APPENDIX- 04a | CURTAIN WALLS: Insulation Between Mullions (Typical)

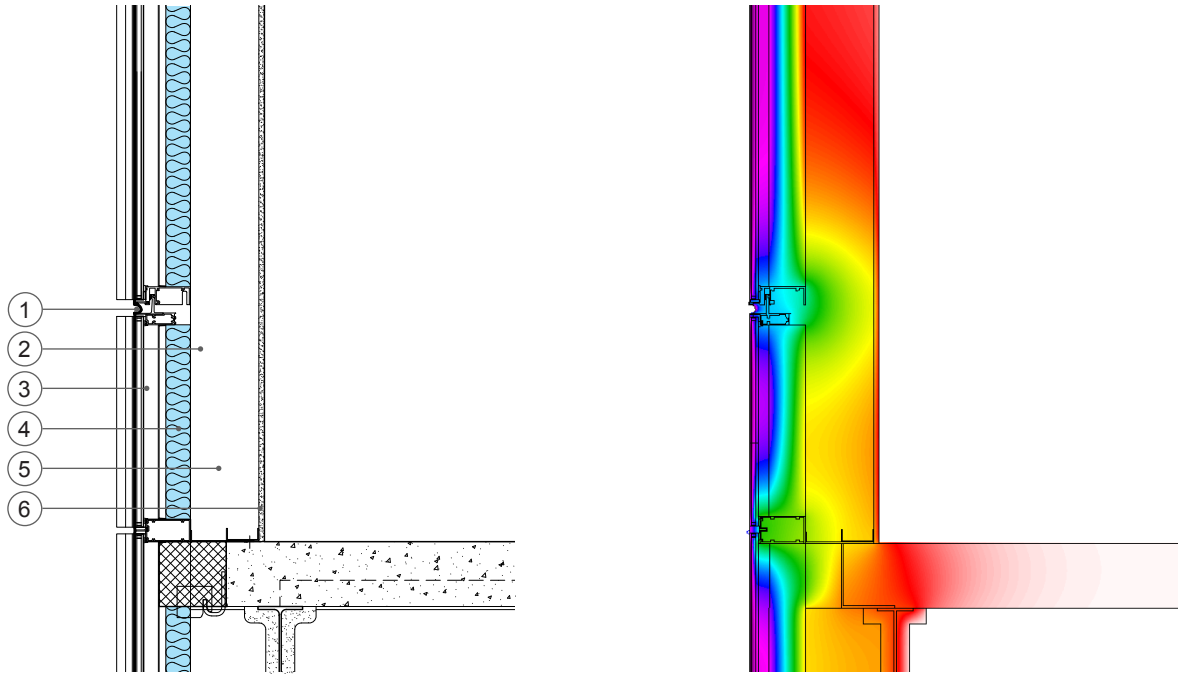
Project Conditions

Location:	Eastern Massachusetts
Date of Thermal Image:	03/26/2013
Exterior Air Temperature:	38.8 ˚F
Interior Air Temperature:	71.1 ˚F
Radiant Temperature:	72.6 ˚F
Assumed Emissivity:	0.9

Summary of Thermal Performance

Calculated Baseline R-Value:	20.42	-
As-Built Condition		
Thermal Image R-Value:	5.75	- 72 %
Simulated (THERM) R-Value:	6.17	- 70 %
Thermally Improved Condition		
Simulated (THERM) R-Value:	NA	

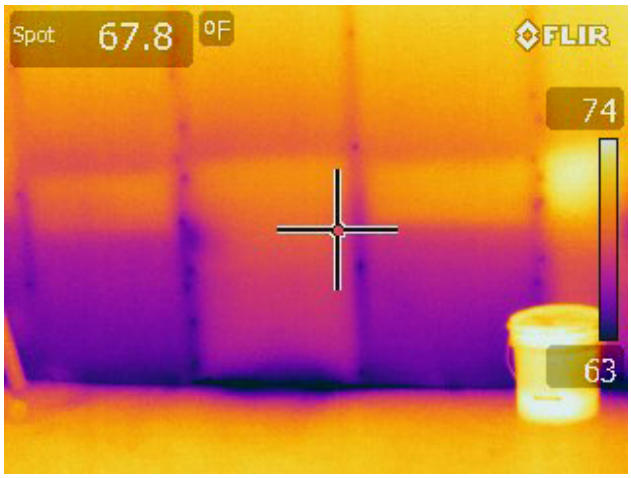
As-Built Condition



Calculated Baseline Clear Wall R-value									
	Material	Width in.	*k* *Btu·in/h·ft2·˚F*	R-value h·ft2·˚F/Btu		Material	Width in.	*k* *Btu·in/h·ft2·˚F*	R-value h·ft2·˚F/Btu
-	Exterior Air Film	-	-	0.17	4	Curtian Wall Insulation	4.00	0.29	13.74
1	Curtian Wall IGU	1.00	-	2.65	5	Air Space	7.625	-	1.36
2	Dead Load Anchor	-	-	-	6	Gypsum Board	0.625	1.10	0.57
3	Air Space	1.25	-	1.23	-	Interior Air Film	-	-	0.68
								total	20.40

APPENDIX- 04a | CURTAIN WALLS: Insulation Between Mullions (Typical)

Digital Image



Infrared Image

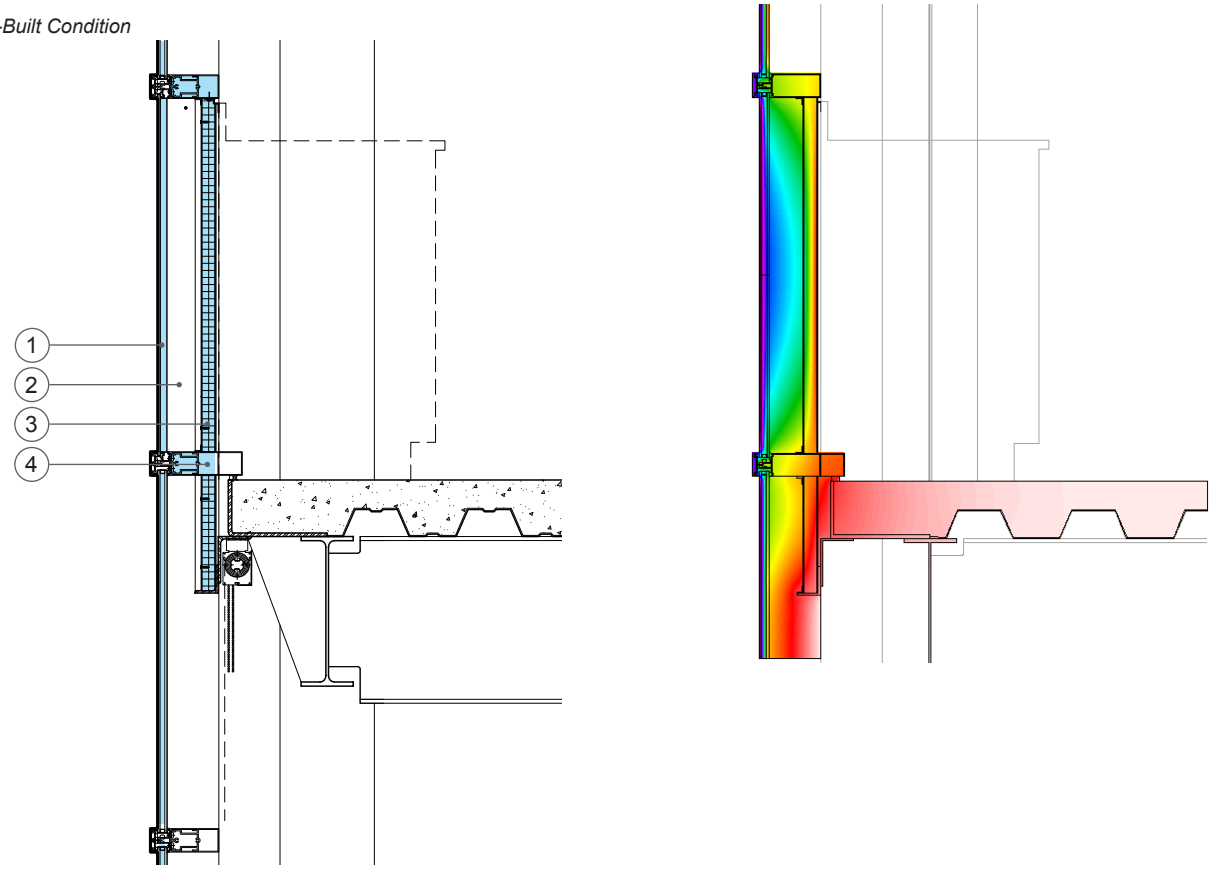
Project Conditions

Location:	Eastern Massachusetts
Date of Thermal Image:	02/09/2012
Exterior Air Temperature:	38.8 ˚F
Interior Air Temperature:	68.6 ˚F
Radiant Temperature:	69.3 ˚F
Assumed Emissivity:	0.5

Summary of Thermal Performance

Calculated Baseline R-Value:	14.16	-
As-Built Condition		
Thermal Image R-Value:	6.18	- 56 %
Simulated (THERM) R-Value:	4.92	- 62 %
Thermally Improved Condition		
Simulated (THERM) R-Value:	NA	

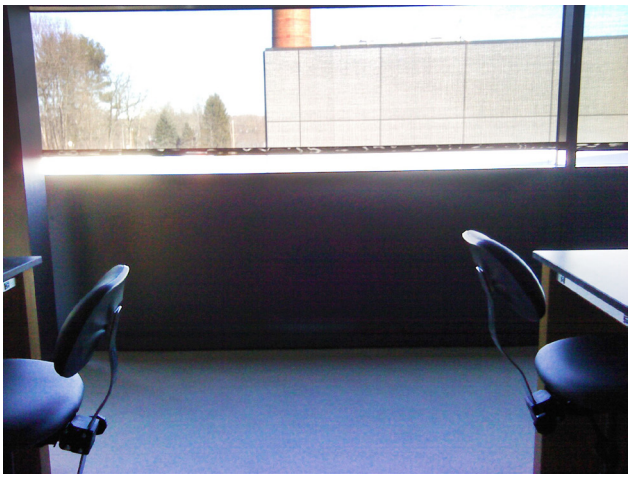
As-Built Condition



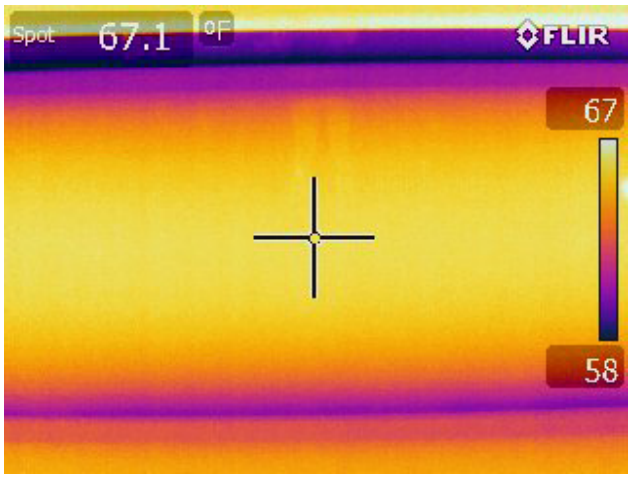
Calculated Baseline Clear Wall R-value

	Material	Width in.	*k* *Btu·in/h·ft2·˚F*	R-value h·ft2·˚F/Btu		Material	Width in.	*k* *Btu·in/h·ft2·˚F*	R-value h·ft2·˚F/Btu
-	Exterior Air Film	-	-	0.17	3	Insulated Metal Panel	1.50	0.16	9.44
1	Curtian Wall IGU	1.00	-	2.73	4	Mullion w/ Spray Foam	5.00	0.15	-
2	Air Space	3.60	-	1.14	-	Interior Air Film	-	-	0.68
								total	14.16

APPENDIX- 04b | CURTAIN WALLS: Insulation within Mullion



Digital Image



Infrared Image

Thermally Improved Condition

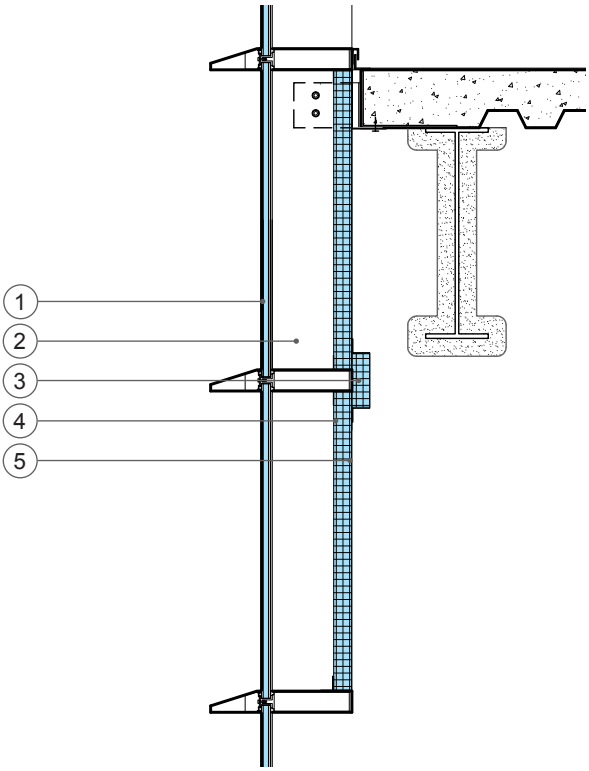
Project Conditions

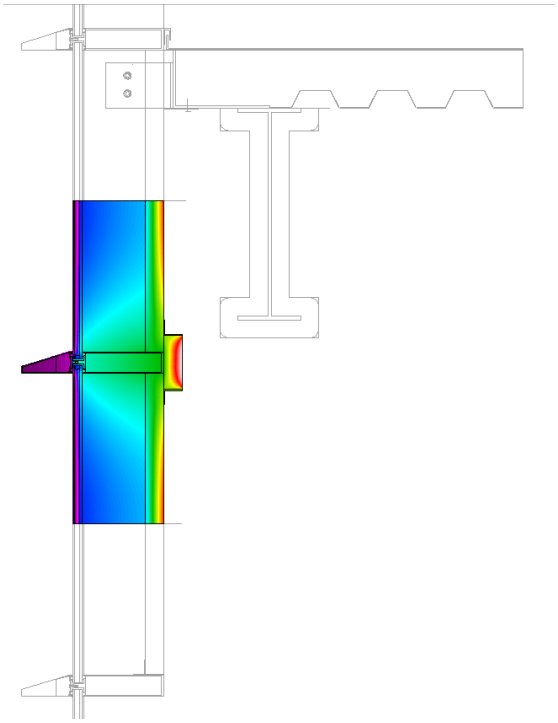
Location:	Central Pennsylvania
Date of Thermal Image:	02/13/2013
Exterior Air Temperature:	NA
Interior Air Temperature:	NA
Radiant Temperature:	NA
Assumed Emissivity:	0.9

Summary of Thermal Performance

Calculated Baseline R-Value:	13.12	-
As-Built Condition		
Thermal Image R-Value:	NA	
Simulated (THERM) R-Value:	5.11	- 61 %
Thermally Improved Condition		
Simulated (THERM) R-Value:	10.86	- 17 %

As-Built Condition





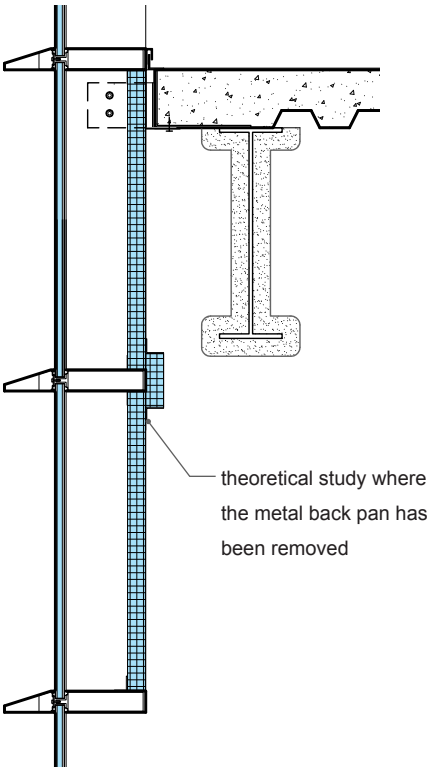
Calculated Baseline Clear Wall R-value									
	Material	Width in.	*k* *Btu·in/h·ft2·˚F*	R-value h·ft2·˚F/Btu		Material	Width in.	*k* *Btu·in/h·ft2·˚F*	R-value h·ft2·˚F/Btu
					3	Mullion w/ Mineral Wool	2.00	0.23	-
-	Exterior Air Film	-	-	0.17	4	Mineral Wool	2.00	0.23	8.69
1	Curtian Wall IGU	1.00	-	2.22	5	Aluminum Backpan	0.04	1643.23	0.00
2	Air Cavity	7.00	-	1.36	-	Interior Air Film	-	-	0.68
								total	13.12

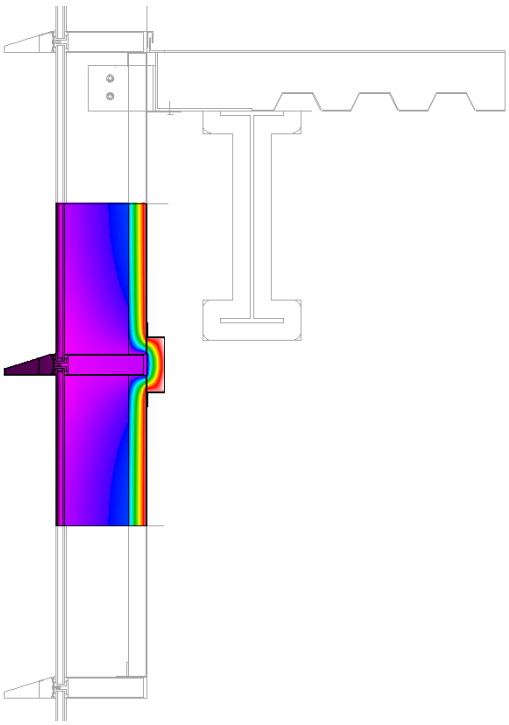
APPENDIX- 04c | CURTAIN WALL: Wrapped Mullion

Digital Image

Infrared Image

Thermally Improved Condition





R-10.86
(+113%)

Project Conditions

Location:	Eastern Massachusetts
Date of Thermal Image:	01/18/2013
Exterior Air Temperature:	NA
Interior Air Temperature:	NA
Radiant Temperature:	NA
Assumed Emissivity:	0.9

Summary of Thermal Performance

Calculated Baseline R-Value:	11.81	-
As-Built Condition		
Thermal Image R-Value:	NA	
Simulated (THERM) R-Value:	8.09	- 31 %
Thermally Improved Condition		
Simulated (THERM) R-Value:	NA	

As-Built Condition

Calculated Baseline Clear Wall R-value				
	Material	Width in.	*k* *Btu·in/ h·ft2·˚F*	R-value h·ft2·˚F/ Btu
-	Exterior Air Film	-	-	0.17
1	Curtain Wall IGU	1.00	-	2.22
2	Air Gap	0.5	-	1.15
3	Glass Wool Insulation	2.00	0.26	7.59
4	Aluminum Back Pan	0.09	1109	0.00
-	Interior Air Film	-	-	0.68
			total	11.81