## ITEM 568.01 11 - CANOPY BASE

## DESCRIPTION

This work shall consist of furnishing and installing the canopy base, consisting of cedar planking with wire mesh and stainless steel trim, stainless steel custom wall panels and coping, granite stone veneer, cut granite stone cladding, cold-formed metal framing, fasteners, anchorage, and other accessories to provide a complete installation as shown on the contract plans and in accordance with these specifications.

## MATERIALS

A. MATERIAL REQUIREMENTS:

1. Cedar Planking:

    a. Species: Northern White Cedar.

    b. Grade: A Select – Clear, no knots or other visible defects, straight and even grained.

    c. Moisture Content: 15% maximum for 38mm (2 inch) nominal decking – 19% maximum for 64mm and 89mm (3 and 4 inch) nominal decking according to AITC 112.

    d. Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

    e. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:

        AITC – American Institute of Timber Construction
        NELMA – Northeastern Lumber Manufacturers Association
        NLGA – National Lumber Grades Authority (Canada).

    f. Grade Stamps: Provide wood decking with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, species, grade, moisture content at time of surfacing, and mill. Apply grade stamp to surfaces that will not be exposed to view.

2. Welded Wire Mesh:
    - Galvanized wire mesh 1.270mm (18 gauge) with 6mm (¼") openings unless otherwise indicated on Contract Drawings to prevent debris and trash from falling through wood decking.

3. Stainless Steel Trim Angles:
   - Dimensions and thickness as indicated on Contract Drawings.
   - Finish – dull matte, non-reflective, non-directional.
   - Stainless steel shall meet the requirements of ASTM A 666, Type 316.

4. Fasteners: Bolts, nuts, washers, screws and other suitable fasteners designed to withstand design loads.
   - Use stainless steel fasteners of size as required by manufacturer.

5. Galvanized steel furrings shims.

6. Stainless Steel Sheet for Custom Panels and Coping: ASTM A666, Type 316, dead soft, fully annealed.
   - 20 gage, stainless steel sheet, smooth surface.
   - Finish – dull matte, non-reflective, non-directional. (To match Manufactured Metal Cladding – See Item 11656.9004 M.)

7. Joint sealants, backings, compressible fillers, and other related materials shall be compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

   a. Sealant for use at metal-to-metal locations. One part cold-applied, non-sagging silicone sealant: Dow Corning 795 Silicone Building Sealant or approved equal.

   b. Sealant for use at locations between metal and masonry. One-part low-medium modulus silicone sealant (plus or minus 50% movement); ASTM C920 classifications type S, grade NS, Class 25, uses NT, M, G, and A: General Electric Silpruf, Dow Corning's 791, Pecora's 864, Sonneborn's Omniseal, or Tremco Spectrem 2, or approved equal.

   c. Silicones shall meet the following requirements:
      - ASTM C719 - Low-Medium Modulus (+ or - 50%). Sealants shall not exhibit any cracking or surface degradation after 5,000 hours exposure in the Atlas Twin Arc Weatherometer.
      - ASTM C661 - Shall not incur a durometer increase greater than 10 points.
      - Sealants shall contain zero parts of toxic isocyanurate ingredients.

   d. Colors of Exposed Joint Sealants: As selected by Engineer from manufacturer's full range for this characteristic.

e. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
   - Type C: Closed-cell material with a surface skin.

f. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 32 deg C (minus 26 deg F). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

g. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

h. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

8. Granite Masonry: The provisions of Section 560-2, Materials, shall apply with the following additions and modifications:

   a. Stone masonry shall be from a Department approved source or approved stockpile, and of the type and color indicated on the plans. Obtain each variety of stone from a single quarry. Stone shall be Granite Building Stone Standard ASTM C615-03.
      - Grade: Stone faces shall have no spalls or excessive pitting and shall be free of cracks, seams, and starts that may impair structural integrity or function.
      - Finish: Stone to have finish as indicated on contract plans.
      - The stones shall be cut to profiles indicated on Contract Documents.
      - Thickness: Cut stone cladding to be 3” thick unless otherwise shown on contract plans or as otherwise necessary to meet specified performance requirements.

   b. Mortar mix shall comply with Standard Specification Section 705-21 except as noted below:
      - Setting and Pointing Mortar: (Type “N”) 1 part cement, ½ part lime, 4-1/2 parts dry sand.
      - Measure mortar ingredients by volume or equivalent weight. In measuring by volume, use a container to measure ingredients. Do not measure by shovel.
      - Mix ingredients in a clean mechanical mixer, with the minimum amount of

water to produce a workable consistency.

c. Anchors and Dowels:
- Provide all anchors, dowels and accessories shown on the Drawings and as required for securing stone, as manufactured by Hohmann Barnard; stainless steel ASTM A167, 18-8, Series 300, or approved equal.
- Dovetail anchors shall be as specified in 560-2.02 and spaced as indicated on drawings.
- Clip Angles – ASTM A 36 M.

d. Setting Buttons/Pads:
- Stainless steel.

e. Stone Cleaner:
- Non-staining cleaning solution that will not harm stone and mortar.

f. Weep Holes:
- Rigid plastic tubing having inner diameter of 6mm (¼") shall be used as weep holes for exterior stonework.

9. Cold-Formed Metal Framing

a. Material: Galvanized Steel Sheet: ASTM A 446, zinc coated according to ASTM A 653, and as follows:
- Coating Designation: G 90 (Z 275).
- Grade: Grade C, 275 MPa (40,000) psi minimum yield strength, 16 percent elongation.

b. Steel Studs: Manufacturer's standard C-shaped stud of web depths indicated, with lipped flanges, and complying with the following:
- Design Uncoated Steel Thickness: 1.90mm (0.0747 inch).
- Flange Width: As indicated on Contract Drawing or as needed to meet specified performance requirements.
- Web: Unpunched.

c. Steel Track: Manufacturer's standard U-shaped track, unpunched, of web depths indicated, with straight flanges, and complying with the following:
- Design Uncoated Steel Thickness: Matching steel studs.
- Flange Width: Manufacturers standard deep flange where indicated, standard flange elsewhere.

d. Steel Joists: Manufacturer's standard C-shaped joist of web depths indicated, with lipped flanges, and complying with the following:
   - Design Uncoated Steel Thickness: 2.66mm (0.1046 inch).
   - Flange Width: As indicated on Contract Drawing or as needed to meet specified performance requirements.

e. Framing Accessories:
   - Fabricate steel framing accessories of the same material and finish used for framing members, with a minimum yield strength of 230 MPa (33,000 psi).
   - Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
     - Supplementary framing.
     - Bracing, bridging, and solid blocking.
     - Web stiffeners.
     - Gusset plates.
     - Deflection track and vertical slide clips.
     - Stud kickers and girts.
     - Joist hangers and end closures.
     - Reinforcement plates.

f. Anchors, Clips, and Fasteners
   - Steel Shapes and Clips: ASTM A 36M, zinc coated by the hot-dip process according to ASTM A 123.
   - Cast-in-Place Anchor Bolts and Studs: ASTM A 307, Grade A and ASTM F 568, Property Class 4.6; carbon-steel hex-head bolts and studs; carbon-steel nuts; and flat, unhardened-steel washers. Zinc coated by the hot-dip process according to ASTM A 153.
   - Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times the design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
   - Powder-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times the design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.
   - Mechanical Fasteners: Corrosion-resistant coated, self-drilling, self-threading steel drill screws.
   - Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.
   - Welding Electrodes: Comply with AWS standards.

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10. Miscellaneous Materials

    a. Galvanizing Repair Paint: SSPC-Paint 20 or DOD-P-21035, with dry film containing a minimum of 94 percent zinc dust by weight.

    b. Cement Grout: Portland cement, ASTM C 150, Type I; and clean, natural sand, ASTM C 404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.

    c. Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with ASTM C 1107, with fluid consistency and a 30-minute working time.

## CONSTRUCTION DETAILS

A. SUBMITTALS:

1. Product Data: Include manufacturer's product specifications, standard details, certified product test results, and general recommendations, as applicable to materials and finishes for each component of the work.

2. Shop Drawings: Shop drawings shall be submitted to the Engineer for review and approval.

    a. Show layouts of decking, details of corner conditions, joints, supports, anchorages, trim, and attachment of wire mesh. Distinguish between shop- and field-assembled work.
    b. Show layouts of custom stainless steel panels and coping panels, details of corner conditions, joints, panel profiles, supports, anchorages, trim, flashings, closures, and special details.
    c. Show layout, dimensions and profiles of granite dimensional stone and cut granite stone cladding. Include details of jointing, supporting, anchoring, and bonding stone masonry veneer and stone cladding.
    d. Show layout, spacings, sizes, thickness, and types of cold-formed metal framing, fabrication, fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, open framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachments to other units of Work.
    e. For installed products indicated to comply with specified design loadings, include structural analysis data signed and sealed by a professional engineer, licensed in the State of New York.

3. Samples:

   a. Cedar Decking – 600mm (24-inch) long pieces of decking, showing the range of variation to be expected in appearance of wood decking.

   b. Wire Mesh – 300mm x 300mm (12 inch x 12 inch) sample of gauge, spacing and finish to be installed.

   c. Stainless Steel Trim Angle – 300mm (12 inch long) sample of thickness, dimensions and finish to be installed.

   d. Custom Panels and Coping:
      - Samples for Initial Selection: Color charts or chips showing the full range of finishes, textures, and patterns available for panels with factory-applied finishes.
      - Samples for Verification: Provide sample panels 300 mm (12 inches) long by actual panel width, in the profile, style, finish, and texture indicated. Include clips, caps, battens, fasteners, closures, and other exposed panel accessories.

   e. Dimensional Stone and Cut Stone – Sets for each color, grade, finish, and variety of stone required; not less than 300 mm square. Include two or more samples in each set showing the full range of variations in appearance characteristics expected in completed Work.

   f. Mortar – For each type and color of mortar.

   g. Sealant Samples for Verification – For each type and color of joint sealant required.

4. Qualification data: Certify in writing that the installer has no less than five (5) years experience; include a list of successfully completed projects similar in material, design, and extent to that indicated for this Project.

5. Mockups: Before proceeding with full installation, construct mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build the first section of each system as a mockup to comply with the following requirements, using exposed and concealed materials indicated for the completed Work. Mockup to be of same profile, configuration, material and finish to be used for actual installation.

   a. Cedar Planking: To include three full-length deck planks installed per actual site conditions.

b. Stainless Steel Panel, Coping Panel and Granite Stone Veneer: To include one full-size coping panel wall panel and adjacent granite veneer installed on the concrete backup wall showing interface between materials.

c. Cut Stone Cladding – To include one full-size stone cladding panel installed on the concrete backup.

d. Obtain Engineer's approval of mockups before proceeding with installation of remainder of work.

e. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

f. Approved mockup in an undisturbed condition at the time of Substantial Completion of the work may become part of the completed Work.

g. If mockup is not acceptable to become part of the completed Work, demolish and remove mockup from Project site.

6. Lumber Order: Prior to ordering lumber, the Contractor shall submit to the Engineer for approval, a detailed statement of his proposed order. No material shall be ordered until the statement is approved.

7. Preconditioning Procedure for Stone Veneer and Cut Stone: When installation is to take place in extreme temperatures (over 80º F or under 40º F) submit procedures for preconditioning materials.

a. Salt or other chemicals for lowering the freezing temperature of the mortar shall not be used.

8. Certificates, Test Reports and Research Reports for Cold-Formed Metal Framing

a. Mill certificates signed by manufacturers of cold-formed metal framing certifying that their products comply with requirements, including uncoated steel thickness, yield strength, tensile strength, total elongation, and galvanized-coating thickness.
   - In lieu of mill certificates, submit test reports from a qualified independent testing agency evidencing compliance with requirements.

b. Product test reports from a qualified independent testing agency evidencing compliance with requirements of the following based on comprehensive testing:
   - Expansion anchors.
   - Powder-actuated anchors.
   - Mechanical fasteners.

c. Research reports or evaluation reports acceptable to the Engineer that evidence cold-formed metal framing's compliance with building code in effect for Project.

B. PERFORMANCE REQUIREMENTS

1. Provide canopy base installation complying with performance requirements indicated and capable of withstanding structural movement, thermally induced movement, and exposure to weather without failure.

2. Cedar Planking, Stainless Steel Wall Panels and Coping Panels:

   a. Structural Performance: Provide installation capable of withstanding design wind loads indicated under in-service conditions with deflection no greater than 1/180 of the span based on testing manufacturer's standard units according to ASTM E330 by a qualified independent testing and inspecting agency.

   b. Wind Loads: Planking, wall panels and coping, including anchorage, shall be capable of withstanding minimum wind load design pressures of 1,676 Pa (35 psf) positive and 2,394 Pa (50 psf) negative.

   c. Thermal Movements: Provide stainless steel wall panel and coping system that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
      - Temperature Change (Range): 67 deg C change in ambient temperature; 100 deg C change in material surface temperature.

   d. Water Penetration: Provide stainless steel panels and coping assemblies with no water penetration as defined in the test method when tested according to ASTM E331 at a minimum differential pressure of 20 percent of inward acting, wind-load design pressure of not less than 300 Pa (6.24 lb/sq. ft.) and not more than 575 Pa (12.0 lb/sq. ft.).

3. Granite Stone Veneer and Cut Stone Cladding:

   a. Structural Performance: Provide stone veneer and cut stone cladding, including anchorage capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
      - Wind Loads: Determine loads based on the following minimum design wind pressure of Uniform pressure of 1,915 Pa (40 lbf/sf)

b. Thermal Movements: Provide stone veneer and cut stone cladding systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing displacement of stone, opening of joints, overstressing of components, failure of joint mortars, sealants and connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.
   - Temperature Change (Range): 67 deg C change in ambient temperature; 100 deg C change in material surface temperature.

4. Cold-Formed Metal Framing:

   a. AISI "Specifications": Calculate structural characteristics of cold-formed metal framing according to AISI's "Load Resistance Factor Design Specification for Cold-Formed Steel Structural Members" and the following:
      - Center for Cold-Formed Steel Structures (CCFSS) Technical Bulletin, Vol. 2, No. 1, February 1993 "AISI Specification Provisions for Screw Connections."

   b. Structural Performance: Engineer, fabricate, and erect cold-formed metal framing to withstand design loads within limits and under conditions required.
      - Design framing systems to withstand design loads without deflections greater than the following:
        - Load-Bearing Walls: Lateral deflection of 1/360 of wall height.
        - Load-Bearing Joists: Lateral deflection of 1/240 of span.
      - Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change / range of 120 deg F (67 deg C).
      - Design framing system to accommodate deflection of primary structure and construction tolerances.

   c. Design framing to accommodate lateral deflection without regard to contribution of sheathing materials.

5. Control of Corrosion and Staining: Prevent galvanic and other forms of corrosion as well as staining by isolating dissimilar metals and other materials from direct contact with incompatible materials. Use materials that are nonstaining to exposed surfaces of stone and joint materials.

6. Seismic Loads: systems, including anchorage, shall be capable of withstanding the effects of earthquake motions calculated according to requirements of ASCE 7-95,

Section 9 “Earthquake Loads." Except where NYC Building Code is more stringent it shall apply.

C. FABRICATION:

Components and assemblies shall be fabricated to the dimensions shown on the contract plans, and in compliance with these specifications.

1. Cedar Planking

   a. Provide planking meeting dimensions, grade, species as indicated on Contract Drawings and specifications.

   b. Provide planking of sufficient length to be field cut to continuous full-length planks as shown on Contract Drawings.

   c. Fabricate stainless steel trim angles to the profile or configuration indicated; and of the material, finish, and thickness indicated.

   d. Wire Mesh:
      - Fabricate to industry standards.
      - Remove burrs from exposed cut edges.

2. Stainless Steel Custom Panels and Coping:

   a. Fabricate panels to the profile or configuration indicated; and of the material, finish, and thickness indicated. Design joints between panels to form weather tight seals.

   b. Fabrication and welding to comply with NYSDOT Steel Construction Manual.

   c. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges. Ease exposed edges to a radius of approximately 1mm, unless otherwise indicated.

3. Cut Stone Cladding:

    a. Cut stone to the required dimensions and profiles, with surfaces finished to true planes.

    b. Cut or drill to form chases, openings, reveals, reglets, and similar spaces and features shown and as required for contiguous Work.

    c. Cut or drill holes and sinkages for anchors, supports, fasteners, and necessary lifting devices. If possible, do not locate holes, sinkages within 51mm (2") of exposed surfaces. Holes must be sized to allow for expansion and contraction of anchors.

    d. Unless otherwise shown, cut stone for a uniform joint width of 6mm (1/4") for mortar joints.

    e. Cut all external corners and interior angles of molded or projecting courses with solid returns. Unless otherwise approved or required by the design, return on external angles shall be not less than 203mm (8") and returns on interior angles shall be as required to provide solid returns of molded or projecting members.

    f. Stone shall be cut within the tolerances indicated in the "Specifications For Building Granite" by the National Building Granite Quarries Association, Inc.

4. Cold-Formed Metal Framing:

    a. Cold-formed metal framing may be shop or field fabricated for installation.

    b. For Shop Fabricated Framing Assemblies: Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or distortion.

    c. See INSTALLATION – Cold-formed Metal Framing for additional fabrication requirements.

5. Fabricate and finish components and accessories in the shop to greatest extent possible, by fabricator's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements. Fabricate anchorage devices as indicated on Contract Drawings capable of withstanding design loads.

D. INSTALLATION:

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1. Delivery, Storage and Handling:

    a. Cedar Planking:
    - Schedule delivery of wood planking to avoid extended on-site storage and to avoid delaying the Work.
    - Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Provide for air circulation within and around stacks and under temporary coverings.
    - Inspection of wood planking. Immediately prior to installation, the planking shall be inspected for damage. Significant warping or blemishes in the planking shall constitute sufficient cause for rejection.

    b. Inspection of stainless steel wall panels and coping: Immediately prior to installation, the metal panels shall be inspected for damage. Significant bend or dents in the panel shall constitute sufficient cause for rejection. Straightening of such bends or dents shall not be allowed.

    c. Inspection of Granite Stone Veneer and Granite Stone Cladding: Dimensional and cut stone will be inspected at the installation site for the following:
    - Damage during shipment
    - Conformance to the material requirements
    - Dimensional tolerances as mentioned under “Fabrication” above.
    - Verify that required built-in anchorage items are installed in designed locations.

    d. An additional inspection will be made prior to placement of the components and systems to determine any damage during storage.

2. Examine supporting substrates and abutting structural framing for defects and compliance with requirements, including installation tolerances and other conditions affecting the installation of this work. Do not proceed with installation until unsatisfactory conditions have been corrected.

3. Installation:

    a. All work in this Section shall be installed in accordance with approved shop drawings.

    b. Cedar Planking, Wire Mesh, and Stainless Steel Trim:
    - Anchor planking and other components of the Work securely in place, with provisions for thermal and structural movement to meet performance requirements.
    - Cut lumber to full continuous deck planks as indicated on contract plans.

- Predrill decking to accept stainless steel bolts. Space bolts as indicated on the drawings.
- Install wire mesh beneath decking using stainless steel fasteners as indicated on the Contract Drawings.
- Install stainless steel trim as indicated on contract plans.
- Installation Tolerances: Shim and align decking to meet profile/configuration indicated on contract plans.

c. Stainless Steel Custom Panels and Coping:
- Comply with fabricator's written instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the Work securely in place, with provisions for thermal and structural movement.
  - Field cutting panels by torch is not permitted.
  - Install panels with concealed fasteners.
- Accessories: Install components required for a complete panel assemblies including trim, copings, fasciae, corner units, clips, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
- Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of wall panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not otherwise indicated, types recommended by panel fabricator.
  - Thoroughly clean surfaces on which sealant is to be applied and prime surfaces as recommended by Manufacturer before applying sealant.
  - Flash and seal panels at lap ends and intersections with other materials with rubber, neoprene, or other closures to exclude weather.
- Installation Tolerances: Shim and align panel units within installed tolerance of 6 mm in 6 m on level, plumb, and location lines as indicated and within 3mm offset of adjoining faces and of alignment of matching profiles.

d. Granite Stone Cladding and Dimensional Stone Masonry Veneer:
- Install stone plumb and true to line in level courses, in pattern shown on contract plans. Set stone in full mortar setting bed and completely fill joints, accessory sinkages, and lifting holes with mortar, except keep expansion joints, control joints, and other required cavities free of mortar.
- Solidly build-in accessories, supports, and contiguous items of other trades unless otherwise shown or directed.
- Set stone with 6mm (1/4") wide joints and beds for mortar joints.
  - Tolerance: Maximum variation of + 6mm (¼") of specified width.
- After mortar has set "thumb-print" hard, rake out exposed joints ¾" deep. Brush face of joints clean.

- Weep Holes: Provide at 25mm (1") above grade on all vertical joints unless indicated otherwise on Contract Drawings.
- Anchorage: Anchor stone to concrete backup and stones to each other as indicated on the contract plans and the approved Shop Drawings and in accordance with Stone Institute or Association Reference recommendations. On the Shop Drawings, show all required anchorage types and locations based on the References.
- Pointing: For mortar joints, wet the raked joints and point full with pointing mortar. Cut joints flush and neatly tool surface of joints slightly concave. Finish joints that abut other masonry to match the joint finish of the adjacent masonry.

e. Cold-Formed Metal Framing:
- Grout bearing surfaces uniform and level to ensure full contact of bearing flanges or track webs on supporting concrete masonry construction.
- Fabricate and install cold-formed metal framing and accessories plumb, square, true to line, and with connections securely fastened, according to manufacturer's recommendations and the requirements of this Section.
  - Cut framing members by sawing or shearing; do not torch cut.
  - Fasten cold-formed metal framing members by welding or screw fastening, as standard with fabricator. Wire tying of framing members is not permitted.
  - Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
  - Locate mechanical fasteners and install according to cold-framed metal framing manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.
- Install framing members in one-piece lengths, unless splice connections are indicated for track or tension members.
- Provide temporary bracing and leave in place until framing is permanently stabilized.
- Do not bridge expansion and control joints with cold-formed metal framing.
- Fasten other materials to cold-formed metal framing by welding, bolting, or screw fastening, according to manufacturer's recommendations.
- Fasten reinforcement plate over web penetrations that exceed size of manufacturer's standard punched openings.
- Fabricatation and Erection Tolerances: Install cold-formed metal framing to a maximum allowable tolerance variation from plumb, level, and true to line of 1:960 (1/8 inch in 10 feet) and as follows:
  - Space individual framing members no more than plus or minus 3 mm (1/8 inch) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing

materials.

- Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 3 mm (1/8 inch).

E. REPAIR/REPLACEMENT AND CLEANING

1. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanizing repair paint according to ASTM A 780.

2. Replace planking, stone, metal panels, and other components of the Work that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

3. On completion of installation, clean finished surfaces as recommended by fabricator and maintain in a clean condition during construction.

   a. Clean the stone after completion of setting, pointing, and other Work liable to soil the stone.
      - Carefully remove excess mortar and other encrusted matter.
      - Scrub soiled surfaces of stone with mild detergent or stone cleaner and water. Use non-metallic tools.
      - Remove any remaining stains by rubbing with a carborundum stone and restore the specified surface finish.
      - Flush stone with clean water to remove any remaining residue of cleaning agent or dirt.

4. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer to ensure that work is maintained without damage or deterioration at the time of completion of the project.

**METHOD OF MEASUREMENT**

No measurement will be taken. The Work will be paid on a Lump Sum Basis.

**BASIS OF PAYMENT**

The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work, including the cost of any repairs required. No payment shall be made for materials that are replacements for materials that have been rejected.