

**CSU HOUSING & DINING SERVICES TECHNICAL STANDARDS
DIVISION 01 – GENERAL REQUIREMENTS**

DIVISION 01 – GENERAL REQUIREMENTS

- A. A/E shall always develop Division 01, General Requirements specifically for each project. The following items are provided for inclusion in Division 1 where appropriate. Each project will require modifications. Do not copy General Requirements used for other University projects. The State of Colorado General Conditions of the Contract will precede Division 1 in the project manual. An updated copy can be obtained from the University Representative.
- B. Contractor shall obtain and comply with current Poudre Fire Authority requirements for temporary heat. Temporary heat set ups shall be inspected by PFA.

01 10 00 - SUMMARY OF WORK

- A. A complete description of work shall be provided in every specification. Include a summary of work by each discipline. The description shall be concise and thorough.
- B. A list of Planning and Administration Phase submittals shall be included in the project Summary of Work. These submittals document the Contractor's activities necessary to plan the Work, including, but not limited to the following list, along with any other General Conditions and Technical Specification requirements that must be complete prior to the start of the Work. Written acceptance by the University for each item is required before the Contractor may proceed with any actual construction on or off the site.
 - a. Mobilization Schedule
 - b. Submittal Schedule
 - c. Site Condition Report
 - d. Quality Control Plan
 - e. Safety Program Plan
 - f. Construction Waste Management Plan
 - g. Subcontractor Acceptance
 - h. Independent Testing Agency Acceptance (if applicable)
 - i. Contract Record Maintenance Plan
 - j. Superintendent Qualifications
 - k. Quality Control Manager Qualifications
 - l. Assistant Superintendent Designations
 - m. Schedule of Contractor's Misc. Admin. Requirements
 - n. Construction Schedule

The Schedule of Contractor's Miscellaneous Administrative Requirements category shall cover all other Pre-Work office and job administrative expenses for General Conditions, Special Conditions and Technical Specifications, as defined by the Contractor in a detailed breakdown submitted in writing for approval prior to requesting payment for any item in the Planning and Administrative Phase.

01 20 00 – PRICE AND PAYMENT PROCEDURES

- A. Contractor Payment:
 - 1. The schedule of values must be submitted and approved by the A/E and University Representative before any payment to a contractor can be approved. The schedule shall follow Construction Specifications Institute (CSI) format. Use the schedule of value form provided by the State of Colorado.

01 31 00 – PROJECT COORDINATION

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A. Utility Locates:

1. Utility locations can be requested using One Call by dialing 811. Prior to requesting field location of utilities on University property, the contractor shall contact the University Representative or Facilities Management utility-locate personnel to schedule a site evaluation meeting. Specific site information regarding University utilities and the presence and general location (if known) of utilities belonging to non-University entities in the excavation area will be provided to the contractor. The Contractor shall also contact Utility Notification Center of Colorado (UNCC) at (800) 922-1987 or 811.
2. Requests for University utility field locate support must be made to the locate personnel three business days before excavation commences. Arrangements and scheduling for all field locations of utilities belonging to entities other than the University are the responsibility of the Contractor.
3. Maintaining utility locate markings is the responsibility of the Contractor.
4. Regulations regarding the accuracy of utility location marks are the applicable current laws of the State of Colorado.

B. Utility Outages:

1. All utility outages, street closures, equipment shutdown or pedestrian traffic interruption shall be scheduled in advance with Facilities Management and Housing Operations through the University Representative.
2. There are three levels of outages. Level 1 Outage is one that affects critical buildings or systems and requires ten (10) business days notice. Level 2 Outage is one that affects parts of buildings without disruption to critical activities and requires five (5)\ business days notice. Level 3 Outage is one that affects a small area of a building with minor consequences and requires a 48 hour notice. Emergency Outages require immediate notification of Housing Operations -Dispatch at 970-491-7171.
3. Contractor is responsible for adequate advance notice of outages. Delay of work due to late or lack of notice shall be at the cost of the Contractor.

C. Building Keys/Access

1. The safety and security of our students and guests are primary concerns for the Department of Housing and Dining Services. Contractor/vendor work in and around occupied spaces for Housing buildings may require a background investigation for contracted workers, subs and service personnel. The issuance of keys may require a background investigation. Background investigation forms and the checks will be provided by Housing, University representative or Facilities Project manager.
2. The Key Desk at Housing and Dining Services Facilities is the only source of keys. Keys will be issued only when a completed Key Request Form is signed by the University Representative / Facilities Project Manager. The Key Request Form is valid for thirty (30) days following the date of authorization.
 - a. Other access devices may be issued by the Housing and Dining Services Facilities Management.

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3. The Contractor is solely responsible for obtaining access to all restricted areas, including access for warranty work following occupancy by the University. Time for verification and checking out keys will not be accepted as the basis for extension of contract time or claim for delay. The Contractor shall be responsible for obtaining verification of the correct key for a specific lock well in advance of need. CSU Housing and Dining Services Facilities staff will not unlock doors for contractors and vendors.
 - a. Contractors are responsible for the safekeeping of CSU access devices issued to them. Do not loan access devices to other contractors/vendors or use them to enter areas that are not part of the job.
 - b. Report lost or missing keys and access devices to the Housing and Dining Services Facilities Key Desk and to the issuing authority.
 - c. Contractors and vendors are financially responsible for replacement of lost or missing access devices.
 - d. Contractors and vendors are financially responsible for the cost of changing locks due to the loss of access devices resulting in compromised security as determined by the CSU Police Department.
4. Final retainage will be held until all keys and access devices are returned to Housing and Dining Services Facilities Management or other issuing authority.
5. Policy regarding key control for the facility may change following occupancy.

01 33 00 – SUBMITTAL PROCEDURES

- A. Shop Drawings:
 1. At the project manager's discretion, projects will require one copy of shop drawings to be submitted to the University Representative, as well as the usual submittals to the design A/E. Facilities Management will review the shop drawings and review comments will be submitted to design A/E through the University Representative. A/E should discuss this submittal with the University Representative.
- B. Log
 1. A/E and Contractor shall submit monthly log of submittals showing specification paragraph, date sent/received/returned, disposition, and follow-up.

01 35 00 – SPECIAL PROCEDURES

- A. Safety Plan
 1. The Contractor is responsible for the health and safety of his employees, agents, subcontractors and their employees, and other persons on the worksite; for the protection and preservation of the work and all materials and equipment to be incorporated therein; and for the worksite and the area surrounding the worksite. The Contractor shall take all necessary and reasonable precautions and actions to protect all such persons and property.
 2. As part of the Contractor's safety program, the Contractor must submit a safety plan including, but not limited to the following information for review and acceptance by the Project Manager prior to construction.

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- a. Name of the Contractor's site safety representative.
- b. If the Contractor is running multiple shifts or working more than 40 hours per week, the name of an assistant Contractor's safety representative who can act in the absence of the site safety representative.
- c. Twenty-four hours per day emergency phone numbers of Contractor site management to be used in case of injury or accident. Provide at least four contacts.
- d. The Contractor's method of ditching and trenching excavation to be used including how slopes will be stabilized with calculations showing the slope stability. The Contractor shall also show how material will be stored beside the excavation. Stored material will include the excavated and backfilled material.
- e. How injuries or accidents will be handled including samples of the forms used to report injuries or accidents.
- f. How employees will be handled who are unable to safely perform their duties, including how the Contractor will determine whether an employee is unable to safely perform his duties.
- g. How and when equipment will be checked to see that it is safe, that all safety guards are in place and that the equipment is being used for its designed purpose and within its rated capacity.
- h. How and when all electric devices will be checked for proper grounding and insulation. What system will be used to lock out electric systems that should not be energized.
- i. How trash and human organic waste will be disposed.
- j. How snow and ice will be removed by the Contractor in his project area.
- k. How concrete forms will be anchored to ensure their stability, including calculations showing that the forms will safely hold the maximum construction loads.
- l. How flammable materials will be stored and handled, and how any spills will be cleaned up and removed for disposal.
- m. What system will be used to prevent fires, and if fires do occur who will be trained to fight them. Also what firefighting equipment will the Contractor have available and how will this equipment's condition be monitored.
- n. How materials will be received, unloaded, stored, moved and disposed of.
- o. How personnel working above ground level will be protected from falling.
- p. How people working underneath work will be protected.
- q. What will be done to protect personnel in case of severe weather.
- r. How adequate lighting will be provided and monitored.
- s. How air quality will be monitored and personnel removed or protected from air that is hazardous for humans.

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- t. How the safety of work platforms, manlifts, material lifts, ladders, shoring, scaffolding, etc. will be ensured relating to load capacity and the protection of personnel using or working around them.
3. The Project Manager will use the OSHA regulations as the framework for reviewing the Contractor's construction safety programs.
4. Prior to the start of any work by a contractor or subcontractor employee, the Contractor shall provide the Project Manager with a list of its employees, subcontractor's employees and other personnel the Contractor has requested to work at Colorado State University. Each shall have signified in writing that they have been briefed on, or have read and understand, the Contractor's Safety Plan.

B. Confined Space Entry

1. Policy: All persons entering confined spaces shall adhere to confined space entry policy and procedures, which reflect OSHA 29 CFR 1910.146 and other industry standards. This information can be obtained from CSU Environmental Health Services through the University Representative.
2. Definition: "Permit-required confined space" (permit space), means an enclosed space which:
 - a. Is large enough and so configured that an employee can bodily (head only is included) enter and perform assigned work;
 - b. Has limited or restricted means for entry or exit (e.g. tanks, vessels, silos, storage bins, hoppers, vaults, pits and diked areas);
 - c. Is not designed for continuous employee occupancy and
 - d. Has one or more of the following characteristics:
 - 1) Contains or has a known potential to contain a hazardous atmosphere;
 - 2) Contains a material with the potential for engulfment of an entrant;
 - 3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or a floor which slopes downward and tapers to a smaller cross-section or;
 - 4) Contains any other recognized serious safety or health hazard.
 - e. Examples of Confined Spaces at the University are: boilers, coolers, manholes to sewers, electrical pits, steam tunnels, digesters, certain excavations, pump houses, or any other space or equipment which fit the definition
3. Authorized Personnel
 - a. Only authorized personnel or personnel escorted by authorized personnel may enter permit required confined spaces. An example of escorted personnel is a contractor needing access to a confined space to perform University requested work.
 - b. All authorized personnel and their supervisors shall be certified in confined space entry procedures. Authorized personnel have the responsibility and authority to prevent unauthorized entry or procedures in confined spaces.

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01 41 00 – REGULATORY REQUIREMENTS

- A. Codes: All design work shall comply with all building codes adopted by the State of Colorado as of the effective contract date of the design contract. Current adopted codes are listed at the website of the State Architect. If the adopted code changes during project design, a determination will be made by the University Representative whether or not to update the design contract requirements. All plumbing and electrical inspections will be inspected to the most current adopted code at the time of inspection.
- B. Fees
1. Building Code Compliance Plan Review Fee: The Project Manager is responsible for initiating the third-party review contract per State procedure and CSU pays the associated fee. The A/E shall provide the number of sets required for the review.
 2. Poudre Fire Authority:
 - a. Design Phase:
Architect / Engineer shall initiate and schedule plan review meetings with the Poudre Fire Authority for each design phase submittal (SD, DD, CD). The A/E shall provide the necessary number of document sets and calculations, take minutes of the PFA plan review and submit them to the Project Manager. The Architect / Engineer, Mechanical Engineer and Electrical Engineer will participate in as many plan review meetings at the PFA office in Fort Collins as needed to meet fire safety requirements as determined by the Fire Authority.
 - b. CSU will pay the design phase plan review fee per the current fee agreement between CSU and PFA.
 - c. Construction Phase – Fire Protection and Fire Alarm System Shop Drawing Review:
The Contractor shall initiate and schedule shop drawing review meetings with the Poudre Fire Authority for fire protection and alarm systems. The Contractor shall provide the necessary number of shop drawing sets, including calculations, take minutes of the PFA submittal review and submit them to the Project Manager. The A/E shall participate in these meetings if necessary to resolve any fire safety issues discovered in the review
 - d. Construction Phase – Fire Safety, Protection and Alarm Inspection
The Contractor shall initiate and schedule PFA fire safety, protection and alarm inspections. **These systems shall be complete, operational, inspected and accepted by PFA, and the Building Inspection Record signed off by PFA for all Local Fire Authority inspections, including Final, before the Contractor submits its written Notice that the work is substantially complete.**
 - e. The Contractor shall pay construction phase FP / FA submittal review and fire authority inspection fees per the current fee agreement between CSU and PFA.
 3. City of Fort Collins and Larimer County
 - a. The Project Manager shall initiate and schedule review meetings with the City of Fort Collins and Larimer County for stormwater, traffic and other development issues as needed by the project scope. The A/E shall participate in these meetings as needed by the Project Manager. If applicable, CSU will be responsible for costs of county review fees.
 4. State of Colorado Inspection and Registration Fees for Building Components

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- a. Unless otherwise specified, the Contractor is responsible for the costs and coordination of State of Colorado permit, inspection and registration for:
 - 1) Elevators
 - 2) Boilers
 - 3) Manufactured Buildings
 - 4) Plumbing
 - 5) Electrical

01 43 39 – MOCKUPS

- A. Mockups of building finish assemblies and complex flashing details are required. Mockup size and composition will be specified in the project manual. The Contractor is responsible for obtaining the necessary materials and completing an acceptable mockup at least 4 weeks prior to its scheduled milestone for ordering materials for construction. Acceptance by the project A/E and Project Manager in writing is required before construction of the assembly commences in the building. The Contractor is solely responsible for any cost or delay due to inadequate mockup planning, preparation and assembly. The Contractor shall keep the mockups on site and maintain them in good condition as a standard for comparing quality of work.

01 45 00 – CONTRACTOR QUALITY CONTROL (CQC)

- A. General Information:

- 1. Quality Control is the responsibility of the Contractor. The Contractor shall implement a Quality Control Program to ensure that all materials and work are completed in compliance with contract documents. The Contractor is solely responsible for Quality Control, with the exception of those tests and/or audits that may be conducted by the University as defined in the contract documents.
- 2. When the specifications call for a higher standard, the quality of work shall exceed so-called “Industry Standard”.
- 3. The Contractor shall require its suppliers to conform to the quality control, inspection and testing procedures specified in the project documents and referenced standards. The Contractor shall ensure that all materials supplied meet contract requirements and specifications. If materials and fabrications delivered to the site fail to meet contract requirements, all costs for correction, including return, restock, and/or shipping shall be the sole responsibility of the Contractor.

- B. Contractor Quality Control Plan

- 1. Within 10 days after Notice to Proceed, the Contractor shall submit a detailed CQC Plan for review and acceptance. The Contractor may not mobilize equipment or temporary facilities to the work site or commence construction activity until the CQC Plan is submitted and approved. Any delay due to incomplete, inadequate or noncompliant CQC Plan shall be solely at the Contractor’s cost. Acceptance by the Project Manager does not relieve the Contractor of compliance with the contract requirements. The CQC Plan shall address the following as a minimum:
 - a) Provide a general description of Contractor Quality Control monitoring until Final Acceptance by CSU. Include a plan to monitor and/or secure the Work and the worksite during times when no construction activity is scheduled.

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- b) The Contractor shall designate a qualified employee other than the Superintendent to be the Quality Control Manager unless otherwise accepted by the Project Manager. The designated individual shall have the authority to direct work changes required to bring the Work into conformance with contract requirements, including stopping non-conforming work in progress. Management of CQC shall not be subordinated to production rate.
- c) The CQC Plan shall address each technical specification division's requirements for quality control. The Contractor shall identify each item requiring submittal and approval/acceptance prior to installation of work. The CQC Plan shall identify each item of work requiring testing by the independent testing agency.
- d) Explain methods for monitoring, testing and exercising of all equipment, valves and/or assemblies to ensure the Work installed is in proper working order.
- e) Provide emergency contact information including name, company, title, work phone number, home phone number and other means of contact. The Emergency Contact list shall include at least four individuals. The Emergency Contact list shall be maintained on a daily basis. In the event there is any change in any of the information, the Contractor shall forward the updated list to the Project Manager and to CSU Facilities Dispatch (970-491-0077). The Emergency Contact list shall include the project number, project title and date of issue.

C. Daily Quality Control Report

- 1. The Daily Quality Control Report shall be submitted daily on the form in the Forms Appendix. The Contractor may add sheets of information as required. As a minimum, the report shall:
 - a. Identify the number of workers on site each day by trade and employer;
 - b. Identify notifications and discussions with/by CSU Quality Assurance Inspectors and other agency inspectors,
 - c. Identify quality of work placed that day and any deviations and/or corrections required to bring the Work into conformance with the contract.
- 2. Daily reporting may not be computerized or typed. Only legible, hand written reports on the approved form will be accepted.
- 3. Submit two copies of the Daily Quality Control Report to the Project Manager the day following the work. The CQC Manager and the Contractor's Superintendent shall sign the report.

D. Corrective Action Report (CAR)

- 1. The CQC Manager shall submit a Corrective Action Report (CAR) following resolution of any RAR or NCR. The CAR shall identify causes of the quality failure and recommend project management and site supervision responses to prevent recurrence.

E. Construction Inspection by Others

- 1. Inspection and tests conducted by persons or agencies other than the Contractor shall not in any way relieve the Contractor of his responsibility and obligation to meet all specifications and the referenced standards. The CQC Manager shall inspect the work and shall ensure the work complies with the contract requirements prior to any requests for inspection or testing.
- 2. The Contractor shall be responsible for scheduling and guaranteeing that construction

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inspections required by the applicable building code and the contract documents are performed before work is covered. Costs of uncovering and reconstructing work to perform inspections required by code shall be paid by the Contractor.

3. The Contractor shall be responsible for requesting inspection by others including but not limited to CSU Facilities Inspectors, CSU Telecommunications Department, Poudre Fire Authority and independent testing agencies engaged by CSU for construction inspection. Prior to request for other agency inspections, the Contractor shall meet and plan inspection times with the Project Manager and or the Project Manager's designated representative.
4. The Building Inspection Record (BIR) issued by the State shall be signed by the relevant inspector at completion of each inspection phase. The original BIR document should be kept secure and a copy posted at the work site, updated as the work progresses.
5. The Contractor shall maintain records at the actual worksite and at Contractor's office to show the inspection status of materials and items installed in order to ensure that the required inspections and tests have been performed in a timely and correct manner.
6. Special inspections or tests may be required by the technical specifications, University, State and/or Federal Agencies in addition to those tests already performed. The Contractor shall notify the Project Manager at least 48 hours in advance of the additional inspections or tests.

F. Contractor's Inspection Plan

The Contractor shall use the following inspection plan to ensure the the Work meets the requirements of the contract drawings and specifications, the referenced codes and standards and the approved submittals.

1. Pre-installation Meeting

Prior to the start of construction work on the contract;
Prior to the start of work on each definable feature of the Work;
Prior to the start of work where a change in a construction operation is contemplated;
Prior to a new subcontractor starting work:

The pre-installation meeting will be held with the Contractor's Superintendent, Quality Control and Safety Manager(s), applicable testing / inspection agency representative, the Architect/Engineer, CSU Project Manager and CSU inspectors. Supervisory, safety and quality control representatives of all applicable subcontractors will also attend. The Contractor's superintendent will chair the meeting. The Contractor shall present and review the following items at the meeting:

- a. Contract requirements and specifications
- b. Shop drawings, certifications, submittals and as-built drawings that apply
- c. Testing and inspection program and procedures
- d. Contractor's Quality Control program
- e. Familiarity and ability of the Contractor's and subcontractor's workforce to perform the operation to required workmanship standards including certifications of installers
- f. Safety and environmental precautions
- g. Any other preparatory steps necessary for the particular operation
- h. The Contractor's means and methods for performing the Work.

2. Initial Inspection

Upon completion of a representative sample of a given feature of the Work and no later than two weeks after the start of a new or changed operation, the Project Manager, and the

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Architect/Engineer will meet with the CQC Manager and applicable subcontractor's supervisor and their Quality Control representatives to check the following items, as a minimum:

- a. Workmanship to established quality standards
- b. Conformance to contract drawings, specifications and the accepted shop drawings
- c. Adequacy of materials and articles utilized
- d. Results of inspection and testing methods
- e. Adequacy of as-built drawings maintained daily.

Once accepted, the representative sample will become the physical baseline for the quality and acceptability of ongoing work. Approved representative samples of work elements shall remain visible to the maximum practical extent until all work in the appropriate category is complete. Acceptance of a sample does not waive or alter any contract requirement or show acceptance of any deviation from the contract not approved in writing by the Project Manager.

3. In-Progress Inspection Phase

The Contractor's Quality Control Manager will inspect the work continuously to verify that quality standards for the work are maintained throughout the Project. Results of quality control inspections shall be reported in the Daily Quality Control Report.

4. Above Ceiling Inspections

The Contractor shall schedule adequate time and provide a minimum of 5 business days' notice for the Owner's consultants to conduct above ceiling punch list inspections, and for the Contractor to perform corrective Work, and for the Owner's consultants to validate the Work complete prior to cover.

5. Interim Completion Inspection

Two (2) business days prior to the completion of a discrete portion of the Work, **and prior to covering up any work**, the Contractor will notify the Project Manager who will verify that the segment of work is complete, all inspections and tests have been completed and the results are acceptable. Non-conforming items identified in the subject portion of the work will be listed in a Deficiency Report issued to the Contractor by the Project Manager. When the Contractor has corrected all deficiencies listed, the Project Manager and CQC Manager will verify conformance of the work prior to the start of the next operation. All inspections prior to the Contractor's Final Inspection Report will be considered Interim Completion Inspections, including inspections during the final stages of construction that result in long lists of incomplete work items.

6. Contractor Final Inspection Report

The CQC Manager shall inspect all aspects of the construction, including Subcontractor's work, and produce a Final Inspection Report "punch list" prior to prior to requesting Owner's final inspection as a requirement of Substantial Completion. The Contractor's Final Inspection Report shall confirm that all outstanding corrections have been made and it shall document incomplete Work items. The report shall include a schedule of when these deficiencies will be corrected. If the Project Manager determines that the list is too large or contains too many significant items, no inspection will be held due to the incomplete condition of the work.

HVAC testing, balancing and verification of environmental control programming must be complete and accepted by CSU Housing and Dining Services Facilities Control Shop. The only deficiency acceptable for "punch list" status is touch-up, repair, restoration or non-essential commissioning work.

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7. Owner's Final Inspections

The Contractor may submit its written request for final inspection only when the facility and its systems are complete and have passed all other inspections required on the Building Inspection Record, including Local Fire Authority Final Inspection. At that time, the Project Manager will consolidate all inspection reports, A/E site observations and the Contractor's Final Inspection Report to confirm that remaining deficiencies are acceptable for punch list status. The Project Manager will either proceed with inspection and acknowledge the work is Substantially Complete or advise the Contractor in writing of unfulfilled requirements. Final Inspections are performed by the A/E and Owner's Representatives.

8. Re-inspection

After the Project Manager issues the Notice of Substantial Completion with the final inspection "punch list", the Contractor shall make the required corrections and/or identify items that it feels are not in the Contract. Contractor shall request re-inspection after certifying each item on the Substantial Completion punch list is complete and resolved. Those items whose completion is delayed due to circumstances acceptable to the Owner's Representative will be exceptions.

All areas must be cleaned and ready for turnover prior to this inspection. The Project Manager, the Designer of Record, a representative of the funding agency (if applicable) and other interested parties will inspect the subject Work to ensure that all deficiencies have been satisfactorily attended to, that no new deficiencies have appeared and that all systems are completely functional. Any outstanding or additional deficient items will be noted and handled per the requirements of Re-inspection noted above until the Work is acceptable to the Project Manager. If the A/E is required to perform more than one re-inspection, the costs for additional inspections may be borne by the Contractor, at the Project Manager's discretion.

9. Final Completion Inspection

Upon completion of Re-inspection, Owner's Representative will either recommend the Work complete for Final Acceptance or advise Contractor of Work not completed or contract obligations not fulfilled and required for Final Acceptance. The Final Completion Inspection alone does not indicate final acceptance of the work. All contract requirements must be satisfied before the University Representative issues the Notice of Contractor Settlement, Notice of Final Acceptance and final payment of retainage.

01 46 00 – OWNER QUALITY ASSURANCE (OQA)

A. General Information:

1. Owner Quality Assurance is a CSU activity performed by inspectors employed by CSU and working under the direction of the Project Manager to check the work for conformance with the contract documents.
2. **Inspection and tests conducted by persons or agencies other than the Contractor shall not in any way relieve the Contractor of its responsibility and obligation to exercise Quality Control and to meet all specifications and the referenced standards. The Contractor shall not rely on the Owner's Quality Assurance for Quality Control compliance.**

B. Testing and Inspection Services

1. The University will engage the services of testing and inspection agencies unless otherwise

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stated in the contract or technical specifications. The frequency of testing shall be mutually agreed between the project A/E and the University Representative in consultation with the testing firm. These frequencies shall be stated in the specifications.

2. The specifications shall indicate that the Owner will pay for all Quality Assurance tests and inspections, and that the Contractor shall pay for all retests and re-inspections.

C. Nonconforming Work and Materials

1. If the work does not meet requirements of the contract documents, a Remedial Action Request (RAR) or Non-Conformance Report (NCR) will be issued by the Inspector and/or Project Manager.
2. Remedial Action Request (RAR)

The Project Manager will document remedial action that cannot be taken immediately (the same day) by issuing a RAR form to the Contractor. An RAR is appropriate when the affected element of work is in-progress and discrepancies can be rectified as the work proceeds.

When issued, a Remedial Action Request will preclude payment for elements noted and will remain in effect until corrective actions have been submitted, approved and performed.

Upon satisfactory completion of the remedial action, the Contractor shall transmit the RAR form with the Contractor's statement of action taken (including any applicable test results) to the Project Manager. The Project Manager will perform a follow-up inspection to verify the RAR has been satisfactorily completed. The RAR then will be closed.

3. Nonconformance Report (NCR)

The Project Manager will issue a Nonconformance Report to the Contractor whenever there are violations of the terms of the contract that cannot be immediately brought back into conformance, including materials received and/or items of the work found not to be in conformance with contract requirements. An NCR is appropriate when the deficient work is already placed and discrepancies cannot be rectified without rework.

When issued, the NCR will preclude payment for elements noted and will remain in effect until corrective actions have been submitted, approved and performed.

The NCR form will describe the nature and extent of nonconforming elements and will include space for:

- a. The Contractor's proposal for corrective action
- b. The designer's review of the Contractor's proposal
- c. Re-inspection and/or verification of approved corrective rework
- d. The Project Manager's disposition of the nonconformance matter.

Following receipt of an NCR, the Contractor shall respond by submitting a written proposal of corrective action in the space provided. Corrective work performed before review and approval of the Contractor's proposal shall be solely at the risk of the Contractor.

At each step of the process from initial issuance to Contractor through final disposition, copies of the Nonconformance Report shall be sent to the Project Manager. The Contractor

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shall use the NCR form progressively to maintain continuous written documentation of the non-compliance resolution process. Attachment of additional sheets is permitted so long as the Contractor uses the space provided on the NCR form for a written summary.

4. The Project Manager will make the disposition of nonconforming items/materials.
5. The Contractor is obligated to correct any item deemed deficient.
6. The Contractor is required to follow up with a Corrective Action Report (CAR) explaining how its Quality Control Manager will prevent recurrence of the non-compliance.

01 50 00 – TEMPORARY FACILITIES AND CONTROLS

A. Site Constraints

1. All automobile parking, material storage, delivery trucks and contractor's vehicles must remain within the project limit line at all times, unless coordinated otherwise with the University Representative.
2. A/E shall show the project limit lines on the drawings. Staging areas and haul routes shall be indicated on the drawings. Specifications shall indicate scheduling limitations on deliveries and for disruptive work in occupied buildings.

B. Temporary Utilities:

3. Temporary utilities include, but are not limited to, water for construction, potable water, temporary electric power and light, temporary heat, ventilation, telephone service, and sanitary facilities. The Contractor is responsible for coordination, installation and proper use and maintenance of all temporary utilities. The Contractor may not begin operation of the connected equipment prior to request for inspection by University representatives and acceptance of the installation.

C. Telephones/Network connections:

1. Land-line telephones at construction sites at Colorado State University must be coordinated with Telecommunications Department through the University Representative.
2. Facilities Management-Design and Construction through the University Representative must approve public phones. They must have service initiated by outside vendor by the University Representative.
3. Housing Technology Services will provide up to five network connections to the contractor for use during the project.

D. Barriers and Enclosures:

1. The construction site shall be enclosed with a minimum of four-foot high fence whenever necessary for security or traffic control. Most sites will require a six-foot fence for access control. The fence shall be maintained by and remain the property of the Contractor upon project completion.
2. Fire access during construction must be accommodated.

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E. Parking Permits:

1. CSU Parking and Transportation Services issues construction parking permits. It is the contractor's responsibility to procure and purchase parking permits as needed for the construction crew. These permits have limitations and requirements. Tickets will be issued for violations. Payments of fines for tickets are the obligation of the Contractor and/or his employees. The University Representative does not have the authority to waive parking tickets. Disputes regarding parking tickets should be taken up with Parking Services directly. A copy of regulations will be available when permits are issued.
2. For projects not within the campus areas regulated by Parking and Transportation Services, the Contractor shall provide temporary parking at the work site for its employees and subcontractors.

F. Construction Signs:

1. All construction signs must be approved The University Representative prior to installation.

G. Traffic Control:

1. Traffic is defined as vehicles, bicycles, and pedestrians. Pedestrians, bicycle riders and drivers at the University are preoccupied with other matters. The Contractor is advised to give particular attention to providing sufficient traffic controls to alert pedestrians, riders and drivers of potential hazards. The Contractor is responsible for providing adequate fencing, traffic controls, barricades, caution tape, stanchions and cones to define and restrict public access to the work areas.
2. Prior to any work performed in the public right-of-way, Contractors shall submit a Traffic Control Plan (TCP) for review and approval by the University Representative. This includes all work that requires traffic to operate differently than when the construction is not being done. Examples are: road closures, work in one lane of the roadway, a bicycle lane, a median, a curb and gutter, etc.
3. The TCP shall specify the time of day in which the work will be done, and the number of days required for the work. The TCP must be drawn to scale and follow the example format found in Forms Appendix. Specific plans or typical TCP forms must be submitted at least 7 working days prior to construction. If plans are not approved as submitted, the 7-day requirement begins upon re-submittal of the plans. Road closures may require a press release in the local newspaper. Projects involving road closures and/or detours will not begin until the press release has been published (except in emergencies).
4. Notification to emergency services, Transfort, school districts, and other affected agencies and parties, including residents, will be accomplished by Facilities Management-Design and Construction at least 72 hours in advance of the project starting date.
5. All traffic control placed in the right-of-way shall conform to the Manual on Uniform Traffic Control Devices (MUTCD) and the Fort Collins Work Area Traffic Control Handbook. In areas of conflict, the Fort Collins Work Area Traffic Control Handbook will override the MUTCD. The Fort Collins Handbook is available from the Engineering office at City Building Department.
6. Upon discovery of deficiencies in traffic control, the contractor will have 2 hours from the time of notification to correct the deficiencies. Failure to correct deficiencies within 2 hours will result in jobsite shutdown, and traffic control on the jobsite will be replaced by a contractor chosen by the University Representative. All costs related to this replacement will be the

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responsibility of the contractor who failed to provide adequate traffic control.

7. Contractors, University departments and other entities may need to traverse, access or perform work in the right-of-way on a daily or weekly basis. Facilities Management-Design and Construction must be notified in advance of specific construction projects so the University can coordinate with any planned special events or other construction projects. Facilities Management-Design and Construction may accept up to five Traffic Control Plans to be coordinated by the University Representative prior to commencement of any work.

H. Erosion Control:

1. Where appropriate and necessary, contractors shall practice erosion control at construction sites. Contractor shall use Best Management Practices (BMPs). All projects disturbing one acre or more are required to have a Stormwater Management Plan (SWMP) and permit coverage. The Contractor is required to design construction BMPs in general conformance with the "Urban Storm Drainage Criteria Manual, Volume 3 – Best Management Practices", Urban Drainage and Flood Control District, Denver, Colorado, September 1999, revised April 2008. As an invasive weed control measure, any BMPs using or containing hay or straw in bales or rolls shall contain only hay or straw grown in Larimer or Weld Counties.
2. The Contractor is required to prepare a SWMP and obtain a certification for coverage under Colorado Department of Public Health and Environment's (CDPHE's) Colorado Discharge Permit System General Permit No. COR-030000, Stormwater Discharges Associated with Construction Activity.
3. Prior to transfer of certification, the Contractor is responsible for refurbishment and installation of erosion control measures meeting all requirements of the SWMP.
4. The Contractor retains the responsibility for permit compliance until project close-out, when the certification will be transferred to CSU if stabilization of all disturbed areas is not established.
5. The Contractor is responsible for BMP maintenance, inspections and documentation in accordance with the General Permit No. CCOR-030000.
6. Projects that will disturb soil within a 50 yard radius of a storm sewer will require before and after video inspection of said sewerage. Post construction video evidence will show zero additional debris into the system. If additional debris is determined, the contractor will be responsible for abatement.

I. Construction Dewatering:

7. If construction dewatering is required at any time during the project, the Contractor is required to obtain a certification for coverage under Colorado Department of Public Health and Environment's (CDPHE's) Colorado Discharge Permit System General Permit No. COR-070000, Construction Dewatering Activities.
8. The Contractor retains the responsibility for permit compliance, including monitoring and reporting to CDPHE, until project closeout.

J. Construction Waste

1. No materials can be disposed of on University property. All construction debris must be hauled off-site for disposal in an appropriately permitted facility, with the following exceptions:

a. Topsoil shall be stripped and stockpiled in a location designated in writing by the

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University.

- b. With prior approval of the University Representative, clean soil fill may be stockpiled in the designated location.
2. The Contractor shall follow all University, State and Federal rules, regulations and laws regarding the disposal of hazardous materials. Discharge of contaminated water, liquids or chemicals into the building waste, drain systems or storm drainage system is prohibited. The Contractor shall maintain and service in work areas containers for discharge of water from cleaning and construction equipment or removal of water from excavations.
3. Construction Waste Management Plan: The University Representative will set construction waste reduction goals. The Architect will describe target materials and procedures in the project specifications. With assistance of the University and Architect, the Contractor shall submit a Construction Waste Management Plan to identify specific waste reduction and recycling actions to be taken during the project, by whom, and when.
4. Separation Facilities: The Contractor shall lay out and identify a specific area on the Project site to facilitate separation of materials for recycling, salvage, reuse, and return. Recycling and waste bin areas shall be kept neat and clean, and clearly marked to avoid contamination of materials. All recycling and waste bins must be fully covered at all times when unattended. All accumulated waste materials must be carted to the bins on a daily basis. The area around the bins must be kept clean and free of debris. The Contractor shall empty the bins regularly to prevent spillage of its contents. Bins shall be secured whenever site is not in use to prevent illegal dumping.
5. Precautions must be taken to prevent damage to existing any roadway surface. The Contractor must repair any damage to the roadway surface to the satisfaction of the University.
6. All solid waste disposal and diversion shall be recorded with the date of removal, type of waste removed, quantity by weight and volume, final destination and use (recycled, reused or landfilled), and net cost or income. All corresponding manifests, weight tickets, receipts and invoices shall be included in the record.
7. A Summary of Waste generated by the Project shall be submitted with each Application for Payment. Failure to submit this information shall render the Application for Payment void, thereby delaying the Progress Payment.

01 75 00 – SYSTEMS STARTING AND ADJUSTING

A. System Performance Quality

1. The Contractor's Quality Control Manager is responsible for system performance to specification including all systems installed by Subcontractors, vendors, etc. The CQC shall schedule, coordinate and document all functional performance tests and procedures, including all cross-system testing such as HVAC, building automation, fire alarm, emergency power, life safety, elevators, etc.
2. After verifying that pretests have been satisfactorily conducted and final tests are ready to be performed, the CQC shall coordinate the required A/E, commissioning engineer and CSU Facilities Management participation and approval procedures. If retesting is required, the Contractor shall be responsible for costs for A/E and commissioning participation after the second failed test.

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B. Testing, Adjusting and Balancing of Systems:

1. As a general rule, the Contractor is responsible for Testing, Adjusting and Balancing (TAB) for all systems. In some circumstances, the Project Manager may engage and pay for services of an independent firm to perform TAB.
2. See standards in Divisions 13 – 28 for further description and requirements of system testing.

C. Systems Commissioning

1. The Contractor is responsible for the performance of all systems according to criteria set by the project specifications. The Owner's Representative will be assisted by the Owner's commissioning engineer and other members of the Owners maintenance and operations staff to test and verify systems. The Owner's commissioning activities are not a substitution for Contractor performance quality testing. The Owner's Representative will formally communicate with the Contractor via approved Project channels. It is anticipated, however, that informal communication and coordination will be conducted directly with the Contractor and Subcontractors during construction and testing of systems.

D. Test and Verification

1. Testing and Verification is part of both the Contractor's Quality Control and the Owner's Quality Assurance. The Contractor is responsible for notifying and coordinating with CSU Facilities Management and other parties involved in inspection, observation and/or Owner's Quality Assurance program. The Contractor shall provide a minimum of ten (10) business days' notice for scheduling testing and verification procedures. The Contractor is responsible for any costs or delay of completion due to incomplete preparation and coordination for testing and verification, including inadequate advance notice of participants. **Testing and Verification must be completed before the Contractor's Final Inspection and request for the Owner's Final Inspection.**
2. Fire Alarm and Security Systems:
 - a. All fire and security alarm systems shall be tested and verified point by point with an Alarm Specialist from CSU Housing and Dining Services Facilities Management Environment Shop, Facilities Management Fire Group and a Fire Safety Representative from CSU Environmental Health Services. Smoke evacuation systems will be tested as part of the fire alarm system. Computer software associated with the fire alarm system will be tested by mutual agreement of Facilities and the providing contractor.
 - b. The Contractor is responsible for notifying the Poudre Fire Authority and coordinating PFA participation during fire alarm testing.
 - c. The Contractor is responsible for notifying the CSU Police Department and coordinating CSUPD participation during security alarm testing.
 - d. All system as-built drawings, programming and graphic maps will be complete and present for the test and verification procedure. **Therefore, these documents must be completed before the Notice of Substantial Completion can be issued.**
3. Building Automation Systems

The building automation DDC system and equipment shall be tested and verified with a representative from Housing and Dining Services Facilities Environment Shop. All as-built

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DDC documents will be complete and present for the test and verification procedure. **Therefore, these documents must be completed before the Notice of Substantial Completion can be issued.**

E. Systems Demonstrations and Training:

1. Specifications shall require contractors to demonstrate systems and train Facilities Management personnel as determined by the University Representative. A minimum time shall be defined.
2. Demonstrations and training shall be scheduled as discrete classes after systems are complete and O&M manuals submitted. They shall not be scheduled during or be substituted for any CQC or OQA inspection
3. The University Representative will coordinate demonstrations with appropriate Facilities Management personnel.
4. A hard copy of the O&M Manual shall be available during final demonstration and should be used as an instruction aid.
5. Systems dealing with hazardous or toxic materials shall have biosafety officers present during demonstrations.
6. Formal demonstrations and training sessions shall be recorded by digital video device. The training session video shall be recorded on DVD and submitted with the O&M manual for training of new personnel in the future.

01 77 00 – CLOSEOUT SUBMITTALS

A. Operation and Maintenance Manuals:

1. Operation and Maintenance (O&M) Manuals shall be submitted to, reviewed and corrected by A/E prior to submittal for review to Facilities Management. Upon approval submit one paper and one electronic copy to the University Representative. The electronic copy shall be on a CD in PDF format, clearly named, and arranged in relevant folders. The A/E and CSU Project Manager shall determine whether additional paper copies will be required on a project-by-project basis.
2. Printed O&M Manuals shall consist of 3-ring binders and one copy in electronic format via searchable pdf format which include a permanent title on front and side. Title shall include project name, project number, building name and building number. The contents shall be arranged by CSI divisions and sections. Electronic and hard copy manuals shall include the following:
 - a. Introduction with summary of project scope.
 - b. List of all subcontractors and suppliers along with addresses and emergency phone numbers.
 - c. Letters of warranties.
 - d. A copy of submittal and/or shop drawing with A/E approval.
 - e. Parts lists.
 - f. As-built control and alarm drawings. Also include a CD of as-builts for CSU distribution.
 - g. Seasonal operation and shut down.
 - h. Test and verification forms for controls and alarm systems.
 - i. Do not include useless information on similar models of same equipment.
 - j. Testing, Adjusting and Balancing Reports even if performed under contract with Owner.

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- k. Other pertinent testing reports.
 - l. Paint selections for each project.
 - m. Finish schedules

- 3. O&M Manuals shall be available during systems demonstrations.

- B. University Keys:
 - 1. Final payment to contractors will be withheld until return of all keys issued.
 - 2. Contractors will be charged for lost keys according to the current rate. Master keys are critical to the security of the University and if lost may require re-keying a large number of buildings and thus the cost may be extremely high.

- C. As-Built Drawings:
 - 1. As-built drawings shall be submitted to the University Representative and A/E for approval. All drawings shall have cross-references bound to drawing.

- D. Close out documents:
 - 1. Refer to the forms page at the Office of the State Architect website for the latest version of contract closeout documents.