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rev. 9/23/16

Colgate - Chapel House Renovation

Heating Energy - Summary

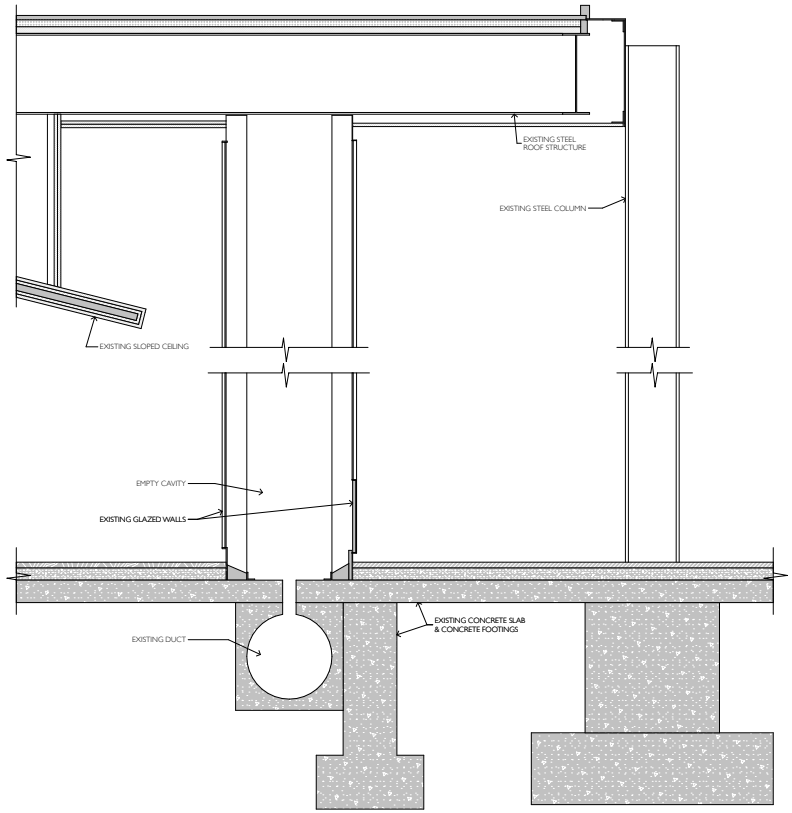
With Actual Blower Door

	Assembly R-Values								Other Loads								
DORMITORY	Stone Wall	Window	Spandrel	Sill/Band	Slab Edge (below grade)	Roof	Door	Glass Door	Infiltration (cfm50)	Internal Gains (kwh)	Ventilation (cfm cont.)	Heat Recovery	Net Annual Load (MMBTU)	**Load Reduction (Envelope)**	Heating System (incl. distr.)	Input (MMBTU)	**Savings (BTU) with GSHP**
Existing Conditions	5.00	1.75	2.00	1.25	0.20	15.00	3.00		2688	2000	600	0%	383	0	70%	547	-
Base Case	5.00	5.00	20.00	20.00	0.20	50.00	3.00		1000	1000	1300	65%	171	**55%**	320%	53	65-75%
All The Way	20.00	6.00	30.00	30.00	10.00	60.00	5.00		550	1000	1300	80%	63	**84%**	320%	20	75-85%

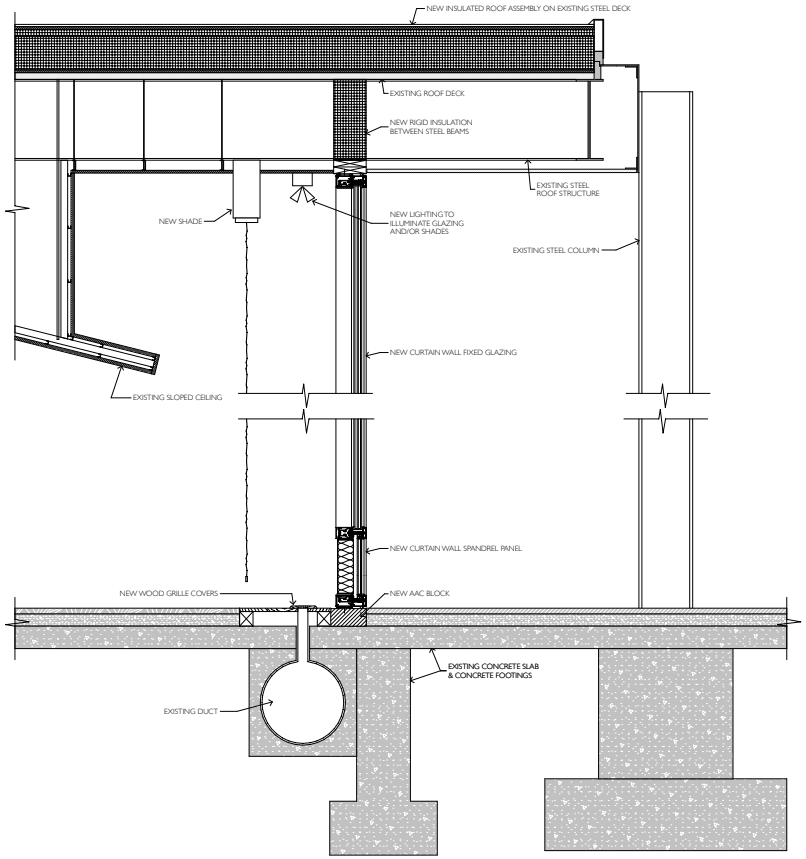
CHAPEL	Stone Wall	Window		Slab Edge	Roof	Door	Glass Door	Infiltration	Internal Gains	Ventilation	Heat Recovery	Net Annual Load (MMBTU)	**Load Reduction (Envelope)**	Heating System	Input (MMBTU)	**Savings (BTU) with GSHP**
Existing Conditions	5.00	1.75		0.20	15.00	3.00	2.00	2500	4000	1200	0%	289	0	65%	445	-
Base Case	5.00	5.00		0.20	50.00	3.00	5.00	500	2000	1200	65%	65	**78%**	300%	22	70-80%
All The Way	20.00	6.00		10.00	60.00	5.00	5.00	200	2000	1200	80%	22	**92%**	300%	7	85-90%

Includes Entry/ Connector

WHOLE BUILDING		Net Annual Input (MMBTU)	**Savings vs. Existing**
Existing Conditions	50% Reduction of existing electric consumption also assumed - based on conversion to LED fixtures.	992	
Base Case	NOTE: Building will incur additional energy CONSUMPTION due to addition of Cooling capacity.	75	65-75%
All The Way	No calculations made in reference to the added cooling load.	27	80-90%



EXISTING WALL SECTION @ CHAPEL GLAZING
SCALE: 1" = 1'-0"



PROPOSED WALL SECTION @ CHAPEL GLAZING
SCALE: 1" = 1'-0"

A5.2

CHAPEL GLAZING WALL SECTIONS

Colgate University Chapel House
Schematic Design
24 September 2015

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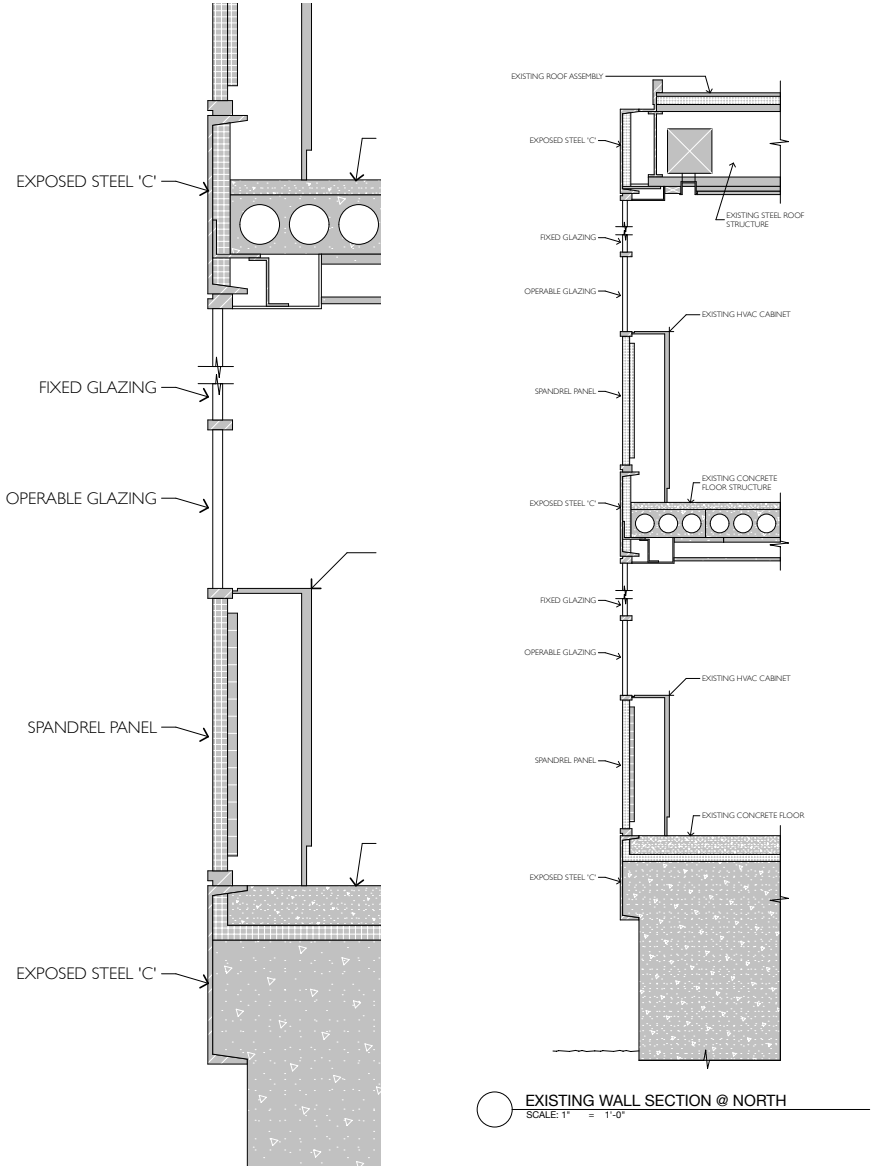
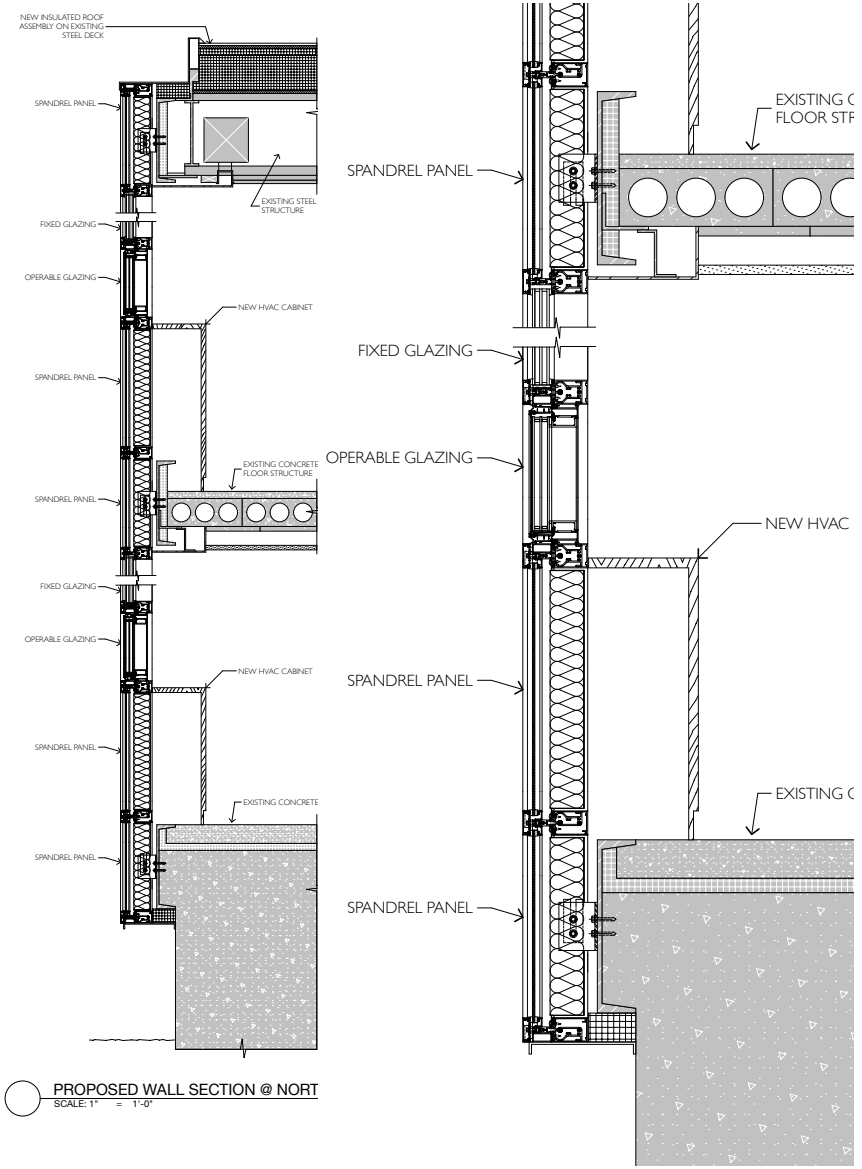
Rev. 0_Colgate Chapel House Print Date: 9.23.15



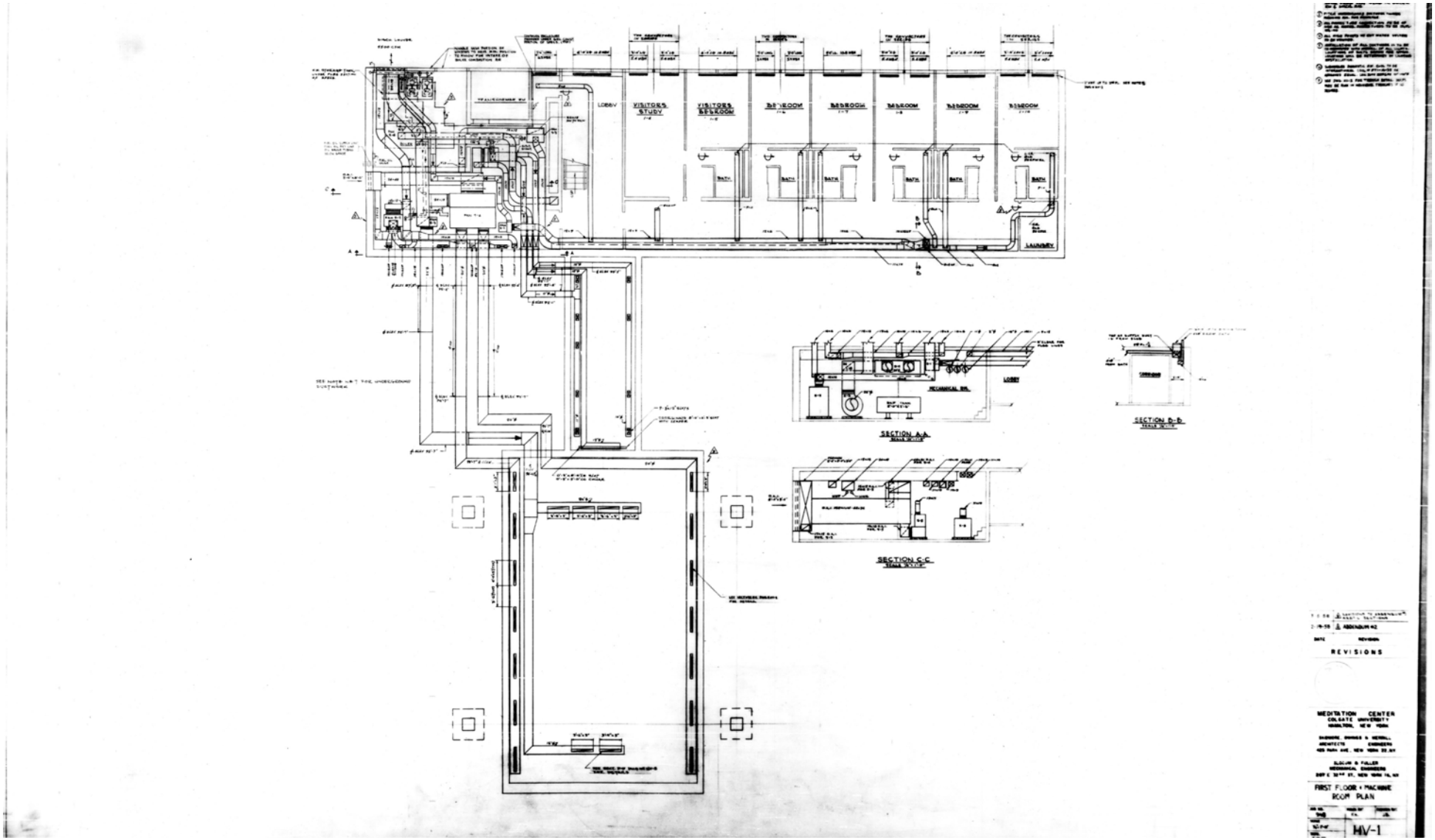


Chapel House- Design Process – New curtain wall outside structure

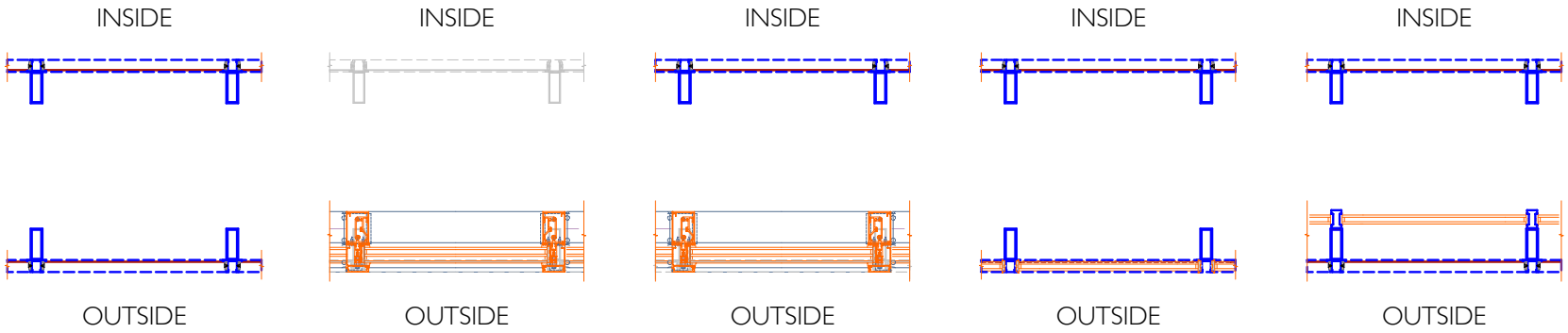
Community Feedback (beyond the Design Committee):

- Plan changes and elevator addition were embraced
- Envelope proposal for new curtain wall at west wall embraced
- Proposal to change the aesthetic of the Amber Glass rejected despite recommendation from the Design Committee

- What to do?



Chapel House- Underground ductwork



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File: 15-06 Colgate Chapel House Print Date: 10/6/15

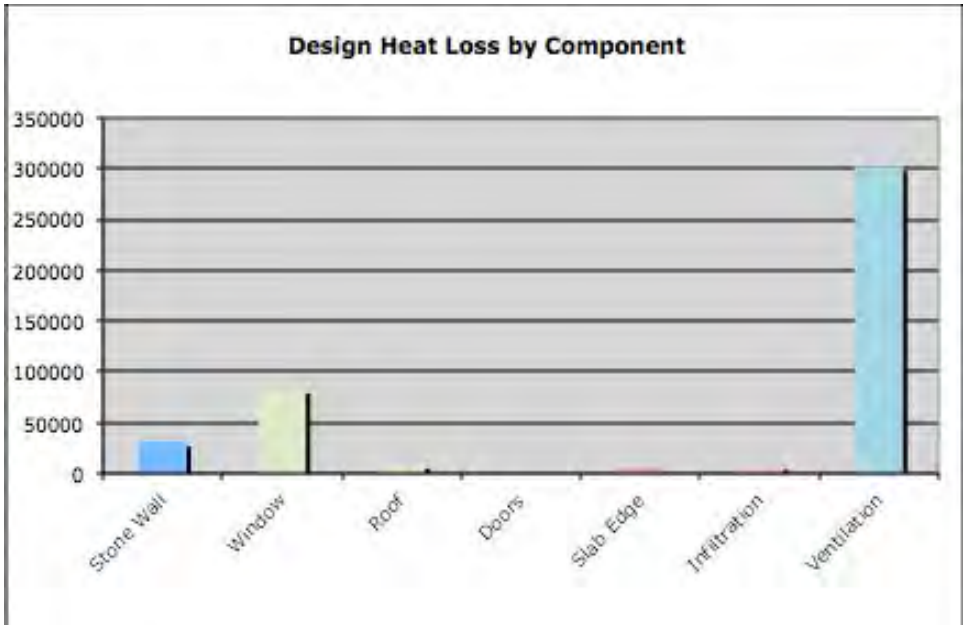
Chapel Glazing - Options

Date: 06 Oct 2015
Project: 15-06

COLGATE UNIVERSITY
CHAPEL HOUSE

Chapel House- Design Process – Amber Glass options

The graph below shows the existing loads with the 4,000 cfm exhaust:



The next graph shows the revised loads with the new ventilation system, roof being replaced, and no change to the Amber Glazing at all. This represents a 65-70% reduction in the heating load.

Leave Chapel Glazing As Is (R-1.75 Glazing):