

October 27, 2015

Six month report to NC Board of Architecture For pilot on AE Seal use in BIM-IPD projects

For distribution to Arch Board Pilot Program Board Representatives via Cathe Evans, and David Tuttle,
Plus Tim L, Michael M, JNB, Patrick G, David G and Howard G

Board Representatives,

In compliance with Part 5-Reporting, of the Pilot Program Proposal for use of Design Professional seals in BIM-IPD projects (3/12/2013, rev 4/5/2013), Carolina Healthcare Systems and Mecklenburg County Code Enforcement herein jointly submit this brief report on the current status of the Pilot Program. Part 5 of the Pilot Program Proposal specifically calls for updates on the following;

- The current status of the specific projects in the program.
- Observations made by CHS and Mecklenburg County staff on what “pilot program activity to date indicates regarding special BIM-IPD provisions which may be appropriate within the Board Rules”.

Item 1: project status

1.1. CMC-Morrocroft ED Pavilion; a new one story emergency department pavilion of approximately 28,550 sq. ft., with a new parking deck bay above the emergency department. Occupancy is B for the emergency department and S-2 for the enclosed automobile parking garage. Construction type for the project is II-A and fully sprinkled with NFPA 13 system.

- Project status; construction completed and facility began receiving patients on May 12, 2014

1.2. CMC-Davidson Behavioral Health; new construction 79,471 sq. ft. facility, two story slab on grade on vacant land; with 66 beds, outpatient component and supporting food service. Occupancy is I-2; construction type is I-B; fully sprinkled (NFPA 13 system).

- Project status; construction completed and the facility began admitting patients on April 7, 2014.

1.3. CMC-Core Lab; a 28,400 sq. ft. lab upfit in shell building; construction cost \$7.3M.

- Project status; construction complete, with office occupancy taking place in January, 2015.

Item 2: observations to date

- BIM-IPD should improve the HSW aspects of projects, as team dialogue identifies and solves compliance problems in the model, before the project is built.
- BIM-IPD significantly improves the incidence of correct construction the 1st time, reducing later error and construction tear out. For the CMC Core Lab project, there have been no change orders due to a lack of coordination or for errors and omissions.
- In occupied institutional environments, BIM-IPD reduces jeopardy to patient occupied environments, and also minimizes risk infection.
- BIM-IPD moves the RFI process into a “big room setting”, where cross discipline team dialogue has a greater chance of solving problems thoroughly from all angles, avoiding later errors in regulatory compliance or document-specification performance.

- How the AE seal pilot is applied to a given project requires extensive discussion between the owner's team, especially the BIM model expert, and the local code official. As the owner's performance agreements with the construction team vary participant activity in the model, the local code official and AE agree on where part 4a of the Pilot Program criteria applies, vs. Part 4b-4e. It appears this agreement should be confirmed in the preconstruction meeting, before the umbrella project permit is issued (for projects using NC Administrative Code Section 106.2.3.1).

Item 2.1: Virtual Inspections pilot

Completed in November 2013, with findings reported the Mecklenburg County Building Development Commission on December 17, 2013. Refer to our 4/11/2014 report for a brief summary of conclusions.

The foregoing is submitted by the following program representatives. Requests for clarification or further information may be directed to either or both;

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Item 3: Pilot Program Report Supplement for projects not related to Carolinas Healthcare System

3.1. VA Charlotte Health Care Center; located at 3506 West Tyvola Rd, with a gross building area of 425,000 sq. ft., and 295,000 sq. ft. net usable. The project occupancy is 'B' - Ambulatory Health Care Facility, using construction type 1B.

- Project status;
 - a) Umbrella permit for Main Building issued 09/02/2014, 9 model updates performed
 - b) Exterior site work (Paving, sidewalks, etc.) 60% complete
 - c) Exterior finishes 95% complete
 - d) Framing Inspections, 95% complete (punch list items)
 - e) Interior finishes 35% complete
 - f) Elevators and shafts 75% complete
 - g) Above ceilings, all trades 50% complete (All Trades)
 - h) Core Energy Plant 80% complete
 - i) Large canopies have been broken out as individual structures with standalone Umbrella Permit, this will negate the need for fireproofing and the need to install Sprinklers under these structures.
 - j) Final Inspection Phase to begin tentatively November 1, 2015, assuming no additional owner changes.

3.1.1. Observations by the Hybrid Collaborative Delivery Team on the impact of the VA Charlotte Health Care Center project's collaborative approach to project delivery

- a) Coordination of trades due to working in the model, has greatly increased the speed and ease of installation. Trades have the ability to pre-fab off site and have items brought to the site only when needed for direct installation. Trades have the ability to proceed with work and know exactly when and where to stop; other trades step in and perform their install and thereafter trades can return and finalize installation. This keeps all trades working within small areas and at the same time greatly increasing production per man hour.
- b) While working through the hundreds of changes that would have required "Revisions to Approved Plans" and collaborating on innovative ways to solve "Value Engineering issues", the team has found that due to their intimate knowledge of the model reviews combined with inspections work, all of these items were handled in an orderly fashion and did not require the onsite work to slow down or stop while gaining approval. The team based collaborative environment was a tremendous time saving tool when working through the issue of the exterior large canopies and gaining compliance without the need for fireproofing and Sprinklers .

3.2. Davidson College New Academic Building; aka renovation of and addition to Martin Science Building.

This project is approximately 150,000 sq. ft. net usable (158,000 sq. ft. gross including mechanical/attic space), with a renovation net – 22,600 sq. ft. and new construction addition net 126,533 sq. ft. The project main occupancy is academic – B, with a mix of A-3, B, S-1 and S-2. Construction type is II-A, with the existing building being concrete frame.

- Project status;
 - a) Temporary Egress from existing occupied building and Demo approved 09/10/2014
 - b) Umbrella permit issued 10/09/2014
 - c) Footing and Foundations are complete
 - d) Internal Framing 65% complete

- e) Rough inspections continuing on upper floors, trade inspections 90% complete in basement
- f) Sheetrock installation at 55% complete in basement
- g) Exterior Skin is at 35% complete
- h) Site work at 10% completion.

3.2.1 Team Observations

- a) Collaboration on Owner Changes has been slower than other projects, due to the need of phone conferences with design team (not based in the Charlotte area). This was predicted and has not slowed any of the time lines set by contractor.
- b) Project is running slightly ahead of schedule at this point.

3.3 Charlotte Office Building- Westin Parking deck addition; located at 615 S. College Street, Charlotte, N.C., this project consists 16 new office floors, built above level 2 of an existing seven level parking garage adjacent to the Westin Hotel. Basic data on the project includes the following; 370,000 total square feet of office space, 1A construction and fully sprinklered; mixed occupancy on the first floor consisting of Business, and Assembly. The project is pursuing LEED Certified status.

- Project Status

- a) Permit issued August 21, 2015
- b) Demolition of existing parking deck component under way
- c) Installation of micro piles commenced; inspections on micro pile caps to begin October 21, 2015.
- d) Application for Second permit relating to site conditions, property lines and easements has been submitted for review, pending designer acceptance of review date.

3.4 Project Beacon-Sealed Air; located at 2415 Cascade Pointe Blvd., Charlotte, N.C., this project occupies a 32.47 Acre site, and will include 3 Office buildings, 2 Parking Decks, Pavilion Building, Pedestrian walk ways, 2 lakes, multiple pedestrian bridges, Gardens, Sports Courts and site associated retaining walls. Breakdown of the buildings and other basic data on the project includes the following;

- 2- 4 story, type III-B Office Buildings (B occupancy), 109,500 total square feet each. The main Office building will contain multiple meeting rooms of A-occupancy, as well as an A-occupancy cafeteria.
- 1- 3 story type II-A Research and Development Office Building (B Occupancy), 176,000 total square feet.
- 2- 2 tier parking decks of III-B construction, each with 171 parking stalls, with construction utilizing concrete double T's.
- 1- Pavilion Building, 1 story A-occupancy gathering space of II-B construction with a total of 2100 square feet.

- Project Status

- a) Umbrella Permits issued.
- b) 2 Office Buildings (A & C) with footings and foundations 75% complete.
- c) Office Building B, footing inspections began October 12, 2015.
- d) Parking Deck F, Footing and Foundation 100%; waiting on back fill and slab prep
- e) Site and amenities- 3 largest retaining walls complete.
- f) Preliminary reviews commenced for interior build out, with Architect scheduled submit for first phase of interiors in mid-November.

3.5 Crescent Uptown (Stonewall Station); this is a large multi-building component project on the perimeter of Uptown Charlotte. Basic data on the project includes the following.

- The project has mixed use, including Business, Mercantile, Assembly and Residential mid-rise and high-rise components. The 18 story high-rise of 1-A construction will be surrounded on 3 sides by a Residential R-2 structure - 3A construction (wood frame surrounding a concrete parking core) with high rise continuing.
- The high-rise consists of first level mixed use (B, M, A), parking on floors 2-11 and residential on floors 12 through 18 (120 R-2 units). The 3A construction will consist of 330 mid-rise residential R-2 units.
- Total project size of 1.12M sq ft; including 725,000 sq ft hi rise + 370,000 sq ft mid-rise residential.

- Project Status
 - a) Main Preliminary meeting completed July 9, 2015.
 - b) 7 Umbrella Permits issued October 13, 2015.
 - c) Design items are still being worked out through collaboration meetings and applications for deliverable model reviews are estimated to begin Mid-November 2015.

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