inches (610 mm) o.c. vertically and 36 inches (915 mm) o.c. horizontally.
- 3.5 REINFORCED UNIT MASONRY INSTALLATION
- A. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- B. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
- Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
  - Limit height of vertical grout pours to not more than 60 inches (1520 mm).

**SECTION 040120 - MAINTENANCE OF UNIT MASONRY**

**PART 1 - SCOPE OF WORK**

- A. Section includes maintenance of unit masonry consisting of masonry restoration and cleaning as follows:
- Repointing joints.
  - Repairing cracks.
  - Cleaning exposed unit masonry surfaces.
- 1.2 MANUFACTURED REPAIR MATERIALS
- A. Masonry Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching masonry.
- 1.3 MORTAR MIXES
- A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.
- Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.
- B. Do not use admixtures in mortar unless otherwise indicated.
- C. Mortar Proportions: Mix mortar materials in the following proportions:
- Pointing Mortar for Brick: 1 part portland cement, 2 parts lime, and 6 parts sand.
- 1.4 PRELIMINARY CLEANING
- A. Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to cleaning methods being used. Extraneous substances include paint, calking, asphalt, and tar.
- Carefully remove heavy accumulations of material from surface of masonry with a sharp chisel. Do not scratch or chip masonry surface.
  - Remove paint and calking with alkaline paint remover.
    - Comply with requirements in "Paint Removal" Article.
    - Repeat application up to two times if needed.

**Ukrainian Museum and Archives**

1202 Kenilworth Ave  
Cleveland, Ohio 44113

Ph: (216) 781-4329 Fax: (216) 781-5844

**ANNEX BUILDING RENOVATION**

**CODE REVIEW & SPECIFICATIONS**

**EACONSULTANTS LLC**

4055 Williamsburg Court MEDINA, OHIO 44256 | 440.552.9027

SCALE	DRAWN	CHECKED	APPROVED
AS NOTED	LEB	PS	
DEPT. ARCH. STRUCT. MECH. ELECT. PIPING EQUIP.			P.E.
INIT. LB			6
DATE 7.1.16			7.14
WORK ORDER NO. 2016-1	SHEET NO. A-4		REV. 0