

## Don't Do Stupid Things II

Building Science Corporation  
2008

Joseph Litzburnek 90



Building Science Corporation  
2008

Joseph Litzburnek 91



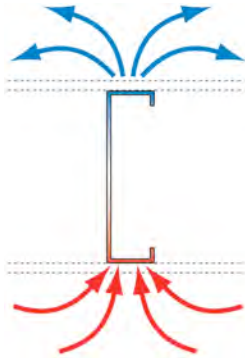
Building Science Corporation  
2008

Joseph Litzburnek 92



Building Science Corporation  
2008

Joseph Litzburnek 93



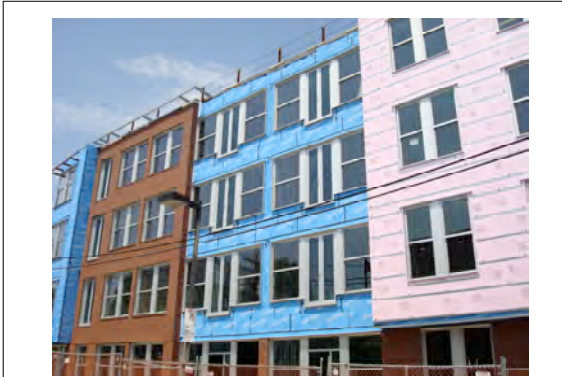
Building Science Corporation  
2008

Joseph Litzburnek 94



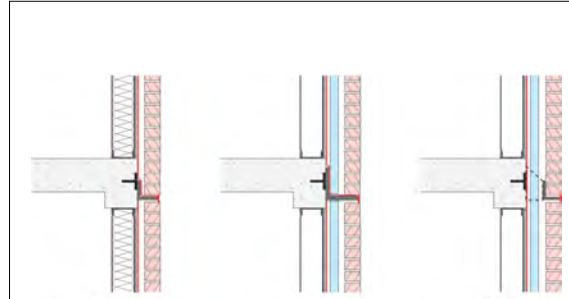
Building Science Corporation  
2008

Joseph Litzburnek 95



Building Science Corporation  
2008

Joseph Lallburek 98



"The Ugly"

"The Bad"

"The Good"

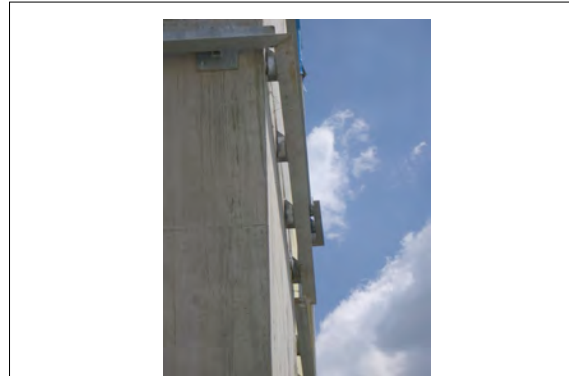
Building Science Corporation  
2008

Joseph Lallburek 97



Building Science Corporation  
2008

Joseph Lallburek 98



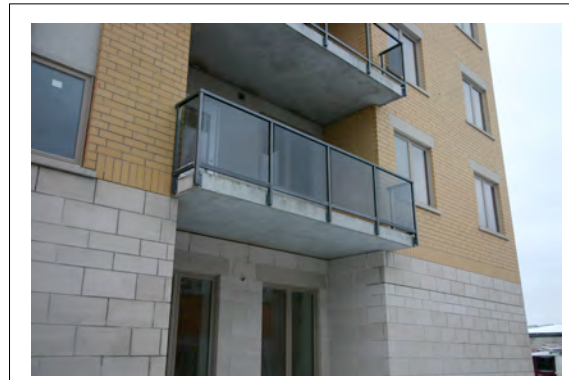
Building Science Corporation  
2008

Joseph Lallburek 99



Building Science Corporation  
2008

Joseph Lallburek 100



Building Science Corporation  
2008

Joseph Lallburek 101



Building Science Corporation  
2008

Joseph Lstiburek 102



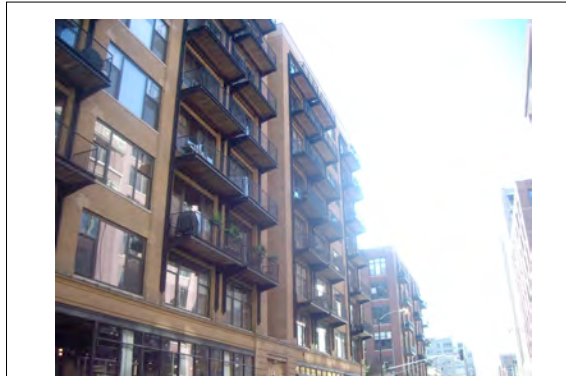
Building Science Corporation  
2008

Joseph Lstiburek 103



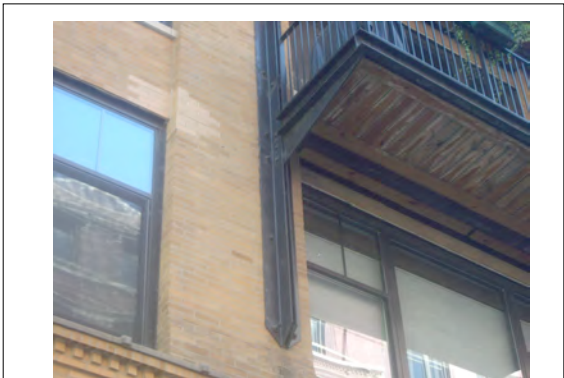
Building Science Corporation  
2008

Joseph Lstiburek 104



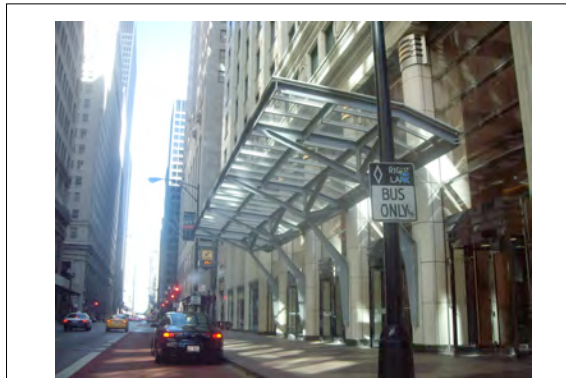
Building Science Corporation  
2008

Joseph Lstiburek 105



Building Science Corporation  
2008

Joseph Lstiburek 106



Building Science Corporation  
2008

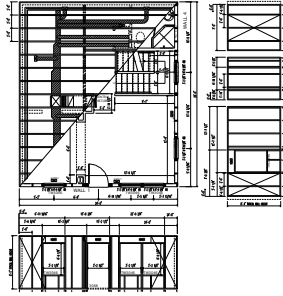
Joseph Lstiburek 107





## Design Issues

- Provide drawings that integrate advanced framing into complete building envelope design and mechanical system layout



Building Science Corporation  
2008

Joseph Lelburek 114



Building Science Corporation  
2008

Joseph Lelburek 115



Building Science Corporation  
2008

Joseph Lelburek 116



Building Science Corporation  
2008

Joseph Lelburek 117



Building Science Corporation  
2008

Joseph Lelburek 118



Building Science Corporation  
2008

Joseph Lelburek 119

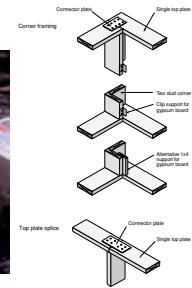


Building Science Corporation  
2008

Joseph L. Lutz 120

### Advanced Framing System

- 2 Stud Corners



Building Science Corporation  
2008

Joseph L. Lutz 121

### Advanced Framing System

- Insulated headers
- No header necessary at non-bearing walls

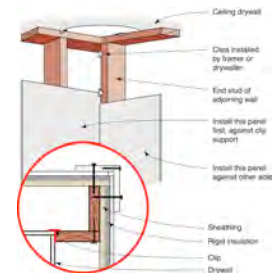


Building Science Corporation  
2008

Joseph L. Lutz 122

### Advanced Framing System

- Drywall clips allow for better installation with less drywall cracking



Building Science Corporation  
2008

Joseph L. Lutz 123

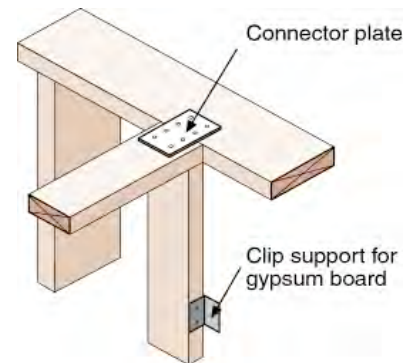
### Advanced Framing System

- Drywall clips at corner and intersecting wall



Building Science Corporation  
2008

Joseph L. Lutz 124



Building Science Corporation  
2008

Joseph L. Lutz 125

## CASE STUDY

### • HOUSE SPECIFICATIONS

- Conditioned Floor Area	2,495 sq ft
- Total Floor Area	2,910 sq ft
- Typical Wall Height	9'-11" _ "
- Total Conditioned Volume	24,850cu ft
- Length of Exterior Wall	252 In ft
- Length of Interior Wall	340 In ft

Building Science Corporation  
2008

Joseph Lelburek 128

## CASE STUDY

### • 2x4 16" oc WALL

	8' Studs	Bd Ft	Cost
- Ext Wall	467	1634 bd ft	\$ 866
- Ext Plate	95	331 bd ft	\$ 175
- Int Wall	715	2502 bd ft	\$1326
- Int Plate	126	446 bd ft	\$ 237
- Header		273 bd ft	\$ 145
- <b>TOTAL WALL FRAME COST</b>			<b>\$2749</b>

Building Science Corporation  
2008

Joseph Lelburek 127

## CASE STUDY

### • 2x6 24" oc ADVANCED FRAME WALL

	8' Studs	Bd Ft	Cost
- Ext Wall	238	1312 bd ft	\$695
- Ext Plate	63	347 bd ft	\$183
- Int Wall	279	977 bd ft	\$518
- Int Plate	85	298 bd ft	\$158
- Header		148 bd ft	\$78
- <b>TOTAL WALL FRAME COST</b>			<b>\$1632</b>

Building Science Corporation  
2008

Joseph Lelburek 128

## CASE STUDY

### • WOOD FRAME WALL SUMMARY

	2x4	2x6	REDUCED BY
- 8' Studs	1403	665	(-738 / -52%)
- Bd Ft	5186	3082	(-2104 / -40%)
- <b>COST</b>	<b>\$2749</b>	<b>\$1632</b>	<b>(-\$1117 / -40%)</b>

Building Science Corporation  
2008

Joseph Lelburek 129

## Shear Panel



Building Science Corporation  
2008

Joseph Lelburek 130



Building Science Corporation  
2008

Joseph Lelburek 131

## Shear Panel



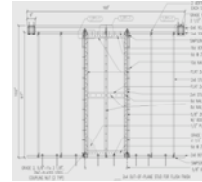
Building Science Corporation  
2008

Joseph Lstiburek 132

## Seismic Testing

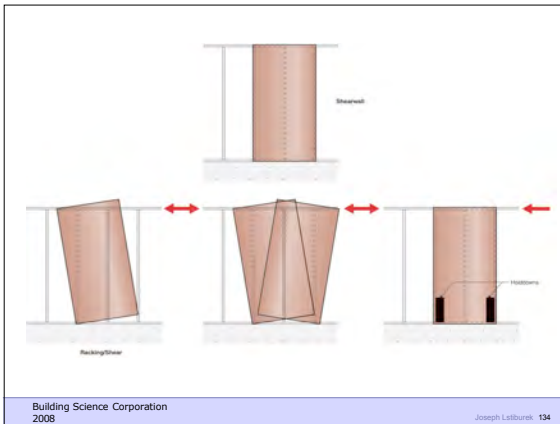
-Work with CERL (the US Army research laboratory), and BSC to facilitating code approval of advanced framing techniques by the Division of the State Architect in California, and other earthquake and high wind loading locations.

-Full scale assemblies have been tested under the new dynamic seismic loading protocols developed after the Northridge earthquake. New non-proprietary shear panels are now available for use that allow for advanced envelope design



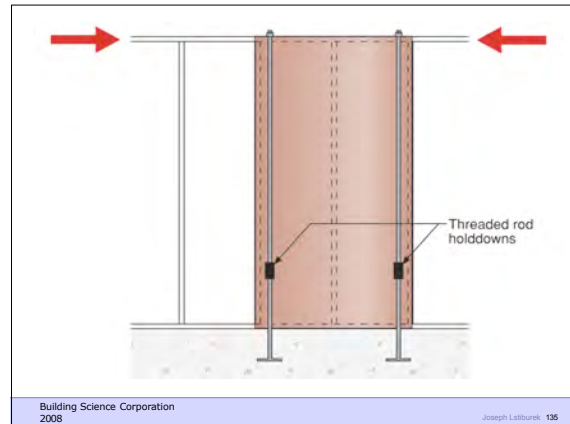
Building Science Corporation  
2008

Joseph Lstiburek 133



Building Science Corporation  
2008

Joseph Lstiburek 134



Building Science Corporation  
2008

Joseph Lstiburek 135

## 2 Story Aligned



Building Science Corporation  
2008

Joseph Lstiburek 136

## Standard Plywood Panel

2x4 panel with plywood to establish baselines

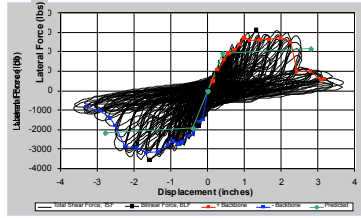


Building Science Corporation  
2008

Joseph Lstiburek 137



### Standard Plywood Panel Performance



Building Science Corporation  
2008

Joseph Lelzebek 138

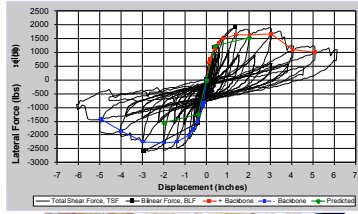
### Standard OSB Panel



Building Science Corporation  
2008

Joseph Lelzebek 139

### Standard OSB Panel Performance



Building Science Corporation  
2008

Joseph Lelzebek 140



Building Science Corporation  
2008

Joseph Lelzebek 141



Building Science Corporation  
2008

Joseph Lelzebek 142

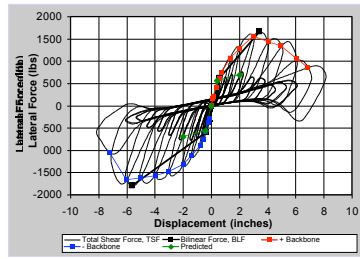
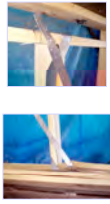
### Diagonal Strap Shear Panel CURE1



Building Science Corporation  
2008

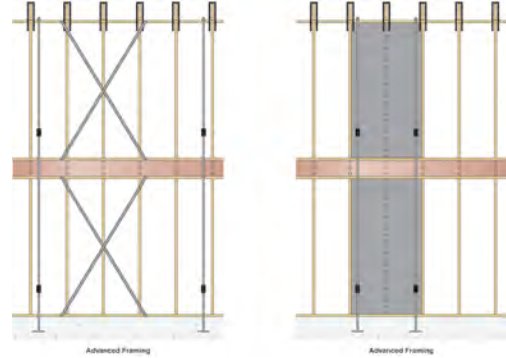
Joseph Lelzebek 143

### Diagonal Strap Shear Panel CURE1



Building Science Corporation  
2008

Joseph Lelburek 144



Building Science Corporation  
2008

Joseph Lelburek 145



Building Science Corporation  
2008

Joseph Lelburek 146



Building Science Corporation  
2008

Joseph Lelburek 147



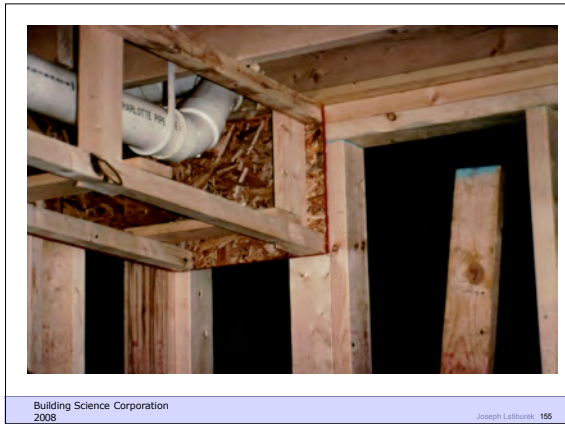
Building Science Corporation  
2008

Joseph Lelburek 148



Building Science Corporation  
2008

Joseph Lelburek 149







Building Science Corporation  
2008

Joseph Lstiburek 158



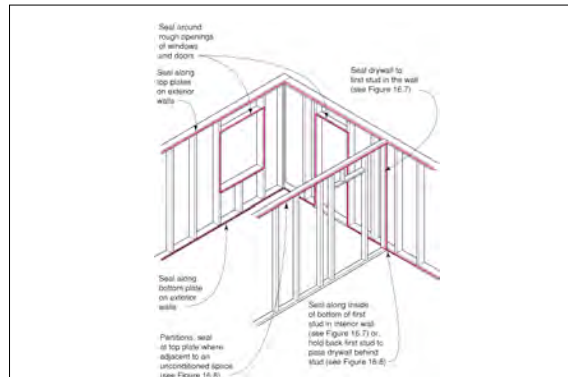
Building Science Corporation  
2008

Joseph Lstiburek 157



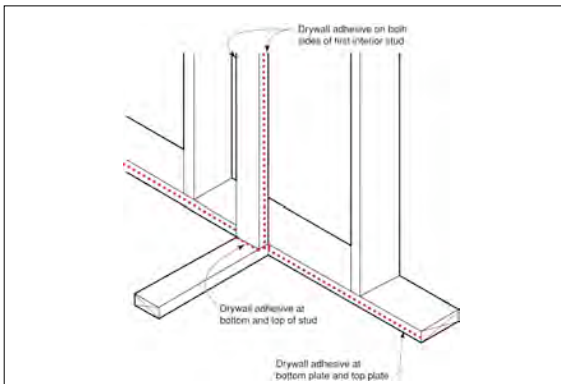
Building Science Corporation  
2008

Joseph Lstiburek 158



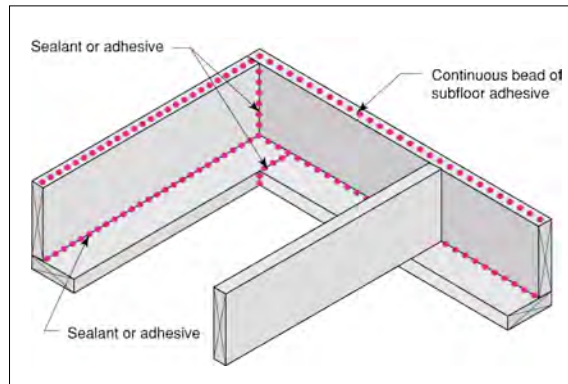
Building Science Corporation  
2008

Joseph Lstiburek 159



Building Science Corporation  
2008

Joseph Lstiburek 160



Building Science Corporation  
2008

Joseph Lstiburek 161



