SECTION 031000 - CONCRETE FORMING AND ACCESSORIES

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
   * + 1. RELATED DOCUMENTS
          1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
       2. SUMMARY
          1. Section Includes:

Form-facing material for cast-in-place concrete.

Form liners.

Insulating concrete forms.

Shoring, bracing, and anchoring.

* + - 1. DEFINITIONS
         1. Form-Facing Material: Temporary structure or mold for the support of concrete while the concrete is setting and gaining sufficient strength to be self-supporting.
         2. Formwork: The total system of support of freshly placed concrete, including the mold or sheathing that contacts the concrete, as well as supporting members, hardware, and necessary bracing.
      2. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" Paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at Project site.

Review the following:

Special inspection and testing and inspecting agency procedures for field quality control.

Construction, movement, contraction, and isolation joints

Forms and form-removal limitations.

Shoring and reshoring procedures.

Anchor rod and anchorage device installation tolerances.

* + - 1. SUBMITTALS
         1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Product Data: For each of the following:

Exposed surface form-facing material.

Concealed surface form-facing material.

Forms for cylindrical columns.

Pan-type forms.

Void forms.

Form liners.

Insulating concrete forms.

Form ties.

Waterstops.

Form-release agent.

* + - * 1. Sustainable Design Submittals:
        2. Shop Drawings: Prepared by, and signed and sealed by, a qualified professional engineer, registered in New York State, responsible for their preparation, detailing fabrication, assembly, and support of forms.

For exposed vertical concrete walls, indicate dimensions and form tie locations.

Indicate dimension and locations of construction and movement joints required to construct the structure in accordance with ACI 301.

Location of construction joints is subject to approval of the Director’s Representative.

Indicate location of waterstops.

Retain first subparagraph below for when form liners are applicable.

Indicate form liner layout and form line termination details.

Indicate proposed schedule and sequence of stripping of forms, shoring removal, and reshoring installation and removal.

Indicate layout of insulating concrete forms, dimensions, course heights, form types, and details.

* + - * 1. Samples:

For waterstops.

For Form Liners: 12-inch by 12-inch sample, indicating texture.

Coordinate "Qualification Data" Paragraph below with qualification requirements in "Quality Assurance" Article.

* + - * 1. Qualification Data: For testing and inspection agency.
        2. Research Reports: For insulating concrete forms indicating compliance with International Code Council Acceptance Criteria AC353.

Retain "Field quality-control reports" Paragraph below if Contractor is responsible for field quality-control inspections.

* + - * 1. Field quality-control reports.

Retain paragraph below if preinstallation conference is held.

* + - * 1. Minutes of preinstallation conference.
      1. QUALITY ASSURANCE

Retain "Testing and Inspection Agency Qualifications" Paragraph below if Contractor retains testing and inspection agency for field quality control. Retain option if field quality-control testing and inspection agency employed by Contractor must be approved by authorities having jurisdiction.

* + - * 1. Testing and Inspection Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.

Retain "Mockups" Paragraph below if required. If retaining, indicate location and other details of mockups on Drawings or by inserts. Revise paragraph if only one mockup is required or if mockup of concrete in another location in the building is required.

* + - * 1. Mockups: Formed surfaces to demonstrate typical joints, surface finish, texture, tolerances, and standard of workmanship.

Revise size of panel in first subparagraph below if required. Panel for slab-on-ground may need to be enlarged if powered riding trowels are used and if it is a portion of the permanent floor slab.

Build panel approximately 100 sq. ft. in the location indicated or, if not indicated, as directed by Director’s Representative.

Subject to compliance with requirements, approved mockups may become part of the completed Work.

* + - 1. DELIVERY, STORAGE, AND HANDLING
         1. Form Liners: Store form liners under cover to protect from sunlight.
         2. Insulating Concrete Forms: Store forms off ground and under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.
         3. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

1. PRODUCTS

Manufacturers and products listed in SpecAgent and MasterWorks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications.

* + - 1. PERFORMANCE REQUIREMENTS

"Concrete Formwork" Paragraph below applies to traditional formwork and insulating concrete forms. If insulating concrete forms are the only type of formwork required, change title of paragraph to "Insulating Concrete Forms."

* + - * 1. Concrete Formwork: Design, engineer, erect, shore, brace, and maintain formwork, shores, and reshores in accordance with ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.

Design wood panel forms in accordance with APA's "Concrete Forming Design/Construction Guide."

Design formwork to limit deflection of form-facing material to 1/240 of center-to-center spacing of supports.

* + - * 1. Design, engineer, erect, shore, brace, and maintain insulating concrete forms in accordance with ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.

Design cross ties to transfer the effects of the following loads to the cast-in-place concrete core:

Wind Loads: As indicated on Drawings.

Horizontal Deflection Limit: Not more than **[1/240] [1/360] [1/600] [1/720]** of the wall height.

* + - 1. FORM-FACING MATERIALS
         1. As-Cast Surface Form-Facing Material:

Provide continuous, true, and smooth concrete surfaces.

Furnish in largest practicable sizes to minimize number of joints.

Acceptable Materials: As required to comply with Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete, and as follows:

Retain one or both of first two subparagraphs below, or revise to suit Project. Coordinate products retained with required Surface Finish specified in Section 033000 "Cast-In-Place Concrete."

Plywood, metal, or other approved panel materials.

Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

Retain one of four subparagraphs below, or revise to suit Project. First subparagraph imparts glossy finish, second imparts matte finish, and third and fourth impart coarser-textured finish, depending on face-ply characteristics.

APA HDO (high-density overlay).

APA MDO (medium-density overlay); mill-release agent treated and edge sealed.

APA Structural 1 Plyform, B-B or better; mill oiled and edge sealed.

APA Plyform Class I, B-B or better; mill oiled and edge sealed.

* + - * 1. Concealed Surface Form-Facing Material: Lumber, plywood, metal, plastic, or another approved material.

Provide lumber dressed on at least two edges and one side for tight fit.

* + - * 1. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that produce surfaces [with gradual or abrupt irregularities] [without spiral or vertical seams] not exceeding specified formwork surface class.

Provide forms with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

* + - * 1. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation, with **[straight] [or] [tapered]** end forms.

Retain void forms, sometimes called "carton forms," in "Void Forms" Paragraph below if required for expansive soils or block outs.

* + - * 1. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.
        2. Form Liners:

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Architectural Polymers, Inc.

Fitzgerald Formliners.

Sika Corporation.

Spec Formliners, Inc.

Approved Equivalent.

Size: **<Insert dimensions>**.

Face Pattern: **[Smooth] [Ribbed] [Stone] [Brick] [Wood]**.

* + - 1. INSULATING CONCRETE FORMS
         1. Insulating Concrete Forms: Concrete-forming system complying with ASTM E2634, consisting of two panels of insulation connected with cross ties.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

Amvic Building System.

BuildBlock Building Systems, LLC.

Nudura Corporation.

Approved Equivalent.

Insulation: ASTM C578, Type II, expanded polystyrene.

Thickness: Not less than 2-1/2 inches each face.

Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

Flame Spread: 25 or less.

Smoke Developed Index: 450 or less.

Cross Ties: Polypropylene, with integral reinforcement supports, designed to allow passage of concrete during placement.

Core Thickness: [**4 inches**] [**6 inches**] [**8 inches**] [**10 inches**] [**12 inches**].

* + - 1. WATERSTOPS
         1. Flexible Rubber Waterstops: U.S. Army Corps of Engineers CRD-C 513,[ with factory-installed metal eyelets,] for embedding in concrete to prevent passage of fluids through joints, with factory fabricated corners, intersections, and directional changes.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

CETCO is a subsidiary of Minerals Technologies Inc.

[Sika Corporation](https://products-specpoint.mydeltek.com/products/company/e899d8e9-de37-4b5a-a670-5e7993114d8f?groupby=sectionNumber%2520false%252CproductType%2520false&sortby=sectionNumber%252CproductType%252Ctype%252ClastUpdated&df=%27Sika+Corporation%27%25%7C%25%27Sika+Corporation%27).

[Williams Products, Inc](http://www.specagent.com/Lookup?uid=123457149409).

Approved Equivalent.

Retain profile from options in "Profile" Subparagraph below. Insert others if required.

Profile: **[Flat dumbbell with center bulb] [Flat dumbbell without center bulb] [Ribbed with center bulb] [Ribbed without center bulb] [As indicated]**.

Dimensions: **[4 inches by 3/16 inch thick] [6 inches by 3/8 inch thick] [9 inches by 3/8 inch thick]**; nontapered.

* + - * 1. Chemically Resistant Flexible Waterstops: Thermoplastic elastomer rubber waterstops**[ with factory-installed metal eyelets]**, for embedding in concrete to prevent passage of fluids through joints; resistant to oils, solvents, and chemicals, with factory fabricate corners, intersections, and directional changes.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

JP Specialties, Inc.

Sika Corporation.

Approved Equivalent.

Retain profile from options in "Profile" Subparagraph below. Insert others if required.

Profile: **[Flat dumbbell with center bulb] [Flat dumbbell without center bulb] [Ribbed with center bulb] [Ribbed without center bulb] [As indicated]**.

Dimensions: **[4 inches by 3/16 inch thick] [6 inches by 3/16 inch thick] [6 inches by 3/8 inch thick] [9 inches by 3/16 inch thick] [9 inches by 3/8 inch thick]**; nontapered.

* + - * 1. Flexible PVC Waterstops: U.S. Army Corps of Engineers CRD-C 572,**[ with factory-installed metal eyelets,]** for embedding in concrete to prevent passage of fluids through joints, with factory fabricate corners, intersections, and directional changes.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

BoMetals, Inc.

Sika Corporation.

Vinylex Waterstop & Accessories.

Approved Equivalent.

Retain profile from options in "Profile" Subparagraph below. Insert others if required.

Profile: **[Flat dumbbell with center bulb] [Flat dumbbell without center bulb] [Ribbed with center bulb] [Ribbed without center bulb] [As indicated]**.

Dimensions: **[4 inches by 3/16 inch thick] [6 inches by 3/8 inch thick] [9 inches by 3/8 inch thick]**; nontapered.

* + - * 1. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

Carlisle Coatings & Waterproofing Inc.

Henry Company.

JP Specialties, Inc.

Sika Corporation.

Approved Equivalent.

* + - * 1. Self-Expanding Rubber Strip Waterstops: Manufactured rectangular or trapezoidal strip, bentonite-free hydrophilic polymer-modified chloroprene rubber, for adhesive bonding to concrete, 3/8 by 3/4 inch.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

Adeka Corporation.

Kryton International Inc.

Sika Corporation.

Approved Equivalent.

* + - 1. RELATED MATERIALS

Retain "Reglets" Paragraph below if reglets are not specified elsewhere. Coordinate product requirements with Section 076200 "Sheet Metal Flashing and Trim," Section 077100 "Roof Specialties," or in other Sections where reglets are supplied as auxiliary products with waterproofing or roofing membrane flashings.

* + - * 1. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
        2. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.
        3. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
        4. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
        5. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.

Formulate form-release agent with rust inhibitor for steel form-facing materials.

Form release agent for form liners shall be acceptable to form liner manufacturer.

* + - * 1. Form Ties: Factory-fabricated, removable or snap-off, glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

Revise three subparagraphs below to suit Project; delete if not required.

Furnish units that leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.

Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.

Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

1. EXECUTION
   * + 1. INSTALLATION OF FORMWORK
          1. Comply with ACI 301.
          2. Construct formwork, so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 and to comply with the Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete" for as-cast finishes **[and] [Section 033300 "Architectural Concrete"]**.
          3. Limit concrete surface irregularities as follows:

Retain applicable Surface Finish in three subparagraphs below. See the Evaluations. Coordinate with formed finishes specified in Section 003300 "Cast-In-Place Concrete."

Surface Finish-1.0: ACI 117 Class D, 1 inch.

Surface Finish-2.0: ACI 117 Class B, 1/4 inch.

Surface Finish-3.0: ACI 117 Class A, 1/8 inch.

* + - * 1. Construct forms tight enough to prevent loss of concrete mortar.

Minimize joints.

Exposed Concrete: Symmetrically align joints in forms.

* + - * 1. Construct removable forms for easy removal without hammering or prying against concrete surfaces.

Provide crush or wrecking plates where stripping may damage cast-concrete surfaces.

Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

Install keyways, reglets, recesses, and other accessories, for easy removal.

* + - * 1. Do not use rust-stained, steel, form-facing material.
        2. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces.

Provide and secure units to support screed strips

Use strike-off templates or compacting-type screeds.

* + - * 1. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible.

Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar.

Locate temporary openings in forms at inconspicuous locations.

Retain one of two options in first paragraph below. ACI 301 requires chamfers unless otherwise specified.

* + - * 1. **[Chamfer] [Do not chamfer]** exterior corners and edges of permanently exposed concrete.
        2. At construction joints, overlap forms onto previously placed concrete not less than 12 inches.
        3. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.

Determine sizes and locations from trades providing such items.

Obtain written approval of Director’s Representative prior to forming openings not indicated on Drawings.

* + - * 1. Construction and Movement Joints:

Construct joints true to line with faces perpendicular to surface plane of concrete.

Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Director’s Representative.

Place joints perpendicular to main reinforcement.

Locate joints for beams, slabs, joists, and girders in the middle third of spans.

Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.

Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.

Insert spacing of construction joints in subparagraph below if preferred.

Space vertical joints in walls **[as indicated on Drawings] <Insert spacing>**.

Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.

* + - * 1. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection.

Locate ports and openings in bottom of vertical forms, in inconspicuous location, to allow flushing water to drain.

Close temporary ports and openings with tight-fitting panels, flush with inside face of form, and neatly fitted, so joints will not be apparent in exposed concrete surfaces.

* + - * 1. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
        2. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
        3. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.
      1. INSTALLATION OF EMBEDDED ITEMS

Specify embedded items and anchorage devices for other work attached to or supported by cast-in-place concrete. Insert specific requirements for installing embedded items, if any, that are part of the Work.

* + - * 1. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete.

Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.

Retain applicable subparagraphs below, and insert others if required. Revise to suit Project.

Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

Install dovetail anchor slots in concrete structures, as indicated on Drawings.

Clean embedded items immediately prior to concrete placement.

* + - 1. INSTALLATION OF WATERSTOPS

Retain "Flexible Waterstops" or "Self-Expanding Strip Waterstops" Paragraph below, depending on type of waterstop required.

* + - * 1. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm.

Install in longest lengths practicable.

Locate waterstops in center of joint unless otherwise indicated on Drawings.

Allow clearance between waterstop and reinforcing steel of not less than 2 times the largest concrete aggregate size specified in Section 033000 "Cast-In-Place Concrete."

Secure waterstops in correct position at 12 inches on center.

Retain first subparagraph below only if factory fabricated corners, intersections, and directional changes are not specified in PART 2.

Field fabricate joints in accordance with manufacturer's instructions using heat welding.

Miter corners, intersections, and directional changes in waterstops.

Align center bulbs.

Clean waterstops immediately prior to placement of concrete.

Support and protect exposed waterstops during progress of the Work.

* + - * 1. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated on Drawings, according to manufacturer's written instructions, by adhesive bonding, mechanically fastening, and firmly pressing into place.

Install in longest lengths practicable.

Locate waterstops in center of joint unless otherwise indicated on Drawings.

Protect exposed waterstops during progress of the Work.

* + - 1. INSTALLATION OF INSULATING CONCRETE FORMS
         1. Comply with ACI 301 and manufacturer's instructions.
         2. Construct formwork, so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
         3. Install forms in running bond pattern.

Align joints.

Align furring strips.

* + - * 1. Construct forms tight to prevent loss of concrete mortar.
        2. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.

Determine sizes and locations from trades providing such items.

Obtain written approval of Director’s Representative prior to forming openings not indicated on Drawings.

* + - * 1. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection.

Locate ports and openings in bottom of vertical forms, in inconspicuous location, to allow flushing water to drain.

Close temporary ports and openings with tight fitting panels, flush with inside face of form, and neatly fitted, so joints will not be apparent in exposed concrete surfaces.

* + - * 1. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
        2. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
        3. Shore insulating concrete forms to ensure stability and to resist stressing imposed by construction loads.
      1. REMOVING AND REUSING FORMS

Revise removal time in first paragraph below if required. Period of 24 hours is halved to 12 hours in ACI 347R. Commentary in ACI 318 recognizes 12 hours for concrete, using regular portland cement, but advises that this period may be insufficient for concrete using Type II and Type V portland cements or ASTM C595 blended hydraulic cements, concrete with retarding admixtures, and concrete using ice during mixing.

* + - * 1. Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.

Retain option in first subparagraph below if adopting recommendation of ACI 347R. ACI 301 requires concrete to reach its specified compressive strength.

Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved[ at least 70 percent of] its 28-day design compressive strength.

Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

* + - * 1. Clean and repair surfaces of forms to be reused in the Work.

Split, frayed, delaminated, or otherwise damaged form-facing material are unacceptable for exposed surfaces.

Apply new form-release agent.

* + - * 1. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints.

Align and secure joints to avoid offsets.

Do not use patched forms for exposed concrete surfaces unless approved by Director’s Representative.

* + - 1. SHORING AND RESHORING INSTALLATION
         1. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.

Do not remove shoring or reshoring until measurement of slab tolerances is complete.

Revise first paragraph below if setting more detailed requirements, such as a minimum number of floors.

* + - * 1. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.
        2. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.
      1. FIELD QUALITY CONTROL
         1. Special Inspections: Director’s Representative will engage a special inspector and a qualified testing agency to perform tests and inspections in accordance with the requirements of BDC 406 Summary of Special Inspections and BDC 406.1 Statement of Special Inspections and as directed by the Code Compliance Manager.

END OF SECTION 031000