



PROJECT: Webster University ISB
Cx PROGRESS REPORT: #001
R&B PROJECT NO: 1136-16
TOPIC: Coordinated Model Review – Equipment Accessibility
DATE: 2016-10-14
Cx TEAM: Kevin McCormick (R&B)

A. Objective

Ross and Baruzzini (R&B) reviewed the 1st and 2nd floor coordination model on Autodesk BIM 360 Glue to check for accessibility to HVAC equipment by operations and maintenance (O&M) staff.

B. Methodology

A sample of room types (labs, offices, corridors) were checked on the 1st and 2nd floor. The types of equipment reviewed were VAVs, SAVs, GEVs, and HEVs. The areas surrounding the units were examined to identify potential interferences to the equipment. The architectural furniture plan was reviewed alongside the model to determine if any furniture would be installed underneath the units. Meetings were held with the contractor to develop a process of reviewing the coordinated model for O&M access and to help ensure proper access to equipment at the end of the project.

C. Observations

- 1) An extensive effort has been made in the model to coordinate O&M access to the units.
- 2) The model includes a block next to VAV controllers that is defined as access space. The phoenix valves did not have this access block modeled next to their controllers. It was indicated by the contractor that the phoenix valves in the model do have defined access blocks, they were just not shown at the time of our review.
- 3) Hydronic control components will be installed adjacent to the control panel to simplify access to all critical parts.
- 4) Several units were observed to have potential interferences in the model.

D. Recommendations

- 1) The attached review process form should be adopted by the Cx team.

E. Attachments

- 1) Coordinated Model Review – Process
- 2) Coordinated Model Review Observations (10/10/2016)

End of report



PROJECT: Webster University ISB
R&B PROJECT NO: 1136-16
TOPIC: Coordinated Model Review – Process
DATE: 2016-10-14
Cx TEAM: Ryan Walsh , Marijn Braadbaart, Kevin McCormick

A. Objective

Outline the process of reviewing the BIM coordination model for O&M access to mechanical equipment.

B. Process

- 1) **Complete the BIM model**
Contractors to complete the BIM model and clash detection analysis for all floors.
- 2) **Create Access Coordination Drawings (ACD)**
Contractors to create 2D drawings that combine A/MEP/FP/T ceiling devices on one drawing for each floor.
- 3) **Review access requirements**
Cx team to review with Webster operations and maintenance (O&M) staff the provisions for access to the mechanical equipment. These provisions include:
 - (1) Hydronic controls (shutoff valves, strainers, vents and drains, P/T plugs, etc.) are located within easy reach of the control panel itself.
 - (2) A single ceiling tile should allow access to the majority of the critical/serviceable components.
 - (3) Major building elements (sprinkler pipe, duct, pipe, conduit) were kept outside of the designated O&M access areas.
 - (4) Access to most equipment should be possible using a 10' ladder.
 - (5) Secondary equipment should be removable and replaceable in most cases by removing parts of the acoustical ceiling. IT should not be necessary to remove studs, kickers or structural elements. Primary equipment should be removable & replaceable using designated access ways.
- 4) **ACD updated by the contractor**
ACD are updated to reflect access to each piece of mechanical equipment.
- 5) **R&B Review**
R&B will review the ACD once the ACD updates are completed by the contractor.
- 6) **Review meeting**
ACD review meeting is scheduled with the Webster O&M staff. ACDs are updated to reflect the Webster staff comments.
- 7) **Rough-ins and trim**
ACD will be used by the contractor and subs during installation to ensure proper access is maintained.
- 8) **Above Ceiling Punchlist**
The ACDs will be compared against field conditions after the grid has been installed, as part of the above ceiling Punchlist.

End of report



PROJECT: Webster University ISB
R&B PROJECT NO: 1136-16
TOPIC: Coordinated Model Review
DATE: 2016-10-10
Cx TEAM: Kevin McCormick

A. Objective

Review the BIM coordination model for to identify potential access issues to terminal equipment. Use a sample of different types of spaces (lab, lab support, classroom, office, corridor).

B. Observations

1st Floor

- 1) Lab Space – Cadaver Lab 191
 - o HEV-1C2 – Controller shown to be directly above a light fixture. Also does not appear to have adequate space between the light fixture and the run of conduit going over the unit for the valve to be installed in between.
 - o HEV-1C4 – Controller shown to be directly above a light fixture. Also does not appear to have adequate space between the light fixture and the run of conduit going over the unit for the valve to be installed in between.
- 2) Lab Support Space – Bio Vestibule 183C
 - o SAV-1C2 – Controller shown to be installed directly over a light fixture.
- 3) Corridor – Corridor C130 (By the entrance to Sim Lab 133B and Control Room 133A)
 - o VAV-112 & VAV-111 – Light fixture installed in the area between the VAVs that will be needed for access.

2nd Floor

- 4) Lab area – Microscopy Room 274
 - o GEV-209 – potential access issue a counter installed below the unit on the wall.
- 5) Corridor – Corridor 270 (outside of microscopy room 274)
 - o SAV 210 – access blocked by fire protection lines, hot water piping, and plumbing piping.
 - o SAV 211 – access blocked by 30x20 exhaust main. If controller faces the opposite direction (as it is shown in the design drawings) it will have the same access issue as SAV 210.
- 6) Office – Office Associate Dean 211
 - o VAV 206 (installed in corridor) – potential issue from cable trace and hot water piping.



PROJECT: Webster University ISB
Cx PROGRESS REPORT: #002
R&B PROJECT NO: 1136-16
TOPIC: Field Observations – 1st Floor
DATE: 2017-01-27
Cx TEAM: Kevin McCormick (R&B)

A. Objective

Ross and Baruzzini (R&B) performed a field observation for the 1st floor mechanical equipment on January 27, 2017. Installation and progress was reviewed against the design documents and the BIM Glue coordination model as of January 26, 2017.

B. Field Observations

- 1) Multiple fire sprinkler pipes and hot water pipes were not covered in the Main Electrical 192 and the Fire Pump 188 rooms.
- 2) Mechanical equipment was not yet installed in Area A.
- 3) The majority of the mechanical equipment was installed in Area B.
- 4) The 18" duct on the north side of the riser by Entry Corridor 183A was not covered.
- 5) The electrical panel and cables in the Bio Vestibule 183C were sprayed with structural insulation.
- 6) The wall opening for the ductwork coming out of Health Assessment Lab 131 into the corridor does not have clearance for insulation to be installed.
- 7) The access panels on the bottom of VAV-123 and VAV-124 appear to be small for the size of the units.
- 8) The access panel on the bottom VAV-120 is damaged.

C. Recommendations

- 1) Cover all exposed openings on sprinkler pipe, hot water pipe and ductwork.
- 2) Clean off any equipment covered by the insulation spray and cover any exposed equipment or material prior to installation of the spray for any future applications.
- 3) Leave enough space in wall penetrations for ductwork to be insulated.
- 4) Confirm that the access panels used for 14" VAV units provide ample space to access the heating water coil for service.
- 5) Fix the access panel on the bottom of VAV-120.
- 6) Contractor to enable the BIM360 issues log so the above deficiencies can be added.

End of report



PROJECT: Webster University ISB
Cx PROGRESS REPORT: #003
R&B PROJECT NO: 1136-16
TOPIC: Field Observations – 2nd Floor
DATE: 2017-02-03
Cx TEAM: Kevin McCormick (R&B)

A. Objective

Ross and Baruzzini (R&B) performed a field observation for the 2nd floor mechanical equipment on February 02, 2017. Installation and progress was reviewed against the design documents and the BIM Glue coordination model as of February 1, 2017.

B. Field Observations

- 1) The majority of the mechanical equipment was installed in Area A and Area B.
- 2) Ductwork not yet installed was observed to have its openings covered.
- 3) Access panels appeared small for the following units: SAV-208, VAV-209, VAV-212.
- 4) GEV-207 control panel cover was off and the controller was not protected.
- 5) VAV-201 did not appear to be fully protected from fire protection spray.
- 6) VAV-202 and its piping components appear to have been rotated. The bleed valve is now on the lower piping and needs to be relocated to the high point of the piping.



C. Recommendations

- 1) Confirm that the access panels used for 12" and 14" terminal units' heating coils provide ample space to access for service.
- 2) Cover the exposed control panel for GEV-207.
- 3) Clean up structural fire protection spray from VAV-201.
- 4) Re-pipe VAV-202 to match the piping detail on M0501 in construction drawings.

Recommendations will be added to BIM360.

End of report
