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PART 1 - INTRODUCTION

TESTING LABORATORY SERVICES

1.1 PURPOSE

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section

0.1 SECTION INCLUDES


- A. Administrative and procedural requirements for quality control services.
 - 1. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, and governing authorities. They do not include Contract enforcement activities performed by the University or Architect.
 - 2. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.

0.2 RELATED SECTIONS

- A. Section 01 45 00 - Quality Control: General requirements for inspections and tests.
- B. Individual Product Specifications Sections: Specific requirements for inspections and tests.


0.3 RESPONSIBILITIES

- A. Testing Laboratory: University will engage and pay for the services of an independent agency to perform inspections and tests specified as the University' responsibility.
 - 1. Where the University have engaged a testing agency or other entity for testing and inspection of a part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the University, unless otherwise agreed in writing with the University.
- B. Retesting: The Contractor is responsible for the cost of retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.
 - 1. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility,

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where required tests were performed on original construction.


- C. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested.
- D. Coordination: The Contractor, the University, Inspector, and each agency engaged to perform inspections, testing and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition, the Contractor shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
 - 1. The Contractor is responsible for communicating to the Inspector the scheduling times for inspections, tests, taking samples and similar activities.
- E. Payment for Testing Laboratory Services:
 - 1. Unless otherwise specified, the University will pay for tests and inspections performed by Testing Laboratory, as specified in individual product Sections of the Specifications. Overtime costs due to scheduling for the convenience of the Contractor or to make up for Work behind schedule shall be deducted by Change Order from Contract Sum.
 - 2. When tests and inspections are required on an overtime basis, initial payment will be made by the University. All costs for overtime testing and inspections shall be paid for by the Contractor and deducted by Change Order from the Contract Sum.
 - 3. Contractor shall pay all costs for repeated observations, reinspection or retesting by Testing Laboratory due to non-conforming Work. Costs may include travel time and mileage reimbursement. Costs shall be deducted by Change Order from Contract Sum.
 - 4. Additional Tests, Inspections and Related Services: Contractor shall be charged costs for additional tests, inspections and related services, due to the following. Such costs shall be deducted by Change Order from Contract Sum.
 - a. Work is not ready to inspect when inspectors arrive.
 - b. Failure to properly schedule or notify testing and inspection agency or authorities having jurisdiction.
 - c. Changes in sources, lots or suppliers of products after original tests or inspections.
 - d. Changes in means methods, techniques, sequences and procedures of construction that necessitate additional testing, inspection and related services.
 - e. Changes in mix designs for concrete and mortar after review and acceptance of submitted mix design.
 - f. Multiple off-site fabrication sites.
 - g. Fabrication and installation errors.
 - h. Inefficient, sporadic, or poorly organized manufacturing that causes additional testing costs to be incurred.

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- F. Segregation in Billing of Overtime Services: Billings for overtime services shall have straight time and overtime costs segregated and shall have substantiation by detailed explanations justifying necessity of services on overtime basis.
- G. Obligation to Perform Work According to Contract Documents: Employment of Testing Laboratory shall in no way relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents and applicable Codes.
- H. Limits on Testing Laboratory's Authority:
 - 1. Testing Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Testing Laboratory may not approve or accept any portion of the Work.
 - 3. Testing Laboratory may not assume any duties of Contractor.
 - 4. Testing Laboratory shall have no authority to stop Work.
- I. Contractor's Responsibilities to Testing Laboratory: Contractor shall make the Work in all stages of progress available for personal and continuous observation by the Testing Laboratory.
 - 1. Testing Laboratory shall have free access to any and all parts of the Work at all times.
 - 2. Contractor shall provide the Testing Laboratory with reasonable facilities for Testing Laboratory to obtain such information as Testing Laboratory determines is necessary for Testing Laboratory to be kept fully informed of the progress and manner of performance of the Work and character of products, according to Testing Laboratory's duties and responsibilities.
 - 3. Observation and inspection of the Work by Testing Laboratory shall not relieve the Contractor from any obligation to fulfill the requirements of the Contract.
- J. Retesting: When materials tested fail to meet requirements herein specified, they shall be promptly corrected or removed and replaced and retested in a manner required by University's Representative. Costs involved in retesting shall be deducted by Change Order from Contract Sum.

0.4 TESTS AND INSPECTIONS

- A. Tests and Inspections, General: All construction work shall be subject to inspection by the University of the Architect and Architect's consultants. All such construction or work shall remain accessible and exposed for inspection purposes until approved by the testing agency, Code Official, Architect and Architect design consultants in charge of the work.
 - 1. The University will provide project personnel, including inspectors, to be available at the project site.

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2. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of the building code or of other ordinances of the jurisdiction, including plans and specifications. Inspections presuming to give authority to violate or cancel the provisions of code, or of plans and specifications shall not be valid.
 3. It shall be the duty of the contractor to cause the work to remain accessible and exposed for inspection purposes. Neither the Inspector nor the University or Architect shall be liable for the expense entailed in the removal or replacement of any material required to allow inspection.
- B. Inspection Requests: It shall be the duty of the Contractor doing the work to notify the Inspector that such work is ready for inspection. The University require that such work is ready for inspection. The University requires that every request for inspection be filed at least five working days before such inspection is desired. Such requests shall be in writing.
- C. Approval Required: Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the Inspector. The Inspector, upon notification, shall make the requested inspections and shall either indicate in writing that portion of the construction is satisfactory as completed, or shall notify the Contractor that same fails to comply with plans and specifications. Any portions of Work that do not comply shall be corrected by the Contractor, and such portion shall not be covered or concealed until authorized by the Inspector.
1. There shall be a final inspection and approval of all buildings and structures when completed and ready for occupancy and use.
- D. Owner Approval: Prior to Substantial Completion Contractor shall demonstrate compliance with the contract documents and Yale standards by demonstrating through commissioning that the work meets the requirements of the governing Facilities Operations unit including but not limited to, Engineering, Operations, ITS, Hospitality, Safety, Security and other Yale Services engaged in the project. Access for inspections shall be provided by the Contractor.
- E. Inspection Coordination: Contractor shall provide, on a weekly basis, an anticipated Inspection Requirements Schedule, coordinated with the three-week look ahead schedule, showing the anticipated inspection needs for the following three weeks to facilitate appropriate campus coordination and interface as well as mobilization of required inspection staffing. Inspection Coordination shall be part of the Quality Control Plan (QCP) and provided in QCP monthly reports.
- F. Required Inspections: Reinforcing steel, structural framework, or interior wall and/or ceiling support framing of any part of any building or structure shall not be covered or concealed without first obtaining the approval of the Inspector.
1. Minimum inspections are those deemed necessary per current building code and Authorities Having Jurisdiction. Such inspections could include but are not limited to:
 - a. Frame Inspection: To be made after all framing, fire blocking and bracing are in place and all pipes

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and vents are complete and the rough electrical, plumbing and heating wires, pipes and ducts are approved.

- b. Mechanical and Electrical Rough-In Inspection: To be made after all mechanical and electrical rough-in work is completed.
 - c. Lath or Gypsum Board Inspection: To be made after all lathing and gypsum board, interior and exterior, is in place, but before any plastering is applied or before gypsum board joints and fasteners are taped and finished.
 - d. Final Inspection: To be made when the building is completed and ready for occupancy.
 - e. Other Inspections: In addition to the inspections specified above, the inspector may make or require other inspections of any construction work to ascertain compliance with the provisions of the plans and specifications.
2. Re-inspections: A re-inspection fee may be assessed for each inspection or re-inspection when such portion of work for which inspection is called for but is not complete or when corrections called for are not made.
 3. The Contractor shall be responsible for reviewing all of the Contract Documents for any additional inspection requirements.

0.5 SUBMITTALS

- A. Reports: The University's independent testing agency shall submit a certified electronic report of each inspection, test or similar service, to the Architect, the University, the Contractor, and the Inspector.
- B. Report Data: Electronically distributed reports of each inspection test or similar service shall include, but not be limited to:

Date of issue

Project title and number

Name, address and telephone number of testing agency

Dates and locations of samples and tests or inspections

Names of individuals making the inspection or test

Designation of the Work and test method

Identification of product and Specification Section

Complete inspection or test data

Test results and an interpretation of test results

Ambient conditions at the time of sample-taking and testing


Comments or professional opinion as to whether inspected or tested

Work complies with Contract Document requirements

Name and signature of laboratory inspector

Recommendations on retesting.


0.6 SCHEDULES FOR TESTING

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- A. Testing and Inspection Schedule: After discussion with University's Representative and Testing Laboratory in advance of performance of testing and inspection services, Contractor shall determine dates and times necessary for Testing Laboratory to schedule performance of required tests and inspections and determine due dates for issuance of reports.
 - 1. Integrate Testing and Inspection Schedule with Construction Schedule requirements specified in the Contract general Conditions.
 - 2. Determine and indicate in the Testing and Inspection Schedule the necessary time for preparation and submission of reports of tests and inspections.
- B. Revising Testing and Inspection Schedule: When changes of the construction schedule are necessary during construction, coordinate all such changes of schedule with the testing laboratory as required.
- C. Adherence to Testing and Inspection Schedule: When the Testing Laboratory is ready to test according to the determined schedule but is prevented from testing or taking specimens due to incompleteness of the work, all extra costs for testing attributed to the delay may be back-charged to the Contractor and shall not be borne by the University.

0.7 CONTRACTOR'S RESPONSIBILITIES

- A. Contractor's Responsibilities for Inspections and Tests:
 - 1. Notify Project Inspector and Testing Laboratory five working days in advance of expected time for operations requiring inspection and testing services. Delays in scheduling the Testing Agency by the Contractor shall not constitute a delay in the schedule.
 - 2. Deliver to Testing Laboratory or designated location, adequate samples of materials proposed to be used which require advance testing, together with proposed mix designs.
 - 3. Cooperate with University's Representative, Testing Laboratory, Project Inspector, Architect, Architect's consultants, Special Inspector and other responsible design professionals. Provide access to Work areas and off-site fabrication and assembly locations, including during weekends and after normal work hours.
 - 4. Provide incidental labor and facilities to provide safe access to Work to be inspected and tested, to obtain and handle samples at the Work site or at source of products to be tested, and to store and cure test samples.
 - 5. Provide at least 15 days in advance of the first inspection or test of each type, a schedule of tests or inspections indicating types of tests or inspections and their scheduled dates.
 - 6. Provide five working days' notice to the University's Representative, Architect and as applicable, responsible design consultant, of each test and inspection.

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0.8 INSPECTIONS TESTS BY OTHERS

- A. Inspections by Others: Refer to Section 01 45 00 - Quality Control for requirements regarding observations and inspections by University's Representative, Architect and Project Inspector.
- B. Tests by Others: Refer to Section 01 45 00 - Quality Control and individual product Specifications Sections for requirements regarding tests and inspections by product manufacturers and others, including serving utilities.

PART 2 - GENERAL DESIGN REQUIREMENTS

- A. Not Applicable to this Section

PART 3 - MINIMUM PRODUCT REQUIREMENTS

3.1

- A. Repair and Protection: Upon completion of inspection, testing, sample-taking and similar services, the Contractor shall repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching."
 1. Protect construction exposed by or for quality control service activities and protect repaired construction.
 2. Repair and protection shall be the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

AI Analysis:

1. Quality Control Process

- **Discrepancy:** The document specifies a Quality Control (QC) process but lacks clarity on the methodologies for conducting inspections and testing, and does not party specify responsibilities well enough. The CM-10 outlines distinct roles and standard requirements for QC that are not fully represented.


2. Punch List and Final Inspections

- **Discrepancy:** While the new document describes the "Punchlist Inspection" and "Pre-Final Inspection," it does not align closely with the frequency and thoroughness outlined in the CM-10. Specifically, the process for notifying stakeholders and the timeline for addressing identified issues are under-defined.

3. As-Built Drawings

- **Discrepancy:** The document stipulates requirements for as-built drawings but lacks detailed instructions on how changes need to be documented in real-time, which is essential according to the CM-10. Furthermore, the methodologies for verification of accuracy before submission to the Owner are not strong.

4. Special Inspections Reporting

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- **Discrepancy:** The oversight and reporting of special inspections fall short of the requirements specified in the CM-10. The process for how discrepancies from inspections are recorded and rectified is inadequately detailed, which could lead to gaps in compliance.

5. Final Acceptance and Certificate of Occupancy

- **Discrepancy:** The new document mentions the final acceptance inspection, but it does not clearly articulate the requirements for issuing the Certificate of Occupancy as stipulated in the CM-10. The CM-10 emphasizes formal reporting and documentation to Governmental Authorities is essential, which seems less emphasized here.

6. Communication and Coordination

- **Discrepancy:** The document specifies some communication guidelines but does not provide a robust structure for documenting decisions made during meetings or how disputes should be managed, as outlined in the CM-10. The process for tracking changes and decisions needs strengthening.

7. Compliance With Applicable Laws

- **Discrepancy:** Procedures for compliance with applicable laws must be fluid and clearly outlined as per the contractual obligations in the CM-10. The document lacks certain details about how compliance with all Federal, State, and local regulations will be achieved and monitored throughout the project.

Conclusion

These discrepancies highlight potential risks related to oversight and compliance mechanisms that could impact project execution. It is advisable to revise the current document to ensure alignment with CM-10 contract requirements for Quality Control, inspection processes, and compliance-related documentation.