

Joseph Lstiburek, Ph.D., P.Eng, ASHRAE Fellow

Building Science

Don't Do Stupid Things

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Life is Tough Enough As it Is...

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Life is Tough Enough As it Is... It's Harder When You Are Stupid

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Don't Do Stupid Things

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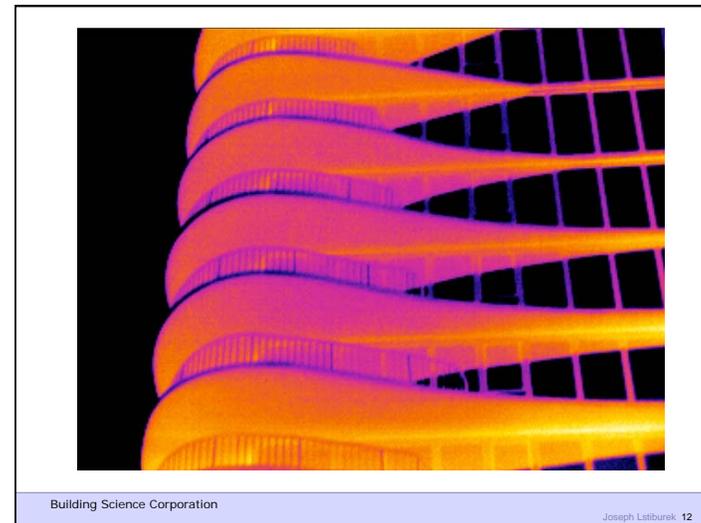
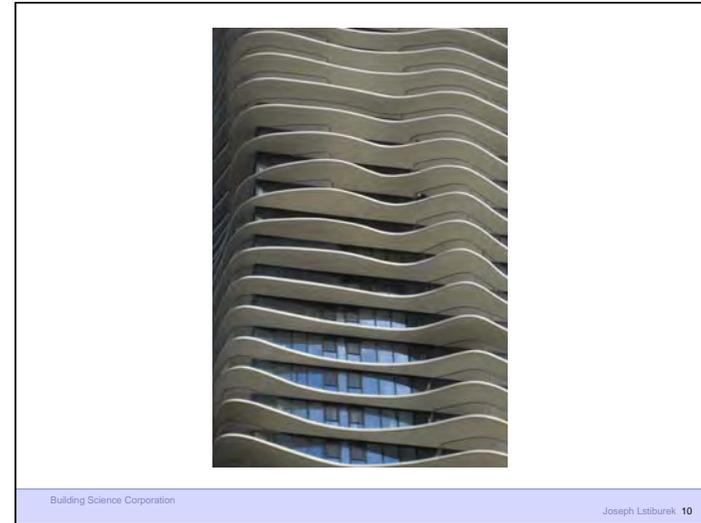
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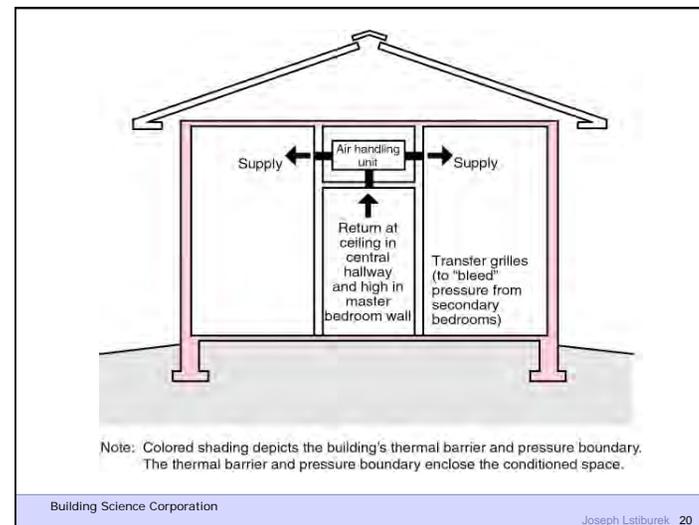
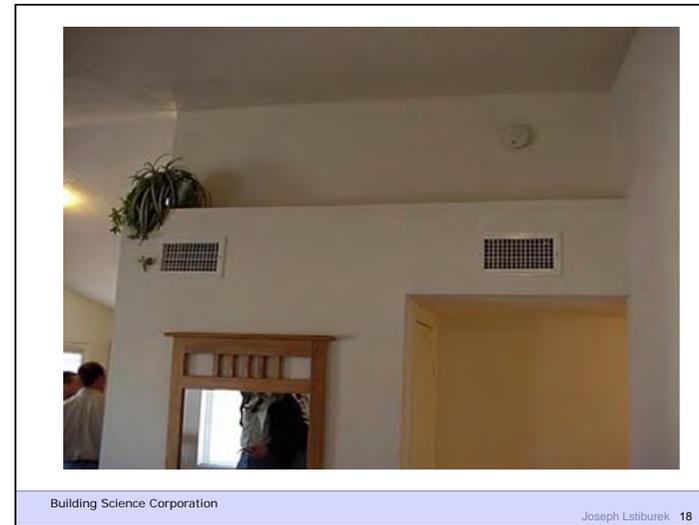
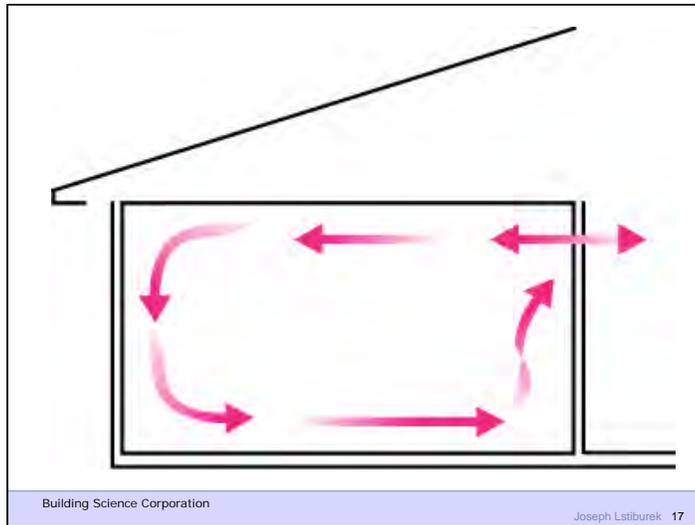
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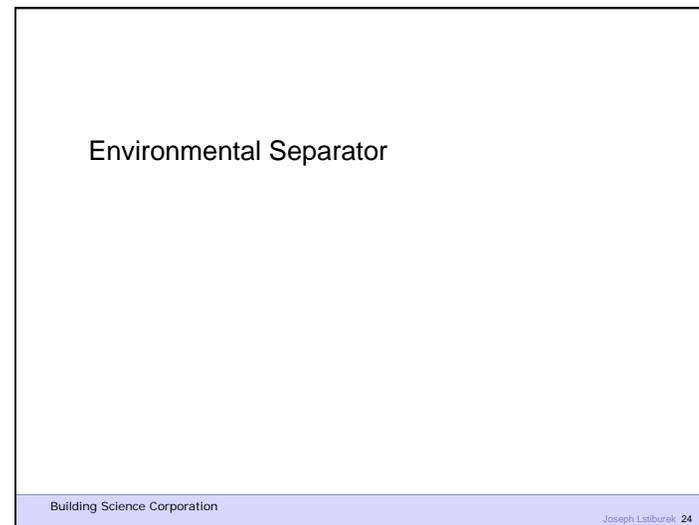
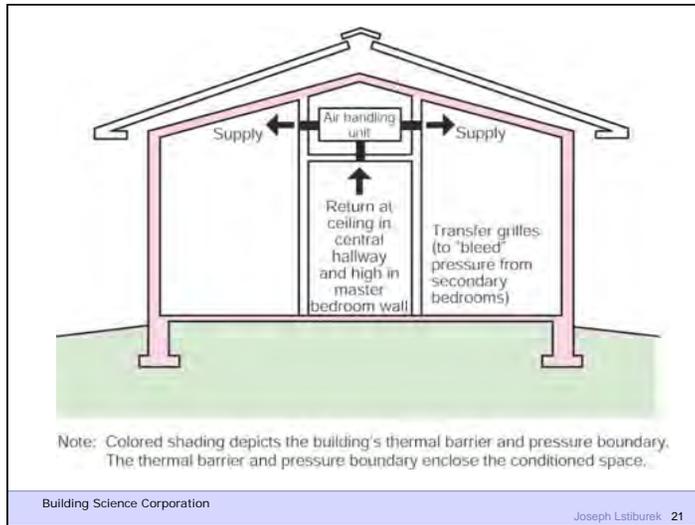


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- Control heat flow
- Control airflow
- Control water vapor flow
- Control rain
- Control ground water
- Control light and solar radiation
- Control noise and vibrations
- Control contaminants, environmental hazards and odors
- Control insects, rodents and vermin
- Control fire
- Provide strength and rigidity
- Be durable
- Be aesthetically pleasing
- Be economical

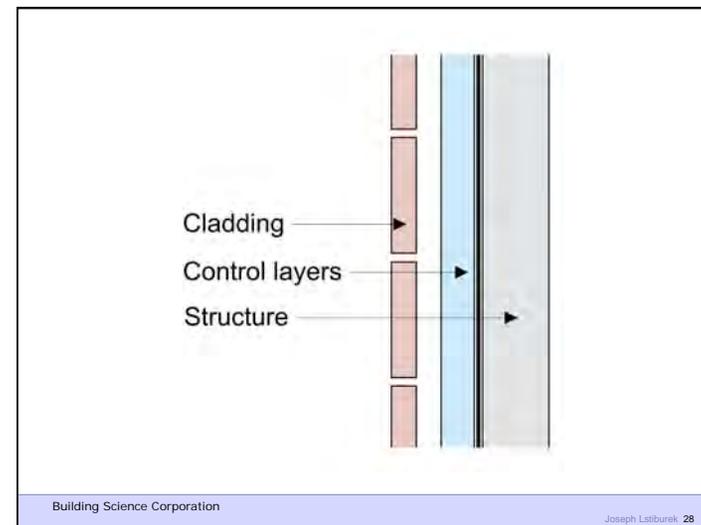
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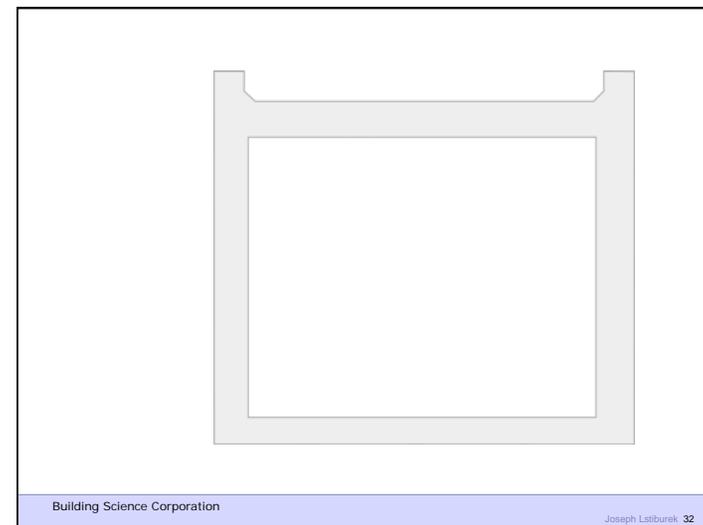
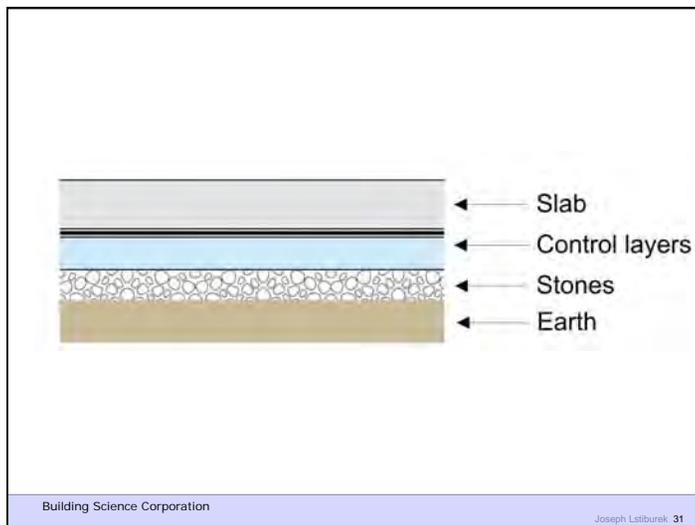
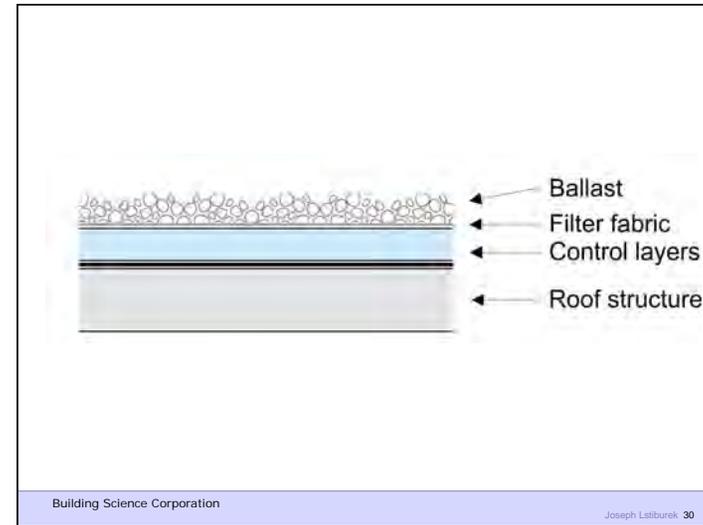
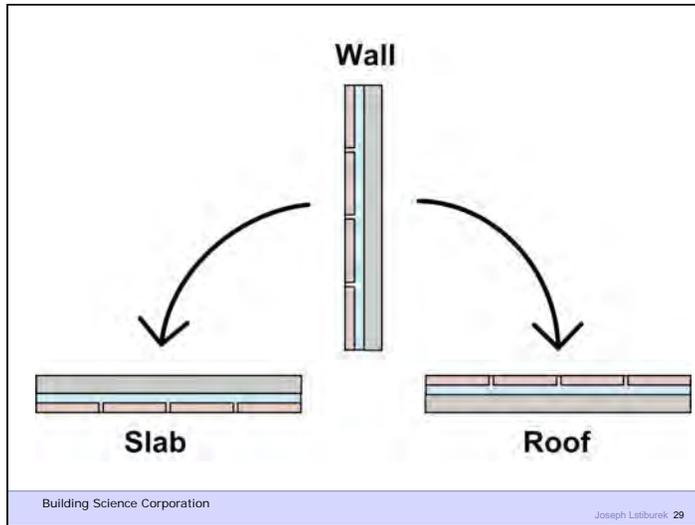
Heat Flow Is From Warm To Cold
 Moisture Flow Is From Warm To Cold
 Moisture Flow Is From More To Less
 Air Flow Is From A Higher Pressure to a Lower Pressure
 Gravity Acts Down

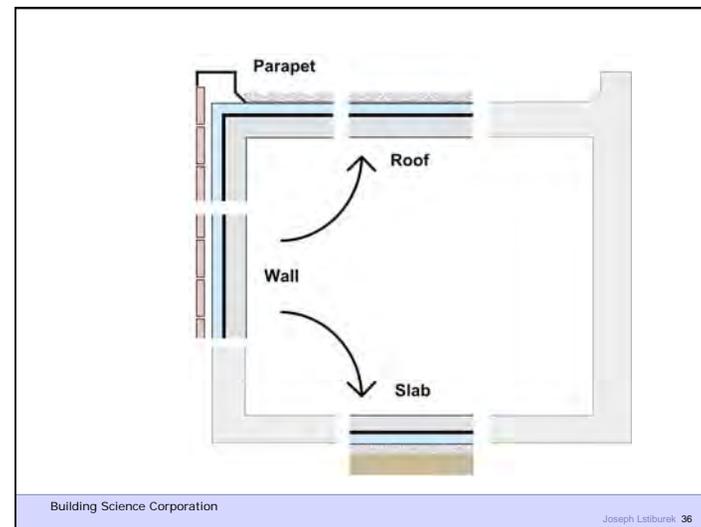
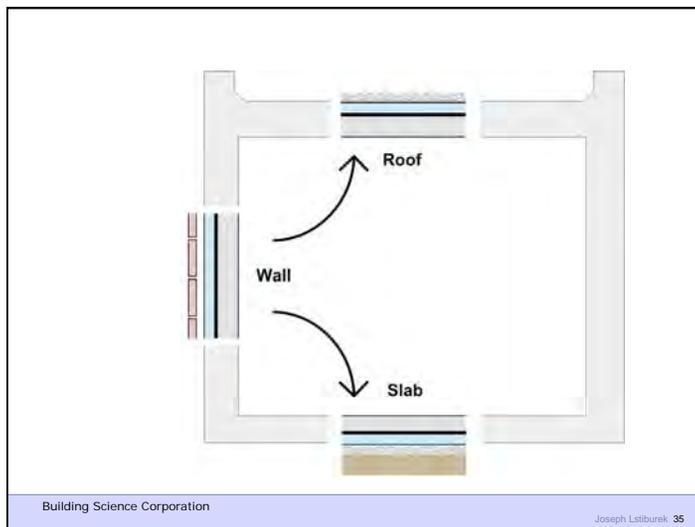
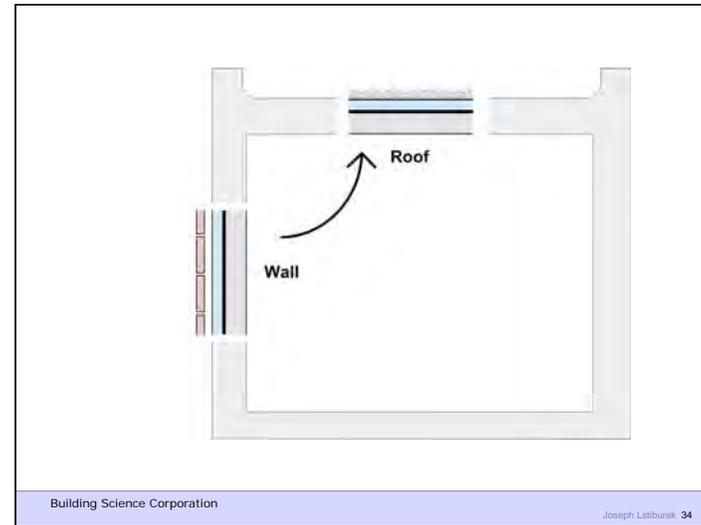
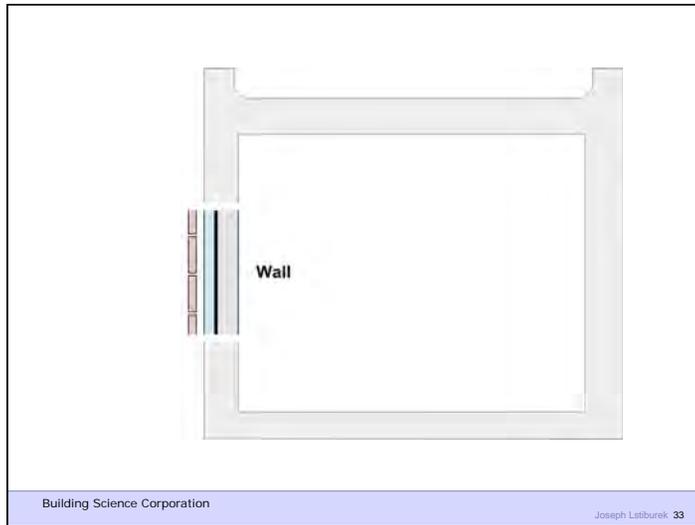
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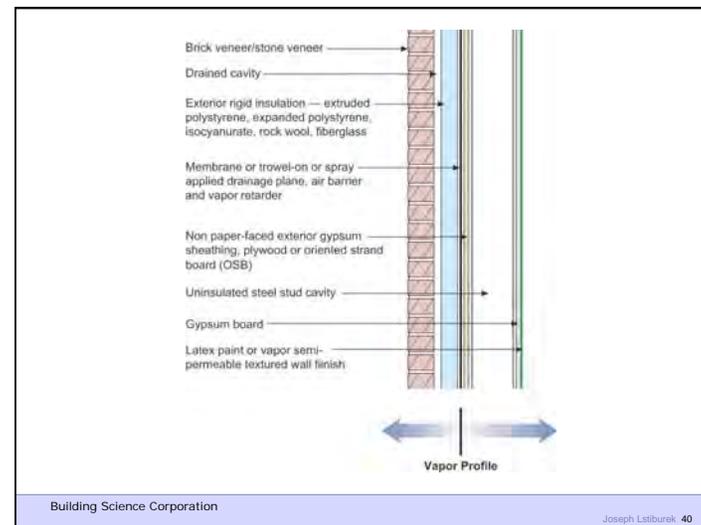
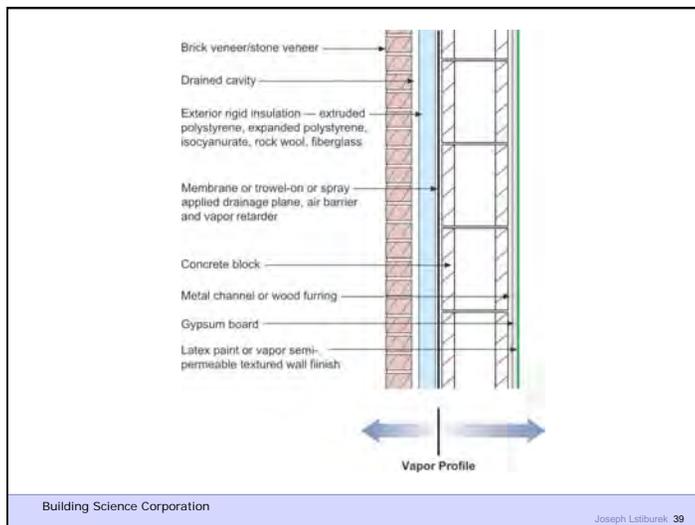
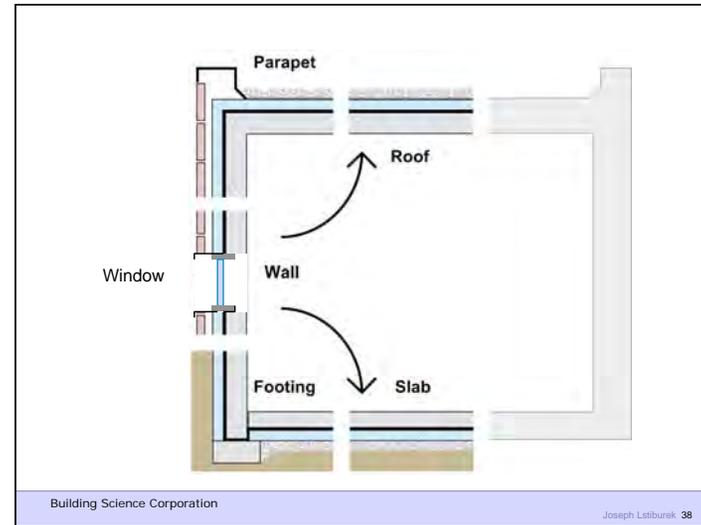
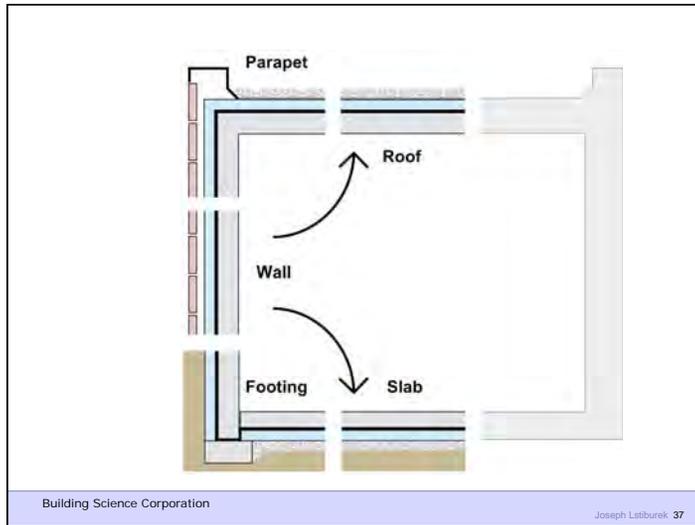
Water Control Layer
 Air Control Layer
 Vapor Control Layer
 Thermal Control Layer

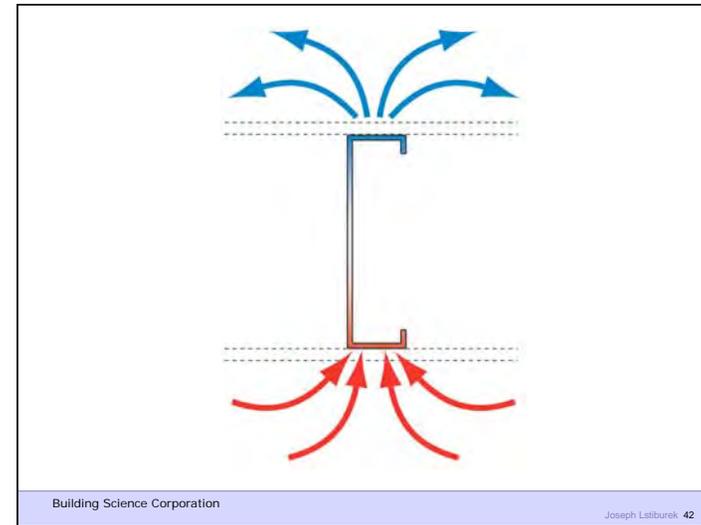
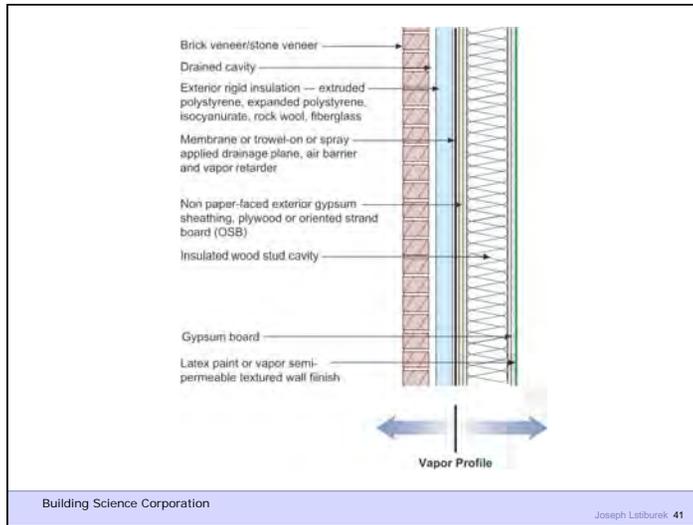
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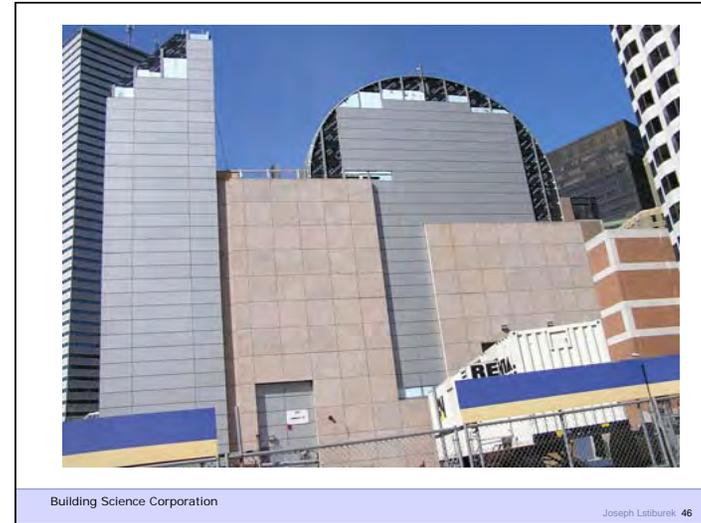


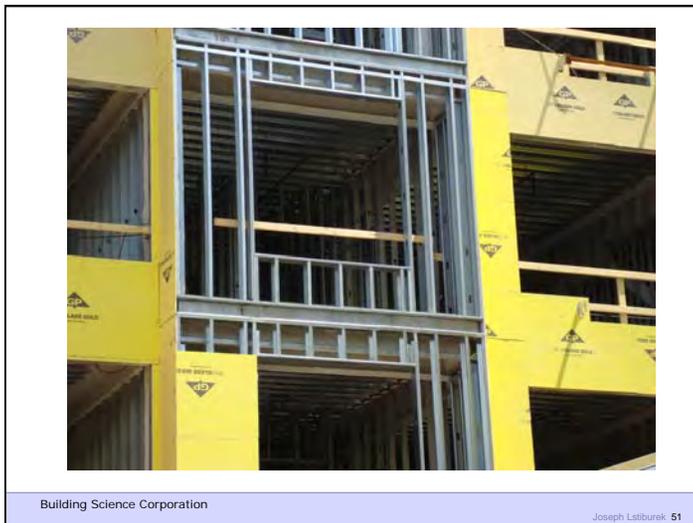
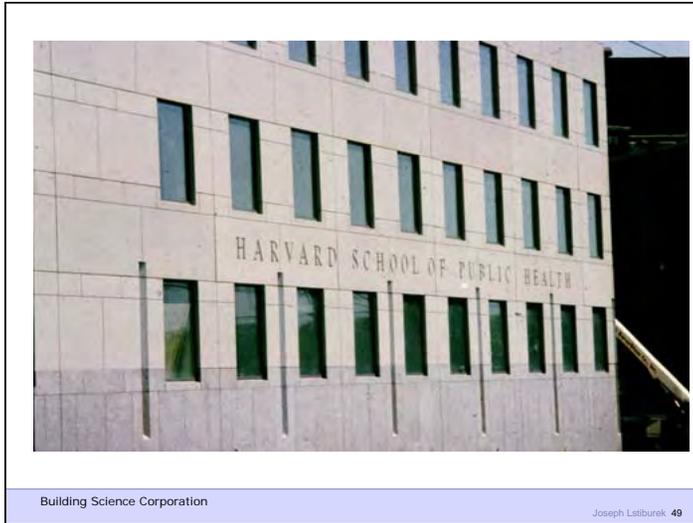


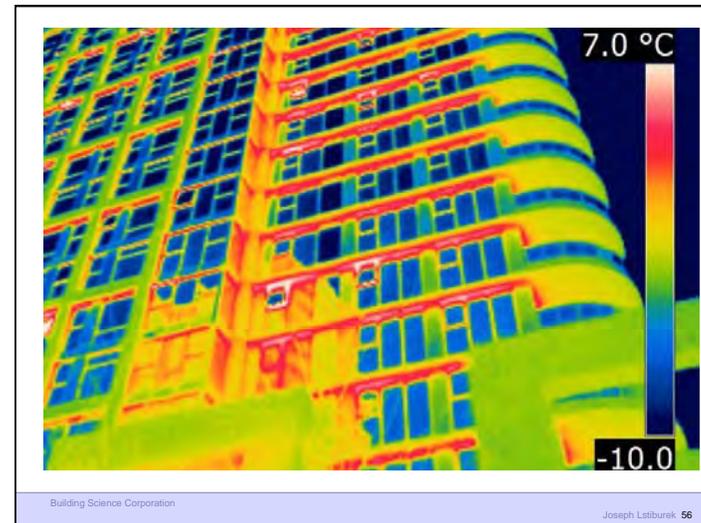


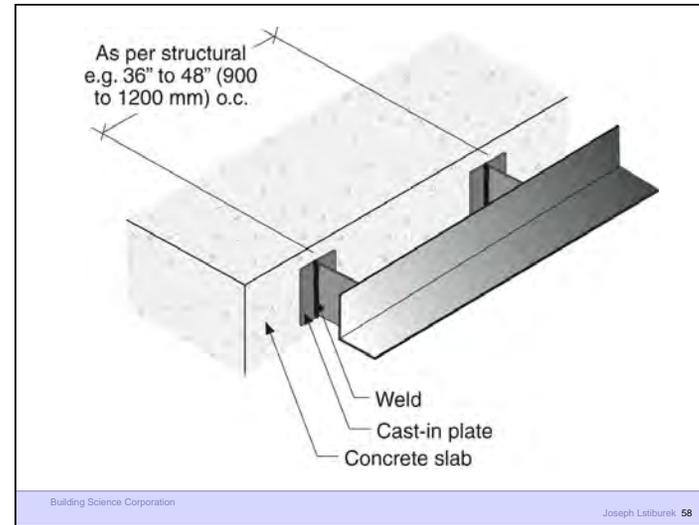
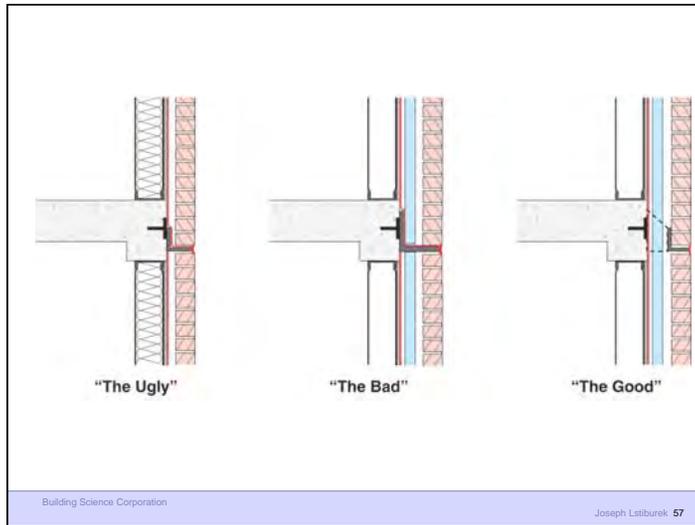


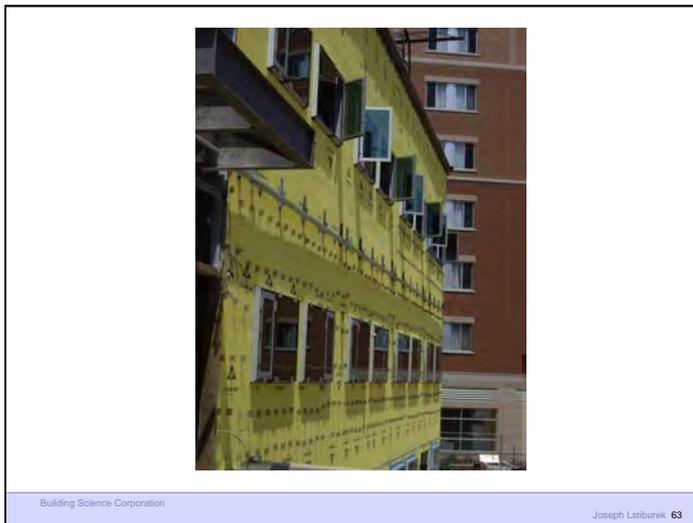
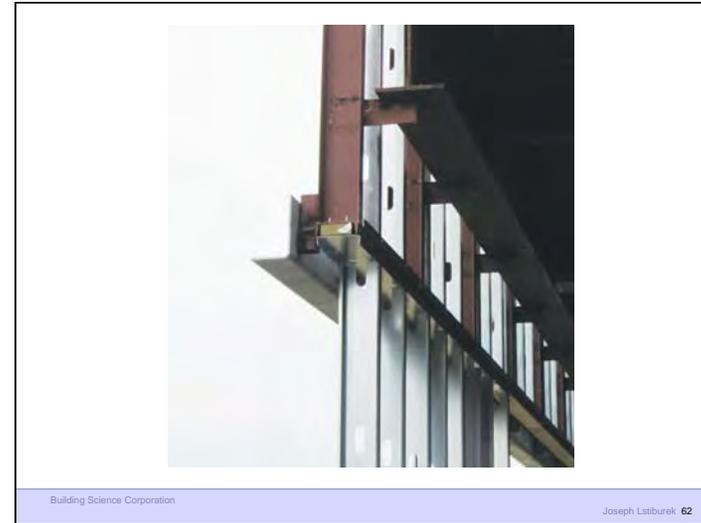












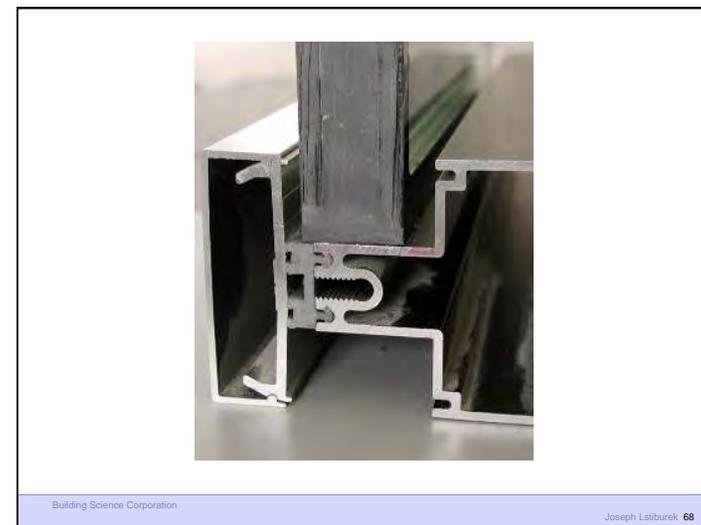
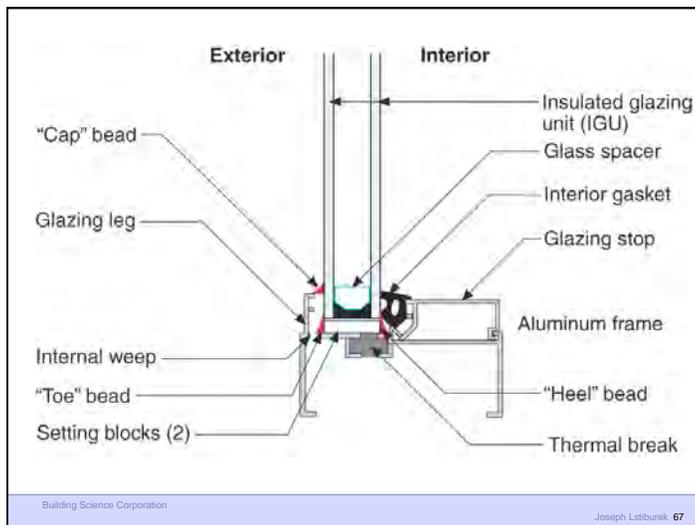
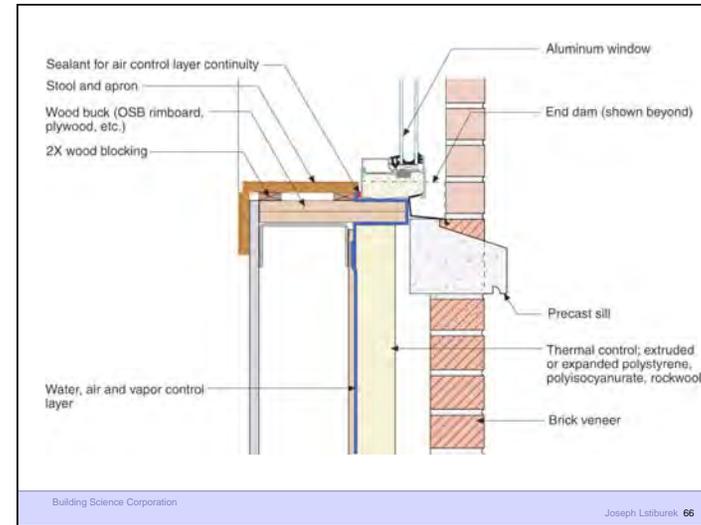
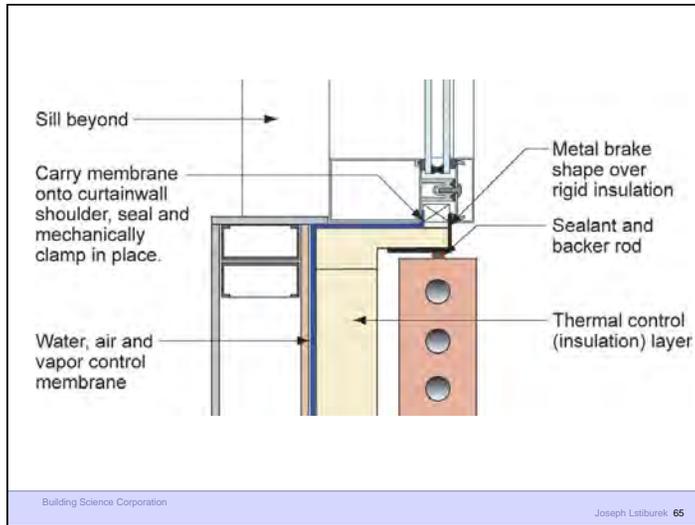
Beware Thermal Flanking

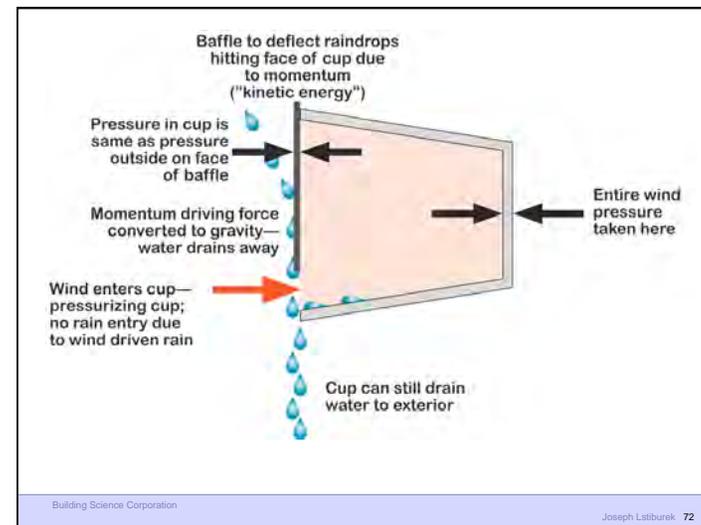
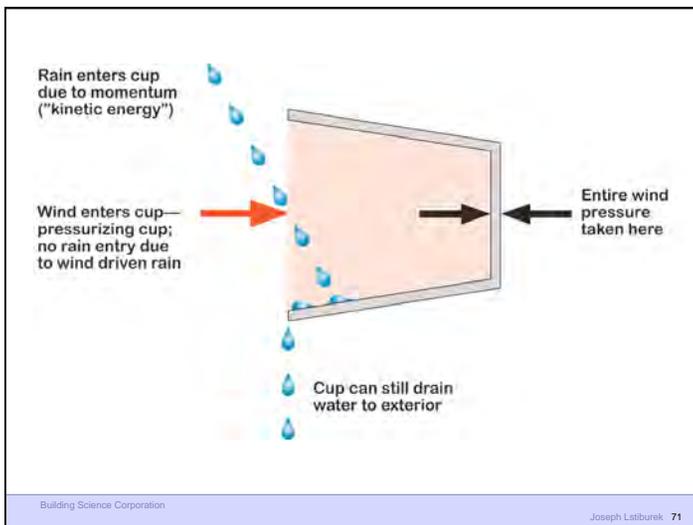
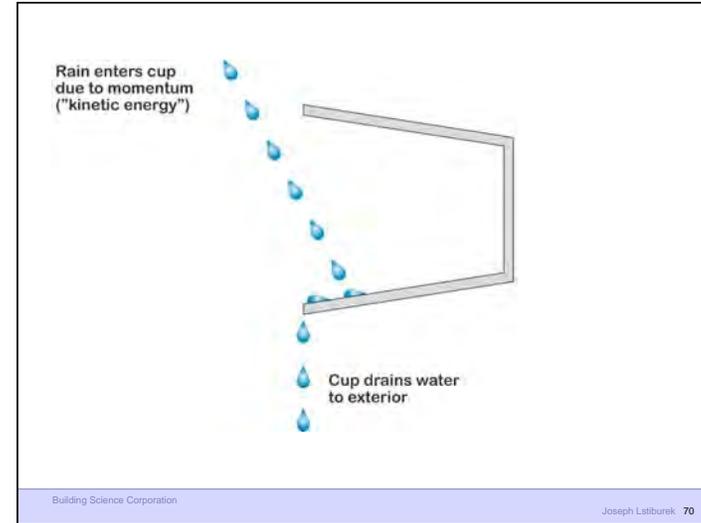
- Beware heat flow around window frame

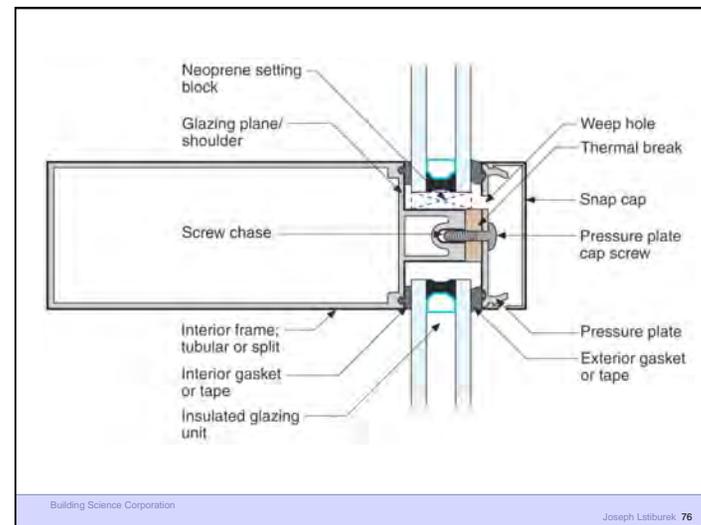
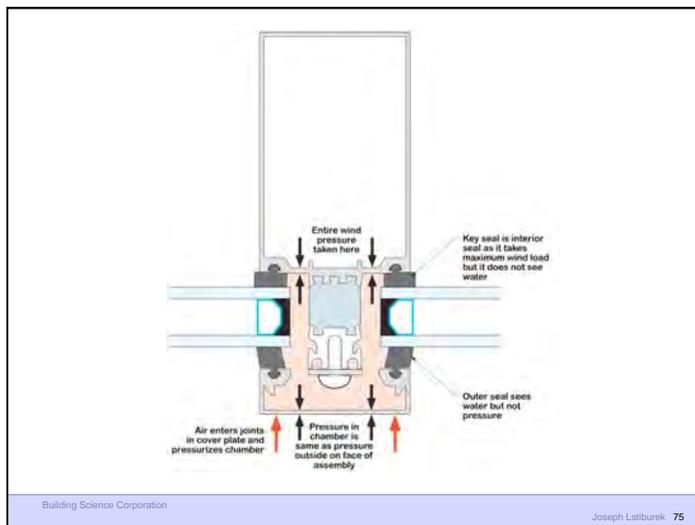
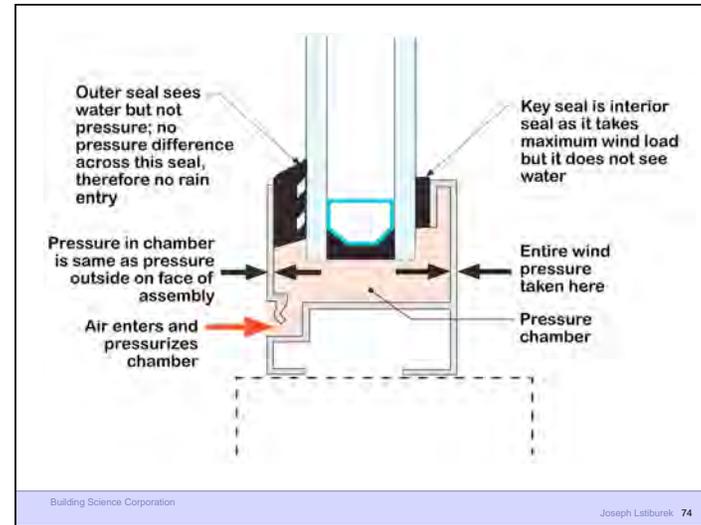
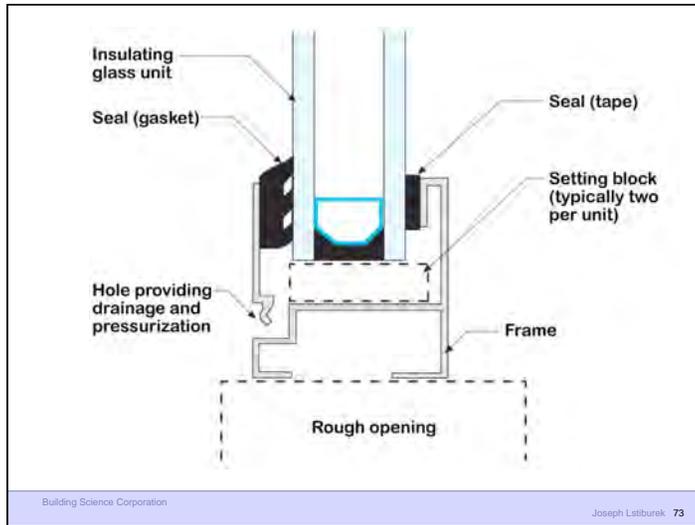
Figure 1: Thermal Flanking

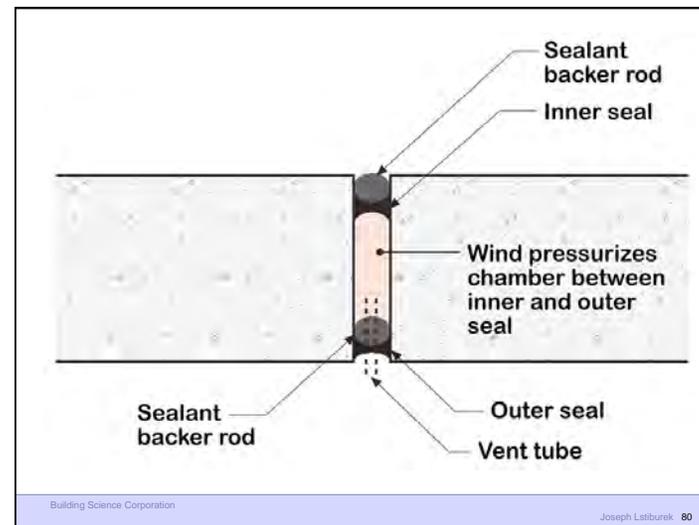
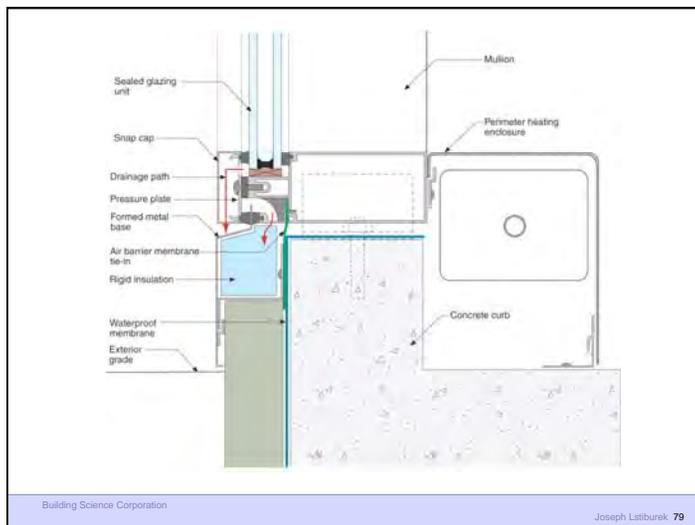
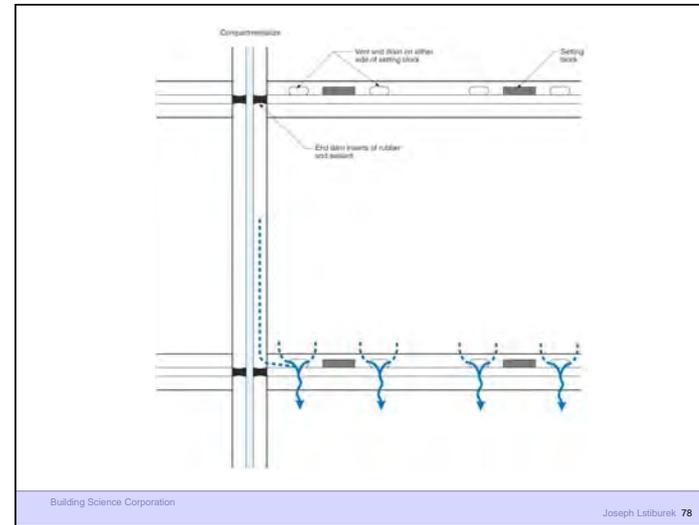
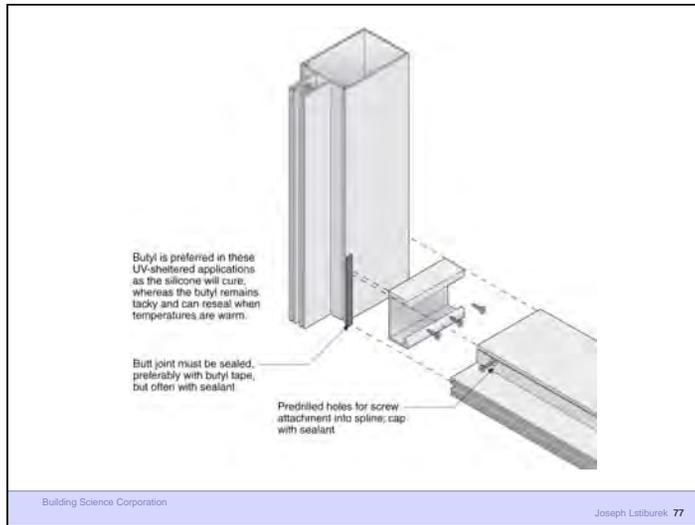
Figure 2: Flanking Reduced

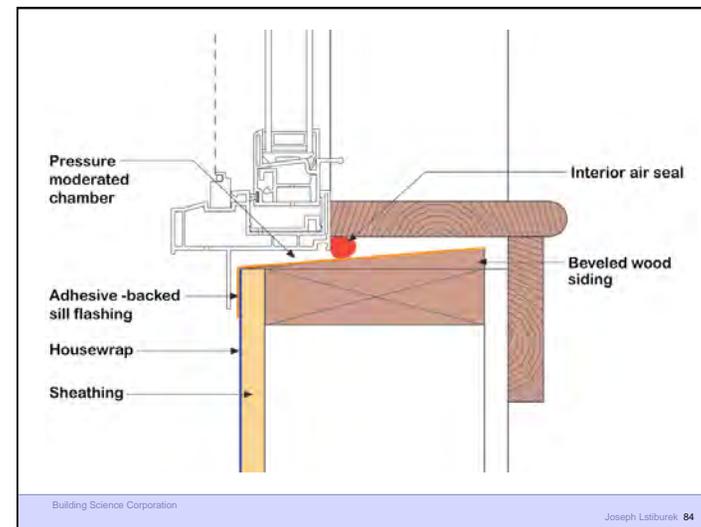
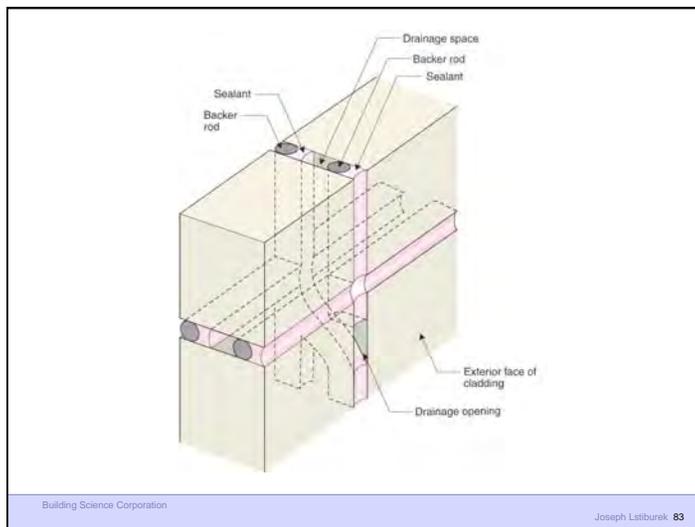
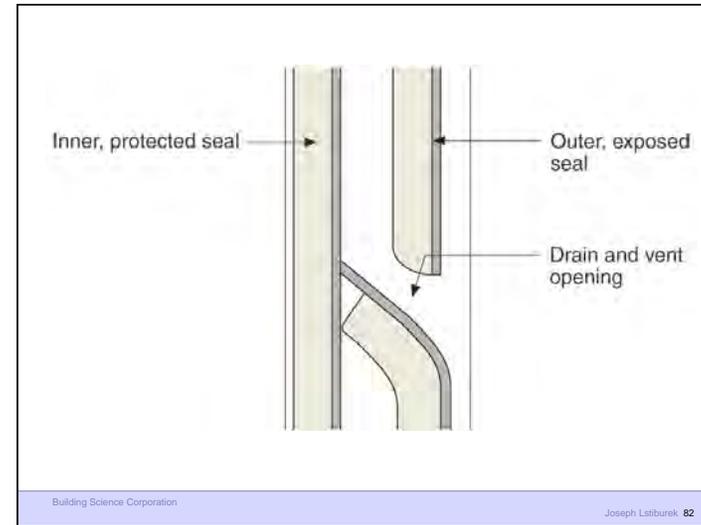
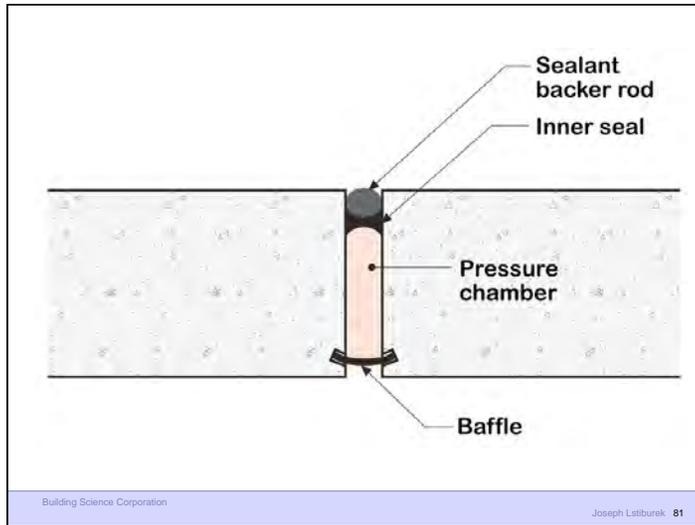
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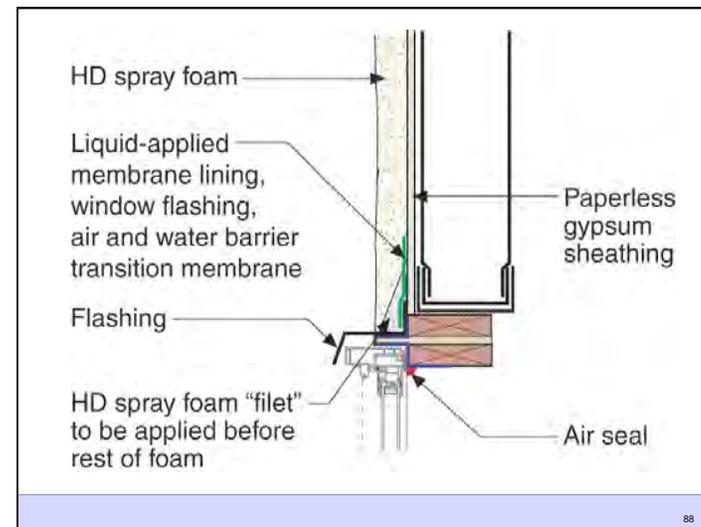
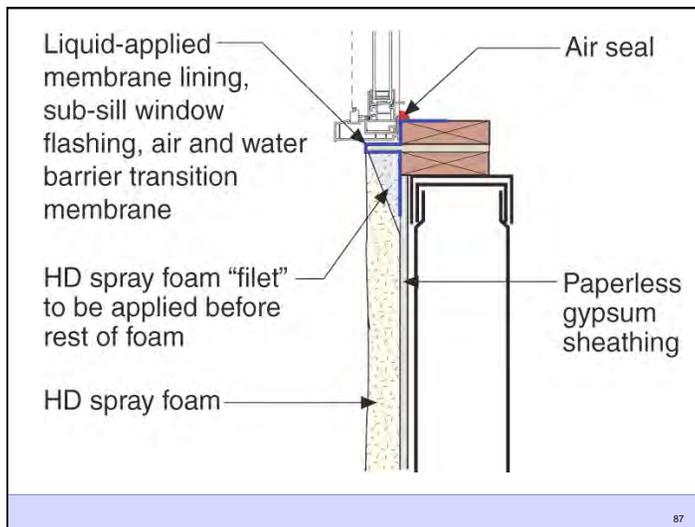
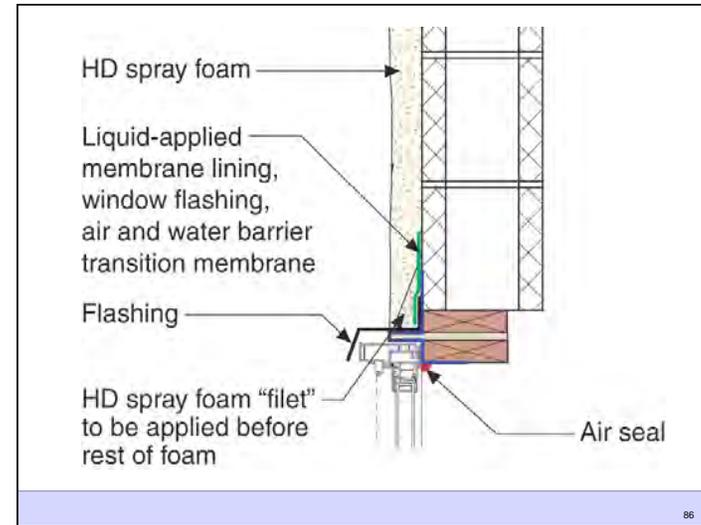
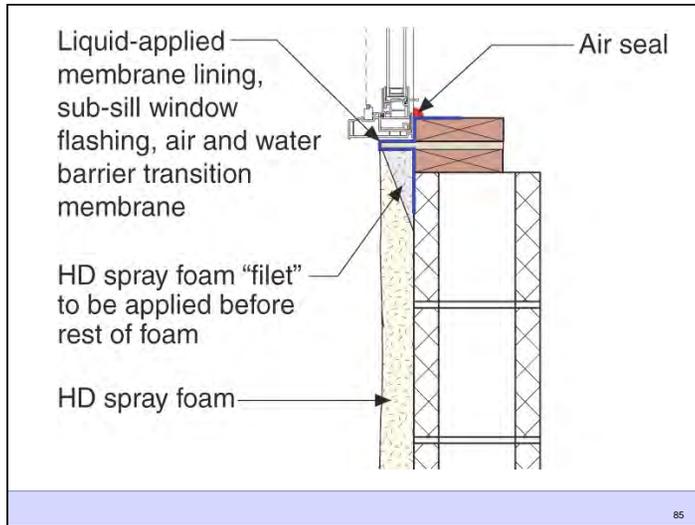


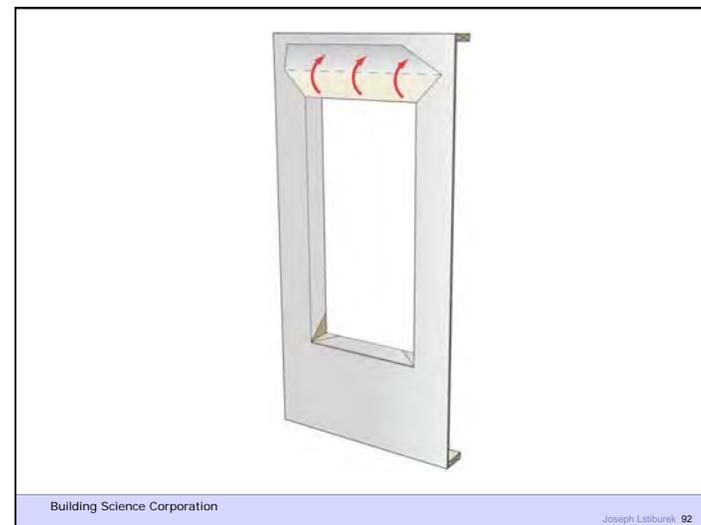
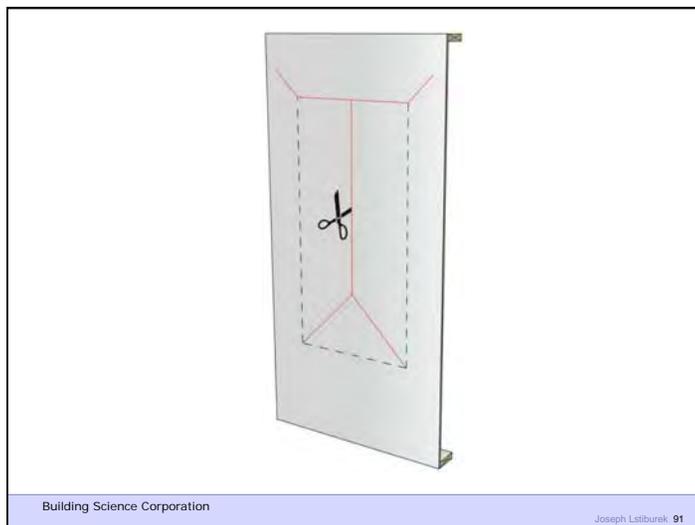
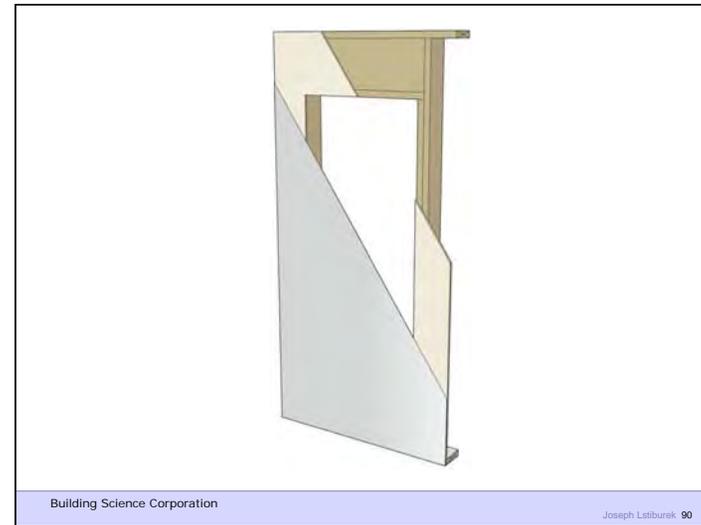
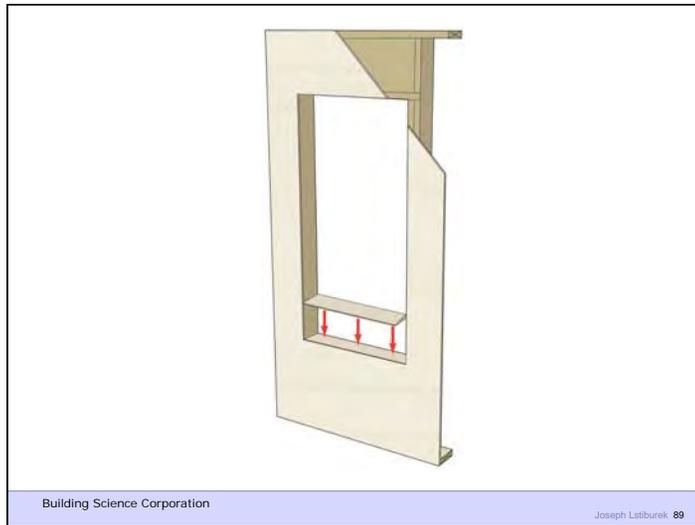


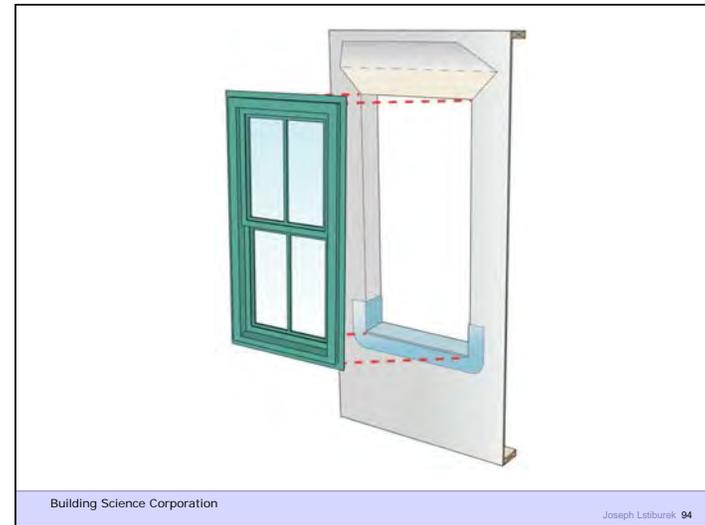
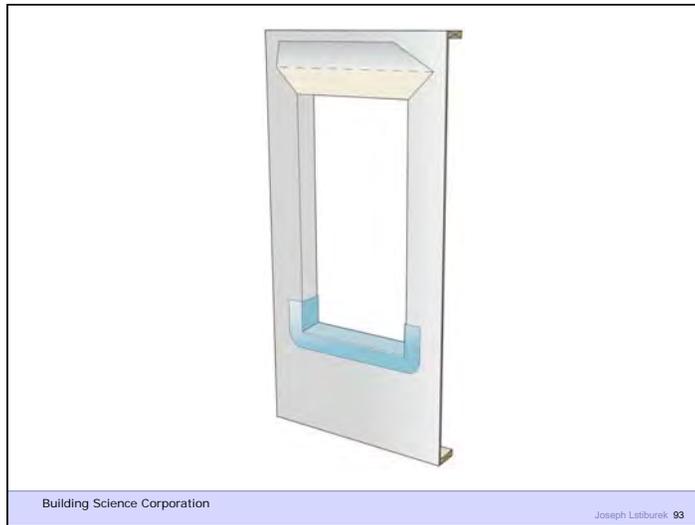


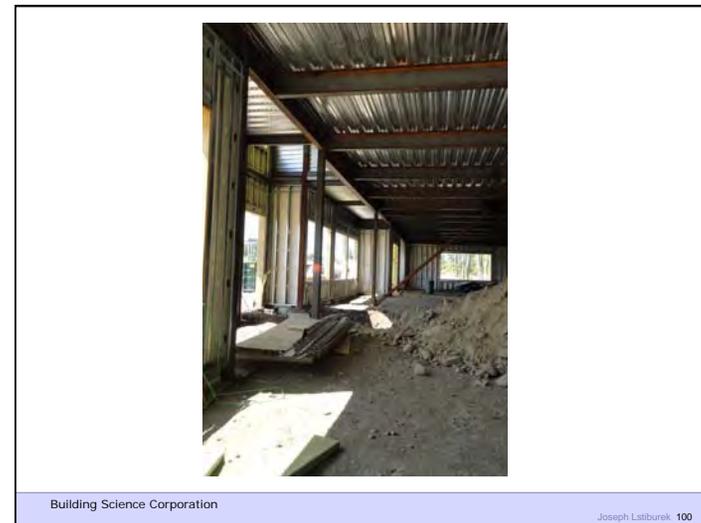
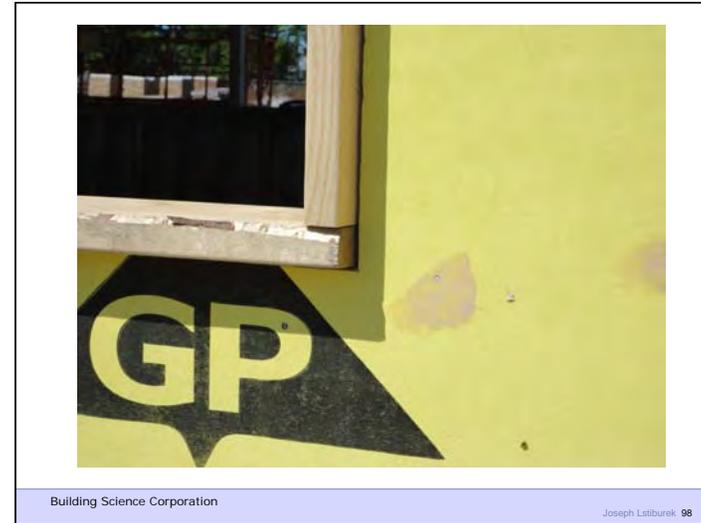
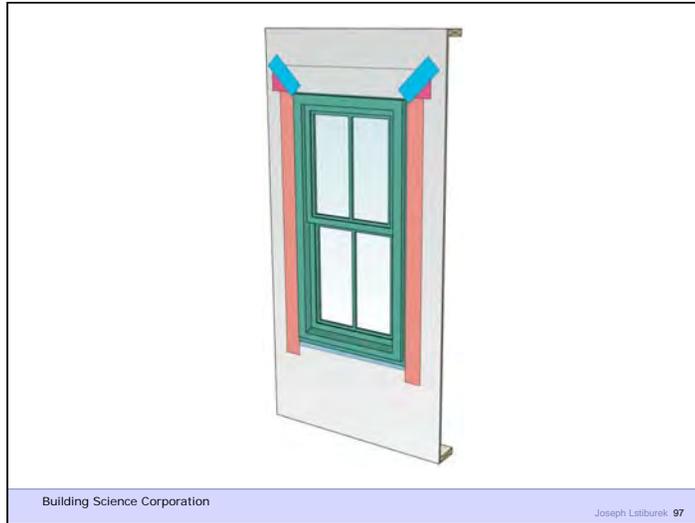


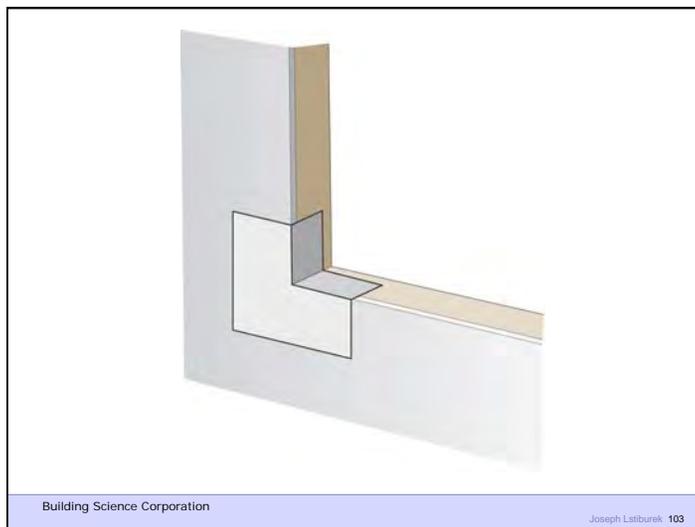
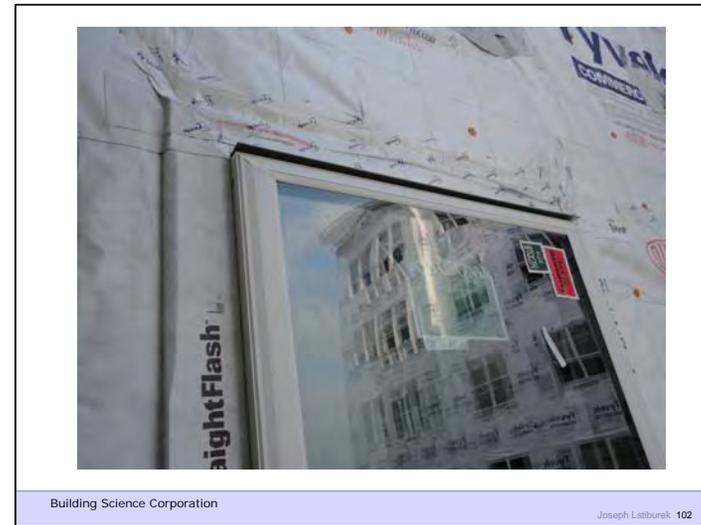














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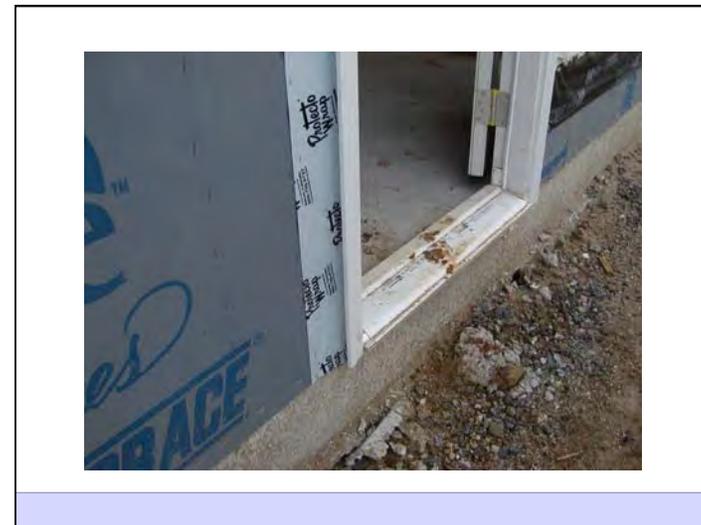
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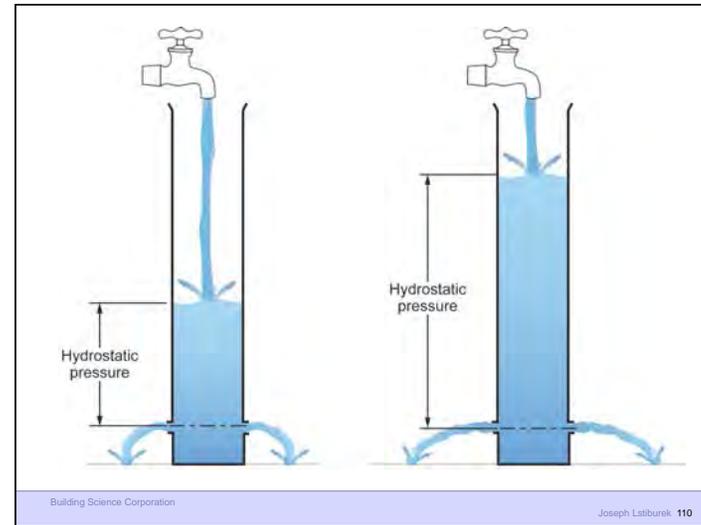
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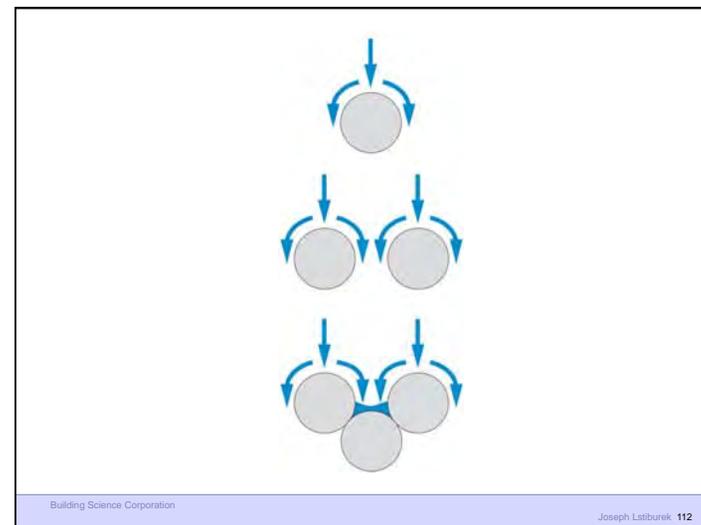
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