SECTION 01455
INSPECTION AND TESTING OF WORK

PART I - GENERAL

1.01 SECTION INCLUDES
A. Project Inspections and Procedures
B. Scheduling Inspectors – Notification requirements

1.02 RELATED SECTIONS
A. Section 01310 – COORDINATION
B. Section 01320 – CONTRACT SCHEDULES
C. Section 01350 – SPECIAL PROCEDURES
D. Section 01410 – REGULATORY REQUIREMENTS
E. Section 01450 – QUALITY CONTROL

1.03 DEFINITIONS
A. IOR: Inspector-of-Record
B. ACO: Area Compliance Officer for OSHPD
C. DSE: District Structural Engineer for OSHPD
D. FM: Fire Marshal (may include both OSHPD FM and State FM)
E. TL: Testing Laboratory

1.04 PROJECT INSPECTIONS AND TESTING PROCEDURES
A. Inspections: This Project (is) (is not) under the jurisdiction of the Office of Statewide Health Planning and Development. The following inspections will be requested on this project, as appropriate. Also see Part 3 for non-OSHPD inspection items or Part 3, Item 3.12 for OSHPD requirements.

1. Reinforcing Bar inspections prior to placement of concrete
2. Concrete placement inspection
3. Wall framing inspection
4. Wall close-in inspection
5. Gypsum board installation inspection
6. Mechanical rough-in inspection
7. Electrical rough-in inspection
8. Above ceiling fire and seismic bracing and support inspections
9. Fire-stop and Fire-caulk penetration inspection
10. Fireproofing inspection
11. Fire alarm, fire sprinkler testing and inspections
12. Fire Damper inspections
13. Seismic bracing and post-installed anchor bolt inspections for all mechanical, electrical, low voltage and specialty systems.
14. Final inspections

B. Procedures: University's Representative shall be the Contractor's contact for all inspection requests. Contractor shall fill out Inspection Request Form for all inspections.

1. Contractor shall properly plan and coordinate inspection requests. Schedule delays caused by Contractor's failure to plan and/or coordinate inspection requests will not be considered for adjustments to Contract Time or Contract Sum.

2. A complete set of OSHPD/SFM stamped and approved Contract Drawings and Contract Specifications, including applicable shop drawings and building permit shall be available on site for review by the Inspector-of-Record. The Contractor, Subcontractors and other responsible parties shall be present during inspection walk-throughs. All areas of project scope shall be ready and accessible for inspection. Contractor shall provide access equipment as applicable for the inspector's needs.

1.05 SCHEDULING INSPECTIONS – NOTIFICATION REQUIREMENTS

A. Advance Inspection Notification: University's Representative for this project requires the following advance notifications to schedule appropriate inspection agencies at the project site.

1. IOR Inspection Request Notification: Twenty-four (24) hours. Note: Inspection requests received by 2:00 PM will be scheduled for next day inspection. Inspection requests received after 2:00 PM will be scheduled for the following day; (example: Inspection request received at 2:01 PM on a Monday would be scheduled for inspection on Wednesday). Weekend and off-hours inspection requests will be scheduled on a case-by-case basis with a minimum of seventy-two (72) hour inspection request notification.

2. OSHPD Field Compliance Inspectors: Fourteen (14) calendar days.

3. Testing Laboratory Inspections: Twenty-four (24) hours.

   a. All testing laboratory and testing procedures must be scheduled by University's Representative. Inspections and/or testing directly scheduled by Contractor will not be accepted.
b. Contractor will bear all costs associated with unauthorized inspections and testing.

4. State Fire Marshal Inspection request Notification: Seventy-two (72) hours.

B. Methods of Inspection Notification:

1. All inspection notifications shall be in writing using inspection forms located at back of this Section. Incomplete forms will be returned as non-compliant and no inspection will be scheduled until all required inspection information is provided.

2. Faxed inspection requests will be accepted. University's Representative fax number is 916-734-1375 notification time begins from date stamp of University's fax machine. Faxed notification requests received after normal business hours and/or received on non-normal workdays, as defined in Specification Section 01310 – COORDINATION, paragraph 1.07.F.4.A will begin notification time starting at 7:00 AM the following normal business day.

3. Emailed inspection requests will be accepted. University's Representative email address is fdc.inspectors@ucdmc.ucdavis.edu. Notification time begins from the date and stamp of the email, provided it is sent during normal business hours. Emailed inspection requests sent after normal business hours and/or received on non-normal workdays, as defined in Specification Section 01310 – COORDINATION, paragraph 1.07.F.4.A will begin notification time starting at 7:00 AM the following normal business day.

C. Off-hours Inspection Requests: Contractor shall provide time windows for all off-hour or other than normal work hour inspections. University's Representative shall have final authority in setting times of off-hour inspections.

D. Re-inspections:

1. More than two (2) re-inspections: The cost of re-inspections of the same work, more than twice, shall be deducted from Contract Sum. IOR's hourly rates are $115.00 per hour during normal work hours and $150.00 per hour for all off-hour inspections. University will provide itemized invoice for Contractor's records.

2. Work unprepared for inspection: Re-inspections of the same work scheduled by Contractor, but not ready for inspection will be identified as a re-inspection.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

Note: Part 3 describes typical inspection requirements for each individual inspector's jurisdiction for non-OSHPD projects. Part 3 is provided as a reference source for Contractor's use and Scheduling, as applicable. Part 3 is not intended to be all-inclusive and Contractor shall verify actual inspection requirements needed for this project. See Item 3.12 for Testing, Inspection Observation for OSHPD.

3.01 FIRE DAMPERS (Title 24, Part 2, Chapter 43)

Note: Manufacturer's installation instructions shall be used for inspections and testing.

A. 1 Hour: IOR test 100%. State Fire Marshal tests 100% or as needed.
B. 2 Hour: IOR tests 100%. State Fire Marshal tests 100%.
C. Smoke: IOR tests 100%. State Fire Marshal tests 100%.

3.02 FIRE SPRINKLERS (Title 24, Part 2, Volume 1, Chapter 9; NFPA Bulletin 13)

A. Approved drawings shall be on job-site from start to completion of project.
B. Underground pressure test @ 200 psi.
C. State Fire Marshal to witness installation of underground lines.
D. State Fire Marshal to witness underground flush prior to connection.
E. Hydro-test above ground piping @ 200 psi for two (2) hours.
F. Inspection of hangers, bracing, and seismic joint crossing(s).
G. Flow alarm test, tamper switch test.
H. Fire pump test.
I. Certification by installer (Title 24, Part 9, Article 1006.3.4.2).
J. Final inspection: signs in place, labeling, fire extinguishing system flow alarm test.

3.03 FIRE ALARM SYSTEM (Title 24; Part 9, Article 1006)

Note: Fire Sprinkler and Fire Alarm systems tests shall be performed in presence of State Fire Marshal.

A. Approved drawings shall be on job-site from start to completion of project.
B. Verify Emergency Power source.
C. Activate all initiating devices.
D. Certification by installer (Title 24, Part 9, Article 1006.3.4.2).
E. Complete test of system per Title 24, Part 9, CFC, Article 1003.3.4.1).

3.04 MEANS OF EGRESS (Title 24, Part 2, Volume 1, Chapters 10)

A. Exit sign/light locations and connected to two (2) sources of power.
B. Normal Power.
D. Construction - floors, walls, ceilings, penetrations per listings.
E. Electrical boxes - no back to back, 24 inches horizontal separation (Section 709).
F. Electrical boxes - 100+ square inches to be wrapped/protected.
3.05 FIRE WALL/FLOOR/CEILING PENETRATION ASSEMBLIES (Title 24, Part 2, Volume 1, 700 and 710)

A. Fire-stopped per Title 24, Part 2, Volume 1, Section 708.
B. Listed by an Approved Agency.
C. Fireproofing (Section 704.6, Testing UBCC Standard 7.6).

3.06 EMERGENCY LIGHTING

A. Generator Test (Title 24, Part 3, Section 700-4; Section 701-5).
B. Emergency lights - locations (Title 24, Part 2, Volume 1, Chapter 10, Section 1003.2.8.5).

3.07 KITCHEN HOOD FIRE SUPPRESSION SYSTEM (Title 24, Part 9, Article 10, Section 1005; Part 9, Section 10.513)

A. Approved drawings shall be on job-site from start to completion of project.
B. State Fire Marshal to witness system test.

3.08 MECHANICAL CHECKLIST FOR CLOSE-OUT (Title 24, Part 4)

A. Mechanical Equipment Requirements
   1. Access to Equipment (Section 305, 405, 606.5, 815, 2.2.8, 903, 910.8, 1106.3).
   2. Labeling of Equipment (Section 307).
   3. Identification of Equipment - Area or Space Served (Section 304.5).

B. Mechanical Testing
   1. Air balance completed and reviewed by Mechanical Engineer-of-Record.
   2. Hospitals (Chapter 3, Section 314.1, Table 2110-A).
   3. Skilled Nursing (Chapter 3, Section 314.2) [test to include humidity controls in required areas - Section 2102(a)].
   4. Hydronic balance completed and reviewed by Mechanical Engineer-of-Record.
   5. Air and Hydronic reports forwarded to Mechanical Engineer of Record.
   6. Fuel Gas line inspection (Part 4, Section 1406 and Appendix B, Chapter 16).
   7. Atrium and/or Building Smoke Evacuation System (State Fire Marshal to witness).

C. Boilers
   1. Boiler – Operating Adjustments and Instructions (Section 1022).
2. Boiler – Inspections and Tests (Section 1023).
3. Boiler – Clearances/Permits (Section 1005.0).

D. Ducts
1. Installation - Bracing (Part 4, Section 604.1.4)
2. Fire Damper test log from IOR (Part 4, Section 606.2).
3. Fire Damper test by State Fire Marshal (Part 4, Chapter 6, Section 606.2).
4. Smoke Damper and Detector test log from IOR (Including Duct Detector tests).
5. Smoke Damper and Detector by State Fire Marshal.

E. HVAC Unit Testing
1. Verify correct filter types and efficiencies.
2. Motor Rotation.
3. Condensate drain tests (Section 310).
4. Equipment shut down by smoke detectors (duct or space).

3.09 PLUMBING CHECKLIST FOR CLOSE-OUT (Title 24; Part 2, Chapter 29; Part 5)

A. Piping Systems (Title 24, Part 5)
1. Domestic Water Line Sterilization Test (Title 24, Part 2, Section 609.9; Title 22, Division 4, Chapter 16, Article 5).
2. Domestic Water System (hot, cold) Pressure test (Title 24, Part 5, 609.4).
3. Natural Gas Pressure Test (Title 24, part 5, Chapter 12, Section 1204).
4. Vent & Waste System Pressure test (Title 24, Part 5, 712.0).
5. Hydronic Water Pressure test (Title 24, Part 4 1201.2.8).

B. Water Heater Testing
1. Water Heater Temperature Test (Domestic/Patient) (105-120°F).
2. Water Heater Temperature Test (Kitchen) (180°F).

C. Medical Gas System Testing (NFPA 99, Chapter 4) (Witnessed by SFM).
1. Pressure test - 150 psig - Oxygen, Medical Air & Nitrous Oxide (4-3.4.1.2).
2. Pressure test - 200 psig - Nitrogen (4-5.1.3.4).
3. 24-hour pressure test - 60 psig - Vacuum system (4-10).
4. 24-hour pressure test - 20% over operating pressure [A-4.3.4.1.2 (b)(e)].
5. Alarm test for system [4-3.4.1.3 (d)].
6. Area Valves, location, labeled, alarms tested (4-4.1 & 4-5.1.4).
7. Laboratory testing affidavits - welding/brazing (4-6.2.3.3).
8. Verified Medical Air Quality - Installation and 24 hour later.
9. Certification of system (Purity, Cross Connection, Alarms, Etc.) [4.5].
10. Certification of Bulk System [NFPA 50 (Oxygen) & CGA G-8.1 (Nitrous Oxide)].
11. Approved drawings and documents for submittal to University's Representative for permanent records.

3.10 ELECTRICAL CHECKLIST FOR CLOSE-OUT (Title 24, Part 3, and Part 1, Chapter 7, Section 7-141, 7-149)

A. Main Panel/Service
   2. Grounding test and Certification (250, 250-56).
   3. Ground fault interrupt test adjustment and certification [230-95(c); 517-17(c)].
   4. Emergency power transfer switch test (700-4).
   5. Panel load balance.

B. Emergency Power and Standby Systems (Article 700 & 701) [Test Logs from IOR]
   1. Emergency Generator testing and certification (701-5).
   3. Lighting and Lighting Levels (517-22).
   5. Exiting signs and lights [517-32(b), 517-42(b)].
   6. Nurse and Staff Call [517-33(a)].
   7. Fire Alarm (760).

C. General Electrical Requirements
1. Working space/Headroom [Table 110-26(a); 110-33; 110-34].
2. Circuits and lights tested (410-45).
3. Receptacle polarity and grounding [200-10(b)].
4. Isolated ground monitor test [517-160(b)].
5. Motor load current adjustment.
7. Identify circuits (Critical Care Areas) (517-19).

D. Miscellaneous Electrical Requirements

1. Test logs from Contractor and Inspector-of-Record.
2. Electrical Engineer-of-Record acceptance of system.
3. Owner In-Service training on Equipment.
4. Equipment Manuals and Instruction to Owner.
5. Warrantees and Equipment Certification.
6. As-Built/Record Drawings to Owner.

3.11 FIRE MARSHAL INSPECTION REQUIREMENTS

A. Framing Inspections

1. Structural members in fire-resistive construction.
2. Check fireproofing per approved design tested assembly description.

B. Fire-Rated Partition Locations

1. Check for stud and nailing/screwing spacing per approved design tested assembly description.
2. Check for fire blocking in combustible construction.
3. Check for rated door/window frame installation (manufacturer’s installation instructions shall be available for review).
4. Check for electrical installation, for example; number and size of electrical boxes, panels, cabinets, etc.
5. Check hangers, seismic bracing for sprinkler piping installation, if applicable (this would be checked during overload pressure test inspection phase of sprinkler system).

C. Close-In Inspections
1. Check fire-blocking and draft stops in combustible construction.

2. Check gypsum board installation in accordance with approved design assembly description for rated assembly.

3. Check integrity of firewall construction where recessed cabinets, panels, excessive electrical/plumbing are installed.

4. Check fire damper installation (manufacturer's installation instructions shall be available for review). Fire Marshal will witness actuation of minimum 10% fire dampers installed and 100% in 2 hour or greater fire rated wall assemblies.

5. Check for through-penetrations and fire-stop systems in all walls or floor/ceiling assemblies.

D. Final Construction Inspections

1. Final project walk-through: Example, Emergency lighting will be tested to verify exit illumination of both interior and exterior, while generator (if applicable) is tested at same time.

3.12 OSHPD – Testing, Inspection and Observation (If applicable or NOT USED)

Note: This item describes the required code related inspection items for OSHPD projects. It will be completed by design professional prior to construction. This checklist is not intended to be all-inclusive and contractor should verify actual inspection requirements. See attached OSHPD TI&O form for required testing.

(Provide completed and approved TI&O form signed by architect/engineer of record and insert into the specifications.)

END OF SECTION 01455
# INSPECTION REQUEST

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<th>OSHPD #:</th>
<th>UCDHS IR #:</th>
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<tbody>
<tr>
<td>UC Davis Medical Center (UCDMC)</td>
<td>Facilities Design &amp; Construction – Inspection Trailer</td>
</tr>
<tr>
<td>4430 V Street, Building 35-A</td>
<td>4430 V Street, Building 35-A</td>
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<tr>
<td>Sacramento, CA 95817</td>
<td>Sacramento, CA 95817</td>
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<tr>
<td>P: 916-734-5060</td>
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<tr>
<td>F: 916-734-1375</td>
<td>Email: <a href="mailto:fdc.inspectors@ucdmc.ucdavis.edu">fdc.inspectors@ucdmc.ucdavis.edu</a></td>
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<tr>
<td>Email: <a href="mailto:fdc.inspectors@ucdmc.ucdavis.edu">fdc.inspectors@ucdmc.ucdavis.edu</a></td>
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<th>Location of Inspection (i.e., Floor, Column Line, etc.):</th>
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All work Requested for Inspection has been reviewed for compliance with the contract documents by Contractor’s Superintendent prior to notification of Inspection Request.

Signed: ___________________________ Date: ________________

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☐ Approved  ☐ Approved as Noted  ☐ Not Approved  ☐ Cancelled

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<tr>
<th>Inspection Request Notes or Description of Items of Deficiency if needed below (Part 1, Chapter 7, Section 7-145, item 6)</th>
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<tr>
<th>Project Field Record of Construction Progress Summary of Work in Progress (Part 1, Chapter 7, Section 7-145, Item 6)</th>
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<tr>
<th>Project Phase Percentage Complete (% of the phase completed):</th>
<th>Overall Project Percentage Complete:</th>
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NON-CONFORMING WORK NOTICE

A/C #: __________________________ OSHPD #: __________________________ Notice #: __________________________ Date: __________________________

To: ____________________________________________________________ From: UC Davis Medical Center (UCDMC) Facilities Design & Construction – Inspection Trailer

_______________________________________________________________ 4430 V Street, Building 35-A

_______________________________________________________________ Sacramento, CA 95817

P: __________________________ Email: __________________________ Attn.: __________________________ Email: fdcinspectors@ucdmc.ucdavis.edu

Spec Section Ref.: __________________________ Paragraph: __________________________ Drawing Ref.: __________________________

Detail: __________________________________________________________________________________________

In accordance with Article 12 of the General Conditions, the following defective condition(s) has/have become apparent:

__________________________________________________________________________________________

__________________________________________________________________________________________

______________________________

Reported by: __________________________

CORRECTIVE ACTION SHOULD BE TAKEN AS SOON AS POSSIBLE AND COMMENCE NO LATER THAN TEN (10) CALENDAR DAYS AFTER THIS NOTICE. COORDINATE THE VERIFICATION OF THE CORRECTIVE ACTIONS WITH THE INSPECTOR OF RECORD. IF FURTHER INFORMATION IS NEEDED, ADVICE UNIVERSITY’S REPRESENTATIVE IN ACCORDANCE WITH THE GENERAL CONDITIONS.

Description of corrective action taken: ____________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

Accepted by: __________________________ Date: __________________________

CC: __________________________