

ITEM 508 FALSEWORK AND FORMS

508.01 Description

508.02 Falsework

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508.04 Oiling Forms

508.05 Basis of Payment

508.01 Description. This work consist of designing and building of falsework and forms for the purpose of holding concrete in place until it has set up.

508.02 Falsework. Provide substantial and rigid falsework that does not unduly obstruct any waterway, highway, or railway. Arrange intermediate supports in the completed structure to produce the camber necessary to conform to the plan profile of the roadway.

Do not allow the maximum deflection in the longitudinal falsework members at the edges of the concrete deck to exceed 1/2 inch (13 mm) or the amount obtained by the following formula, whichever is greater.

$$d = \frac{S+100}{1000} \quad \left(d = \frac{S+2540}{1000} \right)$$

where:

d = the maximum deflection in inches (millimeters)

S = the distance between supports in inches (millimeters)

For transverse falsework members, and for longitudinal falsework members other than those near the edges of the deck, increase the permissible deflection obtained from the above formula by 75 percent.

To compensate for falsework deflection, build camber into the falsework. In addition to falsework deflection, build the following amounts of camber into the falsework to compensate for slab deflection after falsework is released:

- A. Equal to 1/800 of the span for continuous spans.
- B. Equal to 0.000018 S3 (0.016 S3) for simple spans, where S is the length of the slab span in feet (meters) for camber expressed in inches (millimeters).

Provide camber to conform to the profile grade.

If the falsework does not rest in rock, shale, or other firm foundation material, support falsework on piling driven to sufficient penetration to carry the superimposed loads according to Item 507, but not less than 16 tons (16 metric tons) per pile. Perform dynamic load testing to determine required blow count if piles are not driven to rock. Do not use expansion anchors to support falsework on piers or abutments. Use double hardwood wedges as necessary to facilitate vertical adjustment.

Remove and replace any part of the structure made unsatisfactory by incorrect camber, settlement or form deformation.

Construct falsework for arches so it may be released gradually.

Remove falsework only after the concrete conforms to 511.16 and before final acceptance of the structure. Cut off or pull falsework piling. Cut off piles to at least the slope line, riprap line, or stream bed.

Locate the lower contact point of overhang falsework within 8 inches (200 mm) of the top of the rolled beam or steel girders bottom flange.

Submit falsework plans for cast-in-place concrete slab superstructures according to 501.05.

If a thickened edge is shown on the plans, the Contractor may develop the edge by sloping the bottom of the slab for a minimum of 9 feet (2.7 m) from the edge, instead of the section shown.

Do not place spandrel walls, decks of arches, sidewalks and curbs, or any superimposed concrete to be completed after constructing the main supporting member or the deck until the falsework for the main supporting member has been removed or released.

For continuous concrete slab or beam superstructures, do not place concrete on a span until the falsework and forms are complete for the adjacent spans. Do not release or remove falsework from a span until the concrete in adjacent spans has been placed a sufficient length of time to meet all requirements for the removal of falsework as set forth in 511.16.

508.03 Forms. Place all concrete in proper forms. Do not use unprotected sides of the excavation, instead of forms, unless as specified in 503.04 for rock or hard shale excavation. For dry excavation specified in 503.03, the Contractor may use the sheeting as forms for footings.

Construct substantial, unyielding, and mortar tight forms, designed to produce a finished concrete conforming to the proper dimensions and contours. Make forms for exposed surfaces of approved material requiring a minimum number of joints or of dressed lumber of uniform thickness using form liner approved by the Engineer. Use forms and form liners to reduce the joints showing on the finished surface to a minimum. Arrange joints to coincide with rustication grooves shown on the plans. Properly brace or tie forms together using approved form ties that do not allow metal within 2 inches (50 mm) of an exposed surface of the finished structure after the forms are removed. For ties in the region of exposed surfaces, use an approved insert. Remove all forms and do not allow material, except reinforcing supports specified in 509.08, to remain in the concrete.

In forming Pier, Intermediate, or End Diaphragms for Prestressed or Post Tensioned Concrete members, do not place post installed anchors in these members. Properly brace diaphragm forms externally or use approved form tie inserts cast into these members.

For concrete decks separated by an open median or temporarily separated by a closure section, construct falsework and forms for each deck or section of deck independent of the adjacent structure or remaining superstructure.

Immediately before placing concrete, provide temporary openings at the base of column and wall forms and in the bottom of all narrow, deep members where necessary to facilitate cleaning or inspection.

508.04

Provide a 3/4-inch (20 mm) bevel on all exposed edges using a triangular strip built into the forms.

If rustication is used, fasten molding that is surfaced on all sides to the forms in such a manner that the molding remains in the concrete when the forms are removed. Do not remove this molding until the concrete has set sufficiently to prevent damage to the edges of the concrete.

If weep holes through abutments or retaining walls are shown on the plans, form weep holes to obtain a smooth circular opening between 3 and 4 inches (75 and 100 mm) and a straight gradient of 0.08 through the wall.

508.04 Oiling Forms. Before placing reinforcing steel, coat the inside of forms with non-staining mineral oil or other approved material.

508.05 Basis of Payment. The City will not separately pay for falsework and forms. The cost of this work is included for payment in the price bid for the item for which falsework and forms are used.

The City will not pay for removal and replacement of any part of the structure made unsatisfactory by settlement or form deformation.

The City will not pay for dynamic load testing required to determine blow count if piles are not driven to rock.