

Seizing the Day

Leveraging Chiller Replacements to Drive towards Carbon Neutrality

AMGEN

BURNS  MCDONNELL

Jeff Easton, PE

Thomas Bakane, PE

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TECHNOLOGY EVALUATION

- Chillers
 - Exterior site
 - Many options now available
 - Refrigerant considerations
 - Differing sweet spots

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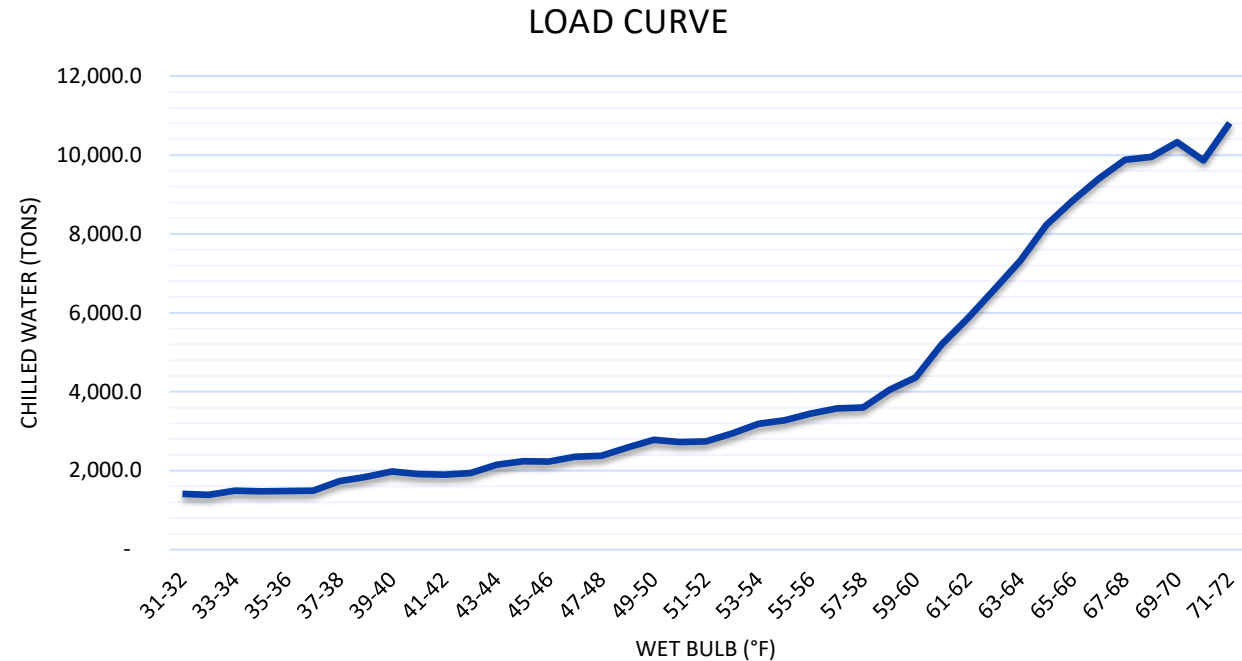
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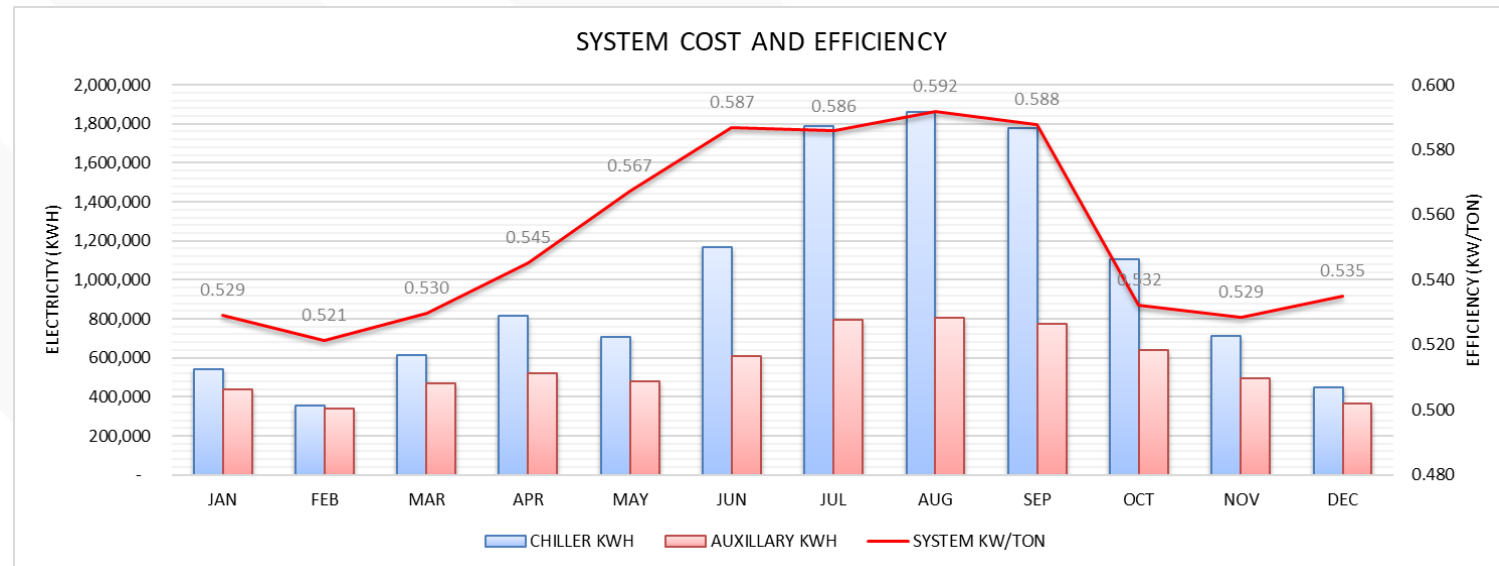
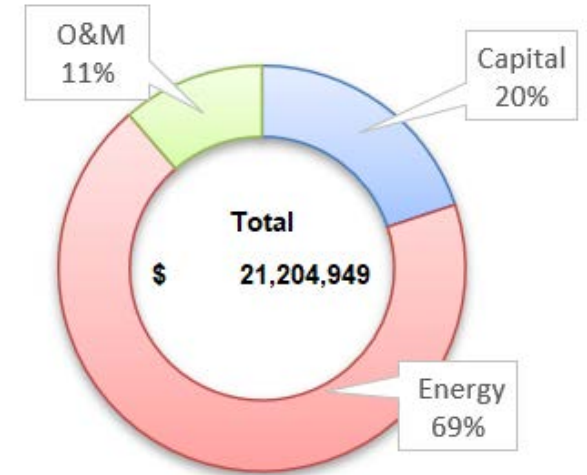
TECHNOLOGY EVALUATION

- ▶ Cooling Towers
 - Cross/Counter flow
 - Fit vs. Performance
- ▶ Pumping Arrangement
 - Moving to VP at B7U
 - Mix of pumping systems
- ▶ Controls (PLC vs DDC)



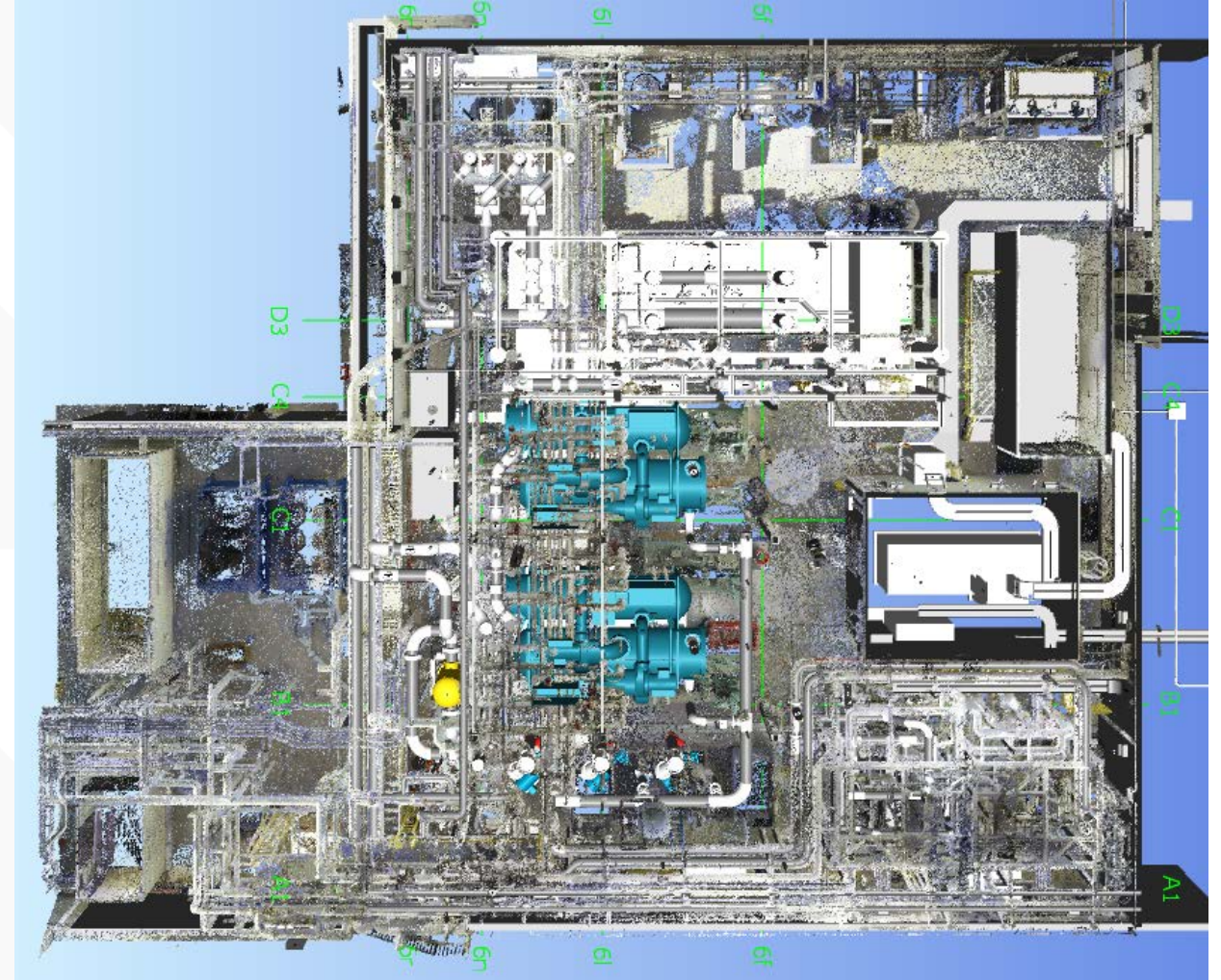
ENGINEERING ANALYSIS

- ▶ Energy/Carbon
 - Dispatch Model
 - TEWI metric
- ▶ Chiller Evaluation
 - Initial standardization
 - Qualitative factors
 - LCCA Results

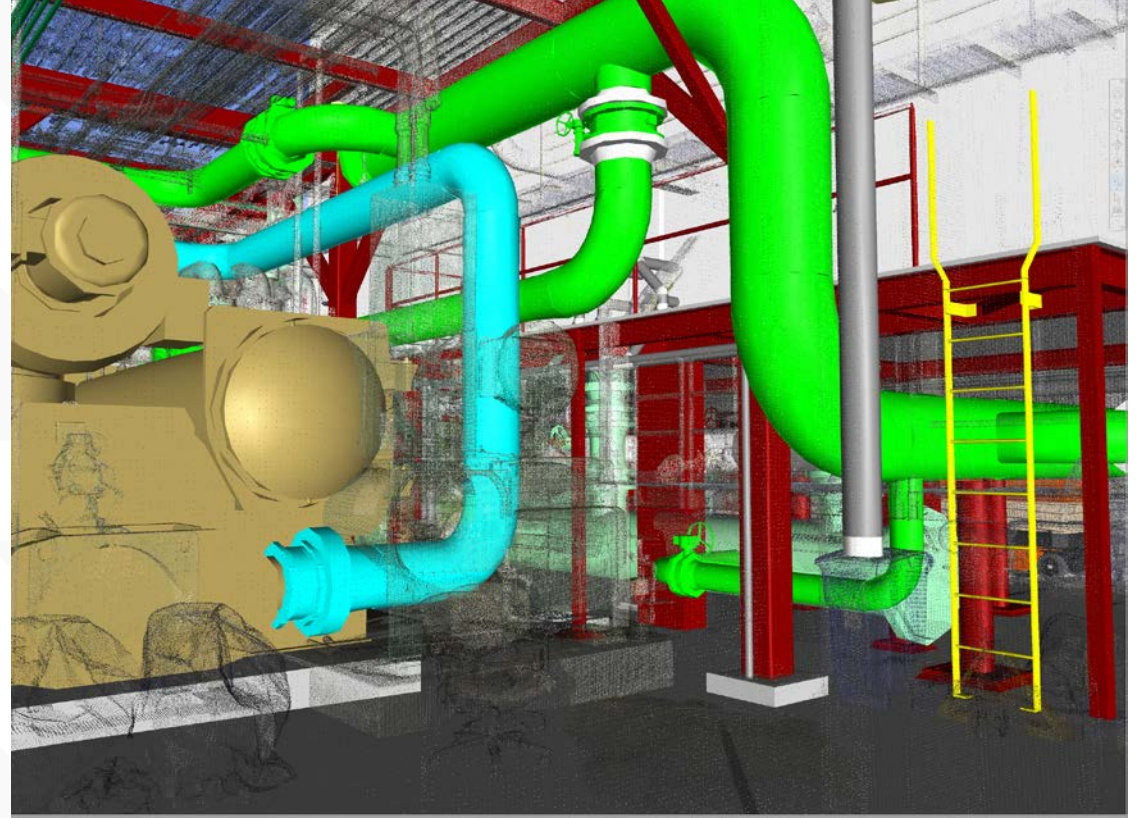
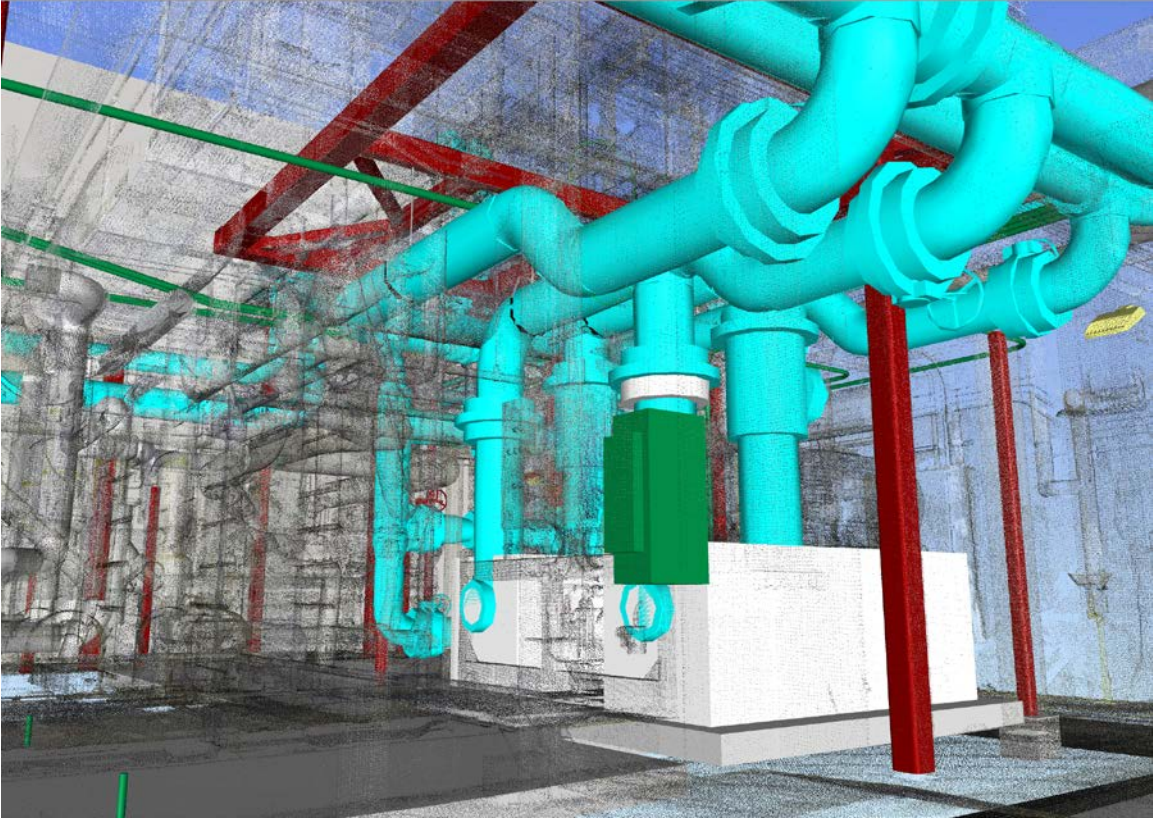


DESIGN DEVELOPMENT

- ▶ Technology integration
- ▶ Extreme diligence / planning
- ▶ “Surgical” demolition

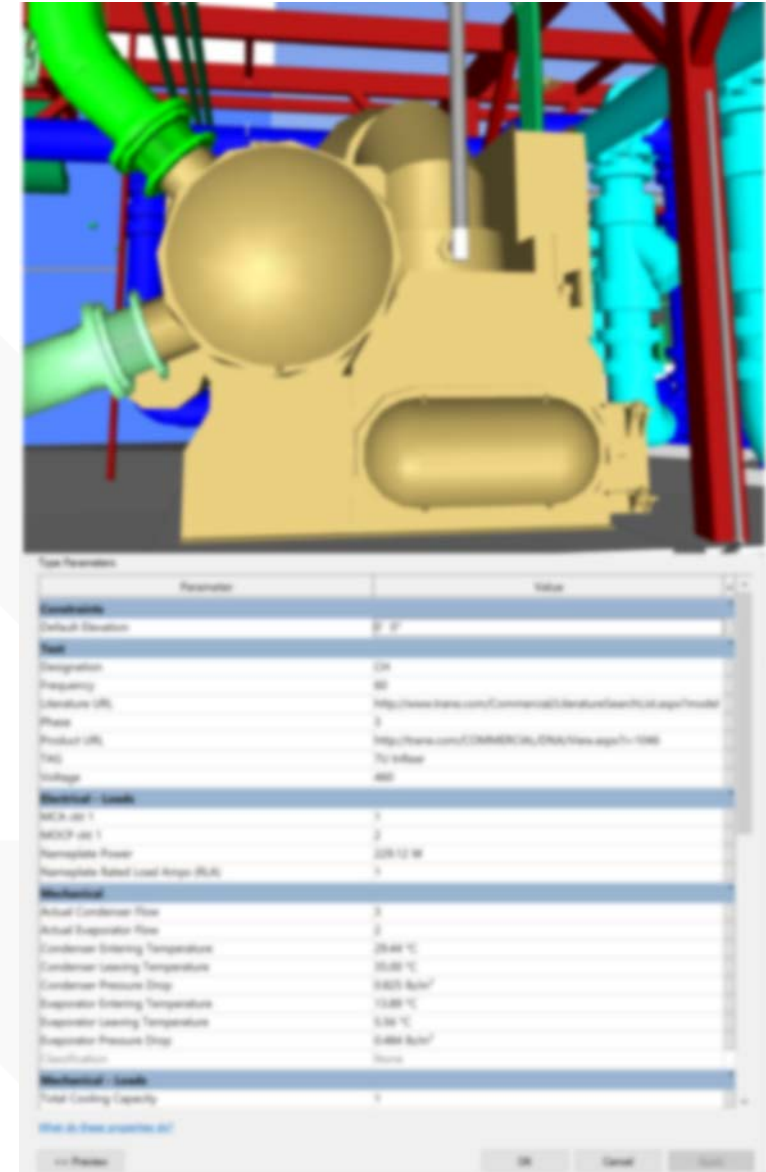


DESIGN DEVELOPMENT



DESIGN DEVELOPMENT

- ▶ One BIM plan to rule them all!
- ▶ Seamless Data Integration
 - Revit → CMMS
- ▶ Collaboration with installing subs
- ▶ LOD 550 As-built



DESIGN DEVELOPMENT

- ▶ Stress modeling
- ▶ Structural improvements
- ▶ Chiller/component access
- ▶ Delivery method



PHASE 1 PROJECT EXECUTION

- ▶ Team Coordination
- ▶ Tie-in strategy
- ▶ Outage planning
- ▶ Early lessons learned
 - Procurement hurdles
 - Lead times

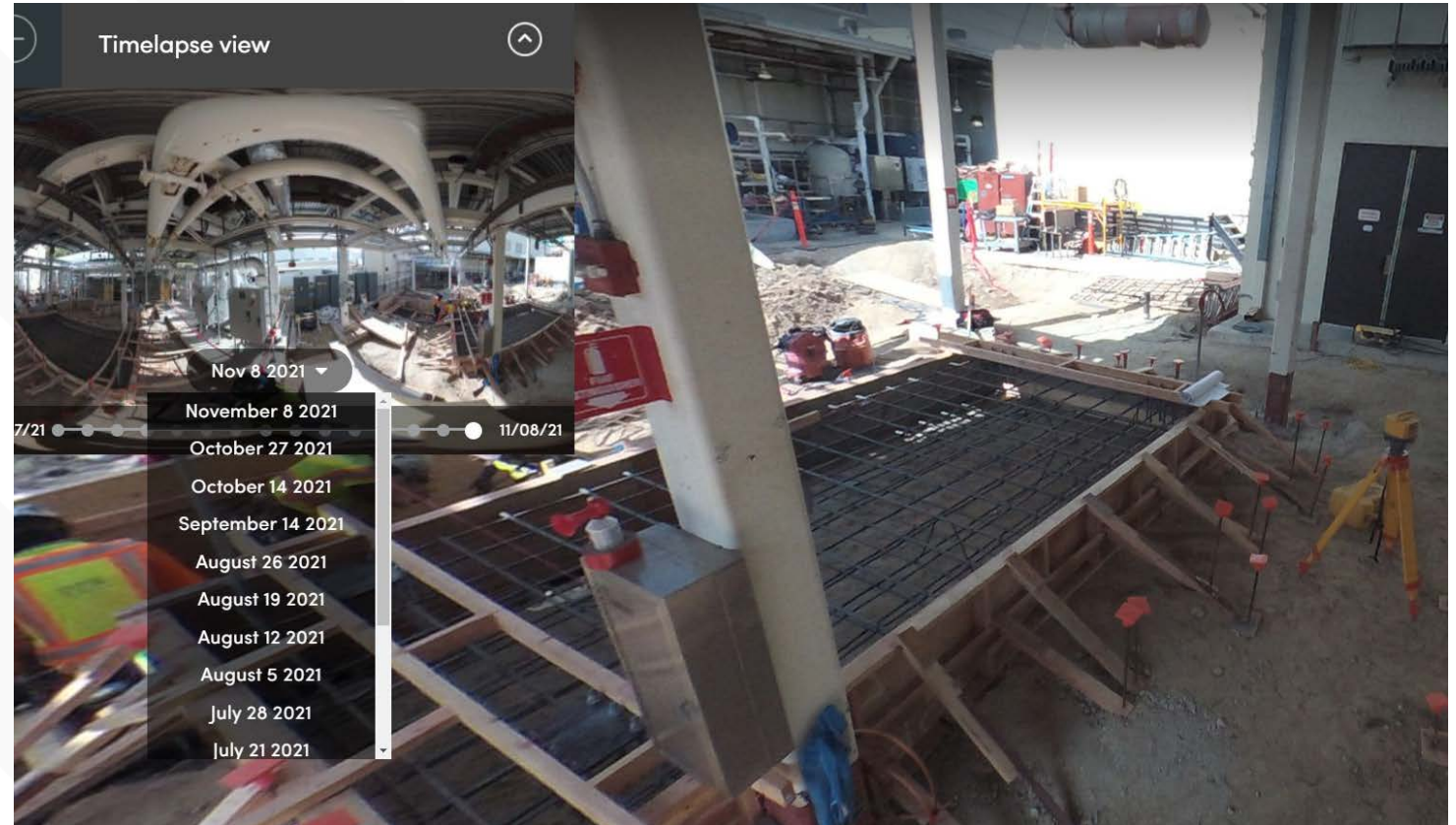


Image courtesy of Amgen



QUESTIONS?



