

SECTION 01 43 00 QUALITY ASSURANCE

PART 1 - GENERAL

1.1 MOCKUPS

OPTIONAL ARTICLE: Mock-ups are part of this section; however Section 01 43 39 Mock-Ups should be used when more stringent building envelope requirements are desired, especially for stucco and new buildings. In that case use the "Refer to" paragraph and delete the remainder of this article.

A. Refer to Section 01 43 39 Mock-Ups

OR

B. General mock-up requirements

1. Intent of mock-up is to ascertain element's designed fit into space provided and to provide Contractor with opportunity to coordinate Subcontractor Work.
2. Maintain quality control over Work of various Sections of Specifications, manufacturers, products, services, workmanship, and site conditions to produce mock-ups in accordance with the Contract Documents.
3. Mock-ups include, but are not necessarily limited to, the following:

Project Manager should specify in each technical section when the mock-ups are required from the Contractor.

- a. Portland Cement Concrete Paving.
- b. Concrete Work.
- c. OTHERS

C. Submittals: Complete required submittals prior to construction of mock-ups including but not limited to product data, samples and shop drawings as required.

D. Construction Schedule: Include mock-up activities including administrative and procedural submittals and materials ordering and assembly on Schedule per the requirements of 013200 Construction Progress Documentation. Identify every element required for each mock-up. Allow ample advance time for preparation and approval of mock-ups prior to placement of final orders for work without delay to progress or completion of the work.

E. Workmanship

1. Comply with standards specified. Provide qualified personnel to produce mock-up of specified quality.
2. Assemble and erect complete, with specified attachment and anchorage devices, flashings, seals and finishes. Secure mock-ups in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
3. Provide finish to match approved samples. When required in individual Specification Sections, install full-scale mock-up of assembly at Project site at location acceptable to the University's Representative.

F. Approval

1. Maintain approved mock-ups as standard for evaluating Work until Work is completed and removal is approved by the University's Representative.
2. Acceptable mock-ups shall not be retained in completed Work unless noted otherwise.
3. Remove unacceptable mock-ups. Mock-ups not incorporated into finished Work shall be removed from the site immediately as approved by the University's Representative.
4. Mock-ups shall be approved by the University's Representative in writing, as a condition precedent to approval of shop drawings for work represented by the mock-up.

1.2 TESTING AND INSPECTION

A. Definitions

1. The term "University's Testing Laboratory" means a testing laboratory retained and paid for by University for the purpose of reviewing material and product reports and performing other services as determined by the University.
2. The term "Contractor's Testing Laboratory" means a testing laboratory retained and paid for by Contractor to perform the testing services required by the Contract Documents. Contractor's Testing Laboratory shall be an organization other than University's Testing Laboratory and shall be acceptable to the University's Representative. It may be a commercial testing organization, the testing laboratory of a trade association, the certified laboratory of a supplier or manufacturer, Contractor's own forces, or other organization. Contractor's Testing Laboratory shall have performed testing of the type specified for at least 5 years.
3. The term "Geotechnical Engineer" means an engineer retained and paid for by the University for the purpose of performing inspection, testing, and observation functions specified by the University.

B. Contractor's Responsibilities Regarding University's Testing Laboratory

1. Secure and deliver to University's Testing Laboratory adequate quantities of representative samples of materials proposed for use as specified.
2. Submit to University's Testing Laboratory the preliminary design mixes proposed to be used for concrete and other materials that require review by University's Testing Laboratory.
3. Submit copies of product test reports as specified.
4. Furnish incidental equipment, labor and facilities:
  - a. To provide University's Testing Laboratory access to the Work to be tested.
  - b. To obtain and handle samples at the Project site or at the source of the product to be tested.
  - c. To facilitate inspections and tests.
  - d. For storage and curing of test samples.
5. Provide notice to University's Representative sufficiently in advance of operations to allow for University's Testing Laboratory assignment of personnel and scheduling of tests.
6. When tests or inspections are cancelled after such notice due to work not being ready for testing, Contractor shall reimburse University for University's Testing Laboratory personnel and travel expenses incurred.

C. Tests and Inspections

1. Tests, inspections, and acceptance of portions of the Work required by the Contract Documents or by Applicable Code Requirements shall be made at the appropriate times. Except as otherwise provided, Contractor shall make arrangements for such tests, inspections, and acceptances with Contractor's Testing Laboratory. Contractor shall give the University's Representative timely notice of when and where tests and inspections are to be made using the Inspection Request Exhibit.
2. If such procedures for testing, inspection, or acceptance reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the University's Representative's services and expenses.
3. If the University's Representative is to observe tests, inspections, or make acceptances required by the Contract Documents, University's Representative will do so promptly and, where practicable, at the normal place of testing.
4. Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.
5. Certain portions of the Work will be tested and inspected at various stages. Nothing in any prior acceptance or satisfactory test result shall govern, if at any subsequent time the Work, or portion thereof, is found not to conform to the requirements of the Contract Documents.
6. If testing and inspection is required by the University's Representative outside of a [50] mile radius from the project site, any additional costs above the University's Testing Laboratory

local standard rates shall be borne by the Contractor, including but not limited to per diem costs, travel time and premium time.

7. Inspection related to steel

a. For testing and inspection work related to steel, refer to Sections [00 00 00 Title], [00 00 00 Title] and [00 00 00 Title].

1) Allocated Time: Costs of welding and fabrication inspection up to a total of [ ] man days of inspection (at 8 hours per man day) on all hot rolled and cold formed steel framing, including miscellaneous metal assemblies, not differentiated between field and shop welding, will be borne by the University; and the cost of any such inspection required above this amount will be borne by Contractor.

b. The University may at its option recognize the steel fabricator as an "Approved Fabricator" per 2001 CBC Section 1701.7.

1) Submit the following for the approved fabricator:

a) Fabricator's quality control inspection reports of all weldments.

b) A certificate of compliance that the Work was performed in accordance with the approved drawings and Specifications.

D. Additional Testing and Inspection

1. If initial tests or inspections made by University's Testing Laboratory or Geotechnical Engineer reveal that any portion of the Work does not comply with the Contract Documents, or if the University's Representative determines that any portion of the Work requires additional testing or inspection, additional tests and inspections shall be made as directed.

a. If such additional tests or inspections establish that such portion of the Work complies with the Contract Documents, all costs of such additional tests or inspections shall be paid by the University.

b. If such additional tests or inspections establish that such portion of the Work fails to comply with the Contract Documents, all costs of such additional tests and inspections, and all other costs resulting from such failure, including compensation for the University's Representative and the University's consultants, shall be deducted from the Contract Sum.

E. Test Reports

1. University's Testing Laboratory and Contractor's Testing Laboratory shall submit [1 copy] [# copies] of all reports to University's Representative, indicating observations and results of tests and indicating compliance or non-compliance with the Contract Documents.

2. University's Representative will distribute 1 copy of the reports to the University, University's consultants, and Contractor.

3. The number of copies for the Contractor and supplier being tested will be determined upon commencement of the Contract.

F. Closing in Uninspected Work

1. Do not allow or cause Work to be covered or enclosed before it has been inspected and approved by the University's Representative. Should any Work be enclosed or covered before it has been approved, it shall be uncovered, inspected, approved or repaired, and covered. Make all repairs necessary to restore Work of others to the condition in which it was found at time of cutting, at no additional cost to the University.

G. Geotechnical Engineer

1. All excavation, filling, and compaction shall be subject to inspection, observation, and testing by Geotechnical Engineer. When required, University will retain and pay the expenses of a Geotechnical Engineer to perform inspection, testing, and observation functions specified by the University. The Geotechnical Engineer shall communicate only with the University's

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CONTRACT TITLE  
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CITY, CALIFORNIA

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Representative. The University's Representative shall then give notice to the Contractor of any action required of the Contractor.

---OR---

2. All excavation, filling, and compaction shall be subject to inspection, observation, and testing by Geotechnical Engineer. The University will retain and pay expenses of the Geotechnical Engineer to perform the inspection, testing, and observation functions described in this Section, except that the costs of any additional testing or inspection made necessary by inadequate compaction, replacement of unacceptable material or other Work not complying with the Contract Documents shall be borne by the Contractor and may be deducted from the Contract Sum. The Geotechnical Engineer shall communicate with the University's Representative who will relay any appropriate instructions to the Contractor.
3. Source Quality Control: Geotechnical Engineer will sample and test fill material from the source designated by the Contractor. Contractor shall pay for the Geotechnical Engineer's transportation expenses, if the source is more than 50 miles from the Project site.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 43 00