SECTION 01 7300

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

B. Verify, obtain and coordinate required approvals for any encroachments on right-of-way, property of public, and/or surrounding property owners. In the case of work completed without required approvals and without extra cost to Owner, take down, rebuild in manner acceptable to encroached property owners and Architect, any portion of the construction that may have been constructed over property lines or is otherwise encroaching onto adjacent property. Also repair work remaining on Owner's property to meet requirements of Contract Documents.

C. Owner will provide survey documenting existing conditions at project start. Contractor is responsible for maintaining datums and reference points during construction.

1.2 SUBMITTALS

A. Qualification Data: For land surveyor to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

C. Certified Surveys: Submit survey digitally signed by land surveyor.

D. Final Property Survey: Submit survey showing the Work performed and record survey data.

E. In the event the Contractor elects to perform layout using a CAD-based system, provide the three dimensional DWG of actual GPS file to be used for layout purposes in the field.

1.3 QUALITY ASSURANCE

A. At the Contractor's option, employ the services of a professional surveyor or engineer to complete the layout requirements specified herein, or utilize his own forces working with "total station type" equipment to complete the layout requirements specified herein.

B. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

1.4 PRELIMINARY LAYOUT

A. Preliminary layout is required to confirm alignment of pavements, walls, decking, lighting and planting areas. Contractor shall provide Architect seven (7) days minimum notice prior to proposed layout review on site. Contractor shall mark up layout of proposed features listed above using stakes, paint, tape or other temporary measures sufficient for Architect to review and approve layout and alignment prior to construction. While this is not feasible for the entire site at one time the Contractor will make every effort to layout large areas such that the overall design intent and any site conditions can be reviewed, resolved and approved.

1.5 CONSTRUCTION LAYOUT CONFERENCE

A. Schedule conference with Architect prior to start of layout work to confirm the layout, survey and engineering procedures to be used for laying out all site and landscape related work in the field for review and approval by Architect.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
   a. Description of the Work.
   b. List of detrimental conditions, including substrates.
   c. List of unacceptable installation tolerances.
   d. Recommended corrections.
2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

1. Notify Architect of discrepancies between field conditions and control dimensions indicated on the Drawings.

D. Layout of all roads and paths may be completed by Contractor with survey tools. Land surveyor shall not be required for this work. Place clearly marked grade stakes at:

1. Both edges of paths and drives every 25 ft. on center.
2. If the above stakes are relocated during construction, offsets must be retained
3. All corners of all paved terraces and parking lots and at all material changes.
4. All grade breaks @ 25’ OC and at beginning and end and all changes of direction. Grade breaks shall be included in GPS model and shall not be interpolated.
5. Top and bottom of all stairs at each edge.
6. Top and bottom of wall at all ends and changes in direction

E. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

F. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

G. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and site work.

D. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
4. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.

G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg. F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Section 01 4000 - QUALITY REQUIREMENTS.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

C. Protect all installed work from all damage and deterioration. Remediate and replace all damaged work.

D. The Contractor is responsible for means, methods, and techniques used.

E. Comply with manufacturer’s instructions and recommendations for protection.

F. Protect finished surfaces from soil, stains, scratches, marks, dents, damage, and deterioration.

G. Protect floors from traffic, rolling loads, static loads, drags, scuffs.

H. Protect glass from stains, etching, damage. Keep glass clean.

I. Protect doors, door frames, and door hardware.

J. Protect fibrous, paper faced materials, and water sensitive materials, including but not limited to adhesive backed materials, finish flooring, and metals exposed in final work from water and moisture.

K. Protect insulation from moisture, dust, damage, and deterioration.

L. Protect materials from ultraviolet light exceeding manufacturer's recommendations.

3.9 PROTECTION OF INTERIOR CONCRETE SLABS

A. No satisfactory chemical or cleaning procedure is available to remove petroleum stains from the concrete surface. Prevention is therefore essential for areas to remain exposed, and areas scheduled to receive concrete stains, topping materials, sealers, and similar surface treatments.

1. Provide temporary protective covering with sheet plastic with lapped seams, a layer of homasote/fiberboard, then a final layer of plywood, tempered hard-board, composite panels or similar material.
2. All hydraulic powered equipment must be diapered to avoid staining of in-place concrete.
3. No trade will park vehicles on the inside slab. If necessary to complete their scope of work, subject to engineer's approval for slab strength, if required contractor to submit information for vehicles to be set on the slab for approval by the engineer. Non-staining drop cloths will be placed under vehicles at all times.
4. No pipe cutting machine will be used on the inside floor slabs.
5. Steel will not be placed on interior slabs to avoid rust staining.
6. Maintain plastic sheeting required for curing for the duration of cure time. Provide constant oversight of protection and immediately address any discrepancies in the protection. Fully tape all seams in plastic sheeting and way down sheets with sandbags or other heavyweights no more than 10 ' on center.

B. Damage to concrete surfaces is unacceptable and all damaged concrete shall be removed and replaced to the satisfaction of the Architect.

C. Temporary railing supports welded to structure not to be installed in areas of slabs exposed in final work, alternate temporary protection methods to be employed. Any removal and replacement of areas of completed slab on grade are to be submitted with intended procedures to the architect for review.

3.10 PROHIBITED MATERIALS AND METHODS

A. Methods Related Items:

1. The use of ink marking pens on surfaces of any kind of materials receiving paint or other finish in exposed location.
2. Temporary attachment to structural items in exposed location.

B. Roofing Related Items:

1. Dead level roofs. All roofs must pitch to drains. Ponding in any roof location for any reason is strictly prohibited.
2. Pitch pans or pitch pockets for roofing penetrations are prohibited.

3. Do not puncture roof vapor barrier. Do not set work and temporary protection on top of vapor barrier that may damage the membrane. If installed in advance of roofing membrane, additional layers of vapor barrier to be installed immediately prior to roofing installation in high-traffic areas/ areas with visible damage.
4. Do not store materials/ work/ tools/ or debris or other construction-related items on completed roof membranes. Do not set metals which may rust on top of completed membranes, including life safety equipment, if necessary provided an additional loose layer of membrane below equipment. Do not conduct cutting/grinding operations on top of completed membranes. If signs of previous steps not followed, contractor to propose means of remediation.
5. Pipe penetrations and annular space around penetrations to be filled with spray foam insulation. Entire roof to be insulated including under equipment supports and curbs.
6. All equipment supports are to utilize equipment rails, or closed pipe stanchion when penetrating roofing membrane. Pipe stanchion and equipment rails to be type 18-8 stainless steel.

3.11 ULTRA-VIOLET-LIGHT AND ATMOSPHERIC EXPOSURE MATRIX

A. Provide two component matrix which shall include all materials having ultra-violet light, and atmospheric exposure restrictions:

1. Anticipated Schedule Component: List all materials having ultra-violet light, and atmospheric restrictions or sensitivities. For each product, indicate location on building elevations, and extent of product. Indicate intended Schedule date of installation, and intended exposure time frame. Include product information guidelines which stipulate manufacturer’s recommended exposure.
2. As-built condition: Each month provide update of Ultra-violet-light and atmospheric exposure matrix indicating actual job site conditions. Include actual dates of installation, actual exposure times, and dates when sensitive products have been concealed or otherwise protected. Submit updated Ultra-violet-light and atmospheric exposure matrix with each Application for payment.

3.12 ADDITIONAL REQUIREMENTS FOR PROTECTING ROOFING AND WATERPROOFING:

A. Restrict and control work and traffic over installed roofing and waterproofing.

a. traffic and work over unprotected waterproofing is prohibited
b. Storing materials and construction tools and debris on waterproofing is prohibited.

B. Provide temporary walkways and work platforms as needed. furnished in manner as to avoid damage to work

C. Protect work from solvents, contamination, penetration, damage, and deterioration.

3.13 REMEDIATION

A. Remove and replace all damaged and deteriorated materials including materials which show evidence of biological growth, mold, or mildew.

B. Replace with new work complying with Contract requirements.

3.14 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Section 01 7329 - CUTTING AND PATCHING.

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

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