# General

**RoD SPEC NOTE:** Edit this Section to reflect only Mock-Up requirements on the Project. Trade Sections requiring Mock-ups should reference this Section. Delete unrelated mock-ups.

## Summary

* + 1. The Work of this Section includes, but is not limited to the following:
       1. Integrated exterior mock-ups
       2. Complex material mock-ups

## Definitions

* + 1. Integrated exterior mock-ups: Mock-ups of the exterior envelope assembled on-site as part of permanent construction, consisting of multiple products, assemblies, and subassemblies.
    2. Complex material mock-ups: Mock-ups of materials were their installation plays a major factor in the finish aesthetic of the space; Typically consisting of multiple products, assemblies, and subassemblies.

## Preinstallation meetings

* + 1. Preinstallation conference: Conduct conference at the Project site, to coincide with regular bi-weekly site meetings.
       1. Meet with Owner, Contractor, Consultant, testing and inspecting agency representative, and installers of major systems whose Work is included in integrated exterior and room mock-ups.
       2. Review coordination of equipment and furnishings provided by the Owner for mock-ups where necessary.
       3. Review locations and extent of mock-ups.
       4. Review testing procedures to be performed on mock-ups.
       5. Review and finalize schedule for mock-ups, and verify availability of materials, personnel, equipment, and facilities needed to complete mock-ups and testing and maintain schedule for the Work.

## Action and informational submittals

* + 1. Shop Drawings: For integrated exterior and complex material mock-ups.
       1. Include plans, elevations, sections, and mounting, attachment and support details.
       2. Indicate manufacturer and model number of individual components, subassemblies, and assemblies.
       3. Include site location drawing indicating orientation of mock-up.
       4. Revise and resubmit Shop Drawings to reflect approved modifications in details and component interfaces resulting from changes made during testing procedures.
    2. Delegated design submittal: For temporary structural supports for mock-ups not attached to building structure, including analysis data signed and sealed by the qualified Professional Engineer responsible for their preparation.
    3. Qualification data: For testing agency.
    4. Preconstruction test reports: For integrated exterior mock-ups.

## Quality assurance

* + 1. Testing agency qualifications: Qualified in accordance with ASTM E699 for testing indicated and acceptable to Owner and Consultant.
    2. Build mock-ups to do the following:
       1. Verify selections made under Sample submittals;
       2. Demonstrate aesthetic effects;
       3. Demonstrate the qualities of products and workmanship;
       4. Demonstrate acceptable coordination between components and systems;
       5. Perform preconstruction testing, such as window air-and-water leakage testing.
    3. Fabrication: Before fabricating or installing portions of the Work requiring mock-ups, build mock-ups for each form of construction and finish required. Use materials and installation methods as required for the Work.
       1. Build mock-ups of size indicated;
       2. Build mock-ups in location indicated or, if not indicated, as directed by Consultant;
       3. Employ supervisory personnel who will oversee mock-up construction. Employ workers who will be employed to perform same tasks during the construction at Project;
       4. Demonstrate the proposed range of aesthetic effects and workmanship;
       5. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed Work;
       6. Demolish and remove mock-ups when directed unless otherwise indicated.
    4. Notifications:
       1. Notify Consultant five (5) Working Days in advance of the dates and times when mock-ups will be constructed;
       2. Notify Consultant ten (10) Working Days in advance of the dates and times when mock-ups will be tested;
       3. Allow three (3) Working Days for initial review and each re-review of each mock-up.
    5. Approval: Obtain Consultant’s approval of mock-ups before starting fabrication or construction of corresponding Work.
       1. Unless otherwise indicated, approved mock-ups establish the standard by which the Work will be judged;
       2. Approval of mock-ups does not constitute approval of deviations from the Contract Documents contained in mock-ups unless Consultant specifically approves such deviations in writing;
       3. Subject to compliance with requirements, approved mock-ups may become part of the completed Work if undisturbed at time of Substantial Completion.

## Coordination

* + 1. Coordinate schedule for construction of mock-ups, so construction, testing, and review of mock-ups do not impact Project schedule.

# Products

**RoD SPEC NOTE:** Delete the following article if there is no requirement for exterior mock-ups.

## Performance requirements

* + 1. Mock-up testing performance requirements: Perform tests using design pressures and performance criteria indicated for assemblies and products that are specified in other Sections and incorporated into integrated exterior mock-ups.

## Integrated exterior mock-ups

* + 1. Construct integrated exterior mock-ups according to approved mock-up Shop Drawings.
    2. Construct mock-ups to demonstrate constructability, coordination of trades, and sequencing of Work; and to ensure materials, components, subassemblies, assemblies, and interfaces integrate into a system complying with indicated performance and aesthetic requirements.
    3. Build integrated exterior mock-ups using installers and construction methods that will be used in completed construction.
    4. Use specified products that have been approved by Consultant. Coordinate installation of materials and products specified in individual Specification Sections that include Work included in integrated exterior mock-ups.
    5. The Work of integrated exterior mock-ups includes, but is not limited to the following:

**RoD SPEC NOTE:** The following list is examples of exterior elements that this mock-up includes. Adjust the list below to reflect Project requirements.

* + - 1. [Air and weather barriers;]
      2. [Thermal insulation;]
      3. [Façade materials / system;]
      4. [Fenestration materials – windows, doors, glazing;]
      5. [Flashing and sheet metal trim;]
      6. [Joint sealants;]
    1. Provide and document modifications to construction details and interfaces between components and systems required to properly sequence the Work, or to pass performance testing requirements. Obtain Consultant’s approval for modifications.
    2. Retain approved mock-ups constructed in place. Incorporate fully into the Work.

## Complex material mock-ups

* + 1. Build mock-ups according to approved mock-up Shop Drawings to evaluate constructability, demonstrate the coordination of trades and sequencing of Work, and to demonstrate aesthetic requirements. Include each visible finish, component, and equipment item within mock-up.

# Execution

## Testing of integrated exterior mock-ups

* + 1. Integrated exterior mock-up testing agency: Engage a qualified testing agency to perform tests and inspections.
       1. Testing and inspecting agency will interpret tests and state in each report whether tested Work complies with or deviates from requirements.
    2. Integrated exterior mock-up testing services: Perform the following tests in the following order:

**RoD SPEC NOTE:** Edit the following list of exterior mock-up testing requirements to reflect Project requirements. Delete test that are not required.

**RoD SPEC NOTE:** **Provide Section 01 83 16** Exterior Enclosure Performance and Testing when testing below is required on the Project.

* + - 1. Water-spray test: Before installation of interior finishes has begun, test areas designated by Consultant in accordance with AAMA 501.2 for evidence of water penetration.
         1. Perform a minimum of three (3) tests in areas as directed by Consultant.
      2. Air leakage: The building envelope shall be designed and constructed to control air leakage into, or out of the conditioned space, for a targeted post-retrofit air leakage rate of 1.0 L/s/m2 at 75 Pa., as indicated in Section 01 83 16.
         1. Perform a minimum of 3 tests in areas as directed by Consultant.
      3. Water penetration: Test in accordance with ASTM E1105 at a minimum uniform and cyclic static-air-pressure differential of 0.67 times the static-air-pressure differential specified for laboratory testing in "Mock-up Testing Performance Requirements" Paragraph in "Performance Requirements" Article, but not less than 6.24 lbf/sq. ft. (300 Pa), and verify no evidence of water penetration.
    1. Manufacturer's field service: Engage a factory-authorized service representative to test and inspect components, assemblies, and installations, including connections, and also to observe testing for the following systems and assemblies:

**RoD SPEC NOTE:** Edit the following paragraphs to reflect assemblies which require manufacturers field service testing for conformance of their product against the specified performance requirements identified in the Section listed.

* + - 1. [Assembly description; As specified in Section XX XX XX.]
      2. [Assembly description; As specified in Section XX XX XX.]
      3. [Assembly description; As specified in Section XX XX XX.]
    1. Integrated exterior mock-up will be considered defective if it does not pass tests and inspections.
    2. Prepare test and inspection reports.

End of section