

Equipment Upgrades in a Space-Constrained Plant: *University of Rochester Boiler Installation*



UNIVERSITY of
ROCHESTER

Presented By:

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International District Energy Association
Campus Energy Conference 2017

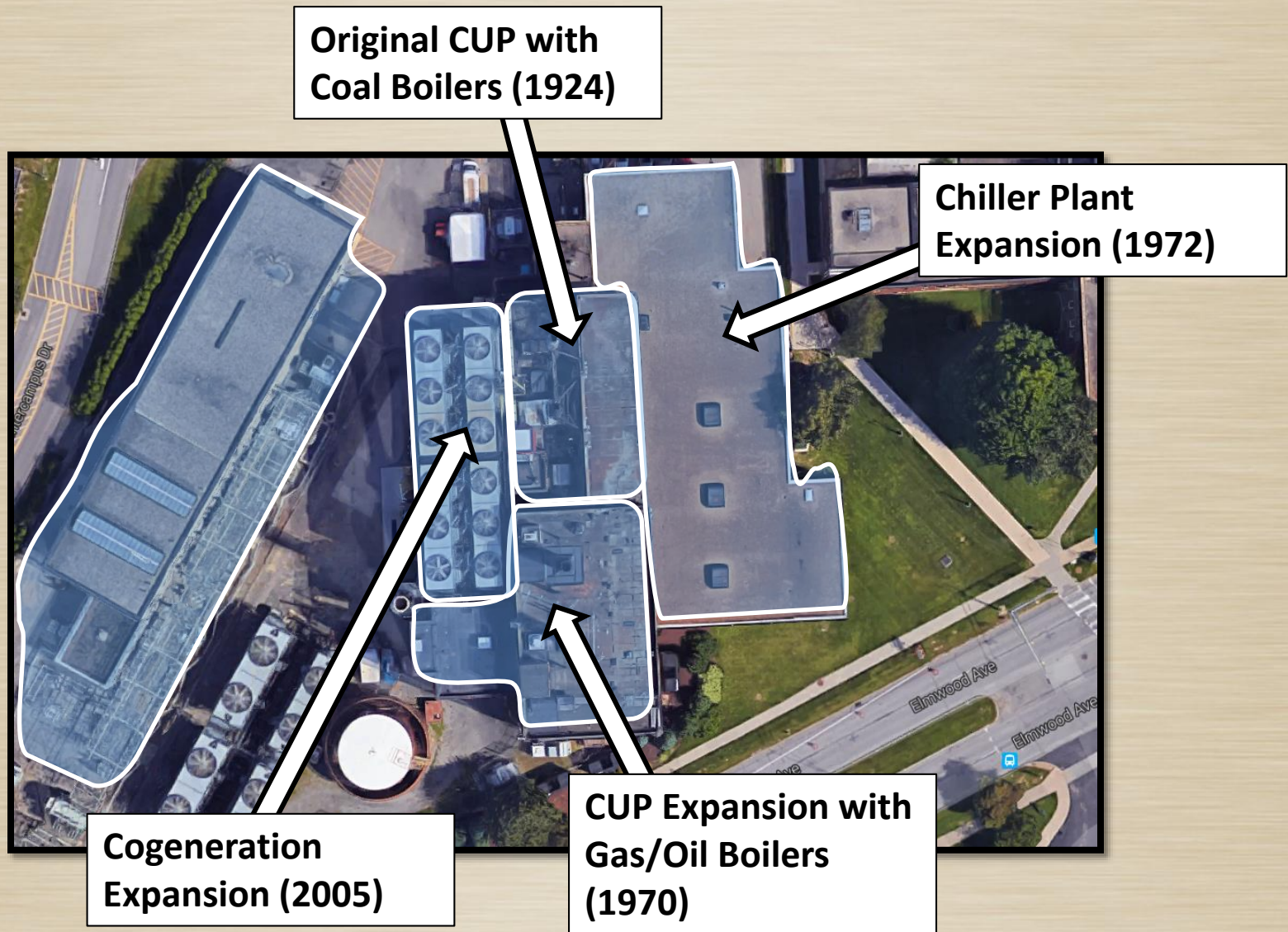


Goal of Presentation

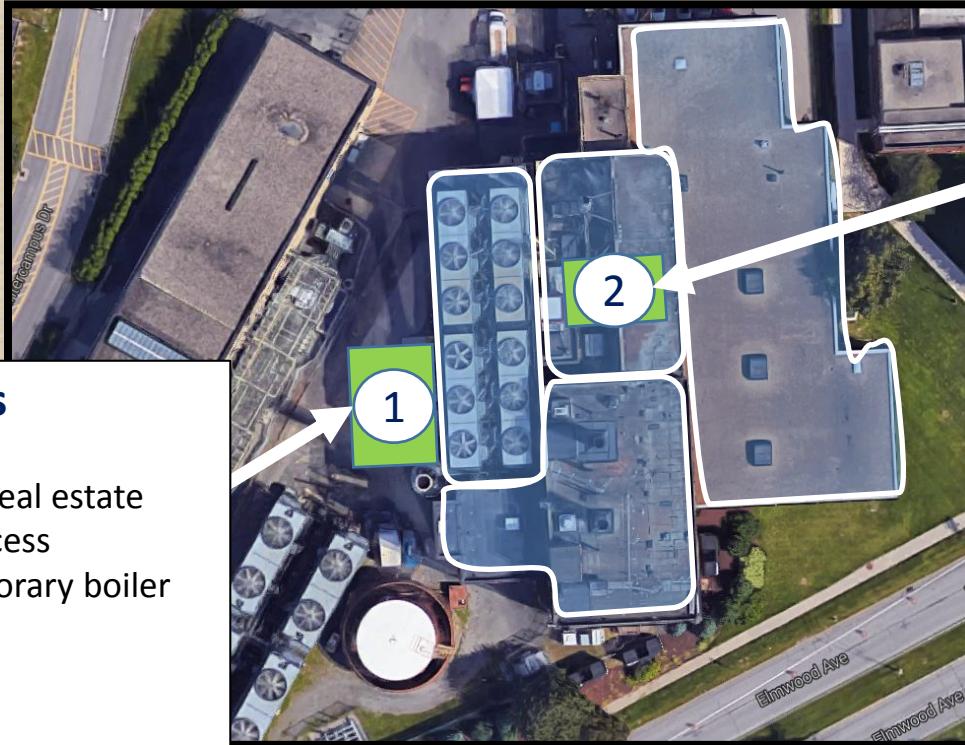
Provide a case study of how the University of Rochester and Sega worked together to install a boiler into the middle of an existing plant.



Project Background



Placement Considerations



Disadvantages

- New stack
- Uses valuable real estate
- Limits plant access
- Removes temporary boiler option

Advantages

- Easiest placement
- No demo required
- Enclosure required

Disadvantages

- Difficult move-in (obstacles)
 - Chiller
 - Two walls
 - Conduit chase
- Existing boiler demo required
- Limited indoor space

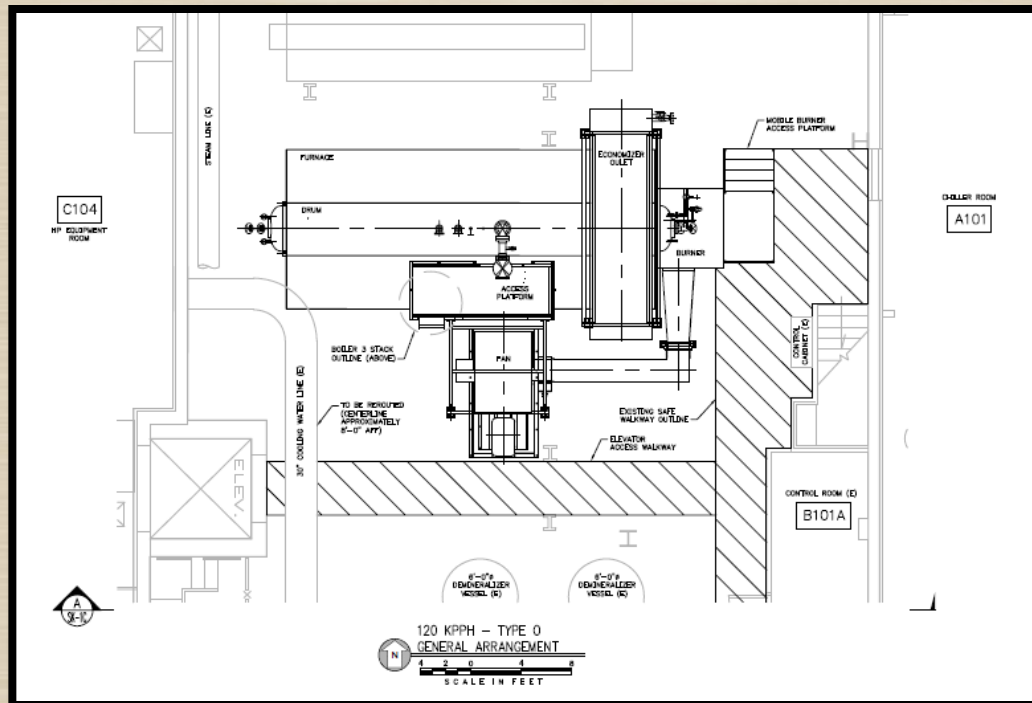
Advantages

- Better operator access
- Preserves outside space
- Preserves temporary boiler option
- Opportunity to remove harmful materials



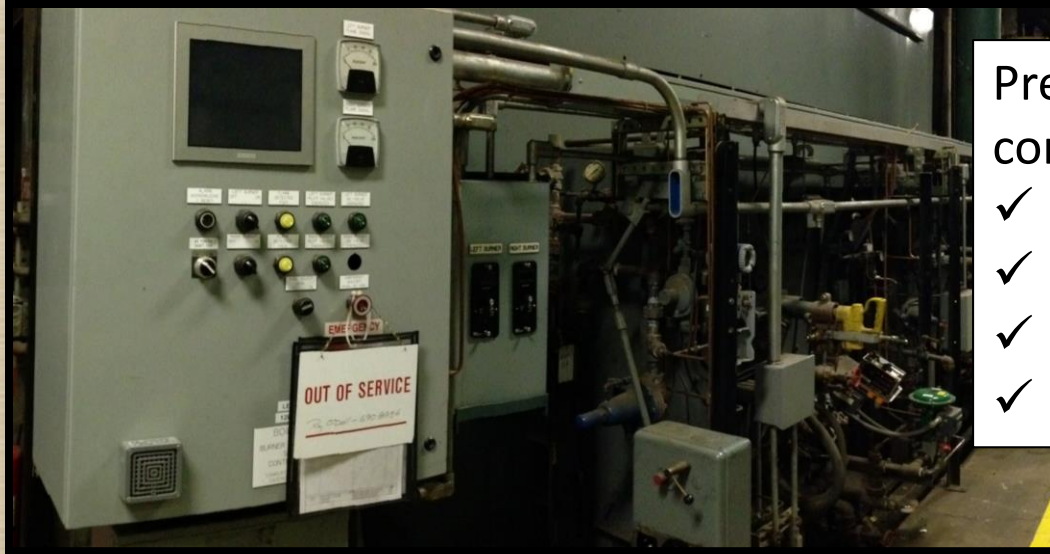
Placement Decision: Indoor

- Lowest evaluated cost option
- Best long-term plant flexibility
- Allowed for optimizing internal space



Challenges for Indoor Boiler Option

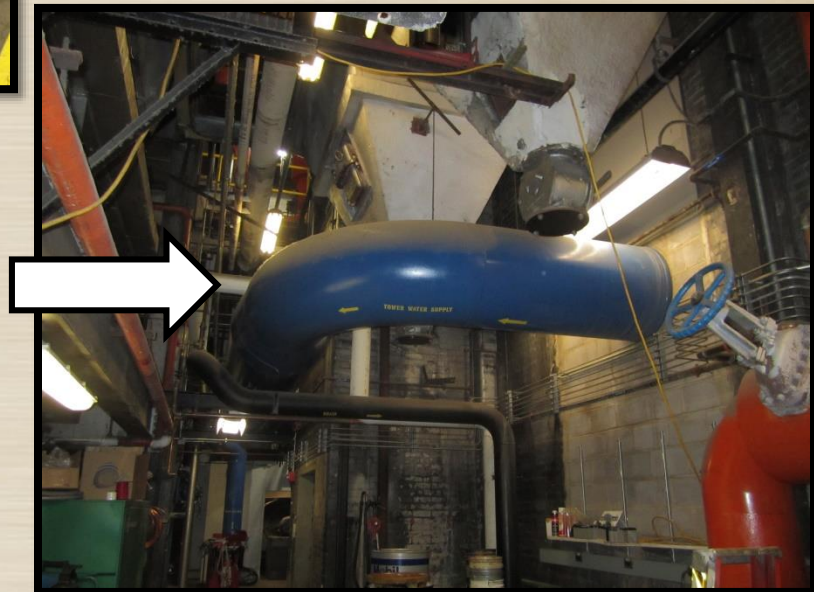
Existing asbestos-filled boiler in way



Previous study confirmed asbestos construction:

- ✓ Boiler insulation
- ✓ Breeching
- ✓ Piping
- ✓ Ash hoppers

24" cooling tower water piping in way

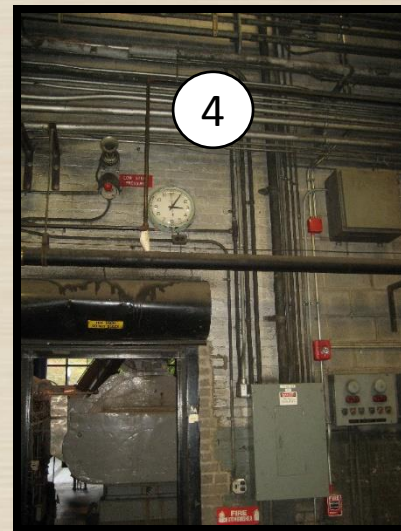
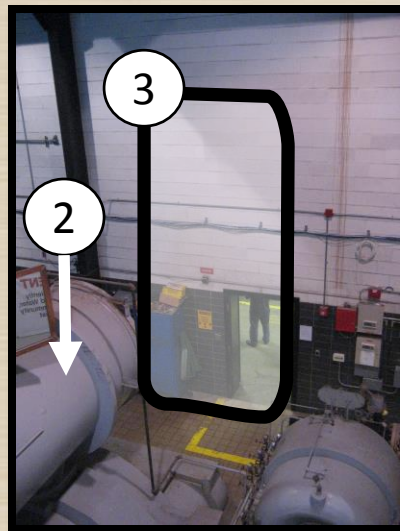


Challenges for Indoor Boiler Option

Obstacles for move-in:

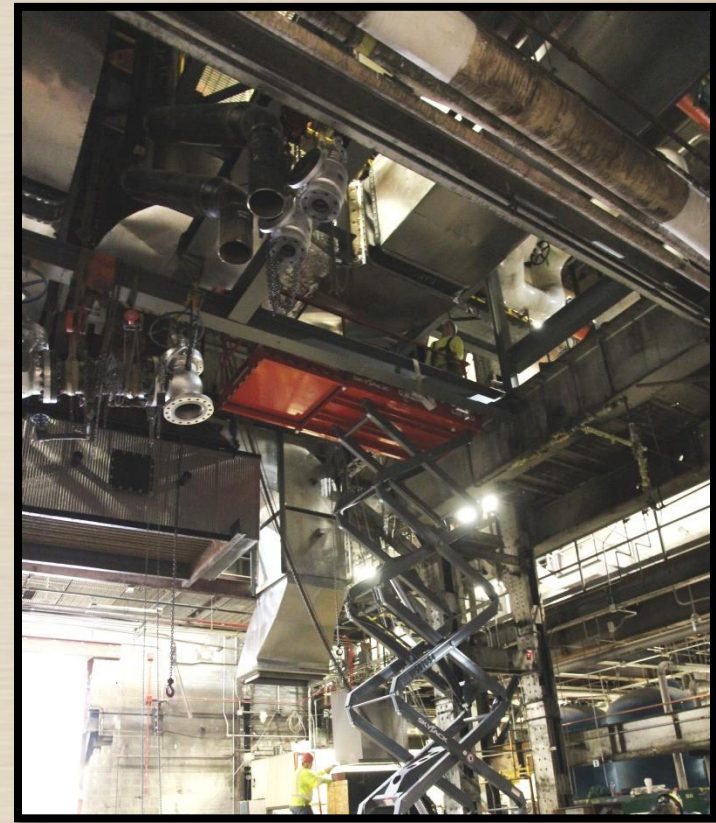
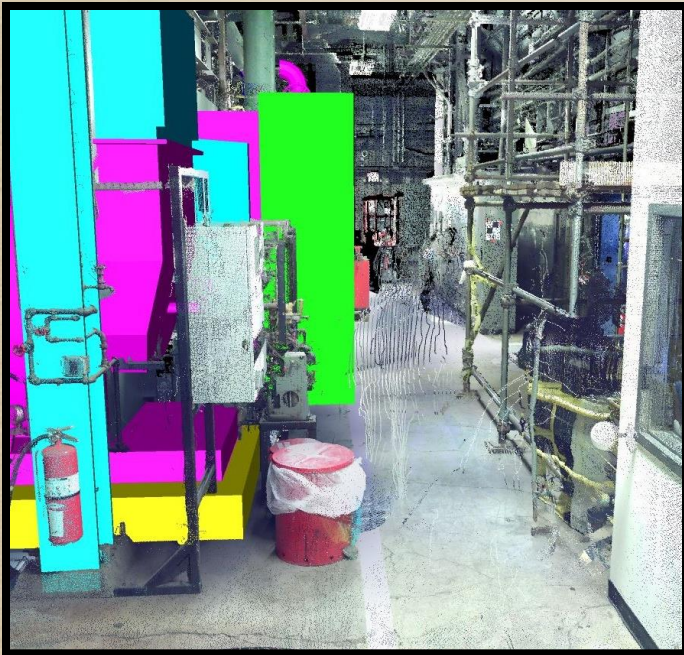


1. Exterior glass wall
2. Existing chiller
3. Interior CMU wall
4. Conduit chase
5. “Minor” obstacles



Challenge Solutions

Challenge	Solution
Limited Space	<ol style="list-style-type: none">1. Utilize an O-Style Boiler to best fit space2. Perform layout design in a 3D environment (scans)3. Top-down construction



Challenge Solutions

Challenge	Solution
Asbestos / Demolition	<ol style="list-style-type: none">1. Address schedule/budget for abatement and removal2. Simplify new install through re-use of existing infrastructure3. Floor design to best accommodate new boiler (open hole)



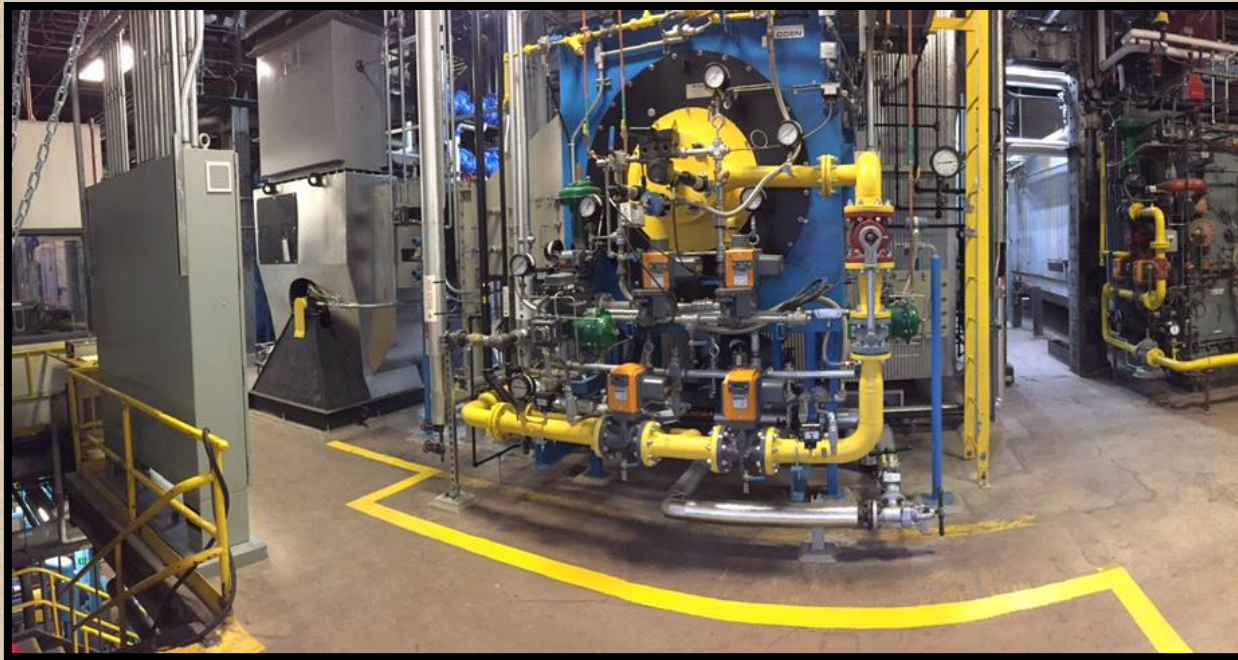
Challenge Solutions

Challenge	Solution
Move-in	<ol style="list-style-type: none">1. Remove unnecessary infrastructure (side benefits)2. Optimize timing for exterior wall removal/replacement3. Prepare “move-in” opening – deciding factor on overall boiler size4. Shoring to support floor5. Communication and planning with other campus divisions



Outcome

- Construction substantial completion 09/30/2016
- Startup / tuning / commissioning completion 11/16/2016
- Performance and emissions testing completion 11/25/2016





QUESTIONS?



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