- Mean daily air temperature of 40 degrees F to 32 degrees F. Protect maneury from rain and snow for 24 botts by covering with a weather-resistive membrane.
 Mean daily air temperature of 23 degrees F to 26 degrees F Cover manoury with a weather-compared to the control of the control of 25 degrees F to 20 degrees F: Cover manoury with insulating States for 24 botters.
- 1. When ambient temperature exceeds 90 degrees F and wind exceeds 8 miles per hour:
- Maintain temperature of mortar and grout between 70 degrees F and 120 degrees F.

 Limit the spread of the mortar bed to 4 feet and place units within 1 minute of
- c. Control mostate evaporation in partialty or newly completed walls by fog spraying with potable water, covering with opaque plastic or convas or both.
- I. Protection of Work in Progress:
- a. Cover tops of walls with a strong waterproof membrane at the end of each day or work
- Extend the waterproof membrane cover a minimum of 24 inches down the side of each wall. Hold cover securely in place.
- 2. Load Application:
- Do not apply uniform floor or mof toading for at least 12 hours after completing columns
- Do not apply concentrated loads for at least 3 days after completing columns and walls.
- 3. Staining:
- Prevent groat and mortar from staining the face of masonry.

 Remove groat and mortar float comes in contact with masonry units immodiately: c.
 tects talls, ledges, and projections from mortar droppings.

 Protect base of wall from rain-splashed mud and mortar splatter.

 Thus neaffold deemed on edge when work is not in progress to lessen splattering.
- 3.4 CLEANING
- A. Cut out defective mortar joints and holes in exposed masonry and re-point with mortan B.
- ean a sample wall area. Do not proceed with cleaning without Architect's approval.

 Clean brick in accordance with BIA Technical Note Number 20 and the proprietary cleaning product
- END OF SECTION 042113

SECTION 047000 MANUFACTURED MASONRY

- 1.01 SUMMARY
 - A Section Includes: Manufactured brick veneer Manufactured stone trim and annifocation materials

 - Division 05, or 06 Section specifying water resistive barrier over framed walts
 Division 07 Section specifying flashing materials.
 Division 09 Section specifying Portland cement plastering.
- 1.02 REFERENCES
- A. American Concrete Institute (ACI).
- B. American Society for Testing and Materials (ASTM);
 1. ASTM ⊂ 39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - ASTM C 67, Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
 - ASTM C 177, Standard Test Method for Steady-State Heat Flor Measurements and Thermal Transmission/Properties by Means of the Ottanked Hot Plate Apparatus.
 ASTM C 192, Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory.
- ASTM C 270, Standard Specification for Morter for Unit Masonry
- ASTM C 482, Standard Test Method for Bond Strength of Ceramio Tile to Portland Cement.
 ASTM D 226, Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and
- Waterprottling.

 8. ASTME 2556/E 2556M Standard Specification for Vapor Permeable Flexible Sheet Water Resistive Barriers Intended for Mechanical Attachment.
- C Building Materials Evolution Commission
- D. International Code Council (ICC):
 1. BS Report.
 UBC Standard No. 14-1, Kraft Waterproof Building Paper.
- E. LEED: US Green Building Council's Leadership in Energy and Environmental Design Green Building Rating System. 24
- E. Masonry Standards Joint Committee (MSJC) of The Masonry Society G. Texas
- ent of Insurance Product Evaluation.

 H. Underwriters Laboratories (UL):

 1. Classification File Number
- 2. UL 723, Standard for Safety for Surface Burning Characteristics of Building Materials. I.
- - croncations:
 Carrent ICC-ES Report.
 UL: Classification File Number
 Building Materials Evaluation Contraission.
 HUD: Material Release Number
 Texas Department of Insurance Product Evaluation.

 - Reference Section 01 45 00 Quality Control.
 Minimum Size: [4 by 4 feet (1200 by 1200 mm)]

- 3. Approved field samples may remain as part of completed Work
- 1.05 DELIVERY STORAGE, AND HANDLING

1.06 PROJECT/SITE CONDITIONS

- A. Reference Section 01-66-00-Product Storage and Handling Requirements.

- Pollow manufacturer's instructions.
 Store moisture-sensitive materials in weather protected enclosures.
- A. Environmental Requirements: Maintain materials and ambient temperature in area of installation at minimum 40 degrees F (4 degrees C) prior to, during, and for 48 hours following installation.
- 1.07 WARRANTY
- 1.08 MAINTENANCE
- A. Extra Materials: Furnish extra manufactured stone material in a variety of shapes and sizes in quantity equal to three percent of the installed stone. PART 2-PRODUCTS
- 2.01 MANUFACTURER
- A. BORAL, CULTURED STONE
- B. Substitutions: SubstitutionS will be
- 2.02 MANUFACTURED MASONRY MATERIALS REFERENCE ELEVATIONS AND/OR COLOR RENDERING FOR MANUFACTURED MASONRY TYPE, STYLE AND COLOR
- - A Manufactured Miscory Physical Properties.

 1. Compressive Strugglish ASTM C192 and ASTM C19, 1800 psi (12.4 MPa).

 2. Bond Bervers Stone Birk 1996 S Morate and Backings. ASTM C142, 50 psi (345 kPa).

 3. Thermal Resistance ASTM C177, R factor 0.355 per met. (25.4 mm) of the classes.

 4. Frozer Thermal Resistance ASTM C177, R factor 0.355 per met. (25.4 mm) of the classes.

 5. The C17 met. ASTM C67, 50 cycles, no distintegration and less than 3 percent weight loss.

 5. The C18 met. ASTM C67, 50 cycles, no distintegration and less than 3 percent weight loss.

 6. Maximotor Vener Unit Weight: 15 psf (23 kg/m²).
- 2.03 RELATED MATERIALS Water Resistive Barrier; (Kraft waterproof building paper, UBC Standard No. 14-1)
 [No. 15, Type I, asphalt saturated felt, ASTMD 226]; [Vapor permeable flexible sheet water resistive barriers comply with ASTME 2556/E 2556M]
 - B. Metal Lath: (2.5 to (1.4 kg/m²) galvanized expanded metal tath] [18 (1.3 mm) gauge woven wire mesh] [3.4 to (1.8 kg/m²) galvanized expanded rib lath].
- C. Fastines:

 1. Into World Study: Minimum 1/8 inch (25 mm) shaels distinct a glovalated stalls or minimum 3/4 such (19 mm) convers steplac of staffaciont loggle in precious 4 inch (25 mm) minimum into the stud 2 into Metal-Study Africano (716 met) (1.1 mm) hand carester, correspondence services a self-defining self-defini
- D. Mortan Premixed Type N, Type S or mortas mixed using components and proportions following manufactured masoury manufacturer's matulation instructions. Compty with ASTM C 270. 1. Mortan Color-from Coding Jagments.
- E. Weep screed as required for installation over framed construction

PART 3---EXECUTION

- A. Examine substrates upon which manufactured masonry will be installed. B.
- Coordinate with responsible entity to correct unsatisfactory conditions.

 C. Commencement of work by installer is acceptance of substrate conditions.
- 3.02 PREPARATION

- Protect finished work from rain during and for 48 hours following installation. E Protect finished work from damage during remainder of construction period.

SECTION 04810 - UNIT MASONRY ASSEMBLIES

- 1.1 SUMMARY
- This Section includes unit masonry assemblies consisting of the following:
 Concepts reasonry units:
- A. Product Data: For each masonry unit, accessory, and other manufactured product indicated.
- B. Samples: Showing the full range of colors and textures available for exposed masonry units and colored
- C. Material Test Reports: For each type of masonry unit, mortar, and grout required.
- 1.3 PROJECT CONDITIONS
- A. Cold-Weather Requirements: Do not build on frozen substrates. Remove and replace unit damaged by frost or by freezing conditions. Comply with cold-weather construction require ACI 530.1.
- B. Hot-Weather Requirements: When ambient temperature exceeds 100 deg F, or 90 deg F with a wind velocity greater than 8 mph, do not spread mortar beds more than 48 inches ahead of masonry. Set nasoonry units within one rimiteet of speeding mortar.

PART 2 - PRODUCTS

- 2.1 COLORS AND TEXTURES
- A. Exposed Masonry Units: As selected from manufacturer's full range
- 2.2 MASONRY UNITS

- A. Concrete Masonry Units: ASTM C 90.

 1. Unit Compressive Strength: 1996-psi ninimum, average net-area compressive strength.

 2. Weight Classification: Normal weight.

 3. Type: II. noamoisture-controlled units.

 4. Expected Faces of Decentaries Units: Normal-weight aggregate, split-face finish

 5. Special Shaper: Provide for limels, corners, jambs, sask, control joints, headers, bonding, and other
- 2.3 MORTAR AND GROUT MATERIALS
- A. Portland Cement: ASTM C 150, Type I, except Type III may be used for cold-weather construction.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Mortar Cement: ASTM C 1329.
 1. Products:
 - Blue Circle Cement; Magnolia Superbond Mortar Cement
 Lafarge Corporation; Lafarge Mortar Cement.
- D. Masonry Cement: ASTM C 91
- Pigmented Mortar: Colored cement or cement-lime formulation as required to produce the color indicated.
 Colored Masonry Cement:

 - 1) Blue Circle Cement; Magnolia Masonry Cement.
 - Essroc Materials, Inc.; Brixment-in-Color. Holnam, Inc.; Rainbow Mortamix Custom Color Masonry Cement.
- F. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch thick, use aggregate graded with
- G Aggregate for Grout: ASTM C 494.
- H. Water: Potable
- 2.4 REINFORCING
- A. Uncosted Steel Reinforcing Bars: ASTM A 615/A 615M; ASTM A 616/A 616M, including Suppler or ASTM A 617/A 617M, Grade 60.
- B. Masonry Joint Reinforcement: ASTM A 951; mill galvanized, carbon-steel wire for hot-dip galvanized, carbon-steel wire for exterior walls.

 1. Single-Wythe Masonry: Use either ladder or truss type with single papaced not more than 16 inches o.e.
 - Adjustable Anchors for Connecting to Steel Frame:
- stment but resist tension and compression Anchor Section: Crimped 1/4-inch diar

- ned to fit standard sash block and to maintain lateral s
- sphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15
- MASONRY CLEANERS
- Job-Mixed Detergent Solution: Solution of 1/2-cup dry measure tetrasodium polyphosphate and 1/2-cup dry measure laundry detergent dissolved in 1 gal. of water.
- 3.1 INSTALLATION, GENERAL
- A Cut masonry units with motor-driven saws. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- C. Comply with tolerances in ACI 530.1/ASCE 6/TMS 602 and the following: For conspirations vertical and horizontal lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/4 inch in 20 feet, nor 1/2 inch maximum.
- 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 Jess-than-half-size units, particularly at corners, jambs, and where possible, or other locations.
- Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, poets, and similar items, unless otherwise indicated.
- 3.3 MORTAR BEDDING AND JOINTING
- Lay hellow masonry units as follows:
 With full trocker coverage on horizontal and vertical face shells.
 Bed when in mortal in starting course on flootings and in all courses of piers, columns, and pilketers, and where adjacent to cells or cavities to be filled with great.
 For starting course on feolings where cells are not grouted, spread out full mortar bed, including areas under cells.
- Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than the joint thickness, unless otherwise indicated.
- 3.4 MASONRY JOINT REINFORCEMENT A. Provide continuous masonry joint reinforcement as indicated. Install with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
- $B. \qquad \text{Provide continuity at corners and wall intersections by using prefabricated ``L" and ``T" sections.}$
- 3.5 ANCHORING MASONRY
- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:

 1. Provide an open space not less than Unch in width between masonry and structural member, unless

Anchor masonry to structural members with flexible anchors embedded in masonry joints and attached to structure

- A. Provide masonry lintels where shown. Provide precast lintels made from concrete matching concrete masonry units in color, texture, and compressive strength and with reinforcing bars indicated or required
- to support loads indicated 3.7 FIELD QUALITY CONTROL
- A. Owner will engage a qualified independent testing agency to perform field quality-control testing indicated
- Design Transpage 1. Tests and Evaluations listed in these subparagraphs will be performed during 1. Testing Frequency: Tests and Evaluations listed in these subparagraphs will be performed during construction for each 5000 sq. ft. of wall area or portion thereof. Mortan Properties will be tested per ASTM C 780.

- 3. Grout: Sampled and tested for compressive strength per ASTM C 1019.
- 3.8 PARGING
- A. Parge predampened rossoury walls, where indicated, with Type S or Type N mortar applied in 2 uniform coats to a total thickness of 3/4 inch with a steel-trowel fluith. Form a wash at top of parging and a cove at bottom. Damp-cure paring for at itess! 45 hum.
- 3.9 CLEANING
- A. Clean unit masonry by dry brushing to remove mortar firs and smears before tooling joints, as work

END OF SECTION 04810

SECTION 05120 - STRUCTURAL STEEL

END OF SECTION 05120 SECTION 05210 - STEEL JOISTS

REFER TO STRUCTURAL PLANS END OF SECTION 05210

CTURAL PLANS D OF SECTION 05400

PART 1 - GENERAL

SECTION 05500 - METAL FABRICATIONS

- A. This Section includes the following: Steel fadders. Miscellaneous steel framing and supports. Pipe bollards.
- 1.2 SUBMITTALS A. Shop Drawings: Include plans, elevations, sections, details of installation, and attachments to other Work.

B. Templates: For anchor bolts.

- PART 2 PRODUCTS 2.1 METALS
- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces without blemishes.
- Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- Steel Plates, Shappes, and Barr. ASTIM A 266, 36M.
 Straines-Steel Biss and Shaper. ASTIM A 276, 7pp. 304.
 Rotled-Steel Floor Plater. ASTIM A 786/A 78664, rotled from plate complying with ASTIM A 36/A 36M or ASTIM, A 283, A 283M. Grade C or D.
 Rotled-Staintess-Steel Floor Plater. ASTIM A 793.
 Steel Tubing: Cold-Storned steel tubing: complying with ASTIM A 500.
 Steel Player. ASTIM A 53, standard weight (Schedule 40), unless another weight is indicated or require the former blast facility.
- required by structural loads.

 7. Slotted Channel Franking. Cold-formed metal channels 1-5/8 by 1-5/8 mches with flange edges returned toward web and with 9/16-inclt- wide slotted hotes in webs at 2 inches o.c. Channels made from galvanized steel complying with ASTM A 653/A 653M, structural quality, Grade 33, with O90 conting, 0.079-ach. norminal thickness.

 8. Exmusions: ASTM B 221, alloy 6063-T6.
- 2.2 PAINT Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664 and compatible with finish paint systems indicasted.
- 2.3 FABRICATION Connections, General: Use connections that maintain structural value of joined pieces.
 Shear and pranch metals cleanly and accurately. Remove bars.
 Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. Obtain histon without undertur or overlap. Remove welding that immediately. Finish exposed welds smooth and blended.
 Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep
- Form exposed connections with bairline joints, flush and smooth, using concealed fasteners where
 possible. Locate joints where least conspicuous.
- Steel Ladders: Comply with ANSI A14.5, unless otherwise indicated.
 Siderails: Cominuous, 1/2-by-2-1/2-inch steel flat bars, with eased edges, spaced 18 inches apart.
 Bar Kungs: 3/4-inch dameter seed loss, spaced 12 inches oc.
- a. Fit rangs in contestine of side rails; plag-weld and grind smooth on outer rail faces. Support each ladder at top and botton and not more than 60 inches o.e. with welded or boiled steel branchets. Super brackets to support design foods specified in ANSI A14.3. Pathenate ladder safety cages to comply with ANSI A14.3. Assemble by welding or riveting. Galvanire extention faidness and after or cages. C. Miscellaneous Framing and Supports: Fabricate steel framing and supports that are not a part of st teel framework as necessary to complete the Work from structural steel of welded construction. Cut,
- seek intuit work as screen't place and the work that streams seek or tended controllation. Call, and up units to receive hardware, hangers, and similar ferms.

 1. Where indicated to be east into concrete or built into missory, eapip with integrally welded anchors at 24 inches a few seeks of the controllation of tender controllation from continuous steel shapes. Where wood nailees are attached to gardens with boths or lay serwes, drill holes at 24 inches or. Fabricate steel pipe columns for supporting wood frame construction with steel baseplates and top
 plates welded to pipe with fillet welds the same size as pipe wall thickness.

D. Pipe Bollards: Fabricate from Schedule 40 steel pipe. PART 3 - EXECUTION

- General: Provide archorage devices and fasteners for securing metal fabrications to in-place construction.

 Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, with deges and surface level, plumb, and true.

 1. Provide temporary bracing or anchose in formwork for items that are to be bailt into concrete, masterny, or similar construction

 2. Fit exposed connections accurately together. Weld connections, unless otherwise indicated. Do not weld, cut, or a belong deplarational surfaces.
- Set bearing and leveling places on cleaned surfaces using wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor botts and pack with nonshrink, nonmetallic grout.







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