

PART III – CSU FACILITIES PLANNING, DESIGN AND CONSTRUCTION STANDARDS

DIVISION 01 – GENERAL REQUIREMENTS

Please also refer to “Part IV – REGULATORY REQUIREMENTS” for additional requirements.

Housing and Dining Facilities (HDS) has adopted amendments for all HDS facilities. Confirm applicable standards with Project Representative on a per Project basis. Refer to HDS amendments here – <https://housing.colostate.edu/about/construction/>.

DIVISION 01 – GENERAL REQUIREMENTS

01 00 00 – GENERAL INFORMATION

- A. The Architect/Engineer (A/E) shall always develop Division 01 – General Requirements specifically for each Project.
 - 1. Contact CSU Project Representative for a Division 01 template, if needed.
- B. The following items are provided for inclusion in Division 01 – General Requirements where appropriate.
 - 1. Each Project shall require modifications.
 - 2. Do not copy General Requirements used for other University Projects.
- C. The State of Colorado General Conditions of the Agreement shall precede Division 01 – General Requirements in the Project Manual.
 - 1. An updated copy can be obtained from the Project Representative.

01 11 00 – SUMMARY OF WORK

- A. A complete description of Work shall be provided in every specification.
- B. Include a summary of Work by each discipline. The description shall be concise and thorough.
- C. A list of Planning and Administration Phase submittals shall be included in the Project Summary of Work.
 - 1. 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 Specification requirements that must be complete prior to the start of the Work.
 - 2. Written acceptance by the Project Representative 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. Agreement Record Maintenance Plan
 - j. Superintendent Qualifications
 - k. Quality Control Manager Qualifications
 - l. Assistant Superintendent Designations

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- m. Schedule of Contractor's Misc. Admin. Requirements
- n. Construction Schedule

D. 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 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 Project Representative before any payment to a Contractor can be approved.
2. The schedule shall follow Construction Specifications Institute (CSI) format.
3. Use the schedule of value form provided by the State of Colorado, SBP-7.2.

01 31 00 – PROJECT MANAGEMENT AND COORDINATION

A. University Keys:

1. The Key Desk at Facilities Management (FM) is the primary source of keys.
2. Keys shall be issued only when a completed Key Request Form is signed by the Project Representative.
 - a. Both traditional and card key request forms may be obtained from the FM Key Desk or online at <https://www.fm.colostate.edu/>.
 - b. Coordinate with Project Representative.
3. Keys shall be picked up from Key Desk within 30 days following the date of authorization.
4. Other access devices may be issued by the FM Key Desk, Housing and Dining Facilities and other issuing authorities.
5. The Project Team shall be solely responsible for obtaining access to all restricted areas, including access for warranty Work following occupancy by the University.
 - a. Time for verification and checking out keys shall not be accepted as the basis for extension of Agreement time or claim for delay.
6. The Project Team shall be responsible for obtaining verification of the correct key for a specific lock well in advance of need.
 - a. FM staff shall not unlock doors for Project Teams.
7. The Project Team shall be responsible for the safekeeping of Colorado State University (CSU) access devices issued to them.
 - a. The Project Team shall not loan access devices to other Project Teams or use them to enter areas that are not part of the job.
 - b. The Project Team shall report lost or missing keys and access devices to the FM Key Desk and to the issuing Project Representative.
 - c. Project Teams are financially responsible for replacement of lost or missing access devices and the cost of changing locks due to the loss of access devices resulting in compromised

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- security as determined by the CSU Police Department (CSUPD).
- d. Final retainage shall be held until all keys and access devices are returned to the FM Key Desk, Housing and Dining Facilities or other issuing authority.
 - i. This includes Knox Pad Locks issued by CSU for site fence access by emergency personnel.
8. Key policy may change based on occupancy or use of facility after substantial completion.

01 31 14 – FACILITY SERVICES COORDINATION

A. Service Outages:

1. All utility outages, street closures, equipment shutdown or pedestrian traffic interruption shall be scheduled in advance with FM through the Project Representative.
2. There are three levels of outages:
 - a. Level 1 Outage is one that affects critical buildings or Systems and requires notice of ten business days.
 - b. Level 2 Outage is one that affects parts of buildings without disruption to research or other critical activities and requires notice of five business days.
 - c. 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 FM Dispatch at 970-491-0077.
3. Contractor is responsible for adequate advance notice of outages.
 - a. Delay of Work due to late or lack of notice shall be at the cost of the Contractor.

01 33 00 – SUBMITTAL PROCEDURES

A. Log:

1. A/E and Contractor shall submit monthly log of submittals showing specification paragraph, date sent/received/returned, disposition, and follow-up.

01 33 23 – SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

A. Shop Drawings:

1. At the Project Representative's discretion, Projects shall require one copy of Shop Drawings to be submitted to the Project Representative, as well as the usual submittals to the Design A/E.
2. FM shall review the Shop Drawings and review comments shall be submitted to Design A/E through the Project Representative.
3. A/E shall discuss this submittal with the Project Representative.

01 35 00 – SPECIAL PROCEDURES

A. Safety Plan:

1. The Contractor is responsible for the health and safety of their 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.

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2. The Contractor shall take all necessary and reasonable precautions and actions to protect all such persons and property.
3. Prior to the start of any Work by a Contractor or Subcontractor employee, the Contractor shall provide the Project Representative with a list of its employees, Subcontractor's employees and other personnel the Contractor has requested to Work at Colorado State University (CSU).

B. Radiation Safety:

1. The Contractor shall submit a complete radiation safety plan no less than 14 days prior to any Work involving the use of radioactive materials, such as x-ray imaging of floor slabs.
2. The radiation safety plan shall be submitted to the Project Representative and to the CSU Environmental Health Services (EHS) Radiation Control Officer.
3. A complete Reciprocity Request Form and copy of the testing agency license, registration and/or certification to possess and use radioactive materials shall be submitted to the Radiation Control Officer.
4. The Contractor shall submit a detailed Outage Request, including a building and site plan showing the radiation safety perimeter for the proposed radioactive material use.
 - a. Coordinate the time, duration and extent of safety evacuation with the Project Representative, Building Proctor, CSUPD and Facilities Dispatch.
 - b. Schedule radiation outage periods to minimize disruption of University activities.
5. The Contractor shall be responsible for providing adequate signage to blockade access at all potential access points through the safety perimeter for the entire period of the radiation exposure.
 - a. Signage alone is not an adequate safety measure to prevent persons from crossing the perimeter.
 - b. The Contractor shall provide adequate personnel to police the perimeter.
 - c. The Project Representative shall assist with evacuation of the exclusion area.

C. Research Hazards:

1. Certain locations at the University house research involving hazardous chemicals, radioactive materials, high voltage, magnetic fields or other atypical hazards.
 - a. EHS shall identify such hazards and any special procedures required for Work to be performed in those locations.
 - b. These special procedures shall be described in the Project Specifications.
2. The Project Representative may require the Contractor's employees to attend training sessions provided by EHS or other agencies prior to commencement of the Work.

01 41 13 – CODES

A. Codes:

1. All design Work shall comply with all building codes adopted by the State of Colorado as of the effective Agreement date of the Design Agreement.
 - a. Currently adopted codes are listed at the website of the Colorado Office of the State Architect (OSA) - <https://www.colorado.gov/pacific/osa/bldgcodes>

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2. If the adopted code changes during Project design, a determination shall be made by the Project Representative whether to update the Design Agreement requirements.
 - a. All plumbing and electrical inspections shall be inspected to the most current adopted code at the time of inspection.

01 41 23 – FEES

A. Fees:

1. Building Code Compliance Plan Review Fee:
 - a. The Project Representative is responsible for initiating the third-party review Agreement per State Procedure and CSU pays the associated fee.
 - b. The A/E shall provide the number of sets required for the review.
2. Poudre Fire Authority (PFA):
 - a. Design Phase:
 - i. A/E shall initiate and schedule plan review meetings with PFA for each design phase submittal (SD, DD, PDF).
 - ii. 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 Representative.
 - iii. The A/E, Mechanical Engineer and Electrical Engineer shall 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.
 - iv. CSU shall pay the design phase plan review fee per the current fee agreement between CSU and PFA.
 - b. Construction Phase – Fire Suppression and Fire Alarm System Shop Drawing Review: The Contractor shall initiate and schedule Shop Drawing review meetings with PFA for Fire Suppression and Alarm Systems.
 - i. 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 Representative.
 - ii. The A/E shall participate in these meetings if necessary to resolve any fire safety issues discovered in the review
 - c. Construction Phase – Fire Safety, Protection and Alarm Inspection: The Contractor shall initiate and schedule PFA fire safety, protection and alarm inspections.
 - i. 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.
 - d. The Contractor shall pay construction phase Fire Protection/Fire Alarm submittal review and fire authority inspection fees per the current fee agreement between CSU and PFA.
3. State of Colorado Inspection and Registration Fees for Building Components:
 - a. Unless otherwise specified, the Contractor is responsible for the costs and coordination of State of Colorado permit, inspection and registration for:
 - i. Elevators
 - ii. Boilers
 - iii. Manufactured Buildings
 - iv. Plumbing
 - v. Electrical

01 43 00 – QUALITY ASSURANCE

A. General Information:

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1. Owner Quality Assurance is a CSU activity performed by inspectors employed by CSU and working under the direction of the Project Representative to check the Work for conformance with the Construction 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.
 - a. The Contractor shall not rely on the Owner's Quality Assurance for Quality Control compliance.

B. Testing and Inspection Services:

1. The Project Representative shall engage the services of testing and inspection agencies unless otherwise stated in the Agreement or Specifications.
 - a. The frequency of testing shall be mutually agreed between the Project A/E and the Project Representative in consultation with the testing firm.
 - b. These frequencies shall be stated in the Specifications.
2. The Specifications shall indicate that the Project Representative shall pay for all Quality Assurance tests and inspections, and that the Contractor shall pay for all retests and reinspections.

C. Nonconforming Work and Materials:

1. If the Work does not meet requirements of the Construction Documents, a Remedial Action Request (RAR) or Non-Conformance Report (NCR) shall be issued by the Inspector and/or A/E.
2. Remedial Action Request (RAR):
 - a. The A/E shall document remedial action that cannot be taken immediately (the same day) by issuing a RAR form to the Contractor.
 - b. An RAR is appropriate when the affected element of work is in-progress and discrepancies can be rectified as the Work proceeds.
 - c. When issued, a Remedial Action Request shall preclude payment for elements noted and shall remain in effect until corrective actions have been submitted, approved and performed.
 - d. 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 Representative.
 - e. The A/E shall perform a follow-up inspection to verify the RAR has been satisfactorily completed.
 - i. The RAR then shall be closed.
3. Nonconformance Report (NCR):
 - a. The A/E shall issue a Nonconformance Report to the Contractor whenever there are violations of the terms of the Project-specific Agreement that cannot be immediately brought back into conformance, including materials received and/or items of the Work found not to be in conformance.
 - b. An NCR is appropriate when the deficient Work is already placed and discrepancies cannot be rectified without rework.
 - c. When issued, the NCR shall preclude payment for elements noted and shall remain in effect until corrective actions have been submitted, approved and performed.
 - d. The NCR form shall describe the nature and extent of nonconforming elements and shall include space for:
 - i. The Contractor's proposal for corrective action

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- ii. The Designer's review of the Contractor's proposal
 - iii. Reinspection and/or verification of approved corrective rework
 - iv. The A/E's disposition of the nonconformance matter
 - e. Following receipt of an NCR, the Contractor shall respond by submitting a written proposal of corrective action in the space provided.
 - i. Corrective Work performed before review and approval of the Contractor's proposal shall be solely at the risk of the Contractor.
 - f. 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 Representative.
 - g. The Contractor shall use the NCR form progressively to maintain continuous written documentation of the non-compliance resolution process.
 - h. Attachment of additional sheets is permitted so long as the Contractor uses the space provided on the NCR form for a written summary.
 - i. If additional testing is required, the Project Representative shall coordinate with A/E.
4. The Contractor is obligated to correct any item deemed deficient.
5. The Contractor is required to follow up with a Corrective Action Report (CAR) explaining how its Quality Control Manager shall prevent recurrence of the non-compliance.

01 43 39 – MOCKUPS

A. General Information:

1. Mockups of building finish assemblies and complex flashing details are required. Mockup size and composition shall be specified in the Project Manual.
2. The Contractor shall be responsible for obtaining the necessary materials and completing an acceptable mockup at least four weeks prior to its scheduled milestone for ordering materials for construction.
3. Acceptance by the Project A/E and Project Representative in writing shall be required before construction of the assembly commences in the building.
4. The Contractor shall be solely responsible for any cost or delay due to inadequate mockup planning, preparation and assembly.
5. 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 – QUALITY CONTROL

A. General Information:

1. Quality Control is the responsibility of the Contractor.
2. The Contractor shall implement a Quality Control Program to ensure that all materials and Work are completed in compliance with Construction Documents.
 - a. The Contractor shall be solely responsible for Quality Control, with the exception of those tests and/or audits that may be conducted by the Project Representative as defined in the Construction Documents.
3. When the Specifications call for a higher standard, the quality of Work shall exceed so-called "Industry Standard".

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4. The Contractor shall require its suppliers to conform to the quality control, inspection and testing procedures specified in the Project Documents and referenced standards.
 - a. The Contractor shall ensure that all materials supplied meet Agreement requirements and Specifications.
 - b. If materials and fabrications delivered to the site fail to meet Agreement requirements, all costs for correction, including return, restock, and/or shipping shall be the sole responsibility of the Contractor.

01 45 16 – CONTRACTOR QUALITY CONTROL

A. Contractor Quality Control (CQC) Plan:

1. Within ten days after Notice to Proceed, the Contractor shall submit a detailed CQC Plan for review and acceptance.
2. The Contractor may not mobilize equipment or temporary facilities to the worksite or commence construction activity until the CQC Plan is submitted and approved.
 - a. Any delay due to incomplete, inadequate or noncompliant CQC Plan shall be solely at the Contractor's cost.
3. Acceptance by the Project Representative does not relieve the Contractor of compliance with the Agreement requirements.
4. 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.
 - i. Include a plan to monitor and/or secure the Work and the worksite during times when no construction activity is scheduled.
 - b. The Contractor shall designate a qualified employee other than the Superintendent to be the Quality Control Manager unless otherwise accepted by the Project Representative.
 - i. The designated individual shall have the authority to direct Work changes required to bring the Work into conformance with Agreement requirements, including stopping non-conforming Work in progress.
 - ii. Management of CQC shall not be subordinated to production rate.
 - c. The CQC Plan shall address each specification division's requirements for quality control.
 - i. The Contractor shall identify each item requiring submittal and approval/acceptance prior to installation of Work.
 - ii. 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.
 - i. The Emergency Contact list shall include at least four individuals.
 - ii. The Emergency Contact list shall be maintained on a daily basis.
 - iii. In the event there is any change in any of the information, the Contractor shall forward the updated list to the Project Representative and to CSU Facilities Dispatch (970-491-0077).
 - iv. The Emergency Contact list shall include the Project number, Project title and date of issue.

B. Daily Quality Control Report:

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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.
 2. 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 Agreement.
 3. Daily reporting may not be computerized or typed. Only legible, hand written reports on the approved form shall be accepted.
 4. Submit two copies of the Daily Quality Control Report to the Project Representative the day following the Work.
 5. The CQC Manager and the Contractor's Superintendent shall sign the report.
- C. Corrective Action Report (CAR):
1. The CQC Manager shall submit a Corrective Action Report (CAR) following resolution of any RAR or NCR.
 2. The CAR shall identify causes of the quality failure and recommend Project management and site supervision responses to prevent recurrence.
- D. 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 the responsibility and obligation to meet all Specifications and the referenced standards.
 2. The CQC Manager shall inspect the Work and shall ensure the Work complies with the Agreement requirements prior to any requests for inspection or testing.
 3. The Contractor shall be responsible for scheduling and guaranteeing that construction inspections required by the applicable building code and the Construction Documents are performed before Work is covered.
 - a. Costs of uncovering and reconstructing Work to perform inspections required by code shall be paid by the Contractor.
 4. The Contractor shall be responsible for requesting inspection by others including but not limited to CSU Facilities Inspectors, CSU Telecommunications Department, PFA, and independent testing agencies engaged by CSU for construction inspection.
 - a. Prior to request for other agency inspections, the Contractor shall meet and plan inspection times with the Project Representative and or the Project Representative's designated representative.
 5. The Building Inspection Record (BIR) issued by the State shall be signed by the relevant inspector at completion of each inspection phase.
 - a. The original BIR document shall be kept secure and a copy posted at the worksite, updated as the Work progresses.
 6. The Contractor shall maintain records at the actual worksite and at Contractor's office to show the

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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.

7. Special inspections or tests may be required by the Specifications, University, State and/or Federal Agencies in addition to those tests already performed.
 - a. The Contractor shall notify the Project Representative at least 48 hours in advance of the additional inspections or tests.

E. Contractor's Inspection Plan:

1. The Contractor shall use the following inspection plan to ensure the Work meets the requirements of the Construction Drawings and Specifications, the referenced codes and standards and the approved submittals.
2. Preinstallation Meeting:
 - a. Prior to the start of construction Work on the Agreement
 - b. Prior to the start of Work on each definable feature of the Work
 - c. Prior to the start of Work where a change in a construction operation is contemplated
 - d. Prior to a new subcontractor starting Work
 - e. The preinstallation meeting shall be held with the Contractor's Superintendent, Quality Control and Safety Manager(s), applicable testing/inspection agency representative, the A/E, CSU Project Representative and CSU inspectors.
 - f. Supervisory, safety and quality control representatives of all applicable Subcontractors shall also attend.
 - g. The Contractor's Superintendent shall chair the meeting.
 - h. The Contractor shall present and review the following items at the meeting:
 - i. Agreement requirements and Specifications
 - ii. Shop Drawings, certifications, submittals and As-Built Drawings that apply
 - iii. Testing and inspection program and procedures
 - iv. Contractor's Quality Control program
 - v. Familiarity and ability of the Contractor's and Subcontractor's workforce to perform the operation to required workmanship standards including certifications of installers
 - vi. Safety and environmental precautions
 - vii. Any other preparatory steps necessary for the particular operation
 - viii. The Contractor's means and methods for performing the Work
3. Initial Inspection:
 - a. 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 Representative, and the A/E shall meet with the CQC Manager and applicable subcontractor's supervisor and their Quality Control representatives to check the following items, as a minimum:
 - i. Workmanship to established quality standards
 - ii. Conformance to Construction Drawings, Specifications and the accepted Shop Drawings
 - iii. Adequacy of materials and articles utilized
 - iv. Results of inspection and testing methods
 - v. Adequacy of As-Built Drawings maintained daily
 - b. Once accepted, the representative sample shall become the physical baseline for the quality and acceptability of ongoing Work.
 - c. Approved representative samples of Work elements shall remain visible to the maximum practical extent until all Work in the appropriate category is complete.
 - i. Acceptance of a sample does not waive or alter any Agreement requirement or show acceptance of any deviation from the Agreement not approved in writing by the Project Representative.

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4. In-Progress Inspection Phase:
 - a. The Contractor's Quality Control Manager shall inspect the Work continuously to verify that quality standards for the Work are maintained throughout the Project.
 - b. Results of quality control inspections shall be reported in the Daily Quality Control Report.
5. Above Ceiling Inspections:
 - a. The Contractor shall schedule adequate time and provide a minimum notice of five business days for the Project Representative's Consultants to conduct above ceiling punch list inspections, and for the Contractor to perform corrective Work, and for the Project Representative's Consultants to validate the Work complete prior to cover.
6. Interim Completion Inspection:
 - a. Two business days prior to the completion of a discrete portion of the Work, and prior to covering up any Work, the Contractor shall notify the Project Representative who shall verify that the segment of Work is complete, all inspections and tests have been completed and the results are acceptable.
 - b. Non-conforming items identified in the subject portion of the Work shall be listed in a Deficiency Report issued to the Contractor by the Project Representative.
 - i. When the Contractor has corrected all deficiencies listed, the Project Representative and CQC Manager shall verify conformance of the Work prior to the start of the next operation.
 - c. All inspections prior to the Contractor's Final Inspection Report shall be considered Interim Completion Inspections, including inspections during the final stages of construction that result in long lists of incomplete Work items.
7. Contractor Final Inspection Report:
 - a. 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 Project Representative's final inspection as a requirement of Substantial Completion.
 - b. The Contractor's Final Inspection Report shall confirm that all outstanding corrections have been made and it shall document incomplete Work items.
 - i. The report shall include a schedule of when these deficiencies shall be corrected.
 - ii. If the Project Representative determines that the list is too large or contains too many significant items, no inspection shall be held due to the incomplete condition of the Work.
 - c. HVAC testing, balancing and verification of environmental control programming must be complete and accepted by FM Building Automation Control Shop.
 - i. The only deficiency acceptable for "punch list" status is touch-up, repair, restoration or non-essential commissioning Work.
8. Project Representative's Final Inspections:
 - a. 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.
 - i. At that time, the Project Representative shall 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.
 - b. The Project Representative shall either proceed with inspection and acknowledge the Work is Substantially Complete or advise the Contractor in writing of unfulfilled requirements.
 - c. Final Inspections are performed by the A/E and Project Representatives.

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9. Reinspection:

- a. After the Project Representative 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 Agreement.
- b. Contractor shall request reinspection after certifying each item on the Substantial Completion punch list is complete and resolved.
 - i. Those items whose completion is delayed due to circumstances acceptable to the Project Representative shall be exceptions.
- c. All areas must be cleaned and ready for turnover prior to this inspection.
- d. The Project Representative, the Designer of Record, a representative of the funding agency (if applicable) and other interested parties shall 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.
- e. Any outstanding or additional deficient items shall be noted and handled per the requirements of reinspection noted above until the Work is acceptable to the Project Representative.
- f. If the A/E is required to perform more than one reinspection, the costs for additional inspections may be borne by the Contractor, at the Project Representative's discretion.

10. Final Completion Inspection:

- a. Upon completion of reinspection, Project Representative shall either recommend the Work complete for Final Acceptance or advise Contractor of Work not completed or Agreement obligations not fulfilled and required for Final Acceptance.
- b. The Final Completion Inspection alone does not indicate final acceptance of the Work.
- c. All Agreement requirements must be satisfied before the Project Representative issues the Notice of Contractor Settlement, Notice of Final Acceptance and final payment of retainage.

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 Project Representative.
2. A/E shall show the Project limit lines on the Drawings. Staging areas and haul routes shall be indicated on the Drawings.
3. Specifications shall indicate scheduling limitations on deliveries and for disruptive Work in occupied buildings.

01 51 00 – TEMPORARY UTILITIES

A. Temporary Utilities:

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

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3. Contractor shall obtain and comply with current PFA requirements for temporary heat.
 - a. Temporary heat set ups shall be inspected by PFA.

01 51 33 – TEMPORARY TELECOMMUNICATIONS

A. Telephones:

1. Land–line telephones at construction sites at CSU must be coordinated with Telecommunications Department through the Project Representative.
2. FM Planning, Design, Construction and Engineering through the Project Representative must approve public phones.
 - a. They must have service initiated by outside Vendor by the Project Representative.

01 55 00 – VEHICULAR ACCESS AND PARKING

A. Traffic Control:

1. Traffic is multi-modal and includes, but is not limited to vehicles, bicycles, scooters, pedestrians, etc.
 - a. The Contractor is advised to give particular attention to providing sufficient traffic controls to alert pedestrians, cyclists and drivers of potential hazards.
2. 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.
3. The Contractor is responsible for providing accessible detours. Detours must meet all codes and standards as adopted by OSA.
 - a. FM must approve all detours.
4. 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 Project Representative.
 - a. This includes all Work that requires traffic to operate differently than when the construction is not being done.
 - b. For example: road closures, work in one lane of the roadway, a bicycle lane, a median, a curb and gutter, sidewalks, etc.
5. The TCP shall specify the time of day in which the Work shall be done, and the number of days required for the Work.
6. The TCP must be drawn to scale and follow the example format.
 - a. Refer to the CSU Facilities Planning, Design and Construction Standards - Additional Documents.
7. Specific plans or typical TCP forms must be submitted at least 10 working days prior to construction.
 - a. If plans are not approved as submitted, the 10-day requirement begins upon re–submittal of the plans.
 - b. Multi-modal closures require an outage notification as described in 01 31 14 – Facility Services Coordination (except in emergencies).
8. Notification to emergency services, City of Fort Collins Transfort, school districts, and other affected agencies and parties, including residents, shall be accomplished by FM at least 72 hours in advance of the Project starting date.

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9. All traffic control placed in the right-of-way shall conform to the Manual on Uniform Traffic Control Devices (MUTPDF) and the Fort Collins Work Area Traffic Control Handbook.
 - a. In areas of conflict, the Fort Collins Work Area Traffic Control Handbook shall override the MUTPDF.
 - b. The Fort Collins Handbook is available from the city's website.
10. Upon discovery of deficiencies in traffic control, the Contractor shall have two hours from the time of notification to correct the deficiencies.
 - a. Failure to correct deficiencies within two hours shall result in jobsite shutdown, and traffic control on the jobsite shall be replaced by a Contractor chosen by the Project Representative.
 - b. All costs related to this replacement shall be the responsibility of the Contractor who failed to provide adequate traffic control.
11. 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.
 - a. FM Planning, Design, Construction and Engineering must be notified in advance of specific construction projects so the University can coordinate with any planned special events or other construction projects.
 - b. FM Planning, Design, Construction and Engineering may accept up to five Traffic Control Plans to be coordinated by the Project Representative prior to commencement of any Work.

B. Parking Permits:

1. Parking and Transportation Services issues construction parking permits.
 - a. Email: parking@colostate.edu
 - b. Website: www.pts.colostate.edu
2. Refer to Chapter 01 – General Project Information for details regarding parking permits, enforcement, etc.

01 56 00 – TEMPORARY BARRIERS AND ENCLOSURES

A. Barriers and Enclosures:

1. The construction site shall be enclosed with a minimum of 4'-0" high fence whenever necessary for security or traffic control.
2. Sites require a 6'-0" fence for access control. The fence shall be maintained by and remain the property of the Contractor upon Project completion.
3. Fire access during construction must be accommodated.

01 56 39 – TEMPORARY TREE AND PLANT PROTECTION

A. Protection and Preservation of Existing Trees:

1. All site or landscape plans shall show all existing trees. Trees to be saved or removed shall be indicated in coordination with civil demolition plans.
2. Trees to be saved shall have a properly constructed barricade which protects the total area within the dripline.
 - a. The dripline is defined as the area on ground covered by spread of branches.

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- b. Barricades shall be erected prior to construction/excavation.
3. If there is limited space on a site, and passage beside a tree is mandatory, a bridge is to be constructed over the root zone, and boards used to protect the trunk.
 - a. Refer to the CSU Facilities Planning, Design and Construction Standards – Additional Documents.
4. No equipment or materials, including excavated soil, shall be parked or stored within the dripline of a tree.
5. When raising the grade around a tree, a dry well is required.
6. When lowering the grade around a tree, a retaining wall is required.
 - a. In such instances, approval by, and coordination with the University Landscape Architect is required.
 - b. Refer to the CSU Facilities Planning, Design and Construction Standards – Additional Documents.
7. Trenching shall be done outside the dripline of trees.
 - a. If a trench cannot be routed around a tree, tunnel under it. Trenching within the dripline is generally prohibited.
 - b. Trenching or boring shall be permitted inside the dripline of a tree only with approval from the University Landscape Architect through the Project Representative.
8. After trenching outside the dripline of a tree, any severed roots shall be cut again smoothly and with flush cuts.
 - a. Next, trenches shall be backfilled as soon as possible so tree roots shall not dry out.
9. Where possible, curbs shall not be closer than 7'-0" from the trunk of the tree.
 - a. No paving or asphaltting shall be done closer than 7'-0" from the tree trunk.
10. New sidewalks, paving or asphaltting must allow porous space for existing tree roots.
 - a. For trees up to 4" in trunk caliper, a minimum of 25 square feet of porous area is required.
 - b. For each additional 2" of tree caliper, provide an additional 10 square feet.

01 58 13 – TEMPORARY PROJECT SIGNAGE

A. Construction Signs:

1. All construction signs must be approved by the Project Representative prior to installation.

01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

A. Waste Disposal:

1. The Contractor shall follow all University, State and Federal rules, regulations and laws regarding the disposal of hazardous materials.
2. Discharge of contaminated water, liquids or chemicals into the building waste, Drain Systems or Storm Drainage Systems are prohibited.
3. 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.

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4. No materials shall be disposed of on University property.
5. 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 University.
 - b. With prior approval of the Project Representative, clean soil fill may be stockpiled in the designated location.
6. Construction Waste Management Plan:
 - a. The Project Representative shall set construction waste reduction goals.
 - b. The Architect shall describe target materials and procedures in the Project Specifications.
 - c. With assistance of the Project Representative 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.
7. Separation Facilities:
 - a. 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.
 - b. Recycling and waste bin areas shall be kept neat and clean, and clearly marked to avoid contamination of materials.
 - c. 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.
 - d. The area around the bins must be kept clean and free of debris.
 - e. The Contractor shall empty the bins regularly to prevent spillage of its contents.
 - f. Bins shall be secured whenever site is not in use to prevent illegal dumping.
8. Precautions must be taken to prevent damage to existing any roadway surface.
 - a. The Contractor must repair any damage to the roadway surface to the satisfaction of the Project Representative.
9. 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.
 - a. All corresponding manifests, weight tickets, receipts and invoices shall be included in the record.
10. A Summary of Waste generated by the Project shall be submitted with each Application for Payment.
 - a. Failure to submit this information shall render the Application for Payment void, thereby delaying the Progress Payment.

01 75 00 – STARTING AND ADJUSTING

A. Testing, Adjusting and Balancing of Systems:

1. As a general rule, the Contractor is responsible for Testing, Adjusting and Balancing (TAB) for all Systems.
2. In some circumstances, the Project Representative may engage and pay for services of an independent firm to perform TAB.
 - a. Refer to Divisions 14 – 28 for further description and requirements of System testing.

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01 77 19 – CLOSEOUT REQUIREMENTS

A. Closeout Documents:

1. Refer to the forms page at the OSA website for the latest version of Agreement Closeout Documents – <https://www.colorado.gov/pacific/osa/formsproc>.

01 78 23 – OPERATION AND MAINTENANCE DATA

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 FM.
 - a. Upon approval submit an electronic copy to the Project Representative.
 - b. The electronic copy shall be in PDF format, clearly named, and arranged in relevant folders.
 - c. Coordinate with Project Representative for folder organization.
2. O&M Manuals shall be electronic in a PDF format.
 - a. Files shall include Project name, Project number, building name and building number.
 - b. The contents shall be arranged by CSI divisions and sections.
 - c. Manual shall include the following:
 - i. Introduction with summary of Project Scope
 - ii. List of all Subcontractors and suppliers along with addresses and emergency phone numbers
 - iii. Letters of warranties
 - iv. A copy of submittal and/or Shop Drawing with A/E approval
 - v. Parts lists
 - vi. As-Built Control and Alarm Drawings. Also include a PDF of As-Built for CSU distribution
 - vii. Seasonal operation and shut down
 - viii. Test and verification forms for Controls and Alarm Systems
 - ix. Do not include useless information on similar models of same equipment
 - x. Testing, Adjusting and Balancing Reports even if performed under Agreement with Project Representative
 - xi. Other pertinent testing reports
 - xii. Paint selections for each room/area
3. O&M Manuals shall be available during Systems demonstrations.

B. As-Built Drawings:

1. As-Built Drawings shall be submitted to the Project Representative and A/E for approval.
2. All Drawings shall have cross-references bound to Drawing.

01 79 00 – DEMONSTRATION AND TRAINING

A. Systems Demonstrations and Training:

1. Specifications shall require Contractors to demonstrate Systems and train FM personnel as determined by the Project Representative.
 - a. A minimum time shall be defined.
2. Demonstrations and training shall be scheduled as discrete classes after Systems are complete

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and O&M Manuals submitted.

- a. They shall not be scheduled during or be substituted for any CQC or OQA inspection.
3. The Project Representative shall coordinate demonstrations with appropriate FM personnel.
4. A hard copy of the O&M Manual shall be available during final demonstration and shall 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 digitally recorded and submitted with the O&M Manual for training of new personnel in the future.

01 80 00 – PERFORMANCE REQUIREMENTS

A. Installed Serialized Asset Information:

1. The Contractor shall be responsible for providing a complete detailed list of all serialized assets installed from the Project to the Project Representative.
2. The Contractor shall download the formatted Asset Data Collection Spreadsheet to be used for entering the projects asset details provided by the CSU Asset Manager here - https://www.fm.colostate.edu/wp-dev/wp-content/uploads/Asset_Data_Collection_Form_for_Capital_Projects_2.0.xlsx.
 - a. On the spreadsheet, select the asset group from the Master Asset Group List and enter the asset details listed for each asset in that group.
 - i. Refer to the Instructions Tab for additional details.
 - b. Each asset group/tab has its own specific attributes.
 - i. The asset attributes should be fully entered when available.
 - c. The asset groups on the spreadsheet are not all inclusive.
 - i. If the installed asset does not match the asset groups available, then an entry must be made on the “MISC asset” tab.
 - d. The Contractor shall provide the completed Asset Data Collection spreadsheet to the Project Representative upon Project completion.

01 91 00 – COMMISSIONING

A. System Performance Evaluation:

1. The Contractor's Quality Control Manager is responsible for System performance to specification including all Systems installed by Subcontractors, Vendors, etc.
2. 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.
3. 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 FM participation and approval procedures.
 - a. If retesting is required, the Contractor shall be responsible for costs for A/E and commissioning participation after the second failed test.

B. Systems Commissioning:

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1. The Contractor is responsible for the performance of all Systems according to criteria set by the Project Specifications.
2. The Project Representative shall be assisted by the Commissioning Engineer and other members of the maintenance and operations staff to test and verify Systems.
 - a. The Project Representative's commissioning activities are not a substitution for Contractor performance quality testing.
3. The Project Representative shall formally communicate with the Contractor via approved Project channels.
 - a. It is anticipated, however, that informal communication and coordination shall be conducted directly with the Contractor and Subcontractors during construction and testing of Systems.

C. Test and Verification:

1. Testing and Verification is part of both the Contractor's Quality Control and the Project Representative's Quality Assurance.
 - a. The Contractor is responsible for notifying and coordinating with FM and other parties involved in inspection, observation and/or Owner's Quality Assurance program.
2. The Contractor shall provide a minimum notice of ten business days for scheduling testing and verification procedures.
 - a. 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.
3. Testing and Verification must be completed before the Contractor's Final Inspection and request for the Project Representative's Final Inspection.
4. 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 FM Building Automated Services (BAS) and FM Fire Systems Group (FSG).
 - b. Smoke Evacuation Systems shall be tested as part of the Fire Alarm System.
 - c. Computer software associated with the Fire Alarm System shall be tested by mutual agreement between FM and the providing Contractor.
 - d. The Contractor is responsible for notifying the PFA and coordinating PFA participation during fire alarm testing.
 - e. The Contractor is responsible for notifying CSUPD and coordinating CSUPD participation during security alarm testing.
 - f. All System As-Built Drawings, programming and graphic maps shall be complete and present for the test and verification procedure.
 - i. As-Built Drawings must be completed before the Notice of Substantial Completion can be issued.
5. Building Automation Systems:
 - a. The Building Automation Direct Digital Control (DDC) System and equipment shall be tested and verified with a representative from FM BAS.
 - b. All As-Built DDC documents shall be complete and present for the test and verification procedure.
 - i. Therefore, these documents must be completed before the Notice of Substantial Completion can be issued.

END OF DIVISION