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Building Science

Adventures In Building Science

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Build Tight - Ventilate Right

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Build Tight - Ventilate Right

How Tight?

What's Right?

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Air Barrier Metrics

Material	0.02 l/(s-m ²) @ 75 Pa
Assembly	0.20 l/(s-m ²) @ 75 Pa
Enclosure	2.00 l/(s-m ²) @ 75 Pa
	0.35 cfm/ft ² @ 50 Pa
	0.25 cfm/ft ² @ 50 Pa
	0.15 cfm/ft ² @ 50 Pa

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Getting rid of big holes	3 ach@50
Getting rid of smaller holes	1.5 ach@50
Getting German	0.6 ach@50

Best

As Tight as Possible - with -
Balanced Ventilation
Energy Recovery
Distribution and Mixing
Source Control - Spot exhaust ventilation
Filtration
Material selection

Worst

Leaky - with – Nothing

Spot Ventilation in Bathroom/Kitchen

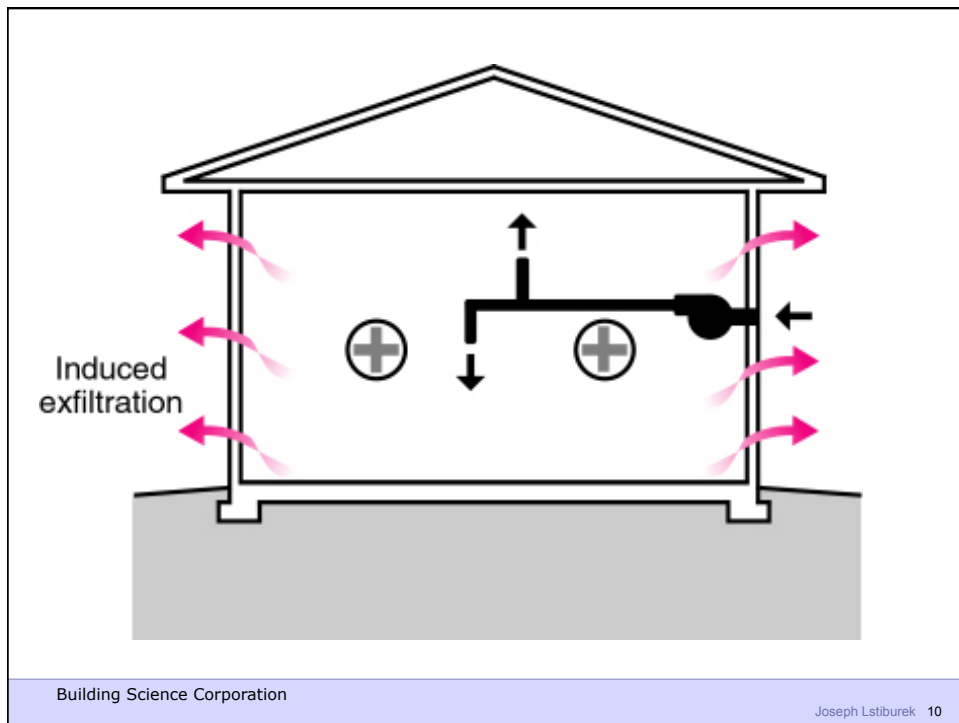
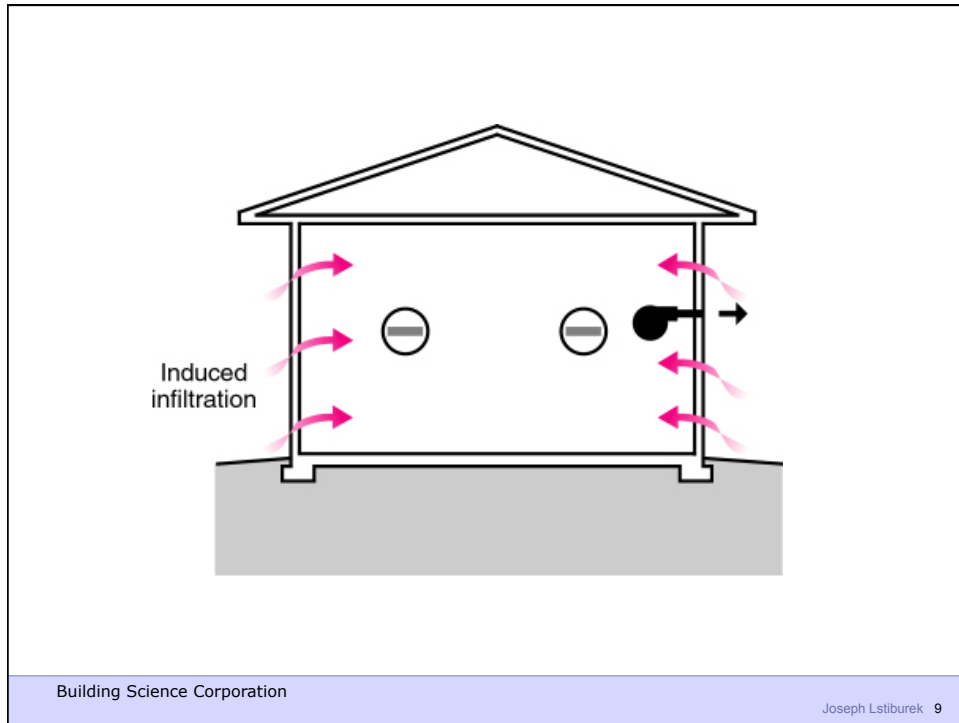
Exhaust Ventilation – with – No Distribution
and No Mixing

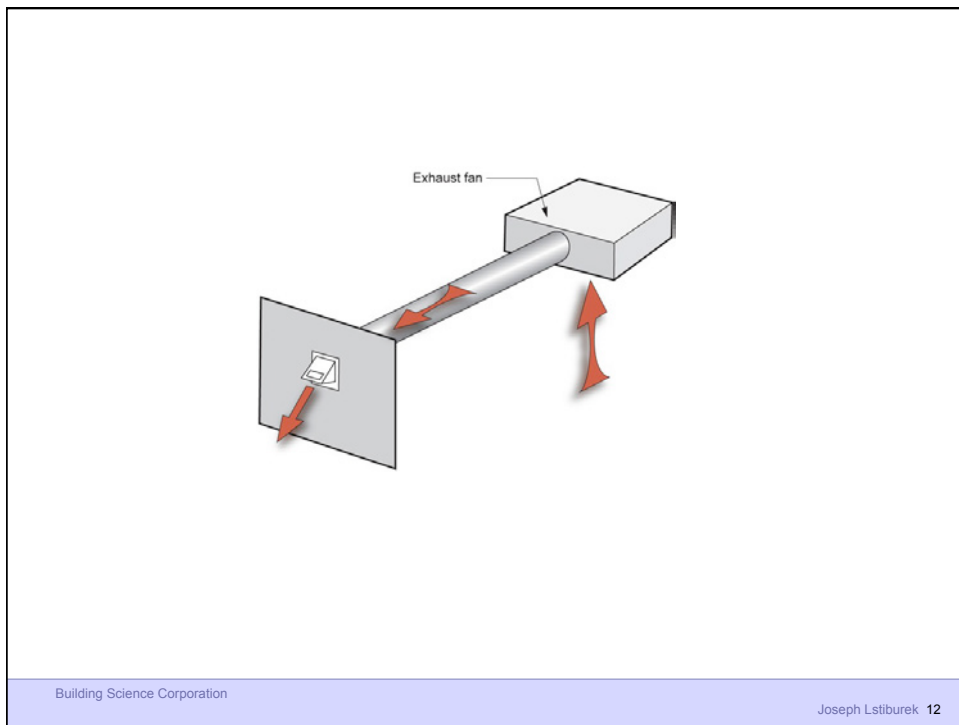
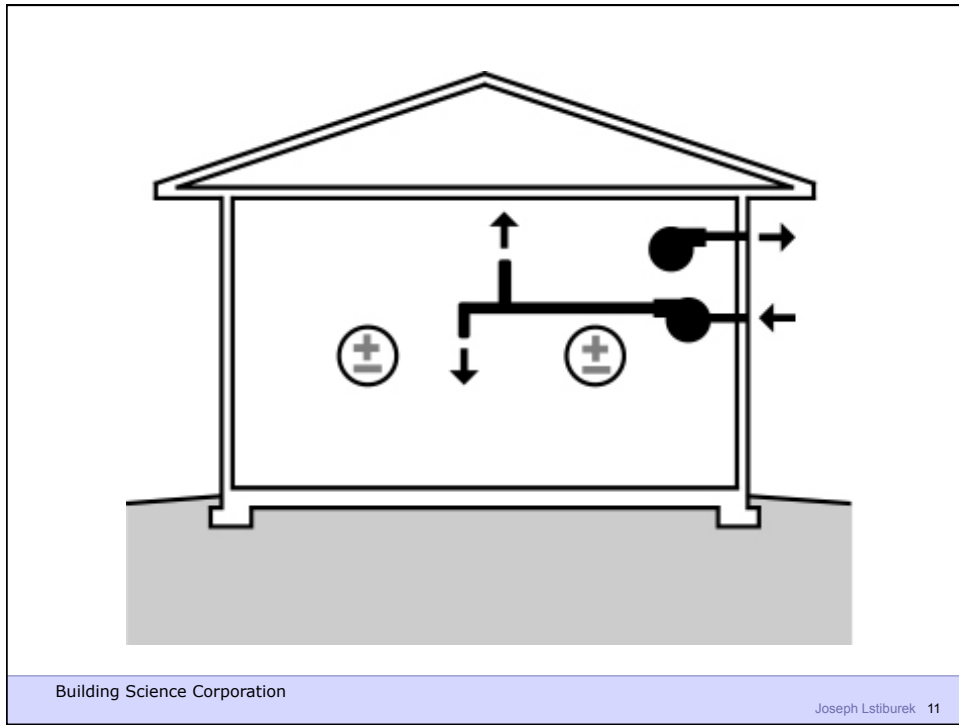
Three Types of Controlled Ventilation Systems

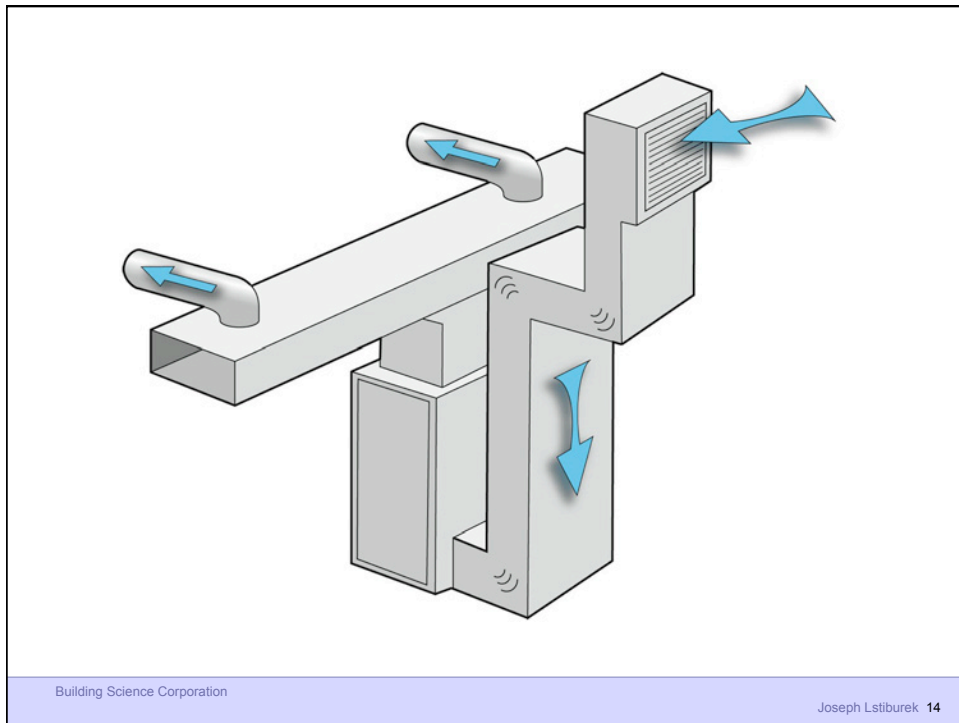
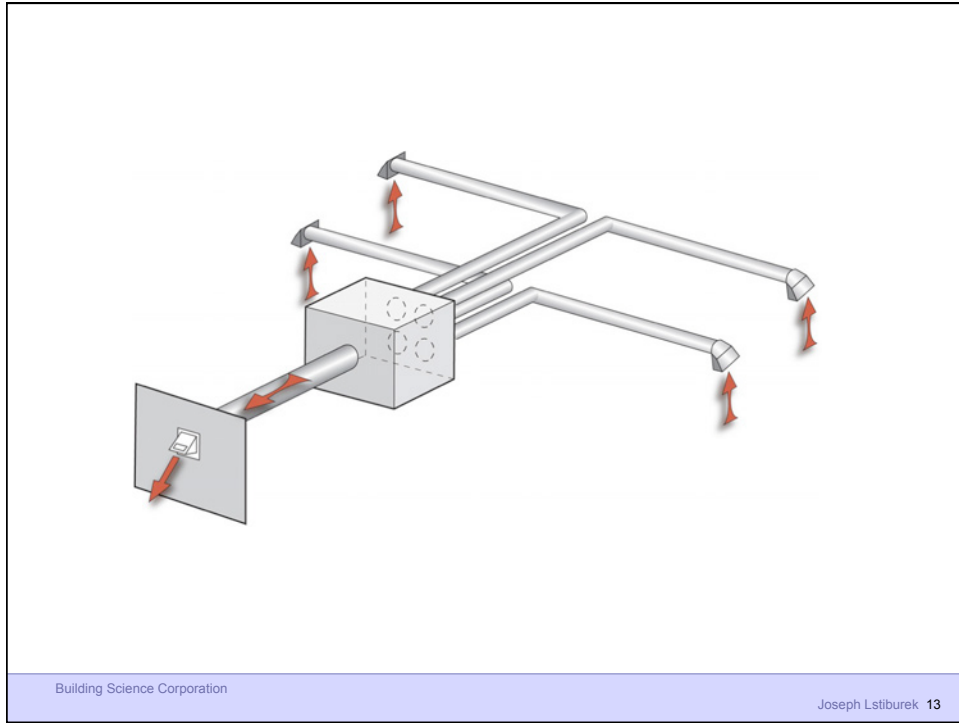
Exhaust Ventilation

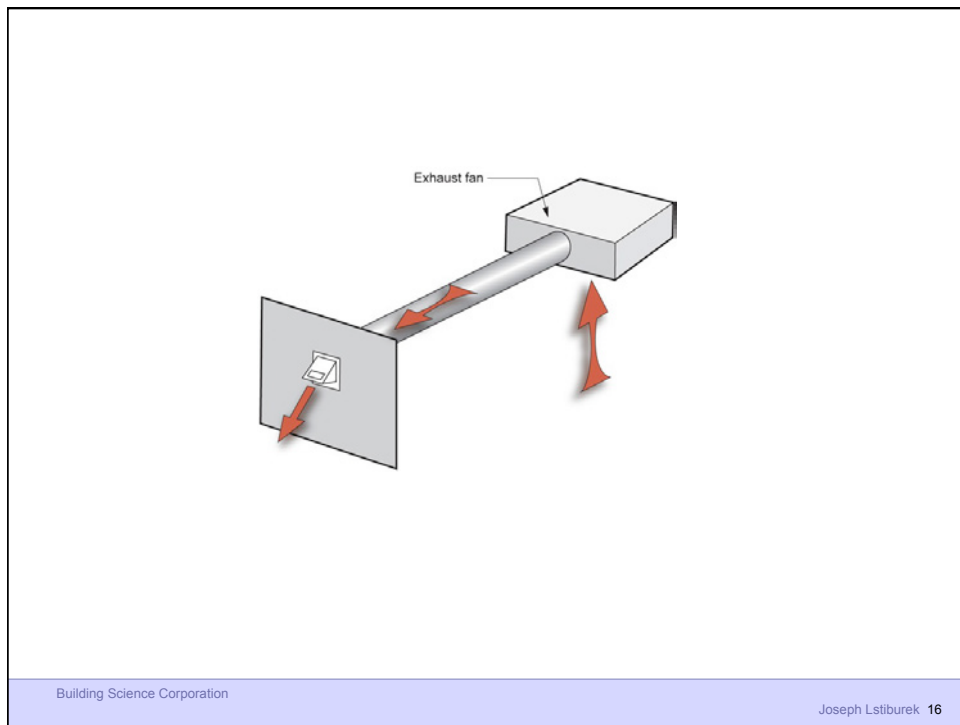
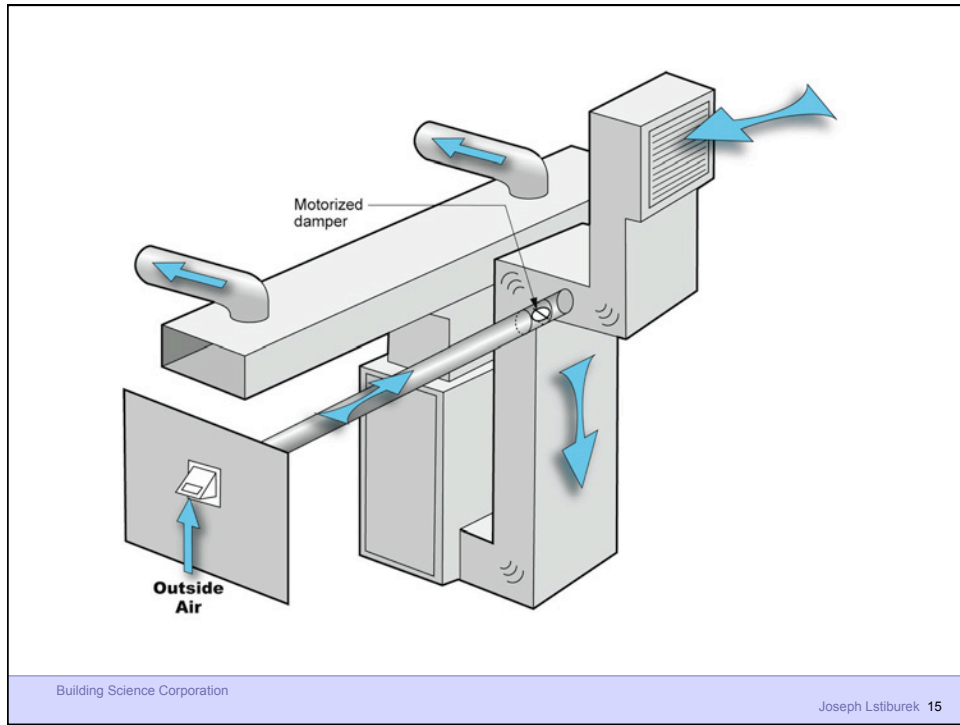
Supply Ventilation

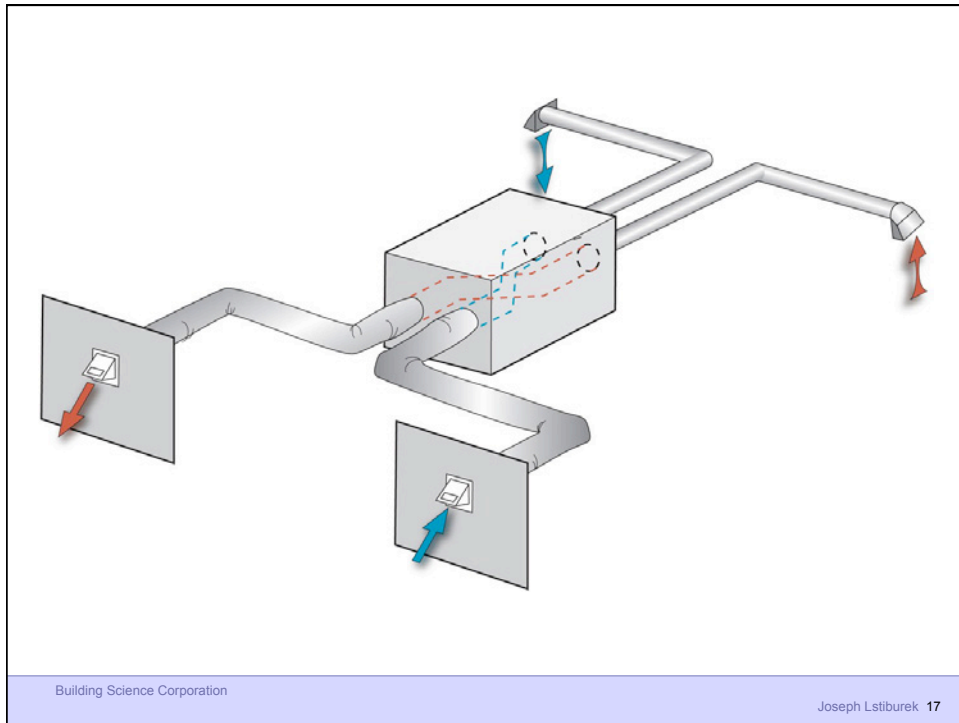
Balanced Ventilation











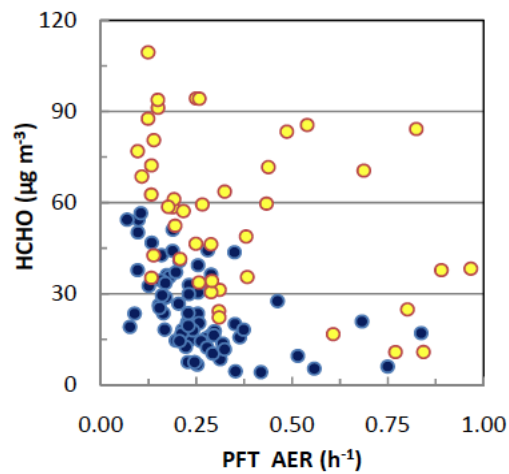
Ventilation Rates Are Based on Odor Control

The text "Ventilation Rates Are Based on Odor Control" is centered on the slide. The bottom of the slide features a light blue footer with the text "Building Science Corporation" on the left and "Joseph Lstiburek 18" on the right.

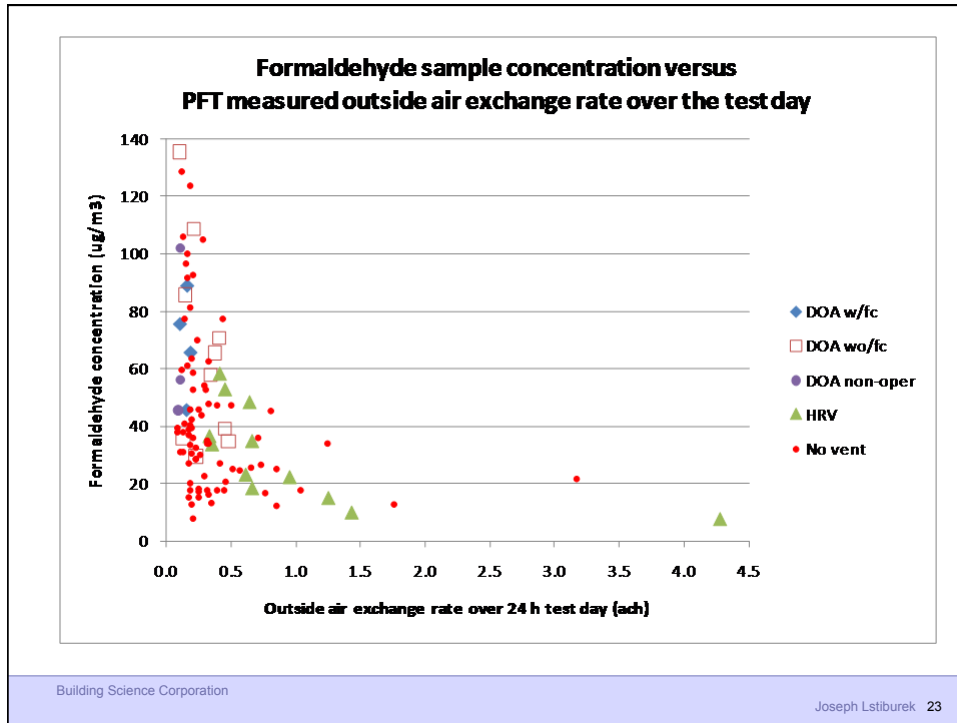
Ventilation Rates Are Based on Odor Control
Health Science Basis for Ventilation Rates is
Extremely Limited

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Ventilation Rates Are Based on Odor Control
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 The Applicable Studies Focus on Dampness



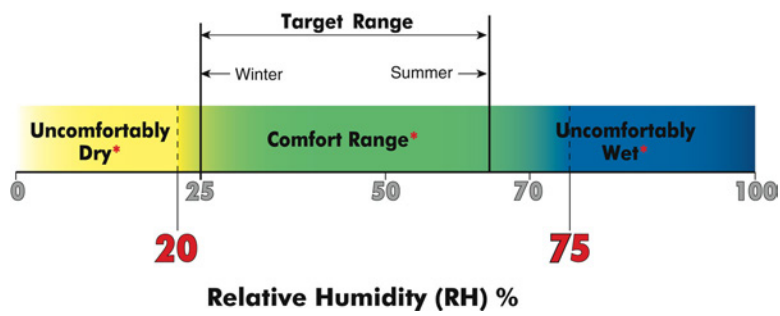
Aubin, D., Won, D.Y., Schleibinger, H., 2010



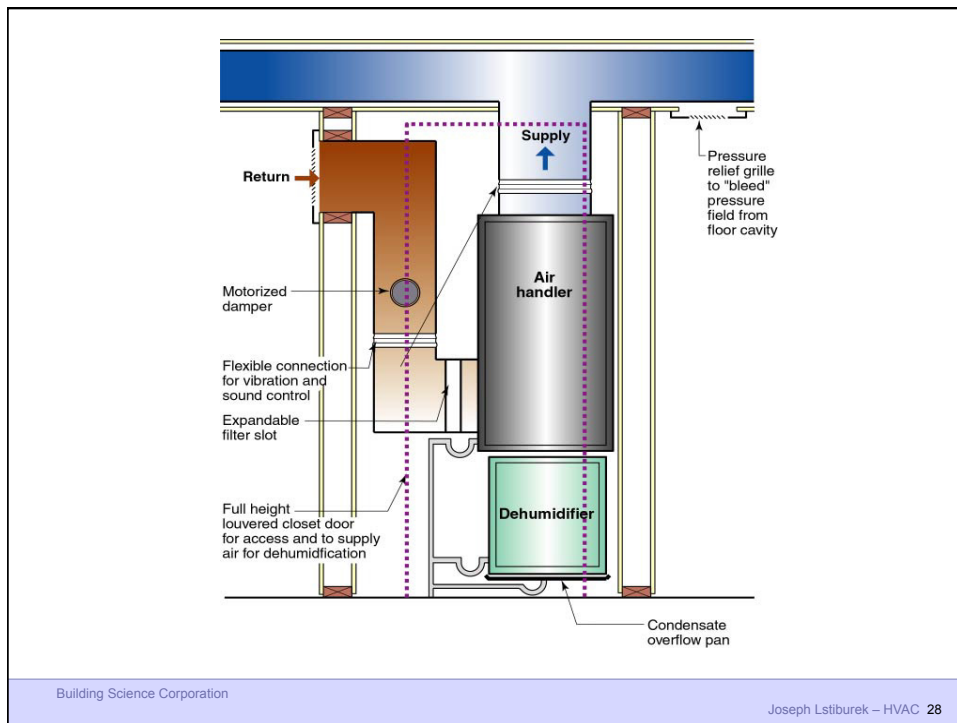
Dilution Is Not The Solution To Indoor Pollution

Source Control

Dilution For People Source Control For The Building

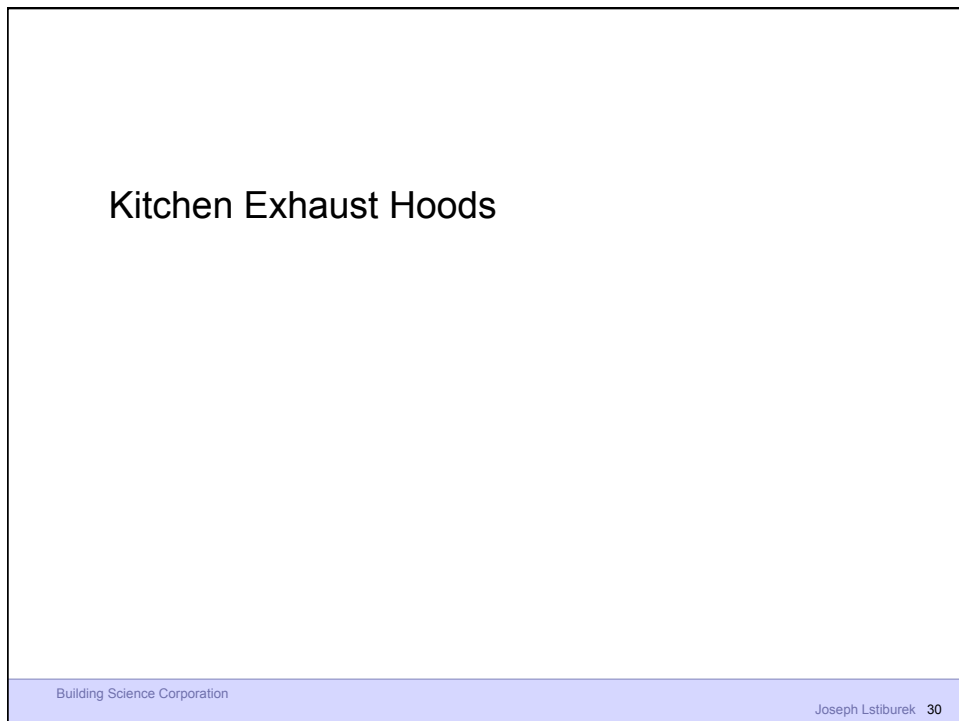


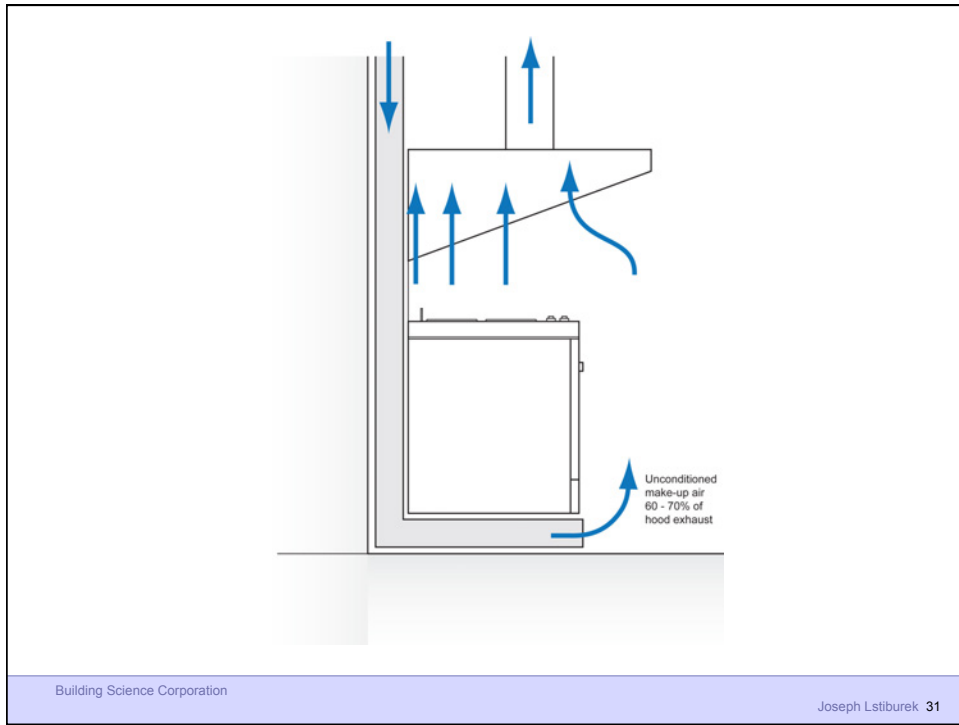
Recommended Range of Relative Humidity
Above 25 percent during winter
Below 70 percent during summer

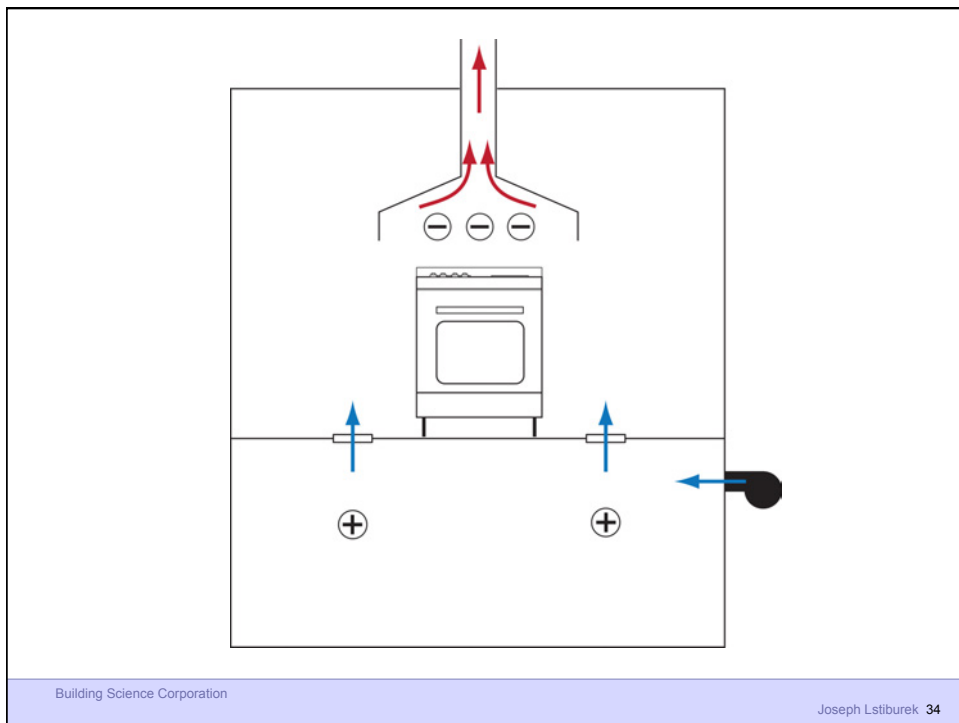
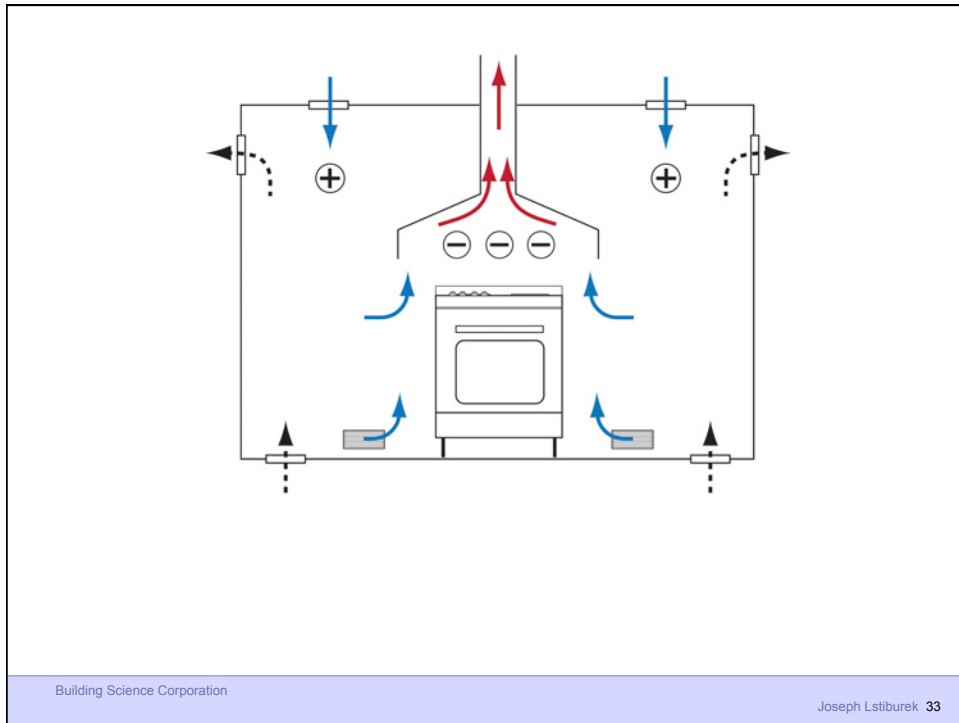


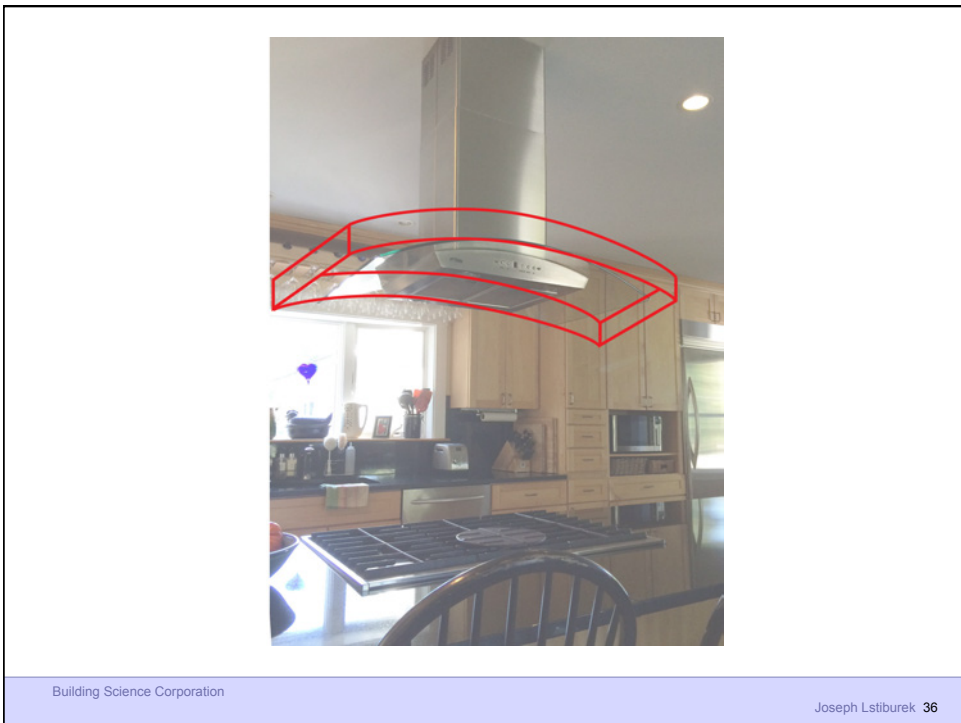
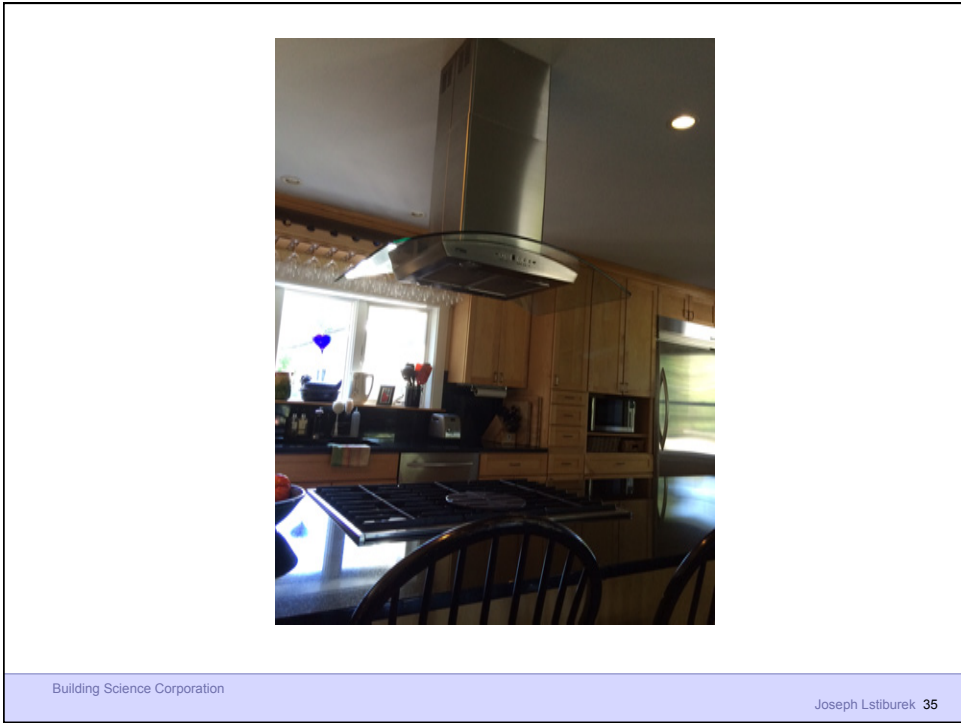


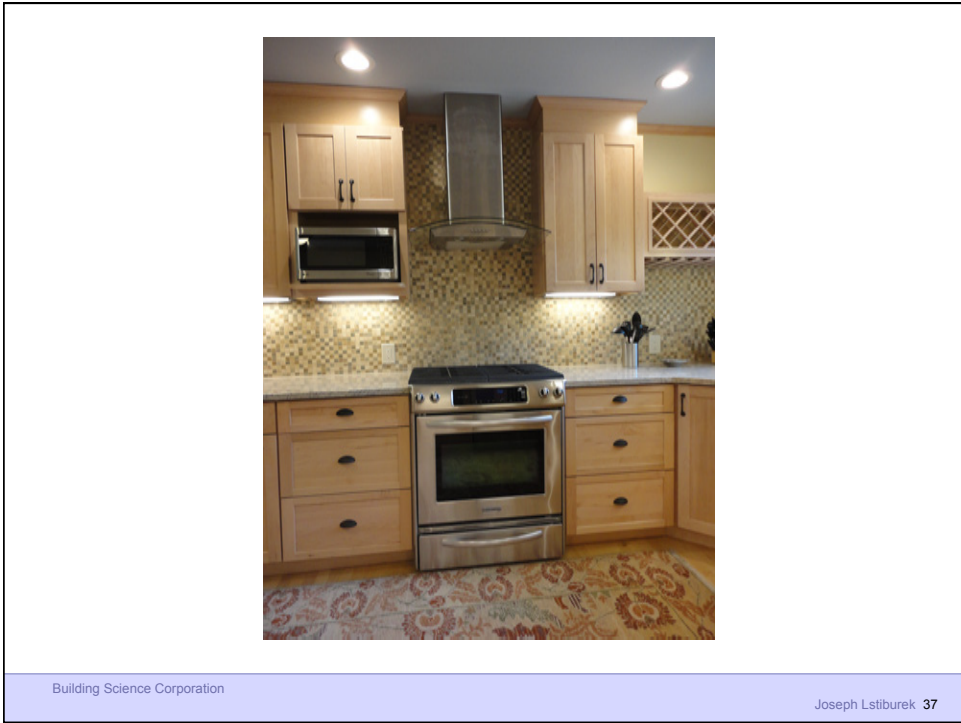
Kitchen Exhaust Hoods













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Clothes Dryers

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Fireplaces

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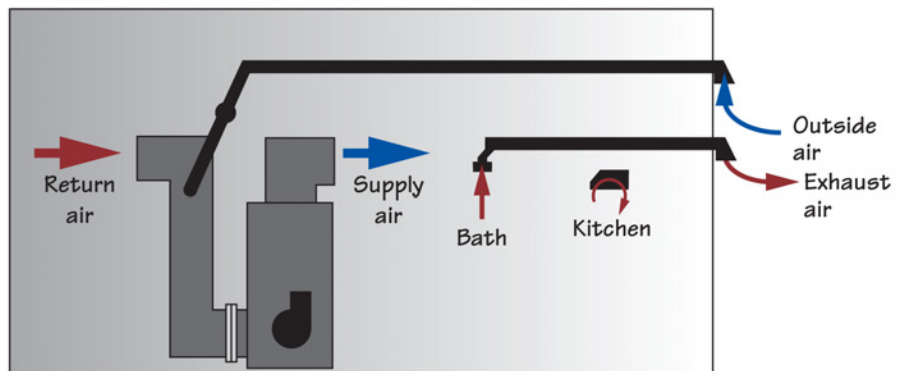


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Approaches

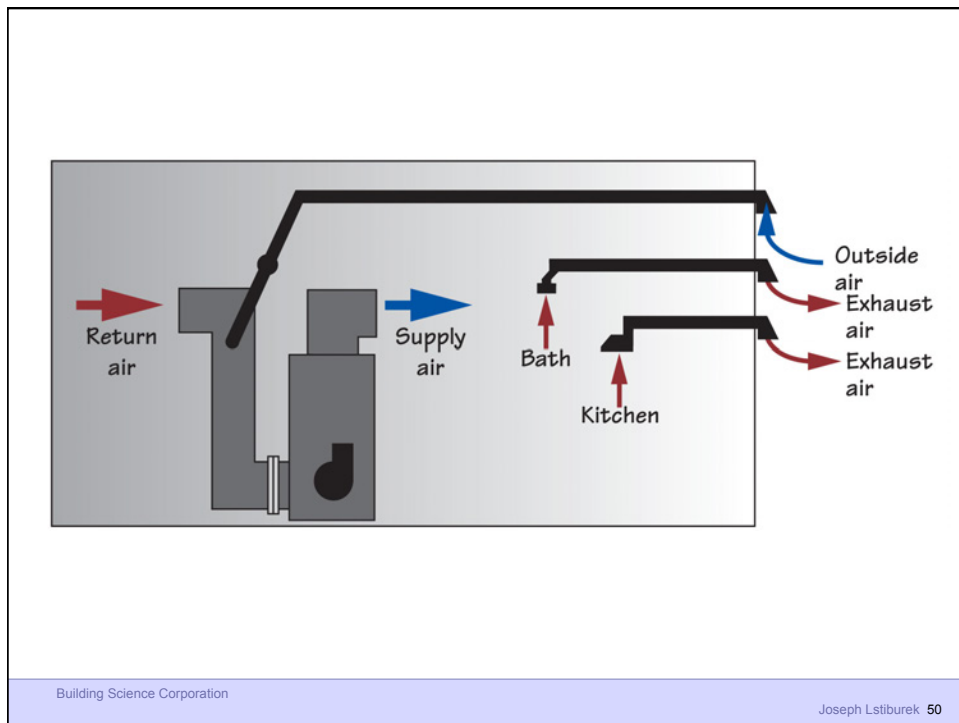
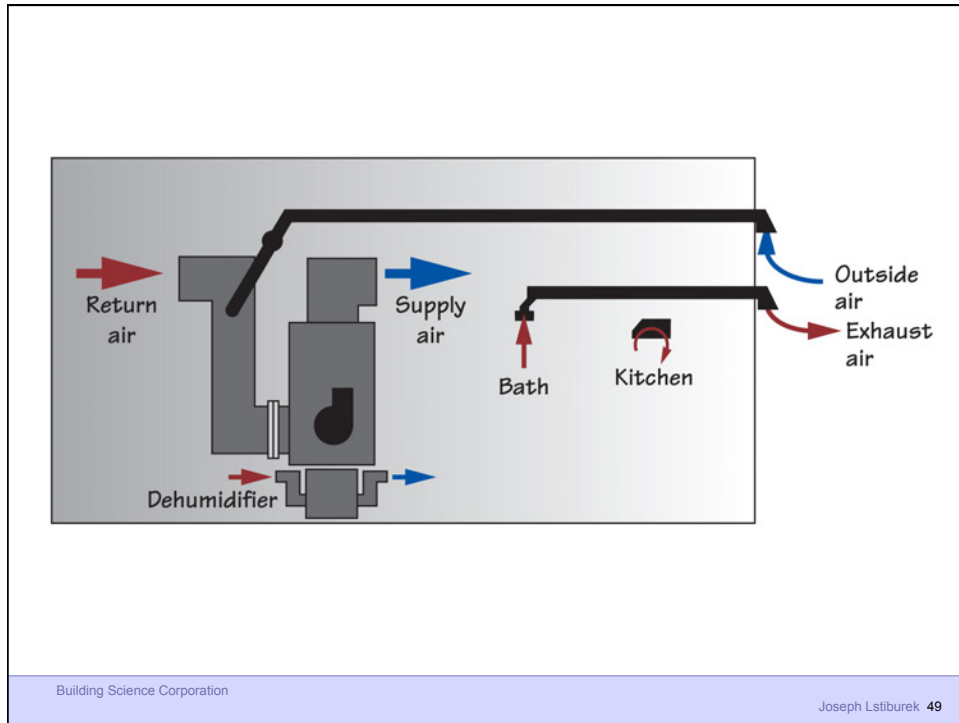
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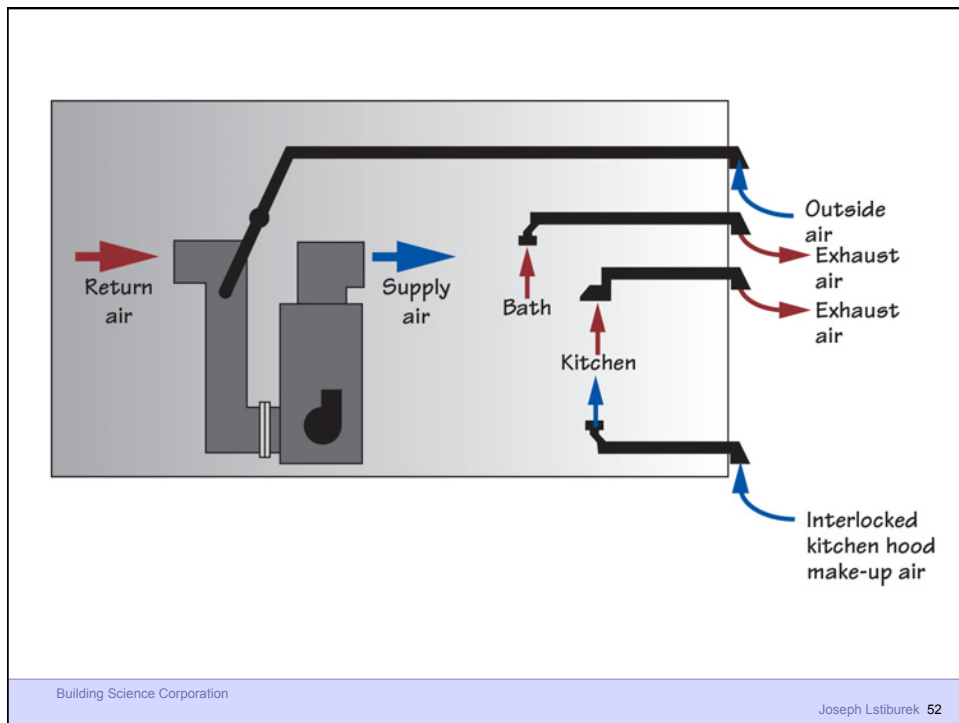
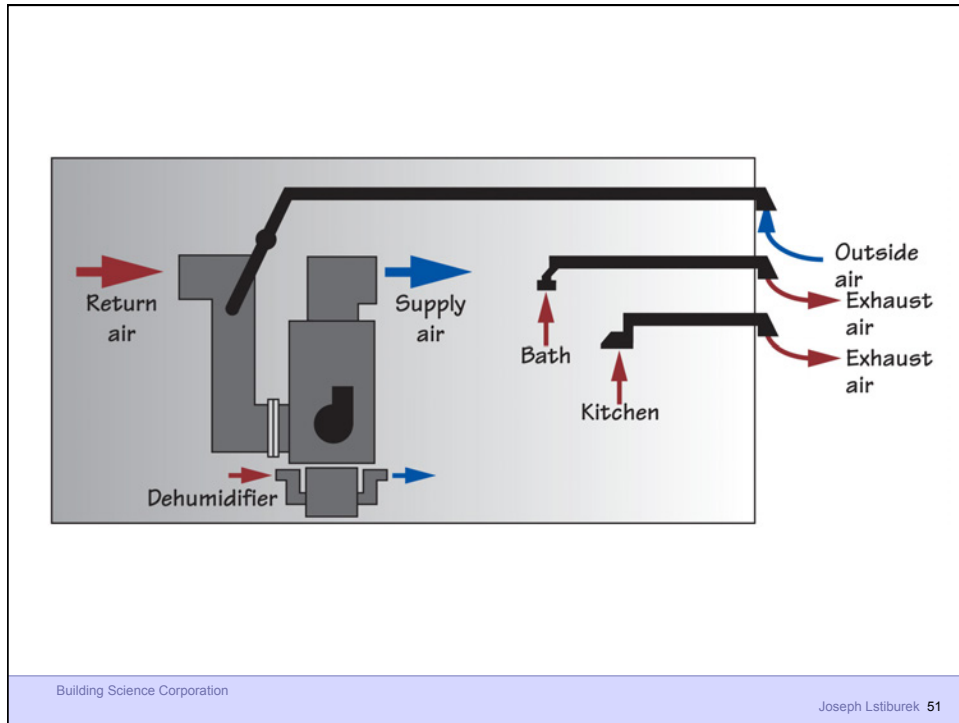
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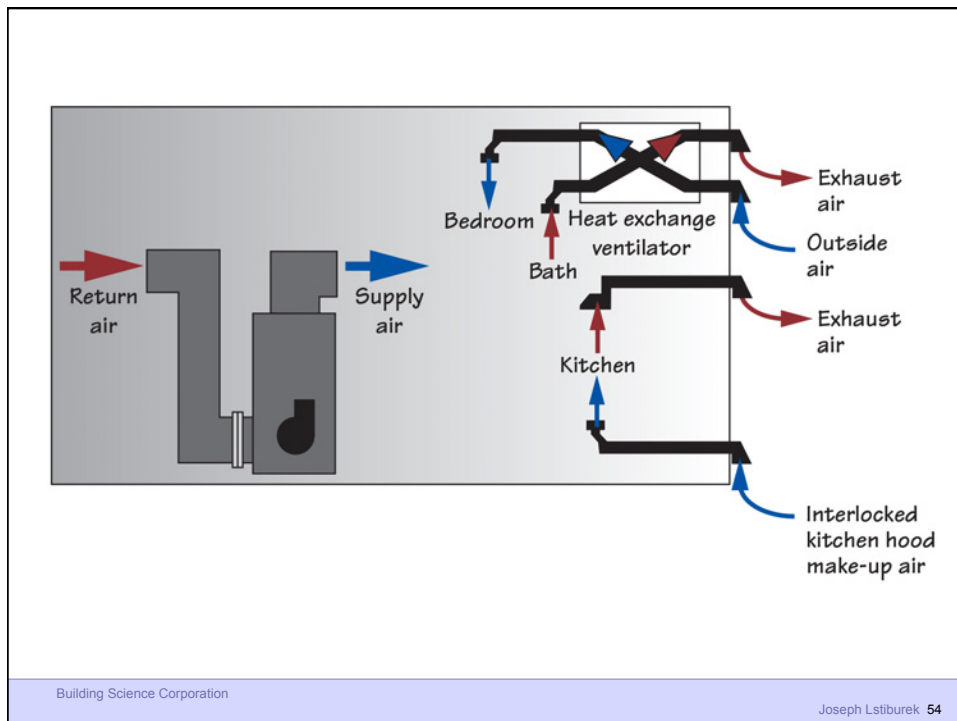
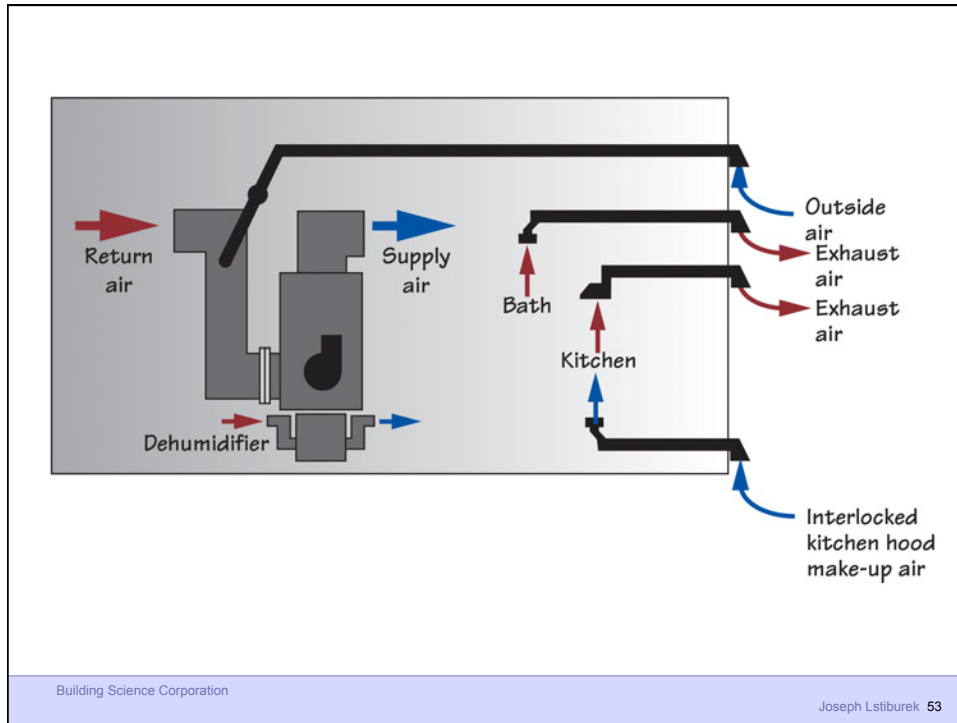


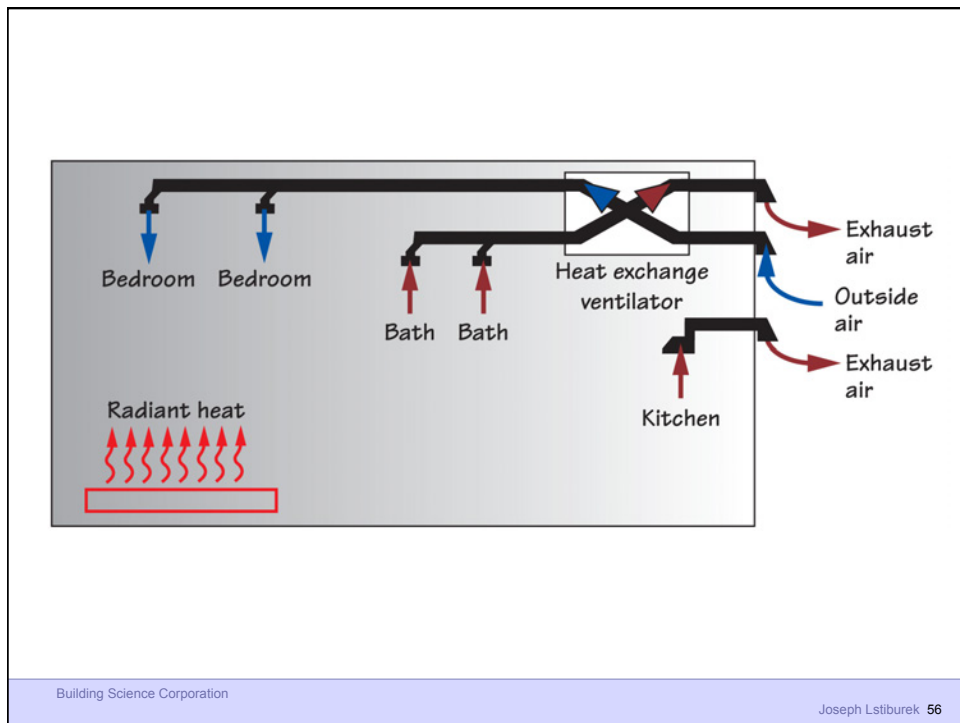
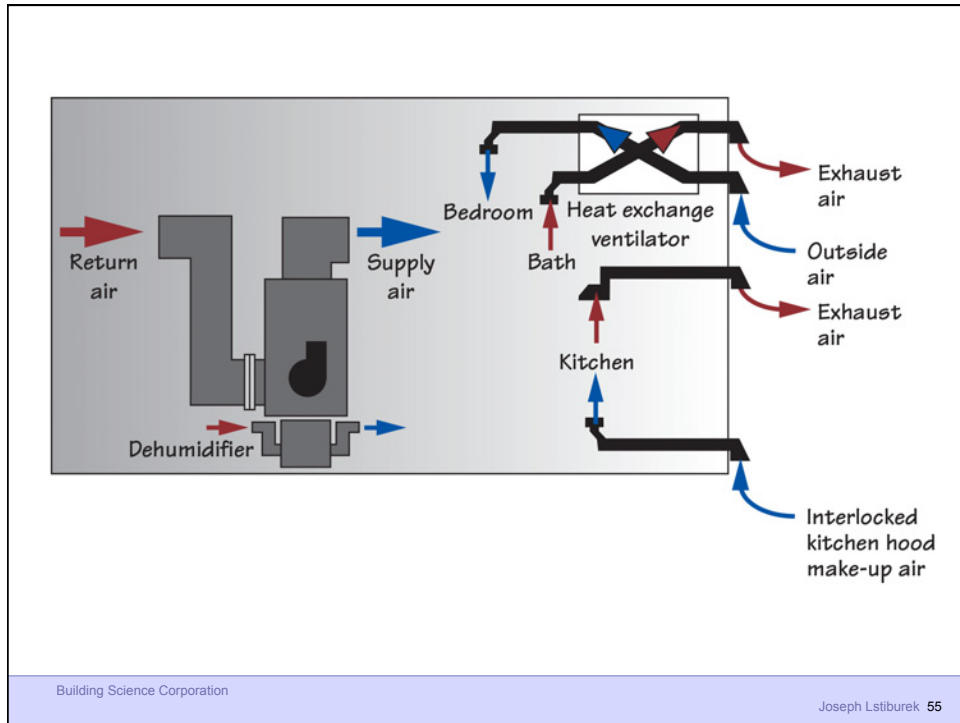
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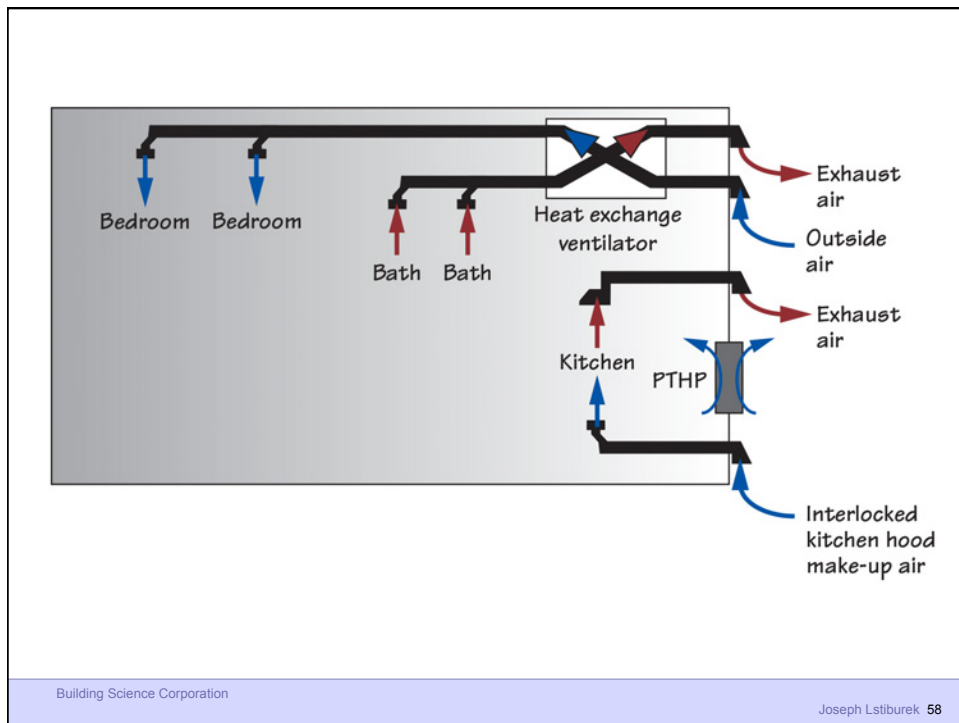
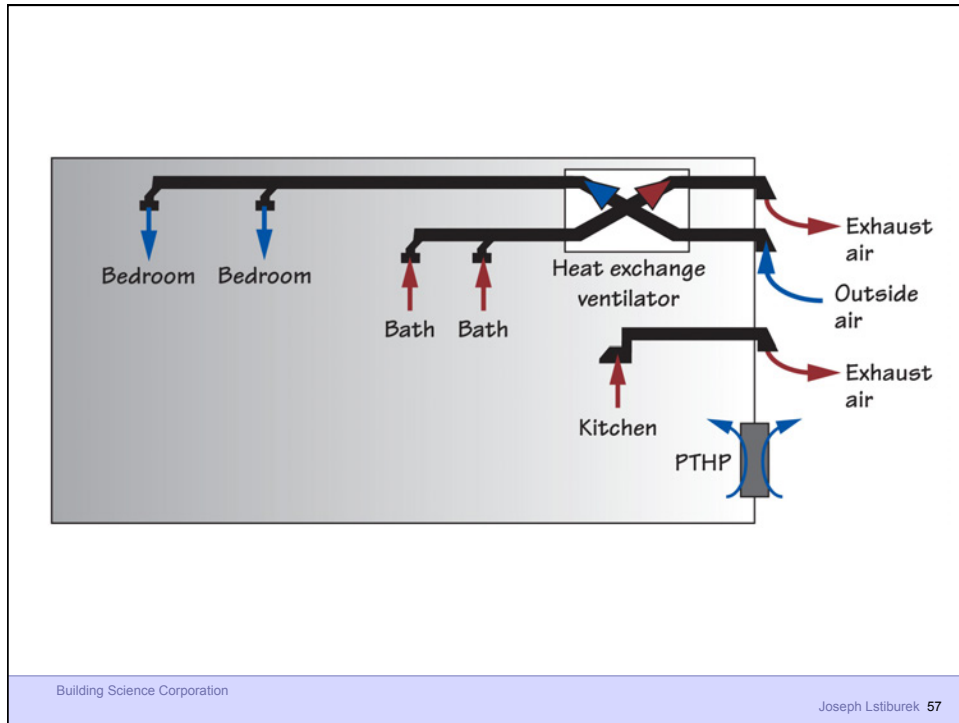
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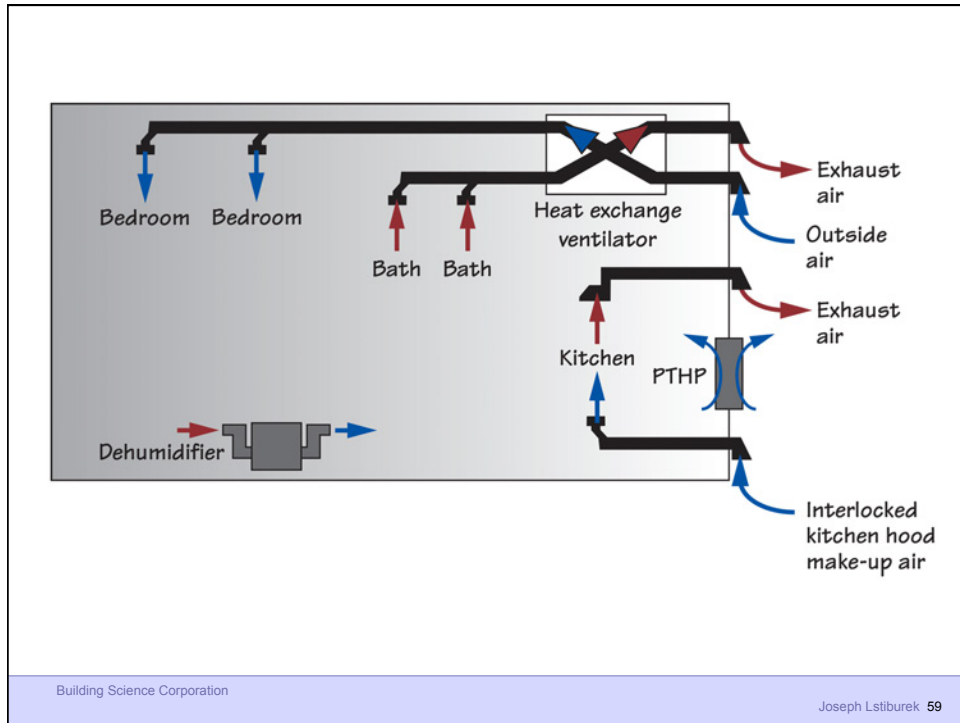












Duct Leakage Should Be Less Than 5% of Rated Flow As Tested by Pressurization To 25 Pascals

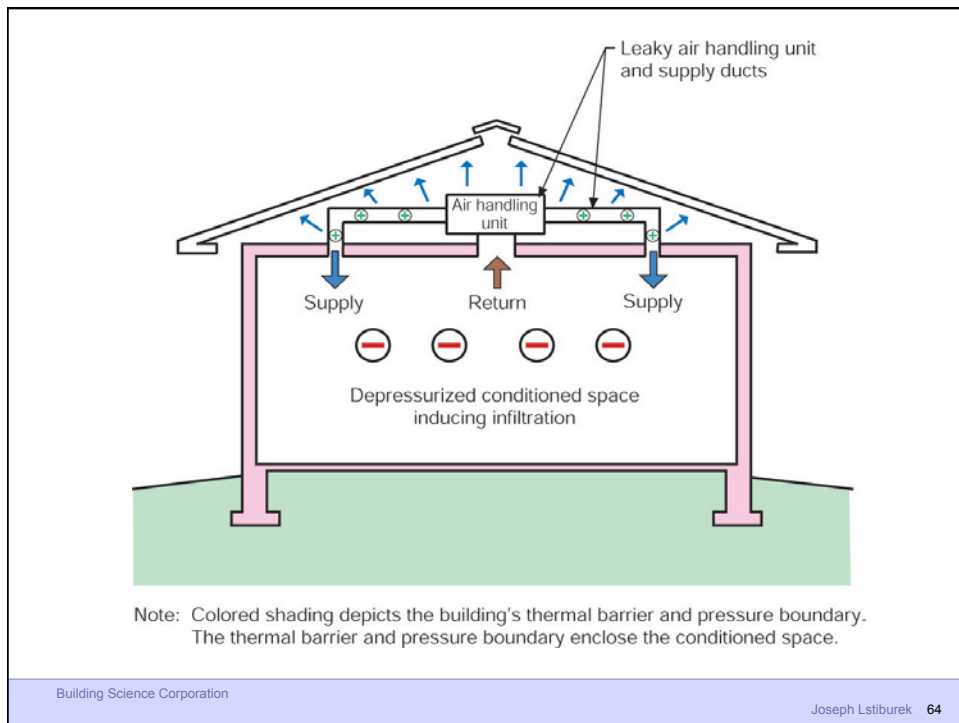
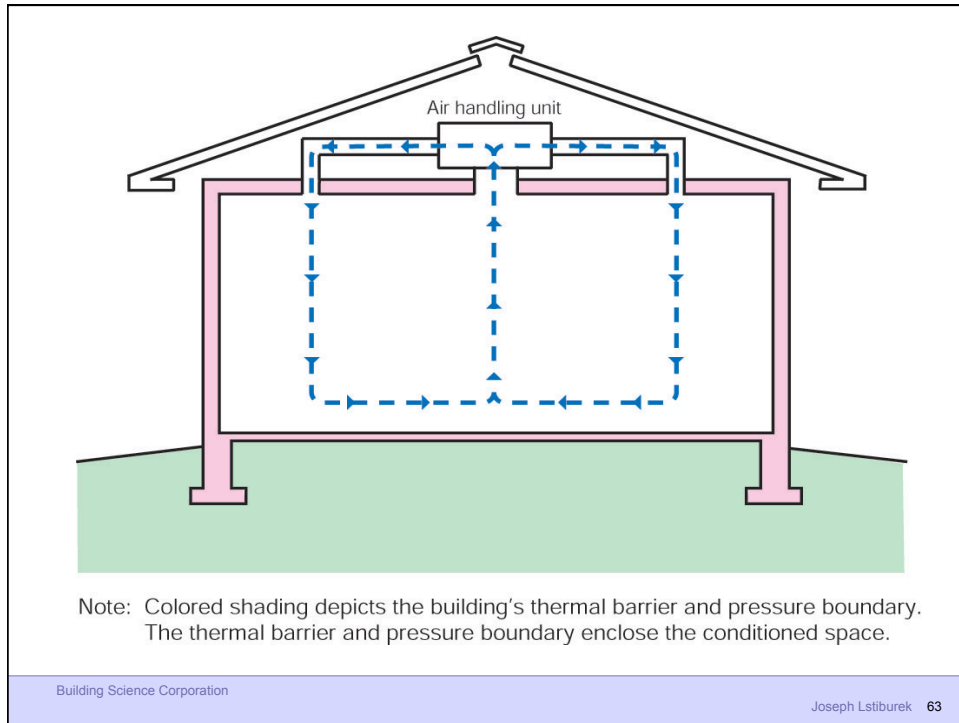
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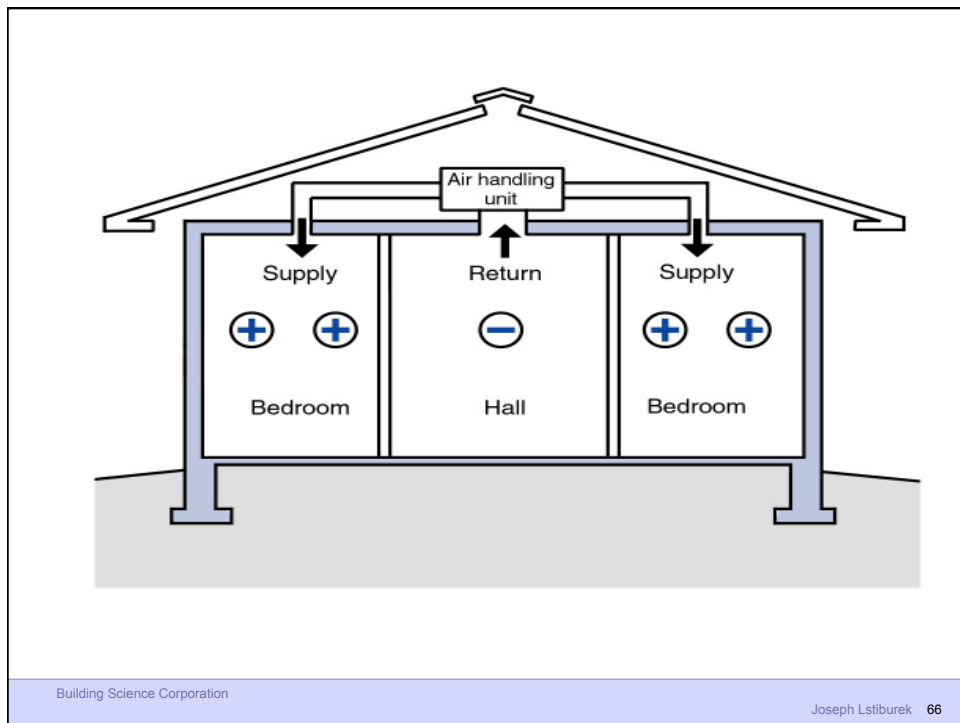
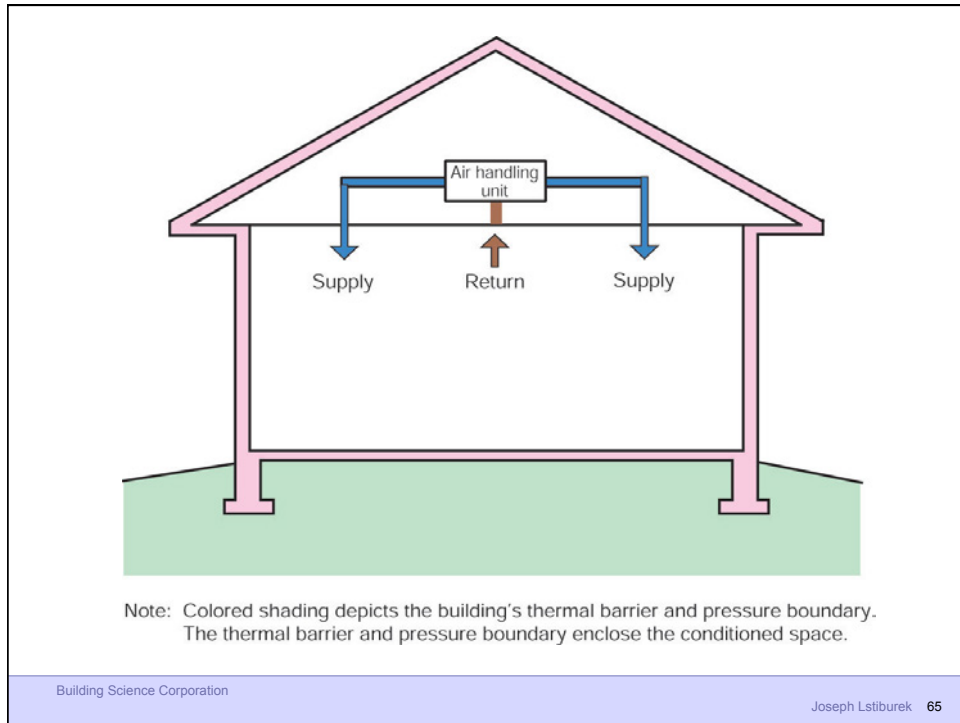
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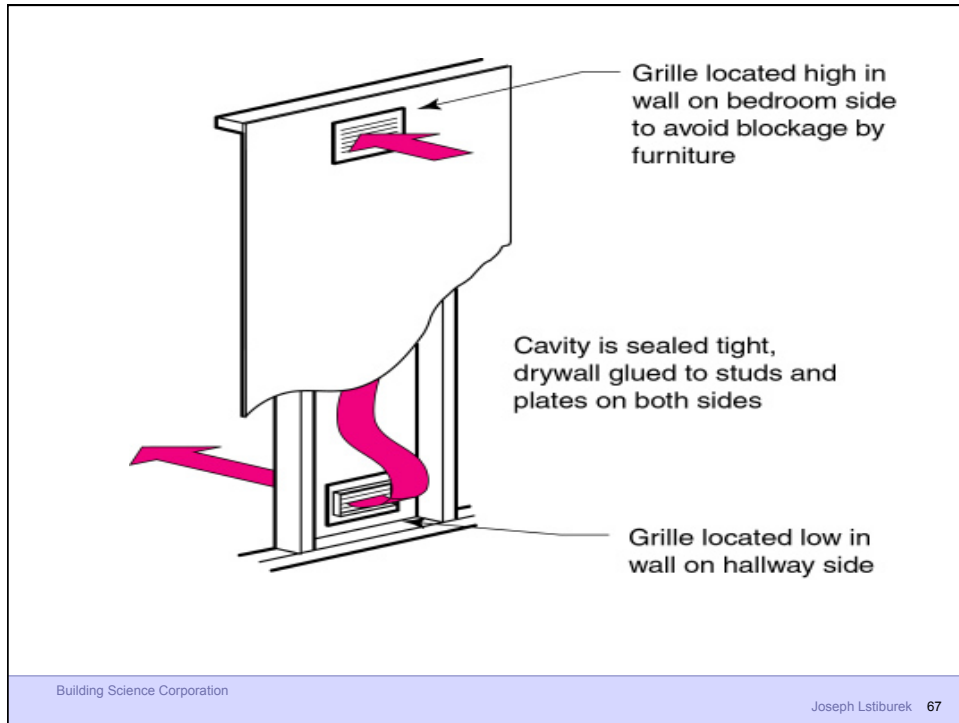


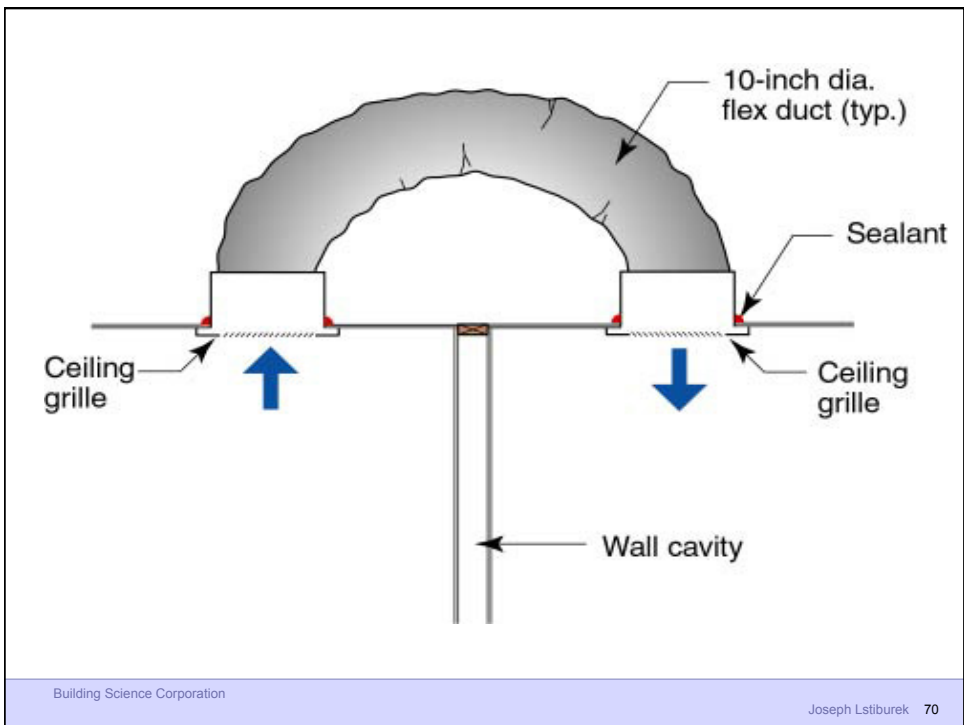
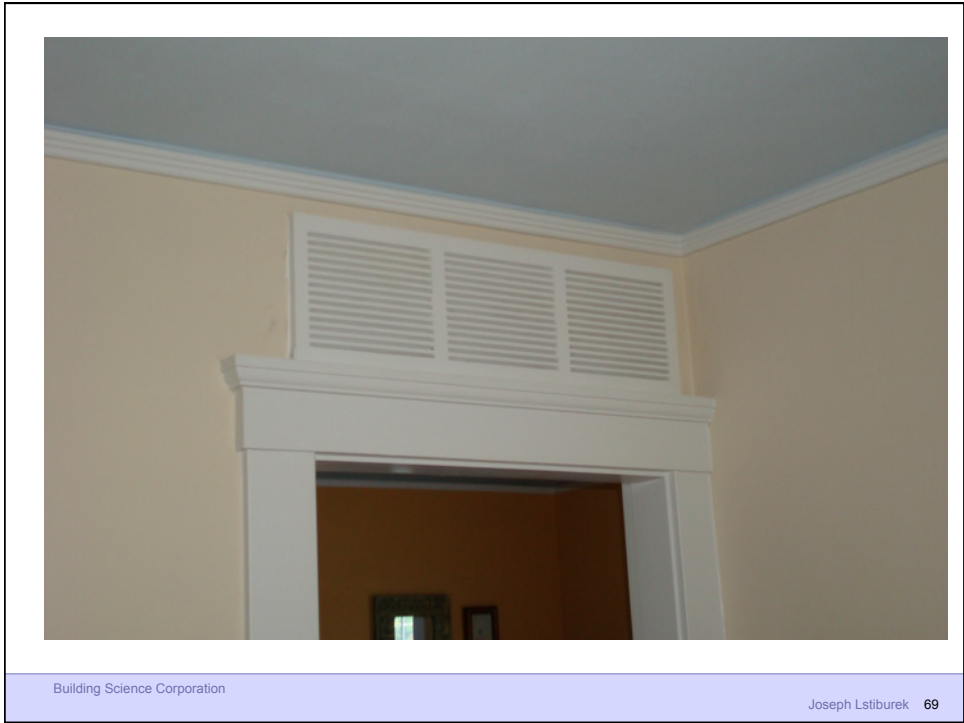
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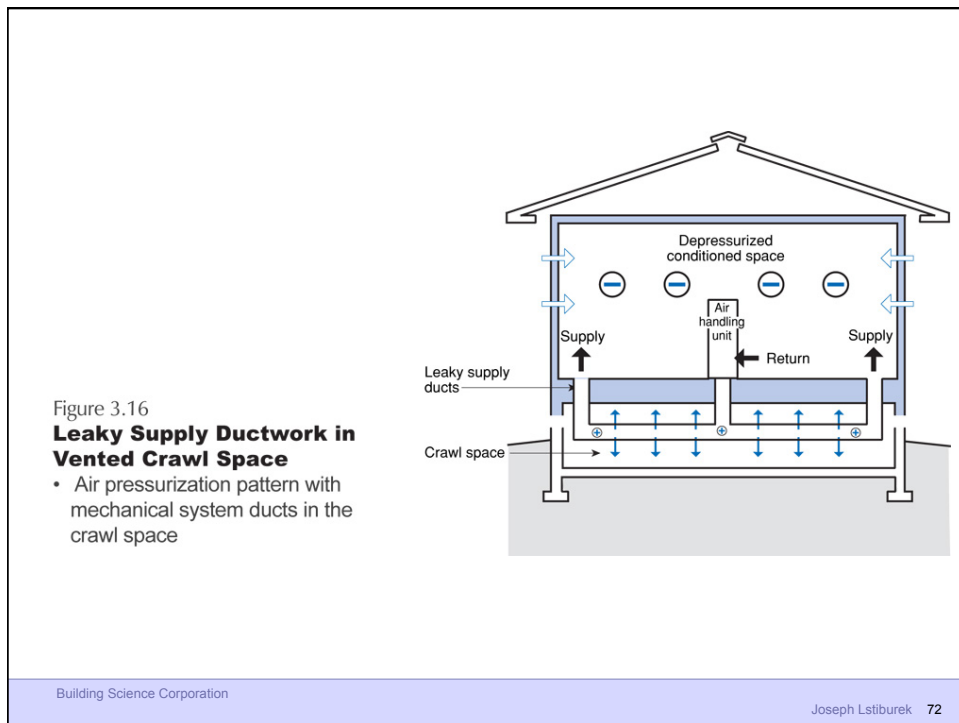
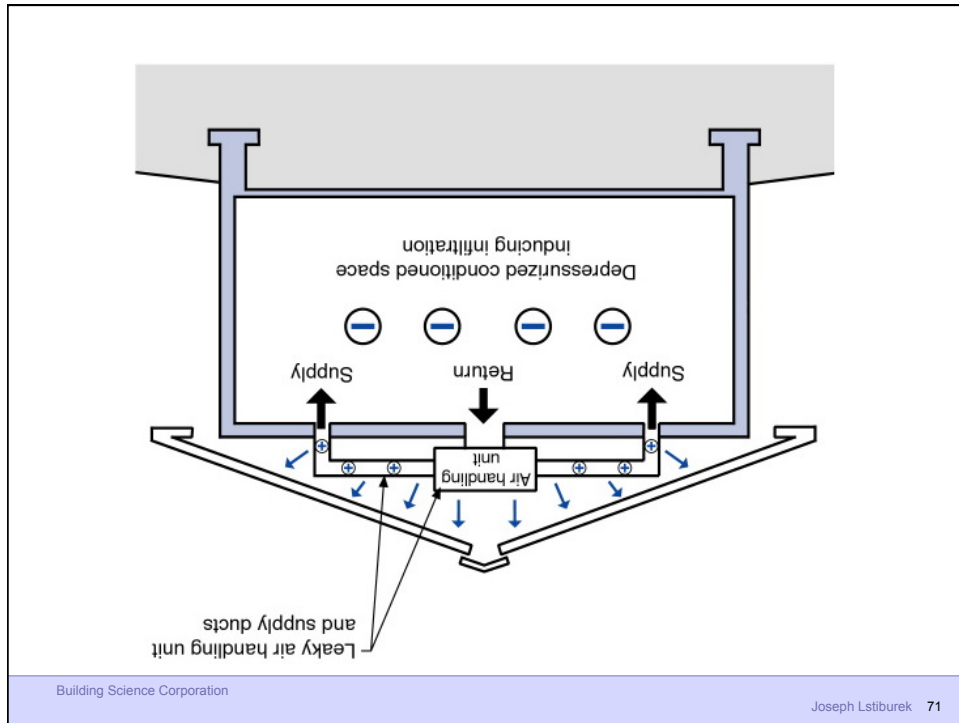
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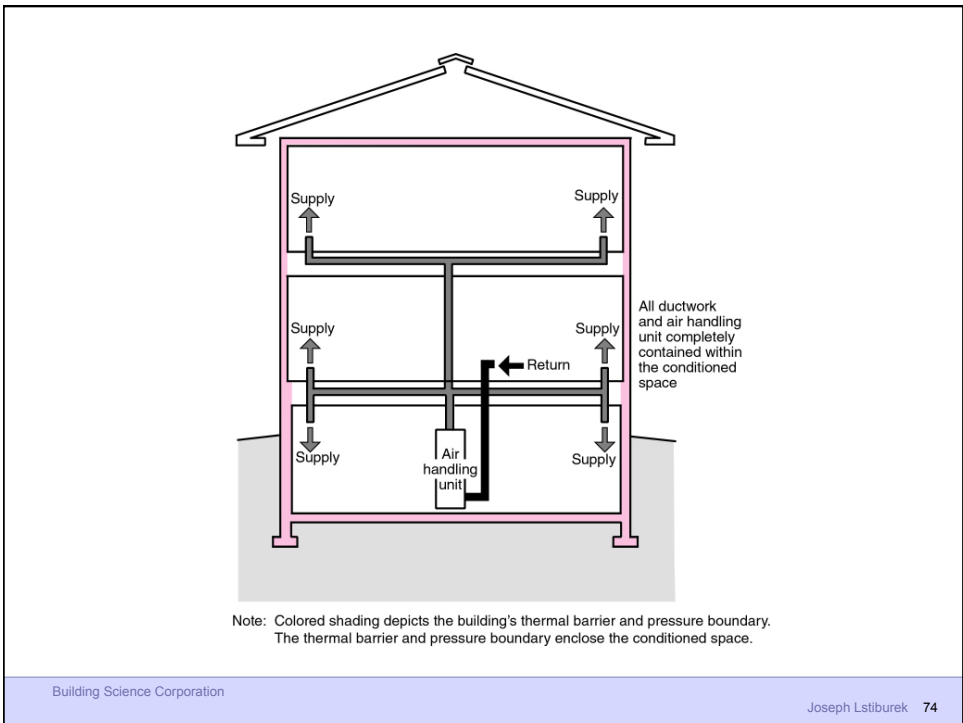


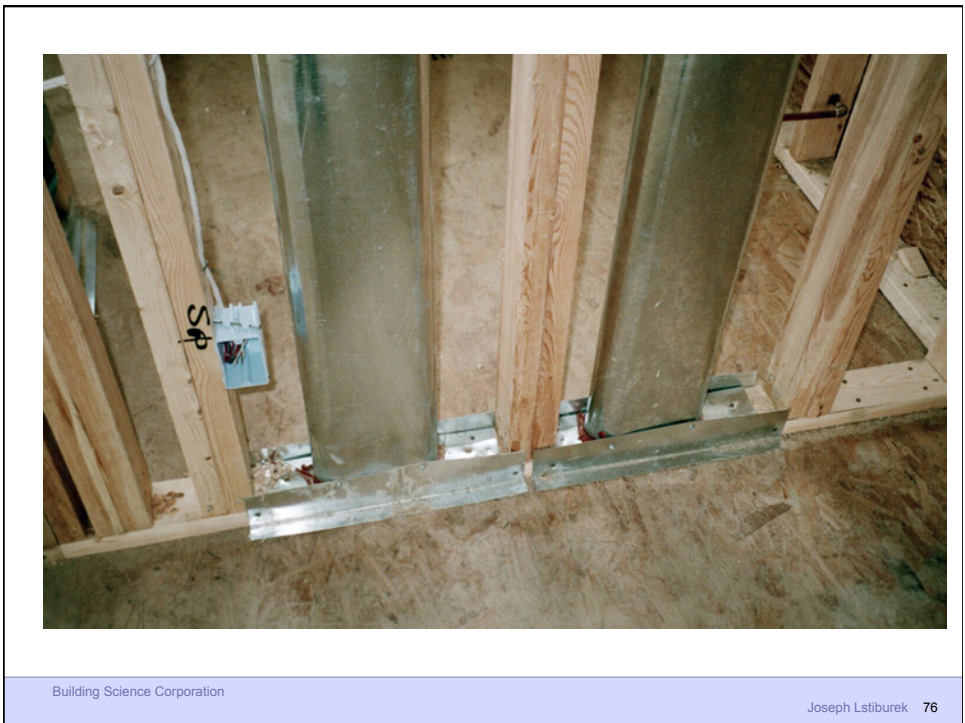


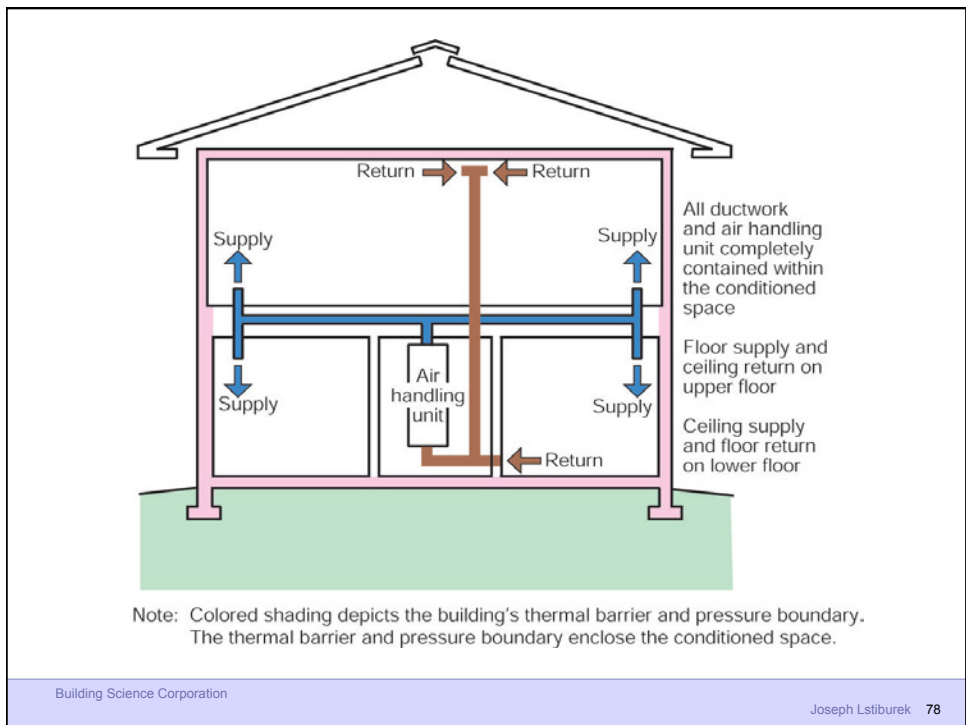


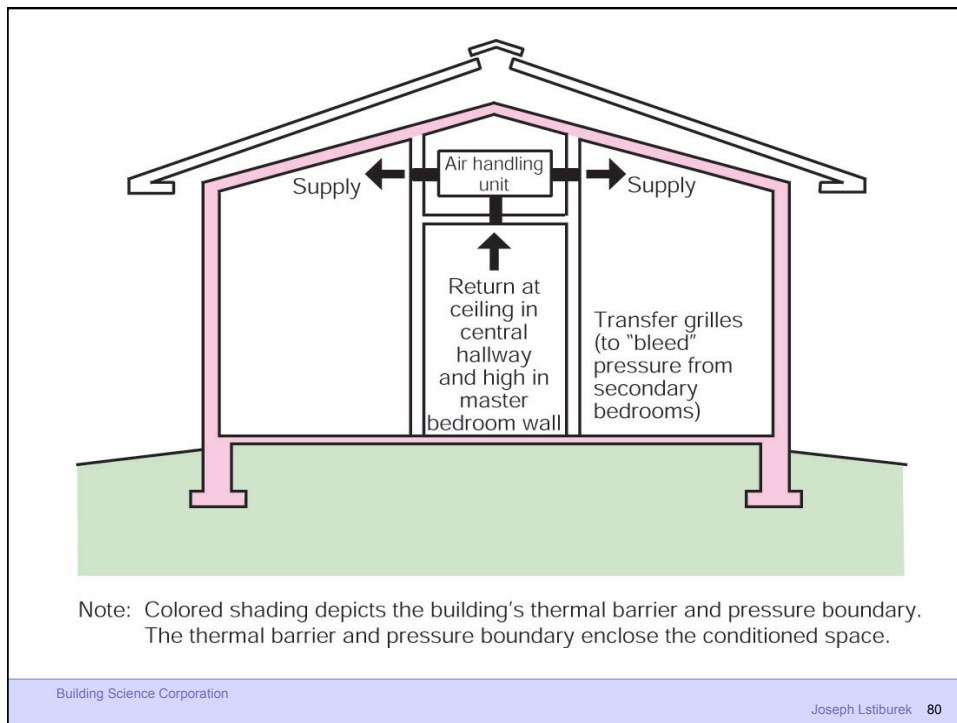
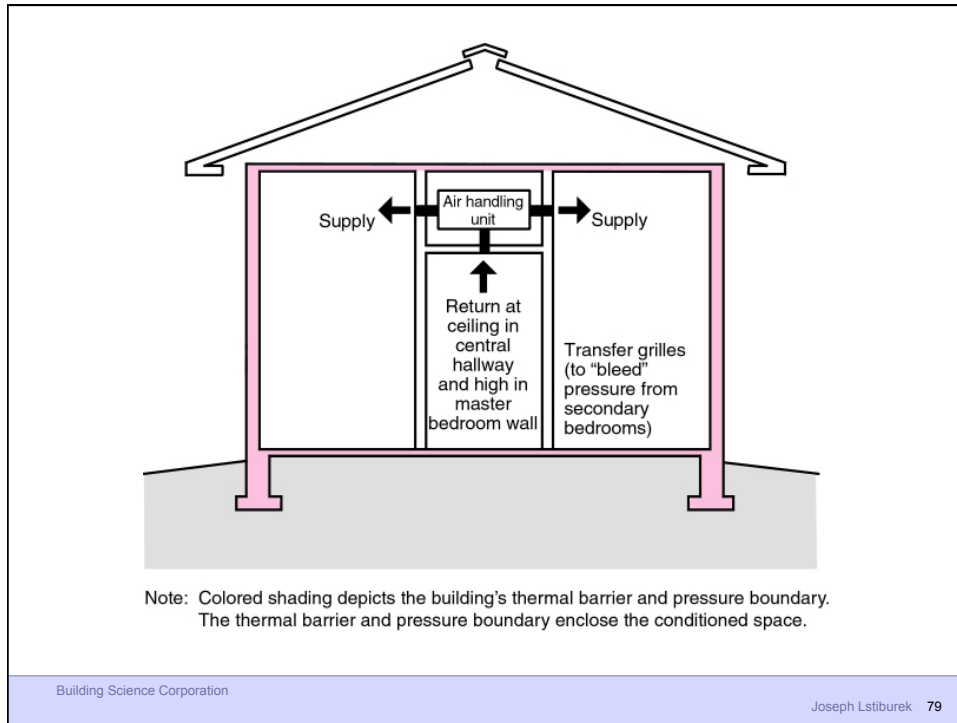




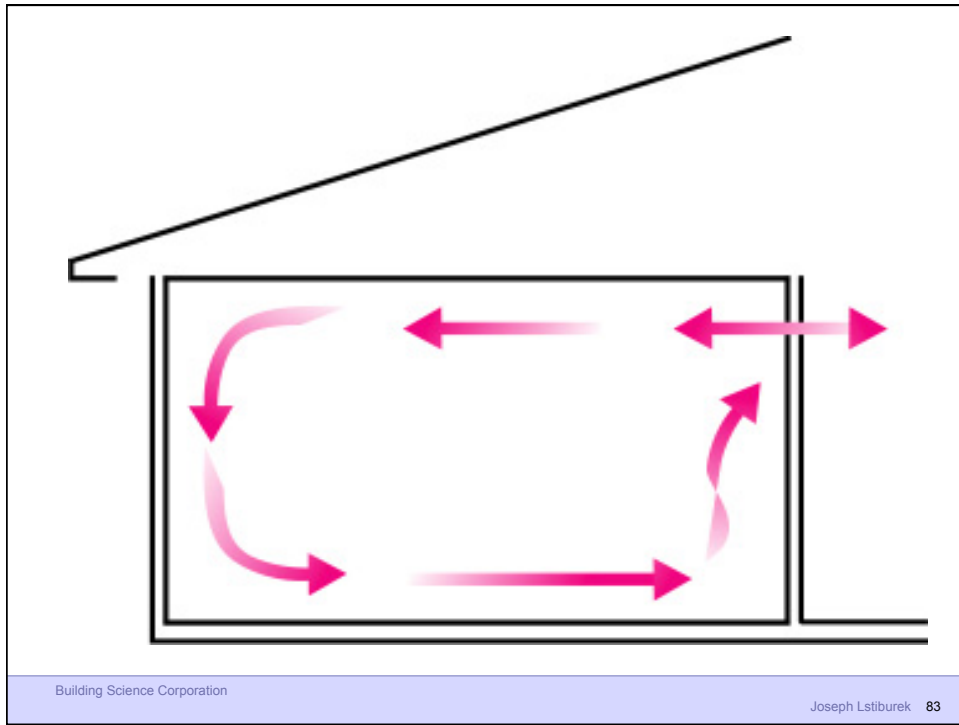


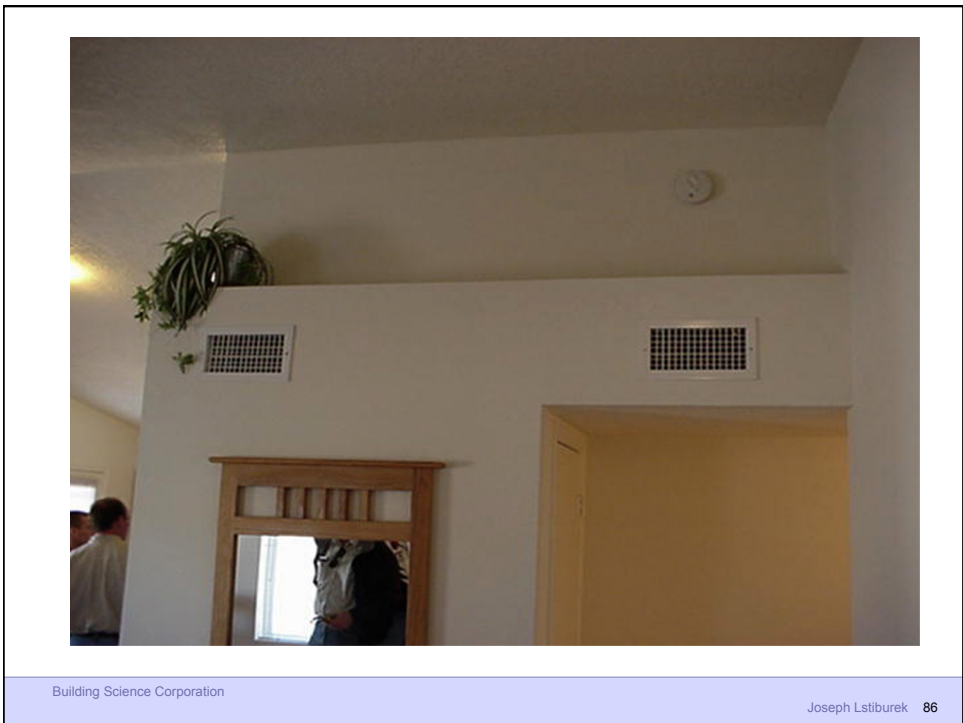




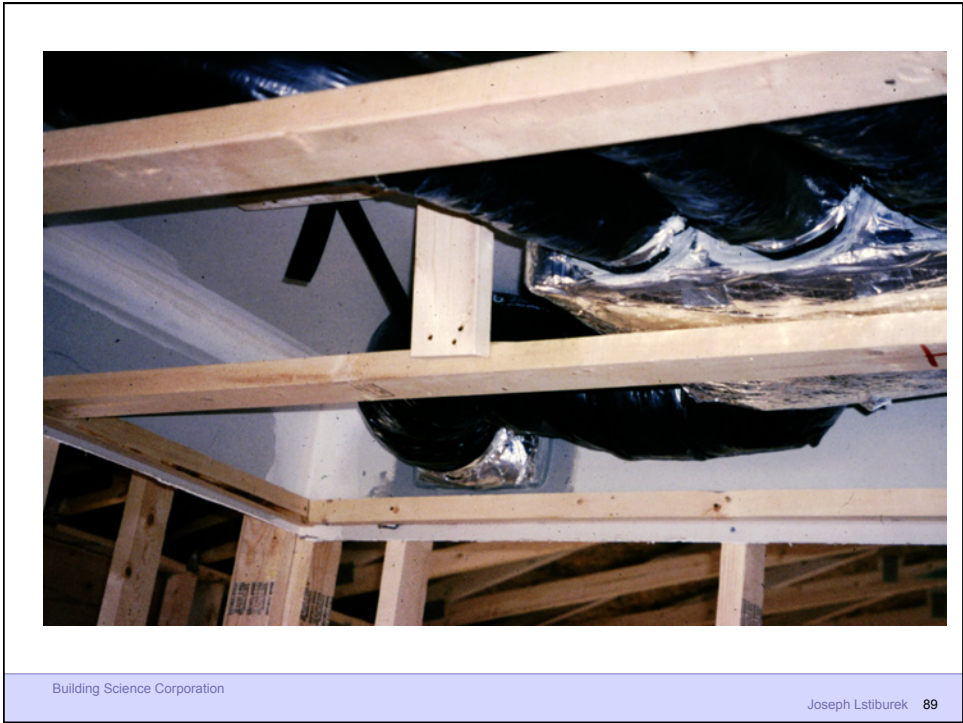












Don't Do Stupid Things

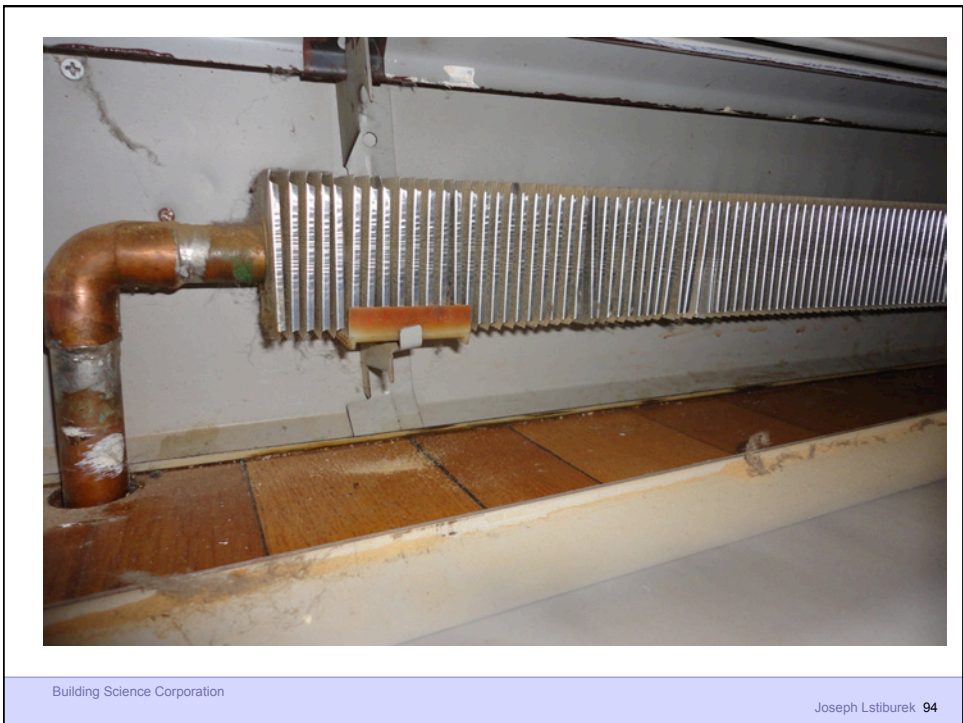
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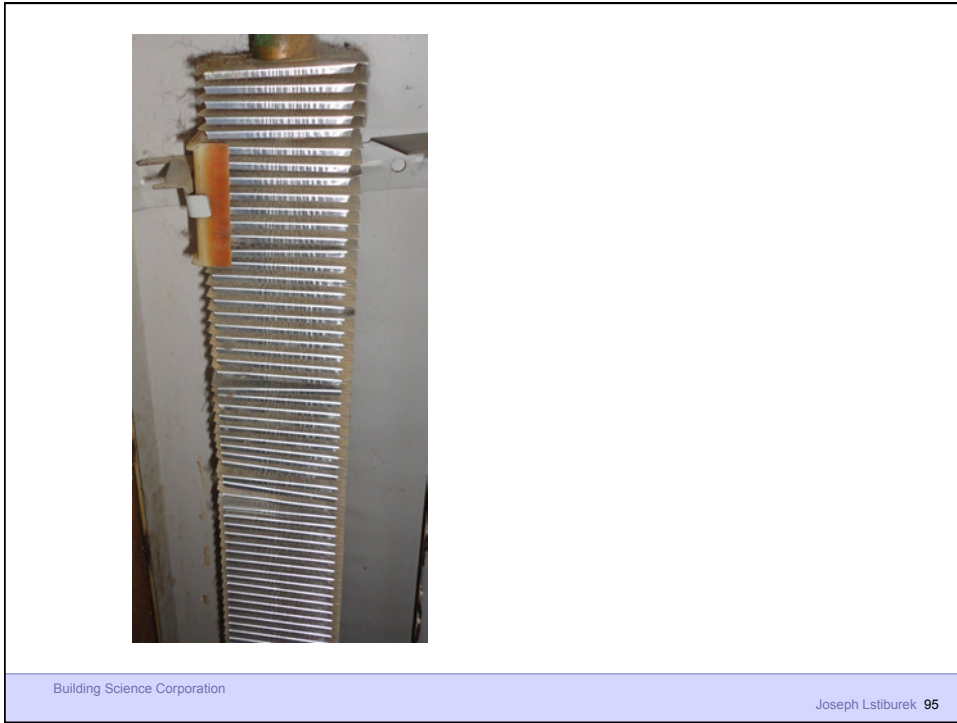
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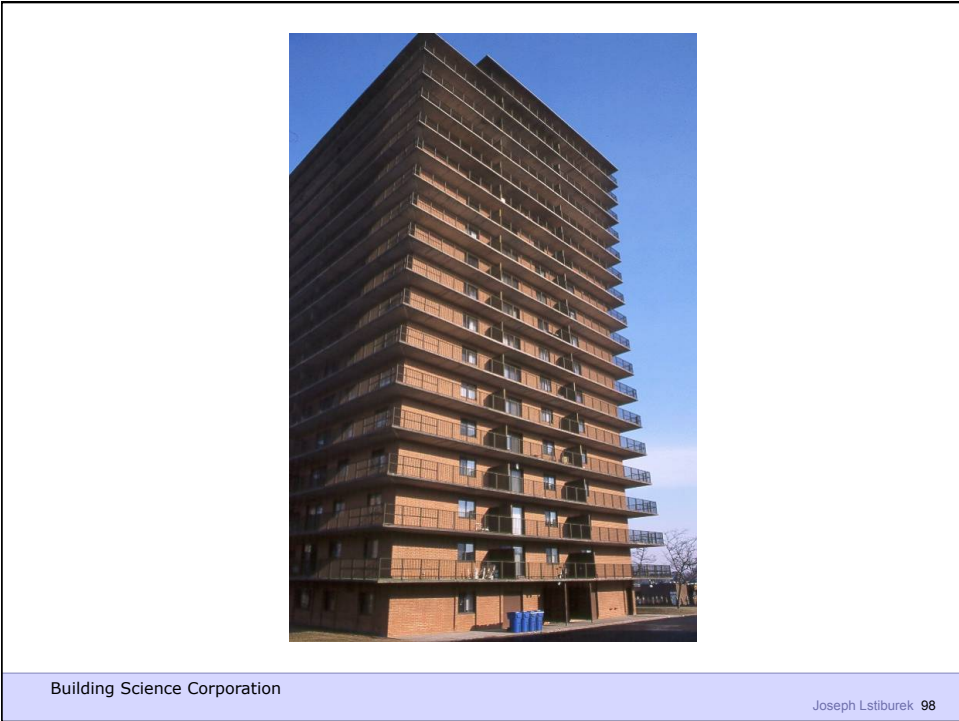
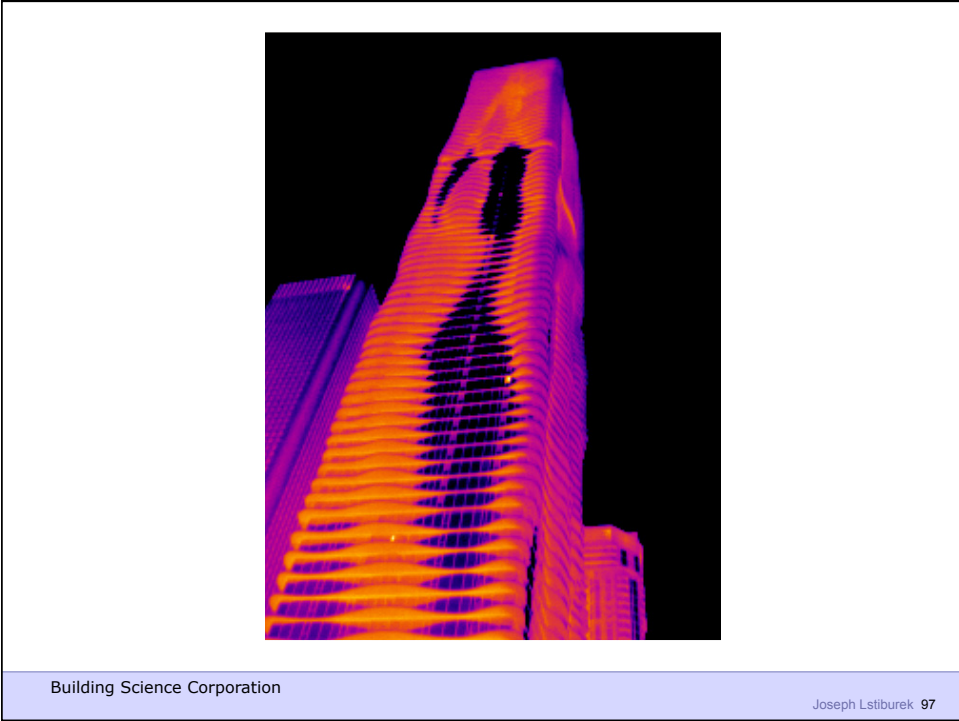


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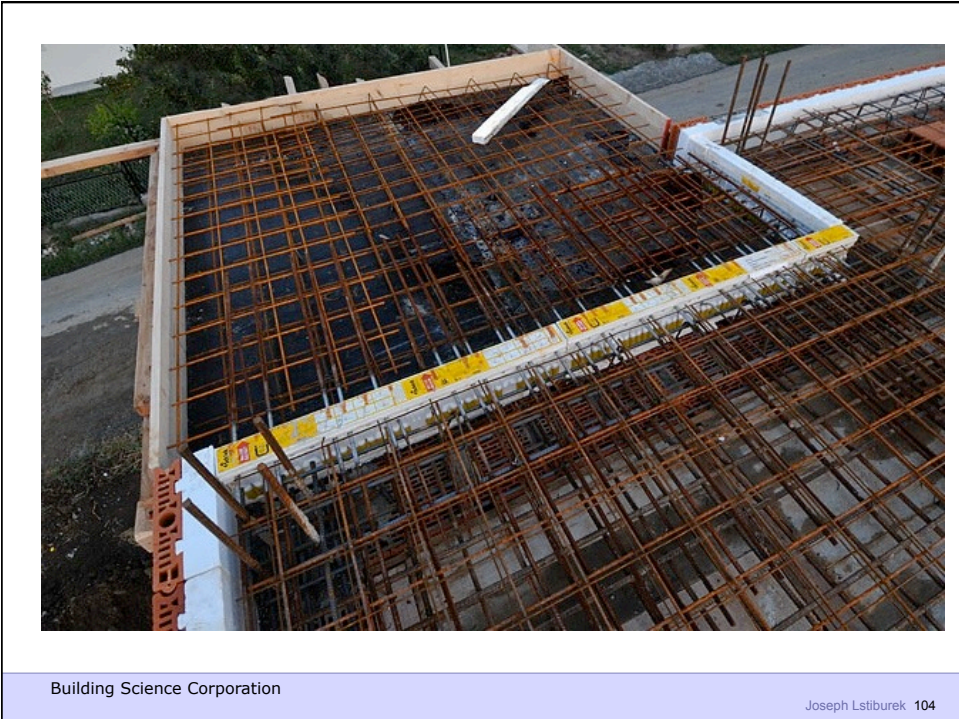
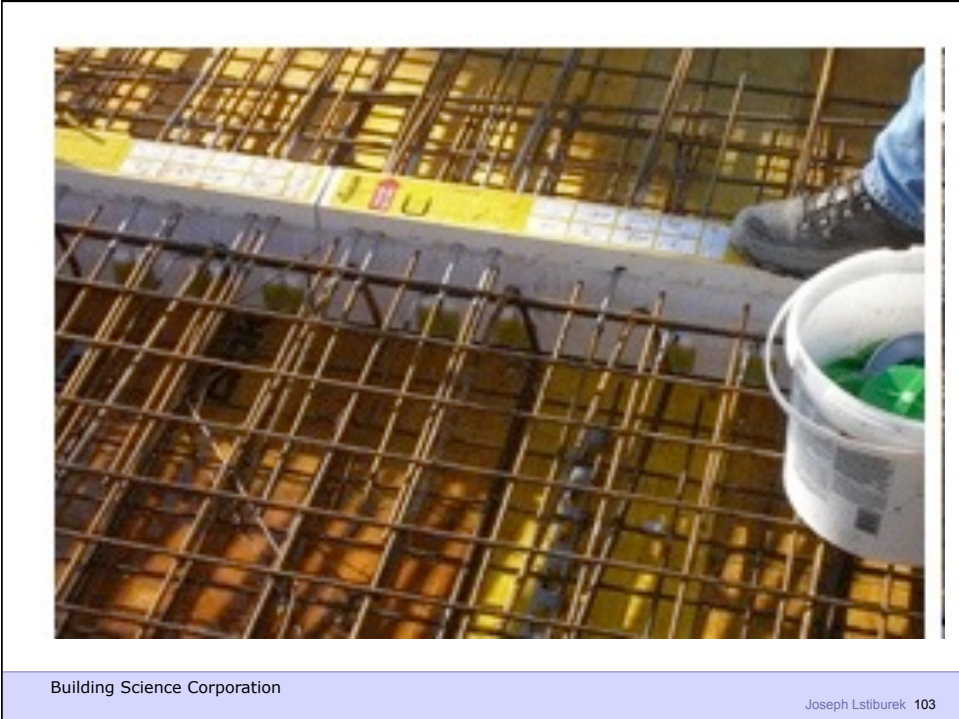
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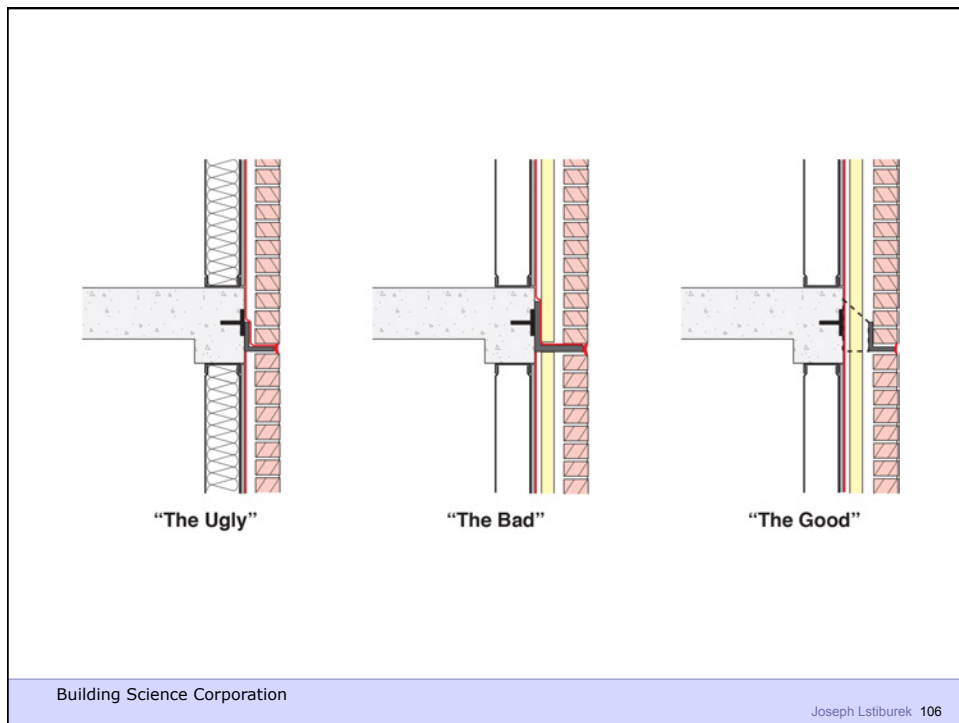
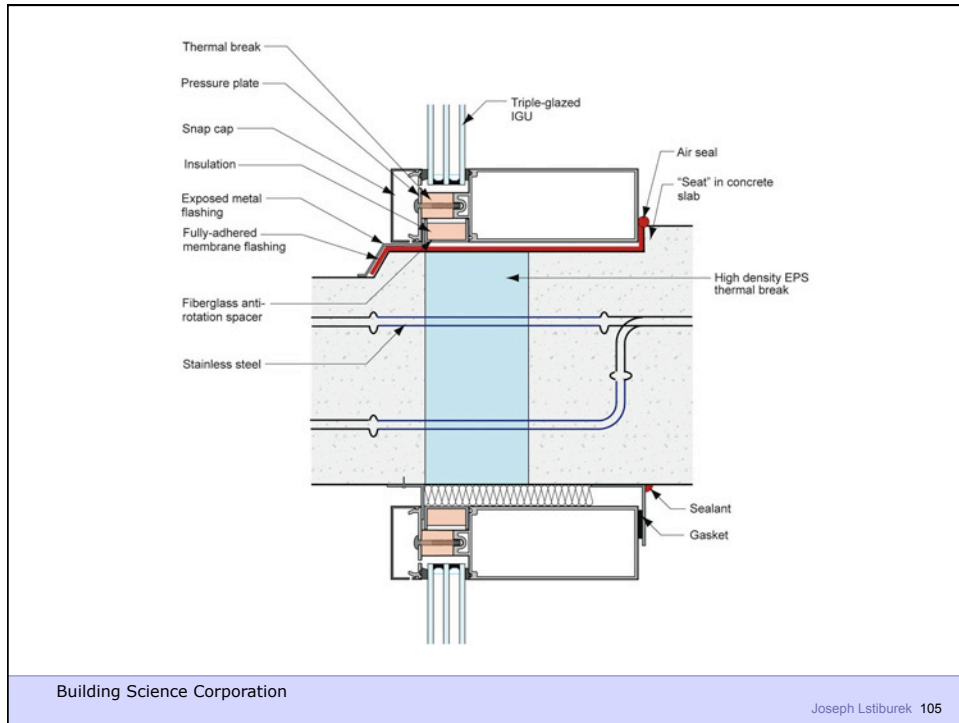


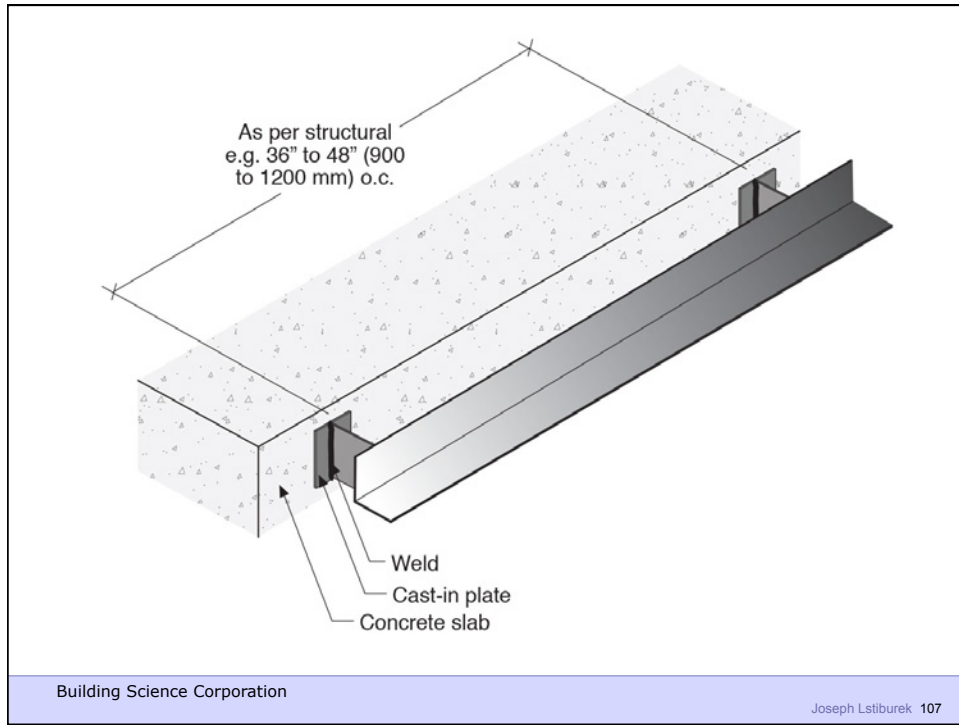
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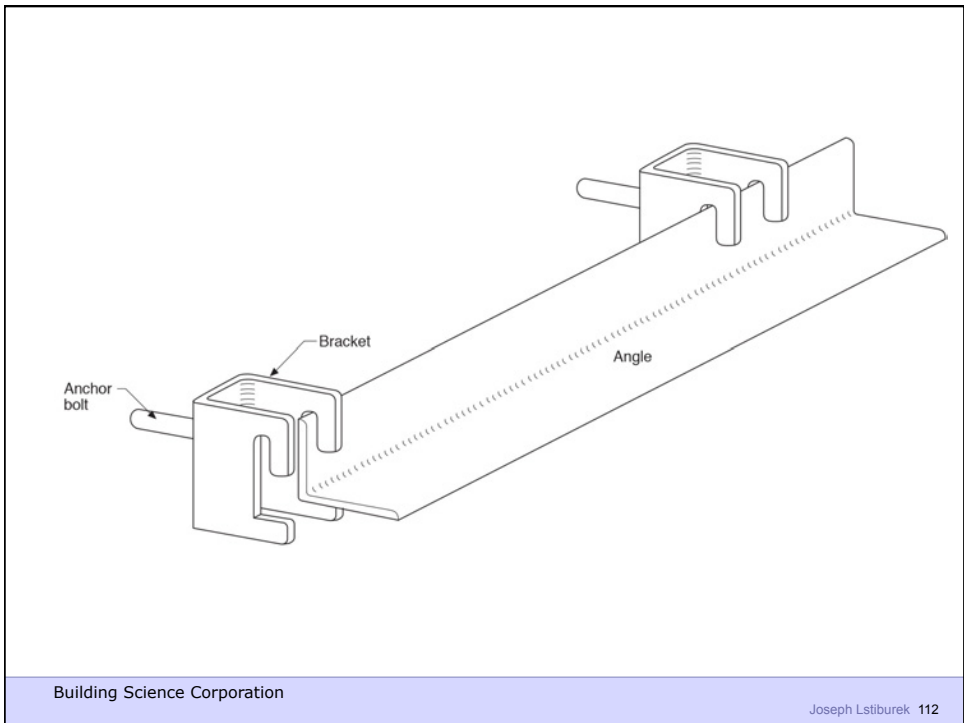
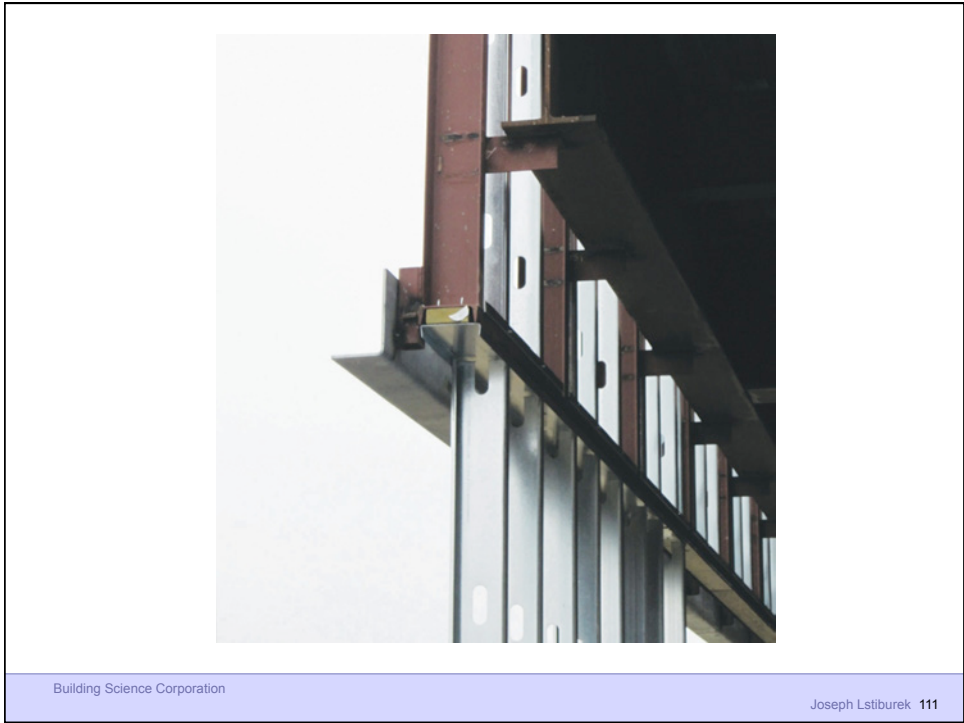




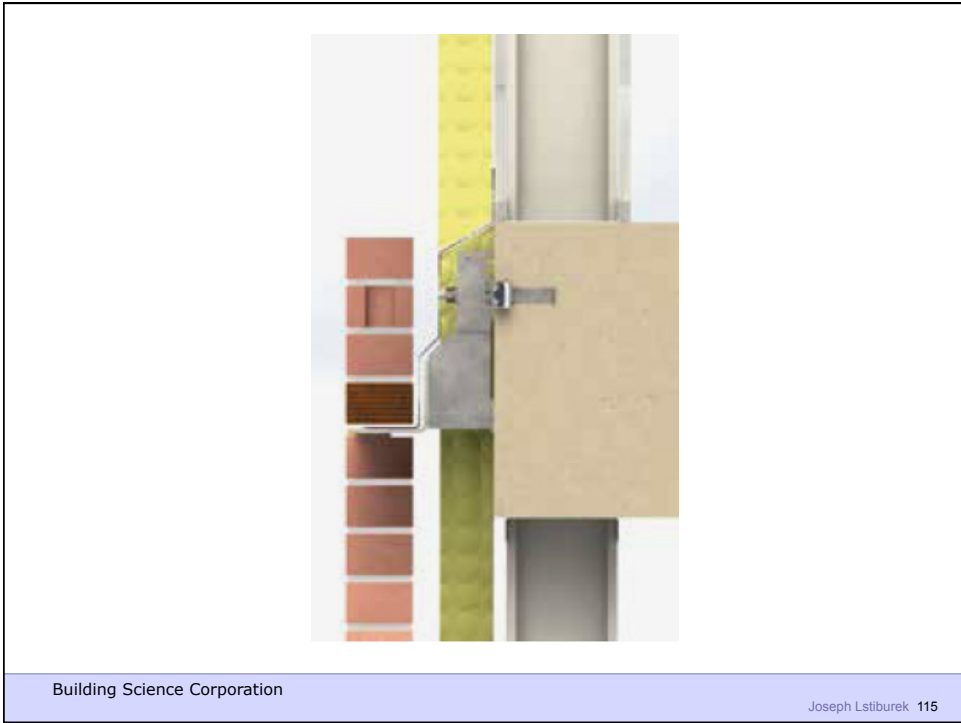


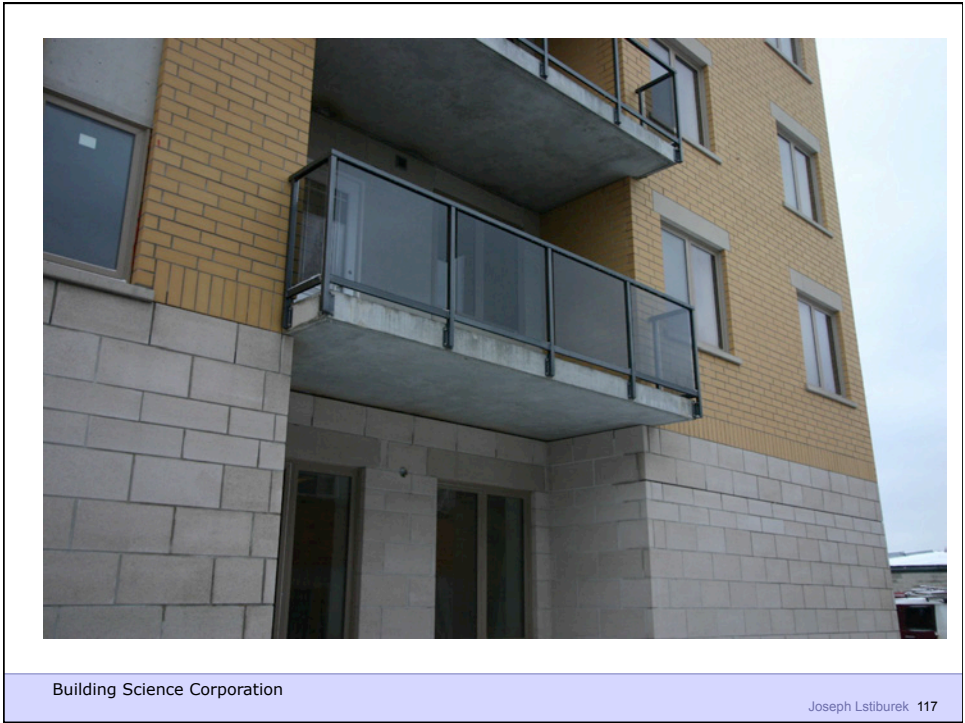
















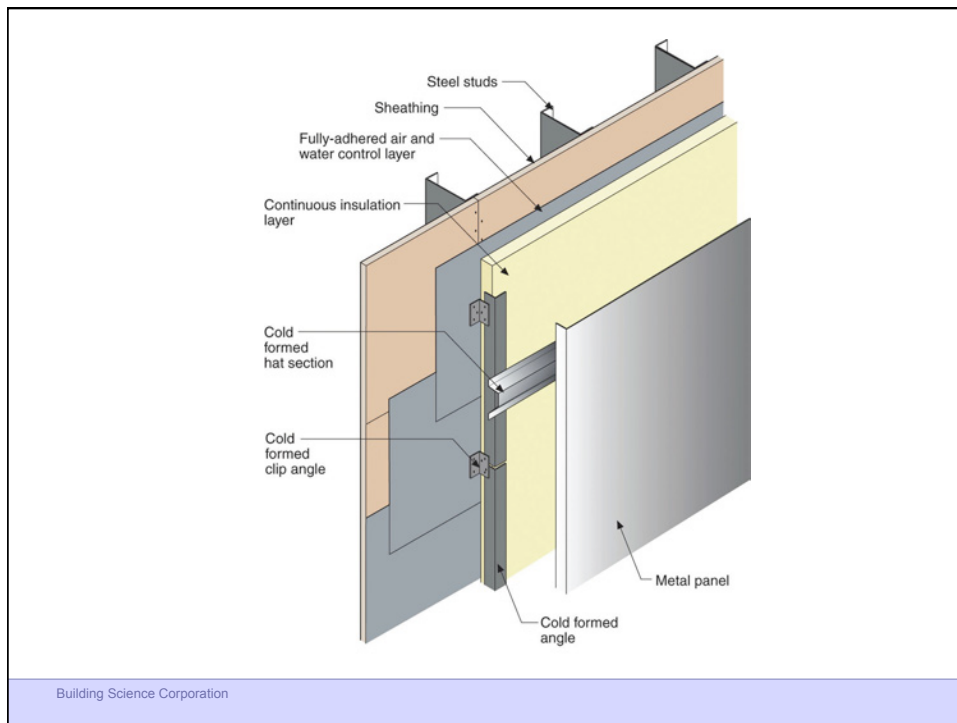
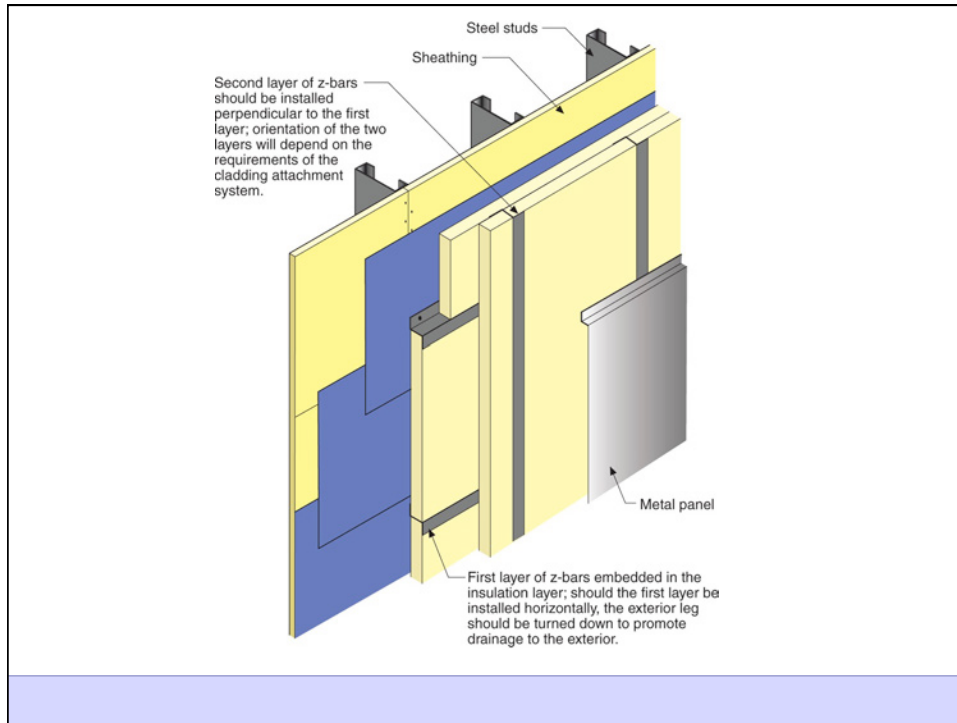
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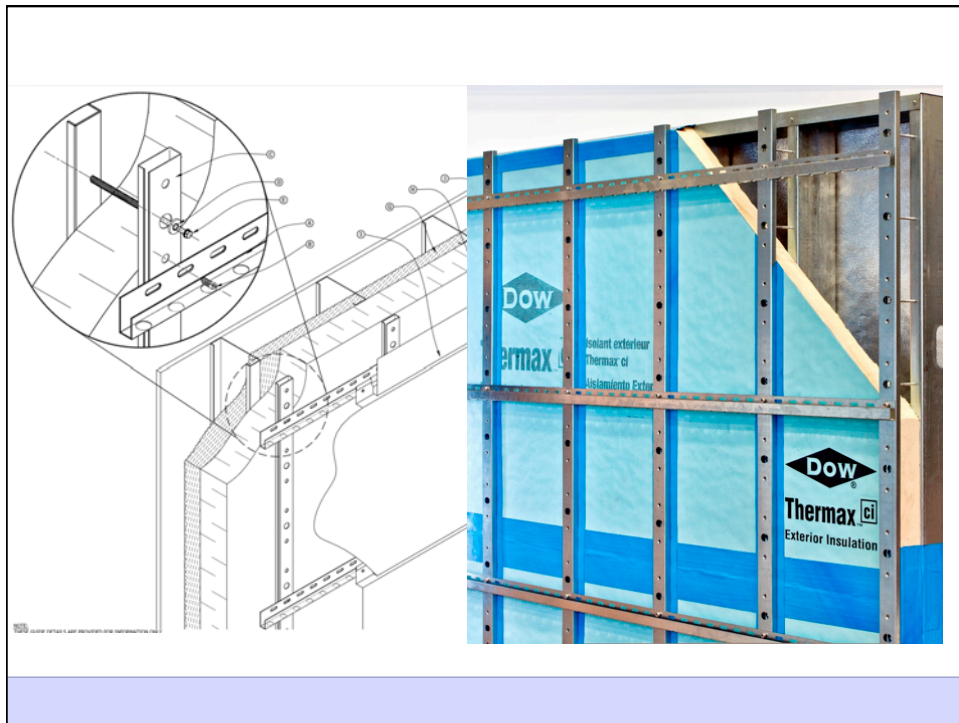
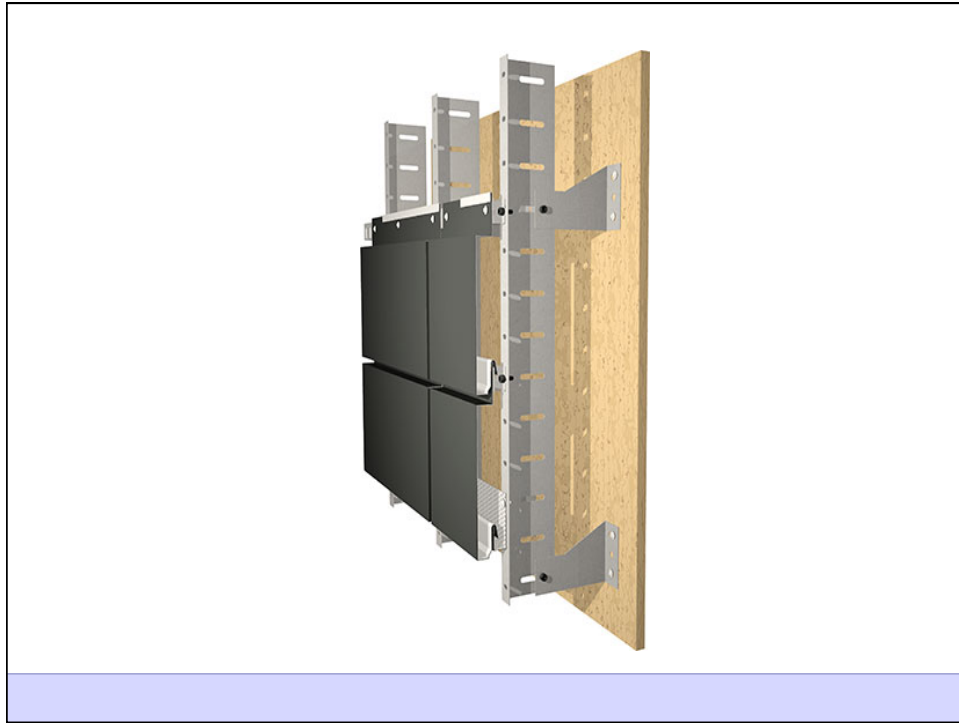
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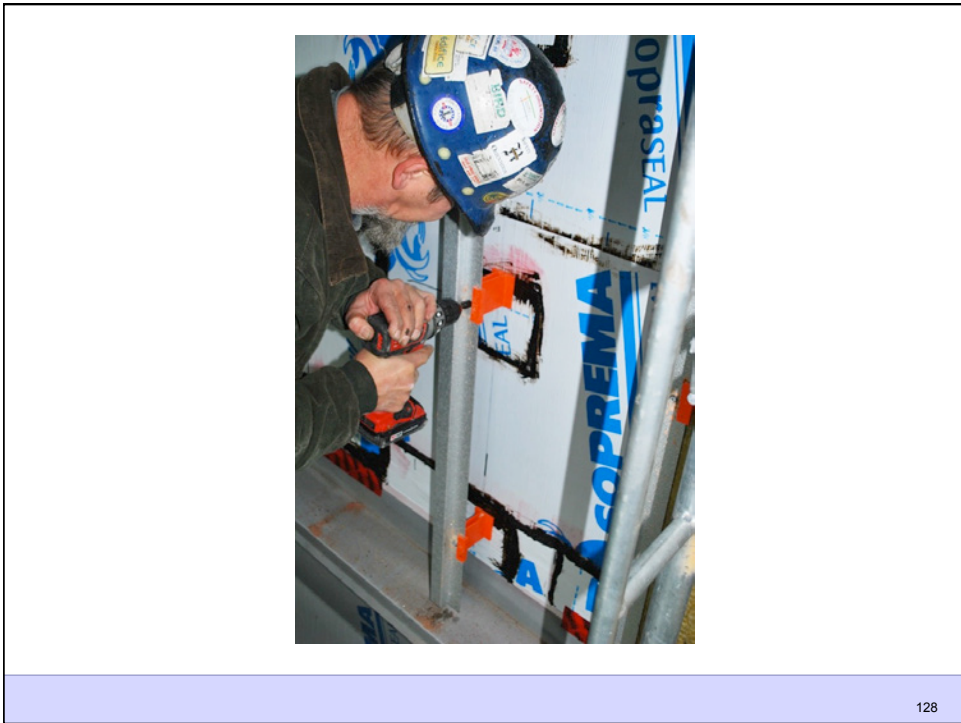


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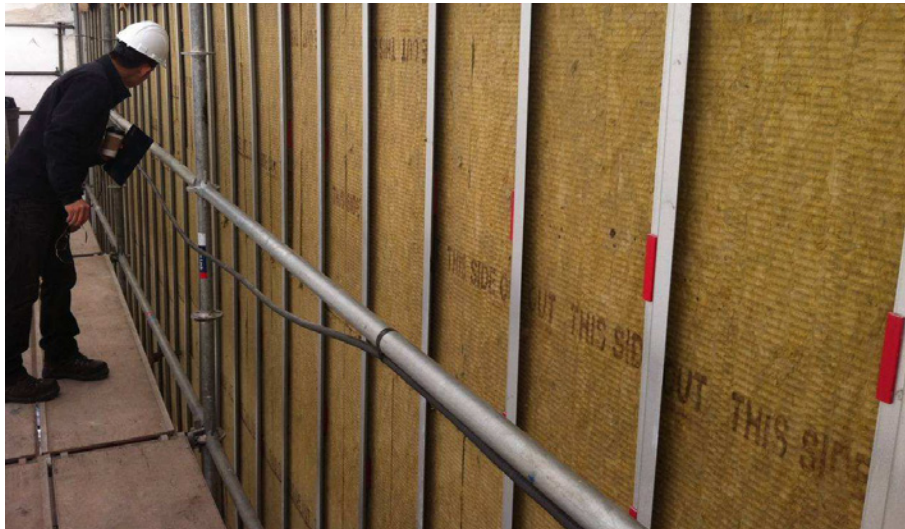






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