

22ND ANNUAL



22ND LCI CONGRESS
OCTOBER 19-23

Kaiser Permanente Los Gamos MOB

IMPLEMENTING PDCA CYCLE TO TRANSFORM PRE-CONSTRUCTION & DESIGN PHASE.

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October 21st 2020



Los Gamos Medical Office Building

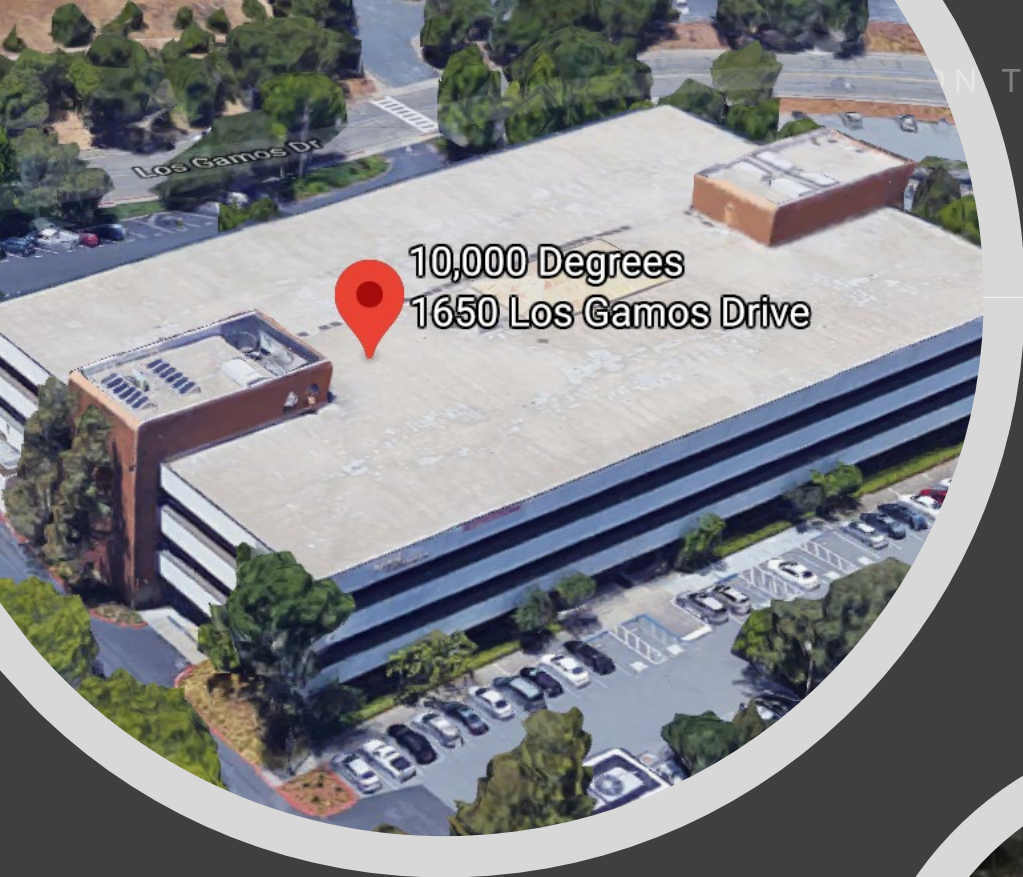
Implementing PDCA Cycle to Transform Pre-Construction and Design Phase

October 21, 2020



Challenge Statement

- The Los Gamos Medical Office Building posed a few challenges for the IPD team during the life of the Preconstruction duration:
 - Mis-alignment of Owners Expectations
 - Ineffective Team Dynamics
 - Design Phase decision making did not follow LEAN/IPD norms



Project Information

- Three-story 145,000 SF tenant improvement. Converting existing office building into Medial Office Building. Located in San Rafael.
- Initial Planned Start Q1 2019
- Construction started February 6, 2020
- Substantial completion June 2021.
- Non-OSHPD
- \$63M Construction Budget
- IPD Contract: MEP, Drywall Framing CRS (cost Reimbursable Subs) trades, all other trades are Lump Sum

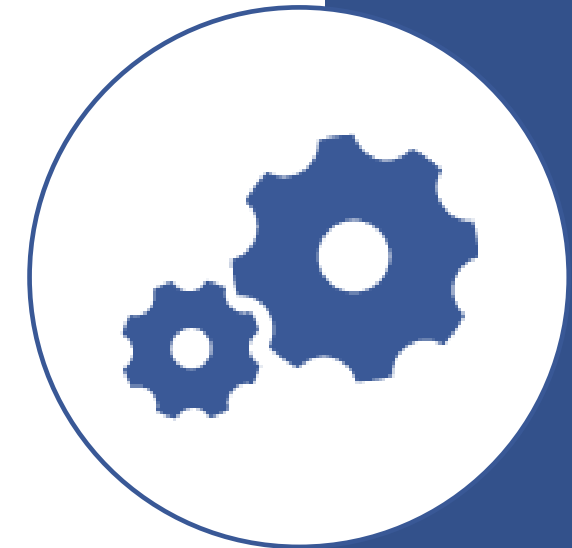


Conditions of Satisfaction

Client Business Case → Establishing Project Budget → Aligning Values and Design to Budget

Challenges:

- Aligning Conditions of Satisfaction to Design and Budget
- Kaiser Cost Model – Algorithm based budget creation
- Kaiser Design Technical Standards/ Design Excellence
 - Modular Wall System
 - L.E.E.D. Gold Goal
- Multiple stake holders



New Technology Usage Case

Modular Wall System



Plan

- Owner Conditions of Satisfaction – Innovation



Do

- Incorporation of Modular Wall system



Check

- Use of the CBA process



Check Again

- Second check for direction using budget as a driver rather than innovation



Action

- Taken to eliminate modular wall system to meet cost and schedule. Process used CBA+ additional research

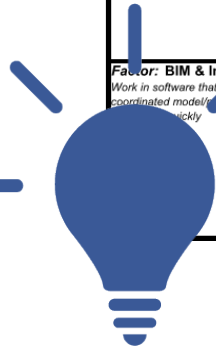
Kaiser Permanente

Los Gatos MOB Renovation

Herrero Builders

Choosing By Advantages Decision Study

Baseline	Scale of Importance	DIRTT Walls / OneWorkPlace	Conventional Construction and Drywall Trade Partner	
Preconstruction Hours Qualification Status Expiration Date	Most = 3 More = 2 Some = 1 None = 0			
Factor: Schedule Ability to support project schedule targets in design and construction		Given the more detailed information needed for design of walls, design time anticipate to be longer. Given the limiting factors for DIRTT scope not clear it will gain time savings in construction. Assume schedule extension for design	Assume no schedule extension	
Attribute:				
Advantage:	3	0	0	1 3
Factor: Budget Ability to support project budget targets in design and construction		DIRTT is more expensive. Assume the project would need a budget allowance for accommodate a amount of DIRTT. Increased design team costs include adding acoustical consultant, increased HGA staff for coordination and more detailed design of walls and ceilings, as well as increased costs associated with increased schedule in design.	They would have to hit their target.	
Attribute:				
Advantage:	3	0	0	1 3
Factor: Target Value Delivery & IPD Participating trades experience in IPD projects and Target Value Delivery		OneWorkPlace has not signed an IPD contract, note that they would be willing too. Not clear that they can be incentivized to provide unbiased feedback when it comes to use of their system vs convention for the best selection for the project.	Depends on who we pick as our drywall trade partner. We do believe that we will be able to find drywall trade partners with IPD and TVD experience.	
Attribute:				
Advantage:	3	1	3	2 6
Factor: Project Experience Experience in healthcare projects		DIRTT does have a good amount of healthcare experience with their product. The OneWorkPlace team's healthcare experience seems to be quite limited with the exception of the work they are currently working on for Sutter VNG MOB	Depends on who we pick as our drywall trade partner however we feel that there are drywall trade partners with vast healthcare experience.	
Attribute:				
Advantage:	3	2	6	2 6
Factor: Risk Mitigation Ability to forecast issues to help mitigate risk on the project.		Given that this is a new system that is not only a material but also a process change, the team (HGA, Herrero and KP) feels limited in their ability to forecast potential issues and impacts for design decisions. Not confident that the OneWorkPlace team has the experience to forecast and be a proactive team member in this regard. Seems to be reactive based on clashes as flagged by their software.	This is the material and system of construction that the full team have worked with for years.	
Attribute:				
Advantage:	3	0	0	3 9
Factor: BIM & Integrated Design Work in software that is clashable and able to viewed in a coordinated model so issues can be seen and quickly		Not totally clear on this but it sounds like the OneWorkPlace team works with Revit as well as in their ICE file and that there are ways to clash it and bring it into the Navisworks/BIM 360 Glue environments. One limiting factor is that only 1 person at a time can work in the DIRTT ICE file. This presents a capacity issue in crunch times.	Trades selected will need to work in a clashable software. This is standard for this trade partner so we do not foresee this being an issue.	
Attribute:				
Advantage:	3	1	3	1 3



Ineffective Team Dynamics



- Plan :

- Assemble team with experience on paper



- Do:

- Trust & Communication Suffered



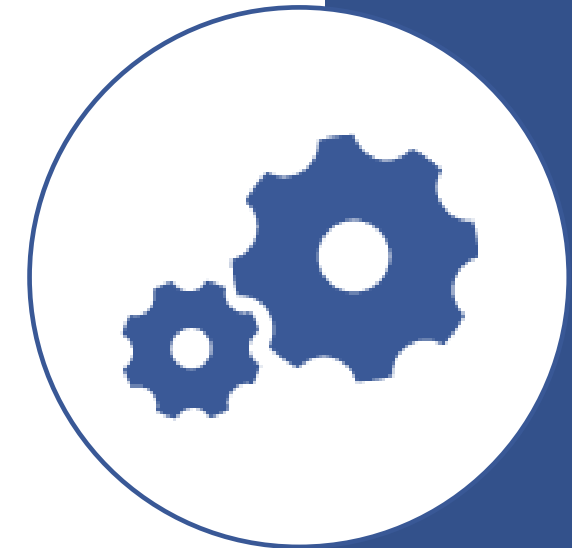
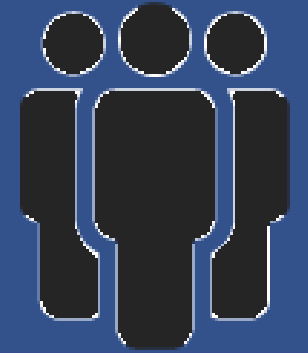
- Check:

- Herrero realized that a change needed to be made during the monthly VIP (Value Integration Process) survey and took action.



- Act:

- New team members focused on the design schedule, milestone alignment,
- Revisited the VIP process and True North Indicators to understand what the team valued.



Navigating Multiple Stake Holders



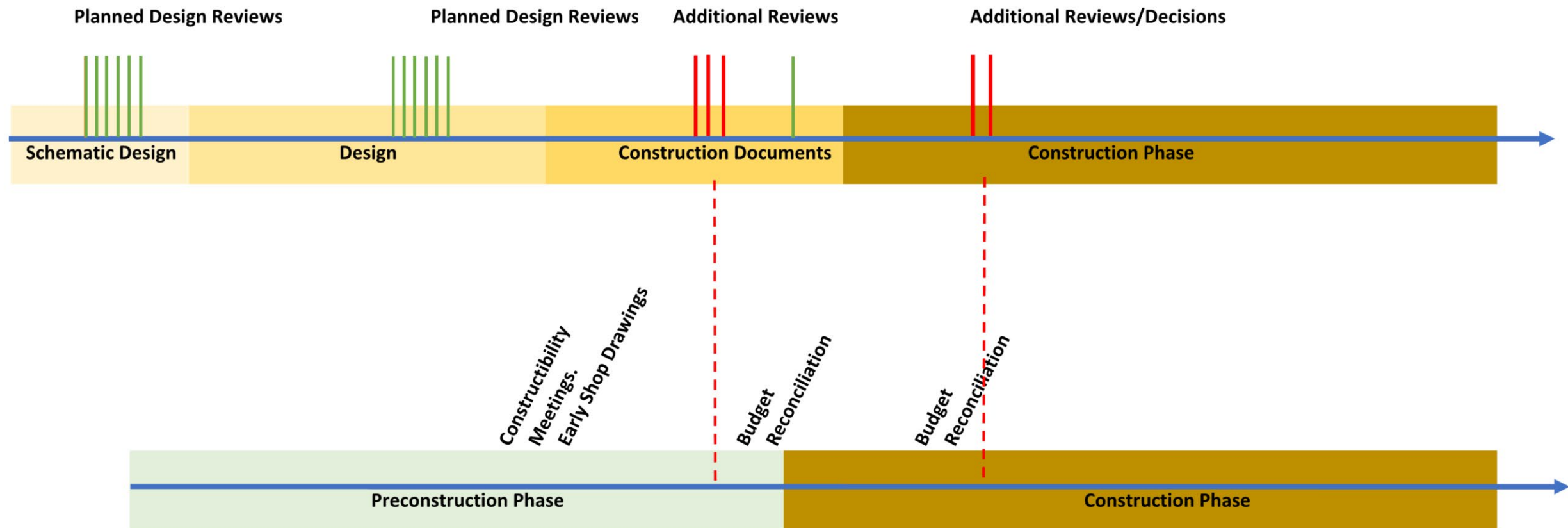
PHARMACY HRR	STATUS	COMMENTS	RISK
50% SD	Complete		
70%DD	Pending	Final plan reviewed and submitted, DMAP for reduced OTC submitted; pending approval	Low - DMAP to reduce OTC is to improved queuing.
CD Phase - Not Required	N/A	Per Fang Yang will not be required	
STERILE PROCESSING HRR	STATUS	COMMENTS	RISK
50%SD	Complete		
50%DD	Complete		
CD Phase - Not Required	N/A	Per Kim Weller not required. Engineering to follow up if necessary.	
VISIONS ESSENTIALS HRR	STATUS	COMMENTS	RISK
50% SD	Complete		
50%DD	Complete	Approved. No further formal review necessary.	
CD Phase - Not Required	N/A	Per Linda Raker no further formal review necessary.	
SPECIAL PROCEDURES HRR (EYE SURGERY)	STATUS	COMMENTS	RISK
50% SD	Complete	Design team incorporating suggested changes into design.	
50%DD	Complete	Approved. No further formal review necessary.	
TOTAL HEALTH ENVIRONMENT	STATUS	COMMENTS	RISK
90% SD	Complete	Design team has revised design based on review comments.	
50% DD	Complete	Per Jennifer McDaniel further review will be informal; any changes will be minor	
DESIGN EXCELLENCE	STATUS	COMMENTS	RISK
50% SD	Complete	SD follow up review scheduled for 6/27	Added scope, changes to ex. Design
50%DD	Complete	Per Pat Bertholz further design review can be with Jennnifer McDaniel	
ENGINEERING	STATUS	COMMENTS	RISK
100% DD	Complete	Design team answered list of questions by Maya and Jun.	
Further review necessary?	N/A	Further review is not necessary; team has compelted questionnaire	
SECURITY	STATUS	COMMENTS	RISK
100% DD	Complete	Some minor changes to door security in departments and Pharmacy	Low, some cost savings, some additions
50%CD	N/A	Per Security reviewers, future reviews can be informal document submittals	

- Owner Conditions of Satisfaction – Regional Design Reviews
- Design review were disruptive to the schedule
- Challenge: Keep the design progressing while other sections of the building are being “held”. Implications for MEP design.



Aligning Timelines & Expectations

- Actual process differed from ideal process.
- Planned vs Informed PDCA cycle

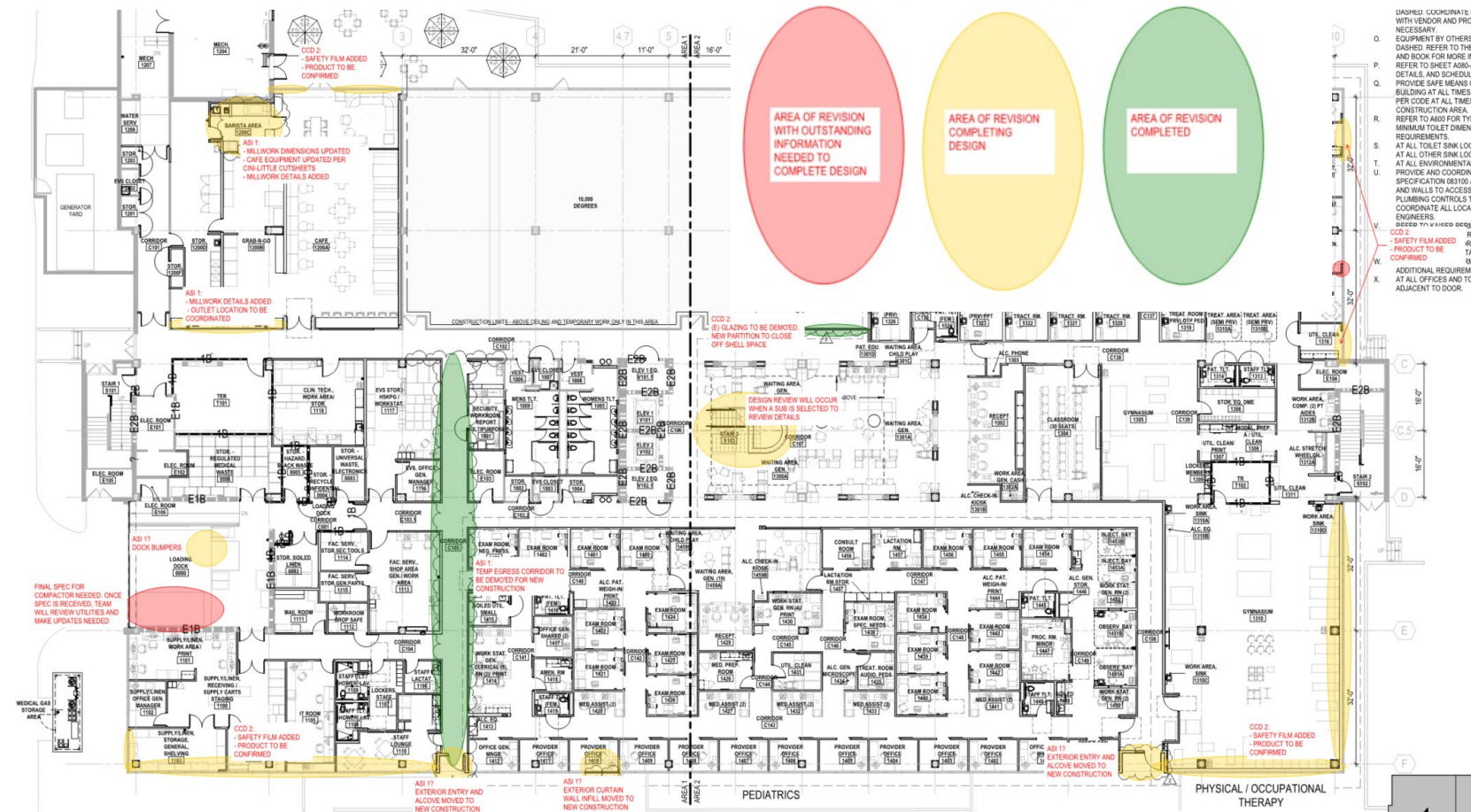


Aligning Timelines & Expectations



- Collaboration with Owner PM
- Heat maps to visually convey transient Design areas
- Page turns during Milestones

Heat Map of Design Changes



Existing Air Handler Systems



- **PLAN** - Initial Business Case \$/SF did not include a full replacement of the AHU's



- **PLAN AGAIN** - "LEED Gold" Goal schematic design was drafted, and cost analysis was performed



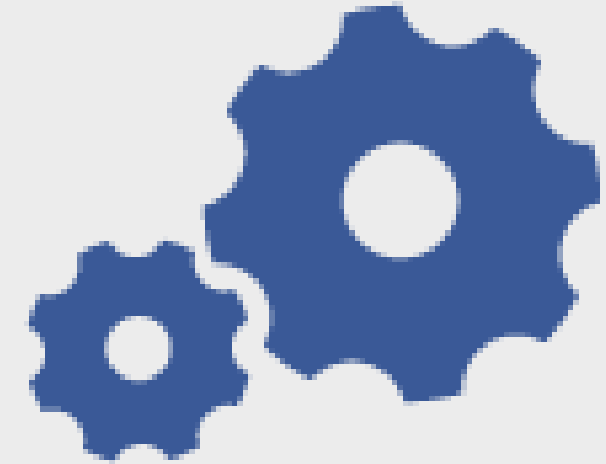
- **DO** - The design development moved forward with full replacement



- **CHECK** - The conditions of satisfaction for the cost did not align
 - The upgrade was completely abandoned

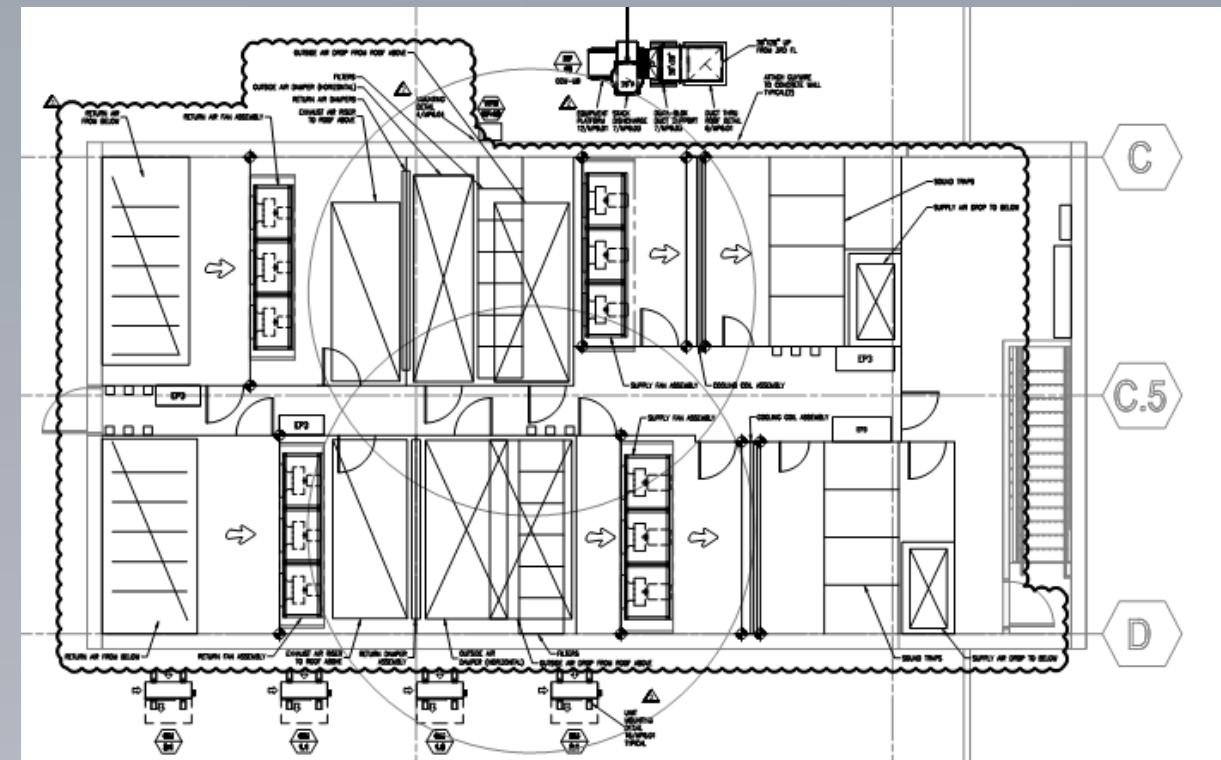
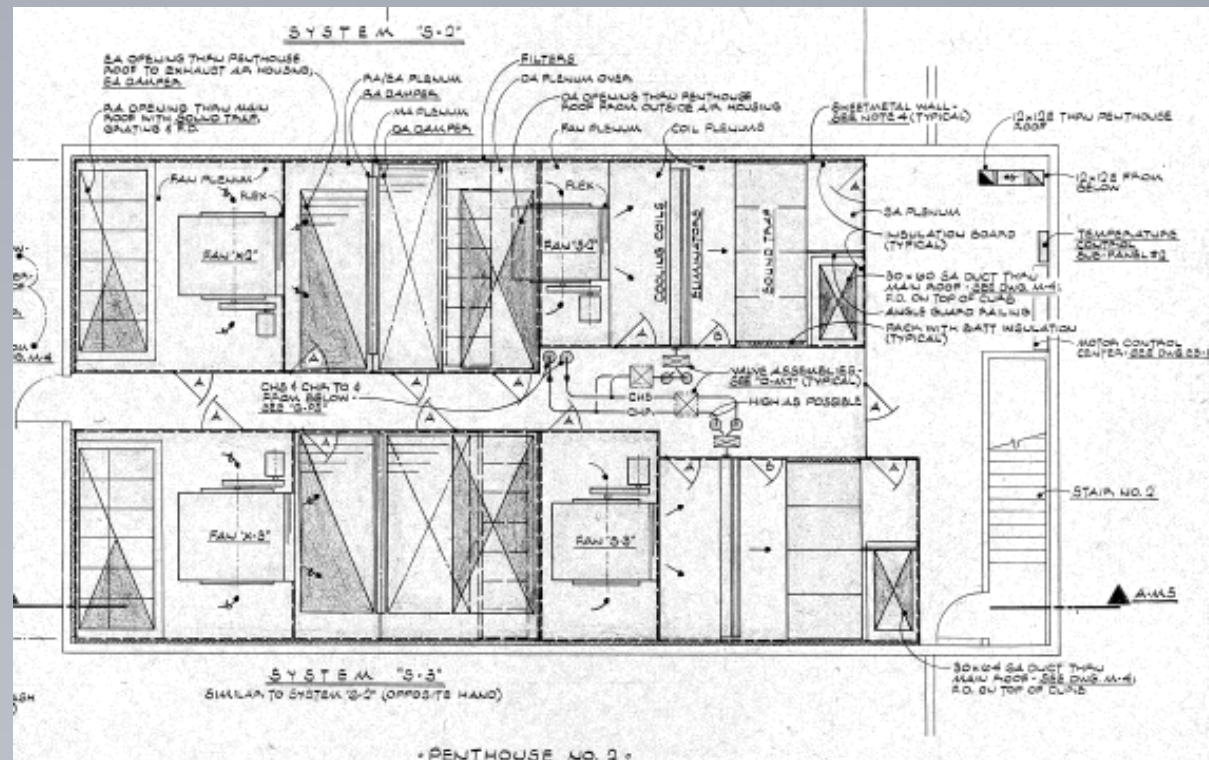


- **CHECK AGAIN**



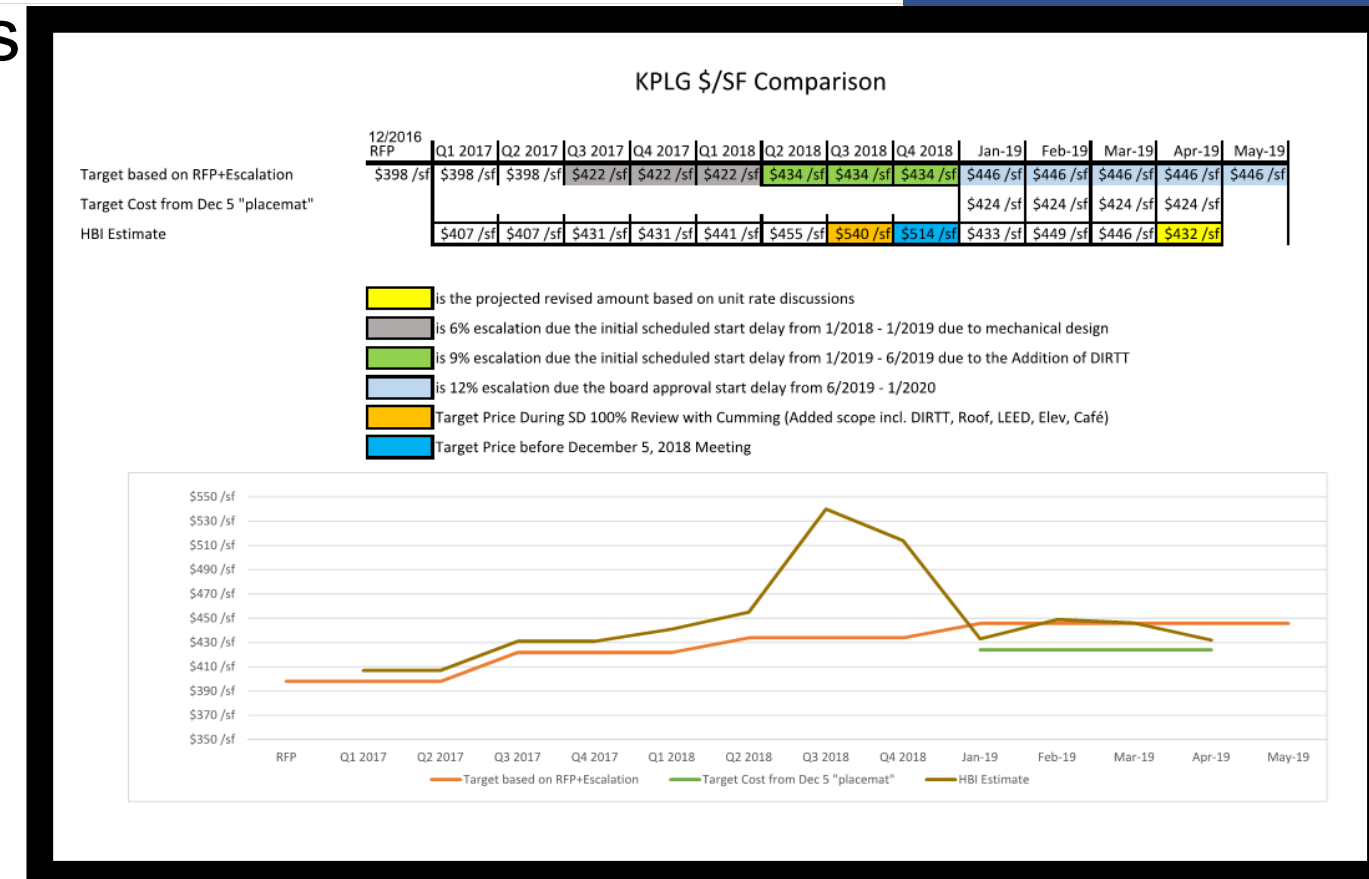
Air Handler Performance

- Pre-Balance showed fan and coils under performing by 20-40%
- (E) Built-up air handler penthouse.
- Fan Array Upgrade (to provide redundancy)



Budget Changes

- Initial Construction budget established 3 years prior to start of construction in Owner Business Case
 - Regional Cost Model
 - Design Program conflicts
 - Shifting Economy/Market
 - Value Engineering to re-align the costs
 - Owner increased budget
- 40% construction progress: savings projected through construction efficiencies
- Opportunity to Add Value



PDCA – Establishing process



- Putting process in place **Early** on in the project as a framework makes the use of it natural
 - Owner, Design Team and Construction Team
- Utilizing the **Established** Process
 - **Macro & Micro** problem solving
- Have the Process **Flexible** enough to iterate
- The leads to **Continuous Improvement**



How can you apply this tomorrow?

- *Using the PDCA Cycle as a larger idea can propagate into smaller instances and build a more collaborate and cohesive team working on either IPD or DB projects in the Design Phase.*
- *Asking Owners to use a PDCA cycle in the design phase can aid in focusing the design and Pre-Construction team and achieve goals faster and more effectively*



Plan



Do



Check



Act



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