



## PINE HALL BRICK

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### Product Specification & Test Results

Face brick far exceeds ASTM C216, Grade SW, Type FBS (Type FBA-tumbled) (Type FBX @ plant-Spektra)

Average compressive strength: 10,206 psi

Average 24 hour Cold Water Absorption: 6.3 %

Initial Rate of Absorption: 26.6 grams / minute

No efflorescence

### Typical Project Specification

#### SECTION 04200 – UNIT MASONRY

##### PART 1 - GENERAL

##### RELATED DOCUMENTS:

The general provisions of Contract, including General and Supplementary Conditions and General Requirements apply to work specified in this section.

##### DESCRIPTION OF WORK:

Extent of each type of masonry work is indicated on drawings schedule and includes reinforced unit masonry, spray foam insulation, core insulation, sprayed mastic vapor barrier, flashing, water repellent, and accessories.

Related work that is specified elsewhere includes Masonry Mortar, Section 04100, Insulation, Section 07200.

## QUALITY ASSURANCE:

### Variation from Plumb:

For lines and columns, walls and arises, do not exceed ¼" in 10', 3/8" in a story height of 20' maximum, not ½" in 40' or more, except for external corners, expansion joints and other conspicuous lines, do not exceed ¼" in any story of 20' maximum, not ½" in 40' or more.

### Variation from Level:

For grades shown for exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, do not exceed ¼" in any bay of 20' maximum, not ¾" in 40' or more.

### Job Mock-Up:

Prior to installation of masonry work, erect sample wall panel mock-ups using proposed materials, bond and joint tooling required for final work. Provide special features as directed for caulking and contiguous work. Build mock-up at the site, where directed, of full thickness and approximately 6'L x 4'H, indicating the proposed range of color, texture and workmanship to be expected in the completed work and then shall obtain Architect's acceptance of the mock-up before start of masonry work. Retain selected mock-up during construction as a standard for judging completed masonry work. Do not alter, move or destroy mock-up until work is completed. Use sample panel to test proposed cleaning procedures.

## SUBMITTALS:

### Samples:

Prior to construction of job mock-up for selection of color and texture, submit facing brick samples showing full range of colors and textures available in products complying with specified requirements. Furnish sample panel made up of actual bricks or sections of brick with CMU, accents, insulation, and vapor barrier.

## JOB CONDITIONS:

### Protection of Work:

During erection, cover top of walls with heavy waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress.

Extend cover a minimum of 24 inches down both sides and hold cover securely in place.

Do not apply uniform floor or roof loading for at least 12 hours after building masonry walls or columns.

Do not apply concentrated loads for at least 3 days after building masonry walls or columns.

### Staining:

Prevent grout/mortar from staining face of masonry to be left exposed or painted. Remove immediately grout or mortar in contact with such masonry.

Protect sills, ledges and projections from droppings of mortar.

### Cold Weather Protection:

Remove any ice or snow formed on masonry bed by carefully applying heat until top surface is dry to the touch.

Remove all masonry determined to be frozen or damaged by freezing conditions.

No masonry laying shall be performed unless temperature of surrounding air is 34° F. and rising. Use of “anti-freeze” or accelerating admixtures is not permitted.

Provide temporary protection of completed portions of masonry to ensure a minimum 48 hours curing at a minimum 34° F.

When air temperature is from 40° F. to 34° F. heat sand or mixing water to produce mortar temperatures between 40° F. and 120° F.

## **PART 2 – PRODUCTS**

### **MASONRY UNITS, GENERAL:**

#### **BRICK:**

##### **Building Brick:**

Unless otherwise indicated, provide nominal standard modular (4" x 2-2/3" x 8") size square edge brick, Pine Hall Brick (state type & color) . Brick with chamfered edges is not acceptable. Provide special shapes where shown.

##### **Coring:**

At Contractor's option, provide solid brick, cored for vertical brickwork. Do not use cored brick with net cross-sectional area less than 75% of gross area in the same plane or with core holes closer than 3/4" from any edge.

##### **Facing Brick:**

Quality Standard: ASTM C 216. Grade SW for exterior exposures permeated with water when frozen or when in contact with earth, Type FBS.

Building Brick:

Quality Standard: ASTM C 62. Grade SW for exterior exposures where permeated with water when frozen or in contact with earth, Grade MW for exposed interior work and Grade NW for interior masonry concealed by other work. Grade SW may be used in lieu of MW or NW, and Grade MW in lieu of NW.

Brick Pavers:

Specification: Unit clay paver shall conform to the requirements of ASTM C902, Class SX, Type 1, Application PX. The units shall be standard size having dimensions of 2 1/4" x 4" x 8", (specify edge treatment), 10,000 psi minimum compressive strength and below 6% cold water absorption.

Paver color shall conform to (state type of paver) brick pavers as manufactured by Pine Hall Brick Co., Inc., Winston-Salem, North Carolina

Colors: (state type & color)

MASONRY ACCESSORIES:

Continuous Wire Reinforcing and Ties for Masonry:

Provide welded wire units prefabricated in straight lengths of not less than 10', with matching corner and tee units. Fabricate from cold-drawn steel wire complying with ASTM A 82, with deformed continuous side rods and plain cross-rods, and a unit width of 1-1/2" to 2" less than thickness of wall or partition. Comply with ACI 530.1 coating requirements. Provide units fabricated as follows:

Masonry Anchors and Accessories:

Brick Veneer:

Miscellaneous Accessories:

Flashings for Masonry:

**PART 3 – EXECUTION**

INSTALLATION, GENERAL:

Build masonry construction to full thickness shown, except build single-wythe walls to actual thickness of the masonry units, using units of nominal thickness shown or specified. All masonry walls shall extend from floor slab, tight to compressible material in lateral support at structure above with elastic deck filler to assure sound and smoke separation.

Care shall be taken during the erection of masonry to keep the masonry and adjacent surfaces clean. Wall surfaces shall be cleaned as the work progresses, and to the extent practical, masonry shall be cleaned on the same day in which it is laid.

Excess mortar shall be rubbed off the wall face when the mortar is sufficiently dry so that it will not smear and form a scum on the face of the masonry.

Build chases and recesses as shown/required for work of other trades; provide not less than 8" of masonry between chase or recess and jamb of openings, between adjacent chases and recesses.

Cut masonry units with motor-driven saw designed to cut masonry with clean sharp, unchipped edges. Cut units as required to provide pattern shown and to fit adjoining work neatly. Use full units without cutting wherever possible.

Wet clay brick having ASTM C-67 absorption rates greater than 30g/min or 30 in<sup>2</sup>. Do not wet concrete masonry units.

#### Frozen Materials and Work:

Do not use frozen materials or materials mixed or coated with ice or frost. For masonry which is specified to be wetted, comply with the BIA recommendations. Do not build on frozen work. Remove and replace masonry work damaged by frost or freezing.

Lay exposed masonry except where otherwise shown or specified in running bond vertical joint in each course centered on units in courses above/below. Lay concealed masonry with all units in a wythe bonded by lapping not less than 2".

Bond and interlock each course of each wythe at corners, unless otherwise shown.

Layout walls in advance for accurate spacing of surface bond patterns, with uniform joint widths to properly locate openings, movement-type joints, returns and offsets. Avoid use of less-than-half size units at corners, jambs and where possible at other locations.

Lay-up walls plumb and true and with courses level, accurately spaced and coordinated with other work. Extend walls up to structural floor system or up to underside of wood trusses.

#### Stopping and Resuming Work:

Rack back ½ masonry unit length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if specified to be wetted), and remove loose masonry units and mortar prior to laying fresh masonry.

### Built In Work:

As work progresses, build in items specified under this and other sections of these specifications. Fill in solidly with masonry around built in items. Fill space between hollow metal frames and masonry solidly with mortar.

Where built in items are to be embedded in cores of hollow masonry units, place layer of metal lath in joint below and rod mortar or grout into core.

### Batch Control:

Measure/batch materials by volume or weight, such that required proportions for mortar can be accurately controlled and maintained. Measurement of sand exclusively by shovel will not be permitted.

Mix mortars with maximum amount of water consistent with workability to provide maximum tensile bond strength within the capacity of the mortar.

Mix mortar ingredients for minimum of 5 minutes in mechanical batch mixer. Use water clean/free of deleterious materials which would impair the work. Do not use mortar which has begun to set, or if more than 2 hours has elapsed since initial mixing. Re-temper mortar during 2 hr. period as required to restore workability.

Lay brick and other solid masonry units with completely filled bed, head and collar joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints.

Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells; also bed webs in mortar in starting course on footings and foundation walls and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or to be filled with concrete or grout.

### Joints:

Maintain joint widths shown, except for minor variations required to maintain bond alignment. If not otherwise indicated, lay walls with 3 bricks plus 3 joints equal to 8". Cut joints flush for masonry walls which are to be concealed or to be covered by other materials. Tool exposed joints with slightly concave joint at brick and at C.M.U. Rake out mortar in preparation for application of caulking or sealants where shown.

Remove masonry units disturbed after laying; clean and relay in fresh mortar. Do not pound corners at jambs to fit stretcher units which will have been set in position. If adjustments are required, remove units, clean off mortar, and reset in fresh mortar.

### CAVITY WALLS:

Keep cavity clean of mortar droppings/other materials during construction; strike joints facing cavity, flush. Embed rigid insulation into mastic vapor barrier; allow wire ties to puncture insulation neatly. Set insulation snugly with each other.

Provide open joint weep holes in exterior wythe of cavity, composite and veneer walls located immediately above ledges and flashing, spaced 16" o.c., unless otherwise indicated.

### HORIZONTAL JOINT REINFORCING:

Provide continuous horizontal joint reinforcing as shown/specified. Fully embed longitudinal side rods in mortar for their entire length with minimum cover of 5/8" of exterior side of walls and 1/2" at other locations. Lap reinforcement minimum of 6" at ends of units. Do not bridge control/expansion joints with reinforcing, as otherwise indicated. Provide continuity at corners and wall intersections by use of prefabricated L and T sections. Cut/bend units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures and other special conditions.

Space continuous horizontal reinforcing as follows:

1. For multi-wythe walls (solid or cavity) where continuous horizontal reinforcing also acts as structural bond or tie between wythes, space reinforcing as required by code but not less than 16" o.c. vertically.
2. For single-wythe walls, space reinforcing 16" o.c. vertically, unless otherwise indicated.

### ANCHORING MASONRY WORK:

Anchor single wythe masonry veneer to backing with metal ties as follows:

1. Anchor veneer to structural members with metal anchors embedded in masonry joints and attached to structure. Provide anchors with flexible tie section, unless otherwise indicated.
2. Anchor veneer to sheathing over frame structures with metal ties embedded in masonry joints and hooked to strap anchor. Provide not less than 1" airspace between masonry veneer and frame construction. Nail or screw anchors through to studs.
3. Space veneer anchors not more than 16" o.c. vertically and 16" horizontally. Provide additional anchors within 12" of openings and space not more than 12" around perimeter.

### LINTELS:

Install loose lintels of steel and other materials where shown. Provide masonry lintels where shown and where openings of more than 1'-0" are shown without structural steel/other supporting lintels. Provide formed-in-place masonry lintels; temporarily support formed-in-place lintels.

For hollow concrete masonry unit walls, use specially formed "U" – shaped lintel units with reinforcing bars placed as shown and filled with Type S mortar or concrete grout.

Provide minimum bearing at each jamb, of 4" for openings less than 6'-0" wide, and 8" for openings 6'-0" and wider.

### CONTROL AND EXPANSION JOINTS:

Provide vertical expansion/control/isolation joints in masonry where shown. Build-in related masonry accessory items as masonry work progresses.

### FLASHING OF MASONRY WORK:

Provide concealed flashings in masonry work at or above, all shelf angles/lintels/ledges/other obstructions to downward flow of water in wall to divert such water to exterior. Prepare masonry surfaces smooth/free from projections which could puncture flashing. Place through-wall flashing on bed of mortar and cover with mortar. Seal penetrations in flashing with mastic before covering with mortar.

Extend flashings full length of lintels/shelf angles and minimum of 4" into masonry each end. Extend flashing flush with exterior face of outer wythe of masonry, through outer wythe, turned up minimum of 4", and through inner wythe to within ½" of the interior face of the wall in exposed work. Where interior surface of inner wythe is concealed by furring, carry flashing completely through the inner wythe and turn up approximately 2". Provide weepholes in the head joints of the same course of masonry bedded in the flashing mortar. Interlock end joints of deformed metal flashings by overlapping deformations not less than 1½ ", seal lap with elastic sealant.

Install reglets and nailers for flashing and other related work where shown to be built into masonry work.

### REPAIR, POINTING AND CLEANING:

Remove/replace masonry units are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar/grout, pointed to eliminate evidence of replacement.

Pointing:

During tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints at corners, openings and adjacent work to provide neat, uniform appearance, properly prepared for application of caulking or sealant compounds.

Clean exposed brick masonry surfaces by the bucket and brush, hand cleaning method or by high pressure water method.

Use commercial cleaning agents equal to (type of cleaner) composed of detergent, wetting agents, buffering agents and maximum of .10% muriatic acid in accordance with manufacturer's instructions.

Wall Leakage:

It is the intent that exterior walls be watertight and moisture free due to any natural cause. If, at time of bidding, the Mason Contractor believes that materials and methods specified will not fulfill the intent, he shall notify the Architect in writing. In the absence of such notification, it shall be assumed that he will accomplish the result intended at no additional expense to the Owner.

END OF SECTION 04200