BIM: How do you implement it into the Design Process?

Pulse of the Room

- Which industry sectors are represented in the room?
  - Ownership, Facilities Management, Design Team, GC, EC, Trade Partners, Material Rep/Distribution
- Who is involved in the early design process?
- Who is most commonly involved in construction coordination activities, as it pertains to BIM and Design?

Topics of Discussion

- General Assumptions about use of BIM in Design Process
- Purposes of Design and BIM
- Does it work? (Design vs. BIM)
- Breakdowns for each topology
- How to Prevent the Breakdowns
- Cherry Picking the Best Practices
- Suggestions for Success
- Open Discussion/Questions

General Assumptions of BIM in Design Process

- The application of BIM activities are limited to:
  - 3D Model Creation
  - Clash Detection
  - Embedded Product Data Sheets
  - Project Scheduling/Sequencing
  - Project Cost Projections
- Skilled Resources are at a premium
- BIM does not have to stand for “BIG IGNORANT MASS”

What's The Purpose?

- DESIGN
  - Create tangible documentation of project concept
  - Confirm Code Compliance
  - Ensure MEP concepts are viable and can co-exist
  - Architectural concepts are viable
  - Specify products and manufacturers
- BIM
  - Confirm project concept through tangible visualization of scope (3D Model)
  - Expedited access to product data sheets
  - Expedite the construction process
  - Logistical Analysis, given project schedule (4D)
  - Cost/Billing Projections, given project schedule and cost values (5D)
  - Keep track of Facilities Maintenance Documentation (6D)

Topologies and Do They Work?

• Design without BIM implemented	YES
• BIM without Design completed	CONDITIONALLY
• Design with BIM implemented	CONDITIONALLY
• BIM with Design completed	YES

What are the **Breakdowns** to each Topology?

- Design without BIM
  - Lost potential for gained efficiencies
  - Potential for “working in a bubble” creates increased potential for incomplete coordination between design team members
- BIM without Design
  - Very inefficient use of resources
  - Too many moving parts
  - Lack of direction creates confusion, which leads to extra costs in all phases of the project

What are the **Breakdowns** to each Topology?

- Design with BIM
  - Division of skilled resources can derail the process of getting to permitted design
  - Lack of common focus/purpose can fragment the motivation of an otherwise well-meaning team
- BIM with Design
  - Design team may not remain actively involved in coordination process
    - Likely to cause delays in coordination, sign-off, and subsequent field activities

How to Prevent Breakdowns of each Topology

- Design without BIM implemented
  - Create and maintain a detailed design schedule
  - Utilize either a physical or virtual hub for design team to meet daily
  - Daily sharing of drafting/design progress

How to Prevent Breakdowns of each Topology

- BIM without Design completed
  - Create and maintain a detailed design schedule
  - Limit 3D coordination to items which may present structural implications only
  - MEP trade partners must be on either Design-Assist or Design-Build contracts
  - Lock in equipment schedules, ASAP
  - Daily Uploads of drafting progress to central hub
  - Lock down architectural issuances early
  - Architect is embedded into the trade coordination process (non-stop)
  - Much of the above is too difficult to control in this topology, without strong focus from the Lead Design/Trade Partner

How to Prevent Breakdowns of each Topology

- Design with BIM implemented
  - Create and maintain a detailed design schedule
  - Lock in equipment schedules, ASAP
  - Limit architectural updates
  - Stop all architectural changes within two weeks of permit drawing submittal date
  - The process must begin with design and work toward BIM, otherwise limited resources are unnecessarily divided
  - Discover the “Targets for Success” for each discipline, and base design/BIM efforts toward those goals whenever possible
    - *May need assistance from construction team to discern some of the barriers to constructability*

How to Prevent Breakdowns of each Topology

- BIM with Design completed
  - Create and maintain a detailed design schedule
  - Discover the “Targets for Success” for each discipline, and base design/BIM efforts toward those goals whenever possible
    - *May need assistance from construction team to discern some of the barriers to constructability*
  - *Continued participation in coordination/design constructability of the design team is essential through sign-off by trade partners*

Cherry Picking the Best Practices of all Topologies

- "Targets for Success" as primary focus for action
- Create and Maintain a Detailed Schedule
- Lock-In Equipment & Fixture Schedules EARLY
- Early coordination activities should be limited to only those that impact structure
- Optimization of Limited Resources
  - Foster a collective effort and avoid "bubbles"
  - Central Hub for all BIM data

Suggestions for Success

- Never forget that technology is a tool and not a solution.
- Quality Communication and Deliberate Planning are the most important skills to nurture in your engineering staff
- Your scheduling tool should be expressly dynamic, to foster a dependency upon this resource
  - Hyperlink to important files
  - Allows for internal communication between stake holders
  - Tracks completion of tasks
  - Analyzes Resource Allocation
  - Generates reports for managers to assess progress
  - Sends automated reminders to stake holders
  - Contains means of support team to request approval of task-based products from managers
  - Automated status updates which display visually

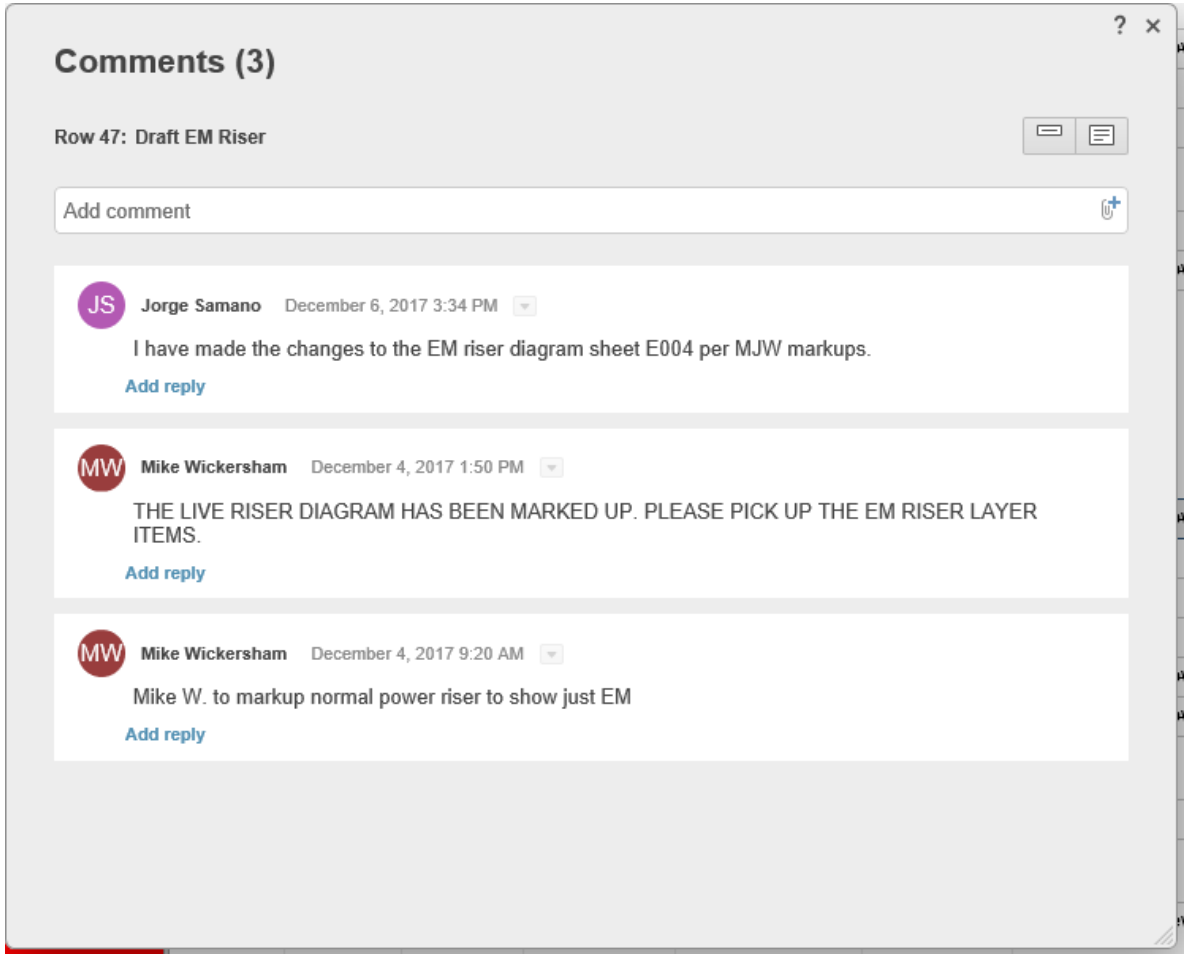
Scheduling Tool
Functions of Note

		Have for Prelim. Draft	At Risk	Task Name	Start Date	End Date	Duration	Predecessors	Assigned To	% Complete	Status	Approved By Manager?	Ready For Issuance	Notes
				~~on the Electrical Notes page~~										~~Matrix pending 11/14/17~~
39		☐	⚐	~~Red-Line U/G Utilities~~	~~11/03/17~~	~~11/03/17~~	~~1d~~		~~Mike Wickersham~~	~~100%~~				
40		☑	⚐	~~Draft U/G Utilities~~	~~11/06/17~~	~~11/06/17~~	~~1d~~		~~Jorge Samano~~	~~100%~~	~~Ready For Review~~	~~Approved~~	~~Submitted~~	
41	🗨	☐	⚐	~~Red-Line Grounding Riser~~	~~11/07/17~~	~~11/07/17~~	~~1d~~		~~Mike Wickersham~~	~~100%~~				~~Add grounding detail from 321~~
42	🗨	☐	⚐	~~Draft Grounding Riser~~	~~11/07/17~~	~~11/08/17~~	~~2d~~		~~Jorge Samano~~	~~100%~~				
43		☐	⚐	Red-Line Interior Grounding Plan (Closets & Horizontal Routing)	11/07/17	11/08/17	2d		Mike Wickersham					
44		☐	⚐	~~Red-Line Riser Changes~~	~~11/03/17~~	~~11/08/17~~	~~4d~~		~~Mike Wickersham~~	~~100%~~				
45		☑	⚐	~~Draft Power Riser Changes~~	~~11/08/17~~	~~11/08/17~~	~~1d~~		~~Jorge Samano~~	~~100%~~	~~Ready For Review~~	~~Approved~~	~~Submitted~~	
46		☐	⚐	~~Red-Line Riser Conduits~~	~~11/09/17~~	~~11/13/17~~	~~3d~~	~~43~~	~~Mike Wickersham~~	~~100%~~				~~Not mandatory for Permit, but~~ ~~Draft conduits to 9th floor pane~~ ~~Draft conduits to elevator equi~~ ~~Draft (2). 3 1/2" conduits from~~ ~~DP.~~
47	🖇 🗨	☐	⚐	~~Draft EM Riser~~	~~11/28/17~~	~~12/08/17~~	~~9d~~		~~Jorge Samano~~	~~100%~~	~~Ready For Review~~	~~Submitted~~		
48	🗨	☐	⚐	~~Draft Riser Conduits~~	~~01/03/18~~	~~01/05/18~~	~~3d~~		~~Elio Albavera~~	~~100%~~	~~In Progress~~	~~Revisions Required~~		~~REVISE 9E-HDP-1 FEEDERS~~
49		☐	⚐	~~Red-Line all Electrical Closets~~	~~11/09/17~~	~~11/10/17~~	~~2d~~	~~43~~	~~Mike Wickersham~~	~~100%~~	~~In Progress~~			
50		☑	⚐	~~Create Panel Directories of all Panel Boards~~	~~11/09/17~~	~~11/10/17~~	~~2d~~		~~Jorge Samano~~	~~100%~~	~~Not Started~~			~~This is done by placing the ge~~
51		☑	⚐	~~Create Panel Directories of all Distribution Panels~~	~~11/09/17~~	~~11/10/17~~	~~2d~~		~~Jorge Samano~~	~~100%~~	~~Ready For Review~~	~~Approved~~	~~Submitted~~	~~This is done by placing the ge~~
52	🗨	☑	⚐	~~Create Panel Directories of all Switchboards~~	~~11/09/17~~	~~11/10/17~~	~~2d~~		~~Jorge Samano~~	~~100%~~	~~Ready For Review~~	~~Approved~~	~~Approved~~	~~Is this something Revit can to~~
53		☐	⚐	~~Calculate Preliminary Service Size Calcs, given corrections to WMA Riser~~	~~11/06/17~~	~~11/06/17~~	~~1d~~		~~Dan Maimonis~~	~~100%~~	~~Complete~~			
54		☑	⚐	~~Compile Service Calculation Chart~~	~~12/13/17~~	~~12/13/17~~	~~1d~~		~~Mike Wickersham~~	~~100%~~				
55		☐	⚐	⊟ Create Penetration & Box-Out Drawing	01/08/18	01/10/18	3d	48	Kris Nosek	0%				Try to include in Permit Set, so penetrations
56		☐	⚐	Ground Level - Penetrations	01/08/18	01/08/18	1d	48	Jorge Samano	99%	Ready For Review	Submitted		Try to include in Permit Set, so penetrations
		☐	⚐	Mezzanine - Penetrations	01/08/18	01/08/18	1d	48	Jorge Samano	99%	Ready For Review	Submitted		Try to include in Permit Set, so

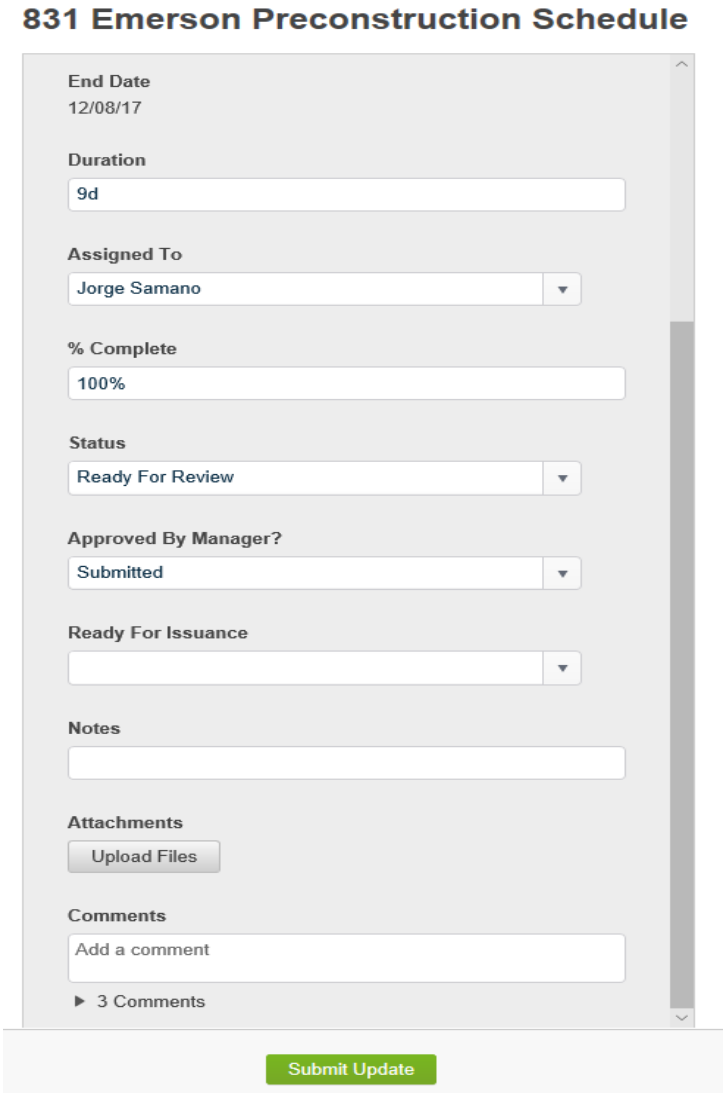
Hyperlinked Content

Internal Commentary

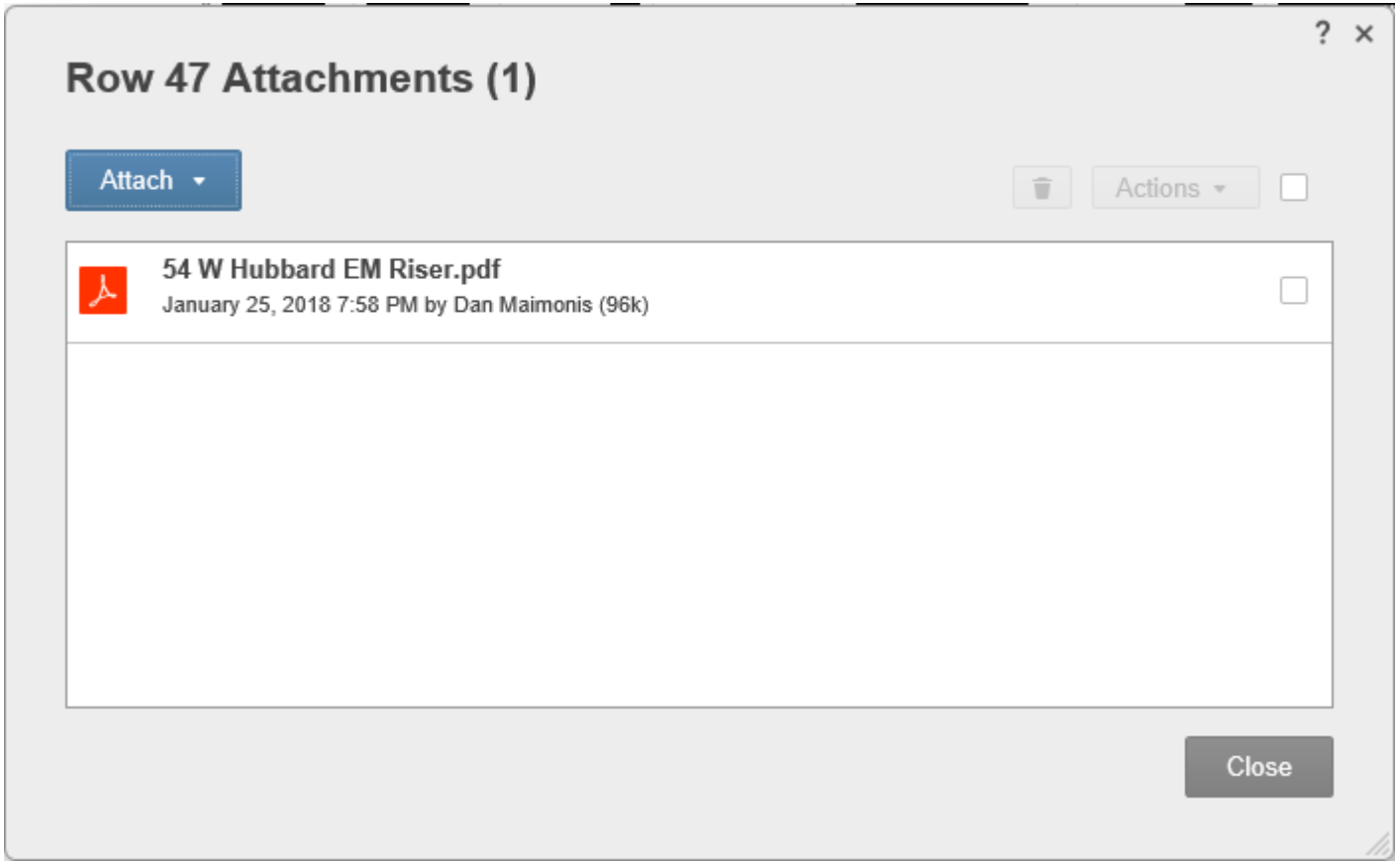
Internal Communications



Status Update Requests



Hyperlinked Content



Approval Requests

Dan Maimonis

From: (Redacted) Alerts & Actions <automation@ (Redacted) .com>
Sent: Wednesday, November 22, 2017 12:42 PM
To: Dan Maimonis
Subject: Approval request for 831 Emerson Preconstruction Schedule: Approval Request

This item is ready for review and approval. Please do so, within the next 24 hours or less to maintain schedule.

View Request

Row 1

Have for Prelim. Draft	
At Risk	
Task Name	Lower Level - Draft Branch Receptacles
Start Date	11/22/17
End Date	11/22/17
Duration	1
Assigned To	Elio Albavera
% Complete	100%
Status	Ready For Review
Approved By Manager?	Submitted
Ready For Issuance	
Notes	per mark-ups 02. PRECONSTRUCTION PLANNING/02. Building Permit Issuance/02. Redlines/10. Branch Power redline/Branch Power per MJW 20171120.pdf

Closing Thoughts…

- Your path to design is not reliant on the software or tools available to you. It is, however, dependent upon the skillsets of the people you bring to the party.
- Foster the “WE” and not the “ME” in your process

Contact Information

- Dan Maimonis
  - dmaimonis@kelso-burnett.com
  - (847)980-1273

Open Discussion/Questions