Delivering water and power™

Construction Specification Manual

Salt River Project

Technical Specification Index – April 2022

Division 01

Division	Title	Updated
DIVISION 01:	**GENERAL REQUIREMENTS**	
011400	Work Restrictions	Revised 04/22
012200	Unit Prices	New 04/22
012300	Alternates	Revised 04/22
012500	Substitution Procedures	Revised 04/22
012500x	CSI Form 3.1A – Substitution Request	New 04/22
012600	Contract Modification Procedures	Revised 04/22
012900	Payment Procedures	Revised 04/22
013100	Project Management and Coordination	Revised 04/22
013300	Submittal Procedures	Revised 04/22
013516	Alteration Project Procedures	New 04/22
014000	Quality Requirements	Revised 04/22
014200	References	New 04/22
015000	Temporary Facilities and Controls	Revised 04/22
016000	Product Requirements	New 04/22
017300	Execution	New 04/22
017700	Closeout Procedures	Revised 04/22
017823	Operation & Maintenance Data	Revised 04/22
017839	Project Record Documents	Revised 04/22
017900	Demonstration and Training	Revised 04/22
019100	Commissioning Program	Revised 04/22

SECTION 01 14 00

WORK RESTRICTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. As an Electric and Water Utility, SRP has many critical facilities and systems. It is important that Contractors perform the Work so as not interfere with SRP operations.

B. SRP is subject to a wide array of many government regulations that require restrictions and accountability on access to buildings and rooms within the buildings. As a result, there are many additional and unique restrictions on access and times of work not normally found on conventional commercial construction sites.

C. Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.

1.2 REFERENCES

A. Section 01 50 00 “Temporary Facilities and Controls” for limitations and procedures governing temporary use of Owner's facilities.

1.3 SUBMITTALS

A. Personnel Roster with full names and birth dates.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.1 SITE SECURITY

A. SRP facilities may have security personnel posted at site entry points for access control at the property fence. If so, the security post will control access to the jobsite for the Contractor’s workforce and their personal vehicles.

B. SRP PM will designate parking areas for personal vehicles shown on the Construction Site Plan required by Section 01 50 00 “Temporary Facilities and Controls.”

C. Deliveries of materials or equipment shall be coordinated with SRP's PM at least 24 hours in advance in order to notify SRP Security to grant clearance. Delivery personnel may be required to use specific routes inside SRP facilities, in accordance with the Construction Site Plan required by section 01 50 00 "Temporary Facilities and Controls."

3.2 PERSONNEL ACCESS & SECURITY REQUIREMENTS

A. As an electric utility, SRP has several regulatory requirements to limit people accessing SRP facilities.

B. A green (contractor) picture ID security access card may be granted to the Contractor's PM and Superintendent and sub-contractor superintendents. Each contractor requesting a badge must complete a personal risk assessment (PRA). Access to the PRA form is to be requested through the SRP PM. Processing of the application may take up to three weeks. SRP will reach out following the completion of application processing with instructions to pick up their badge / security access card.

C. All other members of the Contractor's workforce (including subcontractors) requiring access to SRP property, and the work area will require a temporary visitor badge (issued each day).

1. Unbadged constructors must check in with onsite security daily to receive a visitor badge. All unbadged contractors must be escorted by another contractor with a current SRP green badge. The unbadged contractor must remain in eyesight of their badged escort.
2. Contractor shall submit a list of full names (including middle name) and date of birth for every Contractor and Subcontractor employee who needs access.

D. Restricted Areas: Even with green or temporary visitor badges, some areas will require an SRP or Security escort at all times.

E. Contractor personnel with a green (contractor) badge shall always escort construction personnel with visitor badges on SRP property, including in badge-reader-restricted access areas.

1. Tailgating (using one badge and letting another person pass through without using the second badge) in badge-reader-restricted areas is strictly forbidden and will result in removal of both persons from SRP property.

3.3 STANDARD WORK HOURS

A. Standard On-Site Work Hours for Construction: 5:00 a.m. to 5:00 p.m., Monday through Friday unless otherwise indicated.

1. Many SRP facilities are 24-hour operations. As such, the SRP PM may adjust these hours based upon the standard workday at the building or facility in which construction will occur.

B. Hours for Utility Shutdowns: As coordinated with and agreed upon with SRP.

C. Hours for Noisy Activities: As coordinated with and agreed upon with SRP.

D. Many projects are constructed in occupied buildings where construction will interfere with daily 8-5 operations. As such, some projects will restrict construction work to start after 6:00 p.m. and end prior to 6:00 a.m.
   1. These are the “standard work hours” for that project as stated in the RFP.

3.4 AFTER-HOURS WORK (WEEKDAYS or WEEKENDS)

A. After-Hours Work: Work occurring outside the standard work hours established for a particular project.
   1. After hours work may be required for tie-ins, electrical outages, fire protection outages, or for overtime to allow the schedule to recover or advance.

B. All after-hours work will require advance coordination with and approval by the SRP PM so that resources such as extra security may be coordinated and building occupants can be notified.
   1. Provide SRP with written notice one week in advance of desired work date.

3.5 DISRUPTION ACTIVITIES

A. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging for temporary utility services according to requirements indicated:
   1. Notify SRP not less than ten business days in advance of proposed utility interruptions.

B. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner occupancy with Owner.
   1. Notify SRP not less than seven days in advance of proposed disruptive operations.

3.6 EMERGENCY WORK

A. Emergency work (unscheduled work outside standard work hours) may be necessary to correct or address a problem caused during construction or in response to a problem encountered by the Contractor due to weather, Act of God (force majeure), or other causes. The SRP PM can authorize the Contractor to perform work not scheduled in order to recover from the Emergency.
   1. SRP Emergency Contacts: SRP PM, and SRP Security at 602-236-5305.

3.7 TABACO POLICY

A. Smoke-Free Areas:
   1. Smoking is never permitted in an area where it compromises safety.
   2. Smoking is prohibited in the following areas:
      a. Anywhere inside an SRP building.
      b. Directly in front of SRP Facilities main entrances.
      c. Within 50 feet of any entrances and building air intakes.

B. Smoking Permitted Areas: Smoking is permitted outside in approved designated areas, where posted with SMOKING AREA signs.

C. Chewing Tobacco is permitted provided it does not pose a safety or hygiene hazard or is not a nuisance as defined by the SRP PM.

3.8 HAZARDOUS MATERIALS

A. SRP will provide the Contractor with documentation that all materials to be disturbed have been tested and cleared for removal “prior” to any work commencing.

B. Contractor shall post the written documentation of the materials sampled, along with the results at the Project site for the duration of the Work.

C. Contractor shall communicate to all subcontractors of the materials sampled and the laboratory results as noted in the written documentation furnished by SRP.

D. Contractor and subcontractors are responsible for notifying the SRP PM should they encounter suspect materials or materials not documented as being previously sampled that will impact the Work.

1. All Work shall immediately cease until SRP’s Facilities Asbestos Administrator (“FAA”) has sampled the suspect material(s) and has furnished documentation that the material(s) are negative, and written clearance to resume work has been provided. The additional clearance shall be posted at the job site.
2. Contractor is not responsible for removal or abatement of asbestos, lead, or any remediation of mold or other hazardous materials.

E. SRP will engage contractors to abate hazardous material(s), and will provide air testing and documentation of clearances after removal.

F. Contractor and subcontractors shall not use or install any building material that contains asbestos or any other hazardous material.

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Administrative and procedural requirements for unit prices.

1.2 DEFINITIONS

A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

A. Unit prices include necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment: Refer to the individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work in place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A schedule of unit prices is included. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price No. 1: Topical moisture vapor emission and alkalinity control (MVEC) of concrete floor slabs in areas scheduled to receive adhered, non-breathable, or other moisture-sensitive finish flooring products.

1. Cost of application of topical moisture vapor emission and alkalinity control system to new or existing concrete floor slabs is not included in Base Proposal sum unless otherwise indicated.
2. Description:
   a. Application of MVEC system to new or existing concrete floor slabs where the moisture vapor emissions and/or the alkalinity of the concrete floor slab exceeds the limits recommended by the manufacturer of the finished flooring product(s) to be installed.
   b. Preparation and installation of the MVEC product shall be completed in accordance with requirements of Division 09 Section 09 05 63 "Moisture Vapor Emission and Alkalinity Control."
3. Unit of Measurement: Square foot of product installed.

B. Unit Price No. 2: Topical moisture vapor emission and alkalinity control (MVEC) of concrete floor slabs, followed by application of cementitious underlayment barrier coat in areas scheduled to receive adhered, non-breathable, or other moisture-sensitive finish flooring products.
1. Cost of application of topical moisture vapor emission and alkalinity control system and cementitious underlayment barrier coat to new or existing concrete floor slabs is not included in Base Proposal sum unless otherwise indicated.
2. Description:
   a. Application of MVEC system to new or existing concrete floor slabs where the moisture vapor emissions and/or the alkalinity of the concrete floor slab exceeds the limits recommended by the manufacturer of the finished flooring product(s) to be installed.
   b. Application of cementitious underlayment barrier coat where such barrier coat is required by finish flooring product manufacturer, due to manufacturer’s recommendation that their finish flooring products not be installed directly on an MVEC system.
   c. Preparation and installation of the topical moisture vapor emission and alkalinity control product shall be completed in accordance with requirements of Division 09 Section 09 05 63 "Moisture Vapor Emission and Alkalinity Control."
   d. Preparation and installation of cementitious underlayment barrier coat shall be completed in accordance with requirements of Division 03 Section “Hydraulic Cement Underlayment.”
3. Unit of Measurement: Square foot of products installed.

END OF SECTION

SECTION 01 23 00

ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Administrative and procedural requirements for modifying the Work and Contract Sum with deductive or additive alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change in the amount of construction to be completed, the scope of Work, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate the Alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each subcontractor, supplier or party involved, in writing, of the status of each Alternate. Indicate if Alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to Alternates.

C. Execute accepted Alternates under the same conditions as other work of the Contract.

D. Schedule: A list of Alternates is included at the end of this Section. Specification Sections referenced in list contain requirements for materials necessary to achieve the work described under each Alternate.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Refer to Request for Proposal.

END OF SECTION

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Administrative and procedural requirements for substitutions.

B. Section does not apply to equipment specifications that state “or equivalent”. Under that condition, Contractor may submit an equivalent product using the submittal process defined in the equipment specification and in Section 01 33 00 “Submittal Procedures.”

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, or methods of construction that differ from those required by the Contract Documents and that maintain equal value.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

B. Value Engineering (VE): A systematic method to improve the "value" of goods and services by using an examination of function. Value, as defined, is the ratio of function to cost. Value can therefore be increased by either improving the function or reducing the cost. The goal of VE is to achieve the desired function at the lowest overall cost consistent with required performance.

C. Specified Product or Manufacturer: Required product or manufacturer. Because SRP constructs, owns, and maintains its facilities, SRP achieves significant cost savings by standardizing on types and manufacturers of equipment. SRP achieves savings in training, stocking of parts, and shorter time to repair by standardizing on certain products or manufacturers.

1.3 SUBMITTALS

A. Value Engineering or Substitution Requests: Submit one electronic copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section numbers and titles and Drawing numbers and titles.

1. Documentation: Use CSI Form 13.1A attached at the end of this Section.
2. Provide the following, as applicable. The more information provided, the better chance of adoption:

a. Statement explaining why specified product or fabrication, or installation cannot be provided, or why Contractor wants to provide a substitution.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by other separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant characteristics of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant characteristics may include attributes such as performance, weight, size, durability, visual effect, warranties, specific features, purchase price, and any environmental benefits. Indicate all deviations from the Work as specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, as required by the original equipment Specification.
f. Certificates, material test reports, and qualification data, where applicable.
g. Research reports evidencing compliance with building code in effect for Project.
h. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
i. Cost information that includes purchase, replacement, consumables, and a total cost of Ownership comparison. If the Contract Sum will change, include a change proposal or OCCD.
j. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
k. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Transmission by Contractor: Transmit the request for substitution to the Architect or Engineer with a copy to the SRP PM.
4. Architect or Engineer’s (A/E) Action: If necessary, A/E will request additional information or documentation for evaluation within five (5) workdays of receipt of a request for substitution. A/E will notify Contractor of acceptance or rejection of proposed substitution within ten (10) workdays of receipt of request, or receipt of additional information, whichever is later.
   a. Method/Forms of Acceptance: Architect's Supplemental Instructions for minor changes in the Work or OCCD (prepared by the Contractor) and signed by the Architect.
   b. Use product/fabrication/installation found in the Specifications if A/E does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products, materials, and specifications.

1.5 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary, and incur all costs resulting therefrom, to integrate work of the approved substitutions.

1.6 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change.
   1. Conditions: A/E will consider Contractor's request for substitution when the following conditions are satisfied:
      a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
      b. Requested substitution will not adversely affect Contractor's construction schedule.
      c. Requested substitution is approved in writing by SRP's PM.
      d. Requested substitution is compatible with other portions of the Work.
      e. Requested substitution has been coordinated with other portions of the Work.
      f. Requested substitution provides specified warranty.
      g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: A/E will consider requests for substitution if received within sixty (60) days after commencement of the Work.
   1. Conditions: A/E will consider Contractor's request for substitution when the following conditions are satisfied:
      a. Requested substitution offers SRP a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities SRP must assume. SRP's additional responsibilities may include compensation to A/E for redesign and evaluation services, increased cost of other construction by SRP, and similar considerations.
      b. Requested substitution does not require extensive revisions to the Contract Documents.
      c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
      d. Requested substitution will not adversely affect Contractor's construction schedule.

e. Requested substitution has received necessary approvals of authorities having jurisdiction.
f. Requested substitution is compatible with other portions of the Work.
g. Requested substitution has been coordinated with other portions of the Work.
h. Requested substitution provides specified warranty.
i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS
Not Used.

PART 3 - EXECUTION

A. Attachment: CSI Form 13.1A - Substitution Request (after bidding phase).

END OF SECTION

SUBSTITUTION REQUEST
(After the Bidding/Negotiating Phase)

PROJECT: _____

SUBSTITUTION REQUEST NUMBER: _____

_____

FROM: _____

TO: _____

DATE: _____

_____

A/E PROJECT NUMBER: _____

RE: _____

CONTRACT FOR: _____

SPECIFICATION TITLE: _____

DESCRIPTION: _____

SECTION: _____ PAGE: _____

ARTICLE/PARAGRAPH: _____

PROPOSED SUBSTITUTION: _____

MODEL NO.: _____ PRODUCT AGE: ☐ New Product ☐ 1-4 years old ☐ 5-10 years old ☐ More than 10 years old

MANUFACTURER: _____

ADDRESS: _____ PHONE: _____

INSTALLER: _____

ADDRESS: _____ PHONE: _____

DIFFERENCES BETWEEN PROPOSED SUBSTITUTION AND SPECIFIED PRODUCT: _____

_____

☐ Point-by-point comparative data attached — REQUIRED BY A/E

REASON FOR NOT PROVIDING SPECIFIED ITEM: _____

_____

SIMILAR INSTALLATION:

PROJECT: _____

ARCHITECT: _____

ADDRESS: _____

OWNER: _____

_____

DATE INSTALLED: _____

EXPLAIN HOW PROPOSED SUBSTITUTION WILL AFFECT OTHER PARTS OF WORK: _____

_____

SUBSTITUTION WILL:

SAVE OWNER: $ _____ CHANGE CONTRACT TIME (SPECIFY DAYS ADDED OR SUBTRACTED): _____

SUPPORTING DATA ATTACHED: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

CONTINUE ON NEXT PAGE

SUBSTITUTION REQUEST
(After the Bidding/Negotiating Phase—Continued)

By signing this form, the undersigned represents that:

- The proposed substitution:
  - Will perform the same as the specified product;
  - Has the same or more extensive warranties as the specified product;
  - Requires the same or less maintenance as the specified product;
  - Has as many or more sources of replacement as the specified product;
  - Will not affect dimensions or functional clearances in this Project; and
  - Will not adversely affect other trades or delay the progress schedule for this Project.
- The cost data in this form is complete. The undersigned will, if the proposed substitution is accepted and is later found to have directly caused additional costs (e.g., changes to building design, A/E design, detailing, construction costs), pay those costs.
- The undersigned will, if the proposed substitution is accepted, coordinate, install, and change the Work as necessary.

SUBMITTED BY: _____

SIGNED BY: _____

FIRM: _____

ADDRESS: _____

TELEPHONE: _____

☐ **Attachments**

A/E'S REVIEW AND RECOMMENDATION:

☐ Substitution approved—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures and prepare Change Order.

☐ Substitution approved as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures and prepare Change Order.

☐ Substitution rejected—Use specified materials.

☐ Substitution Request received too late and is rejected—Use specified materials.

SIGNED BY: **DATE:**

OWNER'S REVIEW AND RECOMMENDATION:

☐ Substitution approved—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures and prepare Change Order.

☐ Substitution approved as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures and prepare Change Order.

☐ Substitution rejected—Use specified materials.

SIGNED BY: **DATE:**

ADDITIONAL COMMENTS: ☐ **Contractor** ☐ **Subcontractor** ☐ **Supplier** ☐ **Manufacturer** ☐ **A/E**

CSI Form 13.1A (February 2021 version)

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

A. Architect or SRP may issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions." These minor changes may include details to clarify the Work. Via e-mail or letter, Contractor shall acknowledge receipt of instruction authorizing minor changes in the Work and incorporate these changes in the Project Record Documents.

1.3 REQUEST FOR A CHANGE ORDER

A. Owner-Initiated Proposal Requests: The Architect or SRP will issue a description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. When necessary, the description will include supplemental or revised Drawings and Specifications.

1. Owner-Initiated Proposal Requests are not instructions to stop work in progress or to execute the proposed change, unless the document explicitly instructs the Contractor to do so.
2. Within 10 working days after receipt of Proposal Request, Contractor shall submit a proposal estimating the additional costs and time (if any) necessary to execute the change.
    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, and equipment rental.
    c. Include man-hours and costs of labor and supervision directly attributable to the change. Use unit prices for change order labor and supervision that were included in original bid.
    d. Include a proposed change to the construction schedule or produce a FRAGNET showing the effect of the proposed change. As a minimum include changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
    e. Quotation Form: Format is at the Contractor’s discretion.

f. Owner Construction Change Directive (OCCD): Include the OCCD signed by the Contractor. This form is also known as Facilities – Change Order Request (COR)

B. Contractor-Initiated Change Request: If latent or changed conditions require modifications to the Contract, Contractor may submit a Change Request to SRP's PM for consideration by the team. Value Engineering suggestions may also be submitted as a Contractor-Initiated Change Request.

1. Include a statement outlining reasons for the change or the problem encountered, the proposed solution, and the effect of the change on the Work. Provide a complete description of the proposed change to include sketches or marked up drawings if appropriate. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, and equipment rental.
4. Include man-hours and costs of labor and supervision directly attributable to the change. Use unit prices for change order labor and supervision that were included in original bid.
5. Include a proposed change to the construction schedule or produce a FRAGNET showing the effect of the proposed change. As a minimum include, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Specification Section 01 25 00 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Quotation Form: Format at to the Contractor's discretion.
8. Owner Construction Change Directive (OCCD): Include the OCCD (COR) signed by the Contractor.

1.4 CHANGE ORDER PROCEDURES

A. For all projects, use an SRP Owner Construction Change Directive (OCCD/COR) form to record the approval and signatures of SRP's Management, the Architect, and the General Contractor.

1. The OCCD is initiated and filled out by the GC. Then with the Contractor's cost proposal, the OCCD is submitted to the SRP PM. Once approved or rejected by the SRP PM, the OCCD is sent to the Architect, Procurement, and SRP management for approval.
2. Only upon approval by SRP Management is the OCCD a contractual change order that authorizes a change to the Work. In the event the Contract Amount or Contract Time is changed, SRP shall issue an Amendment to the Purchase order as formal approval.

1.5 CMAR CONTINGENCY USAGE

A. Contingency Log: The CMAR will maintain a spreadsheet format Contingency Log that tracks the usage of both Owner and Contractor Contingency funds. Approval to move funds from one contingency fund to another must be recorded in the minutes of the weekly OAC meeting and a copy of the minutes provided to SRP Procurement. The Contingency Log will be presented during the next OAC meeting whenever there has been or there is expected to be a use of contingency.

B. Owner Contingency: This type of contingency fund is used to pay the Contractor for the direct cost of changes that increase the Scope of Work. Changes to the Work that are deductive shall result in funds being transferred into the Owner Contingency. An OCCD shall be prepared by the CMAR for all uses of the Owner Contingency.

C. Contractor Contingency: This type of contingency fund is used to pay the Subcontractors for work that is not an increase in the scope of work. Reasons for this may be re-work caused by weather, errors or omissions in estimating, unseen existing conditions, etc. An OCCD shall be prepared by the CMAR for all uses of the Contractor Contingency.

1. This fund will not be used to pay for overtime or additional crews to accelerate the Work to the benefit of the Subcontractor or CMAR.
2. This fund will not be used to compensate for damage caused by negligence.

PART 2 - PRODUCTS
Not Used.

PART 3 - EXECUTION

3.1 IMPLEMENTATION

A. The OCCD / COR is required on all sizes of projects and change orders.

3.2 ATTACHMENT

A. See attached sample of OCCD / COR format on the next page. The form will be supplied by the SRP PM.

END OF SECTION

FACILITIES-CHANGE ORDER REQUEST (COR)

Delivering water and power™

☐ INFORMATION ONLY ☐ CONTRACTUAL/ MONETARY CHANGE

Contractor:		Purchase Order #:	
		Change Order Request #:	
Date:		Work Order #:	
		Page 1 of:	

REQUESTED CHANGES IMPACTING CONTRACT COST: A CHANGE TO THE PURCHASE ORDER MUST BE ISSUED IN WRITING BY A SRP PURCHASING AGENT WHICH WILL THEN AUTHORIZE THE WORK:

Description of Change(s) - List all changes:	Increase (+) or Decrease (-) $
1)	
2)	
3)	
4)	

CHANGE TO PO CONTRACT $ AMOUNT

Original PO Contract Amount =	
Current PO Contract Amount (Including prior CORs) =	
This COR increase +/- Decrease Amount = (including material taxes if Maintenance, Repair, Replace project or before taxes if Prime Contracting project – see verbiage on PO if unclear)	$ -
Requested NEW PO Contract Amount =	$ -
Change to Project Duration due to this COR: (+/- days, +/- weeks):	
New Completion Date if this COR is Approved:	

Reason for Change:

☐ New Scope ☐ Design E&O Other

☐ Customer Request ☐ Hidden Conditions

OTHER CONDITIONS:

The price and time extension set forth in the Change Order is full compensation for all costs and delays, direct and indirect, incurred in connection with the conditions giving rise to the Change Order, the work specified herein, and any consequential costs or delays resulting there from.

This Change Order, when executed with a Change to the Purchase Order issued by an SRP Procurement agent, constitutes a modification to the contract and all provisions of the Contract, except as modified above or by a previous Change Order, shall apply hereto.

REQUESTED BY:

SRP Project Manager: Signature		**Contractor:** Signature	
Printed Name:		Printed Name:	

OWNER
CONSTRUCTION
CHANGE
DIRECTIVE (OCCD)

OWNER ☐
CONTR(S). ☐
CONSULT. ☐
OTHER ☐

FILE: _____

PAGE 1
OF 1

PROJECT: SALT RIVER PROJECT

OCCD NO: 1

DATE: _____

CONTRACTOR:

YOU ARE HEREBY DIRECTED TO MAKE THE FOLLOWING CHANGE(S) TO THE CONTRACT:

WORK AFFECTED: _____

WORK DESCRIPTION:

_____

_____

_____

_____

NOTE: CONTRACTOR SHALL PAY APPLICABLE PRIME CONTRACTING SALES (PRIVILEGE) TAX.

Subs affected by this OCCD

PROPOSED ADJUSTMENTS

1. YOU ARE AUTHORIZED TO PROCEED AS FOLLOWS:
   ☐ PROCEED IMMEDIATELY AND PROVIDE A CHANGE PROPOSAL BASED UPON METHOD SELECTED IF (a) PROPOSAL IS NOT TIMELY...
   OR (b) PROPOSAL IS NOT ACCEPTED AND OWNER DIRECTS THE CHANGE TO BE COMPLETED...
   OR (c) PROPOSAL IS NOT ACCEPTED AND OWNER DIRECTS THE CHANGE TO BE TERMINATED...
   THEN COST & TIME ADJUSTMENT FOR THE WORK PERFORMED SHALL BE AS MUTUALLY AGREED...
   DO NOT PROCEED IMMEDIATELY AND PROVIDE A CHANGE PROPOSAL

2. THE PROPOSED BASIS OF THE CHANGE TO THE CONTRACT SUM OR GUARANTEED MAXIMUM PRICE IS:
   LUMP SUM (ADD) (DEDUCUNCHGD OF $ _____ AN ACCEPTED LUMP SUM PROPOSAL (ENTER AMOUNT).
   COST OF WORK (LBR, MTL, EQUIP, INSUR, TAXES AND BOND) PLUS A FEE OF _____ % AND A G.M.P. OF $ _____ (ENTER % & AMOUNT).

3. THE CONTRACT TIME IS PROPOSED TO BE (ADJUSTED) (UNCHANGED). THE PROPOSED ADJUSTMENT IS
   (INCR) (DECR) BY _____ DAYS SHALL BE BASED UPON THE ATTACHED CHANGE PROPOSAL . ☐

WHEN SIGNED BY OWNER AND RECEIVED BY THE CONTRACTOR, THIS DOCUMENT BECOMES EFFECTIVE IMMEDIATELY AS A CONSTRUCTION CHANGE DIRECTIVE (CCD), AND THE CONTRACTOR SHALL PROCEED WITH THE CHANGE(S) UNLESS DIRECTED DIFFERENTLY ABOVE. A CHANGE ORDER WILL BE RECORDED UPON AGREEMENT.	SIGNATURE BY CONTRACTOR INDICATES AGREEMENT WITH THE PROPOSED ADJUSTMENT: IF THIS CCD REQUIRES A CHANGE PROPOSAL, THEN THE CONTRACTOR SHALL USE THIS TO PROVIDE THE CHANGE PROPOSAL. PROVIDE SUBSTANTIATION SUPPORTING THE PROPOSAL AMOUNT. ACCEPTANCE BY THE OWNER IS REQUIRED FOR AGREEMENT.
REQUESTED BY CONTRACTOR :	**APPROVED FOR EXECUTION BY SRP:** _____ **Signature Authority**
Date:	**Patricia Pyle** **Date:**
ARCHITECTURAL APPROVAL	**Arsenio Duran**
Date:	**Date:**
SRP PROJECT MANAGER	**Jeff Davis**
Date:	**Date:**

Rev. 7/31/96

SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 - CONTRACT VALUE OVER $100,000

1.1 SUMMARY

A. Section Includes: Administrative and procedural requirements to prepare and process Applications for Payment for Construction Contracts.

1.2 SCHEDULE OF VALUES (SOV)

A. Coordination
   1. Coordinate line items in the schedule of values (SOV) with the following:
      a. Items required as separate activities in Contractor's construction schedule.
      b. Phased work required due to building occupancy
      c. Breakdown of bid required in the RFP.
   2. Submit the SOV to the SRP PM at earliest possible date but no later than 14 work days before the submittal of initial Application for Payment.

B. Format and Content:
   1. The Project Specifications Table of Contents or RFP bid form may serve as a guide to help establish the detail of line items for the SOV.
   2. Identification: Include the following Project identification on the SOV:
      a. Project name and location.
      b. Name of Architect.
      c. Architect's project number.
      d. Contractor's name and address.
      e. Date of submittal.
      f. Purchase Order Number
   3. Submit SOV on AIA Document G703 or Excel spreadsheet with format and content found in the AIA Document G703.
   4. Provide a breakdown of the Contract Sum in enough detail to facilitate evaluation of Applications for Payment and progress reports. As a minimum, the breakdown of the SOV will include every line item required on the RFP Bid form. Provide a separate line item for:
      a. Each subcontract.
      b. GC on-site supervision.
      c. GC Overhead (office management and support).
      d. GC Profit.
      e. Provide multiple line items for each subcontract in excess of 10% (ten) percent of Contract Amount. (include line for tiered sub).

f. Each allowance.
g. Self-perform work.
h. Temporary facilities and other major cost items that are not direct cost of actual work-in-place.

5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Updating the SOV: Update and resubmit the SOV before the next Application for Payment when Change Orders or Owner Construction Change Directives result in a change in the Contract Sum as authorized by a revised purchase order.
7. All changes to the SOV require written approval by SRP Procurement.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified and paid for by SRP. Initial Application for Payment and final Application for Payment involve additional requirements.

B. Due Date:
1. Submit draft Application for Payment (with all required attachments) via e-mail to SRP PM by the 25th of the month.
2. SRP Review: At SRP's discretion, SRP may require a project walk-through by the A/E, SRP, and the Contractor to confirm accepted work-in-place.
3. The SRP PM will e-mail an approval, thereby authorizing Contractor to submit the Application for Payment.

C. Forms: Use AIA Document G702 and AIA Document G703

D. Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. SRP will return incomplete applications without action.
1. Entries shall match data on the SOV and Contractor's construction schedule. Use updated SOV if revisions were approved by SRP.
2. Include amounts of approved Change Orders and Construction Change Directives issued before the 25th of the month submitted.
3. All Pay Applications must show the SRP PO number on the top of the application form.

E. Transmission of Payment Applications: After the SRP PM has approved the draft, transmit (one) 1 signed and notarized Application for Payment to SRP Accounts Payable. Do not include lien waivers or any attachments.
1. E-mail the complete pay app as follows:
a. E-mail the pay app as a PDF attachment to apinv@srpnet.com (cc' SRP PM).
b. Do not embed within the text of the message. Only include one invoice per email. If submitting multiple invoices, only one email is required per invoice to avoid delays in payment.

2. SRP shall process the approved Application for Payment and send a check or EFT in accordance with the terms of the Contract.

F. Attachments Required for the draft only:
   1. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
      a. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
      b. When an application shows completion of an item, submit conditional final or full waivers.
      c. SRP reserves the right to designate which entities involved in the Work must submit waivers.
      d. Waiver Forms: Submit waivers of lien on State of Arizona required forms.
   2. Project Schedule: provide schedule with work updated no older than 7 days earlier (18th of the month).
   3. Critical Path Schedule: For projects with duration greater than 60 days, provide a single critical path schedule showing the scheduled progression of the job. Do not show work breakdown structure or any other grouping that interferes with the ability to see the critical path as it progresses through the end of the project.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with the submittal of first Application for Payment include the following:
   1. List of subcontractors (unless unchanged from list provided at time of bid).
   2. Schedule of values. (this is a submittal)
   3. Contractor's project schedule (preliminary if not final) (this is a submittal).
   4. Submittal schedule (preliminary if not final)
   5. Submittal Log (this is a submittal).
   6. List of Contractor's staff assignments.
   7. List of Contractor's principal consultants.
   8. Copies of County and State required permits.

H. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
   1. Evidence of completion of Project closeout requirements (see Section 01 77 00 “Closeout Procedures”).
   2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
   3. AIA Document G706A-1994, "Contractor's Affidavit of Release of Liens."
   4. If applicable, AIA Document G707-1994, "Consent of Surety to Final Payment."
   5. Evidence that claims have been settled.
   6. Final meter readings for utilities, a measured record of stored fuel, and similar data as of when Owner took possession of and assumed responsibility for corresponding elements of the Work.

7. Final liquidated damages settlement statement.

PART 2 - CONTRACT VALUE LESS THAN $100,000

2.1 SCHEDULE OF VALUES (SOV)

A. Coordination:
   1. Coordinate line items in the schedule of values (SOV) with the following:
      a. Items required as separate activities in Contractor's construction schedule.
      b. Phased work required due to building occupancy
   2. Submit the SOV to the SRP PM at earliest possible date but no later than 14 workdays before the submittal of initial Application for Payment.

B. Format and Content:
   1. For Contracts under $100,000, use the RFP Bid Form as a guide to establish the detail of line items for the SOV. The breakdown of the SOV will include every line item required on the RFP Bid form.
   2. Identification: Include the following Project identification on the SOV:
      a. Project name and location.
      b. Name of Architect.
      c. Architect's project number.
      d. Contractor's name and address.
      e. Date of submittal.
   3. Submit SOV on Excel spreadsheet.
   4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
   5. Temporary facilities and other major cost items that are not direct cost of actual work-in- place must be shown as separate line items in the schedule of values.
   6. Updating the SOV: Update and resubmit the SOV before the next Application for Payment when Change Orders or Owner Construction Change Directives result in a change in the Contract Sum.
   7. All changes to the SOV require written approval by SRP Procurement.

2.2 APPLICATIONS FOR PAYMENT

A. Due Date: Payment Applications shall be submitted to SRP as follows:
   1. Submit draft Application for Payment (include all required attachments) via e-mail to SRP PM and Procurement by the 25th of the month.
   2. SRP will review.
   3. The SRP PM will e-mail an approval, thereby authorizing Contractor to submit the Application for Payment.

B. Forms: Use Contractor’s standard invoice form with Excel spreadsheet SOV.

C. Preparation: Complete every entry on form.

1. Entries shall match data on the SOV. Use updated SOV if revisions were made and approved by SRP.
2. Include amounts of approved Change Orders and Construction Change Directives issued before the 25th of the month submitted.
3. All Pay Applications must show the SRP PO number on the top of the invoice.

D. Transmission of Payment Applications: After approval of the draft by the SRP PM, transmit (one) 1 signed original of the Application for Payment to SRP Accounts Payable. Do not include lien waivers or any attachments.
   1. Mail, e-mail, or fax the invoice form (pay app) as follows:
      a. Mail to the PO Box for processing by the Third Party accounts payable company.
      b. E-mail the entire pay app as a PDF or TIF attachment. Do not embed within the text of the message. Send to 888-443-4795@onlinecapturecenter.com
      c. Fax to 888-443-4795
   2. SRP shall process the approved Application for Payment and send a check or EFT in accordance with the terms of the Contract.

E. Attachments Required for the draft only:
   1. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
      a. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
      b. When an application shows completion of an item, submit conditional final or full waivers.
      c. SRP reserves the right to designate which entities involved in the Work must submit waivers.
      d. Waiver Forms: Submit waivers of lien on State of Arizona required forms.

PART 3 - EXECUTION
Not Used.

END OF SECTION

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SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Administrative provisions for coordinating construction operations on the Project, and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Coordination drawings.
   2. Requests for Information (RFIs).
   3. Project Web site.
   4. Project Meetings.
   5. Project Reports
   6. Project Schedules
   7. Related Requirements:

1.2 DEFINITIONS

A. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by, or clarifications of, the Contract Documents.

B. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
   1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Float: The number of days between the early start and late start dates of an activity.
   1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion.

2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

1.3 SUBMITTALS

A. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.

B. Start-up CPM Network Diagram: For all CMAR projects, or upon request of SRP PM, submit network diagram of size required to display entire network for entire construction period. Show logic ties for activities. Submit in PDF format.

C. Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period. Submit in PDF format.

D. CPM Reports: For all CMAR projects, or upon request of SRP PM, concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.

E. Three Week Look-Ahead Schedule: Every week provide a 3-week schedule showing activities and subcontractors on a weekly basis at the OAC meeting. Include the last week's actual activities as well. Submit digital copies in Excel or easily understood format.

F. Daily Construction Reports: Submit at weekly intervals (only when requested by the SRP PM.)

G. Coordination Drawings: Submit if required to integrate different components.

1.4 COORDINATION, GENERAL

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include:
1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems to include Commissioning.

1.5 COORDINATION DRAWINGS

A. Coordination Drawings: Prepare coordination drawings in accordance with requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
b. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
c. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
d. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations are not changes to the Contract.
2. Review: Architect will review coordination drawings to confirm that, in general, the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility.

1.6 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI.

1. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.

B. Content: Include a detailed description of item needing information or interpretation and the following:
   1. Project name.
   2. Date.
   3. Name of Contractor.
   4. Name of Architect.
   5. RFI number, numbered sequentially.
   6. RFI subject.
   7. Specification Section numbers, titles, and related paragraphs.
   8. Drawing numbers and details.
   9. Field dimensions and conditions, as appropriate.
   10. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
   11. Contractor's signature.
   12. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to describe items needing interpretation.

C. RFI Forms: The following are acceptable forms:
   1. AIA Document G716
   2. Contractor generated form with substantially the same content as indicated above.

D. Transmitting: Send RFI and all attachments electronically to the SRP PM. If attachments cannot be sent electronically, send RFI electronically and then deliver the attachments as soon as possible to both parties. For tracking purposes, the RFI will not be considered as delivered until all attachments are delivered.

E. Owner and Architect's Action: Upon receipt from the contractor, SRP will submit the RFI to Architect for review and response. Once their response is received, the SRP project team will review. Allow 10 working days for Architect and Owner’s response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

F. The following RFIs will be returned without action:
   1. Requests for approval of submittals.
   2. Requests for approval of submittals or substitutions.
   3. Requests for approval of Contractor's means and methods.
   4. Requests for information already indicated in the Contract Documents.
   5. Requests for adjustments in the Contract Time or the Contract Sum.
   6. Requests for interpretation of Architect's actions on submittals.
   7. Incomplete RFIs or inaccurately prepared RFIs.

G. Owner and Architect's action may include a request for additional information, in which case the time for response will date from time of receipt of additional information.

H. Owner and Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Request according to Specification Section 01 26 00 "Contract Modification Procedures."
   1. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify SRP in writing within 5 five working days of receipt of the RFI response.

I. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
   1. Project Name.
   2. Contractor Name.
   3. Architect Name.
   4. RFI number (include RFIs that were dropped).
   5. Description of RFI.
   6. Date the RFI submitted.
   7. Date Architect's response received.
   8. RFI status (including final action by A/E)
   9. Notes as appropriate.

J. On receipt of Owner and Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Owner and Architect within 5 five working days if Contractor disagrees with response.

1.7 PROJECT WEB SITE

A. At no cost to SRP, the GC or CMAR may use a Project Web site to manage project communication and documentation until Final Completion. Project Web site is not required, but may include some of the following functions:
   1. Project directory.
   2. Project correspondence.
   3. Meeting minutes.
   4. Contract modifications forms and logs.
   5. RFI forms and logs.
   6. Task and issue management.
   7. Photo documentation.
   8. Schedule and calendar management.
   9. Submittals forms and logs.
   10. Payment application forms.
   11. Drawing and specification document hosting, viewing, and updating.
   12. Online document collaboration.
   13. Reminder and tracking functions.

14. Archiving functions.

B. Provide up to five concurrent user licenses (if licenses are required) for use of the SRP, Commissioning Authority, Architect, and Architect's consultants. Provide software training for Project Web site users as requested.

C. Upon completion of Project, provide one complete archive copy of Project Web site files to Owner and to Architect in a digital storage format acceptable to the Owner and Architect.

D. Contractor, subcontractors, and other parties granted access by the Contractor to Project Web site shall execute a data licensing agreement in the form of an Agreement acceptable to the Owner and Architect.

1.8 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
1. Attendees: Inform required participants of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare and distribute the meeting agenda
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned within three days of the meeting.

B. Preconstruction Conference: SRP will schedule and conduct a preconstruction conference before starting construction no later than 15 days after execution of the Agreement.
1. Attendees: Authorized representatives of SRP, Commissioning Authority, Architect (optional); Contractor (PM and Superintendent), the Working Forman from each major subcontractor; suppliers (optional); and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda:
a. Introductions
b. Meeting Purpose: Review expectations, allow GC & subs to ask questions.
c. Project Background – why is this project important to SRP? Is it mission critical?
d. What defines a successful project at SRP?
e. Procurement: Their role in the entire project.
f. PO status? Change Requests and Change Orders procedures.
g. Money disputes go through Procurement.
h. Applications for Payment & Retention.
i. Safety: SRP Philosophy, GC standards, PPE protocol per GC, Asbestos, Hot Work.
j. Project Reporting structure: Information flow, RFI, Submittal, Pay App flow.

k. Testing, Inspections: requirements exceed the code.
l. How does the GC manage quality? GC expectations of subcontractors.
m. SRP Inspections are not the contractor's QC program.
n. Commissioning: Manufacturer's installation and startup checklists, Functional Performance Tests.
o. Work hours, Restrictions, Site access and badging for personnel.
p. O&M Manuals.
q. As-built drawings.
r. Warranty.
s. Lien Waivers and final Application for Payment.

C. Pre-installation Conference: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise SRP PM and the SRP Construction Inspector of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
   a. Contract Documents and related Change Orders.
   b. Related Submittals and RFIs.
   c. Purchases.
   d. Deliveries.
   e. Review of mockups.
   f. Possible conflicts.
   g. Compatibility problems.
   h. Time schedules.
   i. Weather limitations.
   j. Manufacturer's written recommendations.
   k. Compatibility of materials.
   l. Acceptability of substrates.
   m. Temporary facilities and controls.
   n. Space and access limitations.
   o. Testing and inspecting requirements.
   p. Installation procedures.
   q. Coordination with other work.
   r. Required performance results.
   s. Commissioning (if applicable).
   t. Safety to include protection of adjacent work.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Weekly Progress Meetings: Conduct Owner/Architect/Contractor (OAC) meetings (biweekly interval for smaller jobs as required by the RFP or the SRP PM).

1. Attendees: SRP representatives, Commissioning Authority, Architect, the Contractor, and every Subcontractor or supplier concerned with current progress or involved in planning future activities shall be present at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    a. Contractor's Project Schedule: Review this at every meeting. Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule.
    b. Superintendent’s Three Week Look Ahead Schedule: Review previous week’s accomplished activities versus what was scheduled. Present the activities scheduled for the next three weeks and discuss support needed and pre-requisite work needed.
    c. RFI Log
    d. Submittal Log
    e. Change Requests
    f. Deficiency Log & quality concerns
    g. Review present and future needs of each entity present, including the following:
        1) Interface requirements (with other work or subcontractors).
        2) Sequence of operations.
        3) Deliveries.
        4) Off-site fabrication.
        5) Access.
        6) Site utilization.
        7) Temporary facilities and controls.
        8) Progress cleaning.
        9) Quality and work standards.
        10) Status of correction of deficient items.
        11) Field observations.
    h. Round Table – each attendee may bring up any other item.
3. Minutes: Contractor will record and distribute the meeting minutes to each party present and to parties requiring information.
    a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

E. Executive Meeting: In the event of actual or expected extraordinary conditions on the project, SRP may call for an Executive Meeting.
   1. Purpose: To provide for a problem-solving environment above the level of the project team.
   2. Attendees: Management (not the project team members) from the Contractor, Architect, and SRP
   3. Agenda: SRP shall distribute an agenda prior to the meeting.
   4. Minutes: SRP shall publish minutes.

F. Business Review: After Project is complete and final payment transmitted, the SRP Buyer may schedule a meeting to provide the Contractor with a written performance evaluation.

1.9 PROJECT REPORTS

A. Daily Construction Reports: Only when requested by the SRP PM or in the RFP, prepare a daily construction report recording the following information concerning events at Project site:
   1. List of subcontractors at Project site.
   2. Approximate count of personnel at Project site.
   3. Equipment at Project site.
   4. Material deliveries.
   5. High and low temperatures and general weather conditions.
   6. Accidents or Emergency procedures.
   7. Meetings and significant decisions.
   8. Unusual events.
   9. Stoppages, delays, shortages, and losses.
   10. Orders and requests of authorities having jurisdiction.
   11. Change Orders received and implemented.
   12. Owner Construction Change Directives received and implemented.
   13. Services connected and disconnected.
   14. Inspections, Tests, and Startups.
   15. Partial completions and occupancies.

B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE (<$250,000 CONTRACT VALUE)

A. General: Provide a project schedule based upon Critical Path Method.

B. Time Frame: Schedule shall extend from receipt of Purchase Order to Final Completion or as directed in writing by the SRP PM.
   1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
   1. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule.
   2. Activity Duration: Activities may not exceed 10 workdays, unless specifically allowed by SRP.
   3. Procurement Activities: Include separate procurement process activities for long lead items and major items, requiring a cycle of more than 30 days. Procurement cycle activities include submittals, approvals, purchasing, fabrication, and delivery.
   4. Submittal Review Time: Include review and re-submittal times indicated in Section 01 33 00 "Submittal Procedures".
   5. Include activity for submittal of O&M Manuals; set logic so that this activity is a prerequisite for Substantial Completion milestone.
   6. Work by SRP: Include a separate activity for each portion of Work performed by SRP.
   7. Substantial Completion: Indicate anticipated date of substantial completion as a milestone, not a constraint.
   8. Startup and Commissioning: Coordinate with SRP PM to include time for these activities after Substantial Completion.
   9. Final Completion and Punch List: Include not more than 30 calendar days for punch list and final completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.
   1. Phasing: Arrange list of activities on schedule by phase.
   2. Work Restrictions: Show the effect of the following items on the schedule:
      a. Coordination with existing construction.
      b. Limitations of continued occupancies.
      c. Uninterruptible services.
      d. Partial occupancy before Substantial Completion.
      e. Use of premises restrictions.
      f. Provisions for future construction.

E. Milestones: Include all milestones indicated in the Contract Documents in schedule, including Substantial Completion, and Final Completion.

F. Recovery Schedule: When periodic update indicates the Work is 10 or more workdays behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule.

G. Critical Path Schedule: For projects with duration greater than 60 days, provide a single critical path schedule showing the scheduled progression of the job. Do not show work breakdown structure or any other grouping that interferes with the ability to see the critical path as it progresses through the end of the Project.

H. Computer Scheduling Software: Prepare project schedules using recent version of a program developed specifically to manage construction schedules. Excel is only acceptable for 3-week look ahead schedules.

I. Schedule Updating: Concurrent with making revisions to schedule, to make SRP's review easier, prepare spreadsheet or report showing the following:
   1. Identification of activities that have changed.
   2. Changes in activity durations in workdays.
   3. Changes in the critical path.
   4. Changes in total float or slack time.
   5. Changes in the Contract Time.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (>$250,000 CONTRACT VALUE)

A. General: In addition to the requirements in Paragraph 2.1, provide the following.

B. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work. Cost loading of schedule is at Contractor's option.
   1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 20 workdays after receipt of Purchase Order. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing the Work within applicable completion dates.

C. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment (FRAGNET) to demonstrate the effect of the proposed change on the overall project schedule.

D. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. If requested, prepare tabulated report showing the following:
   1. Contractor or subcontractor and the Work or activity.
   2. Description of activity.
   3. Principal events of activity.
   4. Immediate preceding and succeeding activities.

5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Required Schedule Updates: At monthly intervals, update schedule to reflect actual construction progress and activities. As required by Section 01 29 00 "Payment Procedures," update the schedule one week before the pay application is due. Present and discuss this monthly update at the next regularly scheduled progress (OAC) meeting.

1. Revise schedule immediately after OAC meeting where revisions have been recognized or made. Issue the revised schedule concurrently with the report of each such meeting.
2. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect, SRP, separate contractors, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. When revisions are made, distribute updated schedules to the same parties, and post in the same locations.

C. Display: Post copy of most current project schedule and 3-week look ahead schedule in Contractor's field office.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Submittal schedule requirements.
   2. Administrative and procedural requirements for submittals.

B. Related Requirements:
   1. Section 01 77 00 "Closeout Procedures" for submitting record Drawings.
   2. Section 01 78 23 "Operation and Maintenance Requirements" for submitting operation and maintenance manuals.
   3. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. Submittal Log: A spreadsheet document to track status of all submittals required, organized by Specification section number.

1.3 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections
   1. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

2. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: The Architect will provide electronic copies of the Contract Drawings for Contractor's use in preparing submittals, Shop Drawings, and record drawings.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
    1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
    2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's receipt of submittal. Owner will coordinate review by the project Architect or Engineer in the review time and provide a fully reviewed document with comments from the EOR and Owner. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
    1. Initial Review: Allow ten workdays for initial review of each submittal.
    2. Resubmittal Review: Allow ten workdays for review of each resubmittal.

D. Identification and Information: Each submittal must include the standard SRP submittal coversheet. See 01 33 00x for the required coversheet.
    1. Indicate name of firm or entity that prepared each submittal
    2. Include the following information for processing and recording action taken:
        a. Project name.
        b. Date.
        c. Name of Architect.
        d. Name of Contractor.
        e. Name of subcontractor.
        f. Name of supplier or manufacturer.
        g. Submittal number or other unique identifier, including revision identifier.
            1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06 10 00.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06 10 00.01.A).
        h. Number and title of appropriate Specification Section.
        i. Drawing number and detail references, as appropriate.
        j. Location(s) where product is to be installed, as appropriate.

E. Options: Identify options requiring selection by the Architect or Owner.

F. Deviations: Identify all deviations from the Contract Documents on submittals. A substitution of another product is not a deviation, it is a substitution.

G. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Owner will return submittals without review if received from sources other than Contractor.

1. Transmittal Form: Each submittal must include the standard SRP submittal coversheet.
2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect or Owner on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they show approval stamped by Architect and Owner.

I. Distribution: Furnish copy of final submittal to manufacturers, subcontractors, suppliers, fabricators, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals showing approval stamped by Architect and Owner.

1.5 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:

1. Submit electronic submittals via email as PDF electronic files to Owner.
   a. Owner will return annotated file with Architect and Owner’s comments. Annotate and retain one copy of file as an electronic Project record document file.
2. Post electronic submittals as PDF electronic files directly to the project’s web site specifically established for Project, if applicable.
   a. Owner will return annotated file with Architect and Owners. Annotate and retain one copy of file as an electronic Project record document file.
3. Paper Submittals: Paper submittal are required only when accompanying a physical sample for review. A digital version of the submittal must accompany all paper submittals for tracking and project record purposes.
4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

5. Test and Inspection Reports Submittals: Comply with requirements specified in Section 01 40 00 "Quality Requirements."

B. Submittal Log:
1. Produce a submittal log in spreadsheet format, using Excel or Project management software to track the status and dates of all submittals. Review this log at weekly OAC meetings. Track progress of submittals on the project schedule.
2. For SRP project, the A/E will list the required submittals on the Drawings as required in the Design Document Submission Requirements.

C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable then submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
a. Manufacturer's catalog cuts and product specifications.
b. Standard color charts.
c. Statement of compliance with referenced standards.
d. Application of testing agency labels and seals.
e. Notation of coordination requirements.
f. Availability and delivery time information.
4. For equipment, include the following in addition to the above, as applicable:
a. Wiring diagrams showing factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
5. Submit Product Data concurrent with Samples.

D. Shop Drawings: Prepare Project-specific information, to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
a. Identification of products.
b. Compliance with specified standards.
c. Notation of coordination requirements.
d. Notation of dimensions established by field measurement.
e. Relationship and attachment to adjoining construction clearly indicated.
f. Seal and signature of professional engineer if specified.

2. Submit Shop Drawings in the following format:
   a. On sheets at least 8½ by 11, but no larger than 30 by 42 inches.
   b. PDF electronic file.

E. Samples: Submit samples for review of kind, color, pattern, and texture and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:
   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of applicable Specification Section.
3. Disposition: Maintain sets of approved Samples at Project site, available for quality control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
4. Submit two sets of Samples. Owner will retain one Sample set; one set will be kept on the Project site.

1.6 DELEGATED-DESIGN SERVICES (or DELAYED SUBMITTALS)

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written RFI to Owner. Owner will coordinate review with the Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit PDF electronic file signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.7 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect and SRP.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Architect and SRP will not review submittals received from Contractor that do not have Contractor's review and approval.

1.8 ARCHITECT AND SRP ACTIONS

A. General: Architect and SRP will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect and SRP will review each submittal, make marks to indicate corrections or modifications required, and return. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

C. Informational Submittals: Architect and SRP will review each submittal and will not return it or will return it if it does not comply with requirements. Owner will forward each submittal to appropriate party.

D. Architect and Engineers will produce a Summary Page that shall contain the A/E's action stamp and a summary or restatement of all review comments found in the submittal.

E. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

F. Submittals not required by the Contract Documents will be returned by Owner without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 35 16

ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Special procedures for alteration Work.

1.2 DEFINITIONS

A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance Work performed within existing spaces or on existing surfaces as part of the Project.

B. Consolidate: To strengthen loose or deteriorated materials in place.

C. Design Reference Sample: A sample that represents the Architect's prebid selection of Work to be matched; it may be existing Work or Work specially produced for the Project.

D. Dismantle Deconstruction Disassembly: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect and Owner.

F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

K. Retain: To keep existing items that are not to be removed or dismantled.

L. Strip: To remove existing finish down to base material unless otherwise indicated.

1.3 COORDINATION

A. Alteration Work Subschedule: A construction schedule coordinating the sequencing and scheduling of alteration Work for entire Project, including each activity to be performed, and based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for alteration Work.

1. Schedule construction operations in sequence required to obtain best Work results.
2. Coordinate sequence of alteration Work activities to accommodate the following:
    a. Owner's continuing occupancy of portions of existing building.
    b. Owner's partial occupancy of completed Work.
    c. Other known Work in progress.
    d. Tests and inspections.
3. Detail sequence of alteration Work, with start and end dates.
4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
5. Use of elevator and stairs.
6. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment proposed for use in existing structure. Do not use such equipment without certification from Contractor's professional engineer that the structure can support the imposed loadings without damage.

B. Pedestrian and Vehicular Circulation: Coordinate alteration Work with circulation patterns within Project building(s) and site. Some Work is near circulation patterns and adjacent to restricted areas. Circulation patterns cannot be closed off entirely and in places can be only temporarily redirected around small areas of Work. Access to restricted areas may not be obstructed. Plan and execute the Work accordingly.

1.4 PROJECT MEETINGS FOR ALTERATION WORK

A. Preliminary Conference for Alteration Work: Before starting alteration Work, conduct conference at Project site.

1. Attendees: In addition to representatives of Owner, Architect, and Contractor, testing service representative, specialists, and chemical cleaner manufacturer(s) shall be represented at the meeting.
2. Agenda: Discuss items of significance that could affect progress of alteration Work, including review of the following:
    a. Alteration Work Subschedule: Discuss and finalize; verify availability of materials, specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
    b. Fire prevention plan.
    c. Governing regulations.
    d. Areas where existing construction is to remain and the required protection.
    e. Hauling routes.

f. Sequence of alteration Work operations.
g. Storage, protection, and accounting for salvaged and specially fabricated items.
h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
i. Qualifications of personnel assigned to alteration Work and assigned duties.
j. Requirements for extent and quality of Work, tolerances, and required clearances.
k. Embedded Work such as flashings and lintels, special details, collection of waste, protection of occupants and the public, and condition of other construction that affects the Work or will affect the Work.

3. Reporting: Record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.

B. Coordination Meetings: Conduct coordination meetings specifically for alteration Work at weekly intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of Owner, Architect, and Contractor, each specialist, supplier, installer, and other entity concerned with progress or involved in planning, coordination, or performance of alteration Work activities shall be represented at these meetings. All participants at conference shall be familiar with Project and authorized to conclude matters relating to alteration Work.
2. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of alteration Work. Include topics for discussion as appropriate to status of Project.
   a. Alteration Work Subschedule: Review progress since last coordination meeting. Determine whether each schedule item is on time, ahead of schedule, or behind schedule. Determine how construction behind schedule will be expedited with retention of quality; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are completed within the Contract Time.
   b. Schedule Updating: Revise Contractor's Alteration Work Subschedule after each coordination meeting where revisions to schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
   c. Review present and future needs of each entity present, including review items listed in the "Preliminary Conference for Alteration Work" Paragraph in this article and the following:
      1) Interface requirements of alteration Work with Project Work.
      2) Status of submittals for alteration Work.
      3) Access to alteration Work locations.
      4) Effectiveness of fire prevention plan.
      5) Quality and Work standards of alteration Work.
      6) Change Orders for alteration Work.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.5 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.

1. Carefully dismantle and salvage each item or object in a manner to prevent damage and protect it from damage, then promptly deliver it to Owner where directed at project site.

1.6 INFORMATIONAL SUBMITTALS

A. Alteration Work Subschedule:

1. Submit alteration Work subschedule within seven days of date established for commencement of alteration Work.

B. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements that are to remain, including finish surfaces, that might be misconstrued as damage caused by Contractor's alteration Work operations.

C. Alteration Work Program: Submit 30 days before Work begins.

D. Fire-Prevention Plan: Submit 30 days before Work begins.

1.7 QUALITY ASSURANCE

A. Specialist Qualifications: An experienced firm regularly engaged in specialty Work similar in nature, materials, design, and extent to alteration Work as specified in each Section and that has completed a minimum of five recent projects with a record of successful in-service performance that demonstrates the firm's qualifications to perform this Work.

1. Field Supervisor Qualifications: Full time supervisors experienced in specialty Work similar in nature, material, design, and extent to that indicated. Supervisors shall be on-site when specialty Work begins and during its progress. Supervisors shall not be changed during Project except for causes beyond the control of the specialist firm.

a. Construct new mockups of required Work whenever a supervisor is replaced.

B. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only Workers that are trained in lead safe Work practices.

C. Alteration Work Program: Prepare a written plan for alteration Work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate whole Project alteration Work program with specific requirements of programs required in other alteration Work.

1. Dust and Noise Control: Include locations of proposed temporary dust and noise control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known Work in progress.
2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

D. Fire Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire control devices during each phase or process. Coordinate plan with Owner's fire protection equipment and requirements. Include fire watch personnel's training, duties, and authority to enforce fire safety.

E. Safety and Health Standard: Comply with ANSI/ASSE A10.6.

1.8 STORAGE AND HANDLING OF SALVAGED MATERIALS

A. Salvaged Materials:

1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

B. Salvaged Materials for Reinstallation:

1. Repair and clean items for reuse as indicated.
2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.

C. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction Work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction Work and reinstalled in their original locations after alteration and other construction Work in the vicinity is complete.

D. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.
   1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
   2. Secure stored materials to protect from theft.
   3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 degrees F (3 degrees C) or more above the dew point.

E. Storage Space:
   1. Owner will arrange for limited on-site location(s) for free storage of salvaged material. This storage space does not include security and climate control for stored material.
   2. Arrange for off-site locations for storage and protection of salvaged material that cannot be stored and protected on site.

1.9 FIELD CONDITIONS

A. Survey of Existing Conditions: Record existing conditions that affect the Work by use of preconstruction photographs and preconstruction video recordings.

B. Discrepancies: Notify Architect and Owner of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling Work.

C. Owner's Removals: Before beginning alteration Work, verify in correspondence with Owner that the all Owner’s items have been removed from the Alteration Areas.

D. Size Limitations in Existing Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within existing spaces, areas, rooms, and openings, including temporary protection, by 12 inches (300 mm) or more.

PART 2 - PRODUCTS

2.1 ROOF SYSTEM AND COMPONENT ASSEMBLY PROTECTION

A. All roof components and component system installations shall be fully protected against puncture, marring and other damage by materials, personnel, equipment, temporary supports or any other materials, equipment or other construction activities for the full duration of construction and until Final Completion.

B. Protection shall consist of a minimum of 1-inch thick extruded polystyrene board insulation, ASTM C578, Type IV with 3/4-inch CDX plywood cover for the entire roof area where construction activities occur.

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration Work.
   1. Use proven protection methods, appropriate to each area and surface being protected.
   2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration Work is being performed.
   3. Erect temporary barriers to form and maintain fire egress routes.
   4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration Work.
   5. Contain dust and debris generated by alteration Work and prevent it from reaching the public or adjacent surfaces.
   6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
   7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
   8. Provide supplemental sound-control treatment to isolate demolition Work from other areas of the building.

B. Temporary Protection of Materials to Remain:
   1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
   2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration Work program.

C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

D. Utility and Communications Services:
   1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration Work before commencing operations.
   2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration Work.
   3. Maintain existing services unless otherwise indicated; keep in service and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

E. Existing Drains: Prior to the start of Work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin Work in an area until the drainage system is functioning properly.

1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration Work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

F. Existing Roofing: Prior to the start of Work in an area, install roofing protection to protect all roof system components.

3.2 PROTECTION FROM FIRE

A. Follow fire prevention plan and the following:
1. Comply with NFPA 241 requirements unless otherwise indicated. Perform duties titled Owner's Responsibility for Fire Protection.
2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate Work.
a. If combustible material cannot be removed, provide fire blankets to cover such materials.

B. Heat Generating Equipment and Combustible Materials: Comply with the following procedures while performing Work with heat generating equipment or combustible materials, including welding, torch cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:
1. Obtain Owner's approval for operations involving use of open flame or welding or other high heat equipment. Use of open flame equipment is not permitted. Notify Owner at least 72 hours before each occurrence, indicating location of such Work.
2. As far as practicable, restrict heat generating equipment to shop areas or outside the building.
3. Do not perform Work with heat generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
6. Fire Watch: Before Working with heat generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such Work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
a. Train each fire watch in the proper operation of fire control equipment and alarms.
b. Prohibit fire watch personnel from other Work that would be a distraction from fire watch duties.
c. Cease Work with heat generating equipment whenever fire watch personnel are not present.

d. Have fire watch personnel perform final fire safety inspection each day beginning no sooner than 30 minutes after conclusion of Work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.

e. Maintain fire watch personnel at each area of Project site until two hours after conclusion of daily Work.

C. Fire Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each Work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.

D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.

1. Remove temporary guards at the end of Work shifts, whenever operations are paused, and when nearby Work is complete.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.

B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration Work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.

C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.

D. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.

E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL ALTERATION WORK

A. Have specialty Work performed only by qualified specialists.

B. Ensure that supervisory personnel are present when Work begins and during its progress.

C. Record existing Work before each procedure (preconstruction), and record progress during the Work. Use digital preconstruction documentation photographs or video recordings.

D. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.

E. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.

1. Do not proceed with the Work in question until directed by Architect.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Related Requirements:
   1. Refer to SRP Scope of Work and RFP for additional quality assurance and quality control requirements.
   2. Divisions 02 through 33 Sections for specific test and inspection requirements.

C. SRP is the Code Inspector for all standard and special code compliance inspections. Special Inspections required by the building, mechanical, or plumbing codes are identified on the Drawings or the SRP Inspection Planning Worksheet.
   1. Code and Special inspections are part of SRP's Quality Assurance responsibilities and not a tool for the Contractor to use to replace Quality Control planning or inspections by the Contractor and Subcontractor of their Work.

D. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the requirements of the Contract Documents.
   1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
   2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
   3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, Commissioning Authority, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Proactive Quality Measures: Activities or actions taken prior to the Work commencing or being completed to plan for quality, safety, and productivity. Tailboard meetings are an example of pro-active safety measures. Pre-task planning that reviews details on the Drawings with the work crew or creating a mockup are examples of proactive quality measures.

B. Reactive Quality Measures: Activities or actions taken during or after the Work to check for quality. An inspection is a reactive quality measure.

C. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

D. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

E. Mockups: Full size physical assemblies constructed on-site. Mockups are constructed to verify selections made from sample submittals; to demonstrate aesthetic effects; to demonstrate acceptable quality of construction; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Approved mockups establish the standard by which the Work is judged.

F. Product Testing: Tests and inspections by an NRTL or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Testing: Tests and inspections performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: On-site tests and inspections for installation of the Work and for completed Work.

1.3 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards results in conflicting requirements, then comply with the most stringent requirement or submit an RFI for review and decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. Refer uncertainties via RFI for review and decision before proceeding.

1.4 SUBMITTALS

A. Quality Control Plan (project specific) that identifies the trained personnel, planning, proactive procedures, and reactive procedures the Contractor will use to meet the Contract requirements, Drawings, and Specifications.

B. Testing Agency Qualifications: Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.5 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of weather conditions at time of sample taking, testing, and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:
   1. Name, address, and telephone number of representatives making report.
   2. Statement on condition of substrates and their acceptability for installation of product.
   3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
   4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
   5. Other required items indicated in individual Specification Sections.

C. Permits, Licenses, and Certificates: For SRP records, submit copies of permits, licenses, certifications, inspection reports, receipts for fee payments, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

D. Deficiency Log: Create and maintain a log of all deficiencies identified with the work, regardless of source, until the deficiency is corrected. Similar to a Punch List but used throughout the project duration to identify and correct deficiencies earlier so that the Punch List is minimized. Deficiency Log shall be maintained by the Project Superintendent, available to the SRP PM and Construction Inspector, and presented/discussed at OAC Meetings.

1.6 QUALIFICATIONS

A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Professional Engineer Qualifications: A professional engineer who is licensed in Arizona and experienced (5 year min.) in providing engineering services of the kind indicated.

D. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products used in this Project. Normally, a sales representative of the distributor or local rep is not qualified to observe and inspect.

E. Mockups: Obtain Owner and Architect's approval of mockups before starting work, fabrication, or construction:

1. Build mockups in location and of size indicated.
2. Demonstrate the proposed range of aesthetic effects and workmanship.
3. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

1.7 QUALITY CONTROL

A. Plan and perform all quality-control activities required to verify that the Work complies with requirements. Tests and inspections not explicitly assigned to SRP are Contractor's responsibility.

1. Where testing-inspection services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these services. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
2. Submit certified written reports for testing or inspection services indicated as Contractor's responsibility.

B. Develop and submit to the SRP PM for approval a Quality Control Plan that identifies the pro-active and reactive steps the Contractor will take with Subcontractors to ensure quality rather than rely on SRP and Code Inspections. Minimum content for the QC Plan is:

1. Identify contractor and subcontractor personnel responsible for Quality.
2. List and explain pro-active and pre-construction steps taken by project team to understand plans, specifications, RFIs, and changes.
3. List and explain steps taken during construction to verify workmanship, dimensions, and that work is in accordance with the contract documents.
4. List and explain steps taken during and after construction to verify work is ready for and will pass code or special inspection.

C. Maintain the Deficiency Log and manage the resolution of the deficiencies.

D. SRP Specifications exceed Building, Mechanical, and Plumbing codes. Review these specifications prior to starting work to prevent rework. SRP drawings contain many non-standard details. Review these details prior to ordering materials to prevent rework.

E. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.

F. Manufacturer's Installation and Startup Documents: Provide a completed manufacturer's installation and startup checklist for each individual piece of equipment and gear. These are also known as pre-functional checklists. See Section 01 91 13 "General Commissioning Requirements" for additional details.

G. Coordination: Coordinate project schedule and sequence of activities to accommodate required quality-control and -assurance services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

H. Pre-Task Planning: Critical activities (such as communications cable replacement) or work at critical facilities may require an SRP lead Pre-Task Planning Meeting with the working foremen performing each activity or element of the Work. The SRP PM will specify those activities for which a Pre-Task Planning Meeting must occur. The agenda worksheet is available from the PM.

I. Recording Inspections: Use the SRP issued yellow "Inspection Record" to record all Final Inspections. Some Special Inspectors may submit a separate inspection report but should sign the Inspection Record. Turn all these over to the SRP PM at the end of the Project, to support the issuance of the Certificate of Final Completion.

J. Retesting/Reinspecting: Work that fails to comply with the Contract Documents shall be retested at Contractors expense, regardless of whether original tests or inspections were Contractor's or SRPs' responsibility.

1.8 QUALITY ASSURANCE

A. SRP Responsibilities:

1. Where testing-inspection services are SRP's responsibility, SRP will engage a qualified internal organization or a qualified testing agency to perform these services.
2. SRP will furnish Contractor with:
    a. Inspection Planning Worksheet that identifies all code and special inspections and the inspecting agency.
    b. Names, addresses, and telephone numbers of testing agencies engaged.
    c. Observe the Contractor's QC program and provide feedback
    d. Yellow Inspection Record form to record inspections and final inspections to be displayed on the jobsite.

B. Assistance to the Contractor: SRP recognizes that the specifications are stringent and above those found in commercial building. With advance notice by the Contractor, SRP will assist the Contractor by conducting reviews of Drawings and Specifications with subcontractors.

C. Testing Agency Responsibilities: Cooperate with the SRP PM and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
   1. Notify SRP PM, and Contractor promptly of irregularities or deficiencies observed in the Work.
   2. Determine the location for test samples.
   3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
   4. Submit a certified written report of each test and inspection to the SRP PM.
   5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
   6. Do not perform any duties of Contractor.

D. Engineer Observations: The SRP PM schedules the Architect and Engineers to conduct periodic inspection of the Work in place and work in progress. These observations will not satisfy any requirement for a code inspection. These observations are set up in the form of an allowance for a set number of visits to observe the Work.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION

3.1 PREPARING FOR INSPECTIONS

A. Subcontractors and Contractor's Superintendent shall:
   1. Review and inspect work for compliance with Contract Documents and standard workmanship prior to the SRP inspection.
   2. Provide access to the Work.
   3. Provide incidental labor and facilities necessary to facilitate tests and inspections.
   4. Ensure adequate quantities of representative samples of materials to be tested.
   5. Assist in obtaining samples for testing.
   6. Provide satisfactory area for storage and field curing of test samples.

3.2 SCHEDULING INSPECTIONS

A. Use 3-week look ahead schedule to project dates for all inspections and observations.

B. Through the SRP PM, coordinate code and special inspections. One week notice shall be provided in advance with two-hour window for inspection.

C. Inspections are during normal working hours from 7:00 a.m. to 3:00 p.m.

D. After Project Working Hours or Weekend Inspections: If Contractor voluntarily arranges a pre- task planning meeting for a subcontractor's work and invites SRP to witness, Inspections can be scheduled for that subcontractor's work after the project's normal working hours or weekends as an incentive to conduct pre-task planning.

E. The person who performed or supervised the work must be present and accompany all scheduled inspectors.

3.3 DOCUMENTING INSPECTIONS

A. SRP Inspectors will provide the Contractor with written inspection results. For deviations from the Specifications or code the Inspector will provide both pictures and specific references to the specification or code.

B. The Contractor is responsible for maintaining the yellow Inspection Record

C. For larger jobs where there will be more than one occurrence of an inspection, Contractor shall furnish a half-size set of drawings for all Inspectors to record the results of individual inspections.

3.4 REPAIR AND PROTECTION

A. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01 42 00

REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Acceptance", "acceptable", or words of similar import: Acceptance, acceptable or similar words shall be as determined by Architect and Owner.

C. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract. Approval does not release Contractor from responsibility from fulfilling Contract Document requirements.

D. "At no extra cost to Owner", "With no extra compensation to Contractor", "At Contractor's own expense", or words of similar import: Terms shall be understood to mean that Contractor shall perform or provide specified operation of Work at no increase to Contract Sum stated in executed Contract.

E. "Directed": A command or instruction by Architect or Owner. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated." No limitation on location is intended except as specifically noted.

H. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

I. "Installer": An entity engaged by Contractor, either as employee, subcontractor or sub-subcontractor for performance of a construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in operations they are engaged to perform. Term "experienced", when used with term "installer", means having minimum five previous projects similar in size and scope to this Project, and familiar with precautions required, and has complied with requirements of authority having jurisdiction.

J. "NIC": Work of this Project which is not being performed or provided as part of Contract; term shall mean "Not in This Contract" or "Not Part of Work to be Performed or Provided by Contractor". "NIC" work is indicated as aid to Contractor in scheduling amount of time and materials necessary for completion of Contract.

K. "Other acceptable manufacturer", "equal", "acceptable equal", "equivalent", or words of similar import: It shall be understood that words are followed by expression "at sole discretion of Architect and Owner" even though words may not appear in print.

L. "Perform": Contractor, at his own expense, shall perform operations necessary to complete Work, including furnishing of necessary labor, tools and equipment, and further including and installing of materials indicated, specified or required to complete performance.

M. "Project Site" is space available to Contractor for performance of Work, either exclusively or in conjunction with others performing construction as part of Project. Extent of Project Site is shown on Contract Drawings and may or may not be identical with description of land upon which Project is to be built.

N. "Provide": Contractor, at his own expense, shall furnish and install work complete in place and ready for use, including furnishing of necessary labor, materials, tools, equipment and transportation. Definitions apply same to future, present and past tenses, except word "provided" may mean "contingent upon" where context is apparent.

O. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

P. "Require" and words of similar import: As required to complete Work and as required by Architect and Owner.

Q. "Testing Laboratory" is independent entity engaged to perform specific inspections or tests, either at Project Site or elsewhere, and to report on, and if required, to interpret results of those inspections or tests.

1.2 REFERENCE STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

1. When conflict exists between requirements of reference standards and Contract Documents, request clarification from Architect and Owner before proceeding.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Make reference standards available as requested or required by Architect or Owner. Maintain copies of standard at project site throughout construction period.
2. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. ICC - International Code Council; www.iccsafe.org.
2. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the commonly recognized name of the referenced entities.

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations.

E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the commonly recognized name of the referenced entity.

1.4 DOCUMENT ORGANIZATION

A. Organization of Project Manual and Contract Drawings are not intended to control or to lessen responsibility of Contractor in dividing Work among subcontractors, or in establishing extent of Work to be performed by any particular trade.

1.5 SYMBOLS

A. Graphic symbols used in Contract Documents are those symbols recognized in construction industry for indicated purposes. Where not otherwise noted, symbols are those defined in "Architectural Graphics Standards", published by John Wiley & Sons, Inc., Twelfth Edition.

B. Graphic symbols used on mechanical and electrical drawings are generally aligned with symbols recommended by ASHRAE. Where appropriate, mechanical and electrical symbols are supplemented by more specific symbols recommended by technical associations including ASME, ASPE, IEEE, and similar organizations. Request clarification from Architect if symbols are unfamiliar.

1.6 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
3. The Specifications do not:
    a. Establish trade jurisdictions or divisions of responsibility.
    b. Define subcontract scopes of work.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Work specified in any one Section is related to, and dependent upon, Work specified in other Sections, whether or not specific reference is made to the Work of other Sections. Cross-references in the Specifications are general references intended as a matter of convenience for aiding in the location general information and are not all-inclusive.

D. Names, telephone numbers, and website addresses and other contact information listed in the Contract Documents are for convenience only, are subject to change, and are believed to be accurate and up to date as of the date the Contract Documents were produced.

E. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.

1.7 SPECIFICATION SENTENCE STRUCTURE

A. Specifications are written in modified brief style. In general, words "the", "a", "an", "shall", "shall be", and "all" are not used. Requirements indicated and specified apply to work of same kind, class, and type even though word "all" is not stated.

B. Simple imperative mood of sentence structure is used in Specification Sections which places verb as first word in sentence. Where "perform", "provide", "install", "erect", "furnish", "connect", "test", or words of similar import are used, it shall be understood that imperative words include the phrase "Contractor shall..." before such words.

C. Standard paragraph titles and other identifications of subject matter in Specifications are intended as aid in locating and recognizing various requirements in Specifications. Titles do not define, limit or otherwise restrict Specification's text. Capitalizing of words in text does not signify or mean that words convey special or unique meanings having precedence over other parts of Contract Documents. Specification text shall govern over titling and shall be understood to be interpreted as a whole.

D. Unless otherwise indicated, bold, underlined, or colored text that may be employed in Addenda are only for ease of locating and identifying revisions and are not intended to convey nor imply any special or unique meanings, hierarchy, or emphasis.

PART 2 - PRODUCTS
Not used.

PART 3 - EXECUTION
Not used.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Provide the labor, materials, equipment, and services necessary for all required temporary facilities and controls.

1. Temporary facilities and controls shall be maintained in a proper, safe operating and sanitary condition for the duration of the Project.
2. Upon completion, remove all temporary facilities and controls from the premises and restore existing facilities to original or better condition.

1.2 INFORMATIONAL SUBMITTALS

A. Construction Site Utilization Plan (also called Site Logistics Plan).

B. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.

D. Traffic Control Plan.

E. SWPPP permit.

F. County Dust Control Permit.

1.3 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines.

1.4 CONSTRUCTION SITE UTILIZATION PLAN

A. Prior to starting work, submit for approval by SRP PM a site plan showing the locations and dimensions of temporary facilities, including the following:
   1. Layouts and details.
   2. Equipment and material storage areas.
   3. Access and haul routes.
   4. Avenues of ingress/egress to the fenced area.
   5. Details of the fence installation.
   6. Refueling areas.
   7. Locations for employee parking and parking of company vehicles.

B. Identify any areas to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired.

C. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

PART 2 - PRODUCTS

2.1 TEMPORARY SIGNAGE

A. Bulletin Boards:
   1. Immediately upon beginning of Work, provide a weatherproof bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the Contract, Wage Rate Information poster, and other information approved by the SRP PM.
   2. Locate bulletin board at the Project site in a conspicuous place approved by the SRP PM and easily accessible to all construction employees.

B. Project and Safety Signs:
   1. Create and display safety signs that indicate the boundary of the construction limits and the minimum required Personal Protective Equipment. Safety signs shall be displayed at every personnel or vehicle entrance to the construction area.
   2. Project signs (when required by the SRP PM) shall have a white background, display the GC and SRP logos, list the GC's PM and Superintendent, the SRP PM and phone numbers for all.

2.2 TEMPORARY TRAFFIC CONTROL

A. Maintenance of Traffic: Conduct operations in a manner that will not close any thoroughfare or interfere in any way except with written permission of the SRP PM. Provide a Traffic Control Plan detailing the proposed controls to traffic movement for approval.

a. Plan shall be in accordance with State and local regulations.
b. Traffic control plan shall indicate the route Emergency Vehicles should take to reach the worksite.
c. Traffic control plan shall be furnished to the Security Guards at each guard station, when applicable.

2. Conduct work to minimize obstruction of traffic, and maintain traffic on at least half of the roadway width at all times. Obtain approval from the SRP PM prior to starting any activity that will obstruct traffic.
3. Provide, erect, and maintain, at contractor's expense, lights, barriers, signals, passageways, overhead protection, detours, and other items, that may be required by the Life Safety authority having jurisdiction.
4. Minimize the interference with public traffic on roads selected for hauling material to and from the site. Investigate the adequacy of existing roads and their allowable load limit. Contractor is responsible for the repair of any damage to roads caused by construction operations.

B. Dust Control:
1. Dust Control shall comply with latest State and County regulations when construction begins. Contractor shall secure all dust control permits.

C. Haul Roads (when required):
1. Contractor shall maintain the serviceability and condition of any roads used by the Contractor in performing the Work. Contractor shall provide SRP workers and crews access via the existing roads or by constructing suitable detours.
2. SRP will be responsible for removing obstructions or repairing damage caused by SRP use.
3. Contractor may, at their own expense, construct access and haul roads necessary for proper prosecution of the Work while providing necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic.
4. Location, grade, width, and alignment of construction and hauling roads require approval by the SRP PM.

D. Barricades: Erect and maintain temporary barricades to limit public access to hazardous areas. Whenever safe public access to paved areas such as roads, parking areas, or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic, barricades will be required.
1. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.
2. Use and locations shall be confirmed by SRP PM and shown on Construction Site Plan prior to installation.

2.3 TEMPORARY WIRING

A. Provide temporary wiring in accordance with NFPA 241 and NFPA 70, Article 305-6(b), Assured Equipment Grounding Conductor Program. Include frequent inspection of all equipment and apparatus.

2.4 TEMPORARY PARTITIONS

A. Temporary Noise and Dust Partitions:
   1. Areas to be occupied during construction hours that are adjacent to construction areas require a temporary noise & dust wall.
   2. Occupied areas shall be separated from construction areas by walls designed to reduce dust, noise, and obscure visibility.
   3. SRP's standard is to use metals studs, with one side sheet-rocked and insulted with batt insulation.
   4. This standard may be waived or modified by the SRP PM in writing.
   5. The temporary walls shall be constructed for quick removal and reuse if the project has phases. Visqueen with insulation is not a satisfactory temporary wall.

B. Temporary Dust Partitions:
   1. Where construction will occur after normal work hours and adjacent areas will be unoccupied, a temporary partition will suffice.
   2. A Visqueen barrier properly hung and sealed will be satisfactory.

2.5 TEMPORARY FENCING

A. Outside Fencing: Enclose the Project Work area and Contractor lay-down area with an 8 ft. high temporary chain link fence and gates to prevent access to the Work area.
   1. Remove the fence upon completion and acceptance of the Work.
   2. Where necessary to block public view of the construction, add screen/mesh material.

PART 3 - EXECUTION

3.1 EMPLOYEE PARKING

A. Contractor employees shall park privately-owned vehicles in an area designated by the SRP PM. This area will be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established parking requirements of the SRP facility.

3.2 AVAILABILITY AND USE OF UTILITY SERVICES

A. Temporary Utilities, General:
   1. Where available, SRP shall provide water and electricity at no charge to the Contractor. Provide other temporary utilities required for construction.
      a. Materials may be new or used, shall be adequate for the required usage, in compliance with applicable building codes and standards, and safe for use.

B. Electricity: Provide connections, sized to provide service required for power and lighting.
   1. Locate feeder and branch wiring with area distribution boxes so that power is available throughout the Project site by use of power cords.
   2. Provide transformers as required.
   3. Provide temporary lighting as required for safe and secure operations.

C. Water: Make connections to existing facilities to provide water for construction purposes.
   1. Coordinate with SRP PM for temporary backflow prevention device.
   2. Provide work force with adequate potable water and ice.
   3. If applicable, label temporary non-potable water sources.

D. Sanitation: All SRP office facilities to include cafeterias, toilets, telephones, etc. are off limits to construction personnel unless specifically authorized by the SRP PM.
   1. Provide and maintain within the construction area Porta-Potty style facilities approved by the SRP PM.
   2. Periodically empty wastes into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility.
   3. Maintain sanitation facilities at all times without nuisance.

E. Telephone and Internet Service:
   1. Utilize Contractor-furnished cell phones for all telephone requirements.
   2. SRP may provide telephone and broadband internet service at no charge for longer duration projects. Contact the SRP PM to request this service.
   3. Hardware and software furnished by SRP remains the property of SRP and shall be returned prior to the release of retention.

F. Fire Protection: Provide temporary fire protection equipment for the protection of personnel and property during construction.
   1. Coordinate requirements for equipment with the SRP PM.
   2. Remove debris and un-used or excess flammable materials from the construction site daily to minimize potential hazards.

3.3 TEMPORARY OFFICE AND STORAGE FACILITES

A. Trailers or Mobile Storage Units:
   1. Office and storage trailers/units will be permitted, where space is available, subject to the approval of the SRP PM.
   2. Temporary office and storage units shall be in good condition, free from visible damage, rust, and deterioration, and meet all applicable safety requirements.
   3. A sign not smaller than 24 by 24 inches shall be conspicuously placed on the trailer depicting the Contractor’s name, business phone number, and emergency phone number.
   4. Trailers shall be anchored to resist high winds and meet applicable local standards for anchoring.

B. Outside Storage: Request through the SRP PM. Storage area shall be secured by the Contractor using a temporary chain link fence.

C. Storage in Existing Buildings: Storage of material may be allowed inside the buildings.
   1. Request this type of storage through the SRP PM.
   2. Security fence with a lockable gate may be required around the storage area. Remove at the completion of Work.

3.4 PROJECT SAFETY FENCING

A. As soon as practicable, furnish and erect temporary project safety fencing at the work site.
   1. Safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of forty-two (42) inches high, supported and tightly secured to steel posts located on maximum ten (10) foot centers, constructed at the approved location.
   2. Maintain safety fencing for the duration of the Project and, upon completion and acceptance of the Work, becomes the property of the Contractor and shall be removed from the site.

3.5 CLEANUP

A. SRP will furnish (at SRP expense) roll-off twenty (20) or forty (40) yard dumpsters. Place construction debris, waste materials, packaging material and the like into the dumpsters daily.

B. Any dirt or mud tracked onto paved or surfaced roadways shall be removed. In no instances shall any debris or trash be buried, covered, or left on SRP property.

3.6 RESTORATION OF STORAGE AREA

A. Upon completion of the project remove the bulletin board, signs, barricades, haul roads, and any other temporary products from the site.

B. After removal of trailers, materials, and equipment from within the fenced area, remove all temporary fences.

C. Restore to the original or better condition, areas used by the Contractor for the storage of equipment or material, or other use.

D. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including landscaping, vegetation, and features.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Administrative and procedural requirements governing the selection of products for use including but not limited to:

1. Product delivery, storage, and handling.
2. Manufacturers' standard and special warranties on products.
3. Manufacturers' instructions and certifications.

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis of Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis of design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.3 SUBMITTALS

A. Proposed Products List: Within period of 30 days after award of Contract, submit to Architect five (5) copies of complete list of major Products, which are proposed for installation.

1. Tabulate products by Specification Section number, title, and Article number.

2. For products specified only by reference standards, list for each such product:
   a. Name and address of manufacturer.
   b. Trade name.
   c. Model or catalogue designation.
   d. Manufacturer's Data including reference standards and performance test data.
3. Architect will reply promptly in writing stating whether there is reasonable objection to any listed items. Failure to object to a listed item shall not constitute waiver of requirements of Contract Documents.

1.4 QUALITY ASSURANCE

A. Materials specified are to a define standard of quality or performance and to establish basis for evaluation of proposals and substitutions.

B. Comply with individual Specification Sections and referenced standards as minimum requirements.

C. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
   1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
   2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

D. Source Limitations: Components required to be supplied in quantity within Specification Section shall be of same manufacturer and shall be interchangeable.

E. Nameplates and Labels: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on surfaces of products which will be exposed to view in occupied spaces or on the exterior:
   1. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface approved by Architect and governing authorities.
   2. Nameplates: Provide a permanent nameplate on each item of service-connected or power operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long term storage at site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.6 MANUFACTURER'S INSTRUCTIONS

A. When Contract Documents require that installation of work shall comply with manufacturers printed instructions, obtain and distribute copies of instructions to parties involved in installation, including two copies to Architect, prior to commencing Work.

1. Maintain one set of complete instructions at job site during installation and until complete.
2. Maintain one set of complete instructions for Project Record Documents.

B. Handle, install, connect, clean, condition and adjust products in strict accord with manufacturer's instructions and in conformity with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, notify Architect in writing for further instructions.
2. Do not proceed with work without clear instructions.

C. Perform work in accordance with manufacturer's instructions. Do not omit preparatory steps of installation procedures unless specifically modified or exempted by Contract Documents.

1.7 MANUFACTURER CERTIFICATION

A. Prior to Final Acceptance of Work, for items designated in Specification Sections, an authorized representative of each manufacturer of materials or equipment installed under the work shall examine installation and operation of its materials, system and equipment to determine if the product is correctly installed and operating properly.

B. Examine and test work which will be concealed during execution of Work, after completion of installation and prior to concealment and for work which will not be concealed at completion of work.

C. Each representative shall submit signed statement to Owner, through Contractor, certifying to its examination and to correct installation and proper operation of materials, systems or equipment. Certification shall list items included.

D. Transmit certifications to Architect at or prior to Final Acceptance Inspection. Transmittal shall include list of certifications included.

1.8 MAINTENANCE

A. For mechanical and electrical equipment in long term storage, provide manufacturer's service instructions shown on exterior of package.

B. Service equipment on a regular basis as recommended by manufacturer. Maintain log of maintenance services. Submit log as Project Record Document in accordance with requirements of Section 01 78 39 “Project Record Documents.”

1.9 PRODUCT WARRANTIES

A. Specified product and materials warranties are in addition to, and run concurrent with, warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.

2. See other Sections for specific content requirements and requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 77 00 “Closeout Procedures.”

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

A. Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience.

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products: Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide comparable product by one of the manufacturers listed that complies with requirements.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified product or a comparable product by one of the named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named.

C. Performance Specifications Requirements: Where specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated.

D. Compliance with Standards, Codes and Regulations: Where specifications require compliance with an imposed code, standard or regulation, select a product that complies with the code, standard or regulations specified.

E. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 25 00 “Substitutions” for proposal of product.

F. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

2.3 SUBSTITUTIONS

A. Refer to Section 01 25 00 “Substitution Procedures.”

PART 3 - EXECUTION

3.1 EXAMINATION

A. Make periodic examinations of stored materials to verify products are maintained under specified conditions and are free from damage or deterioration.

B. Verify storage facilities comply with manufacturer's product storage requirements.

C. Verify manufacturer required environmental conditions are maintained continually.

D. Verify that surfaces of products exposed to elements are not adversely affected and that weathering of finishes is within acceptable tolerances under requirements of Contract Documents.

3.2 PROTECTION

A. Furnish protection against weather. Cover building openings to protect interior of building from weather.

B. Maintain work, materials, apparatus and fixtures free from damage.

C. Protect items having factory finish to prevent damage to finish and equipment.

D. At end of day's work, cover new work likely to be damaged or otherwise protect as necessary.

E. After installation, secure substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations.

F. Remove protection when no longer needed. Upon completion of work, remove storage facilities from site.

3.3 ADJUSTING

A. Do not use materials in work which have deteriorated, become damaged or are otherwise unfit for use.

B. Replace stored items damaged by inadequate protection or environmental controls.

END OF SECTION

SECTION 01 73 00

EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: General administrative and procedural requirements governing execution of the work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the work.
4. Cutting and patching.
5. Coordination of Owner's portion of the Work.
6. Coordination of Owner installed products.
7. Progress cleaning.
8. Starting and adjusting.
9. Protection of installed construction.

1.2 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.3 PREINSTALLATION MEETINGS

A. Layout Conference: Conduct conference at Project site.

1. Prior to establishing layout of new perimeter and structural column grid(s), review building location requirements. Review benchmark, control point, and layout and dimension requirements. Inform Architect of scheduled meeting. Require representatives of each entity directly concerned with Project layout to attend, including the following:
   a. Contractor's superintendent.
   b. Professional surveyor and Contractor's personnel responsible for performing additional Project layout work.
   c. Professional surveyor responsible for performing site survey serving as basis for Project design.
2. Review meanings and intent of dimensions, notes, terms, graphic symbols, and other layout information indicated on the Drawings.

3. Review requirements for including layouts on Shop Drawings and other submittals.
4. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: Submit qualifications for land surveyor.

B. Certified Surveys: Submit three copies signed by land surveyor.

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

D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 CLOSEOUT SUBMITTAL

A. Final Property Survey: Submit 10 copies showing the work performed and record survey data.

1.6 QUALITY ASSURANCE

A. 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.

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
   1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding.
      a. Shore, brace, and support structural elements during cutting and patching.
      b. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
   2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
      a. Primary operational systems and equipment.
      b. Fire separation assemblies.
      c. Air or smoke barriers.
      d. Fire-suppression systems.
      e. Plumbing piping systems.
      f. Mechanical systems piping and ducts.

g. Control systems.
h. Communication systems.
i. Fire-detection and -alarm systems.
j. Conveying systems.
k. Electrical wiring systems.
l. Operating systems of special construction.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
   a. Water, moisture, or vapor barriers.
   b. Membranes and flashings.
   c. Exterior curtain-wall construction.
   d. Sprayed fire-resistive material.
   e. Equipment supports.
   f. Piping, ductwork, vessels, and equipment.
   g. Noise- and vibration-control elements and systems.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

C. Manufacturer's Installation Instructions: Obtain and maintain on site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with requirements specified in other Sections.
   1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of existing materials.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not warranted. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, 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; underground electrical services; and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the work, examine substrates, areas, and conditions for compliance with requirements for installation tolerances and conditions affecting performance. Record observations.

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

C. Proceed with installation after correcting unsatisfactory conditions. Proceeding with the work constitutes acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner 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.

1. 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 caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 31 00 "Project Management and Coordination."

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. 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 limits on use of Project site.
   3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
   4. Inform installers of lines and levels to which they must comply.
   5. Check the location, level and plumb, of every major element as the Work progresses.
   6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
   7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

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

D. 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.

E. 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. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. 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.

C. 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.

D. 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 sitework.

E. Final Property Survey: Engage a land surveyor to 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. 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 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces.

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. Sequence the work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

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

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
   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.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. 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.

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

K. Repair or remove and replace damaged, defective, or nonconforming work.

1. Comply with Section 01 77 00 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.6 CUTTING AND PATCHING

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of Work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Proceed with patching after construction operations requiring cutting are complete.

F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
b. Restore damaged pipe covering to its original condition.

3. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to the site for Owner's construction personnel.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

A. Clean project site and work areas daily, including common areas. 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 waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 degrees F (27 degrees C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
a. Use containers intended for holding waste materials of type to be stored.
4. Coordinate progress cleaning for joint use areas where Contractor and contractors are working concurrently.

5. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate conditions that could affect final finishing.

B. Site: Maintain Project 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 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 in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal:
   1. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 degrees F (27 degrees C).
   2. Provide onsite dumpsters and containers for collection of waste materials, rubbish, and debris.
   3. Do not allow waste materials, rubbish, and debris to accumulate and become an unsightly and hazardous condition. Provide additional collection and dispose of debris when scheduled removal is inadequate to prevent accumulation.
   4. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to EPA and local regulations.
      a. Utilize containers intended for holding hazardous waste to be stored.
   5. Terminate closed chutes into appropriate containers with lids. Open free fall chutes are not permitted.
   6. Do not overload trucks to prevent spillage on access and haul routes. Examine traffic areas and maintain clear routes.
   7. Clean site and work areas daily, including common areas. Enforce requirements strictly. Legally dispose of waste materials, rubbish, and debris away from site.
      a. Do not bury or burn waste materials onsite. Do not wash waste materials down sewers or into waterways.
      b. Legally dispose of waste materials and comply with disposal requirements in Sections 01 50 00.

H. 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.

I. 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.

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

3.9 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements.

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

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

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

E. Manufacturer's Field Service: Comply with qualification requirements in Section 01 40 00 “Quality Requirements.”

3.10 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. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the work.

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

3.11 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.

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

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for contract closeout, including, but not limited to, the following:
   1. Substantial Completion procedures.
   2. Final Completion procedures.
   3. Warranties.
   4. Final Cleaning.

B. Related Requirements:
   1. Section 01 29 00 "Payment Procedures" for requirements for Applications for Payment for Substantial Completion and Final Completion.
   2. Section 01 78 23 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
   3. Section 01 78 39 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   4. Section 01 79 00 "Demonstration and Training" for requirements to train Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.2 DEFINITIONS

A. Substantial Completion: This means the Work is ready for pre-operational checkout for the purpose for which it was intended, and only minor items remain to be completed or corrected that would either not affect the operation as intended or could be completed prior to the scheduled date of the pre-operational check-out.

B. Final Acceptance: Sufficient tests and inspections have been made by SRP to determine that the Work meets all the requirements of the Contract Documents. Successful completion of the tests and inspections, as determined solely by SRP, shall constitute acceptance.

C. Final Completion: All technical, performance, and commercial requirements of the Contract Documents have been met and all required “affidavit” information, warranty certificates, unconditional lien waivers, O&M manuals, and Project Record Documents have been approved by SRP and SRP is prepared to issue the final payment (including retention).

D. Pre-functional Tests (PFT): Tests that occur prior to starting the equipment. These are normally the completion of the manufacturer's installation and startup checklists. This is a commissioning term.

E. Functional Performance Test (FPT): Test of the dynamic function and operation of equipment and systems. This commissioning test is performed after pre-functional tests are completed.

1.3 SUBSTANTIAL COMPLETION

A. Prerequisites: Before SRP will declare and document achievement of Substantial Completion, the following shall have been accepted or waived in writing by the SRP Project Manager (PM).

1. Prepare a list of items to be completed or corrected (Punch List). As a minimum, all unresolved items from the QC Deficiency List shall be included on the Punch List.
2. Prepare and submit one set of As-built (Red Line) Drawings to the SRP PM.
3. Prepare and submit one set of Operation and Maintenance manuals. Submit the O&M Manuals without actual warranty letter since date of Substantial Completion has not been determined.
4. All Pre-functional Tests shall be completed, submitted, and accepted prior to declaration of Substantial Completion.
5. Submit the training schedule and all training outlines for approval.
6. Submit the updated schedule or three-week schedule showing Functional Performance Tests.
7. All assets requiring asset tags are properly documented to allow for labeling with tags by SRP.
8. Acceptance Test for Fire Protection Systems has been conducted by SRP Fire Marshall and a satisfactory report (with unresolved issues) or total acceptance has been recorded on the Inspection Report.

B. Inspection: Submit an e-mail request to the SRP PM for the Substantial Completion inspection by the A/E Team or SRP. On receipt of request, Architect or SRP will proceed with inspection or notify Contractor of unfulfilled prerequisites. Architect or SRP will perform the following:

1. Prepare the Certificate of Substantial Completion after satisfactory inspection or notify Contractor of issues (whether on Contractor's punch list or items identified by A/E,) that shall be completed or corrected before certificate will be issued.
2. Reinspection: Request reinspection when the Work identified in previous inspections is completed or corrected.

C. Functional Performance Testing: The final stage of Commissioning (Functional Performance Testing) will normally begin once SRP or A/E inspection for Substantial Completion has occurred.

1.4 FINAL ACCEPTANCE

A. Final Acceptance occurs after the completion of functional performance tests of designated systems and equipment.

B. Prerequisites:
   1. Resolution of all issues on the installation and startup checklists.
   2. Completion of Functional Performance Testing
   3. Resolution of all Punch List and Commissioning Log issues.
   4. Satisfactory completion of all Work.

C. Procedure:
   1. In the event some systems or parts of Work were not accepted or approved during the Substantial Completion inspection, request a final acceptance inspection via e-mail to the SRP PM.
   2. Schedule a meeting with the SRP PM and A/E to review all prerequisites in 1.4 B.

1.5 FINAL COMPLETION

A. Final Completion encompasses satisfactory completion of all technical requirements, functional performance requirements, all documentation, and all other contractual requirements.

B. Prerequisites:
   1. Completion of Functional Performance Testing.
   2. Written certification of satisfactory resolution of all items on Punch List and Commissioning Issue Log (with signature and date).
   3. Completion of all training.
   4. Final acceptance of O&M manuals.
   5. Final acceptance of Contractor’s Red Line Drawings by SRP and the A/E.
   6. If applicable, final pest-control inspection report and warranty.
   7. Final cleaning.

C. Procedure:
   1. Submit a final Application for Payment according to Section 01 29 00 "Payment Procedures."
   2. Notify SRP PM of submission of final Application for Payment.

1.6 PUNCH LIST

A. Organization of List: Identify each space or area affected with incomplete items and items needing correction including areas disturbed by Contractor that are outside the limits of construction.

1. Include name of problem, reason for problem, responsible subcontractor, date item added to list, date resolved, and initials of SRP person inspecting or accepting the corrected work.
2. Submit Punch List in Excel electronic format.

1.7 WARRANTY

A. As defined in Paragraph 4.20 of the General Terms and Conditions of the contract, warranty is 2 years from date of Substantial Completion or 18 months from the date of Final Acceptance whichever is longer.

B. Submit Warranty documents in accordance with Section 01 78 23 "Operation and Maintenance Data."

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
1. Use cleaning products that meet Green Seal GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting Final Completion:
   a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
   c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

d. Remove tools, construction equipment, machinery, and surplus material from Project site.

e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

g. Sweep concrete floors broom clean and wet mop in unoccupied spaces.

h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

j. Remove labels that are not permanent.

k. Touch up and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

   1) Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.

l. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

m. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

q. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare written report.

END OF SECTION

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
   1. Operation and maintenance documentation directory manuals.
   2. Emergency manuals.
   3. Systems and equipment operation manuals.
   4. Systems and equipment maintenance manuals.
   5. Product maintenance manuals.

B. Related Requirements:
   1. Section 01 33 00 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
   2. Section 01 91 13 "General Commissioning Requirements" for verification and compilation of data into operation and maintenance manuals.
   3. Refer to Divisions 02 through 33 Sections for specific operation and maintenance data required to be included in Manuals.

1.2 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.3 CLOSEOUT SUBMITALS

A. General: Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
   1. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Operation and Maintenance (O&M) Manual: Submit one of each manual in final form prior to desired date of Substantial Completion. O&M Manual shall not contain the actual warranty letters since date of Substantial Completion has not been determined. SRP and the CxA will return comments within 15 workdays of submission.

C. Correct or modify the manual to comply with Architect and SRP comments. Submit one digital copy of the final manual with warranty letters prior to final application for payment.

1.4 FORMAT OF O&M MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

1.5 REQUIREMENTS FOR O&M MANUALS

A. Organization: Unless otherwise indicated, organize each manual into a separate section or tab for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents (with tabs), warranty directory, and manual contents.

B. Title Page: Include the following information:

1. Title (Operations & Maintenance Manual).
2. Name and address of Project.
3. Date of final submittal.
4. Name, address, and telephone number of Contractor.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and referenced to Specification Section number.

D. Warranty Directory: In Table format, list category, warranty duration, warranty expiration date, name of responsible company, contact name, and phone, and fax numbers. See Appendix A for example.

E. Manual Contents: Organize into sets of manageable size. Arrange contents numerically by Division or alphabetically by Category (electrical, HVAC, plumbing). If possible, assemble instructions for subsystems, equipment, and components of one system into the same section.

1. Drawings: Organize and scan drawings electronically to include in the Operations & Maintenance Manual

1.6 EMERGENCY MANUALS

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

C. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

1.7 EQUIPMENT OPERATION INFORMATION

A. Basic Content: Include operation data required in individual Specification Sections to include equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.

B. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

C. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

D. Piped Systems: Diagram piping as installed.

1.8 EQUIPMENT MAINTENANCE INFORMATION

A. Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings, and diagrams for maintenance, nomenclature of parts and components. Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

B. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions that detail essential maintenance procedures.

C. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

D. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

E. Spare and Repair Parts: Include manufacturer's recommendations of spare and repair parts. Include a list of spare and repair parts turned over to SRP.

F. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

1.9 WARRANTY INFORMATION

A. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   1. Include procedures to follow and required notifications for warranty claims.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
   1. Provide warranty certificates and other warranty information from manufacturers.
   2. Provide warranty letter from each subcontractor containing the following:
      a. Warranty coverage and contacts.
      b. Warranty start date (not earlier than date of substantial completion) and end date.

1.10 MANUAL FORMAT AND QUANTITES

A. Provide one digital copy of the O&M Manual. Submit via email or file transfer system. If the package is substantial in size, it may be submitted via USB thumb drive.

1.11 COMPLETION OF O&M MANUALS

A. Schedule: Incorporate the submission of the single draft manual and the final manual as activities or milestones on the project schedule. Submission of the draft manual is a prerequisite for Substantial Completion.

B. Payment: Final payment is conditioned upon the acceptance by SRP of the final O&M Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ATTACHMENTS

A. Appendix A – Example of Warranty Directory.

END OF SECTION

APPENDIX A

EXAMPLE OF WARRANTY DIRECTORY

PROJECT:	
CONTRACTOR:	
Contact Name: Address: Zip Code: Phone: E-mail:	

CATEGORY	WARRANTY		CONTRACTOR/MFR.	PHONE	CONTACT NAME
	Duration	End Date			
Mechanical	2 yrs	10/31/2010	Mechanical Solutions 123 Center Street Mesa, Arizona 85215	480-236-2852 480-236-2200	Contact Person
Air Handling Unit	2 yrs	10/31/2010	Carrier, Inc. Address City, State	650-236-5500	Contact Person
Electrical	2 yrs	10/31/2010	Delta Diversified 123 Center Street Mesa, Arizona, 85215	480-236-2852 480-236-2200	Contact Person
Sheet Metal	2 yrs	10/31/2010	KPML 123 Center Street Mesa, Arizona 85215	480-236-2852 480-236-2200	Contact Person

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for Project Record Documents, including the following:
   1. Record Drawings.
   2. Record specifications.
   3. Record Product Data.
   4. Miscellaneous record submittals.

B. Related Requirements:
   1. Section 01 77 00 "Closeout Procedures" for general closeout procedures.
   2. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.2 REFERENCES

A. SRP CAD Standards Manual for Design and Construction Projects February, 2020 available at https://srpnet.com/electric/business/facilityspecs/cad.aspx .

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:
   1. Number of Copies: Submit one set of marked-up record prints.

B. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
   1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

C. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

1.4 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally.
   a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
   b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
   c. Record and check the markup before enclosing concealed installations.
2. Content: Types of items requiring marking include, but are not limited to, the following:
   a. Dimensional changes to Drawings.
   b. Revisions to details shown on Drawings.
   c. Depths of foundations.
   d. Locations and depths of underground utilities.
   e. Revisions to routing of piping and conduits.
   f. Revisions to electrical circuitry.
   g. Actual equipment locations.
   h. Duct size and routing.
   i. Locations of concealed internal utilities.
   j. Changes made by Change Order or Construction Change Directive.
   k. Changes made following Architect's written orders.
   l. Details not on the original Contract Drawings.
   m. Field records for variable and concealed conditions.
   n. Record information on the Work that is shown only schematically.
3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Note RFI numbers, Construction Change Directive numbers, Change Order numbers, and similar identification, where applicable.
6. Mark important additional information that was either shown schematically or omitted from original Drawings.
7. Before requesting inspection for Substantial Completion, submit the Red Line drawings to the SRP PM for review, comment, and transmission to the A/E.

B. Owner Review: SRP PM will review the Record Drawings for completeness and accuracy. In the event of missing or incorrect information, SRP will return the Record Drawings for further work and documentation of as-built conditions. If the quality of the Record Drawings is poor, SRP PM may declare that the first submission does not satisfy the prerequisite requirement for Substantial Completion.

C. Resubmission of Record Drawings: Resubmit Record Drawings to the SRP PM.
   1. Upon successful review, Record Drawings will be transmitted to the A/E for review, comment, and, when accepted, shall be incorporated into the electronic record drawings.

2. Final acceptance of the Contractor's Record Drawings by Owner is a precondition for the Contractor's Final Completion.

D. Format: Identify and date each sheet of the Record Drawings; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1.5 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.
   1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
   3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
   4. Note related Change Orders and RFIs where applicable.

B. Format: Submit Record Specifications as annotated PDF electronic file.

1.6 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
   1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
   3. Note related Change Orders and RFIs where applicable.

C. Format: Submit Record Product Data as annotated PDF electronic file.
   1. Include Record Product Data directory organized by Specification Section number and title.

1.7 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Owner's and Architect's reference during normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 79 00

DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
   1. Instruction in operation and maintenance of systems, subsystems, and equipment.

B. Related Requirements:
   1. Refer to Divisions 02 through 33 Sections for specific demonstration and training requirements.

1.2 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
   1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

B. Training Plan: Submit an Excel spreadsheet that will track all training required by the specifications, listing the subcontractor responsible, instructor, status of training outline approval, proposed dates, and notes (as needed).

1.3 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00 "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
   1. Inspect and discuss locations and other facilities required for instruction.

2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
3. Review required content of instruction.
4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

D. Attendees: Owner, Contractor, and Commissioning Agent. Review training requirements, methods of training and procedures for training.

E. Coordinate content of training outlines with content of approved O&M manuals.

1.4 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

1.5 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
1. Basis of System Design, Operational Requirements: Contractor may choose to have one training session instructed by the A/E team to satisfy this requirement. Explain choice of particular system and equipment, operating standards, regulatory requirements, equipment function, operating characteristics, and limiting conditions.
2. Operation & Shutdown: Include startup, break-in, control, and safety procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions and required sequences for electric or electronic systems.
3. Navigation of electronic displays.

4. Emergencies: Include instructions on stopping; shutdown instructions; operating instructions for conditions outside normal operating limits; instructions on meaning of warnings, trouble indications, and error messages; and required sequences for electric or electronic systems.
5. Troubleshooting: Include diagnostic instructions, test, and inspection procedures.
6. Maintenance and Adjustments: Include inspection procedures, types of cleaning agents, methods of cleaning, procedures for preventive and routine maintenance, and instruction on use of special tools. Include alignments and checking, noise, vibration, economy, and efficiency adjustments.
7. Repairs: Include diagnosis, repair, and disassembly instructions; instructions for identifying parts; and review of spare parts needed for operation and maintenance.
8. Plan on one training class period for each required training subject unless the RFP requires more class periods.

1.6 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 01 78 23 "Operation and Maintenance Data."

B. Set up instructional equipment at instruction location.

C. Forward all training outlines to the SRP PM and the CxA (if hired on this project) for review of content, organization, and time. Training outlines may be reviewed by SRP's O&M Manager for content.

D. The SRP PM will return the training outlines within 10 working days.

1.7 INSTRUCTION

A. Coordinator: Appoint a contractor's staff member to serve as training coordinator to prepare instruction program and training modules, coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
   1. Schedule training with Owner through SRP PM with at least 7 workdays advance notice.

D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a written performance-based test or assessment form.

F. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 91 00

COMMISSIONING PROGRAM

PART 1 - GENERAL

1.1 SUMMARY

A. Why SRP Commissions: Commissioning is part of SRP's Quality Assurance process that ensures a building or project's complex range of systems is designed, installed, tested, and performs to SRP's intent and operational needs.

B. What SRP Expects From Commissioning: Depending on size and complexity of the project, expectations for Commissioning range from completing the manufacturer's installation and startup checklists followed by a functional performance test to a fully integrated commission process that begins early in the design phase and ends when the warranty period is over.

C. Roles and Responsibilities SRP, A/E Team, and Construction Team have on this Project: SRP has a Roles and Responsibilities Matrix (included in Article 1.4 of this Section) that defines the responsibilities of each organization in the Design Phase, Pre-Construction Phase, Construction Phase, Acceptance Phase, and Post Occupancy Phase.

D. This Section excludes Retro-Commissioning.

E. Related Requirements:

1. SRP's Scope of Work Document or the Owner's Project Requirements (OPR)
2. Basis of Design (BOD) document from the A/E.
3. Roles and Responsibilities Matrix included in the Bidding Documents.
4. Section 01 33 00 "Submittal Procedures" for content and format of submittals.
5. Section 01 77 00 "Closeout Procedures" for definition of Substantial Completion.
6. Section 01 78 23 "Operation and Maintenance Manuals" for O&M documentation.
7. Section 22 08 00 "Commissioning of Plumbing" for details of testing to meet the plumbing Cx requirements.
8. Section 23 08 00 "Commissioning of HVAC" for details of testing to meet the mechanical Cx requirements.
9. Section 26 32 35 "Standby Generator Testing and Commissioning" for details of testing to meet the electrical standby generator Cx requirements.
10. Section 26 33 34 "Static UPS Testing and Commissioning" and Section 26 33 35 "Static UPS (Large System) Testing and Commissioning" for details of testing to meet the electrical static UPS Cx requirements.

1.2 DEFINITIONS

A. Design Phase:

1. Owner's Project Requirements (OPR) – Document written by the Owner's Representative, which details the functional requirements of Project and expectations regarding how it will be used and operated.
   a. Document may include project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information dynamic document that provides the explanation of the ideas, concepts and criteria that are considered very important to SRP.
   b. SRP may furnish a detailed Scope Document that is equivalent to the OPR.
   c. Deliverable: Written Document.
2. Basis of Design (BOD) – The A/E team's written record of the primary thought processes and assumptions behind design decisions. It records concepts, calculations, decisions, and product selections used to meet the OPR/Scope Document and to satisfy applicable regulatory requirements.
   a. Deliverable: A written document or written in the Drawings.
3. Commissioning Specification – A specific set of requirements that must be satisfied to ensure that the equipment and systems installed meet all the Owner's Project Requirements.
   a. Deliverable: Approved Commissioning Specifications.

B. Pre-Construction Phase:

1. Commissioning Plan (Cx Plan) – The overall plan, drafted before and developed after bidding that provides the structure, schedule and coordination planning for the commissioning process. There is a design phase plan and a construction phase plan.
   a. Deliverable: Project specific written plan.
2. Pre-Functional Checklists – Checklist(s) of items to verify proper installation of equipment and startup of equipment. The manufacturer's installation and startup checklists are the normal source documents. The Cx Agent may approve the manufacturer's checklists or furnish more comprehensive checklists for use by the installing subcontractor.
   a. Pre-functional checklists are primarily static inspections and procedures to prepare the equipment for initial operation.
   b. Deliverable: Installation Checklist and Startup Checklist for each type of equipment installed.
3. Functional Performance Testing Procedures (FPT) – The dynamic operation and testing of systems (rather than just components) under full operation. Systems are tested under various modes, various loads, simulated component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to be responding as the sequences state.
   a. The Cx Agent develops the functional test procedures in a sequential written form, oversees and documents the actual testing.

b. FPTs are performed after pre-functional checklists, startup, and TAB are complete.

c. Deliverable: Written Functional Performance Test plan.

C. Construction Phase:

1. Installation Verification – The completion of the Installation Checklists by the Subcontractors, with overview by the Cx Agent. This activity is complete when the Cx Agent has reviewed and approves the checklists for each discrete piece of equipment and any discrepancies or deviations are noted on the Issues Log (maintained by the Cx Agent).

   a. Deliverables: Completed Installation Checklists and Issues Log

2. Equipment Startup – The initial energizing of dynamic equipment, including executing the approved startup checklist by installing contractor. Startup may be witnessed by the Cx Agent. It is part of the Pre-functional Tests.

   a. Deliverables: Completed Startup Checklists and Issues Log

3. Test and Balance (TAB) – Traditional air or water test and balancing to set up the system flows and pressures as specified.

   a. Deliverable: TAB report.

4. System Verification – Verification of resolution of items on Issues Log prior to start of Acceptance Phase (and functional performance testing).

   a. Deliverables: Completed Issues Log with resolutions and indication equipment is ready for FPT.

D. Acceptance Phase:

1. Functional Performance Testing – The completion of the Functional Performance Test by the Subcontractors under the direction of the Cx Agent.

   a. Deliverables: Completed FPT and updated Issues Log.

2. Operator Training –Training using an approved training outline on the operations and maintenance of the equipment to the Owner's personnel as outlined in the Specifications.

   a. Deliverables: Training outline, attendance rosters.

E. Post-Occupancy Phase:

1. Closeout Documentation – Required documentation from the Cx Agent and Contracting team after Substantial Completion. SRP requires this documentation to achieve Final Completion.

   a. Deliverables: Commissioning Report, O&M Manuals, Warranty information.

2. Systems Manual – For LEED and non-LEED projects, the additional BOD, as-built, testing, sequence of operations etc. information that supplements the O&M Manuals to provide Operations & Maintenance teams additional information on what was installed, why, how it was tested, and controls information.

   a. Deliverables: Completed Systems Manual

3. Warranty Follow-Up / Deferred Testing – When required, a test plan and test results for seasonal testing and the notes/action items from the meeting to review all trouble calls and problems 90 days prior to the expiration of the warranty.
   a. Deliverable: Document showing Warranty Follow-up meeting was conducted and resolution of issues identified.

1.3 QUALITY ASSURANCE

A. The Roles and Responsibilities Matrix will be completed by SRP and included in the Bid packages for the A/E and the Construction Team. The following is an example of a completed matrix.

Roles & Responsibilites						
	SRP		CxA	A/E Team	GC	Subs
TASK (Deliverable)	Action	Party	Action	Action	Action	Action
Design Phase						
Develop Owners Project Requirements (OPR)	**R**	PM	RC	S		
Develop Basis of Design (BOD)			RC	**R**		
Develop Cx Specifications (Cx Spec Sections)	RC	PM	**R**	RC		
Pre-Construction Phase						
Submittal Review (Review Comments)	RC	OMS	S	**R**		
Develop Cx Plan (Completed Plan)	RC	OMS	**R**	RC	RC	
Develop Pre-Functional Checklists (Checklists)	RC	OMS	**R**	RC	RC	
Develop Functional Testing Procedures (FPT)	RC	OMS	**R**	RC	RC	
Construction Phase						
Installation Verification (Installation Checklists)			S	**R**	S	
Equipment startup (Startup Checklists)	W	OMS	W	W	**R**	P
Test & Balance (TAB Report)			W	RC	**R**	P
System Integrity Verification (Resolution of install/startup issues)	S	OMS	W		**R**	P
Acceptance Phase						
Functional Performance Testing (Completed Procedures)	W	OMS	**R**	W	S	P
Operator Training (On-Site Training)	W	OMS	W		**R**	S
Post Occupancy Phase						
Close Out Documentation (O&M Manuals, Reports)	RC	PM	**R**	RC	**R**	S
Compile Systems Manual (Completed Manual)			**R**		S	S
Warranty follow-up (Scheduled & Performed Follow-up)	S	OMS	**R**		S	S

Legend:				
R - Responsible	PM	SRP PM	Installer	
S - Support	CI	Const. Inspector	GC	General Contractor
RC - Review/Comment	OMS	O&M Supervisor	Sub	Sub-Contractor
W - Witness	AE	Architect/Engineer		
P-Perform	CxA	3rd Party Cx Agent		

PART 2 - PRODUCTS

2.1 EQUIPMENT/SYSTEMS TO BE COMMISSIONED

A. The following equipment is typically commissioned:

Equipment and System	Equipment and System
HVAC System	**Electrical System**
__ Chillers	__ Sweep or scheduled lighting controls
__ Pumps	__ Daylight dimming controls
__ Cooling tower	__ Lighting occupancy sensors
__ Boilers	__ Power quality
__ Piping systems	__ Security system
__ Ductwork	__ Emergency power system
__ Variable frequency drives	__ UPS systems
__ Air handlers	__ Fire and smoke alarm
__ Packaged units (AC and HP)	__ Fire suppression systems
__ Terminal units (air)	__ Communications system
__ Unit heaters	__ Public address/paging
__ Heat exchangers	**Plumbing System**
__ Computer room units	__ Service water heaters
__ Fume hoods	__ Service water booster pumps
__ Lab room pressures	**Other**
__ Specialty fans	__ Fire suppression systems
__ Testing, Adjusting and Balancing work	__ Refrigeration systems
	__ BAS (controls)
__ Chemical treatment systems	__ Building envelope
__ HVAC control system	__ Automatic Doors
__ Fire and smoke dampers	__ Seal of sweeps
__ Indoor air quality	__ Seal at windows and penetrations
__ Equipment sound control	__ Elevator
__ Equipment vibration control	__ Kitchen Exhaust equipment
__ Egress pressurization	__ Sun Shades (passive or active)

PART 3 - EXECUTION

Not Used.

END OF SECTION