



Ventilation Upgrade

AUGUST 2017

Why is a ventilation upgrade needed?

- ▶ Chernoff Hall exchanges all building air every 15 minutes.
- ▶ Currently the system moves 60,000 cubic feet per minute (cfm) through the lab portion only.
- ▶ Our department is one of the most notorious consumers of energy on campus



The Plan

- ▶ Install heat exchange coils into the building air intake and into the building exhaust to preheat (or precool) the incoming air with waste heat (or heat the waste air)
- ▶ Increase the number of “virtual stacks” from 6 to 8.
- ▶ As a result the temperature of the incoming air can be adjusted using a fraction of the energy

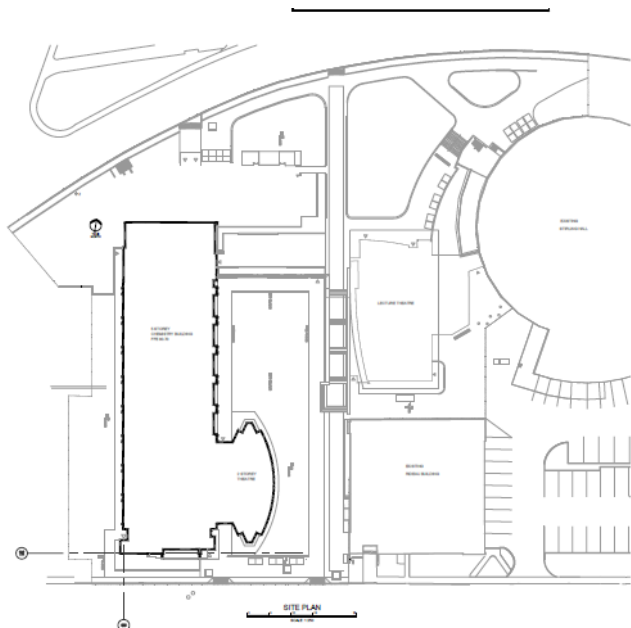
▶ Energy

▶ CO₂ emissions

▶ At a cost

▶ We must

▶ **This is the**

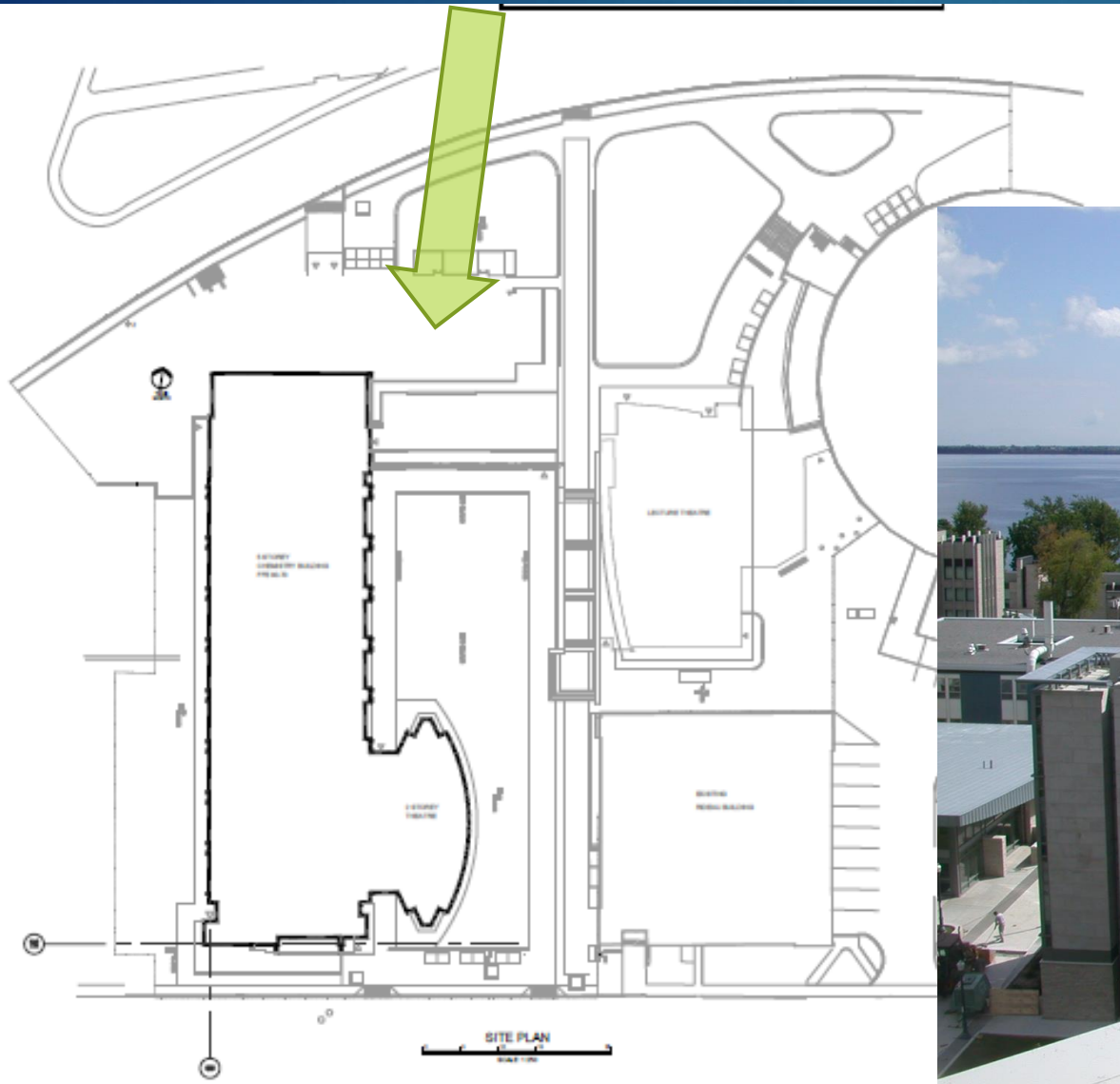


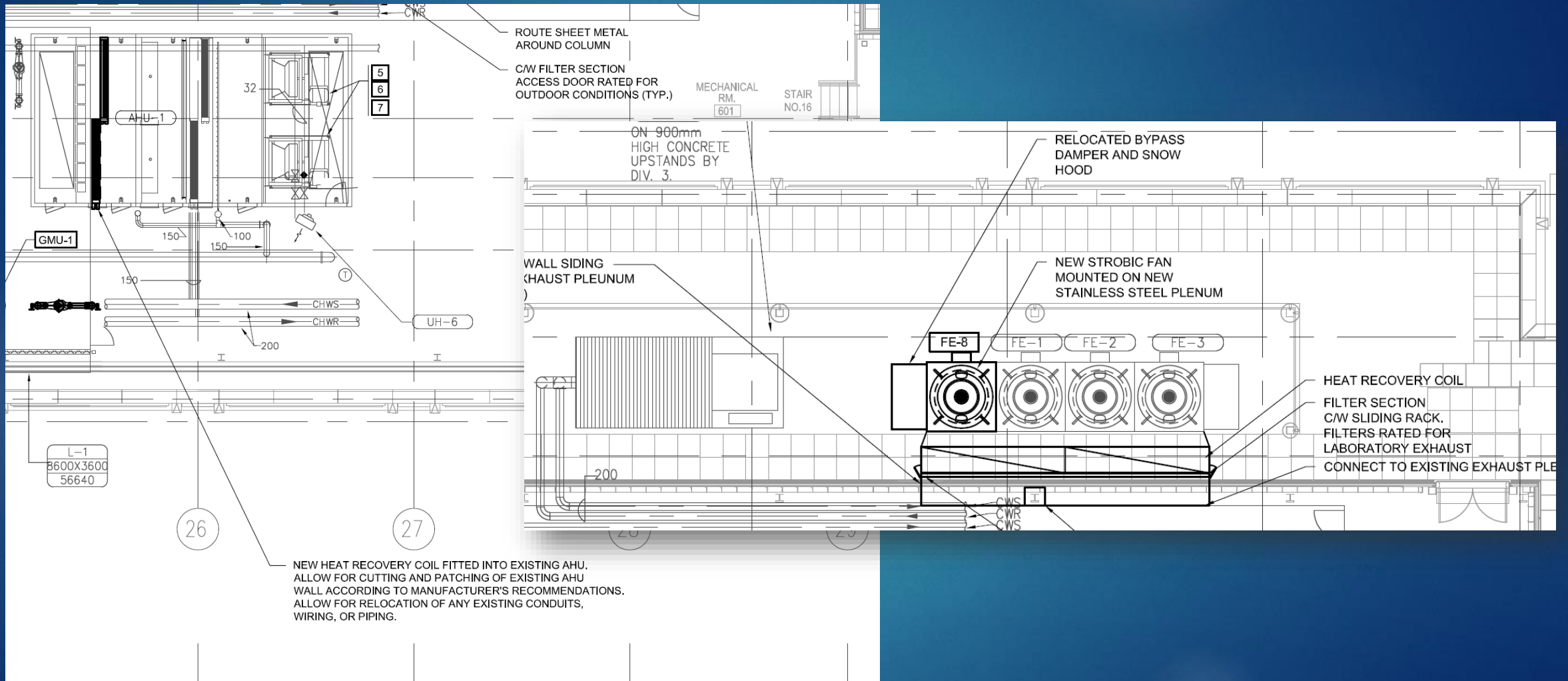
▶ (reducing CO₂ emissions)

▶ can be achieved in under 10 years.

▶ – pending regulatory approval.

▶ **the next story of Queen's.**





Time line: 4 ventilation shutdowns and reduced capacity

1st Shutdown

*Friday July 28th 1:00 pm, to
Monday July 31st, 1 pm
All supply and return air shut down*

*July 31st to Aug 11th
Undergraduate labs to remain closed
and isolated
50% reduction to remaining fume
hood availability*

2nd Shutdown

*Friday Aug 11th 1:00 pm, to
Monday Aug 14th, 7 am
All supply and return air shut down*

*Aug 14th – Aug 18th Undergraduate
labs to be closed and isolated
50% reduction to remaining fume
hood availability*

3rd Shutdown

*Friday Aug 18th 1:00 pm, to
Monday Aug 21st, 7 am
All supply and return air shut down*

*Aug 21st – Aug 28th Undergraduate
labs to be closed and isolated
50% reduction to remaining fume
hood availability*

4th Shutdown

*Monday August 28th 5:00 am to
Wednesday August 30th 1 pm
All supply and return air shut down*

After Aug 30th

All Systems returned to 100%
Capacity

Contingency

(if fan's or coils are not available by
Aug 25th)
*Saturday Sept 16th , 8am until
Sunday Sept 17th , 6pm*

All systems shut down and then
returned to 100% capacity

Timeline

Mon	Tue	Wed	Thu	Fri	Sat	Sun
				July 28 1 pm	29 All ventilation shut down	30
31 1 pm	1	2	3	4	5	6
7	8	9	10	11 1 pm	12 All ventilation shut down	13
14 7 am	15 Teaching lab fume hood shutdown 50% capacity on all research fume hoods	16	17	18 1 pm	19 All ventilation shut down	20
21 7 am	22	23	24	25	26	27
28 5 am	29 All ventilation shut down	30	31	1	2 Moving in Weekend	3
4 Frosh week	5	6	7 Grad Symposium	8 QCIC	9 GDCh	10 GDCh

How does it affect me?

► **Before July 28th**

Preparation for shutdowns

Please identify ½ of your research labs fume hoods that can be de-activated in August. Department will provide stickers that will be numbered and placed on fume hoods – feel free to trade with colleagues.

► **July 28 – July 31; Aug 11-14; Aug. 18-21, Aug 28-30** Total ventilation shutdowns

All chemicals need to be either capped or removed from fume hoods. Chemicals in ventilated storage cabinets need to be capped or removed. Vacuum systems (Mass spec, ICP, SEM) should no longer be “under load”.

► **July 29 – Aug 30**

50% capacity

Please use only 50% of your fume hoods, reduce the load on pumps and solvent cabinet storage to 50%.

170 fume hoods in total; 48 in teaching labs



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