DIVISION 01 – GENERAL REQUIREMENTS

01 11 00 – SUMMARY OF WORK

PART 1 - GENERAL

A. Format: No specific requirements, as long as the following information is included after verification with the School District:

1. Examination of the site by the Contractor with wording similar to:

   a. *Failure to visit site will in no way relieve any Contractor from necessity of furnishing materials or performing work that may be required to complete work in accordance with Drawings and Specifications without additional cost to Owner.*

   b. *The locations of all existing utilities, as indicated on the Site Survey and on the various Site Plan Drawings, are approximate. General Contractor shall be responsible for verifying location of all underground and above ground utilities indicated on the Site Survey or on the Civil, Architectural, Mechanical, and Electrical Site Plans prior to construction. Any damage to these utilities shall be the Contractor's responsibility and they shall be repaired at no cost to the Owner.*

2. Definition of other bid packages/separate contracts such as site grading, utilities, etc.
3. Work to be accomplished by others that will affect the work included in this project. This typically refers to site grading performed by a separate contractor. The wording might be similar to:

   a. *Site Grading: Rough site grading will be accomplished by the "Bid Package A" Contractor prior to general contractor move-in. All fill placement will be controlled and tested by the geotechnical engineer.*

   b. *Site Certification: Following completion of the site grading, the Bid Package A Contractor will be required to certify the final grades prior to acceptance by the Owner.*

   c. *Site Survey: Following completion of the "Bid Package A" Site Grading, the Owner will obtain a final topographical survey which will be made available to bidders by Addendum.*

   d. *Acceptance of Site: Prior to move-in, the General Contractor will be required to compare the grades indicated on the Site Development Plan with on-site grades established by the "Bid Package A" Site Grading Contractor and accept the site in writing "as-is" or notify the Owner in writing of any discrepancies that do exist. No extras will be allowed for discrepancies between drawings and actual on-site conditions after such acceptance. Commencement of on-site construction by the Contractor prior to Receipt of Letter of Acceptance by the Owner shall also constitute acceptance of on-site conditions by the General Contractor.*

4. Listing and brief definition of separate contracts between the Owner and other contractors that might include, but not be limited to, testing of radio signal strength for public safety radio systems; on-site gas lines; power service to the site; telephone service to the site; off-site streets, utilities, sidewalks; technology wiring/equipment; mechanical systems testing, adjusting, and balancing. The wording/brief description of these separate contracts might be as follows:

   a. *Testing, Adjusting and Balancing: The hydronic and air distribution testing and balancing shall be done by an independent consultant separately contracted by the Owner.*
   b. *The Mechanical Subcontractor under this Contract shall coordinate with the owner's separate Test and Balance Consultant to verify that all items such as: the thermometer wells, pressure test cocks, access doors, etc., are furnished and installed as required to allow tests and adjustments to be performed by the separate Test and Balance Consultant.*
   c. *The Mechanical Subcontractor shall coordinate with the Owner's separate Testing and Balance Consultant as required to ensure that the testing and balancing of the mechanical system will be completed prior to the listed date of substantial completion.*

5. Work sequence if the project has phased completion dates. An example might be as follows:

   a. *PHASE 1 – Early Completion Site Elements: This first phase shall include, but not be limited to the following construction activities that shall be completed on or before (date).*
      1) *Installation of water meter, supply lines and backflow preventer for irrigation system, irrigation lines serving the fields, irrigation controller, field building and temporary power to irrigation controller in the field building.*
      2) *Running track with drainage system, asphalt pads, runways, tennis courts, chain link fencing, backstops, and other athletic field amenities indicated on the Drawings.*
      3) *Soil preparation, fine grading, seeding of playfields, native grass seeding of disturbed areas, and other landscaping as included on the drawings.*
      4) *This completed work will be turned over to the School District for their maintenance and this early completion area will not be used for athletic or P.E. activities until (date).*

   b. *PHASE 2 – All Remaining Sitework and Buildings: All remaining sitework including the balance of landscape work shall be completed on or before (date). The High School Building shall also be completed on or before (date).*

6. Contractor's use of the Owner's site/premises including a definition of the limits where the contractor will be working, the related staging areas, and restrictions regarding construction access to the site. An example might be as follows:

   a. *Limitations: Operations of the General Contractor shall be limited to areas where work is indicated on the drawings.*
   b. *All construction traffic access to building site shall be limited to Street X only. No construction traffic is permitted on Street Y. Parking of construction vehicles shall be on site only.*
   c. *The asphaltic base course for access drive and parking lot on the south side of the building shall be completed as soon as possible to permit their use as staging areas for building construction and to provide the access required by the Fire Department. Prior to completion of the project and as directed by the Architect, the Asphalt Paving Subcontractor shall return to the site at which time he shall clean the base course, apply a tack coat and complete installation of the asphaltic concrete surface course.*

7. Pre-ordered products and/or shop drawings - an example might be as follows:

   a. *In order to conserve construction time, the Owner has pre-ordered and paid for shop drawings for steel joists and steel deck from an independent shop drawing service. These shop drawings will be completed and reviewed by the Structural Engineer prior to date of Notice of Award.*
   b. *Following Notice of Award, shop drawings for steel joists and steel deck will be turned over to the General Contractor for use by his subconsultants.*

B. Protection of Concrete Slabs to be Stained and Polished: *(NOTE: Include this Article in the "Summary of Work" section in projects where Section 03 35 43 "Polished Concrete Finishing" is used as all trades are responsible for helping to protect the concrete slabs to be polished).*

1. Contractor and all sub-contractors shall take precautions to prevent damage and soiling of concrete slabs scheduled to be polished as final finish.
   a. The following substances can penetrate the surface and stain the slab: Red chalk, permanent markers, wax pencils, adhesives, oils, gas, primer, paint, stain, poly seal, caulk, PVC primer/cleaner, PVC adhesive, food, grease, beverages and rust from metal or nails.
   b. Lumber, wood boards, sawdust plywood, thermo-ply, pressboard, insulation board and plastic all draw moisture from the slab. If left, they can transfer resins, tannins and water stains to the slab.

2. Precautions shall include but not be limited to:
   a. Prevent damage to floor slabs from substances listed in above paragraphs.
   b. Prohibit parking or driving of vehicles on concrete slab until protective cover is installed.
      1) If construction equipment must be used for application, diaper all components that might drip oil, hydraulic fluid, or other liquids.
   c. Prohibit temporary placement and storage of steel members on concrete slab.

d. Install protective covering of heavy cardboard, rosin paper, hardboard, plywood, Masonite, or other protective sheeting over entire floor surface.
   1) 6 mil black plastic is acceptable, overlapping by one foot, and taped at the seams. Do not tape to the floor.

e. Prohibit pipe cutting and using pipe cutting machinery on concrete slabs.
f. Do not write on the slab with anything except light pencil.
g. Do not allow use of red chalk for lay-out lines.
h. Do not allow use of unprotected floors for lay down, staging, or use by any trades.
i. Floors must be completely protected during application of primer, paint, stain, or lacquer. Painters may use Green Tape, 24-hour tape, craft paper, or drop cloths to protect floor and the field. Only Green Tape or lacquer-free tape is acceptable for the protection of acid-stained floors. Do not leave tape down for longer than 72 hours as it can leave a residue or pull off sealed surfaces.
j. Keep area clean.

3. Coordinate requirements for concrete slab protection with polished concrete subcontractor to assure compliance with requirements.

01 22 00 – UNIT PRICES

PART 1 - GENERAL

A. Summary: This Section includes listing of items and related sections for which unit prices will be taken. Typical unit price items may include, but not be limited to:
   1. Drilled Piers:
      a. Provide unit price for OVERRUN and UNDERRUN of each size drilled pier.

   2. Landscape Materials.
   3. Earthwork / Structural Fill.

B. Restrictions/Critical Criteria: All unit prices shall include labor, materials, equipment, services, delivery to the project, overhead, profit, insurance and other incidental expenses to complete the work specified. Work covered by unit prices shall be performed in accordance with requirements of the applicable sections of the Specifications.

01 23 00 – ALTERNATES

PART 1 - GENERAL

A. Summary: This Section shall include a listing of items and related sections for which alternate prices will be taken.
   1. Each Alternate shall include a clear description of the scope of work that is "Base Bid" and a description of the work that is to constitute the "Bid Alternate".

B. Definitions/Restrictions/Critical Criteria:
   1. Definitions and Explanations: "Alternates" are defined as alternate products, materials, equipment, systems, methods, units of work, or major elements of the construction, which may, at the Owner's option be selected for the work in lieu of the corresponding requirements of the Contract Documents. Selection may occur prior to the Contract Date, or may be deferred for possible selection at a subsequent date. Alternates may or may not change the scope and general character of the work substantially.
   2. Notification: Immediately following the award of the Contract, the Contractor shall prepare and distribute to each entity or person to be involved in the performance of the Work, a notification of the status of each alternate scheduled and including those subsequently added by notification during bidding. Indicate which alternates have been: 1) accepted, 2) rejected, and 3) deferred for consideration at a later date as indicated. Include full description of negotiated modifications to alternates, if any.

01 31 00 – MECHANICAL AND ELECTRICAL COORDINATION

PART 1 - GENERAL

A. Summary: This Section includes a listing of mechanical and electrical equipment and defines responsibilities of the mechanical (MC), and electrical (EC), and controls (TC) contractors for furnishing, setting, providing power wiring, and providing control wiring for this equipment. An example for a typical school would be as follows:

ITEM	FURNISHED BY	SET BY	POWER WIRING	CONTROL WIRING
Equipment Motors	MC	MC	EC	--
Motor Starters & Overload Heaters	MC	EC	EC	MC
Fused & Unfused disconnections, Switches, Thermal Overload, and Heaters	EC	EC	EC	--
Manual Operating & Speed Switches (Carrying load Currents)	MC	EC	EC	EC
Control Relays & Transformers	TC	TC	EC	TC
Interface of Mechanical Systems & Devices with Fire Alarm System	EC	EC	EC	EC
Thermostats (Line Voltage)	TC	TC	EC	TC
Temperature Control Panels	TC	TC	EC	TC
Fire & Smoke Detectors, including Relays for Fan Shutdown & Smoke Damper Closure	EC	EC	EC	EC
Smoke Dampers & Combination Fire/Smoke Dampers	MC	MC	EC	EC
Motor & Solenoid Calves, Damper Motors, Control Valves, Fan Interlocking Wiring, Low-voltage Thermostats	TC	TC	TC	TC
Freezestats, Aquastats TC Flow Switches	TC	MC		TC

ITEM	FURNISHED BY	SET BY	POWER WIRING	CONTROL WIRING
Pushbutton Stations & Pilot Lights (Manually Operated Switches not carrying Load Current)	EC	EC		TC
Boiler and Water Heater Controls including F.I.A. Gas Train	MC	MC	EC	TC
Temporary Heating Connections	MC	MC	EC	TC
Heat Tape	EC	EC	EC	EC
Variable Frequency Drives	MC	EC	EC	TC

B. Restrictions/Critical Criteria:

1. All motor starters shall be furnished by MC and shall be complete with three O.L. heaters and shall conform to NEC and NEMA requirements.
2. Control relays and control transformers shall be furnished by TC except where furnishing such items is specifically required by electrical specifications and/or drawings.
3. Pushbutton stations carrying full load current are to be wired by EC.
4. Exhaust Fans: The Electrical Contractor will furnish and install circuits, feeders and disconnect switches, and make all connections to motors and controls. Where exhaust fans are switched with lights, a two-pole toggle switch will be provided by the EC. Where exhaust fans are controlled by sixty (60) minute timer switches, electrical contractor shall provide and install the switch(es). Where exhaust fans are interlocked with other mechanical equipment, the interlock wiring will be furnished by the TC.
5. If disconnect switches are furnished as part of factory wired equipment, wiring and connections only by EC.
6. If float switches, line thermostats, time switches, etc., carry the FULL LOAD CURRENT to any motor, or heating element or other similar item, they shall be furnished by TC.

   They shall be set in place and connected by the EC, except that where such items are in integral part of the mechanical equipment or directly attached to ducts, piping, etc.; they shall be set in place under the MC and connected by the EC. If they do not carry the FULL LOAD CURRENT to any motor, they shall be furnished, set in place, and wired by TC.

7. Wiring from alarm contracts to alarm system shall be by EC, all control function wiring by TC. Smoke dampers and combination fire smoke damper actuators shall be 11O Volt.
8. Fire and smoke detectors in ductwork on mechanical equipment are mounted by MC. All others are mounted by EC. Locations to be determined by EC (Fire Alarm Sub).
9. EC shall coordinate quantity and location of mechanical control panels with mechanical plans and specifications and with MC. Provide a 120 Volt, 1-pahse dedicated circuit from each control panel on group of control cabinets to the nearest panelboard of correct voltage characteristics.
10. It shall be the responsibility of the Mechanical Contractor (MC) to transmit to the General Contractor, all changes of electrical characteristics which result from substitution of equipment. Any and all charges for such changes shall be the responsibility of the Mechanical Contractor.

11. MC shall not fabricate ductwork until he has inspected the space in which the ductwork will be installed, coordinated the location of ductwork with the light fixtures to be installed by EC and assured that all ductwork will fit the space provided. EC shall transmit final approved shop drawings and product data showing sizes, heights, and locations of light fixtures to the General Contractor and MC to allow the coordination to take place. MC and EC shall coordinate the layout and installation of mechanical and electrical equipment in Mechanical and Electrical Rooms.

01 31 19 – PROJECT MEETINGS AND COORDINATION

PART 1 - GENERAL

A. Summary: This Section defines the various types of required project meetings.

B. Restrictions/Criteria:
   1. Preconstruction Meetings:
      a. A meeting will be scheduled by the Architect within ten (10) days following Notice of Award, at which time the Contractor, will submit executed bonds and insurance certificates. Administrative requirements including but not limited to, subcontractor lists, schedule of values, payment applications, change order procedures, sales tax records and project closeout will be reviewed in detail.
      b. Site Mobilization Conference: A meeting will be scheduled by the Architect at the site immediately prior to Contractor move-in. Representatives of the Contractor, Geotechnical Engineer, Owner, and Architect will be present. Job site procedures, to include the following items, will be discussed:
         1) Procedures for maintaining record documents
         2) Owner's requirements
         3) Construction facilities and controls
         4) Temporary utilities
         5) Security and housekeeping procedures
         6) Materials testing
         7) Services of Geotechnical Engineer
         8) Building layout
         9) Use of Architect's Consultants

   2. Weekly Progress Meetings:
      a. Regular weekly meetings lasting approximately one hour shall be scheduled at Cherry Creek Educational Services Center. The Contractor's Project Manager and Superintendent, Owner and Architect will be present. Minutes of progress meetings shall be kept and distributed by the Architect. The following items will be discussed:
         1) Review and Approval of Previous Meeting Minutes.
         2) Review of Work Progress Since Previous Meeting.
         3) Review of Problems/Conflicts.
         4) Status of Previous Instructions Issued.
         5) Review of Off-site Fabrication and Delivery Schedules.

6) Problems Which Impede Construction Schedule.
7) Review Status of Contractor's Construction Schedule.
8) Discuss Procedures to Regain Projected Schedule.
9) Itemize Work for Succeeding Work Period Up to Next Progress Meeting.
10) Coordination of Schedules.
11) Maintenance of Quality Standards.
12) Review Contractor's Submittals.
13) Review Proposed Changes for Effect on Other Trades, Construction Schedule, Completion Date and Costs.
14) Coordination of Owner's Separate Contracts.
15) Work in Progress During Visit.
16) Other Business as Required.

01 33 00 – SUBMITTALS

PART 1 - GENERAL

A. Summary: This Section includes submittal requirements/process for general information submittals and for shop drawings, product data and samples.

B. Submittals Required:
1. "Administrative Submittals" are submittals relating to provisions of the Contract Documents, and include but are not limited to:
a. Insurance certificates.
b. Performance and payment bonds.
c. List of subcontractors/material suppliers.
d. Construction schedule and updates.
e. Quality control plan.
f. Schedule of values.
g. Submittal schedule.
h. Applications for payment.
i. Substitution requests.
j. Close out documents.

2. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals" and include, but are not limited to:
a. Shop drawings.
b. Product data.
c. Samples.

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

C. Restrictions/Critical Criteria:

1. General: In conjunction with the first progress schedule, the contractor shall submit to the Architect a shop drawing submittal schedule outlining dates for submittal of all shop drawings and product data.
   a. Submittals shall be made early enough to allow a fifteen (15) day time period from the received date for review by the Architect. Shop drawing submittals will note verified field-measured dimensions, as-built conditions, or special coordination conditions with other contractors. All on-site measurements shall be made before shop drawings are reviewed by the Architect.
   b. Shop drawings shall not be reproductions of contract documents, they shall be original drawings prepared by the supplier or subcontractor. Drawings information shall be prepared specifically for this project and drawn to accurate scale. Deviations from the contract documents shall be clearly identified and shall reference applicable construction drawings or specification sections.
   c. Product data for each element of construction or system shall be a single submittal and shall include printed information such as manufacturer's installation instructions, catalog cuts, rough-in data, wiring diagrams and performance information. Shop drawings and product data submittals shall be reviewed and approved by the contractor for completeness, accuracy, and conformity with the contract documents. Notes and corrections shall be made on all copies of submittals, signed by the individual reviewing the documents, and stamped with the contractor's date/review stamp. Every sheet of shop drawings shall be stamped and signed by the contractor.
   d. Shop drawings and product data not stamped and signed by the contractor will be rejected and returned by the Architect.

2. Shop Drawings: Each submittal or resubmittal shall consist of a minimum of one correctable reproducible translucent and three prints.
3. Product Data: Each submittal or resubmittal shall consist of a minimum of six copies of brochure material and related samples. Each copy shall clearly show applicable choices and options.
4. Job site documents: Only approved shop drawings or product data shall be kept at the job site. The Contractor shall keep a complete set of such documents on file at the job site.
5. Color selection samples: The Contractor will provide a checklist indicating materials where color, texture or finish is subject to selection by the Architect and as defined in the various specification sections. Certain other samples may also be requested for use by the Architect in preparation of color and material sample presentations for the Owner.
   a. With the checklist, the Contractor shall promptly (30 +/- days after award) assemble and deliver to the Architect two (2) complete collections of all required samples. Upon receipt of a complete collection of samples the Architect will, with reasonable promptness, make the selections and prepare and deliver to the Contractor a schedule covering all items subject to selection. The Architect reserves the right not to make individual determination or selections until all samples of materials are furnished to him.

6. Contractor shall maintain and accurately update a submittal log showing the current status of the submittals. The updated log shall be reviewed with the architect and owner at the project meetings.

01 35 00 – REGULATORY REQUIREMENTS

PART 1 - GENERAL

A. Summary: This Section includes listing of approval and recommendation agencies - Verify reviewing agency and current codes (Colorado Division of Oil and Public Safety or City of Aurora Building Department).

B. Referenced Standards/Minimum Criteria:

Colorado Division of Labor	or	City or Aurora
International Building Code, 2015 Edition		International Building Code, 2015 Edition
International Fire Code, 2015 Edition		International Fire Code, 2015 Edition
International Plumbing Code, 2015 Edition		International Plumbing Code, 2015 Edition
International Mechanical Code, 2015 Edition		International Mechanical Code, 2015 Edition
International Energy Conservation Code 2015 Edition		International Energy Conservation Code 2015 Edition
National Electrical Code (NFPA 70-2020)		National Electrical Code (NFPA 70-2020)
ANSI-A17.1 Safety Code for Elevators & Escalators		ANSI-A17.1 Safety Code for Elevators & Escalators
ANSI-A117.1 Standard for Accessible and Usable Buildings and Facilities (2009)		ANSI-A117.1 Standard for Accessible and Usable Buildings and Facilities (2009)

C. Restrictions/Critical Criteria:

1. Require compliance with all requirements and codes adopted by the Fire Department, Utility Company, and Health Department having jurisdiction. Require compliance with all other requirements of State Division of Oil and Labor, Public Safety Section, and any other local, state or federal requirements which are applicable, particularly any local or state regulations regarding dust control, noise abatement, permissible hours of construction, water management and erosion control.
2. In case of a conflict between referenced applicable codes, or other requirements, the one having the more stringent requirements shall govern. Where governing codes or requirements indicate that the drawings or specifications do not comply with the minimum requirements of the codes or requirements, the Contractor shall be responsible for informing the architect of the condition that may be in violation with the code obtain direction on how to proceed. Drawings and specifications shall be followed where they are superior to code requirements.
3. Protection of life, health and public welfare as it relates to the execution of the construction contract is the responsibility of the Contractor.

4. The Contractor shall have sole responsibility for compliance, on the job site with all applicable portions of the Occupational Safety and Health Act and compliance with the Equal Employment Opportunity Act.

01 42 00 – REFERENCED STANDARDS

PART 1 - GENERAL

A. Summary: This Section includes the definition and application of referenced standards.

B. Restrictions/Critical Criteria:
   1. Where workmanship or products are specified incorporating trade or federal standards or by association, the requirements of the referenced standard shall apply except where more rigid standards are specified or are required by applicable codes.
   2. Where referenced standards are required, a copy of the standard shall be maintained by the contractor at the job site during the work.
   3. The date of the standard is that in effect as of the date on the project manual except when a specific date is specified or when the standard is part of an applicable code which includes an edition date.

01 45 00 – QUALITY CONTROL

PART 1 - GENERAL

A. Summary: This Section includes description of the various tests required to provide appropriate quality control and identifies who pays for the tests.

B. Referenced Standards/Minimum Criteria: Tests shall be made by an accredited testing laboratory. Except as otherwise provided sampling and testing of materials and the laboratory methods and testing equipment shall be in accordance with the latest standards and methods of the American Society of Testing and Materials (ASTM). Where additional or specific information concerning testing methods, sample sizes, etc., is required, requirements are included under the applicable sections of the Specifications.

C. Restrictions/Critical Criteria:
   1. Contractor shall provide equipment and facilities required for conducting field tests and for collecting and forwarding samples. Contractor shall not use any materials or equipment represented by samples until tests, if required, have been made and the materials or equipment are found to be acceptable. Any product deemed unfit for use shall not be incorporated into the work.
   2. All materials or equipment proposed for use may be tested at any time during their preparation or use. Contractor shall furnish the required samples without charge and shall give sufficient notice of the placing of orders to permit the testing. Products may be sampled either prior to shipment or after being received at the site of the work.
   3. Control tests of concrete work shall be made at the Owner's expense at such times and number as directed by the Owner.

4. Control tests of masonry work including masonry reinforcing shall be made at the Owner's expense at such times and number as directed by the Owner.
5. Drilled pier and related concrete operations shall be observed by a Geotechnical Engineer selected and paid by the Owner.
6. Control tests of fill and backfill shall be made at the Owner's expense by the Geotechnical Engineer Laboratory. The Geotechnical Engineer will make sufficient tests at the expense of the Owner to assure himself that fill and backfill complies with material and compaction requirements in the specifications. Control tests of masonry work shall be made at the Owner's expense in accordance with directions issued by the Owner or Architect.
7. Testing of structural welds shall be made at the Owner's expense in accordance with other specific sections of the specifications.
8. Control tests of asphaltic concrete paving and base course shall be made at the Owner's expense by the Geotechnical Engineer Laboratory. The Geotechnical Engineer will make sufficient tests to assure himself that asphaltic concrete paving and base course complies with material and compaction requirements in the specifications.
9. Other testing:
    a. Any other tests required by specific sections of the Contract Documents to be paid for by the contractor.
    b. Any additional tests required because of any tests that fail.
    c. Proof of Noncompliance: Contractor liable for corrective action which Architect feels is required including complete removal and replacement of defective material.
    d. Material Substitution: Any tests of material or equipment offered as substitute for specified item on which a test may be required in order to prove its compliance with specifications.

10. Records: The contractor shall document and maintain records of all inspections and tests performed whether by the Owner's separate consultants or as required by specific sections of the specifications.

01 50 00 – TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

A. Summary: This Section includes a description of temporary construction facilities and controls required by the contractor to facilitate construction including temporary electricity and lighting, temporary heat/enclosures, temporary water, temporary sanitary facilities, temporary protective facilities, elevators, scaffolding/runways, construction fence, and temporary controls.

B. Reference Standards/Minimum Criteria: All temporary facilities shall be installed as required by applicable code, OSHA, laws, or ordinances.

C. Restrictions/Critical Criteria:

1. Temporary electricity and lighting shall be provided by the contractor and removed upon completion and operation of permanent electrical service/distribution and permanent lighting. Receptacles shall not be used for construction power.
   a. Includes temporary electrical service and meter.
   b. 120/240 volt, 1 phase, 3 wire.
   c. Sufficient circuits and duplex 120v single phase outlets located that any part of the work can be reached with a 75 ft. extension cord to accommodate normal power tools and supplemental lighting.
   d. Temporary light to levels and as required by governing regulations but not less than minimum 5 footcandle illumination in all areas accessible to workers during hours they are at the job; minimum 10 footcandles for shop areas; 20 footcandles or more where detailed or finishing work is being done, supplemented as may be required.
   e. Provide additional exterior and interior lighting as required for warning, public safety, and project security.
   f. Contractor shall pay for all electricity used through temporary and permanent systems up to date of substantial completion for new construction. For renovation projects where the existing electrical service will be available, the Owner will pay for electricity used.
   g. Use of permanent systems criteria:
      1) Contractor responsible for damage to permanent wiring or fixture as a result of temporary use and shall replace receptacles and device plates showing wear.
      2) Clean permanently installed light fixtures using methods recommended by manufacturer.
      3) Remove temporary lamps and replace with new lamps at completion of the work.

2. Temporary heat and enclosures required by Contractor
   a. Temporary Heat: Provide temporary heat necessary for execution of work. Install, maintain and operate temporary heating apparatus in manner to facilitate work, so work can continue and such that finished work will not be damaged. No fuel type of any kind (gas, propane, etc.) shall be stored inside of building.
   b. Enclosures: Provide temporary enclosures necessary for holding temporary heat for masonry and concrete work and for thawing frozen ground.
   c. After the building is entirely and permanently enclosed and a permanent heating system is installed and capable of being adequately controlled, the permanent heating system may be used to provide heat for the building subject to approval of the Owner and Architect. Contractor shall pay for gas and electricity used in connection with the operation up to the date set in the Certificate of Substantial Completion. For renovation projects where the existing permanent heating system will be used, the owner will pay for the gas/electricity used. In using the permanent heating system, Contractor shall assume complete responsibility for its proper operation and for correction of any damage which may occur to permanent heating system.

Use of permanent heating system by Contractor shall in no manner compromise the warranty of the system. Warranty of the system will commence at date set in the Certificate of Substantial Completion.

3. Temporary Water: Contractor shall provide water required in the work as well as temporary connection, plumbing, piping, etc., necessary to convey same to places needed. Bulk water for site grading shall be provided by site grading contractor.
4. Temporary Sanitary Facilities: Contractor shall provide and maintain, in a neat and sanitary condition, adequate chemical toilet facilities for the use of employees engaged in the work. Any graffiti vandalism on sanitary facilities shall be removed immediately by the Contractor.
5. Temporary Protective Facilities/Scaffolding and Runways: Contractor to provide and maintain protective devices and facilities for protection of public and general protection of workmen on project.
    a. Provide and maintain fire extinguishers and active fire hydrants where required. Maintain fire lanes to hydrants and other equipment as necessary for proper fire protection during construction.
    b. Provide temporary walks, scaffolding, platforms, roadways, trench covers, barricades, bulkheads, railings, danger lights and signals, etc. required for work by applicable safety laws and building codes.
    c. Maintain temporary protective facilities in good condition throughout term of work. Remove at completion of work. Repair and replace work damaged by temporary protective facilities.

6. Elevators: Usage of any elevator by the Contractor shall not affect any conditions of warranty or warranty period for elevators as specified.
7. Construction Fence: Contractor shall erect construction fencing as indicated for protection of the public. The fence shall be 6'0" high, constructed of chain link with steel posts at 8'-0" on center, maximum. Top of fence fabric shall be knuckled for safety. Provide gates where required. Gates shall be kept closed and locked after working hours. At completion of exterior work, fences shall be removed from the site.
8. Field Office and Other Temporary Structures: Provide insulated, weathertight temporary offices of sufficient size to accommodate required office personnel at the project site. Keep the office clean and orderly for use for small progress meetings.
9. Security: Provide security program and facilities to protect work from unauthorized entry, vandalism, and theft. Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrance to prevent unauthorized entrance, vandalism, theft and similar violations of security. Verify with owner if a full time security person is required at the site for times when work is not in progress.
10. Temporary Controls - by Contractor:
    a. Noise Control: Minimize noise at all times near residential areas. All equipment shall be properly muffled. Do not operate noise equipment after hours.
    b. Dust Control: When construction procedures result in dust which becomes a nuisance to the Owner, private property, or traffic, control said dust.
    c. Water Control: Provide such means as necessary to control flow of water at the work to prevent damage to the Owner's property and adjacent property.

d. Debris Control: Continually police the work to prevent collection and scattering of debris, loose debris, or debris caused by execution of the work.
e. Pollution control: Take extreme caution to prevent spilling or littering of water polluting substances. Do not pump any foreign materials into the sanitary or storm sewer collection systems. Provide such labor, equipment, and materials as necessary to remedy such pollution. No burning of debris, nor any other air polluting methods or equipment, shall be allowed.
f. Erosion Control: Provide such facilities as might be necessary to prevent erosive damage to the Owner's property or to adjacent properties.

01 71 23 - FIELD ENGINEERING

PART 1 - GENERAL

A. Summary: This Section includes Field Engineering Services.

B. Referenced Standards/Minimum Criteria: Professional engineer or land surveyor performing field engineering services shall be registered in the State of Colorado. Professional engineer or land surveyor may be employee of the Contractor.

C. Submittals Required:
1. Surveyor/Engineer: Contractor to submit name and address of surveyor or professional engineer to be employed by Contractor for review by Owner and Architect before beginning work at the site.
2. Documentation and Records: Surveyor or engineer employed by contractor shall maintain a complete and accurate log of all control and survey work as it progresses. On request of the Architect, submit documentation of field engineering work.
3. Completion Certificate: Upon completion of the work, contractor shall submit to Architect a certificate signed by surveyor or engineer employed by Contractor certifying that elevations and locations are in conformance or non-conformance with Contract Documents.

D. Restrictions/Critical Criteria:
1. Engineer or land surveyor employed by contractor shall be responsible for location of building and major site elements, location of drilled piers, centerline and offset staking for utility lines, installation of control stakes for site grading as required and final certification that finish grading has been completed within the tolerances specified.
2. Permanent Bench Marks: Engineer or Surveyor employed by Contractor shall establish a minimum of two permanent bench marks on the site, referenced to data established by survey control points.
3. Preservation of Monuments and Stakes: Contractor shall carefully preserve all monuments, bench marks, property markers, reference points, and stakes. Permanent monuments or bench marks which must be removed or disturbed shall be protected until properly referenced for relocation.

01 77 00 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

A. Summary: This Section includes:
   1. Project Record Documents
   2. Substantial Completion
   3. Final Observation and Acceptance
   4. Closeout Submittals
   5. Final Completion and Final Payment
   6. Demonstrations
   7. Mechanical Service and Maintenance
   8. Post Construction Inspection

B. Submittals Required (Contract Close-out):
   1. Evidence of Payments and Release of Liens
      a. Affidavit of Payment of Debts and Claims: AIA G706
      b. Affidavit of Release of Liens: AIA G706A
      c. Consent of Surety to Final Payment: AIA G707

   2. Written Warranties:
      a. A written warranty addressed to the Owner, properly signed and notarized, warranting that the Contractor and each subcontractor shall remedy any defects due to faulty materials or workmanship and pay for consequential damage resulting there from, which appear in his work within a period of one (1) year from the Date of Substantial Completion.
      b. Warranties as specified in individual sections of the Specifications. All warranties shall include the name and address of the Contractor, subcontractor or supplier, the project name, and the item(s) being warranted. Warranties specified under individual sections of the Specification for periods longer than one (1) year shall include payment for consequential damage due to faulty materials or workmanship for full duration of warranty.
      c. Inspection Certificates: Each subcontractor shall, upon completion of the work, secure in triplicate all certificates from any State or local governing body having jurisdiction in dictating that the work is in strict accordance with applicable codes and deliver same to the Contractor for transmittal to the Architect.
      d. Record Drawings and Record Project Manual: Deliver Record Documents to Architect with transmittal letter containing date, project title and number, contractor's name and address, title and number of each record document. Include certification letter that each document is complete and accurate. Submittal shall be signed by Contractor or his authorized representative.
      e. Asbestos Containing Material: Provide a letter certifying that to the best of the Contractor's knowledge and belief, no asbestos containing materials have been incorporated into this project.
      f. Maintenance Manuals: Furnish, in three (3) copies, indexed, in hard cover 3-ring binder with complete literature, complete operating instructions and technical data on all products or equipment requiring same.

g. Sales and Use Tax Certificates.
h. Miscellaneous Keys, Switches, Etc.: All loose keys for hose bibs, adjustment keys and wrenches for door closers and panic hardware, keys for electric switches, electrical panels, etc., shall be accounted for, labeled, and turned over to the Owner. Provide evidence of delivery to Owner by signed receipt.
i. Spare Parts and Materials: As specified in individual sections. Deliver to Owner stating amounts of materials delivered (number of gallons, cases, etc.). Provide evidence of delivery to Owner by signed receipt.

C. Restrictions/Critical Criteria:
1. Project Record Documents: Contractor to maintain at the job site, one (1) record copy of the following:
a. Drawings
b. Project Manual
c. Addenda
d. Reviewed and Accepted Shop Drawings and Product Data
e. Change Orders
f. Other Modifications to Contract
g. Field Test Records

2. Contractor to record following information on the Record Drawings:
a. Location of all new exterior underground utility lines
b. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure
c. Field changes of dimension and detail
d. Changes by addendum, change order, or field order
e. Details not on original contract drawings

3. Contractor to record following information in the Record Project Manual:
a. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment in each section actually installed
b. Changes by addendum, change order or field order
c. Other matters not originally specified

4. Substantial Completion:
a. The Contractor submits written verification that project is substantially complete along with Contractor's own Punch List describing remaining incomplete work or work requiring correction
b. Should the Architect concur that the work is substantially complete, he will prepare a Punch List that need to be corrected before Final Observation. A Certificate of Substantial Completion with the deficiencies noted will then be issued by the Architect

5. Final Observation and Acceptance:
   a. The Contractor submits written verification:
      1) Project has been inspected for compliance with Contract Documents
      2) Work has been completed in accordance with Contract Documents
      3) Equipment and systems have been tested in the presence of Owner's Representative and are operational
      4) Project is completed and ready for Final Observation

   b. Upon receipt of written certification that project is complete, the Architect shall visit the site for purposes of determining completion of the work

6. Final Completion and Final Payment: Contractor shall submit final Application for Payment to the Architect in accordance with the requirements of the General and Supplementary Conditions. Application shall not be submitted until all contract closeout requirements have been met.
7. Demonstrations:
   a. Mechanical Systems: Contractor/Mechanical Subcontractor shall instruct the Owner's representative(s) once on the proper operation and maintenance of the mechanical systems. As a minimum, presenting participants shall include Mechanical Contractor, Controls Subcontractor, and major equipment manufacturer's representative. The Design Engineer shall attend this demonstration
   b. These instructions shall be video recorded by the Contractor. At the completion of the instructional periods, a DVD of the video shall be turned over to the Owner for future reference
   c. Electrical Systems: Contractor/Electrical Contractor shall instruct the Owner's representative(s) twice on the proper operation of the entire electrical installation, including any and all special systems provided under this contract. One of the instruction periods shall be for building users.

Include the following minimum number of sessions and hours of instruction to be conducted by the manufacturer's representatives:

	High S.	Middle S.	Elem S.
Fire Alarm System	2 at 2 Hours	2 at 2 Hours	2 at 2 Hours
Emergency Generator	2 at 1 Hour	2 at 1 Hour	2 at 1 Hour
Clock System	2 at 1 Hour	2 at 1 Hour	2 at 1 Hour
Sound Systems/Intercom	4 at 4 Hours	3 at 4 Hours	2 at 4 Hours
Commons Dimming System	2 at 1 Hour	2 at 1 Hour	2 at 1 Hour
Lighting Controls	2 at 2 Hours	2 at 2 Hours	2 at 2 Hours
Auditorium Dimming System	2 at 5 Hours	NA	NA

The demonstration session for the Special Systems to building users shall be video recorded by the Contractor. A DVD of the video of this session shall be turned over to the Owner for future reference.

8. Mechanical Service and Maintenance: Contractor shall include four (4) complete service and maintenance calls plus emergency calls spaced at reasonable intervals throughout one (1) year warranty period.

   In addition to service calls, the Contractor shall meet with the Owner's representative and Mechanical Engineer at the Building at 3 and 11 months following final Date of Substantial Completion to review warranty items and performance of HVAC systems.

9. Post-Construction Inspection: Prior to expiration of one (1) year from Date of Substantial Completion, the Owner, Architect and Contractor will tour the project to determine whether corrective warranty work is required. Contractor will be notified in writing of all deficiencies. Contractor must correct noted deficiencies within ten (10) days of receipt of notification.

END OF SECTION