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Building Science

Building Enclosure Past and Future

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What is a Building?

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A Building is an Environmental Separator

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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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Zeroth Law – $A=B$ and $B=C$ therefore $A=C$
First Law - Conservation of Energy
Second Law - Entropy
Third Law – Absolute Zero

2nd Law of Thermodynamics

In an isolated system, a process can occur only if it increases the total entropy of the system

Rudolf Clausius

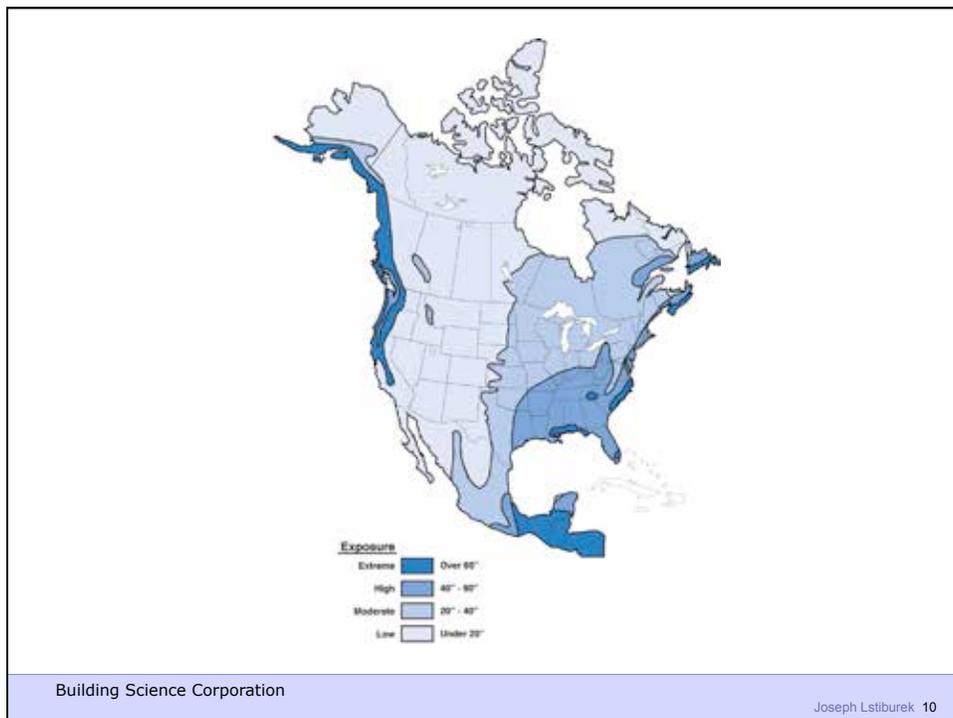
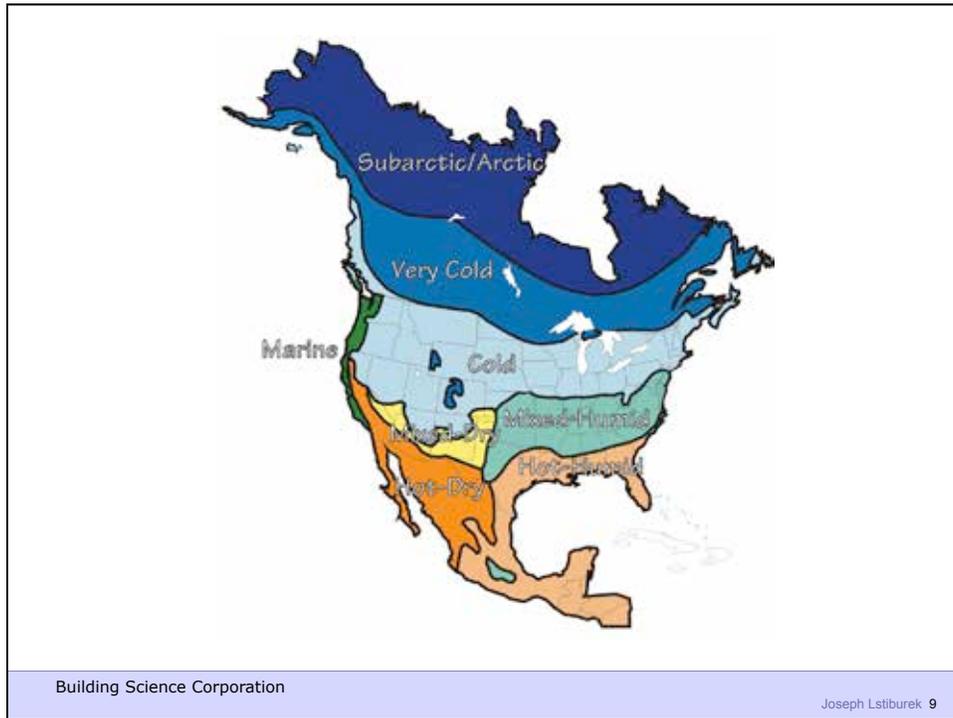
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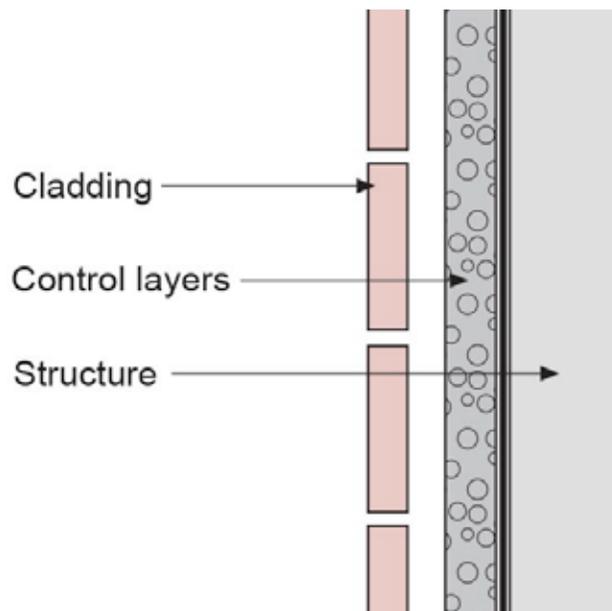
Heat Flow Is From Warm To Cold
Moisture Flow Is From Warm To Cold
Moisture Flow Is From More To Less
Air Flow Is From A Higher Pressure to a
Lower Pressure
Gravity Acts Down

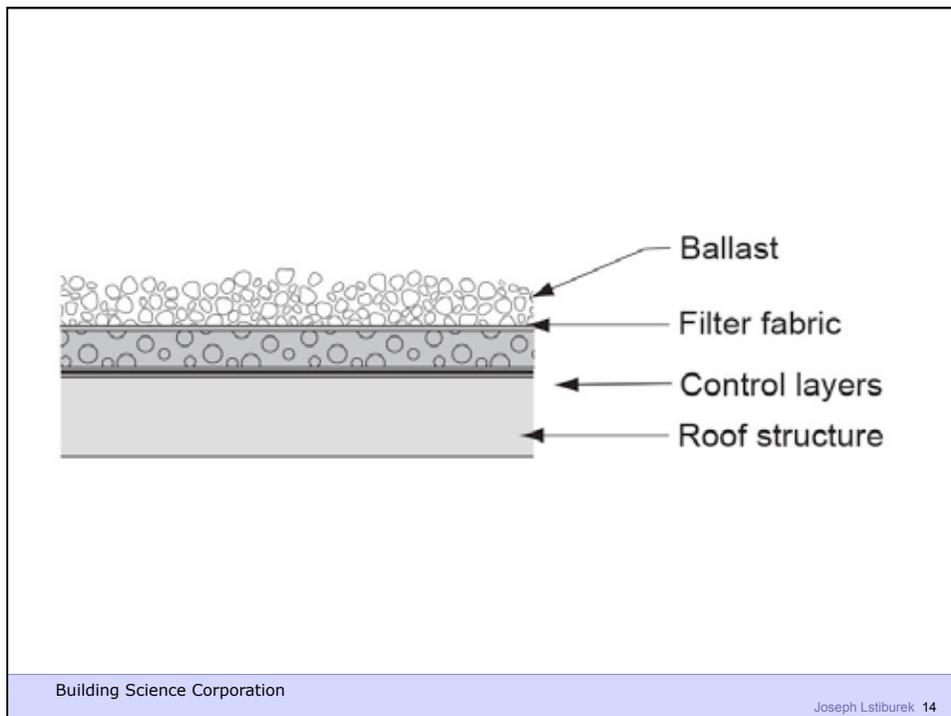
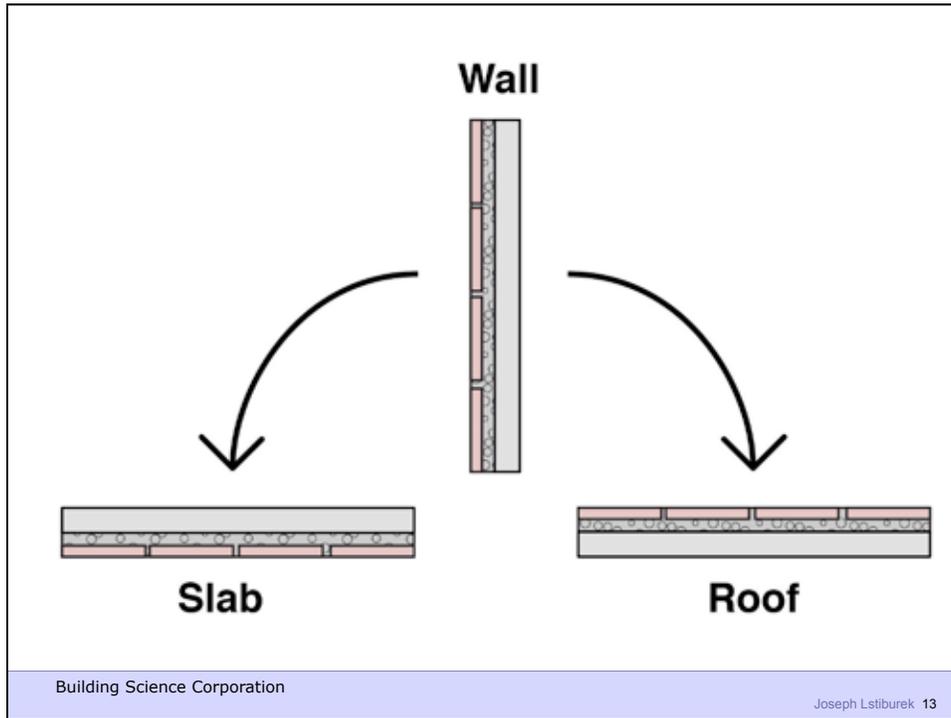
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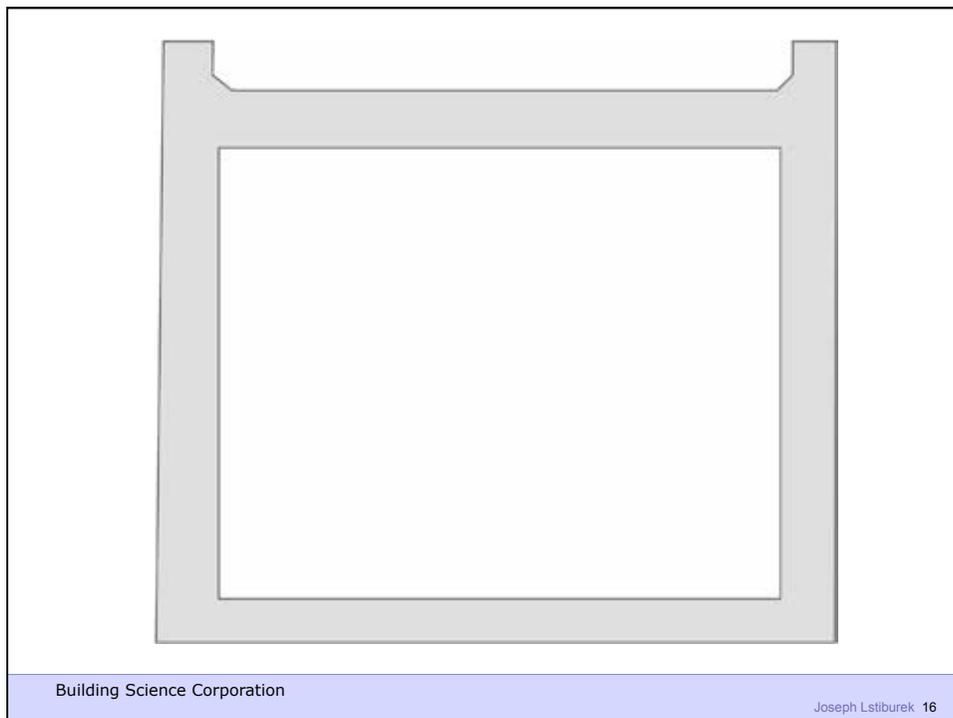
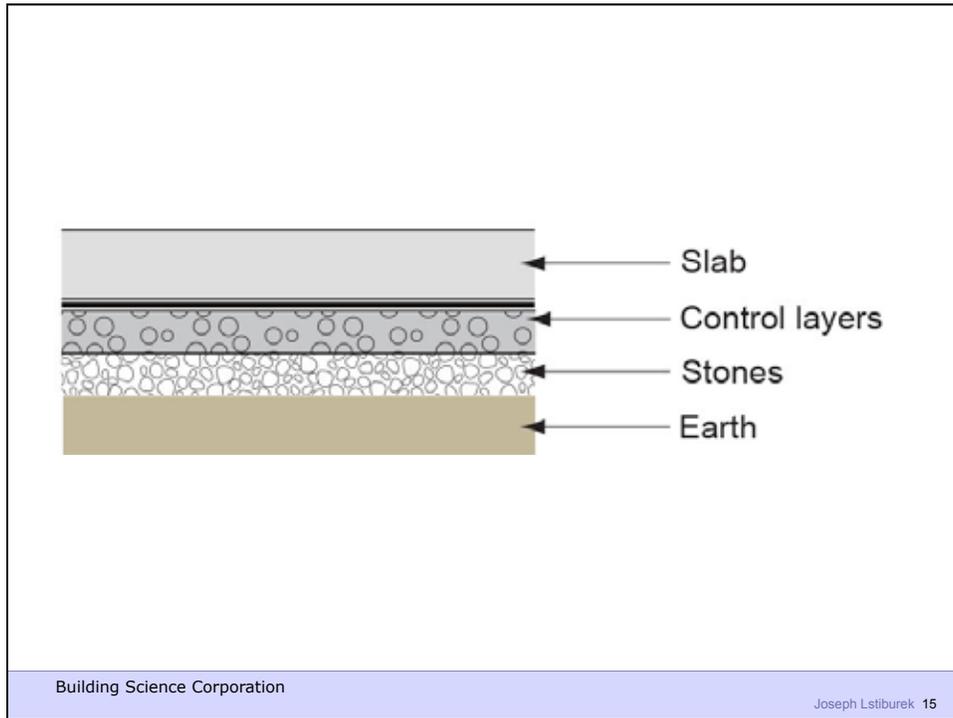
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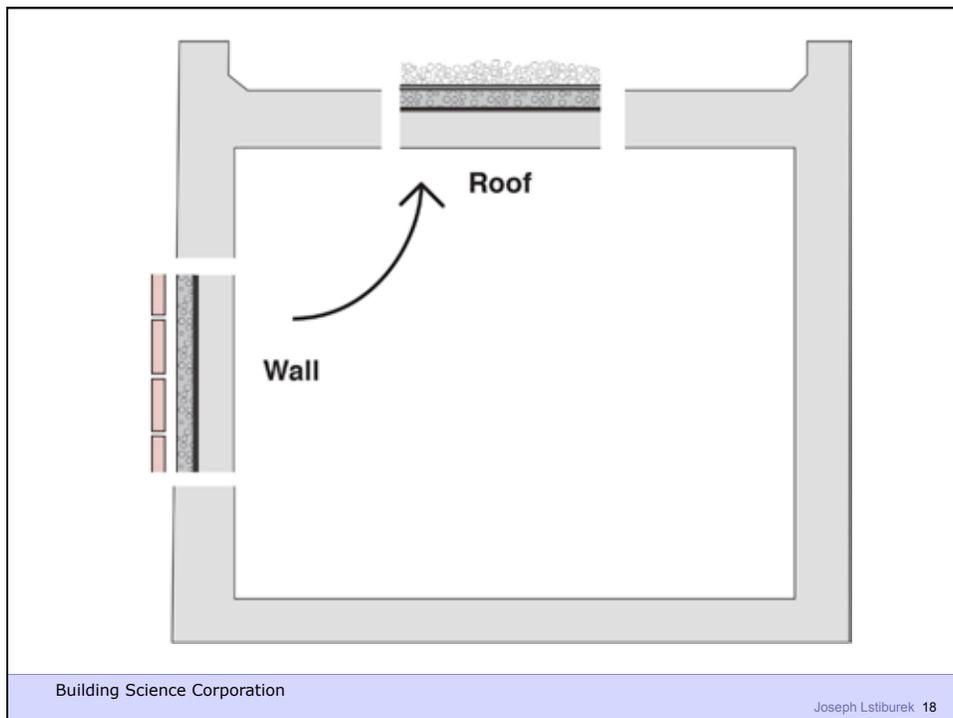
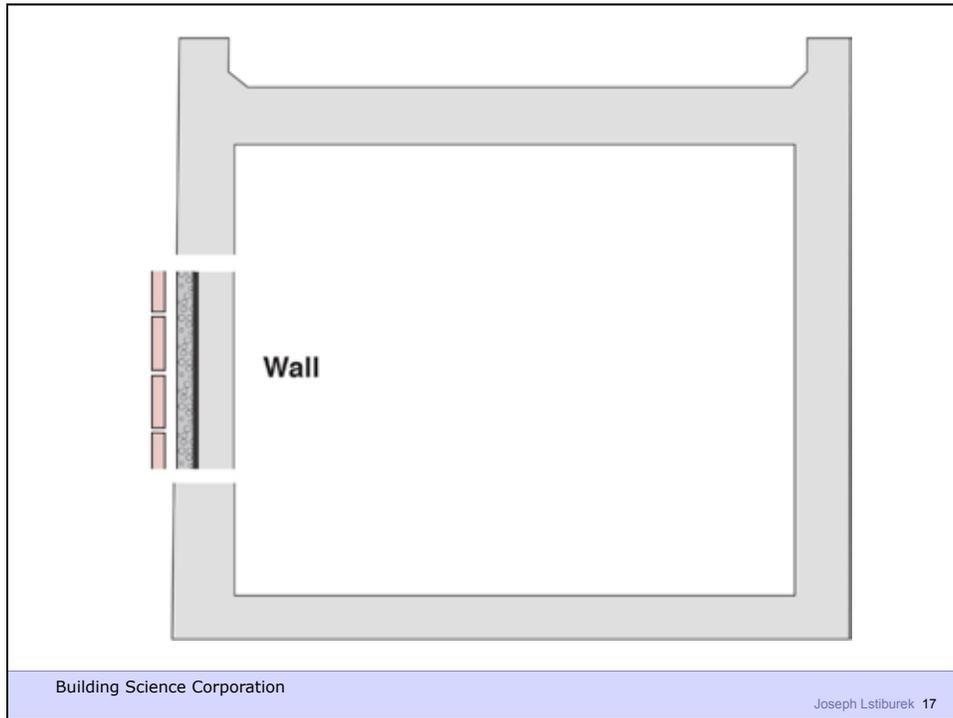


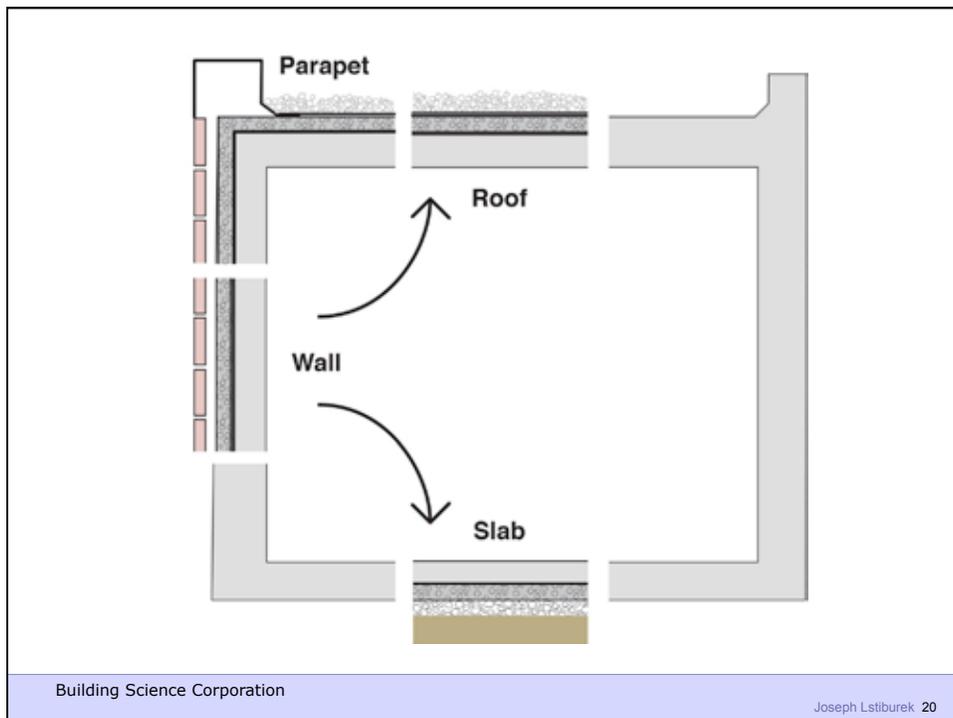
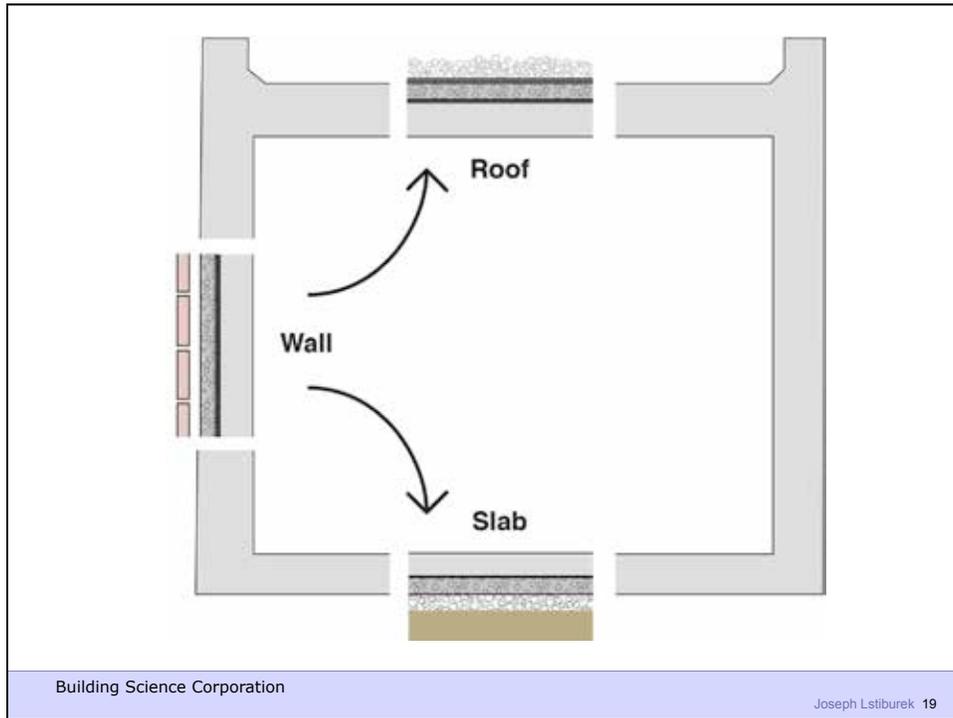
Water Control Layer
Air Control Layer
Vapor Control Layer
Thermal Control Layer

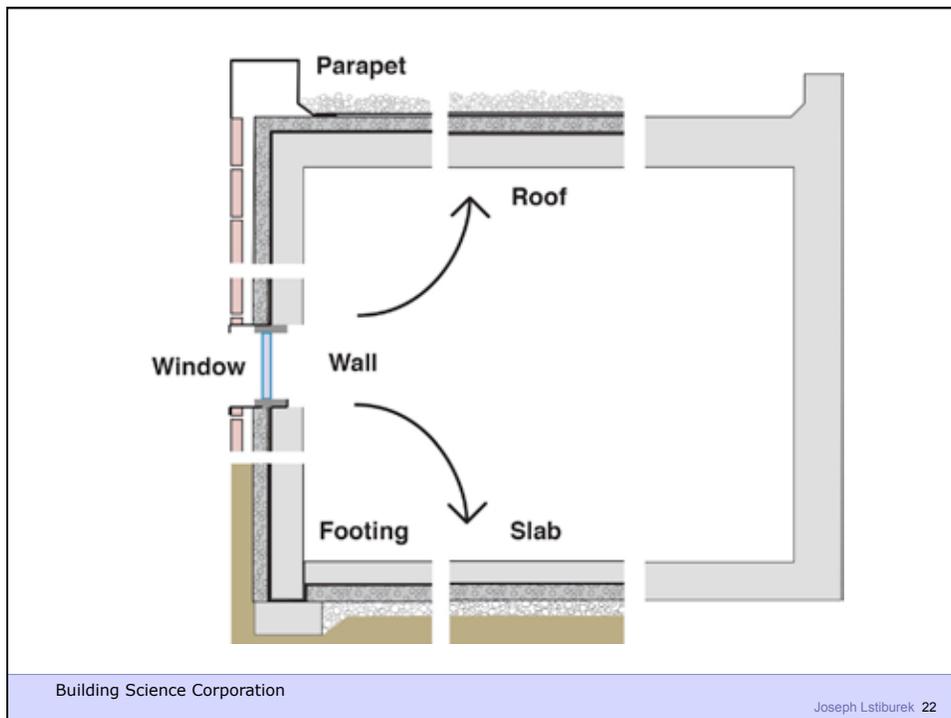
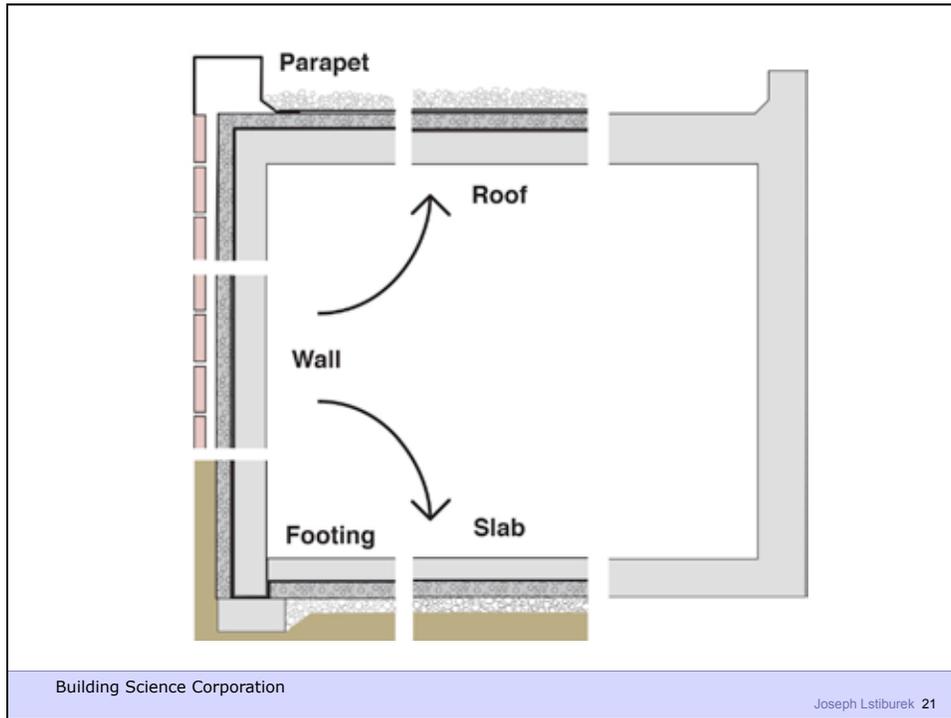


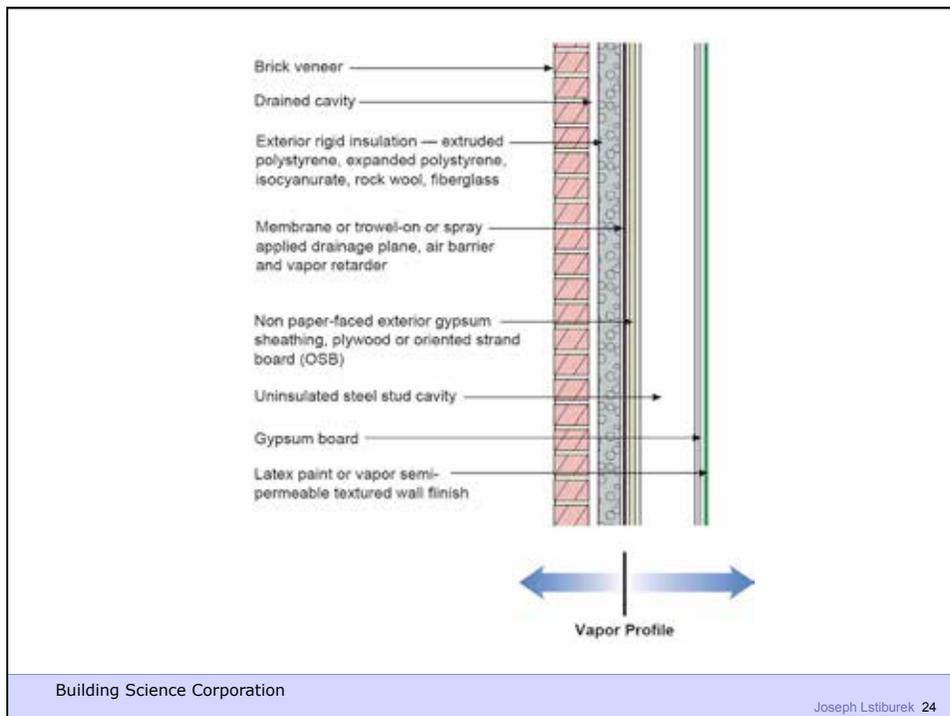
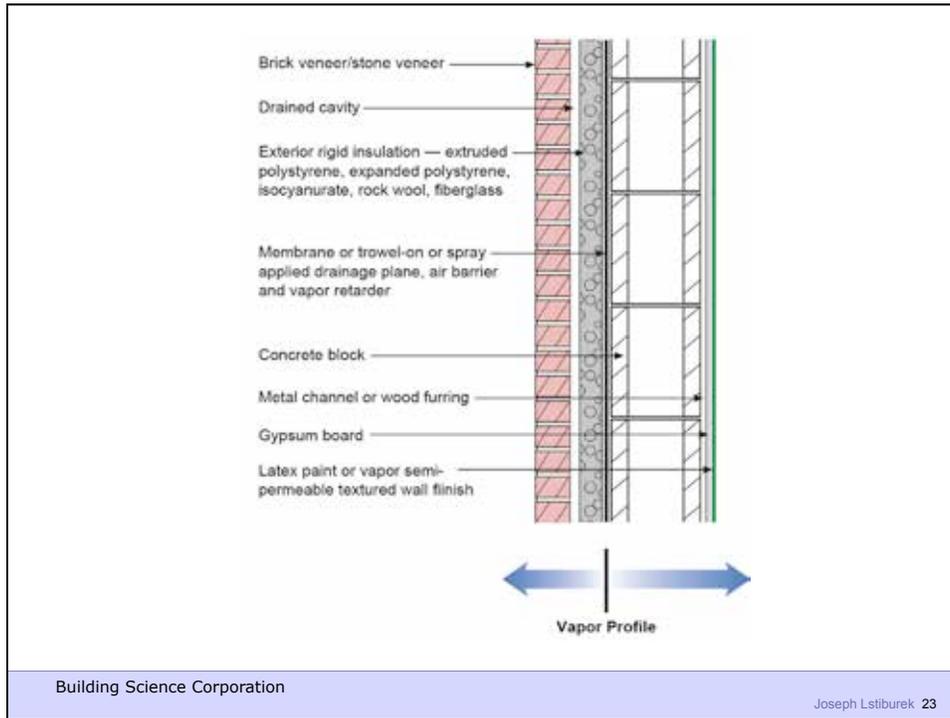


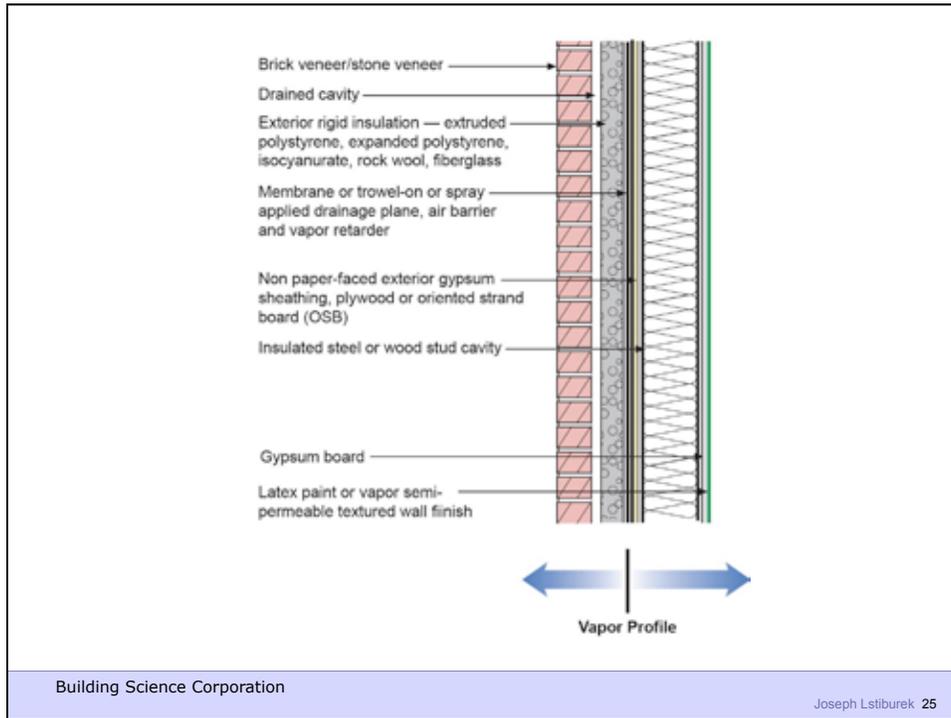














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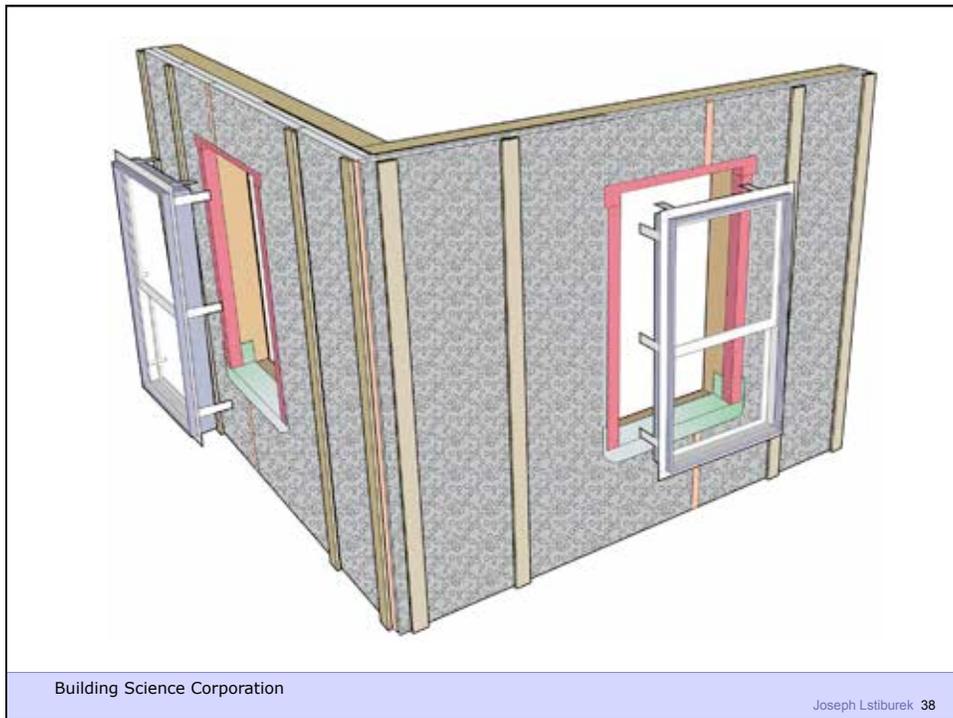
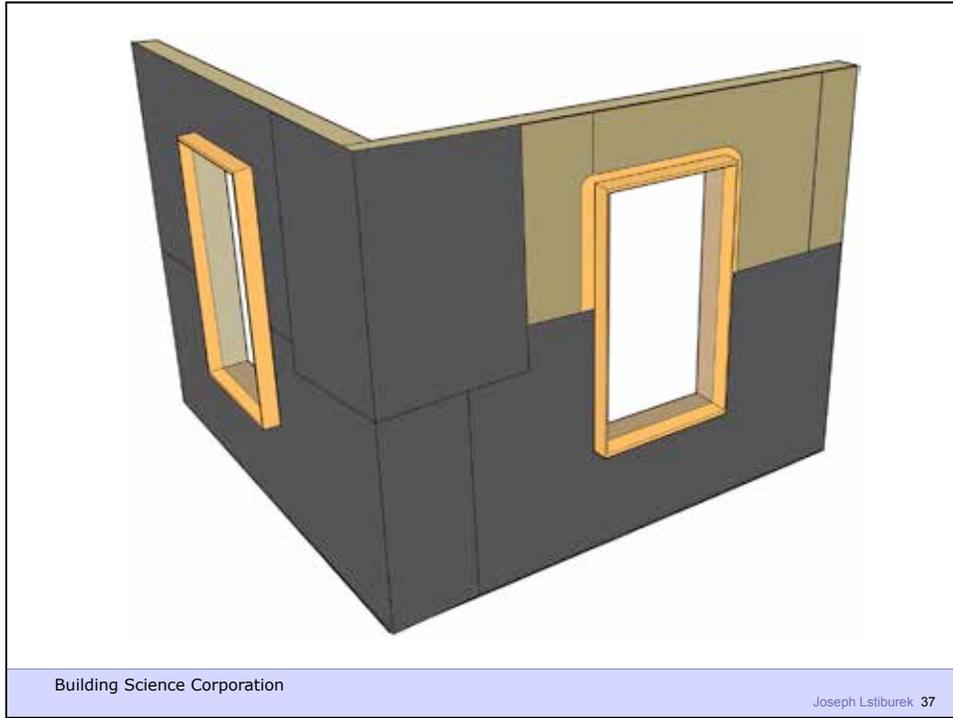
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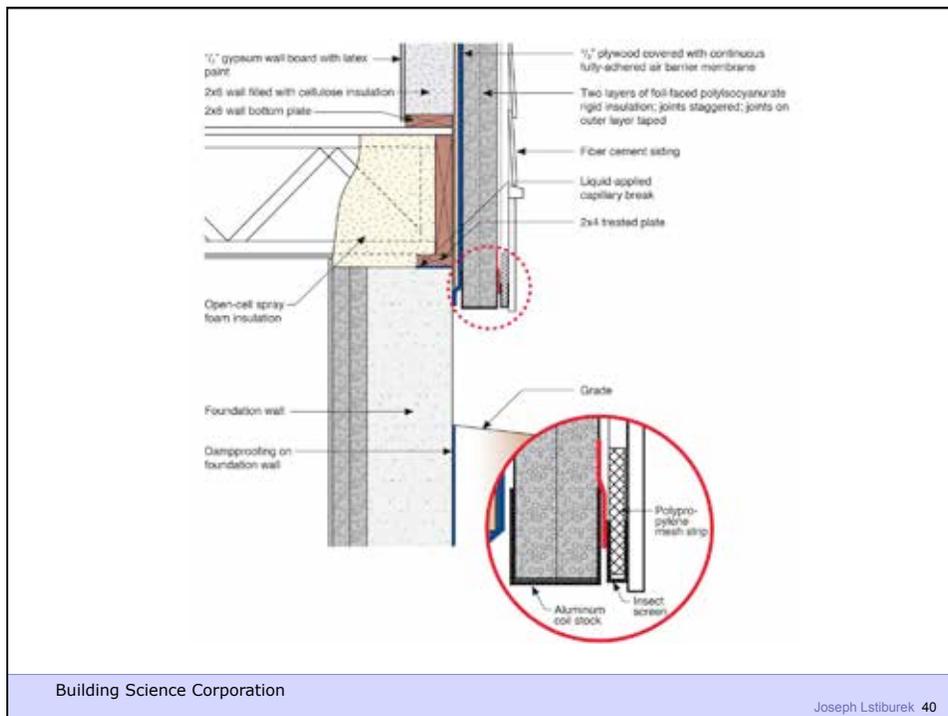
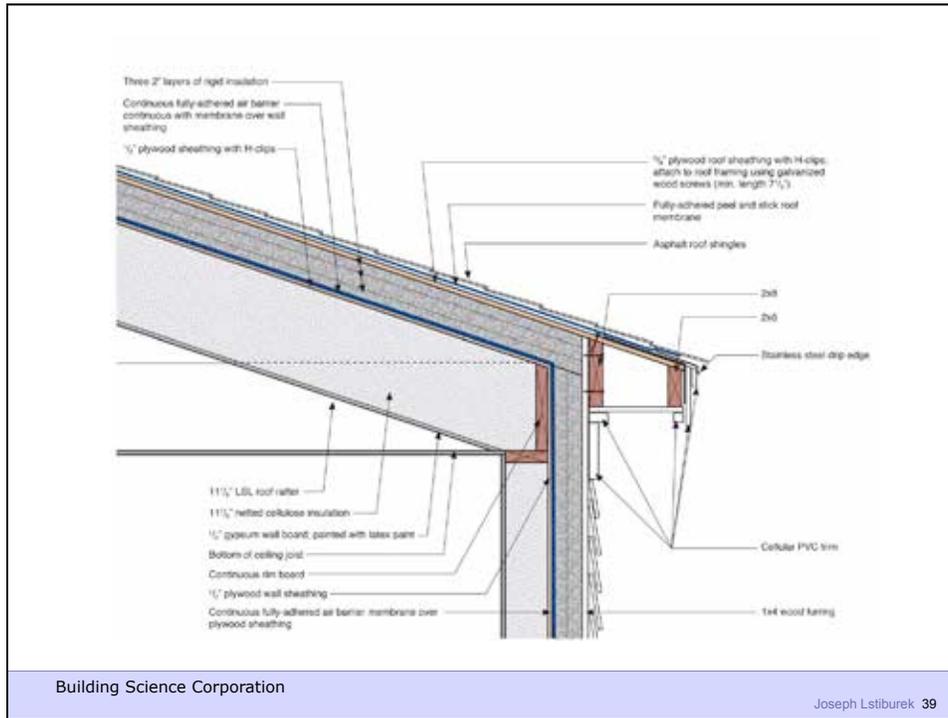
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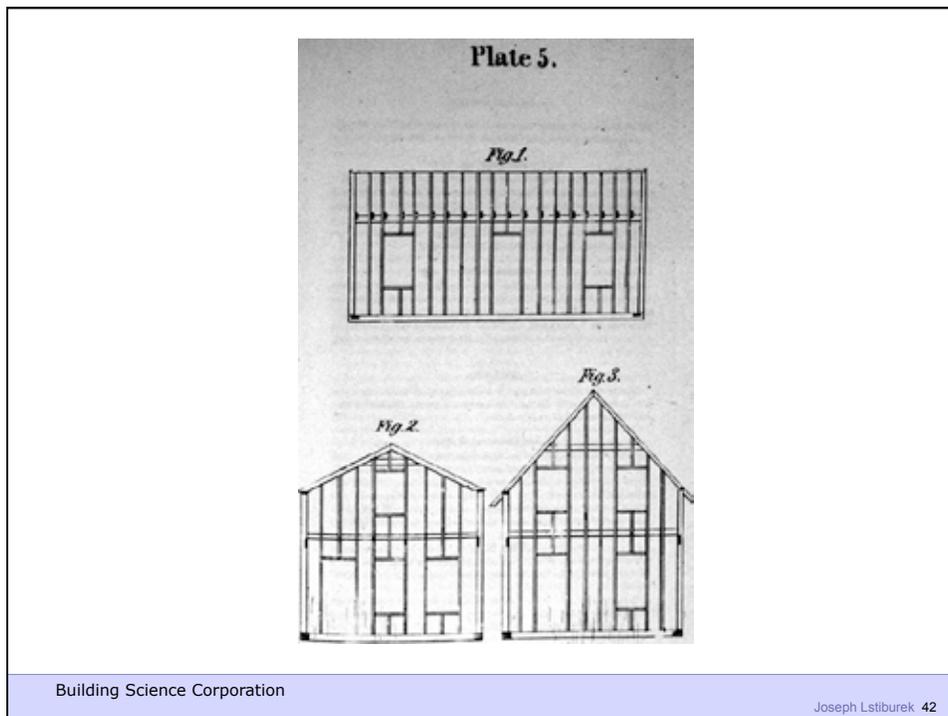
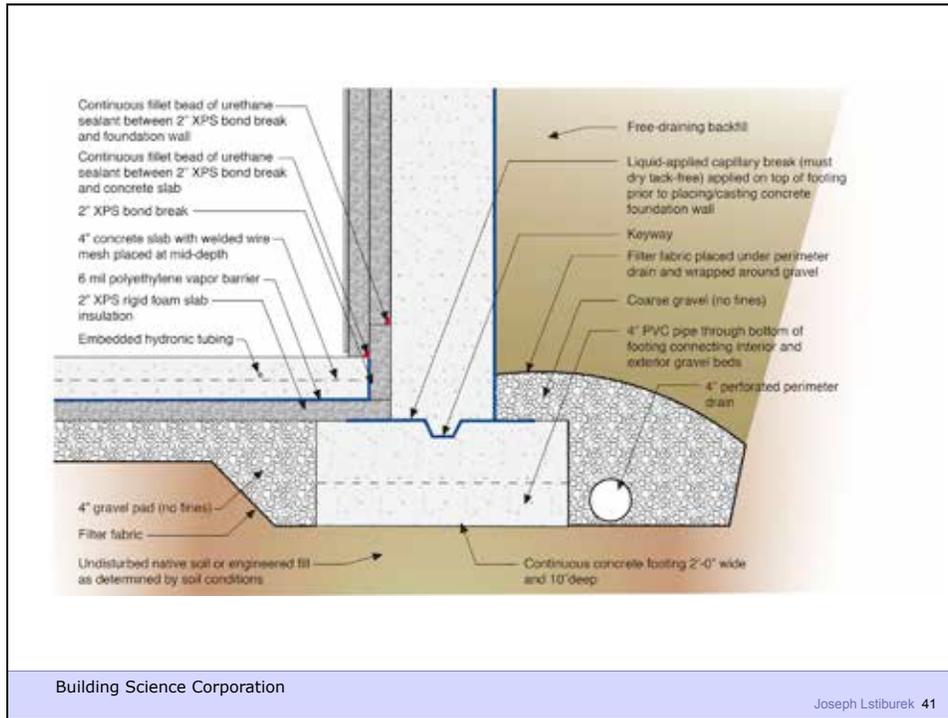


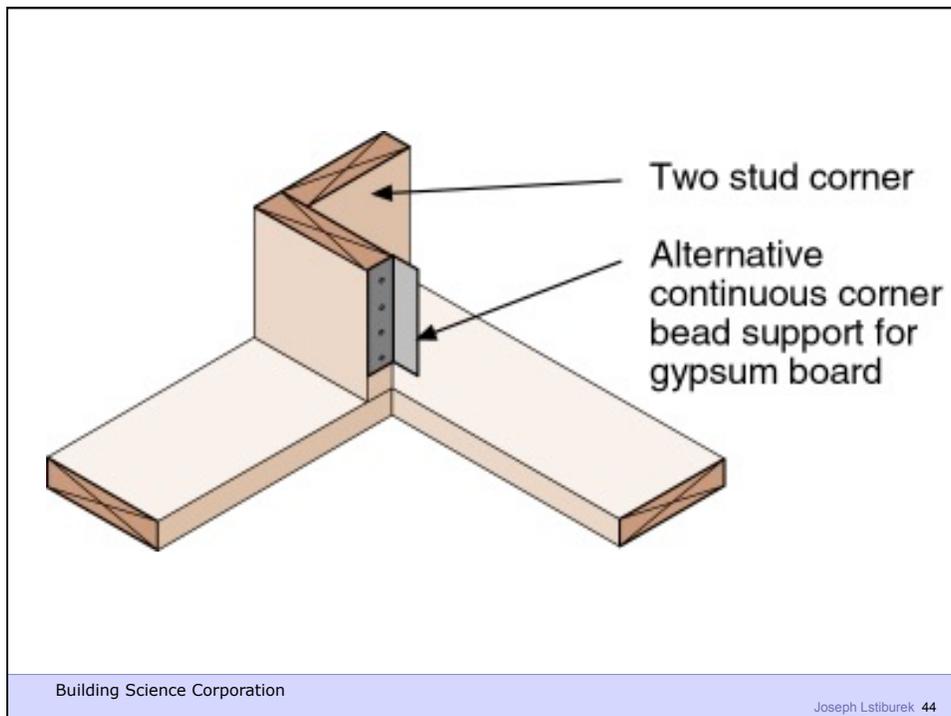
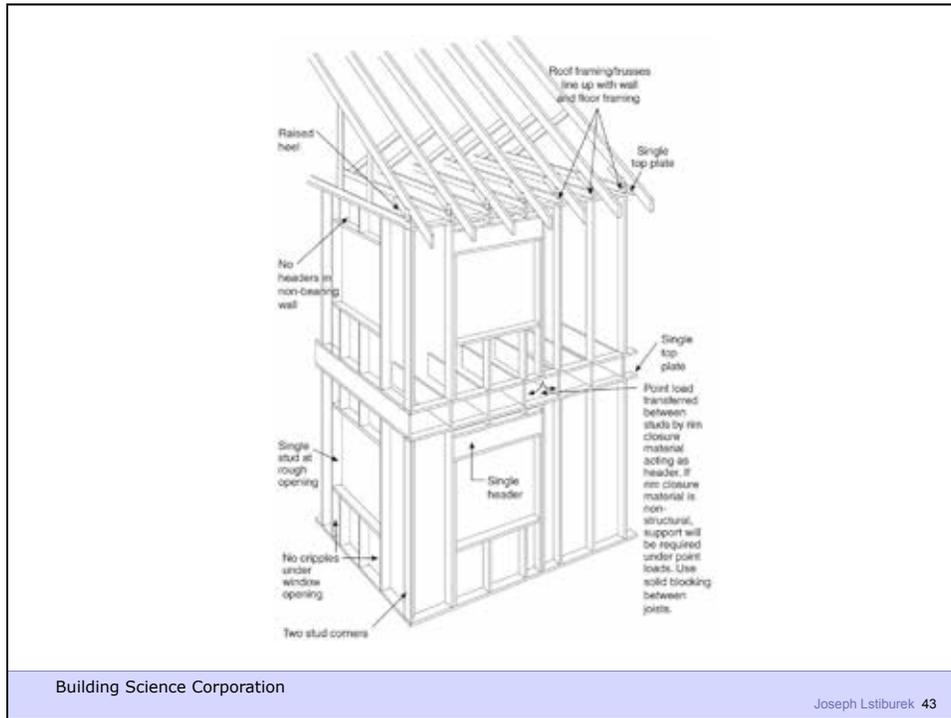
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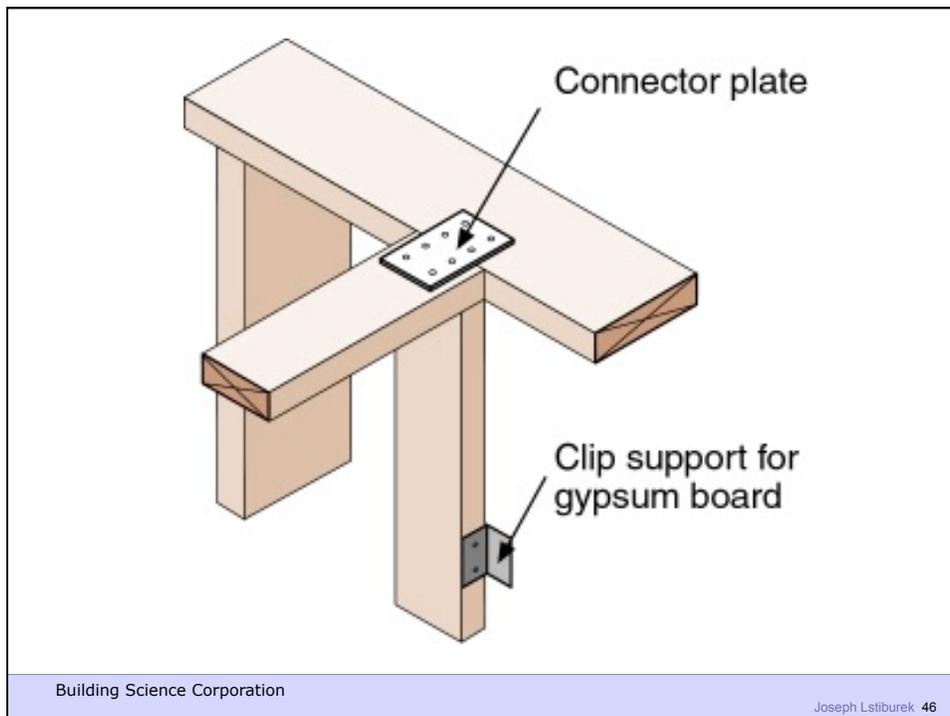
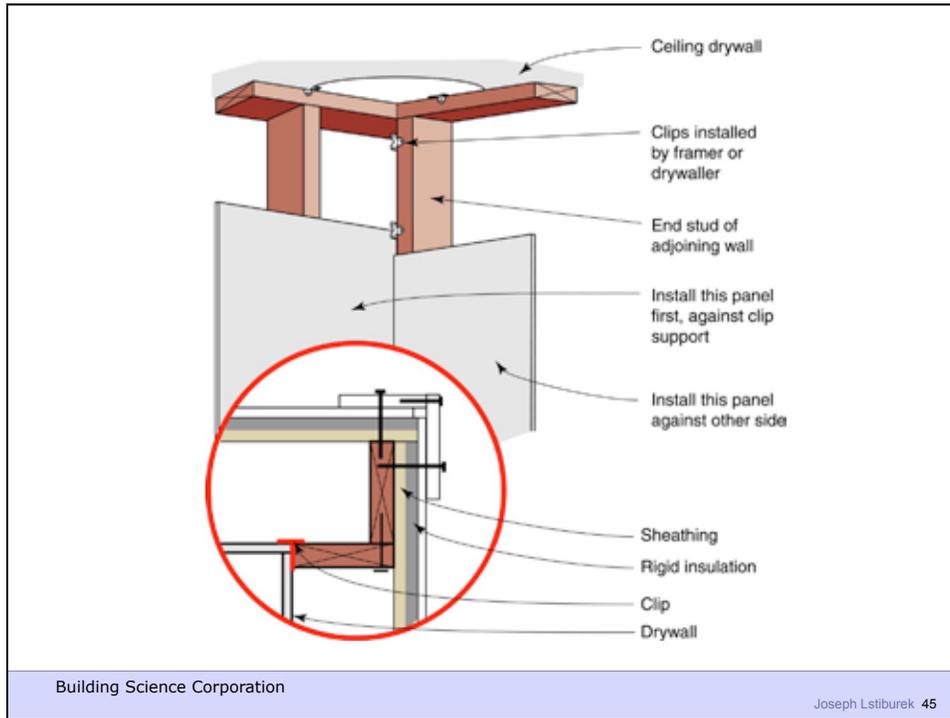
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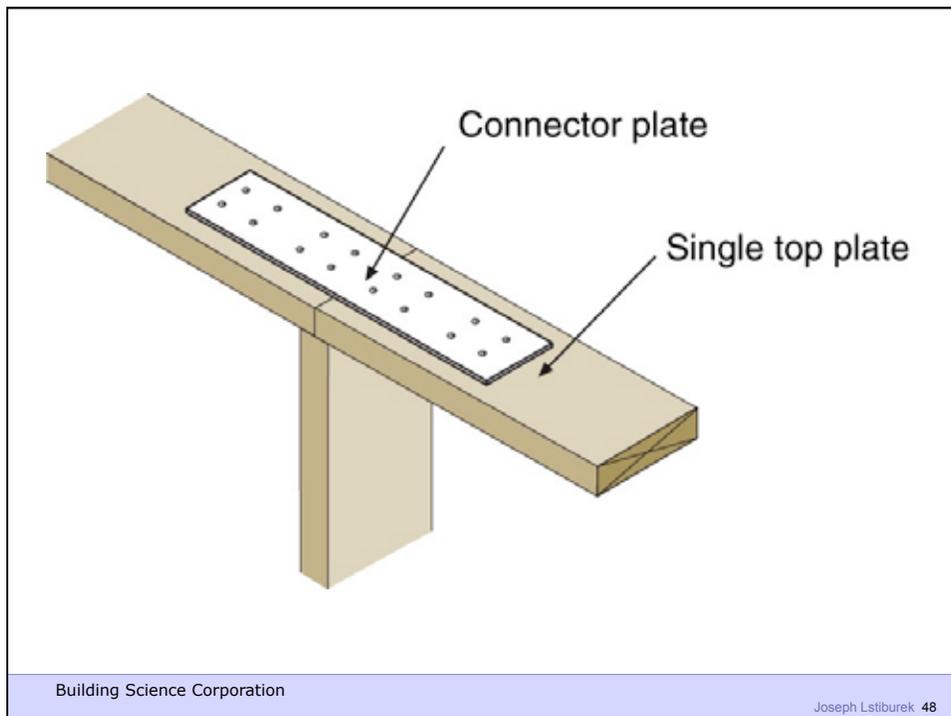
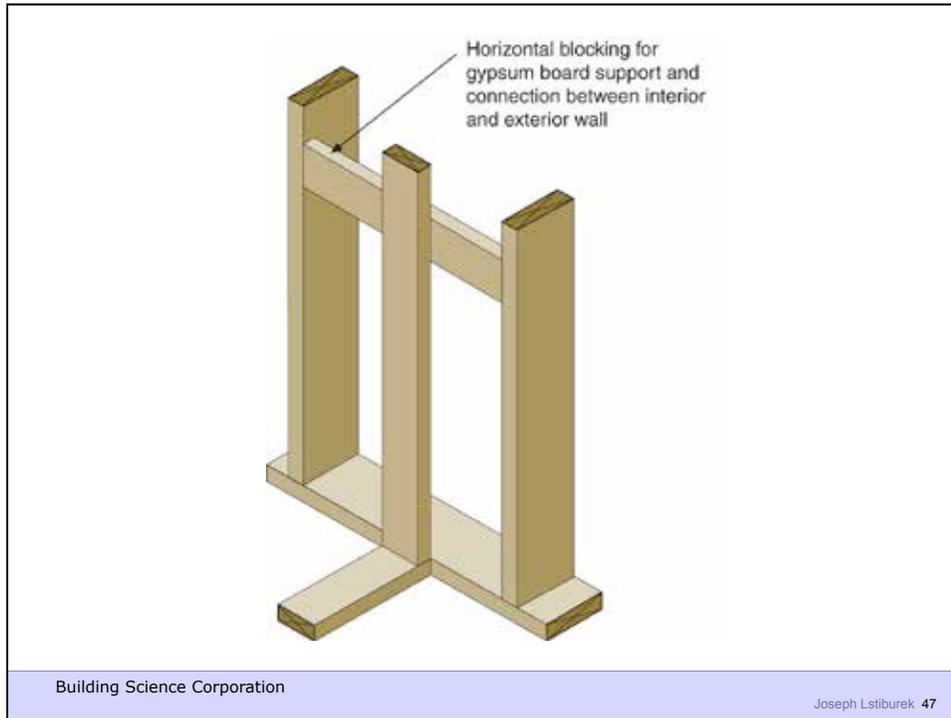


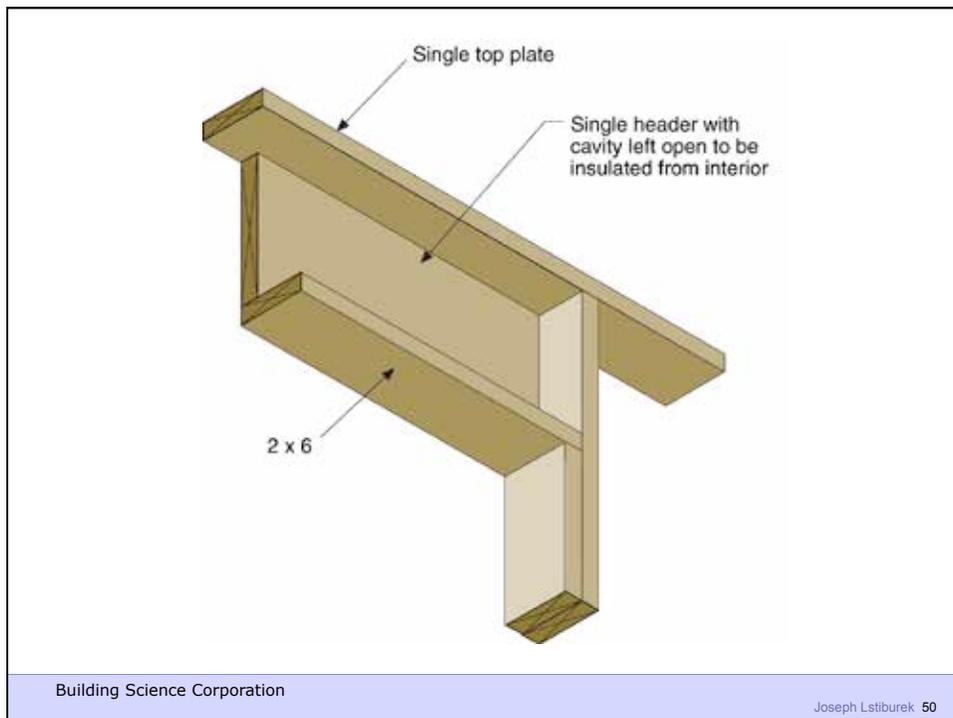
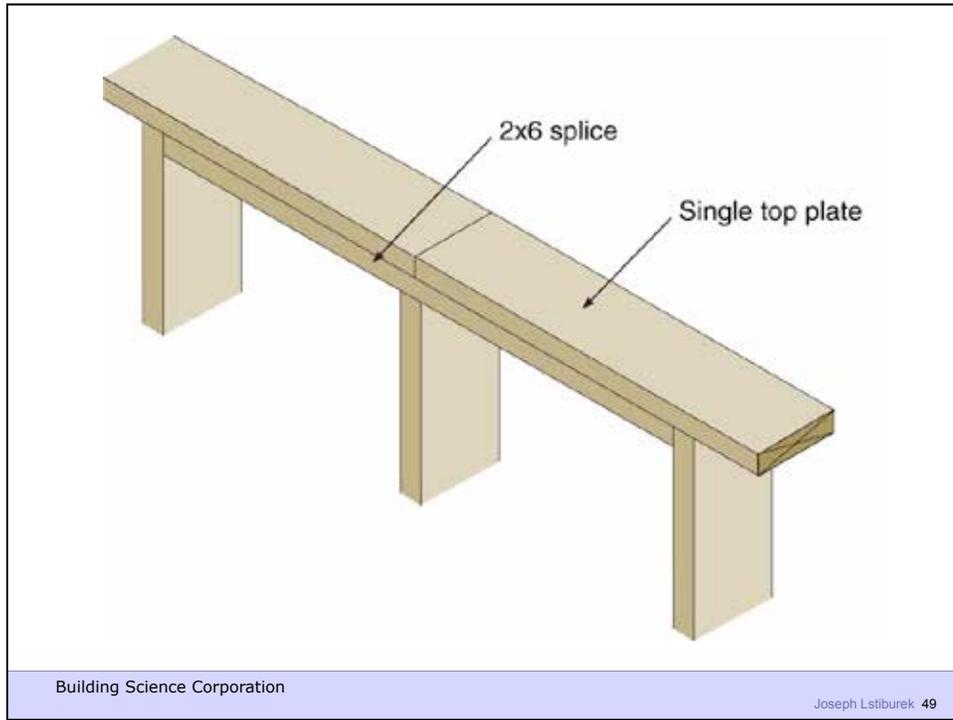






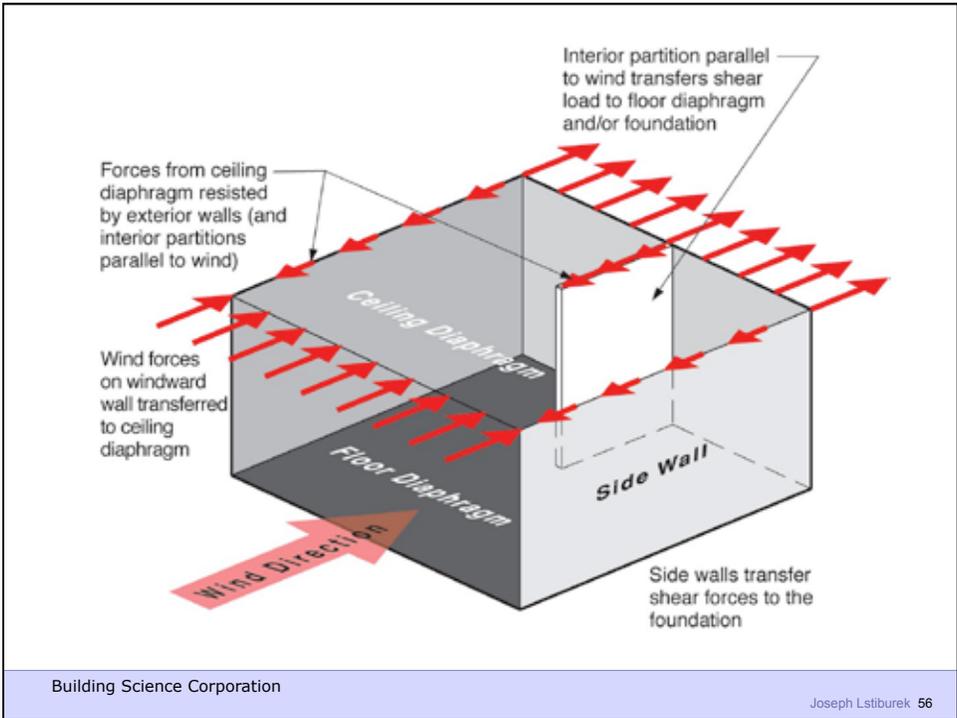
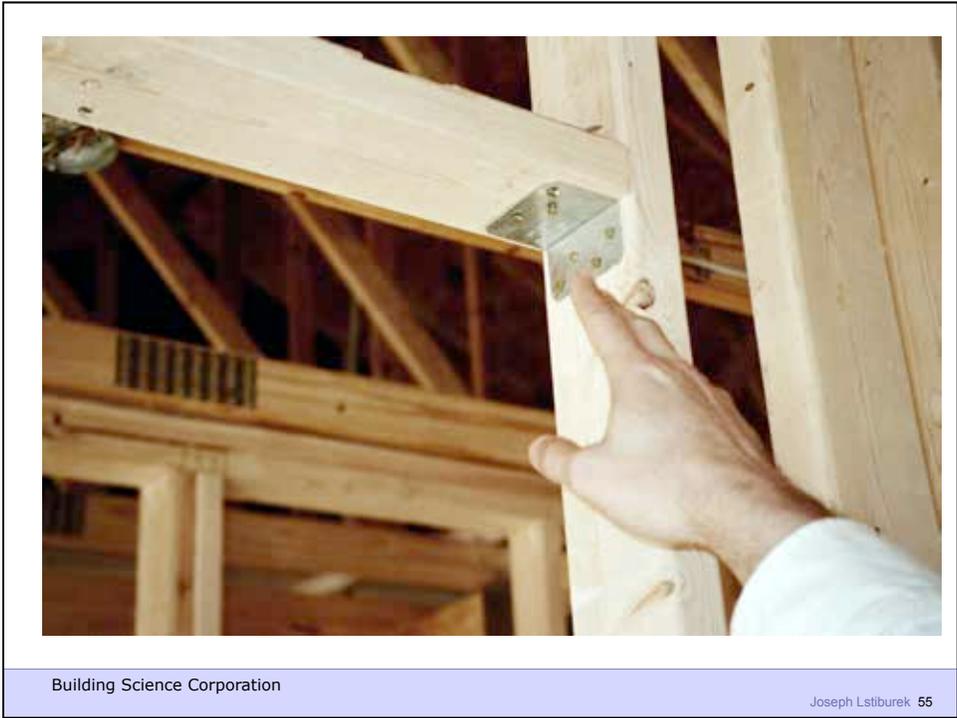


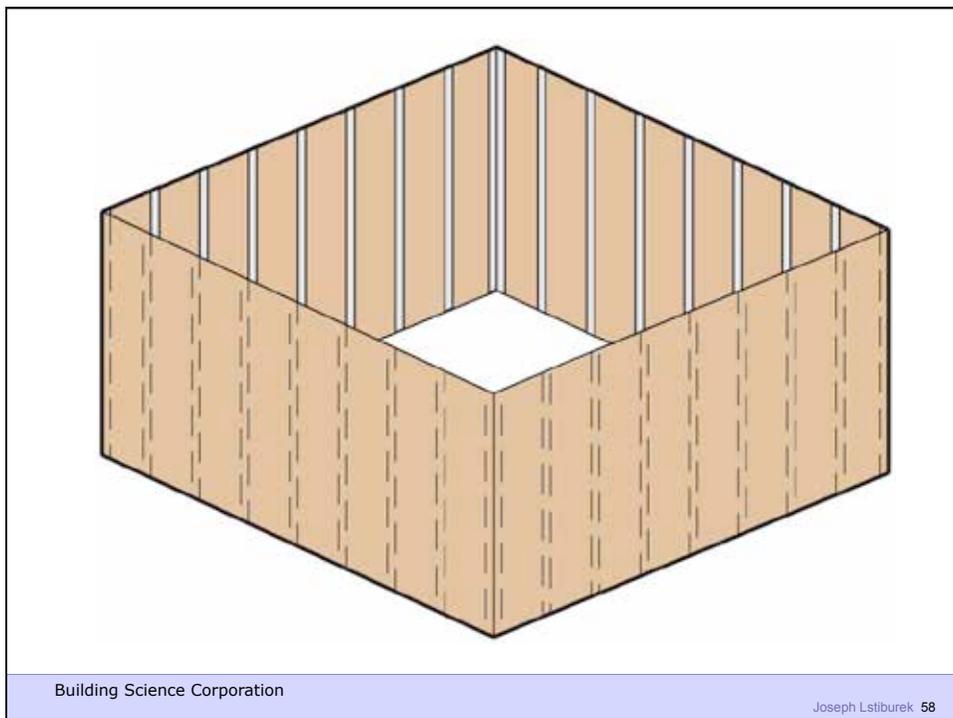
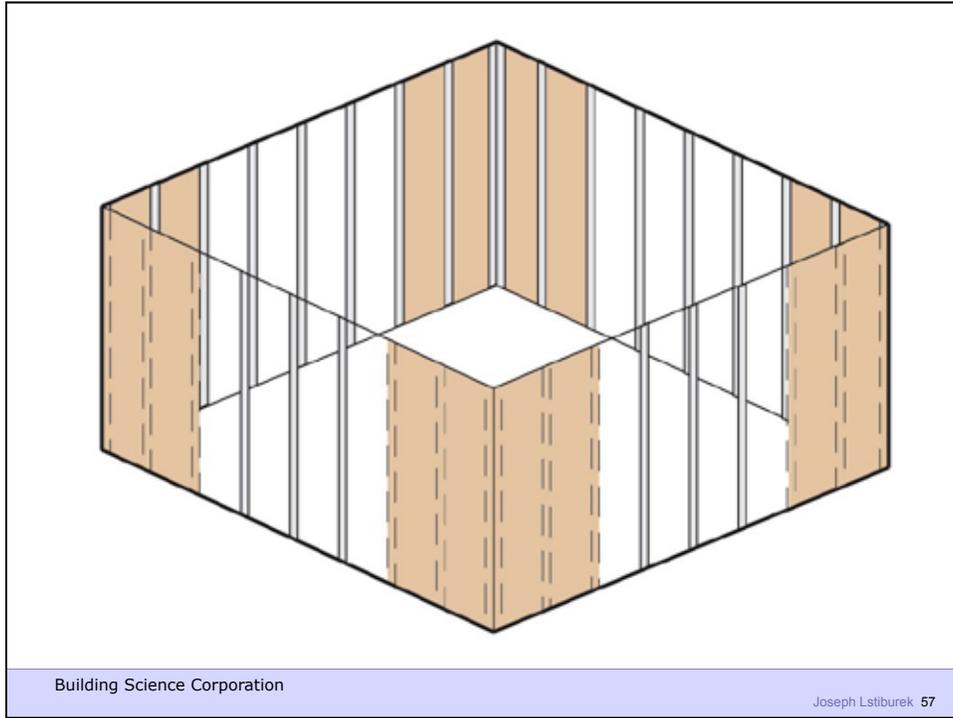














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