**PROJECT MAUNAL TABLE OF CONTENTS**

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**SECTION 01 1000**

**SUMMARY**

1. **GENERAL**
	1. **SUMMARY**
		1. Section Includes:
			1. General description of Work and Contractor’s duties.
			2. Work by others.
			3. Work sequence.
			4. Contractor use of site.
			5. Definitions.
			6. Abbreviations.

**\*\*\*\*\*Modify the following paragraph as necessary to describe scope of work of Project.\*\*\*\*\***

* 1. **WORK COVERED BY CONTRACT DOCUMENTS**
		1. Work of this Contract covers construction of an approximate [\_] SF [\_] story [\_] and related site work at [\_] School in [\_], New Mexico.
	2. **CONTRACTOR’S DUTIES**
		1. Except as noted, provide and pay for all labor, materials, and equipment.
		2. Pay required sales, gross receipts, and other taxes. Owner will pay Contractor applicable New Mexico gross receipts tax including local option tax and any increase in tax becoming effective after Contract date.
		3. Secure and pay for permits (including plan checking fees), fees, and licenses necessary for execution of Work as applicable at time of receipt of bids or as otherwise required in other sections of the Specifications.
		4. Give required notices.
		5. Comply with codes, ordinances, regulations, and other legal requirements of public authorities which bear on performance of Work.
		6. Request required inspections from public authorities, correct any noted deficiencies, and obtain certifications of satisfactory inspection. Deliver certificates to Owner in accordance with Section -1 7800 – Closeout Submittals.

**\*\*\*\*\*Modify the following paragraph as necessary to describe scope of work of Project\*\*\*\*\***

* 1. **WORK BY OTHERS**
		1. Owner will award separate construction contracts for purchase and installation of:
			1. [Moveable furniture and equipment except where noted.]
			2. [Telephone and date cabling and equipment.]
			3. [Fire and security alarm wiring and equipment.]
			4. [Closed circuit television wiring and equipment.]
			5. [Intercom and clock wiring and equipment.]
			6. [Landscaping and irrigation systems.]
			7. [Other items indicated as “By Owner”.]
		2. Items noted “NOT IN CONTRACT” (NIC) will be supplied and installed by Owner:
			1. [\_]
		3. Owner will remove and retain possession of the following items prior to start of Work:
			1. [\_]
		4. Future work to be performed by others under separate contract to Owner:
			1. [\_]
		5. Products supplied by Owner for installation by Contractor:
			1. [\_]
		6. Owner’s responsibilities:
			1. Schedule and assist Contractor in coordination of work by Owner’s own forces and separate contractors.
			2. Schedule delivery of Owner supplied products.
			3. Obtain and provide to Contractor shop drawings, product data, and installation instructions for Owner supplied products.
			4. Arrange and pay for delivery of Owner supplied products to site.
			5. Submit claims for transportation damage and replace damaged, defective, or deficient items.
		7. Contractor’s responsibilities:
			1. Participate in coordination of work with other installers, including Owner’s own forces and separate contractors.
			2. Inform Owner of required delivery dates for Owner supplied products and installation dates for work by others.
			3. Review shop drawings, product data, and installation instructions; coordinate installation with other work; and provide blocking and other preparation required for Owner supplied products.
			4. Unload Owner supplied products require to be installed by Contractor at site and inspect for completeness and damage. Assemble, finish and install products as indicated by Contract Documents.
			5. Repair or replace items damaged after receipt.

**\*\*\*\*\*Modify the following paragraph as necessary to describe scope of work of Project\*\*\*\*\***

* 1. **WORK SEQUENCE**
		1. Construct Work in phases to accommodate [Owner’s occupancy requirements].
			1. Phase 1 –
				1. .
				2. .
			2. Phase 1 –
				1. .
				2. .
		2. Refer to Document 00 2000 – Instruction to Bidders and Document 00 4000 – Bid Form for time of completion for each phase.
		3. Coordinate construction schedule with Owner and Design Professional.
	2. **CONTRACTOR USE OF SITE**

**\*\*\*\*\*Use the following paragraph is project is new construction ad there are no restrictions on using site.\*\*\*\*\***

* + 1. Contractor will have unrestricted use of site.

**\*\*\*\*\*Use the following paragraph is project is renovation, includes additions to existing buildings, or there are restrictions on using site.\*\*\*\*\***

* + 1. Existing building and site will be [occupied] [partially occupied] [vacated] during construction. [Cooperate with Owner to minimize conflict and to facilitate Owner’s operations during regular and after-hours use.]
		2. Contractor will have restricted use of site to allow [Owner occupancy] [Owner to conduct normal operations] [installations by others] [construction by others].

**\*\*\*\*\*List restrictions and limitations on Contractor’s use of site.\*\*\*\*\***

* + - 1. Access to site by trucks, equipment, and automobiles. Limited to route and entrances designated in Section 01 5000 – Temporary Facilities and Controls. Schedule construction traffic and material deliveries to site during time periods coordinated in advance with Owner.
			2. On site construction vehicle and equipment traffic shall be limited to pathways, areas, and time periods approved in advance by Owner to ensure safe site conditions. Special care shall be taken during change of class periods, student arrival/departure times and around playgrounds, bus zones and established student pathways. The Contractor shall strictly maintain close communication with designated school representative(s) on matter of on-site construction traffic scheduling and promptly inform them in advance of any significant changes to related pre-authorized arrangements. Do not proceed with altered arrangements prior to designated school representative(s) approval.
			3. Parking: Contractor and work force [shall not use] [may use designated portions of] existing parking lots. [Do not interfere with Owner’s parking requirements.]
			4. Unless otherwise agreed to in advance by Owner, construction shall be performed only during these time periods:
				1. [Normal weekday work hours.]
				2. [\_\_]
			5. Construction activities shall be limited to areas of actual construction. Unless otherwise agreed to in advance by Owner, restrict workmen from entering adjacent restricted areas.
			6. Existing student and staff toilet rooms are off-limits to Contractor unless they are not available for use by the school due to the approved schedule of work.
		1. Contractor shall make arrangements with Owner to secure any keys necessary for access to existing building and site areas so that the work can be performed. The Contractor assumes sole responsibility for the security and use of school keys obtained from the Owner and shall not reproduce them nor lend them out during the progress of work.
		2. Comply with Owner’s procedures for individual visual identification of Contractor’s workforce on school site and in occupied areas. If identification badges are required make sure that they are worn at all times on site during the work.
		3. Do not allow dust and debris to blow onto adjacent restricted areas.
		4. Provide 72 hours notice to Owner for any work that may interrupt or otherwise impact the facility’s normal operation including noisy dust or odor producing activities.
		5. Emergency exits shall be maintained during construction in a manor satisfactory to the Architect, Owner, and local officials having jurisdiction over emergency procedures and fire safety at the school. Notify Architect and Owner of any proposed modifications to emergency exits in advance of making changes due to construction.
		6. Utility outages and shutdowns:
			1. Maximum allowable duration: 4 hours or as approved in advance by Owner.
			2. Coordinate all utility shutdowns which affect the operation of the school and neighbors with the Architect, Owner, and any entity having jurisdiction over or ownership of impacted public or private utility infrastructure.
			3. .
			4. Schedule outages during off hours to facilitate Owner’s operations.
			5. Submit written requires for outage to Architect 72 hours before anticipated outage. Outage must be approved in writing by Design Professional.
		7. Owner reserves right to place and install equipment and furnishings in completed areas of building prior to Substantial Completion, provided such occupancy does not interfere with construction. Placing of equipment and furnishings does not constitute Substantial Completion of any portion of the Work. An inspection by Contractor, Owner and Architect shall be made prior to such limited occupancy solely for the purpose of establishing the condition of finishes and other items that might be damaged or obscured by placement and installation of Owner’s items.
	1. **IDENTIFICATION OF ENTITIES**
		1. Where the term “Design Professional” is used in the Contract Document it is defined as the authorized representative designated by Owner and acting within the scope of the particular duties entrusted to such representative.
			1. Design Professional: Click here to enter text.
			2. Project Manage: Click here to enter text.
			3. Address:
			Click here to enter text.
			Click here to enter text.
			4. Telephone number: Click here to enter text.
			5. Fax number: Click here to enter text.
			6. Email address: Click here to enter text.
		2. Where the term “Owner” is used in the Contract Documents, it is defined as Albuquerque Public Schools (Albuquerque Municipal School District Number 12, Bernalillo and Sandoval Counties, New Mexico).
			1. School District Contact (Staff Architect/Engineer): Click here to enter text.
			2. Address: 915 Oak Street, SE, Albuquerque, NM 87106
			3. Telephone number: Click here to enter text.
			4. Fax number: 505-246-9020
			5. Email address: Click here to enter text.
	2. **DEFINITIONS**
		1. Refer to Document 00 7000 – General Conditions, Article 1.1 for definitions of terms used within Contract Documents.
		2. Additional terms used within Specifications but not defined by Document 00 7000 – General Conditions shall have the following definitions:
			1. Products: Materials, manufactured items, components, fixtures, machinery, equipment, or systems forming the Work but not including machinery, equipment, and other aids used for preparing, fabricating, conveying, and installing the work.
			2. Supply: Furnish, deliver, and unload and Project site. Same meaning as furnish.
			3. Furnish: Supply, deliver, and unload at Project site. Same meaning as supply.
			4. Install: Operations and Project site to incorporate products into the Work such as unpacking, assembling, anchoring, erecting, applying, placing, curing, finishing, and preparing for use.
			5. Provide: To supply or furnish a product and to also install it.
			6. Execution: Operations at Project site including preparatory actions, installing, and post-installation adjusting, testing, cleaning, and demonstrating.
	3. **ABBREVIATIONS**
		1. Abbreviations used within the Specifications are defined as follows. For abbreviations not listed, contact Architect for definitions.

		ASTM – American Society for Testing and Materials.
		ANSI – American National Standards Institute
		CF – Cubic feet.
		CFM – Cubic feet per minute.
		F – Fahrenheit.
		LF – Linear feet.
		LB – Pound.
		MPH – Miles per hour.
		SF – Square feet.
		SY – Square yards.
		PSI – Pounds per square inch.
		PSF – Pounds per square foot.
		RPM – Revolutions per minute.
		IBC – International Building Code as published by International Code Council.
		UL – Underwriters Laboratory.
1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**SECTION 01 2000**

**PRICE AND PAYMENT PROCEDURES**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes procedures for:
			1. Schedule of Values.
			2. Applications for Payment.
			3. Contract modifications.
			4. Unit prices, if any.
	2. **SCHEDULE OF VALUES**
		1. Procedures:
			1. Submit for review by Design Professional 3 copies of preliminary Schedule of Values within 7 days of Agreement Between Owner and Contractor.
			2. Revise to address review comments and resubmit.
			3. Final Schedule of Values: Revise Schedule to incorporate review comments and submit 3 copies at least 7 days before submittal of initial Application for Payment.
			4. During construction, revise and resubmit 3 copies of Schedule of Values to incorporate approved Change Orders.
		2. Format: Typed schedule on standard form or electronic media printout approved by Design Professional. Sum of all values shall equal total Contract Sum.
		3. Content: Use Project Manual Table of Contents as basis for line items. Cross reference line items wit number and title of corresponding specification section. Provide sufficient detail to allow computation of values for progress payments during construction.
			1. Include within each line item a directly proportional amount of Contractor’s overhead and profit.
			2. Provide separate line items for materials and for installation when materials will be stored on site prior to installation such that cost of stored materials will be included separately on an Application for Payment.
			3. Provide separate line items for:
				1. Each allowance included in Contract Sum.
				2. Each additive alternate selected by Owner.
				3. Each Contract modification.
				4. For bonds.
				5. Insurance.
				6. Documentation Closeout.
				7. New Mexico gross receipts tax.
	3. **APPLICATIONS FOR PAYMENT**
		1. Format: AIA Form G702 – Application and Certificate for Payment and AIA G703 or alternative form approved by Design Professional – Continuation Sheet or Contractor’s electronic media driven form as approved by Design Professional.
		2. Payment period: Monthly or as otherwise stipulated in Document – 5000 – Agreement Between Owner and Contractor.
		3. Preparation:
			1. Use Schedule of Values for listing items in Application for Payment.
			2. Complete each entry on Application for Payment form. Incomplete forms will be returned without action.
			3. List each authorized Change Order as a separate line item in same format as other line items.
			4. Provide subtotals and total.
			5. Indicate total percentage of all work completed as of the date of the Application.
			6. Applications shall be signed and dated by authorized officer of Contractor. Signature shall be notarized.
		4. Include with Application for Payment appropriate invoice for materials stored on site.
		5. At request of Design Professional, provide substantiating data justifying dollar amounts in question.
		6. Submittal: Submit 3 executed copies of each Application for Payment.
			1. Initial Application for Payment: Submit after the following have been submitted and accepted by Design Professional and Owner.
				1. Certifications of insurance required by Document 00 7000 – General Conditions of the Contract.
				2. Copy of building permit.
				3. Schedule of Values as required by Paragraph 1.2.A.
				4. Progress schedule as required by Section 01 3100 – Project Management and Coordination.
				5. Submittal schedule as required by Section 01 3300 – Submittal Procedures.
			2. Subsequent Applications for Payment:
				1. Submit with Applications of Payment:

Include the Updated Progress Schedule specified in Section 01 3100 – Project Management and Coordination.

Updated Submittal Schedule specified in Section 01 3300 – Submittal Procedures.

* + - * 1. Prior to acceptance of each Application for Payment, Design Professional will review Project Record Drawings specified in Section 01 7700 – Closeout Procedures.
			1. Application of Payment at substantial Completion: Submit after issuance of Certificate of Substantial Completion and in accordance with Section 01 7700 – Closeout Procedures.
			2. Final Application for Payment: Submit after completion of final cleaning, final inspection, final submittals, and other final completion procedures specified in Section 01 7700 – Closeout Procedures.
	1. **CONTRACT MODIFICATION PROCEDURES**
		1. Changes in the Work shall be determined and Change Orders executed in accordance with Document 00 7000 – General Conditions.
			1. Minor changes: Design Professional will advise of minor changes in Work not involving adjustment to Contract Sum or Time by issuing supplemental instructions on AIA Form G710.
			2. Design Professional requested Change Order: Design Professional may issue a Modification/Change Request (MCR) with detailed description of proposed change and supplementary drawings and specifications as required.
			3. Design Professional will prepare Change Orders to adjust Contract Sum for:
				1. Differences in costs between products purchased and cash allowances stated in Section 01 2100 – Allowances, if applicable.
				2. Differences in cost for unit price work based on estimated quantities and cost computed with actual measured quantities, if applicable.
			4. Contractor proposed Change Order: Contractor any propose change by submitting a Modification/Change Request to Design Professional (MCR) describing proposed change, reason for change, and its effect on Contract Sum and Time. Complete MCR Worksheet(s) shall be provided by Contractor for each MCR to facilitate checking of itemized costs and percentages (copy of Form 01 2010 MCR Worksheet included after this Section). Document requested substitutions in accordance with Section 01 6300 – Product Substitution Procedures.
			5. A Modification/Change Request signed by the Owner for subsequent inclusion in a Change Order may instruct Contractor to proceed with a change in the Work. Document will describe changes and designate method of determining changes in Contract Sum and Time.
		2. Documentation: Maintain adequate records and provide full information required for evaluation of proposed changes and to substantiate costs. The Contractor shall provide:
			1. Itemized product, labor, and equipment quantities and costs.
			2. Amounts for taxes, insurance, and bonds.
			3. Overhead and profit amounts.
			4. Justification for changes in Contract Time.
			5. Documentation credits for deletions.
		3. Methods for determining adjustments to Contract Sum:
			1. Stipulated sum: Based on Design Professional’s Modification/Change Request (MCR) and Contractor’s price quotation or Contractor’s MCR as approved by Design Professional. Completed MCR Worksheet(s) shall be provided by Contractor for each MCR to facilitate checking of itemized cost and percentages (copy of Form 01 2010 MCR Worksheet included after this Section).
			2. Unit prices: Computed from unit prices stated in Contract Documents or subsequently agreed upon and actual measured quantities installed.
			3. Time and material: Maintain detailed records for work performed on time and material basis. Submit itemized account and full supporting data after completion of change within stated time limitations. Design Professional will determine allowable change in Contract Sum and Time. Supporting data shall include as follows:
				1. Names of personnel performing work.
				2. Dates and times work was performed and by whom.
				3. Time records and wage rates paid.
				4. Invoices for products, equipment, and subcontractors.
		4. Revision of documents: After authorization of Change Order revise:
			+ 1. Schedule of Values and Application for Payment forms to record each Change Order as a separate line item and adjust Contract Sum and Time.
				2. Progress Schedules to reflect changes in Contract Time and to adjust times for other work items affected by changes. Resubmit revised schedule.
				3. Record changes in Project Record Documents.
	2. **UNIT PRICE PROCEDURES**

**[\*\*\*\*\*Include this article if certain items of work are to be bid as unit prices. Document 00 300 – Bid Form will need to include a bid item for each unit price item of work and state the estimated quantity. Each specification section which contains unit price work should cross reference to this section for unit price procedures.\*\*\*\*\*]**

* + 1. Prices: Certain items of work are to be bid as unit prices. Prices are to include all necessary material, labor, equipment, overhead, profit, insurance, applicable taxes, and bond.
		2. Quantities: Quantities set forth in the Bid Form are estimated on which bids will be compared and the Contract Sum determined.
			1. If actual work required more or fewer of an indicated quantity, provide the required quantity at the established unit price.
			2. Owner reserves the right to increase or decrease quantities by 15 percent.
			3. If actual work requires a change in a Contract unit price quantity exceeding plus or minus 15 percent, Owner or Contractor may request that an adjustment of the unit price be negotiated.
		3. Measurement: Take all measurements and compute quantities. Design Professional will verify measurements and quantities. Measurement of quantities shall be by weight, volume, area, linear measurement, number of items, or other methods as described in individual sections.
		4. Payment: Payment will be made for work actually performed and will be computed by multiplying verified quantity by unit price.
		5. Adjustment: The final Contract Sum will be adjusted by Change Order to reflect actual approved quantities for unit price items.
1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**MODIFICATION / CHANGE REQUEST NO.**

**DATE:**

**PROJECT NO.**

**DESCRIPTION OF PROPOSED WORK:**Click here to enter text.

NOTE: Fill out a separate worksheet for each subcontractor on this MCR. The GC shall use this same form to summarize the total of all subcontractor proposals while adding GC costs. Attach all worksheets and

breakdowns to summary sheet for each MCR.

SUBCONTRACTOR'S COSTS (ATTACH SUBCONTRACTOR'S SHEET AND COST BREAKDOWNS):\*

|  |  |  |
| --- | --- | --- |
| 1 | Total of subcontractor's material (attach itemized breakdown): |  $  |
| 2 | Total of subcontractor's labor cost including fringe benefits and labor burden (attach itemized breakdown): |  $  |
| 3 | Other directly attributable costs allowed (attach itemized breakdown): |  $  |
| 4 | Subtotal: |  $  |
| 5 | Subcontractor's O&P %: |  $  |
| 6 | Subcontractor's Bond: |  $  |
| 7 | Permits paid by subcontractor: |  $  |
| 8 | Subcontractor's Total Costs: |  $  |

GENERAL CONTRACTOR'S COSTS (ATTACH WORKSHEETS)\*

|  |  |  |
| --- | --- | --- |
| 9 | GC's material (attach itemized breakdown): |  $  |
| 10 | General Contractor's labor cost including fringe |  $  |
| 11 | benefits and labor burden @ % (attach itemized breakdown):Construction equipment (rental). |  $  |
| 12 | Directly attributable field supervision, insurance, etc. |  $  |
| 13 | (attach itemized breakdown): Subtotal: |  $  |
| 14 | General Contractor's Overhead $ Profit on subcontractor ( % of Item 8): |  $  |
| 15 | General Contractor's Overhead & Profit on work by General Contractor's forces ( % of Item 13): |  $  |
| 16 | Subtotal (sum of Items 13, 14 and 15): |  $  |
| 17 | Bond ( % of Item 16): |  $  |
| 18 | Permits paid by General Contractor: |  $  |
| 19 | Subtotal (sum of Items 8, 16, 17 and 18): |  $  |
| 20 | Gross Receipts Tax % of Line 19: |  $  |

21 General Contractor's total cost (sum of Lines 19 and 20): $

**\* Allowable costs and percentages shall not exceed those indicated in Article 7.2.5.**

[DO NOT USE ALLOWANCES WITHOUT PERMISSION OF APS FDC]

**SECTION 01 2100**

**ALLOWANCES**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes:
			1. Cash allowances: Descriptions, amounts, and procedures for cash allowances covering the following:
				1. Pre-selected HAC Equipment
				2. [\_]
	2. **CASH ALLOWANCES**
		1. Costs included in cash allowances:
			1. Cost of product or service to Contractor or subcontractor less applicable trade discounts.
			2. Delivery to site or location designated by Architect.
		2. Costs not included in cash allowance but included in Contract Sum:
			1. Product handling and storage at the site.
			2. Contractor’s overhead and profit.
			3. Installing Subcontractor’s overhead and profit.
			4. Applicable taxes are applied to the Base Bid and Bid Lots.
		3. Depending on the product or service, cost of production, installation, finishing, testing, and demonstration may be included in cash allowance. Refer to individual allowance descriptions.
		4. Architect’s responsibilities:
			1. Consult with Contractor for consideration and selection of allowance products or service.
			2. Select products or arrange for service in consultation with Owner and transmit decision to Contractor.
			3. Prepare Change Orders.
		5. Contractor’s responsibilities:
			1. Assist Architect in selection of allowance products or service.
			2. Obtain proposals from suppliers and offer recommendations.
			3. On notification of selection by Architect and Owner, execute purchase agreement with designated supplier.
			4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
			5. Promptly inspect allowance products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.
		6. Differences in cost between allowances and products purchase will be adjusted by Change Order unless indicated otherwise in Contract.
	3. **CASH ALLOWANCE SCHEDULE**

**[\*\*\*\*\*Each specification section that contains work covered by a cash allowance should have a cross reference to this section. Amount of cash allowance should be stated in this section and not repeated in other sections.\*\*\*\*\*]**

* + 1. Division 23-Heating, Ventilating and Air Conditioning: Include the sum of $[\_] for Pre-selected HVAC Equipment. Refer to attached Equipment List. The Pre-selected HVAC Equipment is to be provided without substitutions allowed.
		2. Section [\_] – [\_]: Include a sum calculated from required quantity and stated unit price of $[\_] per [LB] [LF] [SF] [SY] [CF] [CY] [EACH] for purchase of [\_].
		3. Section [\_] – [\_]: Include sum of $[\_] for installation of [\_].
		4. Section [\_] – [\_]: Include sum of $[\_] for purchase, delivery, and installation of [\_].
		5. Section [\_] – [\_]: Include sum of $[\_] for purchase, deliver, installation, testing and demonstration of [\_].
1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

[Consult APS FDC before using this Section; only Additive Alternates should be used.]

**SECTION 01 2300**

**ALTERNATES**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes: Procedures and descriptions for alternates which decrease or increase scope of project.
		2. Alternates define a modification to a portion of the Base Bid.
	2. **CONDITIONS**
		1. All requirements of General and Supplementary Conditions, applicable sections of Specifications, and applicable portions of Drawings shall govern scope, quality, and execution of alternates.
		2. Alternates will be selected in order listed on Bid Form and as allowed by available funding.

**[\*\*\*\*\*In order to simplify bidding and ensure low competitive prices, avoid or minimize the number of alternates and keep scope of alternates simple and direct. Typically, additive alternates are used. It is also possible to use deductive alternates.\*\*\*\*\*]**

**[\*\*\*\*\*Some alternates can result in either an increase or decrease in the bid amount. An example is bidding an alternative method or substitute material in order to determine the lowest cost for performing a work item. In this instance, alternates would not be described as either additive or deductive.\*\*\*\*\*]**

* 1. **ALTERNATE NO. 1 – [\_]**
		1. Alternate requires…
		2. Include as part of alternate…
		3. If alternate is accepted…

**ALTERNATE NO. 2 – [\_]**

* + 1. Alternate requires [construction] [provision] [installation] of [\_] by [\_] method in lieu of [\_] specified in Section [\_] – [\_].
		2. Include as part of alternate [\_]
		3. If alternate is accepted, delete [\_] as part of Base Bid.

**ALTERNATE NO. 3 – [\_]**

* + 1. Alternate requires [construction] [provision] [installation] of [\_] by [\_] method in lieu of [\_] specified in Section [\_] – [\_].
		2. Include as part of alternate [\_]
		3. If alternate is accepted, delete [\_] as part of Base Bid.
	1. **PROCEDURES**
		1. Consider all work that must be accomplished for complete incorporation of alternates including modifications to Base Bid items.
		2. Include in lump sum prices for alternates all costs of labor, materials, equipment, permits, fees, insurance, bonds, overhead, and profit.
		3. Immediately after aware of Contract, advise all necessary personnel and suppliers as to which alternates have been selected by Owner. Use all means necessary to alert those personnel and suppliers involved as to all changes in the work caused by Owner’s selection or rejection of alternatives.
		4. Coordinate related work and modify surrounding work of each alternate.
1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**SECTION 01 2301**

**BID LOTS**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes: Procedures and descriptions for Bid Lots which decrease or increase scope of project.
	2. **CONDITIONS**
		1. All requirements of General and Supplementary Conditions, applicable sections of Specifications, and applicable portions of Drawings shall govern scope, quality, and execution of Bid Lots.
		2. Bid Lots are individual bids separate from the Base Bid. Bid Lots may or may not be awarded to the Successful Offeror for the Base Bid, or to other Offerors. Bid Lots may or may not be awarded in the order listed on Bid Form. Bid Lots will only be awarded as allowed by available funding.

**BID LOT NO. 1 – [\_]**

* + 1. Bid Lot requires [construction] [provision] [installation] of [\_] by [\_] method in lieu of [\_] specified in section [\_] – [\_].
		2. Include as part of Bid Lot [\_].
		3. If Bid Lot is accepted, delete [\_] as part of Base Bid.

**BID LOT NO. 2 – [\_]**

* + 1. Bid Lot requires [construction] [provision] [installation] of [\_] by [\_] method in lieu of [\_] specified in section [\_] – [\_].
		2. Include as part of Bid Lot [\_].
		3. If Bid Lot is accepted, delete [\_] as part of Base Bid.

**BID LOT NO. 3 – [\_]**

* + 1. Bid Lot requires [construction] [provision] [installation] of [\_] by [\_] method in lieu of [\_] specified in section [\_] – [\_].
		2. Include as part of Bid Lot [\_].
		3. If Bid Lot is accepted, delete [\_] as part of Base Bid.

**BID LOT NO. 4 – [\_]**

* + 1. Bid Lot requires [construction] [provision] [installation] of [\_] by [\_] method in lieu of [\_] specified in section [\_] – [\_].
		2. Include as part of Bid Lot [\_].
		3. If Bid Lot is accepted, delete [\_] as part of Base Bid.
	1. **PROCEDURES**
		1. Consider all work that must be accomplished for complete incorporation of Bid Lots including modifications to Base Bid items.
		2. Include in lump sum prices for Bid Lots all cost of labor, equipment, permits, fees, insurance, bonds, overhead, and profit.
		3. Immediately after award of Contract, advise all necessary personnel and suppliers as to which Bid Lots have been selected by Owner. Use all means necessary to alert those personnel and suppliers involved as to all changes in the work caused by Owner’s selection or rejection of Bid Lots.
		4. Coordinate related work and modify surrounding work to integrate work of each Bid Lot.
1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**SECTION 01 3100**

**PROJECT MANAGEMENT AND COORDINATION**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes:
			1. General requirements for coordination of Work.
			2. Field engineering.
			3. Construction Coordination.
			4. Requirements for participation in and administration of:
				1. Pre-construction conference.
				2. Progress meetings.
				3. Pre-installation conferences.
			5. Progress schedule.
			6. Construction photographs.
		2. Related documents and sections:
			1. Document 00 2000 – Instructions to Bidders: Pre-Bid Conference.
			2. Section 01 1000 – Summary: Work by others.
	2. **SUBMITTALS**
		1. Provide in accordance with Section 01 3300 – Submittal Procedures:
			1. Coordination drawings:
				1. Provide where coordination is critical for installation of components fabricated off site and where space is limited and maximum utilization of space is required.
				2. Show relationship and integration of components and construction entities, required installation sequence, dimensions, and tolerances.
		2. Staff assignment list:
			1. Prior to Pre-Construction Conference, provide to Design Professional a list of Contractor’s principal staff assignments for Project. Indicate names, duties and responsibilities, addresses, emergency contact information, and telephone number. Include resume of proposed Project Superintendent showing prior experience as superintendent on projects of similar size and scope. Naming more than one Project Superintendent to be in charge depending which is present at the site will not be acceptable. Design Professional shall be informed in writing prior to any proposed change in Project Superintendent during progress of Work.
			2. Distribute contact information and post in field office coordination.
	3. **GENERAL COORDINATION REQUIREMENTS**
		1. Scheduling: Coordination scheduling, submittals and work of various specification sections to ensure efficient and orderly sequence of installation of interdependent construction elements. Ensure that work of one specification section is not installed in such a manner as to limit, preclude, or restrict work of another section.
		2. Coordinate completion and clean up of work of spate specification sections in preparation for final inspections specified in Section -1 7700 – Closeout Procedures.
		3. After acceptance of Work, coordinate access to facility for required maintenance, monitoring, adjusting, and correcting deficiencies to manner to minimize disruption of Owner’s activities.
		4. Coordinate with Owner regarding work of Owner’s forces and separate contractors. Ensure coordination of such work with Project Schedule.
	4. **FIELD ENGINEERING**
		1. Existing control datum for field engineering is indicated on Drawings.
		2. Locate or establish survey control and reference points prior to starting site construction. Protect points during construction and record locations with horizontal and vertical data on Project Record Documents in accordance with Section 01 7800 – Closeout Submittals.
		3. Prior to start of construction, verify location of control points and layout information on Drawings relative to property, setback, and easement lines.
		4. Provide competent field engineering services. Establish elevations, lines, and levels utilizing recognized engineering survey practices. Periodically verify layouts.
		5. Promptly replace dislocated control and reference points based on original survey control.
	5. **CONSTRUCTION COORDINATION**
		1. Contractor shall at all times be present at the Work in person, or represented by a competent superintendent who shall supervise and direct the Work, and shall be authorized by the Contractor to receive and fulfill instructions from the Design Professional and/or Owner.
		2. Contractor shall, at all times during working hours, be represented in all matters pertaining to the project by one, and only one, fully competent and experienced general superintendent. Instructions and information given by the Design Professional and/or Owner to the Contractor’s superintendent shall be considered as having been given to the Contractor.
		3. Before any Work is done at the job site, Contractor shall give written notice to the Design Professional and Owner stating who the Contractor’s superintendent will be, giving his home address and telephone number. The Design Professional and Owner shall be informed in writing prior to any change of general superintendent. A statement naming more than one representative at a time to be in charge and depending upon which is present at the time will not be acceptable.
		4. Verify that characteristics of elements of interrelated operating equipment are compatible and coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
		5. With regards to pre-existing improvements or work in place which is not part of the Work under the Agreement, Contractor shall make proper connections with existing services, utilities, pavements and grades as indicated and provide all necessary materials, equipment, anchors, fastenings, etc. required for connections.
	6. **PRE-CONSTRUCTION CONFERENCE**
		1. Conference will be held after execution of the Agreement and prior to issuance of Notice to Proceed. Time and location will be coordinated with Owner and Design Professional. Meet at the site or other location convenient to all parties.
		2. Attendance: Owner, school principal or other designated school representative, Design Professional, consultants, Contractor, and major subcontractors and suppliers.
		3. Agenda Topics:
			1. Distribution of Contract Documents.
			2. Designation and description of roles of responsible personnel representing Owner, Contractor, and Design Professional.
			3. Status of permits and Notice to Proceed.
			4. User of premises by Contractor and Owner, Owner’s occupancy requirements, work hours, regular school schedule and special schools schedule considerations.
			5. Construction schedule, work schedule, and delivery priorities.
			6. Weekly job meeting schedule.
			7. Owner’s right to salvage.
			8. Presentation and discussion of site mobilization plan specified in Section 01 5000 – Temporary Facilities and Controls.
			9. Construction facilities, controls, and temporary utilities.
			10. Procedures for processing submittals, applications for payment, substitution requests, field decisions and communications, and contract modifications.
			11. Testing and Inspections.
			12. Wage rates.
			13. Security, Contractor’s use of keys, safety, first aid, and housekeeping.
			14. Behavior of work force on schools site.
			15. Procedures for spotting of utility lines.
			16. Procedures for maintaining project record documents.
			17. Requirements for start up of equipment.
			18. Testing and inspection procedures.
			19. Inspection and acceptance of equipment put into service during construction.
			20. Contract closeout procedures.
			21. Other pertinent items.
	7. **PROGRESS MEETINGS**
		1. Schedule and administer construction progress meetings throughout progress of Work. Meetings shall be held bi-weekly or more frequently as required. Location of meetings to be on site or other location approved by Design Professional.
		2. Make arrangements for meetings, prepare agenda, and distribute notice of meetings to participants, Design Professional, and Owner 3 days in advance of meeting.
		3. Preside at meetings. Record minutes and distribute copies within 3 days after meeting to participants, entities affected by meeting decisions, Design Professional, and Owner.
		4. Attendance: Contractor, job superintendent, and subcontractors and suppliers as appropriate to agenda. Owner representative, Design Professional, and consultants may attend as appropriate.
		5. Prepare agenda to cover topics pertinent to continued progress and successful completion of Work. Suggested topics:
			1. Review previous meeting minutes.
			2. Review schedules and progress, identify impediments, and determine measures to maintain schedules.
			3. Review field observations, problems, and decisions.
			4. Review status of submittals.
			5. Review off-site fabrication and delivery schedules.
			6. Quality control.
			7. Review proposed MCRs and pending proposals from Contractor including impact on schedule.
	8. **PRE-INSTALLATION CONFERENCES**

**\*\*\*\*\*Each section requiring pre-installation conference should list items to be covered at conference and cross reference to this section for meeting procedures. If pre-installation conferences are not required, delete this article.\*\*\*\*\***

* + 1. When required by and individual specification section, convene a pre-installation conference at site.
		2. Require attendance of entities directly concerned with item of work.
		3. Notify Design Professional 4 days in advance of meeting.
		4. Prepare agenda and preside at conference. Record minutes, and distribute copies within 3 days to prepare participants and Design Professionals.
		5. At meeting review conditions of installation, preparation, and installation procedures, and coordination with related work.
	1. **PROGRESS SCHEDULE**
		1. Format: Horizontal bar chart:
			1. Approximate sheet size: 17 x 28 inches.
			2. Provide separate bar for each major item of work. Arrange in sequence and identify bars with specification section numbers and titles from Project Manual Table of Contents.
			3. Horizontal scale: Time with first work day of each month identified. Adjust scale to show entire construction period plus extension.
			4. Vertical spacing: Allow space for notations and revisions.
		2. Show complete sequence of construction by activity. Indicate:
			1. Dates for beginning and completion of each construction item.
			2. Projected percentage of completion for each item as of first work day of each month.
			3. Projected percentage of completion for total Work as of first day of each month.
			4. [Work of separate construction phases.]
			5. Required delivery dates for Owner furnished products and required completion dates for work by others. Include separate Activities for Owner’s Separate Contractors whose work is integrated into the construction schedule, milestones and obtaining the Certificate of Occupancy, such as hazardous materials abatement, Testing and Balancing, Commissioning, alarm systems, elevator phone system, Surveyor’s certification of as-built grading and drainage, and landscaping where applicable.
			6. Required dates for return of specific submittal and for selection of finishes [and products furnished under allowances].
		3. Procedures:
			1. Submit for review by Design Professional 3 copies of preliminary Progress Schedule within 20 days of date of Agreement between Owner and Contractor but no later than submission of first payment application.
			2. Revise to address review comments and resubmit.
			3. Update Progress Schedule and submit 3 copies with each Application for Payment.
				1. Identify progress of each activity to date of submittal and projected completion date.
				2. Show activities modified since last submittal and other identifiable changes.
				3. Provide narrative report as needed to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken or proposed and its effect.
	2. **COORDINATION DRAWINGS**
		1. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability 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:
				1. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
				2. Indicate functional and special relationship of components of architectural, structural, civil, mechanical, and electrical systems.
				3. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
				4. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
				5. Indicate required installation sequences.
				6. 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 will not be considered changes to the Contract.
		2. Coordination Drawing Organization: Organize coordination drawings as follows:
			1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
			2. Plenum Space: Indicate sub framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
			3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
			4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
			5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
			6. Mechanical and Plumbing Work: Show the Following:
				1. Sizes and bottom elevations of ductwork, piping and conduit runs, including insulation, bracing, flanges, and support systems.
				2. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
				3. Fire-rated enclosures around ductwork.
			7. Electrical Work: Show the Followings:
				1. Runs of vertical and horizontal conduit 1-1/4 inches (31.5 mm) in diameter and larger.
				2. Light fixtures, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
				3. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
				4. Location of pull boxes and junction boxes, dimensioned from column center lines.
			8. Fire-Protection System: Show the following:
				1. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
			9. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor’s responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.
1. **PRODUCTS**
	1. **EQUIPMENT**
		1. Verify utility requirements and characteristics of equipment are compatible with facility utilities. Coordinate work of various specification sections having interdependent requirement for installing, connecting to, and placing in service such equipment.
2. **EXECUTION**
	1. **INSTALLATION**
		1. Space requirements:
			1. Coordinate space requirements and installation of mechanical, electrical, and other work shown diagrammatically on Drawings. Follow routing shown for pipes, ducts, and wireways as closely as practicable. Utilize spaces efficiently to maximize accessibility for other installations, maintenance, and repairs.
			2. Where space is limited, coordinate installation of components to ensure maximum access for maintenance. Ensure space provided around equipment and fixtures complies with applicable codes.
		2. Concealment: In finished areas, conceal pipes, ducts, and wireways within construction except as otherwise indicated. Where practical, conceal supports, fasteners, and other attachment devices.
		3. Arrangement:
			1. Unless otherwise indicated, installations shall be aligned vertically and horizontally. Place piping, conduit, wireways, and other linear items parallel with lines of building.
			2. Coordinate mounting heights and spacing of components so that finished work is neat and orderly with organized appearance.
			3. Repetitive items such as hangers and fasteners shall be equally spaced unless indicated otherwise.
		4. Blocking, anchors, and supports: Determine and coordinate requirements for blocking, anchors, and supports needed for proper installation of products. Provide necessary components whether or not indicated on Drawings specified.
		5. Finished surfaces: Coordinate locations of fixtures, boxes, and other recessed or surface mounted items with finish elements and grades to ensure proper installation and neat appearance.
	2. **COORDINATION WITH INSTALLED CONSTRUCTION**
		1. Openings made in installed exterior surfaces shall be closed to protect construction from weather and extremes of temperature and humidity.
		2. Cutting and patching of installed construction shall be accomplished in accordance with Section 01 7000 – Execution Requirements.
		3. Remove, cut, and patch previously installed construction in a manner to minimize damage and to provide a means of restoring finishes to original or better condition.
		4. Where refinishing is required, provide a neat transition to adjacent surfaces.
		5. Patched work shall match existing adjacent work in texture and appearance.

**END OF SECTION**

**[\*\*\*\*\*The following section 01 3115 – Project Management Software is used on APS funded projects. If PSFA funds all or part of this project delete this section and substitute the second section 01 3115 – Project Management Software\*\*\*\*\*]**

**SECTION 01 3115**

**PROJECT MANAGEMENT COMMUNICATIONS**

1. **GENERAL**
	* + 1. **PROJECT MANAGEMENT SOFTWARE**
				1. Albuquerque Public Schools has adopted e-Builder software for project management.
			2. **SUMMARY**
				1. Project Management Communications: The Contractor shall use the Internet web based project management communications tool, E-Builder® ASP software, and protocols included in that software during this project. The use of project management communications as herein described does not replace or change any contractual responsibilities of the participants.

Project management communications is available through E-Builder® as provided by "e-Builder®" in the form and manner required by APS, and seat licenses shall be purchased by the Contractor.

The project communications database is on-line and fully functional. User registration, electronic and computer equipment, and Internet connections are the responsibility of each project participant. The sharing of user accounts is prohibited.

* + - * 1. Training: E-Builder® will provide initial training sessions scheduled by APS, the cost of which is included in the initial users fee. Users are required to attend the scheduled training sessions they are assigned to. Requests for specific scheduled classes will be on a first come first served basis for available spaces. Companies may also obtain group training from E-Builder at their own expense, please contact E-Builder® for availability and cost.
				2. Support: E-Builder® will provide on-going support through on-line help files.
				3. Project Archive: The archive shall be available to each team member at a nominal cost. The archive set will contain only documents that the firm has security access to during construction. All legal rights in any discovery process are retained. Archive material shall be ordered from e-Builder®.
				4. Copyrights and Ownership: Nothing in this specification or the subsequent communications supersedes the parties’ obligations and rights for copyright or document ownership as established by the Contract Documents. The use of CAD files, processes or design information distributed in this system is intended only for the project specified herein.
				5. Purpose: The intent of using E-Builder® is to improve project work efforts by promoting timely initial communications and responses. Secondly, to reduce the number of paper documents while providing improved record keeping by creation of electronic document files
				6. Authorized Users: Access to the web site will be by individuals who are licensed users.

Individuals may use the User Application included in these specifications or may request the User Application.

Submit completed user application forms with check made payable to "e-Builder, Inc.".

Authorized users will be contacted directly by the web site provider, E-Builder®, who will assign the temporary user password.

Individuals shall be responsible for the proper use of their passwords and access to data as agents of the company in which they are employed.

* + - * 1. Administrative Users: Administrative users have access and control of user licenses and all posted items. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!** Improper or abusive language toward any party or repeated posting of items intended to deceive or disrupt the work of the project will not be tolerated and will result in deletion of the offensive items and revocation of user license at the sole discretion of the Administrative User(s).
				2. Communications: The use of fax, email and courier communication for this project is discouraged in favor of using E-Builder® to send messages. Communication functions are as follows:

Document Integrity and Revisions:

Documents, comments, drawings and other records posted to the system shall remain for the project record. The authorship time and date shall be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp shall be the method used to make modifications or corrections.

The system shall make it easy to identify revised or superseded documents and their predecessors.

Server or Client side software enhancements during the life of the project shall not alter or restrict the content of data published by the system. System upgrades shall not affect access to older documents or software.

Document Security:

The system shall provide a method for communication of documents. Documents shall allow security group assignment to respect the contractual parties communication except for Administrative Users. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!**

Document Integration:

Documents of various types shall be logically related to one another and discoverable. For example, requests for information, daily field reports, supplemental sketches and photographs shall be capable of reference as related records.

Reporting:

The system shall be capable of generating reports for work in progress, and logs for each document type. Summary reports generated by the system shall be available for team members.

Notifications and Distribution:

Document distribution to project members shall be accomplished both within the extranet system and via email as appropriate. Project document distribution to parties outside of the project communication system shall be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.

Required Document Types:

RFI, Request for Information.

Submittals, including record numbering by drawing and specification section.

Transmittals, including record of documents and materials delivered in hard copy.

Meeting Minutes.

Application for Payments (final).

Architect’s Supplemental Instructions.

Modification/Change Requests (MCR’s).

Change Orders (final).

Review Comments.

Daily Field Reports.

Construction Photographs.

Drawings.

Supplemental Sketches.

Schedules.

Specifications.

Punch Lists.

Commissioning Reports and Logs.

Close-Out Documents.

* + - * 1. Record Keeping: Except for paper documents, which require original signatures and large format documents (greater than 8½ x 11 inches), all other 8½ x 11 inches documents shall be submitted by transmission in electronic form to the E-Builder® web site by licensed users.

The Owner and his representatives, the Construction Manager (if hired for the project) and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier shall respond to documents received in electronic form on the web site, and consider them as if received in paper document form.

The Owner and his representatives, the Construction Manager (if hired for the project) and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier reserves the right to and shall reply or respond by transmissions in electronic form on the web site to documents actually received in paper document form.

The Owner and his representatives, the Construction Manager (if hired for the project) and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier reserves the right to and shall copy any paper document into electronic form and make same available on the web site.

The following are some but not all of the paper documents which require original signature:

Contract

Change Orders

Application & Certificates for Payment

* + - * 1. Minimum Equipment and Internet Connection: In addition to other requirements specified in this Section, the Owner and his representatives, the Construction Manager (if hired for the project) and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier required to have a user license(s) shall be responsible for the following:

Providing suitable computer systems for each licensed user at the users normal work location[[1]](#footnote-1) with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.

Each of the above referenced computer systems shall have the following minimum system[[2]](#footnote-2) and software requirements:

Desktop configuration (Laptop configurations are similar and should be equal to or exceed desktop system.)

PC system 2.4 MHz Intel Pentium 4 or equivalent AMD processor

2 GB Ram

Display capable of SVGA (1024 x 768 pixels) 256 colors display

101 key Keyboard with mouse.

Operating system and software shall be properly licensed.

Internet Explorer 9 or other browser (current version is a free distribution for download). This specification is not intended to restrict the host server or client computers provided that industry standard HTTP clients may access the published content.

Computer Operating System: Microsoft Windows XP, Vista or 7.

Adobe Acrobat Reader (current version is a free distribution for download).

Or, users intending to scan and upload to the documents area of E-Builder® should have Adobe Acrobat (current version must be purchased).

Users should have the standard Microsoft Office Suite (current version must be purchased) or the equivalent.

Scheduling Software: Microsoft Project or Primavera

Scanner: minimum 800 x 600 pixels and a digital camera with minimum resolution of one (1) megapixel.

Connection Speed/Minimum Bandwidth: DSL, ADSL, or T1 Line for transferring a minimum of 3 Mbps Downstream and 512 Kbps Upstream.

1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**[\*\*\*\*\*The following section 01 3115 – Project Management Software is used on projects partially or wholly funded by NM PSFA. Delete the previous section 01 3115 – Project Management Software if this is the case.\*\*\*\*\*]**

**SECTION 01 3115**

**PROJECT MANAGEMENT COMMUNICATIONS**

1. **GENERAL**
	* + 1. **PROJECT MANAGEMENT SOFTWARE**
				1. Albuquerque Public Schools and the Public School Facilities Authority (PSFA) have adopted e-Builder software for project management.
			2. **SUMMARY**
				1. Project Management Communications: The Contractor shall use the Internet web based project management communications tool, E-Builder® ASP software, and protocols included in that software during this project. The use of project management communications as herein described does not replace or change any contractual responsibilities of the participants.

One seat license for E-Builder® will be provided by PSFA at no charge to the Contractor. Additional seat licenses can be purchased by the Contractor on an annual fee basis from E-Builder.

The project communications database is on-line and fully functional. Electronic and computer equipment, and Internet connections are the responsibility of each project participant. The sharing of user accounts is prohibited.

* + - * 1. Training: PSFA will provide initial training.
				2. Support: PSFA will provide on-going technical support.
				3. Project Archive: The archive shall be available to each team member at a nominal cost. The archive set will contain only documents that the firm has security access to during construction. All legal rights in any discovery process are retained. Archive material shall be ordered from e-Builder®.
				4. Copyrights and Ownership: Nothing in this specification or the subsequent communications supersedes the parties’ obligations and rights for copyright or document ownership as established by the Contract Documents. The use of CAD files, processes or design information distributed in this system is intended only for the project specified herein.
				5. Purpose: The intent of using E-Builder® is to improve project work efforts by promoting timely initial communications and responses. Secondly, to reduce the number of paper documents while providing improved record keeping by creation of electronic document files
				6. Authorized Users: Access to the web site will be by individuals who are licensed users.

Individuals may use the User Application included in these specifications or may request the User Application.

Submit completed user application forms with check made payable to "e-Builder, Inc.".

Authorized users will be contacted directly by the web site provider, E-Builder®, who will assign the temporary user password.

Individuals shall be responsible for the proper use of their passwords and access to data as agents of the company in which they are employed.

* + - * 1. Administrative Users: Administrative users have access and control of user licenses and all posted items. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!** Improper or abusive language toward any party or repeated posting of items intended to deceive or disrupt the work of the project will not be tolerated and will result in deletion of the offensive items and revocation of user license at the sole discretion of the Administrative User(s).
				2. Communications: The use of fax, email and courier communication for this project is discouraged in favor of using E-Builder® to send messages. Communication functions are as follows:

Document Integrity and Revisions:

Documents, comments, drawings and other records posted to the system shall remain for the project record. The authorship time and date shall be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp shall be the method used to make modifications or corrections.

The system shall make it easy to identify revised or superseded documents and their predecessors.

Server or Client side software enhancements during the life of the project shall not alter or restrict the content of data published by the system. System upgrades shall not affect access to older documents or software.

Document Security:

The system shall provide a method for communication of documents. Documents shall allow security group assignment to respect the contractual parties communication except for Administrative Users. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!**

Document Integration:

Documents of various types shall be logically related to one another and discoverable. For example, requests for information, daily field reports, supplemental sketches and photographs shall be capable of reference as related records.

Reporting:

The system shall be capable of generating reports for work in progress, and logs for each document type. Summary reports generated by the system shall be available for team members.

Notifications and Distribution:

Document distribution to project members shall be accomplished both within the extranet system and via email as appropriate. Project document distribution to parties outside of the project communication system shall be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.

Required Document Types:

RFI, Request for Information.

Submittals, including record numbering by drawing and specification section.

Transmittals, including record of documents and materials delivered in hard copy.

Meeting Minutes.

Application for Payments (final).

Architect’s Supplemental Instructions.

Modification/Change Requests (MCR’s).

Change Orders (final).

Review Comments.

Daily Field Reports.

Construction Photographs.

Drawings.

Supplemental Sketches.

Schedules.

Specifications.

Punch Lists.

Commissioning Reports and Logs.

Close-Out Documents.

* + - * 1. Record Keeping: Except for paper documents, which require original signatures and large format documents (greater than 8½ x 11 inches), all other 8½ x 11 inches documents shall be submitted by transmission in electronic form to the E-Builder® web site by licensed users.

The Owner and his representatives, the Construction Manager (if hired for the project) and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier shall respond to documents received in electronic form on the web site, and consider them as if received in paper document form.

The Owner and his representatives, the Construction Manager (if hired for the project) and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier reserves the right to and shall reply or respond by transmissions in electronic form on the web site to documents actually received in paper document form.

The Owner and his representatives, the Construction Manager (if hired for the project) and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier reserves the right to and shall copy any paper document into electronic form and make same available on the web site.

The following are some but not all of the paper documents which require original signature:

Contract

Change Orders

Application & Certificates for Payment

* + - * 1. Minimum Equipment and Internet Connection: In addition to other requirements specified in this Section, the Owner and his representatives, the Construction Manager (if hired for the project) and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier required to have a user license(s) shall be responsible for the following:

Providing suitable computer systems for each licensed user at the users normal work location[[3]](#footnote-3) with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.

Each of the above referenced computer systems shall have the following minimum system[[4]](#footnote-4) and software requirements:

Desktop configuration (Laptop configurations are similar and should be equal to or exceed desktop system.)

PC system 2.4 MHz Intel Pentium 4 or equivalent AMD processor

2 GB Ram

Display capable of SVGA (1024 x 768 pixels) 256 colors display

101 key Keyboard with mouse.

Operating system and software shall be properly licensed.

Internet Explorer 9 or other browser (current version is a free distribution for download). This specification is not intended to restrict the host server or client computers provided that industry standard HTTP clients may access the published content.

Computer Operating System: Microsoft Windows XP, Vista or 7.

Adobe Acrobat Reader (current version is a free distribution for download).

Or, users intending to scan and upload to the documents area of E-Builder® should have Adobe Acrobat (current version must be purchased).

Users should have the standard Microsoft Office Suite (current version must be purchased) or the equivalent.

Scheduling Software: Microsoft Project or Primavera

Scanner: minimum 800 x 600 pixels and a digital camera with minimum resolution of one (1) megapixel.

Connection Speed/Minimum Bandwidth: DSL, ADSL, or T1 Line for transferring a minimum of 3 Mbps Downstream and 512 Kbps Upstream.

1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**SECTION 01 3300**

**SUBMITTAL PROCEDURES**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes submittal procedures for:
			1. Shop drawings.
			2. Product data.
			3. Samples.
			4. Manufacturer’s instructions.
			5. Design data and calculations.
			6. Manufacturer’s certificates.
			7. Reports for testing, inspecting, and demonstrating.
			8. Refer to individual specification sections for unique submittal requirements related to a specific product.
	2. **SUBMITTAL SCHEDULE**
		1. Procedure:
			1. Submit for review by Architect 3 copies of Submittal Schedule within 20 days of date of Agreement Between Owner and Contractor but no later than Notice to Proceed.
			2. Revise to address review comments and resubmit.
			3. Update Submittal Schedule to reflect change orders, Progress Schedule revisions, and status of individual submittals. Submit 3 copies with each Application for Payment.
		2. Format: Tabular arrangement indicating:
			1. Submittal number and title.
			2. Related specification section number and title.
			3. Proposed submittal date, actual submittal date, and date reviewed submittal is required.
	3. **SUBMITTAL PROCEDURES**
		1. Schedule submittals to expedite Work. Unless otherwise noted, submittals shall be submitted within 45 days of date of Agreement between Owner and Contractor.
		2. Preparation:
			1. Provide separate submittal for each specification section requiring submittals. Include all material requested for that section. Provide folders or binders for material.
			2. Coordinate submission of related items. Group submittals of related products or a system in a single transmission.
			3. Identify variations from requirements of Contract Documents. State product and system limitations which may adversely affect Work.
			4. Mark or show dimensions and values in same units as specified.
			5. Provide 4 x 6 inches minimum space for Architect and Contractor review stamps.
		3. Contractor review:
			1. Review submittals prior to transmittal. Verify compatibility with field conditions and dimensions, product sections and designations, and conformance of submittal with requirements of Contract Documents. Return non-conforming submittals to originator for revision rather than submitting to Architect.
			2. Coordinate submittals to avoid conflicts between various items of work.
			3. Apply Contractor’s stamp with signature certifying that review, verification of products required, field dimensions, adjacent construction, and coordination of information is in accordance with the requirements of the Contract Documents.
			4. Failure of Contractor to review submittals prior to transmittal to Architect shall be cause for rejection.
		4. Transmittal:
			1. Transmit each submittal with a separate Submittal Transmittal Form. Copy of Form follows this Section.
			2. Sequentially number transmittal forms. Re-submittals shall have original number with an alphabetic suffix.
			3. Identify project, Contractor, subcontractor, supplier, pertinent drawing sheet and detail numbers, and associated specification numbers.
			4. Sign Submittal Transmittal Form and deliver submittals to Architect.
		5. Review: Architect will review and return submittals with comments.
		6. Do not fabricate products or begin work which requires submittals until return of submittal with Architect acceptance.
		7. On return promptly distribute reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
		8. Resubmission:
			1. Revise and resubmit submittals as required within 15 days of return from Architect.
			2. Make re-submittals under procedures specified for initial submittals.
			3. Identify all changes made since previous submittal.
	4. **SHOP DRAWINGS**
		1. Submission:
			1. Submit one reproducible transparency and 3 copies to be retained by Architect.
			2. Fold drawings to fit submittal folders.
		2. Form:
			1. Size: 8½ x 11 inches minimum and 36 x 48 inches maximum except for full size details and templates.
			2. Present in a clear and thorough manner. Title each drawing with Project name. Identify each element of drawing with reference number.
			3. Plans, elevations, sections, and detail shop drawings shall be to scale with scale indicated.
			4. Indicate field verified dimensions. Show relationship of products to adjacent work. Note coordination requirements.
			5. Schematics and wiring and other diagrams shall be logically arranged and presented in a clear understandable manner with all items labeled.
	5. **PRODUCT DATA**
		1. Submission: Submit the number of copies which Contractor requires plus 3 copies to be retained by Architect.
		2. Form:
			1. Provide all critical information such as reference standards, performance characteristics, capacities, power requirements, wiring and piping diagrams, controls, component parts, finishes, dimensions, and required clearances.
			2. Submit only data which are pertinent. Mark each copy of manufacturer’s standard printed data to identify products, models, options, and other data pertinent to project.
			3. Colors and patterns: Unless color and pattern is specified for product, submit accurate color and pattern charts or samples illustrating manufacturer’s full range for selection by Architect. Submit for Architect’s review accurate color and pattern samples as required for specified colors.
	6. **SAMPLES**
		1. Submission:
			1. Submit the number of samples specified in individual specifications sections. One sample will be retained by Architect.
			2. Label each sample with identification related to Submittal Transmittal Form.
			3. Submit samples at least 30 days prior to date Contractor needs approval for ordering or incorporation into Work.
		2. Type: Submit samples to illustrate functional and aesthetic characteristics of the products, with all integral parts and attachment devices. Include full range of manufacturer’s standard finishes, indicating colors, textures, and patterns for Architect selection.
		3. Reviewed product samples may be used in work with approval of Architect.
	7. **MANUFACTURER’S INSTRUCTIONS**
		1. Submission: Submit the number of copies which Contractor requires plus 3 to be retained by Architect.
		2. Form:
			1. Manufacturer’s printed instruction for activities such as delivery, storage, assembly, installation, wiring, start-up, adjusting, finishing, and maintaining.
			2. Indicate pertinent portions and identify conflicts between manufacturer’s instruction and Contract Documents.
	8. **DESIGN DATA AND CALCULATIONS**
		1. Submission: Submit the number of copies which Contractor requires plus [3] [4] to be retained by Architect.
		2. Form:
			1. Provide basic calculations, analyses, and date to support design decisions and demonstrate compliance with specified requirements. State assumptions and define parameters. Give general formulas and references. Provide sketches as required to illustrate design method and application.
			2. Arrange calculations and data in a logical manner with suitable text to explain procedure.
			3. Indicate name, title, and telephone number of individual performing design and include professional seal of designer where applicable or required.
	9. **MANUFACTURER’S CERTIFICATES**
		1. Submission: Submit the number of copies which Contractor requires plus 3 to be retained by Architect.
		2. Form:
			1. Certificates shall indicate that products conform to or exceed specified requirements. Submit supporting reference data, affidavits, and certifications as required.
			2. Certificates may be based on recent or previous test results if acceptable to Architect.
	10. **REPORTS**
		1. Submission:
			1. Submit the number of copies which the Contractor requires plus 3 to be retained by Architect.
			2. Submit reports within 15 days after completion of activity.
		2. Form:
			1. Present complete information in a clear concise manner.
			2. Typed or computer printed on 8½ x 11 inch white paper.
			3. Bind with titled cover in folder, plastic binder, or three ring binder as appropriate for quality of material.
		3. Reports shall include:
			1. Time, location, condition, and duration of activity.
			2. Names of persons performing and witnessing activity.
			3. Description of activity, data record, and results.
			4. Deficiencies found, corrective measures, and results of retesting.
			5. Other pertinent data.
2. **PRODUCTS**

Not used.

1. **EXECTUION**

Not used.

**END OF SECTION**

**SUBMITTAL TRANSMITTAL FORM**

The undersigned, as Contractor for the above project, submits the following and certifies that submittal has been reviewed and it conforms with requirements of Contract Documents except as noted.

SUBMITTAL NUMBER: RESUBMITTAL: YES NO

DATE: NUMBER OF COPIES SUBMITTED:

DESCRIPTION:

ASSOCIATED SPECIFICATION SECTION NO:

REFERENCED DRAWING SHEET NO:

NAME OF SUBCONTRACTOR/SUPPLIER:

SUBMITTED

BY: DATE:

SIGNATURE:

#  \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

DATE RECEIVED BY ARCHITECT: DISTRIBUTED TO:

OWNER CIVIL LANDSCAPE STRUCTURAL MECHANICAL ELECTRICAL OTHER:

# \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

**\*\*\*\*\* Architect may modify specific language below in accordance with Architect’s review stamp. \*\*\*\*\***

ACTION: No exceptions taken

Make corrections noted Revise and resubmit Rejected

COMMENTS:

Submittal review corrections and comments by Architect do not relieve Contractor from compliance with Contract Documents. Review is only for general conformance with design concept and general compliance with information given in Contract Documents. Contractor is responsible for verifying dimensions, selecting fabrication processes and techniques of construction, coordination with other trades, and performing work in safe and satisfactory manner.

REVIEWED BY: DATE:

SIGNATURE:

**SECTION 01 3510**

**APS PROJECT PROCEDURES**

1. **GENERAL**
	1. **SUMMARY**
		1. This section includes special procedures for Albuquerque Public Schools projects.
			1. APS Personnel.
			2. Work by Others.
			3. Access to facilities.
			4. Security Procedures.
			5. Use of Site.
			6. Use of site facilities.
			7. Schedule and Hours of Operation.
			8. Safety and Appropriate Behavior.
			9. Testing and Inspections.
			10. Utility Locating.
			11. Utility Interruptions.
			12. Contractor Certifications.
	2. **APS PERSONNEL**
		1. Construction Administration: provided by APS Facilities Design & Construction (FDC), 915 Oak Street, SE, Albuquerque, NM 87106; (505) 848-8810; fax (505) 246-9020.
		2. Director, FDC: Authorized signatory for contracts and modification to contracts.
		3. Staff Architect (or Engineer), FDC: Responsible for management of project during design and bidding phases. Also coordinates other FDC personnel.
		4. Construction Manager, FDC: Responsible for management of project during construction and occupancy. Also coordinates other FDC personnel.
		5. Site Administration: person, usually a Principal or Assistant Principal, responsible for a particular APS site.
		6. APS Maintenance and Operations: contact point for utility emergencies, M&O Control Center, 765-592-, extension 212.
		7. APS M&O Environmental Management Department: contact point for asbestos and hazardous materials in existing construction.
		8. APS Police: Respond to security incidents at schools, patrol only on occasion. General Contractor is responsible for security of work area.
		9. APS Risk Management: contact point for reporting of accidents and injuries on project.
		10. APS Public Information Office: contact point for media; refer all request by media to this office, or to the Director, FDC.
		11. All official communications from the General Contractor and its subcontractors will route through the General Contractor’s Project Manager and/or Superintendent to the Design Professional. The Design Professional then communicates to the APS Construction Manager and/or Staff Architect (or Engineer), unless directed otherwise.
		12. The APS Construction Manager and/or Staff Architect (or Engineer) in turn will communicate with APS entities, vendors, designers and contractors. In emergency situations the General Contractor will directly contact the appropriate APS entity directly, and communicate actions taken to the Construction Manager and/or Staff Architect (or Engineer).
	3. **WORK BY OTHERS**
		1. APS will contract for the following work by others for this project: [Edit list].
		2. Asbestos Abatement, if any: contact APS M&O Environmental Management Department.
		3. Collection of PCB-containing ballasts, if any: contact APS M&O Environmental Management Department.
		4. Portable Building Movers and Installers.
		5. Fire Alarm System (infrastructure for system by General Contractor).
		6. Voice Communications System (infrastructure for system by General Contractor).
		7. Data Communications System (infrastructure for system by General Contractor).
		8. Security Alarm System (infrastructure for system by General Contractor).
		9. Testing and Balancing.
		10. Landscaping and Irrigation (irrigation sleeves by General Contractor).
		11. Playground Equipment (playground equipment areas, if any, by General Contractor).
		12. Owner-furnished equipment as identified in the construction documents (utility hook-ups by General Contractor unless noted otherwise).
		13. Furniture: by APS (utility connections to systems furniture, if any, by General Contractor).
	4. **ACCESS TO FACILITIES**
		1. Except for new school construction (site not occupied by APS), contractor shall obtain keys to gates and buildings from the M&O Lockshop, 915 Oak Street, SE.
	5. **SECURITY PROCEDURES**
		1. Except for new school construction (site not occupied by APS), contractor’s access to site is limited to normal weekday work hours. For new construction comply with local codes, ordinances and property covenants.
		2. For after-hours and weekend access, contractor must fill out and submit, through the Site Administrator, a security release form to APS Police, to authorize after-hours access. General Contractor’s Superintendent or designee calls APS Police immediately before an after-hours access to a site, and again immediately upon departing a site, to clear and reset the site’s security alarms.
		3. Contractor Identification
			1. Badges: FDC will provide numbered badges for contractor’s use within occupied facilities. Identifiable company work gear, safety vests or company vests may be sufficient identification for workers within secured work areas.
			2. Contractor’s project superintendent shall sign in and out daily with school administration, projects at existing facilities.
	6. **USE OF SITE**
		1. Except for new school construction (site not occupied by APS), various portions of the project site will be use by Owner and the public during the time that the work is performed.
		2. Schedule and coordinate the work to minimize disruption to school and site operations.
		3. Limit use of project site area essential to performance of the work; confine construction operations to areas designated in construction documents.
		4. Keep existing entrances and driveways serving the project site clear and available for use by Owner, public, students and staff, and emergency vehicles.
		5. Store materials and equipment only in designated areas; Contractor assumes full responsibility for the protection and safekeeping of such materials and equipment.
		6. Keep interior areas free from accumulation of waste materials, trash or construction debris.
	7. **USE OF SITE FACILITIES**
		1. Where available, contractor may use a site’s power and water for construction operations.
		2. Contractor may not use sanitary facilities or drinking water at a school.
	8. **SCHEDULE AND HOURS OF OPERATION**
		1. It is anticipated that the Contractor will work normal weekday work hours. Early or late hours may be subject to neighborhood restrictions and noise control ordinances.
		2. APS reserves the right to re-schedule Contractor’s operating during testing and examination periods; testing periods vary among schools and will be discussed at the pre-construction conference.
		3. APS reserves the right to re-schedule Contractor’s heavy equipment operations during times when children are allowed to be outdoors, if such operations are in close proximity to play areas.
		4. APS reserves the right to re-schedule and control Contractor’s movement of vehicles in and out of a construction site during morning drop-off and afternoon dismiss periods, if the site has traffic congestion.
	9. **SAFETY AND APPROPRIATE BEHAVIOR**
		1. Post signs limiting access to construction area on perimeter fence.
		2. Wear badges as determined at pre-construction conference.
		3. Implement safety and visitor check-in procedures as appropriate.
		4. Maintain emergency vehicle access, and fire drill routes, at site.
		5. Smoking, alcohol, and illegal drug use are prohibited on APS property. APS has a “no tolerance” policy which will require immediate removal of persons not complying with this requirement.
		6. No direct communication with children permitted. No foul language, sexist of racist comments allowed on APS property. APS has a “no tolerance” policy and will require immediate removal of persons not complying with this requirement.
		7. Report unscheduled tours and visitors to APS FDC.
	10. **TESTING AND INSPECTIONS**
		1. Special Inspections required by code are provided by APS.
		2. Other testing and inspection [will] [will not] be provided by APS.
		3. Testing and balancing of HVAC systems is provided by APS.
	11. **UTILITY LOCATING**
		1. APS is a member of New Mexico One-Call. Contact New Mexico One-Call for utility locations.
	12. **UTILITY INTERRUPTIONS**
		1. Provide a minimum of 72 hours advance notice of planned utility interruptions to allow APS to schedule equipment shut-downs and re-starts associated with the interruptions, and to allow schools to reschedule programs due to shut-downs if necessary. Avoid shut-downs on school days.
		2. Protect facilities, grounds and equipment from damage due to shut-down and start-up of utilities. Repair of damage to APS property due to utility shut-downs is General Contractor’s responsibility.
	13. **CONTRACTOR CERTIFICATIONS**
		1. Contractor shall sign and forward to the Architect/Engineer of record, who will in turn complete and return, the attached Certificate of Asbestos Free Construction (EPA AHERA 40 CFR 763.99 Paragraph (7) c).
2. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**SECTION 01 4000**

**QUALITY REQUIREMENTS**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes:
			1. Installation quality control.
			2. Reference standards.
			3. Mock-ups.
			4. Field samples.
			5. Inspection and testing laboratory services.
			6. Manufacturer’s field services and reports.
	2. **INSTALLATION QUALITY CONTROL**
		1. Monitor and maintain quality control over manufacturers, suppliers, subcontractors, work force, site conditions, products, and services to ensure Work is of specified, consistent quality.
		2. Workmanship:
			1. Specified requirements represent a minimum acceptable quality for Work. Comply with industry standards except when more stringent specified requirements and tolerances indicate higher standards or more precise workmanship.
			2. Perform work with suitable qualified personnel to produce work of specified quality.
			3. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and distortion.
		3. Manufacturer’s instructions:
			1. Comply fully with manufacturer’s instructions. Perform steps in manufacturer’s recommended sequence.
			2. Should instructions conflict with Contract Documents, request clarification from Architect before proceeding.
	3. **REFERENCE STANDARDS**

**[\*\*\*\*\*Since this paragraph states that current edition of reference standards will apply, it is not necessary to indicate dates for standards in the remainder of the project manual.\*\*\*\*\*]**

* + 1. When specifications require conformance to a reference standard, applicable standard shall be the edition current at date of receiving bids.
		2. Should specified reference standard conflict with Contract Documents, request clarification from Architect.
		3. Contractual relationship, duties, and responsibilities of the parties to the Contract nor those of the Architect shall not be altered from that stated in the Contract Documents by mention or inference to the contrary in a specified reference standard.
	1. **MOCK-UPS**

**[\*\*\*\*\*A mock-up is not part of construction. Sections requiring mock-ups should cross refrence to this section. If mock-ups are not required, delete this article.\*\*\*\*\*]**

* + 1. When required by an individual specification section, construct mock-up of construction component or assembly [for review by Architect,] [testing,] [and demonstration].
		2. Assemble and erect mock-up with specified attachments, anchorage devices, flashings, seals, and finishes.
		3. Perform tests as specified in section requiring mock-up. Submit report in accordance with Section 01 3300 – Submittal Procedures.
		4. Mock-up accepted by Architect shall represent quality level for that item of work.
		5. After acceptance and use as quality standard, completely remove mock-up and clean area.
	1. **FIELD SAMPLES**

**[\*\*\*\*\*A field sample is part of construction. Sections requiring field samples should cross refrence to this section. If field samples are not required, delete this article.\*\*\*\*\*]**

* + 1. When required by an individual specification section, install field samples for review by Architect.
		2. Acceptable installed sample shall remain as part of Work and shall represent quality level for that item of work. Unacceptable sample shall be removed and replaced, repaired, or refinished as directed by Architect.
	1. **INSPECTION AND TESTING LABORITORY SERVICES**
		1. Unless required otherwise in the Contract, Owner shall appoint, employ, and pay for services of an independent firm to perform routine inspections and compliance for testing and inspection services as specified and/or shown, including Special Inspections required by Authority Having Jurisdiction, and other materials, components, and systems where routine testing to determine compliance with Contract Documents is required.
		2. Testing firm shall perform inspections, tests and other services specified in individual specification sections and as required.
		3. Testing firm shall submit copies of reports indicating observations and results of inspections and tests with indication of compliance or non-compliance with Contract Documents.
		4. Contractor’s responsibilities:
			1. Cooperate with testing firm and furnish materials and other products to be tested. Provide assistance in accessing and obtaining samples. Provide storage for samples and testing equipment.
			2. Notify testing firm 2 days prior to operations requiring testing services.
			3. Make arrangements with testing firm and pay for additional samples and tests required for Contractor’s use.
		5. Retesting: Retesting required because of non-compliance to specified requirements shall be performed by same testing firm and paid for by Contractor.
	2. **MANUFACTURER’S FIELD SERVICES AND REPORTS**

**[\*\*\*\*\*Sections requiring a representative of manufacturer to observe installation should cross reference to this section. If manufacturer’s field services are not required, delete this article.\*\*\*\*\*]**

* + 1. When required by an individual specification section, provide services of manufacturer’s field representative to observe site conditions, installation, quality of workmanship, starting of equipment, testing and adjusting equipment, and as applicable, to instruct and supervise field operations.
		2. Submit qualifications of manufacturer’s field representative to Architect for approval 15 days in advance of required observation.
		3. Manufacturer’s field representatives shall report observations, site decisions, and instructions given to installers that are supplemental or contrary to manufacturer’s written instructions.
		4. Submit report of field representative within 30 days of observation in accordance with Section 01 3300 – Submittal Procedures.
1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**SECTION 01 5000**

**TEMPORARY FACILITIES AND CONTROLS**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes:
			1. Site mobilization plan.
			2. Temporary services: Electrical, lighting, heating, ventilating, water, telephone, and facsimile.
			3. Fencing, barriers, and other temporary controls.
			4. Temporary dust, erosion and sediment controls including NPDES-SWPPP requirements.
			5. Construction facilities: Temporary buildings, sanitary facilities, access, and parking.
			6. Protection of Work and existing facilities.
			7. Project sign.
			8. Bulletin board.
		2. Related documents and sections.
	2. **REFERENCES**
		1. NFPA 10 – Standard for Portable Fire Extinguishers.
		2. NFPA 241 – Safeguarding Building Construction, Alterations, and Demolition Operations.
	3. **SITE MOBILIZATION PLAN**
		1. Coordinate locations for temporary facilities with Architect and Owner.
		2. Based upon information indicated on Drawings, prepare site mobilization plan showing:
			1. Field office.
			2. Storage areas, sheds, and fencing.
			3. Project identification sign.
			4. Access routes.
			5. Temporary utility routes and connections.
			6. Sanitary facilities.
			7. Trash and rubbish receptacles.
			8. Parking arrangements.
		3. Present 3 copies of plan at Pre-Construction Conference in accordance with Section 01 3100 – Project Management and Coordination.
		4. Prior to mobilization, revise and resubmit to Architect site mobilization plan incorporating final revisions made at Pre-Construction Conference and approved by Architect and Owner.
	4. **TEMPORARY ELECTRICITY**

**[\*\*\*\*\*Include the following paragraph is Contractor is to provide and pay for temporary electricity.\*\*\*\*\*]**

* + 1. Provide and pay for temporary electricity used during construction. Provide service disconnect and overcurrent protection. Provide temporary feeder as required.

**[\*\*\*\*\*Include and edit the following paragraph if there is existing power at site and Owner is to pay for temporary electricity.\*\*\*\*\*]**

* + 1. Connect to existing power source at site. [Do not disrupt Owner’s need for continuous service.] Provide service disconnect and overcurrent protection. Provide temporary feeder as required. [Owner will pay cost of electricity used. Exercise measures to conserve power.] [Provide separate metering and reimburse Owner for cost of energy used.]
		2. Provide power outlets for construction operations with branch wiring, distribution boxes, and flexible power cords as required.
		3. Permanent convenience receptacles may be utilized during construction.
	1. **TEMPORARY LIGHTING**
		1. Provide lighting for construction operations. Lighting levels shall be appropriate for type and difficulty of work. Use these minimums as guidelines:
		2. After dark, provide security lighting for interior and exterior work and storage areas.
		3. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
		4. Maintain lighting and provide routine repairs.
		5. Permanent building lighting may be utilized during construction.
	2. **TEMPORARY HEATING AND VENTILATING**
		1. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, and gasses.
		2. Provide temporary fan units to maintain clean air for construction operations.
		3. Maintain minimum ambient temperature of 50 degrees F in interior areas where construction is in progress.

**[\*\*\*\*\*Include the following paragraphs if project is renovation of existing building and Contractor is allowed to use existing HVAC system.\*\*\*\*\*]**

* + 1. Use Owner’s existing HVAC system to maintain specified conditions: Owner will pay cost of energy used. Exercise measures to conserve energy.
		2. If Owner’s existing HVAC system is temporarily insufficient or inoperable due to the Work, provide and pay for supplemental heating devices needed to maintain specified conditions and in such a manner as to prevent damage to existing building systems.
	1. **TEMPORARY WATER SERVICE**

**[\*\*\*\*\*Include the following paragraph if Contractor is to provide and pay for temporary water service.\*\*\*\*\*]**

* + 1. Provide, maintain, and pay for suitable quality water service required for construction operations.

**[\*\*\*\*\*Include the following paragraph if there is existing water source on site. Edit to reflect payment by Owner or Contractor.\*\*\*\*\*]**

* + 1. Connect to existing water source for construction operations. [Owner will pay cost of water used. Exercise measures to conserve water.] [Provide separate metering and reimburse Owner for cost of water used.]
		2. Assume responsibility for temporary connections and water lines. Upon completion, remove temporary facilities.
	1. **COMMUNICATIONS**
		1. Provide, maintain, and pay for telephone service to field office. School telephones will not be available to Contractor’s workforce unless for an emergency.
		2. Provide, maintain, and pay for facsimile service to field office.
	2. **FENCING**
		1. Provide temporary fencing around new building and materials storage site. Completely separate construction from existing facilities, student pathways and related exterior areas.
		2. Type: Panelized 6 foot high commercial grade chain link fence. Equip with vehicular and pedestrian gates with locks.
	3. **BARRIERS AND PROTECTION**

**[\*\*\*\*\*Edit this article to reflect scope of project, if there are existing buildings and landscaping, and type of barriers and protections specifically required.\*\*\*\*\*]**

* + 1. Security: Provide to protect Work [and existing facilities] from unauthorized entry, vandalism, and theft. [Coordinate with Owner’s security program and personnel.]
		2. Barriers: Provide to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from construction operations.
		3. Barricades and covered walkways: As required by Architect, Owner and governing authorities for safe public access to existing buildings.
		4. Enclosures: Provide temporary, insulated, weather tight closures of exterior openings to provide acceptable working conditions, protect Work, and prevent unauthorized entry. Fit with lockable doors.
		5. Temporary partitions: Provide to separate work areas from [existing building at point of connection.] [completed Work.] Prevent penetration of dust and moisture into [existing] [completed portions of] building.
		6. Emergency exist shall be maintained during construction. Provide separate barriers as appropriate.
		7. Protect existing detection devices such as smoke detectors and sensors from construction dust.
		8. Protect existing trees and plants designated to remain. Replace damaged plant material.
		9. Hand-water existing trees, plants [and grass] ass necessary to maintain them viable in the event that existing irrigation system is made temporarily inoperable due to the Work. Replace dead plan material as required in the event of failure to comply with this provision.
	1. **PROTECTION OF INSTALLED WORK**
		1. Protect installed Work. Control activity in immediate work area.
		2. Provide temporary and removable protection for installed products.
		3. Prohibit traffic and storage on roof surfaces and landscaped areas.
	2. **TEMPORARY FIRE PROTECTION**
		1. Install and maintain temporary fire protection components. Establish and follow procedures to protect against fire losses. Comply with NFPA 241.
		2. Fire extinguishers: Provide hand carried, portable, UL rated fire extinguishers of type and size recommended by NFPA 10 for building exposure conditions. Place in accessible, convenient locations in clear view with a minimum of one extinguisher per floor.
		3. Access: Maintain unobstructed access to fire hydrants, water supply, fire extinguishers, stairways, and access routes for fighting fires.
		4. Heating devices: Exercise care and monitor use of temporary heaters to minimize fire risk.
		5. Store combustible materials in fire-safe containers.
		6. Volatile products: Do not store paints, varnishes, paint removers, solvents, adhesives, cleaning rags, and other volatile products in building. Take precautionary measures to prevent fire hazards and spontaneous combustion.
		7. Cutting and welding: Approve in advance use of open flame cutting, welding, and soldering equipment. Ensure that safe conditions exist before granting approval.

**[\*\*\*\*\*Include the following paragraph when Project involves construction activities which may cause soils disturbance and erosion on site; required for projects in which one acre or more of area will be disturbed.\*\*\*\*\*]**

* 1. **TEMPORARY DUST, EROSION AND SEDIMENT CONTROLS**
		1. Prevent temporary collection of sediment on sidewalks, parking lots, streets and driveways. Clean such surfaces promptly if conditions exist due to the Work.
		2. National Pollution Discharge Elimination System (NPDES) permit and procedures for preparing a Storm Water Pollution Prevention Plan (SWPPP).
			1. Contractor shall determine whether Project required an EPA NPDES storm water discharge permit in conformance with all regulations governing the disturbance of construction site areas.
			2. If storm water discharge permit is required, then both Contractor and Owner shall be designated as separate permitees and the Contractor shall do the following:
				1. Prepare a Storm Water Pollution Prevention Plan (SWPPP) document as necessary to ensure compliance with any and all NPDES construction storm water permitting plan requirements.
				2. Prepare and submit all EPA documentation and forms required of Contractor for permit.
				3. Assist Owner with preparation and submittal of all EPA documentation and forms specifically required of Owner for permit. Provide all required project-related information to Owner as necessary.
				4. At Final Completion of Project, Contractor shall complete and submit documentation to EPA as required and to Architect as part of Project Closeout documentation package. See Section 01 7800 of Specifications.
			3. If a storm water discharge permit is not required, then the Contractor shall submit to the Architect and Owner prior to the mobilization a signed statement containing specific written justification why such a permit is not required on the Project.
			4. The Contractor shall manage the discharge of storm water from the site in accordance with NPDES permit and the provisions of SWPPP. The Contractor shall be responsible for installing and maintaining any necessary storm water control measures in accordance with control device manufacturer’s recommendations and the provisions of the SWPPP. The Contractor shall monitor the suitability of the designated control measures and management practices to achieve the storm water quality provisions of the NPDES permit, and shall make any necessary changes to the controls and practices in order to meet the permit requirements. The Contractor shall be responsible for updating the SWPPP and maintaining all records related to the SWPPP. A copy of the approved SWPPP shall be kept on the jobsite at all times. Contractor shall be liable for all fines and construction delays resulting from any governmental agency enforcement action due to a failure by the Contractor to satisfy the above requirements.
			5. Contractor is responsible for payment of all applicable fees and permits related to SWPPP approval process and for full cost of control measures for the Project.
		3. Prevent fugitive dust from originating on and blowing from construction site, in accordance with local ordinances and regulations. Failure to do so will subject Contractor to payment of fines assessed against Owner by local agency having jurisdiction.
	2. **ACCESS**
		1. Refer to Drawings for location of acceptable access routes and site entrances. Protect existing curbs and walks traversed by construction vehicles from damage.
		2. Identify access to Contractor’s work and office area with appropriate signs so that deliver personnel and others may contact Contractor. School office shall not be use as destination for Contractor’s deliveries.
		3. Prevent unauthorized personnel from accessing school building or site through Contractor’s work area.
	3. **FIELD ACTIVITIES**
		1. Provide and maintain a weather tight, fully equipped field office. [Provide work station for use of Architect during field inspections.]
		2. Provide space for project meetings with table and chairs to accommodate minimum 6 persons.
		3. Provide and maintain storage sheds and other facilities as required.
		4. Arrange for parking for work force in manner approved by Owner. Do not limit Owner’s requirements for parking.
	4. **TEMPORARY SANITARY FACILITIES**
		1. Provide and maintain required sanitary facilities for work force.
		2. New and existing toilet facilities shall not be used by work force.
	5. **DRINKING WATER**
		1. Provide independent source of drinking water for workforce. Fountains shall not be routinely available for Contractor’s use.
	6. **PROJECT SIGNS**
		1. School District Construction Sign.
			1. Furnish project sign and erect on site at location designated by Architect.
			2. Construction: Refer to drawing attached to this Section.
			3. Sign shall be prepared by professional sign painter using either painted exhibit lettering or die cut adhesive applied letters.
			4. Design, style and sizes of lettering, color, and texts shall be shown on drawing attached to this Section, electronic pdf will be provided by Architect.
	7. **BULLETIN BOARD**
		1. Furnish and maintain bulletin board adjacent to field office. Display the following throughout construction period:
			1. State wage rates.
			2. Safety requirements.
			3. Official notices and announcements.
	8. **REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS**
		1. Remove temporary above grade and buried utilities, equipment, facilities, and excess materials prior to final inspection.
		2. Clean and repair damage caused by installation of temporary facilities.
1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION
[(PROJECT SIGN DRAWINGS FOLLOW)]**



**SECTION 01 6000**

**PRODUCT REQUIREMENTS**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes:
			1. General product requirements.
			2. Transportation and handling.
			3. Storage and protection of products.
	2. **GENERAL PRODUCT REQUIREMENTS**
		1. Products shall be new and currently in production.
		2. Do not use products removed from other facilities except where use of salvaged products is required in Contract Documents.
		3. Products of the same category shall be products of a single manufacturer. Where possible, products under a single specification section shall be of the same manufacturer.
		4. Only non-asbestos containing materials shall be used or incorporated in the Work.
	3. **TRANSPORTATION AND HANDLING**
		1. Transport and handle products in accordance with manufacturer’s instructions.
		2. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
		3. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, and damage.
		4. Deliver packaged products in unopened and undamaged cartons and wrappings.
	4. **STORAGE AND PROTECTION**
		1. Store and protect products in accordance with manufacturer’s instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
		2. For exterior storage of fabricated products, place on supports above ground, sloped to drain.
		3. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
		4. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
		5. Arrange storage of products to permit access for inspection. Periodically inspect to ensure products are undamaged and are maintained under specific conditions.
2. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**SECTION 01 6300**

**PRODUCT SUBSTITUTION PROCEDURES**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes requirements for product options and substitution procedures.
	2. **PRODUCT OPTIONS**
		1. For products specified by reference standards or by description only, provide any product meeting those standards or description.
		2. For products specified by naming one or more manufacturers with the designation that no substitutions are allowed, provide only named products.
		3. For products specified by naming one or more manufacturers, provide named products and approved substitute products listed in Addenda, or submit a request for substitution in accordance with Paragraph 1.3.
	3. **SUBSTITUTIONS**
		1. During bidding, Architect will consider written request from qualified bidders, subcontractors, and manufacturers for substitutions.
			1. Submit separate request for each substitution with form 01 6310 – Prior Approval Substitution Request Form. Copy of form follows this Section.
			2. Submit substitution request in accordance with procedures and time limitations stated in Document 00 2000 – Instruction to Bidders.
			3. Substitutions approved during bidding will be listed in Addenda.
		2. After Contract award:
			1. After signing of Agreement Between Owner and Contractor, Owner will consider written requests for substitutions ONLY if one or more of these conditions exist:
				1. Unavailability of specified products through no fault of Contractor.
				2. Qualified installer is not available for specified product.
				3. Substitution is required for compliance with final interpretation of code requirements or insurance regulations.
				4. Subsequent information discloses inability of specified product to perform properly or to fit in designated space.
				5. Refusal of manufacturer to certify or guarantee performance of the specified product as required.
			2. Submit separate request for each substitution with Form 01 6320 – Contractor Substitution Request Form. Copy of form follows this Section. Provide data documenting need for substitution and substantiating compliance of proposed product with Contract Documents. Include proposed changes to contract amount and time if substitution is accepted.
			3. Architect will determine acceptability of proposed substitutions and notify Contractor in writing. Accepted substitutions will be included by Change Order with associated modifications of contract amount and time.
			4. Substitution will not be considered after contract award if indicated or implied on shop drawings and project data submittals.
		3. Use of approved substitution listed in Addenda or request for substitution after Contract award shall constitute representation that Contractor:
			1. Has investigated product and determined it meets or exceeds quality level of specified product.
			2. Will provide same warranty for substitution as for specified product.
			3. Will coordinate installation and make changes to other work required to accommodate accepted substitution and complete Work.
			4. Waives claims for additional costs or time extensions related to substitutions which later become apparent.
		4. Procedure: Submit 3 copies of request for substitution. Limit each request to one proposed substitution. Include in request:
			1. Complete data substantiating compliance of proposed substitution with Contract Document.
			2. For products:
				1. Product identification, including manufacturer’s name and address.
				2. Manufacturer’s literature containing product description, performance and test data, and reference standards.
				3. Samples as required.
			3. For construction methods:
				1. Detailed description of proposed method.
				2. Drawings illustrating methods.
			4. Itemized comparison of proposed substitution with product specified.
			5. Data relating to changes in construction schedule.
			6. For requests submitted after Contract award, give cost data comparing proposed substitution with specified product and amount of proposed change to Contract Sum.
2. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION – FORMS FOLLOW**

**PRIOR APPROVAL SUBSTITUTION REQUEST FORM**

The undersigned, qualified bidder, subcontractor, manufacturer, or supplier requests that the following product be accepted for use in the Project.

PRODUCT:

MODEL NO.:

MANUFACTURER:

ADDRESS:

The above product would be used in lieu of

PRODUCT:

specified in

SECTION:

PARAGRAPH:

Attached are the following circled items:

1. Product description including specifications, performance and test data, and applicable reference standards.
2. Drawings.
3. Photographs.
4. Samples.
5. Tabulated comparison with specified product.
6. For items requiring color selections, full range of manufacturer's color samples.
7. Other:

The undersigned certifies that the following statements are correct. Explanations for all items which are **not** true are attached.

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | Proposed substitution has been thoroughly investigated and function, appearance, and quality meet or exceed that of specified product. | TRUE | FALSE |
| 2. | Same warranty will be provided for substitution as for specified product. | TRUE | FALSE |
| 3. | **No** aspect of Project will require re-design. | TRUE | FALSE |
| 4. | Use of substitution will **not** adversely affect: |  |  |
|  | a. Dimensions shown on Drawings. | TRUE | FALSE |
|  | b. Construction schedule and date of completion. | TRUE | FALSE |
|  | c. Work of other trades. | TRUE | FALSE |
| 5. | Maintenance service and replacement parts for proposed substitution will be readily available in [Las Cruces][El Paso] [Roswell] [Albuquerque] [Southern New Mexico] [Northern New Mexico] [ ] area. | TRUE | FALSE |
| 6. | Proposed substitution does **not** contain asbestos in any form. | TRUE | FALSE |

Submitted By:

COMPANY:

ADDRESS:

TELEPHONE NUMBER:

NAME OF PERSON SUBMITTING REQUEST:

TITLE:

DATE:

**CONTRACTOR SUBSTITUTION REQUEST FORM**

The undersigned, as Contractor for the above Project, requests that the following product be accepted for use in the Project

PRODUCT:

MODEL NO.:

MANUFACTURER:

ADDRESS:

The above product would be used in lieu of

PRODUCT:

specified in

SECTION:

PARAGRAPH:

Reason for substitution request:

Attached are the following circled items:

1. Product description including specifications, performance and test data, and applicable reference standards.
2. Drawings.
3. Photographs.
4. Samples.
5. Tabulated comparison with specified product.
6. For items requiring color selections, full range of manufacturer's color samples.
7. Documentation of reason for request.
8. Cost data for comparing proposed substitution with specified product.
9. Other\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The undersigned certifies that the following statements are correct. Explanations for all items which are **not** true are attached.

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | Proposed substitution has been thoroughly investigated and function, appearance, and quality meet or exceed that of specified product. | TRUE | FALSE |
| 2. | Same warranty will be provided for substitution as for specified product. | TRUE | FALSE |
| 3. | **No** aspect of Project will require re-design. | TRUE | FALSE |
| 4. | Use of substitution will **not** adversely affect: |  |  |
|  | a. Dimensions shown on Drawings. | TRUE | FALSE |
|  | b. Construction schedule and date of completion. | TRUE | FALSE |
|  | c. Work of other trades. | TRUE | FALSE |
| 5. | Maintenance service and replacement parts for proposed substitution will be readily available in [Las Cruces][El Paso] [Roswell] [Albuquerque] [Southern New Mexico] [Northern New Mexico] [ ] area. | TRUE | FALSE |
| 6. | Proposed substitution does **not** contain asbestos in any form. | TRUE | FALSE |
| 7. | All changes to Contract Sum related to use of proposed substitution are included in price listed below. Contractor waives claims for additional costs related to acceptance of substitution which may subsequently become apparent. | TRUE | FALSE |
| 8. | Costs of modifying project design caused by use of proposed substitution which subsequently become apparent will be paid for by Contractor. | TRUE | FALSE |

If substitution request is accepted:

Contract Sum will be [decreased] [increased] by $

Contract Time will be [decreased] [increased] by calendar days.

Submitted By:

CONTRACTOR:

ADDRESS:

TELEPHONE NUMBER:

NAME OF PERSON SUBMITTING REQUEST:

TITLE:

DATE:

**SECTION 01 7000**

**EXECUTION REQUIREMENTS**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes:
			1. Basic requirements for examination, preparation and installation.
			2. Requirements and limitations for cutting and patching incidental to work, including excavation and backfilling, and as required to make several parts fit together.
			3. Progressive cleaning.
	2. **SUBMITTALS**
		1. Cutting request:
			1. Submit advance written request to Architect prior to cutting or other alteration which affects:
				1. Structural integrity of an element.
				2. Integrity of weather-exposed or moisture-resistant element.
				3. Operation, efficiency, maintenance, or safety of an element.
				4. Visual qualities of exposed elements.
				5. Work of others under separate contract to Owner.
			2. Include in request:
				1. Project and Contractor identification.
				2. Location and description of proposed work.
				3. Necessity for cutting or alteration and alternative to cutting and patching.
				4. Effect on work of this Contract, existing construction, and work of others under separate contract to Owner.
				5. Date work will be executed.
	3. **LOCATION OF UNDERGROUND UTILITIES**
		1. The Contractor shall arrange for all spotting of lines by New Mexico One Call in advance of any excavation work.
2. **PRODUCTS**
	1. **MATERIALS**
		1. Patching and replacement materials: Those used for original installation.
		2. Product substitutions: For any proposed change in patching materials, submit request for substitution in accordance with Section 01 6300 – Product Substitution Procedures.
3. **EXECUTION**

**[\*\*\*\*\*Edit and modify this part to reflect actual scope, materials, and products of project. Delete items that are not applicable for project.\*\*\*\*\*]**

* 1. **EXAMINATION**
		1. Prior to commencing a portion of Work:
			1. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work.
			2. Verify that existing substrate is capable of structural attachment of Work being applied or attached and that required blocking is in place.
			3. Verify that existing substrate is compatible with, properly prepared, and otherwise ready to receive subsequent applications and finishes. Ensure that existing conditions conform to requirements of manufacturers of product to be applied.
			4. Verify that utility services are available, of correct characteristics, and in correct location.
		2. Prior to commencing removals and cutting and patching, inspect existing building systems and elements subject to damage or movement during subsequent operations. Document and report existing damage and operational condition of existing systems such as telecommunications, data, security, HVAC controls and fire alarm in the location of the anticipated work and in related or adjacent spaces. Such documentation shall provide the basis for conditions to be maintained or re-established by the Contractor and the end of the work.
		3. Beginning of removals, cutting, patching, and new Work implies acceptance of existing conditions.
	2. **PREPERATION**
		1. Clean substrate surfaces prior to applying next material or substance.
		2. Seal crack and opening in substrate prior to applying next material or substance.
		3. Apply manufacturer required substrate primer, sealer, and conditioner prior to applying new material or substance to substrate.
	3. **INSTALLATION**
		1. Install, construct, erect, assemble, and apply products in accordance with manufacturer’s recommendations and instruction and specified requirements. Notify Architect where manufacturer’s instructions conflict with specifications. Do not proceed until clarification is received.
		2. Install products secure, rigid, plumb, and level within specified or industry acceptable tolerances.
		3. Remove excess material such as adhesive, grout, mortar, and sealants, from finished surfaces in a manner which does not stain, corrode, disfigure, or otherwise damage finished surface.
		4. Adjust working parts for smooth, proper operation.
		5. Replace deformed, scratched, cracked, broken, or otherwise damaged products and result of installation.
		6. After installation is complete, protect installed products and finished surfaces from subsequent construction operations in accordance with Section 01 5000 – Temporary Facilities and Controls. Replace or repair subsequently damaged products and surfaces.
		7. Clean and maintain installed products in accordance with manufacturer’s recommendations and specifications until Substantial Completion.
	4. **CUTTING AND PATCHING**
		1. Execute cutting, fitting patching, excavation, and fill required to:
			1. Install new work into existing construction.
			2. Fit products together and to integrate them with other work.
			3. Uncover work to correct incomplete or deficient work.
			4. Remove and replace defective and non-conforming work.
			5. Remove samples of installed work for testing.
			6. Provide opening for penetrations of mechanical, electrical, and other work.
		2. Provide temporary supports to ensure structural integrity. Provide devices and methods to protect other portions of Project from damage.
		3. Provide protection from elements for areas which may be exposed by cutting operations.
		4. Method: Execute work by methods to avoid damage to existing building systems and other work and in a manner which will provide appropriate surfaces to receive patching and finishing.
		5. Cutting:
			1. Cut rigid materials using masonry saw or core drill. Pneumatic tools are not allowed without prior approval.
			2. Size openings to exactly fit penetrating item plus allowance for sealant. Form edges of hole even and smooth.
			3. Drill penetrations through concrete for conduit and piping.
			4. Drill round holes and saw cut rectangular opening in concrete unit masonry units. Where block is broken or chipped in process, remove complete face of exposed block and replace with partial block.
		6. Patching:
			1. Restore work with new products meeting requirements of Contract Documents.
			2. Fit work tight to pipes, sleeves, ducts, conduits, and other elements penetrating surfaces.
			3. At penetrations of fire rated wall, partitions, ceilings, and floors, completely seal voids with fire-resistant material, in accordance with Section 07 9000 – Joint Sealers, to full thickness of penetrated element.
		7. Finishing: Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
		8. Repair: Contractor shall be responsible for repair and/or restoration of existing telecommunication, data, security, HVAC controls and fire alarms systems back to condition documented as existing prior to the commencement of work. Life safety systems and other systems impacting the operations of the school shall be restored immediately and as approved by the Architect and Owner.
	5. **ASPHALT PAVEMENT**
		1. Where existing or new pavement is damaged from construction operations, cut to install new underground utilities and where existing items are removed from paved areas:
			1. Cut pavement with saw or other means to provide neat, straight joints.
			2. Where existing pavement is damaged by removals, remove additional pavement to allow clean cuts.
			3. Backfill and sufficiently compact removal area prior to placement of pavement.
			4. Place pavement to match existing materials and thickness.
		2. Immediately after placement, protect new pavement from mechanical damage.
	6. **ROOF PENETRATIONS**
		1. New roofing.
			1. Coordinate, locate and schedule roof penetrations prior to installation of new roof system.
			2. Coordinate roof penetrations such that installation does not void roof warranty.
		2. Existing roofing: Prior to penetrating, cutting, and patching existing roofing, verify with Owner if roof is under warranty. If warranted, employ roof contractor certified by manufacturer of roof system, make required inspections and notifications, and perform cutting and patching as required to ensure warranty is not violated. Protect building interior during penetrations and return roof to weathertight condition after work is performed.
	7. **PROGRESS CLEANING**
		1. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
		2. Remove waste materials, debris, and rubbish from site weekly and legally dispose off-site.
		3. Remove debris and rubbish from pipe chases, plenums, crawl spaces, above suspended ceilings, and other closed and remote spaces prior to enclosing space.
		4. Prior to surface finishing, broom and vacuum clean interior areas to eliminate dust.
		5. Washing of concrete trucks and dumping of excess cementitious material on site is not allowed. All such materials and contaminated soil shall be removed.
		6. Soils and other site material contaminated by paint residues, oils, fuels, and other construction products shall be removed and replaced with equivalent soil or material.
		7. Existing lawns, landscaped areas, and areas for future landscaping affected by construction operations shall be raked to remove stones, mortars, aggregates, and other construction debris in excess of ¾ inch diameter.
		8. Clean mud and sediment resulting from Contractor’s operations or traffic from all sidewalks, public streets and parking areas.

**END OF SECTION**

**SECTION 01 7500**

**STARTING AND ADJUSTING**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes: General procedures for starting, monitoring, and adjusting of items of equipment and complete systems.

**[\*\*\*\*\*This section should be coordinated with sections in Mechanical and Electrical Division specifying startup requirements for mechanical and electrical systems.\*\*\*\*\*]**

1. **PRODUCTS**

Not used.

1. **EXECUTION**
	1. **SCHEDULING**
		1. Coordinate schedule for starting of systems and equipment to ensure proper sequencing.
		2. Notify Architect 7 days prior to startup of each system.
	2. **PREPERATION**
		1. Prior to startup, inspect items of equipment and system to ensure that:
			1. Installation is in accordance with manufacturer’s instructions.
			2. No defective items have been installed and there are no loose connections.
			3. Power supplies are correct voltage, phasing, and frequency.
			4. Grounding and transient protection systems and properly installed.
			5. Items have been properly lubricated, belts tensioned, and control sequence and other conditions which may cause damage have been addressed.
		2. Verify that system wiring has been tested.
		3. Verify that provisions have been made for safety of personnel.
	3. **STARTING OF SYSTEMS**
		1. Execute starting under supervision of responsible personnel in accordance with manufacturer’s instructions.
		2. When specified in individual sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment and system installation prior to startup and to supervise placing equipment and system in operation.
		3. Adjustment: Monitor systems and verify performance. Correct deficiencies. Replace defective components and equipment. Adjust equipment and systems for smooth and proper installation.
		4. Submit written report in accordance with Section 01 3300 – Submittal Procedures that equipment and systems have been properly installed and are functioning correctly.

**END OF SECTION**

**SECTION 01 7700**

**CLOSEOUT PROCEDURES**

1. **GENERAL**
	1. **SUMMARY**
		1. Summary includes:
			1. Closeout procedures.
			2. HVAC equipment inventory.
			3. Final Cleaning.
			4. Final inspection.
			5. Inspection held immediately prior to end of one year correction period.
	2. **SUBSTANTIAL COMPLETION PROCEDURES**

**[\*\*\*\*\*At Substantial Completion all or part of Work is sufficiently complete so that Owner can occupy and use all or a portion of Work. For large projects Work bay be completed in phases each with a different date of Substantial Completion. Modify this article as required for specific project.\*\*\*\*\*]**

* + 1. Prior or in conjunction with submission of Contractor’s request for Substantial Completion, submit the following items specified in Section 01 7800 – Closeout Procedures.:
			1. Project record documents.
			2. Operation and maintenance data and manuals.
			3. Warranties.
			4. Certificates of inspection and Certificate of Occupancy.
			5. Insurance certificates.
			6. Extra materials.
			7. Keys.
		2. Comply with Document 00 7000 – General Conditions of the Contract for issuance of Certificate of Substantial Completion. When work is sufficiently complete:
			1. Inspect Work and prepare comprehensive list of items to be completed or corrected.
			2. Perform final cleaning of portions of Work for which approval of substantial completion is being requested.
			3. Submit 3 copies of comprehensive list of items (Contractor’s Punch List) to be completed and Final Completion Schedule to Design Professional. Indicated portions of Work suitable for Owner occupancy and for which approval of substantial completion is being requested.
			4. Submit Application for Payment in accordance with Section 01 2000 – Price and Payment Procedures.
		3. Full functioning of the HVAC Controls Systems, (including logging and trending of utility data from submeters for electricity, natural gas & heating water, and including APS having remote access and control of a web-based system), shall be a requirement of Substantial Completion of the entire construction project.
		4. After inspection by Design Professional and issuance of Certificate of Substantial Completion, Owner will occupy [all] [designated portions] of [Project] [building] for [installation of equipment and furnishings] [to conduct normal operations] under provisions stated in Certificate of Substantial Completion.
	1. **FINAL COMPLETION PROCEDURES**
		1. Perform final cleaning as specified in Paragraph 1.4.
		2. Prior to or in conjunction with submission of Notice of Final Completion, submit the following items:
			1. Contractor’s Affidavit of Payment of Debts and Claims, AIA G706.
			2. Consent of Surety Company to Final Payment, AIA G707.
			3. Insurance certificates.
			4. Final Application for Payment as specified in Section 01 2000 – Price and Payment Procedures. Identify total adjusted Contract Sum, previous payments, and sum due.
			5. Additional items required in Article 9.11.2 – General Conditions of the Contract.
		3. Submit Notice of Final Completion certifying that Contract Documents have been reviewed, work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Design Professional’s inspection.
		4. Remove temporary utilities, controls, and facilities in accordance with section 01 5000 – Temporary Facilities and Controls.
		5. Request Close-Out Meeting and final inspection with Design Professional and Owner.
		6. HVAC Equipment Inventory: Provide a list of the major HVAC equipment and where each major piece of equipment is located, in order to assist APS M&O in a future comprehensive equipment inventory. Major equipment includes items such as air handlers, chillers, cooling towers, VAC or CV terminal units, and location of computer access to HVAC DCC controls (if provided).
	2. **FINAL CLEANING**
		1. Execute final cleaning prior to final inspection by methods and with materials and equipment suitable for commercial/institutional building maintenance.
		2. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; and vacuum carpeted and soft surfaces.
		3. Sanitize equipment and fixtures.
		4. Clean or replace filters of operating equipment.
		5. Clear debris from roof, gutters and drainage systems, ceiling spaces, plenums, storage areas, and interior spaces.
		6. Clean site, sweep paved areas, and rake landscaped areas and other ground surfaces.
		7. Remove waste and surplus materials, rubbish, and construction facilities from the site. Dispose of legally.
	3. **FINAL INSPECTION**
		1. Design Professional and Owner’s representative will make inspection within 10 days of receipt of written request for Close-Out Meeting.
		2. If Work is incomplete or defective:
			1. Design Professional will provide Contractor written list of deficiencies.
			2. Contractor shall immediately correct deficiencies and submit certification that Work is complete.
			3. Design Professional and Owner’s representative will re-inspect Work.
			4. Re-inspection fees:
				1. When status of completion requires re-inspection by Design Professional due to the failure of Work to comply as certified by Contractor, Owner will deduct amount of Design Professional’s compensation for re-inspection from final payment.
				2. Re-inspection services will be billed at current rates for Design Professional’s personnel.
	4. **CORRECTION PERIOD INSPECTION**
		1. 30 days prior to end of one year correction period, schedule and attend a one year correction period inspection. Appropriate subcontractors shall attend.
		2. Coordinate time of inspection with Design Professional.
		3. Representatives of Owner, Design Professional, and appropriate consultants will attend.
		4. Correct deficiencies noted.
1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**SECTION 01 7800**

**CLOSEOUT SUBMITTALS**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes procedures for preparing and submitting closeout submittals:
			1. Project Record Documents.
			2. Operation and maintenance manuals and data.
			3. Warranties.
			4. Insurance information.
			5. Certificates of inspection and compliance.
			6. Maintenance tools.
			7. Extra materials.
			8. Keys.
			9. [\_]
	2. **PROJECT RECORD DOCUMENTS**
		1. Maintain on site, one set of the following record documents; record actual revisions to work:
			1. Contract Documents.
			2. Specifications.
			3. Addenda.
			4. Change Orders and other modifications to the Contract.
			5. Reviewed submittals.
		2. Store Record Documents separate from documents used for construction. Label “Project Record Documents”.
		3. Record information concurrent with construction progress. Use erasable colored pencil. Date all entries. Call attention to entry by circling area affected.
		4. Specifications: Legibly mark and record in each section description of actual products installed, including the following:
			1. Manufacturer’s name and product model and number.
			2. Product substitutions or alternates utilized.
			3. Changes made by Addenda and modifications.
		5. Contract Drawings and shop drawings: Legibly mark each item to record actual construction including:
			1. Actual items of equipment and system components installed.
			2. Actual locations of components and routing of piping and raceways.
			3. Measured horizontal and vertical locations of underground water, sewer, irrigation, electrical, and other utilities and appurtenances, referenced to permanent surface improvements.
			4. Measured locations of piping, raceways, and other items concealed in construction, referenced to visible and accessible features.
			5. Field changes of dimensions and detail.
			6. Details not on original Contract Drawings.
		6. Documents will be reviewed by Architect at each submittal of Application for Payment to ensure that entries are current.
		7. Submit documents to Architect prior to or in conjunction with submission of Contractor’s request for Substantial Completion and in accordance with Owner’s procedures.
	3. **OPERATION AND MAINTENANCE DATA**

**[\*\*\*\*\*Each specification section requiring operation and maintenance data in manuals should cross reference to this section for general purposes.\*\*\*\*\*]**

* + 1. Provide operation and maintenance data for:
			1. [Landcaping specified in Sections xx-xxxx – Irrigation System and xx-xxxx – Planting.]
			2. [Automatic gate operators specified in Section xx-xxxx – Chain Link Fences and Gates.]
			3. [Motorized doors specified in [Section xx-xxxx – Coiling Doors and grilles] [Section xx-xxxx – Coiling Counter Doors] [Section xx-xxxx – Overhead Sectional Doors] [Section xx-xxxx – Automatic door Operator.]]
			4. [Operable partitions specified in Section xx-xxxx – Operable Partitions.]
			5. [Food service equipment specified in Section xx-xxxx – Food Service Equipment.]
			6. [Folding basketball backstops and gymnasium dividers specified in Section xx-xxxx – Athletic Equipment.]
			7. [Fume hood specified in Section xx-xxxx – Laboratory Equipment.]
			8. [Motorized bleachers specified in Section xx-xxxx – Telescoping Bleachers.]
			9. [Elevator specified in Section xx-xxxx – Hydraulic Elevator.]
			10. Mechanical equipment, systems, and controls specified in Division 15 – Mechanical.
			11. Electrical equipment, systems, and controls specified in Division 16 – Electrical.
			12. Other equipment and systems for which operation and maintenance data is requested in individual specification sections.
		2. Submission:
			1. Submit data to Architect in one or more binders.
			2. Submit for review one draft copy 30 days prior to need date or as otherwise specified. This copy will be returned after review with Architect’s comments. Revise content as required.
			3. Once approved, submit 2 hard copies and one electronic (PDF) copy of final operation and maintenance manuals to Owner. All manuals shall be submitted prior to or in conjunction with Contractor’s request for Substantial Completion and prior to demonstration and training session.
		3. Contents:
			1. Appropriate design criteria.
			2. Equipment and parts list.
			3. Operating instructions.
			4. Maintenance instruction for equipment and finishes.
			5. Shop drawings and product data.
			6. Testing, balancing, and other field quality reports.
			7. Copies of warranties. Deliver original Roofing Warranties separately to Owner, with copies of the Operations and Maintenance Manuals.
			8. Directory listings.
			9. Other material and information as indicated in individual specification sections and as necessary for operation and maintenance by Owner’s personnel.
		4. Form:
			1. Hard copies of manuals shall be 8½ x 11 inch text pages bound in three ring expansion binders with a hard durable plastic cover. All documents to be originals unless otherwise noted.
			2. Prepare binder covers with printed subject title of manual, title of project, date, and volume number when multiple binders are required. Printing shall be on face and spine.
			3. Internally subdivide the binder contents with divider sheets with typed tab titles under reinforced plastic tabs. Place dividers at beginning of each chapter, part, section, and appendix.
			4. Provide a table of contents for each volume.
			5. Provide directory listing as appropriate with names addresses, and telephone numbers of Architect, Contractor, subcontractors, equipment suppliers, and nearest service representatives. Provide emergency 24-hour service contact information for all subcontractors, service contractors and principal vendors.
	1. **WARRANTIES**

**[\*\*\*\*\*Each specification section requiring special or extended warranties should cross reference to this section for submittal procedures. When AIA A210 – General Conditions is used, it is unnecessary to specify one-year warranties since there is a one year correction period.\*\*\*\*\*]**

* + 1. Provide duplicate notarized copies of special and extended warranties as required by individual specification sections.
		2. Submit warranties to Architect prior to or in conjunction with submission of Notice of Substantial Completion.
		3. Execute and assemble warranties from subcontractors, suppliers, and manufacturers.
		4. Provide Table of Contents and assemble in three ring binder with hard durable plastic cover. Internally subdivide binder contents with permanent page dividers, with tab titling clearly typed under reinforced laminated plastic tabs.
		5. For items of work delayed beyond date of Substantial Completion, provide updated warranty submittal within ten days after acceptance, listing date of acceptance as start of warranty period.
	1. **CERTIFICATES OF INPSECTION AND COMPLIANCE**
		1. For inspections throughout the construction period required by regulatory agencies, obtain and maintain certificates issued to show compliance.
		2. Assemble certificates and any formal written evidence of regulatory compliance in three ring binder with table of contents and submit to Architect prior to or in conjunction with submission of Notice of Substantial Completion.
		3. Certificate of Occupancy: Prior to Substantial Completion, obtain from authorities having jurisdiction Certificate of Occupancy. Submit with Notice for Substantial Completion.
	2. **INSURANCE INFORMATION**
		1. Submit prior to or in conjunction with submission of Contractor’s request for Substantial Completion information regarding insurance including change over requirements and insurance extensions.
	3. **MAINTENANCE TOOLS**
		1. Provide all special tools, instruments, and other implements required for the functional operation and maintenance of equipment, systems, and other components installed as part of this project. Include screw drivers, crescent wrenches, pliers, and allen wrenches as well as more unique atypical tools.
		2. Tools shall be as provided or recommended by manufacturers of installed equipment and systems. Types and sizes shall be as specifically required for installed products.
		3. Tools shall be available and their use demonstrated during training sessions specified in Section 01 7500 – Starting, Adjusting, and Demonstrating
		4. Prior to or in concurrent with Contractor’s request for Substantial Completion, deliver maintenance tools to Owner’s representative. Prepare inventory of tools provided and obtain receipt from Owner’s representative.
	4. **EXTRA MATERIALS**

**[\*\*\*\*\*Each specification section requiring extra materials should cross reference to this section for submittal procedures. Limit use of extra materials, consult APS FDC.\*\*\*\*\*]**

* + 1. Provide spare parts and maintenance materials in quantities specified in individual sections.
		2. Extra materials shall be produced by the same manufacturer of compatible with the installed products.
		3. Prior to or concurrent with submission of Notice of Substantial Completion deliver extra materials in unopened containers to Owner’s representative at designated storage area at project site and place in location as directed. Obtain receipt from Owner’s representative.
		4. During one year correction period:
			1. Extra materials may be used by Contractor to replace expendable and normally worn parts.
			2. Extra materials used by Contractor for replacement of defective products shall be replaced at no additional cost to Owner.
	1. **KEYS**
		1. Prior to or in conjunction with submission of Contractor’s request for Substantial Completion, provide Owner with all keys for:
			1. Door hardware locks after rekeying in accordance with Section 08 7100 – Door Hardware.
			2. Access doors and panels.
			3. Electrical panelboards and other equipment.
		2. Provide a minimum of three keys for each lock.
		3. Clearly label each key as to function and location of lock.
		4. Obtain receipt from Owner’s representative.
		5. Prior to, or in conjunction with Final Completion, return all keys lent out by Owner to Contractor for access to existing spaces, gates, etc. for the Work. Obtain receipt from Owner.
	2. **MISCELLANEOUS SECURITY-RELATED MATERIALS AND COMPONENTS**
		1. Prior to or in conjunction with Final Completion and in accordance with General Conditions of the Contract, deliver to Owner and obtain receipt for:
			1. All miscellaneous security-related items loaned to Contractor during the progress of the job, including:
				1. Owner-furnished security badges and passes.
				2. Owner-furnished construction signs.
				3. [\_]
			2. All security codes and software, if any.
1. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**SECTION 01 7878**

**ENERGY CONSERVATION CLOSEOUT SUBMITTALS**

1. **GENERAL**
	1. **SUMMARY**
		1. Section includes procedures for preparing and submitting closeout submittals.
			1. PNM Business Energy Efficiency Program.
			2. NM Gas Company Energy Efficient Buildings Program
			3. Modification/Change Request and Change Order
	2. **PNM BUSINESS ENERGY EFFICIENCY PROGRAM**
		1. A Pre-Notification Application will be submitted by APS Facilities Design + Construction during the Design Development phase of the project, to register the project and reserve the potential rebate funds.
		2. The General Contractor will be a Third Party signatory to the PNM Energy Efficiency Program Application. The final rebate provided by PNM and received by the General Contractor shall be reimbursed in full to APS by means of an MCR to the construction contract.
		3. The General Contractor shall prepare and submit the PNM Energy Efficiency Program Application Checklist, Applicant Information and Agreement Form with Incentives Worksheet (the “Application”) as appropriate for the project.
			1. Download and complete the “New Construction Prescription Application”; do not download the “Whole Building Application”.
			2. Submit a completed DRAFT of the Application to Design Professional and APS Facilities Design and Construction for review.
			3. Submit the final Application, within six (6) months of Substantial Completion, to PNM with electronic copy uploaded to e-Builder®.
		4. Application Information:
			1. Check “Final” Application.
			2. Name as is appears on the Utility Bill: *obtain from APS Facilities Design + Construction.*
			3. PNM Account Number: *obtain from APS Facilities Design + Construction.*
			4. Select Building Type (usually “School/K-12”).
			5. Name of Company: Albuquerque Public Schools
			6. Name of Contact Person: *insert name of Staff Architect/Engineer*; Title: Staff Architect/Engineer.
			7. Phone #: *insert phone number of Staff Architect/Engineer*; Fax #: (505) 246-9020; Email: *insert email address of Staff Architect/Engineer*.
			8. Installation Address, City, State, Zip: *insert project address.*
			9. Mailing Address: APS Facilities Design + Construction, 915 Oak Street, SE, Albuquerque, NM 87106.
			10. Taxpayer ID: *obtain from APS Facilities Design + Construction*. Tax Status: *leave this space blank.*
			11. Contractor Information: insert all requested information.
			12. Third Party Payment Release: check the box to request that the incentive check be sent to the third party. Complete the third party information same as for General Contractor.
			13. Total Incentive Requested: automatically filled in by Incentive attachments.
			14. Total Project Cost: *obtain from APS Facilities Design + Construction*.
			15. Project Completion Date: insert Date of Substantial Completion.
		5. Agreement Form:
			1. Customer Signature: to be completed by APS Facilities Design + Construction Staff Architect.
			2. Third Party Signature: complete this signature before submitting to APS Staff Architect for signature.
			3. When complete Application has been reviewed and executed by APS Staff Architect, submit to PNM via electronic and/or hardcopy submittal.
		6. Incentive Worksheets: Complete Incentive Worksheet for each applicable measure:
			1. Download the “New Construction Prescriptive Application” Incentive Worksheets as appropriate for the project.
			2. Lighting Incentives and Lighting Specifications.
			3. LED Lighting Incentives.
			4. HVAC Incentives and Specifications.
			5. Refrigeration Incentives and Specifications.
			6. Food Service Equipment Incentives and Specifications.
			7. Motors and VSD’s Incentives and Specifications.
			8. The applicable Incentives Worksheets will populate the Application Total Incentive Requested field in the Application Form.
		7. Documents will be reviewed by the Design Professional and APS Facilities Design + Construction before submission to PNM.
		8. Additional Documentation:
			1. Invoices: submit invoices dated no more than six (6) months prior to the rebate application form.
				1. List the installation address on the invoices.
				2. Ensure invoices show correct model number for each measure installed.
				3. Ensure invoices indicated payment by the Customer (APS).
			2. Specification Sheets:
				1. Provide a manufacturer’s specification sheet for each measure installed (for example, lamps, ballasts, controls, equipment).
				2. Ensure specification sheets include all program eligibility requirements for the measure (for example, CRI of lamps, ballast factors IPLV for AC units).
				3. Ensure the model numbers of all installed components match those listed on the invoices.
	3. **NM GAS COMPANY ENERGY EFFICIENCY PROGRAM**
		1. The project’s equipment list will be submitted by APS Facilities Design + Construction during the Design Development phase of the project, to register the project and reserve potential rebate funds.
		2. The General Contractor will be a Third Party signatory on the NM Gas Company Program. As such, GC must provide a W-9 tax form to the utility company. The final rebate provided my NM Gas Company and received by the GC shall be reimbursed in full to APS by means of MCR to the construction contract.
		3. The General Contractor shall participate with CLEAResult, NM Gas Company’s Energy Efficiency Program Administrator, to provide all necessary site and equipment information for the project.
			1. Arrange a Pre-Inspection walk-thru to document and verify any existing equipment to be removed, replaced, or retro-fitted as a result of the project. (Does not apply to new construction.)
			2. Prepare and submit the As-Built equipment list, along with product submittals, for all gas-consuming equipment and energy recovery units on the project.
			3. Notify CLEAResult upon project completion.
			4. Arrange a Post-Inspection walk-thru to document and verify project installation and quantify final rebate.
	4. **MODIFICATION/CHANGE REQUEST AND CHANGE ORDER:**
		1. Prepare an MCR refunding the full amount of PNM and Gas Company rebates to Albuquerque Public Schools via the construction contract balance remaining.
		2. Provide a copy of the final rebate check(s) (sent to the General Contractor as Third Party signatory), as an attachment to the MCR.
		3. The MCR must be submitted to APS within thirty (30) days of receipt of each rebate check.
		4. Five percent (5%) of the Schedule of Values Closeout Line Item (see General Conditions) will be allocated to the Energy Conservation Closeout activity, and paid upon approval of the MCR and Change Order which refunds the energy conservation rebate.
2. **PRODUCTS**

Not used.

1. **EXECUTION**

Not used.

**END OF SECTION**

**SECTION 01 7900**

**DEMONSTRATION AND TRAINING**

1. **GENERAL**

**[\*\*\*\*\*This section should be edited to reflect, size, type of project, and complexity of systems being installed. It needs to be verified that Owner has facility management staff that will attend and benefit from demonstration and training. Training should be focused on experience, job designation, and knowledge of staff. Do not over specify.\*\*\*\*\*]**

* 1. **SUMMARY**
		1. Section includes: Training of Owner’s designated personnel in operation and maintenance of equipment and systems.
	2. **SUBMITTALS**
		1. Provide in accordance with Section 01 3300 – Submittal Procedures:
			1. List of names, resumes, and qualifications of personnel conducting training sessions.
			2. Preliminary schedule listing times, dates, and outline showing organization and proposed contents of training session for approval by Architect and Owner.
			3. Copies of training manuals and other materials to be used in training sessions for approval by Architect and Owner.
			4. Provide Owner additional copy of audio visual material on the same media used in training sessions.
			5. 3 copies of training manuals for future use in training by Owner.
			6. Submit report within 1 week after completion of training that sessions have been satisfactorily completed. Give times, dates, list of persons trained, and summary of instructions.
			7. Recording of ALL training sessions in one of the following common video file format: .wmv, .mpg, .mp4 submitted on a CD as part of the closeout requirements.
	3. **QUALITY ASSURANCE**
		1. Personnel conduction demonstration and training sessions shall be knowledgeable of installation, operation, and maintenance of specific project equipment and systems. Where appropriate manufacturer’s representative shall conduct training.
1. **PRODUCTS**
	1. **TRAINING MATERIALS**
		1. Training manuals: Loose leaf notebook format with agenda and objectives of each lesson.
			1. Manuals shall describe function, operation, and maintenance of various items of equipment and be suitable for personnel with high school education.
			2. Manuals shall be suitable for future training of Owner personnel by Owner staff.
			3. Manuals shall be useful reference for staff maintaining facility.
		2. Visual aids: Provide charts, handouts, overhead projector slides, electronic presentation, and other visual aids required to make effective presentation and facilitate training.
			1. Equipment needed for showing visual training aids shall be provided by Contractor.
			2. Visual aids shall be suitable for use by Owner’s staff to train additional personnel in the future.
2. **EXECUTION**
	1. **SCHEDULING**
		1. Schedule demonstration and training sessions after equipment and systems have been completely installed, startup completed, and adjustments made. Single demonstration and training session shall be conducted of all items prior to substantial completion. Schedule with Architect to accommodate Owner’s representatives.
	2. **DEMONSTRATION AND TRAINING**

**[\*\*\*\*\*Each specification section requiring demonstrating for Owner’s representatives should cross reference to this section for general procedures.\*\*\*\*\*]**

* + 1. Provide demonstration and training session to emphasize operation, use, and maintenance of installed items and systems:
			1. [Automatic gate operators specified in Section xx xxxx – Chain Link Fences and Gates.]
			2. [Motorized doors specified in [Section xx xxxx – Coiling Doors and grilles] [Section xx xxxx – Coiling Counter Doors] [Section xx xxxx – Overhead Sectional Doors] [Section xx xxxx – Automatic Door Operator].]
			3. [Operable partitions specified in Section xx xxxx – Operable Partitions.]
			4. [Motorized projection screens and projector mounts specified in Section xx xxxx – Audio-Visual Equipment.]
			5. [Food service equipment specified in Section xx xxxx – Food Service Equipment.]
			6. [Folding basketball backstops and gymnasium dividers specified in Section xx xxxx – Athletic Equipment.]
			7. [Fume hood specified n Section xx xxxx – Laboratory Equipment.]
			8. [Motorized bleachers specified in Section xx xxxx – Telescoping Bleachers.]
			9. [Elevator specified in Section xx xxxx – Hydraulic Elevator.]
			10. Mechanical systems specified in Mechanical Divisions.
			11. Electrical systems specified in Electrical Divisions.
			12. Other items and systems as designated by Architect or requested by Owner.
		2. Conduct at project using actual installed equipment and systems.
		3. Owner shall be responsible for designating and notifying personnel to attend and ensuring attendance at schedule sessions.
		4. Have copies of operation and maintenance manuals specified in Section 01 7800 – Closeout Submittals available. Use as training aids.
		5. Owner requires the GC to record all training sessions in an acceptable electronic format (.wmv, .mpg, .mp4) to be submitted as part of the closeout documents.
		6. Provide a combination of classroom and walk-through training of HVAC and Controls systems, digitally record in accordance with 1.2 Submittals, Paragraph A, Item 7, above.
			1. Trainers shall include manufacturer’s representatives and systems installers of the components installed.
			2. Classroom training shall cover all systems and components in accordance with Paragraph B – E above. In addition, classroom training shall explain the sequence of operations of each HVAC component and the interfaces with the Controls system. Also, train attendees on the use of the Operations and Maintenance Manuals.
			3. Walk-through training shall review each component, operation device and controller, and as part of the training attendees will operate each operating item under supervision of the trainer.

**END OF SECTION**

**SECTION 01 9100**

**GENERAL COMMISSIONING REQUIREMENTS**

1. **GENERAL**
	1. **DESCRIPTION**
		1. Commissioning is a systematic process of ensuring that building systems and equipment function in accordance with design intent and the owner’s operational needs. This will be achieved in the construction, acceptance and warranty phases with actual verification of performance and compliance. The commissioning process encompasses and coordinates the traditionally separate functions of equipment Startup, control systems calibration and adjustments, testing and balancing, performance testing, system documentation and training.
		2. The commissioning process does not take away from or reduce the responsibility of installing contractors to provide a finished and fully functioning product.
		3. Commissioning during the construction phase is intended to achieve the following specific objectives according to the Contract Documents:
			1. Verify that applicable equipment and systems are installed according to the manufacturer’s recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
			2. Verify and document proper operational checkout by installing contractors.
			3. Verify and document proper operation and performance of equipment and systems.
			4. Verify that O&M documentation provided by the Contractor is complete.
			5. Verify that the Owner’s operating personnel are adequately trained by the Contractor, Subs or other designated parties.
		4. The following are common abbreviations used in these specifications and the Commissioning Plan. Definitions are found in Article 1.4.

|  |  |  |  |
| --- | --- | --- | --- |
| A/E | Architect and Design Engineers | FPT | Functional Performance Test |
| CC | Controls Contractor | GC | General Contractor (Prime) |
| CM | APS Construction Manager | MC | Mechanical Contractor |
| Cx | Commissioning | OR | Owner’s Representative |
| CxA | Commissioning Authority | PFC | Prefunctional Checklist |
| Cx Plan | Commissioning Plan Document | Subs | Subcontractors to General |
| EC | Electrical Contractor | TAB | Test and Balance Contractor |

* 1. **RELATED DOCUMENTS**
		1. Drawings and General Conditions of the Contract and other Division 01 Specification Sections apply to this Section.
		2. Related Sections:
			1. Division 01 Section 01 3300 “Submittal Procedures” for submittal requirements.
			2. Division 01 Section 01 7700 “Closeout Procedures” or 01 7800 “Closeout Submittals” for requirements of project record drawings, Operations and Maintenance manuals, warranties, certifications of inspection, extra materials and other closeout submittals.
			3. Division 23 Section 23 0593 “Testing, Adjusting and Balancing” for TAB requirements.
			4. Division 23 Section 23 0800 “Commissioning of HVAC Systems” for HVAC commissioning requirements.
			5. Division 22 Section 22 0800 “Commissioning of Plumbing Systems” for plumbing commissioning requirements.
			6. Division 26 Section 0800 “Commissioning f Electrical Systems” for electrical and lighting control commissioning requirements.
	2. **SUMMARY**
		1. Section includes general requirements that apply to implementation of commissioning without regard to specific systems, assemblies, or components.
		2. While building commissioning is a pre-requisite of LEED certification, it is APS’s policy to commission any project for which major mechanical equipment is included, regardless of LEED certification intent. For LEED-specific requirements, see separate applicable specification sections(s).
	3. **DEFINITIONS**
		1. Acceptance Phase: Phase of construction after Startup and initial checkout when functional performance tests, O&M documentation review and training occurs.
		2. Approval: Acceptance that a piece of equipment or system has been properly installed and is functioning in the tested modes according to the Contract Documents.
		3. “As-Builts” (also referred to as Record Documents): Shop drawings, commissioning documentation (including PFCs and FPTs), factory start-up data, graphics, operation manuals, training documentation, and field reports which become part of the documents provided to Commissioning Authority and turned over to the Owner, which are maintained by the General Contractor and Subcontractors.
		4. Architect / Engineer (A/E): The prime consultant (architect) and sub-consultants who comprise the design team, including the HVAC mechanical designer/engineer and the electrical designer/engineer.
		5. Basis of Design (BOD): A document that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual criteria that support the design process. For APS projects, the Design Development Submittal approved by the Board of Education may serve as the BOD.
		6. Commissioning Plan: A document that outlines the organization, schedule, allocation of resources, tasks and documentation requirements of the commissioning process.
		7. Contractor: The General Contractor or authorized representative.
		8. Commissioning Authority (CxA): The CxA is an independent third party entity that directs and coordinates the commissioning process.
		9. Datalogging: Monitoring and storing data such as flow, power, temperature, pressure, lighting levels, etc. for equipment, systems, and/or environments using stand-alone equipment (dataloggers) separate from the building control system.
		10. Daylighting: The placement of windows, or other transparent media, and reflective surfaces so that, during the day, natural light provides effective illumination to the building interior.
		11. Daylighting Controls: Devices, sensors and control systems that regulate the level of illumination within a building as provided by electric lights in response to the presence and level of daylight.
		12. Deficiency: A condition in the installation or function of a component, piece of equipment or system that does not perform properly according to specifications, manufacturer’s performance data, sequence of operations, or other operational capabilities. This includes but is not limited to damage or flaws, impaired or limited functionality, manufacturer’s defects, installation defects, or non-compliance with the design intent.
		13. Functional Performance Test (FPT): Test of the dynamic function and operation of equipment and systems using direct observation or monitoring methods. In cooperation with others, the CxA develops the Functional Performance Tests in a sequential written form, coordinates, oversees, and documents the actual testing, which is performed by qualified subcontractors as designated by the Contractor. FPT’s are performed after Prefunctional Checklists and Startup are complete and TAB activities are finished.
		14. HVAC Systems (also Mechanical Systems): Heating, ventilation, and air conditioning systems, subsystems and assemblies. This includes all components, devices, controls, sensors, hardware, and other items related to the function and operation of such systems.
		15. Non-Compliance / Non-Conformance: see Deficiency.
		16. Owner’s Project Requirements (OPR): A document that details the functional requirements of a project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information. For APS projects, the Design Development Submittal approved by the Board of education may serve as the OPR.
		17. Prefunctional Checklist (PFC): List of inspection tasks and elementary component test procedures for verifying proper installation and operation of equipment. PFCs are collaboratively developed, approved by the CxA and completed by the installing and/or TAB contractor or vendor. Prefunctional Checks include static inspections and procedures that prepare the equipment and systems for initial operation (e.g. belt tension, oil levels, labeling, gauges, calibrated sensors, etc.). Some Prefunctional Checklist items entail testing the function of a component, piece of equipment or system (e.g. checking rotation and/or measuring voltage imbalance on a motor).
		18. Sampling (also “Statistical Testing”): Functionally testing a fraction of the total number of identical or near identical pieces of equipment, systems, or components.
		19. Startup: The initial starting or activating of dynamic equipment and systems in accordance with industry recognized procedures, standards, Best Practices, and manufacturer’s recommendations. This may include execution of Prefunctional Checks.
		20. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean “as-built” or “as-constructed” systems, subsystems, equipment, and components.
		21. Vendor: System, equipment, and/or device supplier. This also includes service and software providers.
		22. Warranty Period: Warranty period for entire project, including equipment components. Warranty begins at Substantial Completion and extends for at least one year, unless specifically noted otherwise in the Contract Documents and accepted submittals (e.g. HVAC Controls include a 2-year warranty).
	4. **COMMISSIONING TEAM**
		1. Individuals, each having the authority to act on behalf of the respective entities the represent, organized to implement the commissioning process through coordinated action. The commissioning team shall consist of, but not be limited to, the following:
		2. Members appointed by the Contractor:
			1. Project Superintendent.
			2. Subcontractors.
			3. Installers.
			4. Suppliers.
			5. Specialists deemed appropriate by the CxA.
		3. Members appointed by the Owner:
			1. Commissioning Authority (CxA): Owner will engage the CxA under a separate contract.
			2. Representative(s) of the facility user (if feasible).
			3. Maintenance and Operations personnel.
			4. Architect and engineering design professionals.
	5. **OWNER’S RESPONSIBILITIES**
		1. Provide OPR documentation to CxA and Contractor for information and use.
		2. Assign Maintenance and Operations personnel to the project and schedule them to participate in commissioning team activities and trainings as requested.
		3. Provide BOD documentation (prepared by A/E and approved by Owner) to the CxA and Contractor for use in developing Cx Plan, Systems Manual (LEED Enhanced Cx only), and M&O training plan.
	6. **CONTRACTOR’S RESPONSIBILITIES**
		1. Contractor shall assign representatives and/or subcontractors with expertise and authority to act on its behalf, and shall schedule them to perform and fulfill commissioning process activities including, but not limited to , the following:
			1. Attend commissioning team and other related meetings held on a variable basis (weekly once equipment reaches start-up phase).
			2. Provide to CxA complete copies of all submittals related to commissioned systems.
			3. Review and accept commissioning process requirements and test procedures provided by the CxA.
			4. Integrate and coordinate commissioning process activities within construction schedule.
			5. Review and accept content and format PFCs, FPTs, test forms, reports and other documents provided by the CxA.
			6. Complete PFCs, test forms, reports and other documentation as work is completed, and provide to the CxA on a prompt and regular basis.
			7. Provide successful completion of commissioning responsibilities, tests, procedures, documentation and related tasks in accordance with Cx Plan and Contract Documents, as required of Contractor, Subs, and Vendors.
			8. Evaluate and installation or performance deficiencies, identified in the commissioning process and, in collaboration with entity responsible for system and equipment installation, recommend corrective action. Upon approval, provide means and corrective measures for deficiencies.
			9. Cooperate with the CxA for resolution of issues recorded in the Issues Log.
			10. Furnish to the CxA copies of all required construction phase documentation including, but not limited to, addenda, change orders, approved submittals, shop drawings, and as-builts related to commissioned systems.
			11. Provide and coordinate the training of Owner’s personnel.
			12. Prepare O&M manuals, according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions and provide to CxA.
		2. Only individuals that have direct knowledge and have witnessed that a line item task has actually been performed shall initial and/or check off tasks on respective commissioning related forms, checklists, test protocols and other associated documentation. It is not acceptable for uninvolved supervisors, individuals or parties to fill out and check off items.
	7. **CxA’S RESPONSIBILITIES**
		1. Organize and lead the commissioning team.
		2. Provide commissioning plan.
		3. Convene commissioning team meetings.
		4. Provide project-specific construction checklists and commissioning process test procedures.
		5. Verify the execution of commissioning process activities by project team members using random sampling. The sampling rate may vary from 1 to 100 percent. Verification will include, but is not limited to, equipment to verify compliance with OPR. When random sample does not meet the requirement, the CxA will report the failure in the Issue Log.
		6. Verify successful completion of checklists and tests.
		7. Prepare and maintain the Issues Log.
		8. Prepare and maintain completed construction checklist log.
		9. Witness systems, assemblies, equipment, component Startup, Prefunctional Checks.
		10. Compile test data, inspection reports, and certificates; include them in the Systems Manual and Commissioning Report.
		11. Witness Functional Performance Tests of commissioned systems, equipment and components (statistical sampling in some cases). Test results shall be documented. Approval of the Functional Performance Test results shall be made after review by CxA and Owner’s Rep (OR) as needed.
		12. Verify and document that the requirements for training of M&O personnel and building occupants have been completed.
		13. On projects where APS’s Extended Maintenance Agreement with the MC is contracted, CxA shall participate in annual site walks to review and document system performance (at 11-month warranty and tor two (2) subsequent years).
1. **COMMISSIONED SYSTEMS (AS APPLICABLE)**
	1. 1. Chilled Water System: Chillers and Chilled Water Systems including:
			1. Chillers.
			2. Pumps.
			3. Towers.
			4. Heat exchangers.
			5. VFDs.
			6. Miscellaneous piping components.
			7. Compressors.
		2. Heating Water System: Boilers and Hot Water Systems including:
			1. Boilers.
			2. Pumps.
			3. Heat exchangers.
			4. VFDs.
			5. Miscellaneous piping components.
		3. Ventilation Systems:
			1. HVAC Air Handling Systems
			2. Terminal Units:
				1. Fancoils, heat pumps, VAVs, etc.
				2. Miscellaneous unit heaters, radiation and heating coils.
		4. Computer room air conditioning units (CRAC)
		5. Mini-split systems.
		6. Exhaust and Supply Systems:
			1. General & Toilet.
			2. Refrigerant purge.
		7. Facility Management System (Building Automation System)
			1. Includes connection/communication with APS FMS server(s).
		8. Plumbing Systems:
			1. Domestic How Water.
			2. Circulation pumps.
		9. Electrical Systems:
			1. Normal Power as it relates to the mechanical systems.
			2. Lighting Control Systems.
			3. Emergency Power.
		10. Renewable energy systems:
			1. Photovoltaic.
			2. Solar hot water.
2. **EXECUTION**
	1. **MEETINGS**
		1. Scoping Meeting (Cx ‘Kickoff’): The CxA will schedule, plan and conduct a commissioning scoping meeting early in the Construction phase with the commissioning team in attendance, including Contractor, Owner’s Rep. (OR) and involved Subs.
		2. Routine Meetings: Meetings will be planned and conducted by the CxA as construction progresses. These meetings will involve Contractor and/or Subs and cover coordination, deficiency resolution, planning and other issues. Meetings may be convened to focus on specific systems or issues and invited attendees will be selected accordingly. These meetings will be held routinely through the course of construction, and whenever practical be conducted as extensions of other scheduled meetings. In the final months of construction, these meetings may be held as frequently as once per week.
	2. **COORDINATION AND SCHEDULING**
		1. In general, Functional Testing is conducted after Prefunctional Testing and Startup have been satisfactorily completed, controls have been sufficiently tested, and commissioned systems are fully operational. The CxA is notified before systems and equipment undergo further testing or to verify performance of other components or systems. As part of Prefunctional activities, adjustments are made to provide basic operation at specific levels, flows, and/or conditions. Functional Testing then proceeds methodically from components, to subsystems, to systems. Once the proper performance of all interacting individual systems has been achieved, the interface and coordinated responses between systems is checked.
		2. Contractor shall provide a Letter of Readiness to the CxA (through the OR) prior to Functional Testing stating that the commissioned systems are installed, connected, and otherwise ready for testing per the PFCs.
		3. Contractor and Subs shall provide a minimum of fourteen (14) days notice to the CxA regarding their scheduled dates for installation, Startup, Prefunctional Checks, and TAB tasks for all related equipment and systems. Additionally, Contractor and Subs shall accommodate CxA’s tasks of inspecting work, witnessing Prefunctional Checks and Startup procedures, and any other associated tasks related to the commissioned systems.
		4. The CxA shall provide a minimum of fourteen (14) days notice to the OR, GC and affected Subs for scheduling of Functional Performance Tests. The CxA shall direct, witness and document the Functional Testing of all equipment and systems. The installing Sub(s) shall execute the tests.
	3. **DEFICIENCIES AND NON-CONFORMANCE**
		1. The CxA shall produce and maintain a project-specific Issues Log to capture any deficiencies or non-conformance of the commissioned systems. The Log will be updated throughout the project and will track issues from discovery through resolution by the responsible party (or acceptance by the Owner). The Issues Log shall become a permanent record in the Final Cx Report.
		2. The installing Sub, vendor, or other responsible party shall, in a timely manner, correct all items that are deficient or incomplete in the PFCs and FPTs, and shall notify the CxA as soon as outstanding items have been corrected. The CxA shall update the Issues Log as necessary to reflect the corrections.
		3. The CxA may assist with problem resolution regarding non-conformance and deficiencies, but ultimately that responsibility resides with the design/construction management team, Contractor, Subs, and vendors.
		4. Items left incomplete which later cause deficiencies or delays during Functional Testing may result in backcharges to the responsible contractor.
		5. Retesting
			1. The CxA is responsible for initial testing and up to one (1) retest of included equipment/systems. Any items that fail upon retest shall be corrected and re-tested at Contractor’s expense.
			2. Retesting of deficiencies determined to be design related shall be the responsibility of the A/E design professionals.
			3. Equipment/systems that are found not to be ready for testing (despite receipt of the Contractor’s Letter of Readiness) and requiring a separate visit by the CxA will have their initial test considered a retest.
	4. **DEFERRED TESTING**
		1. Seasonal Testing: During the warranty period, seasonal testing (testing delayed until weather conditions are closer to the system’s design) may be required as part of this contract. The CxA shall coordinate such activity. Tests will be executed by the appropriate Sub(s), and witnessed/documented by the CxA. Any identified deficiencies shall be corrected by the Sub, and final adjustments made to the O&M manuals, as-builts and Cx Report.
		2. Unforeseen Deferred Tests: If any check or test cannot be completed due to the building structure, required occupancy condition or other issue, completion of PFCs and FPTs may be delayed upon approval of the OR. These tests will be conducted in the same manner as the seasonal tests, and as soon as practical. Services of necessary parties will be negotiated.
	5. **TRAINING**
		1. The CxA shall be responsible for overseeing and approving the content and adequacy of Owner personnel training for commissioned equipment and systems.
		2. The GC shall be responsible for training coordination and scheduling, and ultimately for ensuring that complete training is provided. The CxA shall document completion of training per the Contract Documents.
		3. Adequate copies of the standard operating manual for all system(s) and any special training manuals will be available for each trainee, three (3) copies of these documents will be retained for the O&M manuals. In addition, any system technical manual(s) will be reviewed as part of training, and three (3) copies retained for the O&M manuals. Training materials shall cover all control sequences and include a definitions section that fully describes all relevant terms and abbreviations. Training materials shall be approved by the CxA.

**END OF SECTION**

1. The normal work location is the place where the user is assigned for more than one-half of his time working on this project. [↑](#footnote-ref-1)
2. The minimum system herein will not be sufficient for many tasks and may not be able to process all documents and files stored in the E-Builder® Documents area. [↑](#footnote-ref-2)
3. The normal work location is the place where the user is assigned for more than one-half of his time working on this project. [↑](#footnote-ref-3)
4. The minimum system herein will not be sufficient for many tasks and may not be able to process all documents and files stored in the E-Builder® Documents area. [↑](#footnote-ref-4)