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Summary of Commissioning Procedures (CTLM and GYM Projects)

Overall, CSM Plant Engineering reviews the following systems:

- All Mechanical Systems
- All Electrical Systems
- Building Temperature Controls
- Building structural evaluation when requested by CSM Planning and Construction

Commissioning is a joint effort to ensure that all mechanical and electrical systems are installed and functioned properly to meet building systems design intent. The commissioning procedures include design and construction document review, shop drawing review, project meetings, systems installation verification, and pre-functional and functional testing. I have summarized the procedures below for defining who takes ownership of different responsibilities to minimize paperwork and increase productivity.

Design and CD document Review

CSM Plant Engineering has completed this portion for the CTLM and Gymnasium projects. All comments shall be reviewed by A/E and submitted to Planning and Construction within 14 calendar days. Planning and Construction will submit the A/E response to Plant Engineering upon arrival.

Shop Drawing Review

Plant Engineering reviews shop drawings in conjunction with project consultant and Planning and Construction. Planning and Construction shall respond to Plant Engineering comments within 14 days after the completion of shop drawing review. This portion of commissioning has already started for Gymnasium.

Project Meetings

Before commissioning takes place, Plant Engineering needs to get involved in different meetings during construction and during project close out.

- System air and water balancing pre-construction meetings
- Commissioning meetings
- All temperature control meetings
- Engineering meeting when involved with changing systems

Installation Verification

Plant Engineering will schedule installation verifications of all systems and equipment every other week with different CSM shops and submit reports to Planning and Construction. Planning and Construction can participate in installation verification as needed.

Within 14 calendar days, Planning and Construction should verify these issues with the A/E and ask the contractor to correct them and/or respond to Plant Engineering by signing the installation verification report. Plant Engineering will verify these corrections when they receive a signed copy of Installation verification report.

Pre-Functional Testing

Pre-functional testing is a starting of the systems prior to the system balancing to insure systems are operating properly. In this phase, contractor will start up all systems. This function includes electrical system operation, mechanical system operation and calibration. All deficiencies such as wrong drive rotations, mechanical and electrical system lubrication, and belt tension will be corrected before commissioning. Plant Engineering will post a pre-functional checklist at each piece of equipment and systems. Planning and Construction should notify the contractor to mark the checklist as needed.

Functional Testing

Functional testing is done in more detail, which will allow Plant Engineering and CSM Shops to verify final system operation after system balancing. The following systems are included in the functional testing:

- Building HVAC cooling system
- Air handling unit operation
- Air distribution system operation
- Building hot water heating system (hydronic)
- Building domestic cold and hot water systems
- System water and air balancing
- Building temperature controls (CSM Plant Engineering will directly work with the temperature control contractor and report issues to Planning and Construction)
- Building electrical system
- Building emergency generator operation
- Building fire alarm and life safety system

All deficiencies will be reported to Planning and Construction. There will be 14 day time period for Planning and Construction to verify these issues with the A/E and ask the contractor to correct them and respond to Plant Engineering by signing the functional testing report. Plant Engineering will verify these corrections within 14 calendar days of receiving a signed copy of the functional testing.

Miscellaneous In-House Projects

A period of 10 calendar days will be needed for reviewing in-house project documents when done by the Planning and Construction. Any air balancing and system testing needed for any project will be done if proper work order is issued. With the exception of an emergency situation (Life Safety), a period of 7 calendar days will be needed to schedule the work. Considering the 7 calendar days, please indicate on the work order when you need these testing to be done.