

Product Specifications: InsulTech[™], Insulated Concrete Masonry Units

PART I - GENERAL

SUMMARY

This section includes exterior concrete masonry units consisting of concrete masonry units, insulated with continuous thermal barrier and includes the following.

1. Insulated concrete masonry unit.
2. Decorative insulated concrete masonry units.
3. Color treatment
4. Embedded flashing

Related Sections:

Division 7 section "Joint Sealants" for sealing control and expansion joints in unit masonry. Division 4 section "Unit Masonry Assemblies" for mortar and grout, reinforcing, ties and anchors and masonry accessories. Division 4 section "unit Masonry Assemblies" for Reinforced Masonry: Masonry containing reinforced steel in grout cells.

DEFINITIONS

Insulated Concrete Masonry Units: Insulated concrete masonry units specified in this section include special shaped concrete masonry units with continuous thermal barrier interlocking exterior face shell with no web connections across the thermal barrier.

PERFORMANCE REQUIREMENTS

Provide [structural] unit masonry that develops indicated net-area compressive strengths (f'm) at 28 days.

Determine net-area compressive strength (f'm) of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to [tables 1 and 2 in TMS 602-11/ACI 530.1-11/ASCE 6-11].

Thermal Performance: Provide insulated concrete masonry assemblies with thermal-resistance (R-value) consisting of the steady state R-value of 3" of BASF Neopor Expanded Polystyrene and the steady state R-value of the concrete block.

SUBMITTALS

Product Data: For each type of product indicated, including:

1. Insulated concrete masonry units
2. Embedded flashing

Shop Drawings: For the Following

Masonry Units: Shows sizes, profiles, coursing, and locations of each type of masonry unit.

Samples for Verification: Full size samples for each type and color of the following:

1. [Exposed] [Decorative] concrete masonry units.
2. Special Insulated concrete masonry unit shapes.

3. Weep holes/vents.

Material Certificates: Include statements of material properties indicating compliance with requirements including compliance with standard and type designations within standards. Provide for each type and size the following:

Masonry units: For insulated concrete masonry units, include size-variation data verifying the actual range of sizes falls within specified tolerances.

Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to [tables 1 and 2 in TMS 602-11/ACI 530.1-11/ASCE 6-11].

QUALITY ASSURANCE

Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer or each product required.

Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those assemblies with fire-resistance rating determines per ASTM E 119 by a testing and inspection agency, by equivalent concrete masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

[Samples Panels]: Build sample panels to verify selections made under submittals and to demonstrate aesthetic effects. Comply with requirements in Division 1 Section "Quality Requirements" for mockups.

Build sample panels for [typical exterior wall] in sizes approximately [48"] long x [48"] high [by full thickness]. Clean exposed faces of panels with masonry cleaner indicated. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.

DELIVERY, STORAGE, AND HANDLING

Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops of sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

PROJECT CONDITIONS

Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress. Extend cover a minimum of 24" down both sides and hold cover securely in place.

Stain Prevention: Prevent grout, mortar, and soil from staining the face of the masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

Protect base of walls from rain-splashed mud and from mortar splattered by spreading coverings on ground and over wall surface. Protect sills, ledges, and projections from mortar droppings. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

Cold-Weather Requirements: **DO NOT** use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in [TMS 602-11/ACI 530.1-11/ASCE 6-11].

Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40°F and above and will remain to until masonry has dried, but not less than 7 days after completing cleaning.

Hot-Weather Requirements: Comply with hot-weather construction requirements contained in [TMS 602-11/ACI 530.1-11/ASCE 6-11].

PART II- PRODUCTS

MANUFACTURERS

Northfield, an Oldcastle Company (847) 949-3600
One Hunt Court, Mundelein, IL 60060

INSULATED CONCRETE MASONRY UNITS

InsulTech[™], Insulated Concrete Masonry Units: [ASTM C 90]

Unit Compressive Strength: Provide units with minimum average net-area compressive strength of [2000 psi].

Weight Classification: Medium weight with density not to exceed 125 lbs. per cubic foot concrete.

Insulated Concrete Masonry Units: Pre-assembled structural concrete masonry units composed of an inner component concrete masonry shell that is continuously thermally broken from the outer concrete shell. The thermal break is expanded polystyrene (EPS) closed cell insulation. The

insulation EPS is held firmly between the two concrete block shells by dove tail slots and internal stainless steel metal anchors molded into the EPS inserts, creating a cohesive and tightly fitting single unit.

Size (Width) and R-Value: Manufactured to the following dimensions:

12 1/4" wide x 7 5/8" high x 15 5/8" long; thermal-resistance value (R-Value): R-15.2.

Molded-Polystyrene Insulation: Rigid, cellular thermal insulation formed by the expansion of polystyrene-resin beads or granules in a closed mold to comply with ASTM C 578, Type I.

Provide specially shaped insulation designed for installing in face shells of insulated masonry units and providing continuous thermal barrier across head joints, including corner units. Provide an adhesive applied to EPS insert which serves as a continuous air barrier. Provide compliant closed cell gasket material to provide air tightness and continuous insulation across the bed joints.

Decorative Insulated Concrete Masonry Units: Comply with requirements for insulated concrete masonry units and the following:

Pattern and Texture:

- a. Standard pattern, ground finish.
[Match Architect's samples.]
- b. Standard pattern, split-face finish.
[Match Architect's samples.]
- c. Standard pattern, smooth finish.
[Match Architect's samples.]
- d. Standard pattern, shot-blasted
[Match Architect's samples.]

Scoring

- a. Scored vertically so units laid in running bond appear as square units laid in stacked bond, standard finish.
- b. Triple scored vertically so units laid in running bond appear as vertical units laid in stack bond (soldier courses), standard finish.

Color: Provide manufacturer's natural color.

Special Shapes: Provide special shapes as follows: Provide shapes including right and left corner and L corner units, jambs, half-size shapes, solid bottom bond beams, and other special conditions manufactured as pre-assembled units with EPS, complying with above requirements, and match exposed finish of insulated concrete masonry units.

Provide [square-edged] units for outside corners. Provide

separate 8" unit matching exposed finish to be installed at base of wall, above doors and windows, and other areas where flashing is required. Provide exterior face shell pre-assembled with 3" EPS with inside face shaved flush to be installed at base of wall, above doors and windows, and other areas where flashing is required.

Integral Water Repellent: Provide units made with integral water repellent [for exposed units] [and] [where indicated].

Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive according to ASTM E 514, with test period extended to 24 hours, show no visible water or leaks on the back of test specimen.

Products: Provide RainBloc[®] Water Repellent Masonry Unit admixture, manufactured by ACM Chemistries, Inc. or Rheopel Plus, manufactured by BASF.

Field Applied Sealer: Provide TK- BLOCK SHIELD Water and Graffiti Resistant Coating following manufacturer's recommendations.

CONCRETE MASONRY LINTELS

General: Provide masonry lintels complying with requirements below.

Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam concrete masonry units with reinforced bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

MORTAR AND GROUT MATERIALS

Refer to Division 4 Section, "Unit Masonry Assemblies" for mortar and grout materials.

REINFORCEMENT, TIES, AND ANCHORS

Refer to Division 4 Section "Unit Masonry Assemblies" for reinforcement, ties, and anchor materials.

EMBEDDED FLASHING MATERIALS

Embedded Flashing for Single Wythe Masonry: Provide embedded flashing fabricated from high density polyethylene molded into a 0.0625" thick flashing pan with 0.312" perimeter flanges.

Size: Provide size recommended by manufacturer for block size to be flashed.

Flashing Bridging Units: Provide matching bridging units for

connecting embedded flashing units to form continuous flashing Weep Spout: 0.062 inch thick and concave weep spout with a 0.20 inch x 0.64 inch opening and drip edge extending 1 inch from the outer flange.

Manufacturer/Products: Mortar Net USA, Ltd., [Blok-Flash System].

MASONRY ACCESSORIES

Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35%; of width and thickness indicated; formulated from [neoprene] [urethane] [or] [PVC].

Preformed Control-Joint Gaskets: Made from [styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805] [or] [PVC, complying with ASTM D 2287, Type PVC-65406] and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration and indicated.

Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cell with loops for holding reinforcing bars in center of cells. Units are formed from 0.142" steel wire, hot-dip galvanized after fabrication Provide units with either two loops or four loops as needed for number of bars indicated

MASONRY CLEANERS

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. Visit EchelonMasonry.com for specific cleaning recommendations.

Manufacturers:

- a. NMD 80, manufactured by EaCoChem.
- b. Custom Masonry Cleaner, manufactured by ProSoCo.

SOURCE QUALITY CONTROL

Owner will engage a qualified independent testing agency to perform source quality-control testing indicated below:

Payments for these services will be made [by Owner]. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.

Concrete Masonry Unit Test: For each type of unit furnished, per ASTM C 140.

PART III - EXECUTION

INSTALLATION, GENERAL

Refer to Division 4 Section, "Unit Masonry Assemblies" for installation of insulated masonry units.

EMBEDDED FLASHING AND WEEP HOLES

Single-Wythe Embedded Flashing: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

Install embedded flashing as follows, unless otherwise indicated: Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. At lintels and shelf angles, extend flashing a minimum of 6" into masonry at each end. At heads and sills, extend flashing 6" at ends.

Install single-wythe CMU flashing system in bed joints of CMU walls where indicated to comply with manufacturer's written instructions. Install CMU cell plans with upturned edges located below face shells and webs of CMUs above and with weep spouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell plans at CMU webs and extend from face shell to face shell.

Install weep holes in exterior wythes of first course of masonry immediately above embedded flashing. Place non-woven fabric (included with Blok Flash pans) in masonry cells above flashing to prevent clogging not less than 2", to maintain drainage.

HORIZONTAL REINFORCING

Horizontal hot-dipped galvanized reinforcing is to be installed every 16" vertically on the interior wythe. Horizontal hot-dipped galvanized single rod reinforcing is to be installed every 16" vertically on the exterior wythe.