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

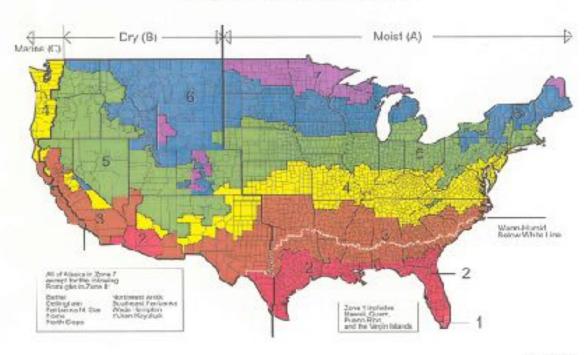
Building Science

Adventures In Building Science

Net Zero Buildings.....

Net Zero Buildings.....
75 percent conservation
25 percent renewables

Map of DOE's Proposed Climate Zones



Minmh 24: 5003

Conservation – IECC 2 and 3

5 - 10 - 20 - 40 - 60 - 1.5

Windows, Slab, Crawl/Basement, Wall, Roof

1.5 ach@50 with ERV

Renewables – IECC 2 and 3 2,500 ft2 home - 7.5 kw PV (no gas....except....LOL...)

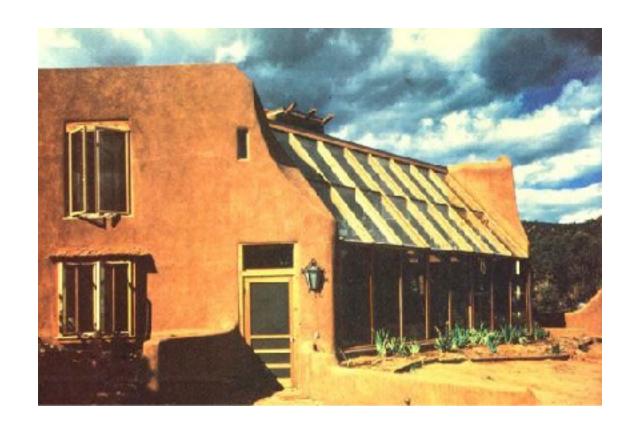
Conservation – IECC 2 and 3

5 - 10 - 20 - 40 - 60 - 1.5

Windows, Slab, Crawl/Basement, Wall, Roof

1.5 ach@50 with ERV

....Distributed Thermal Mass....



Building Science Corporation 8



Building Science Corporation

Light and Tight.....
beat
Mass and Glass....

Conservation – IECC 2 and 3

5 - 10 - 20 - 40 - 60 - 1.5

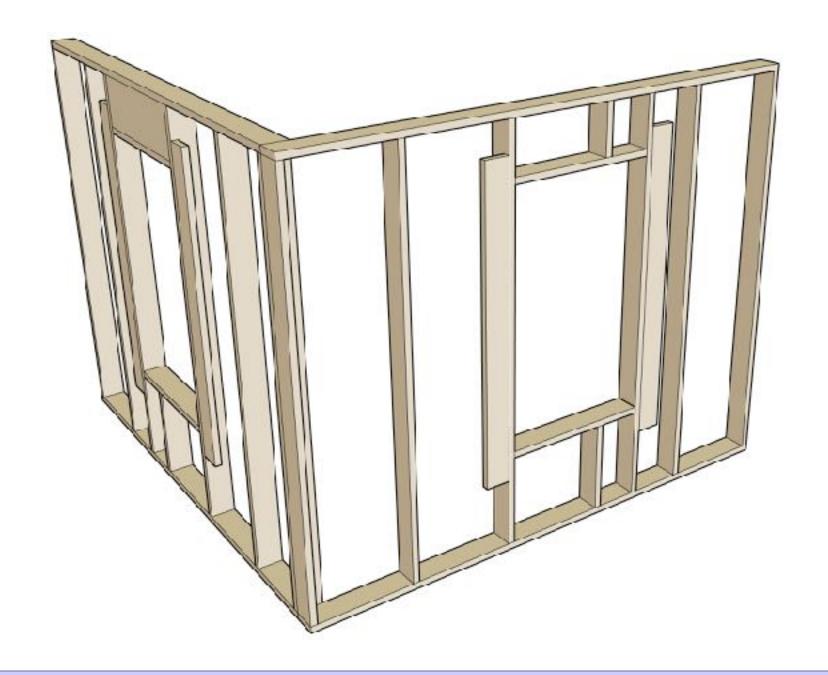
Windows, Slab, Crawl/Basement, Wall, Roof

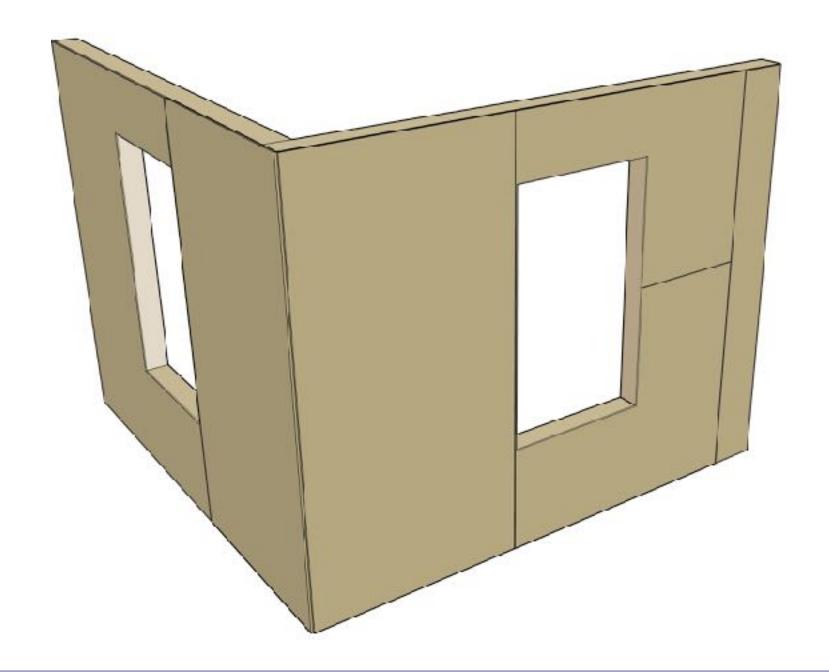
1.5 ach@50 with ERV

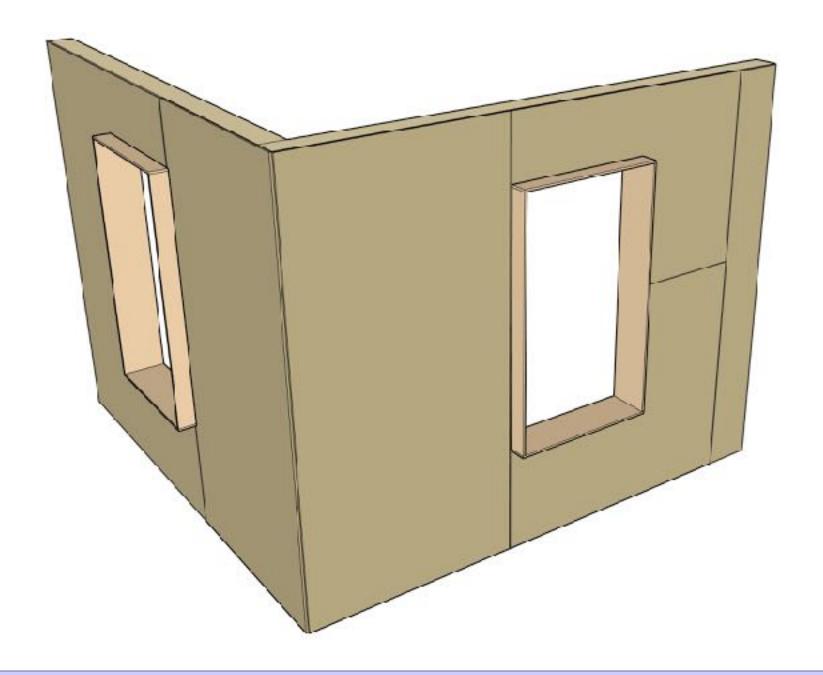
....Distributed Thermal Mass....

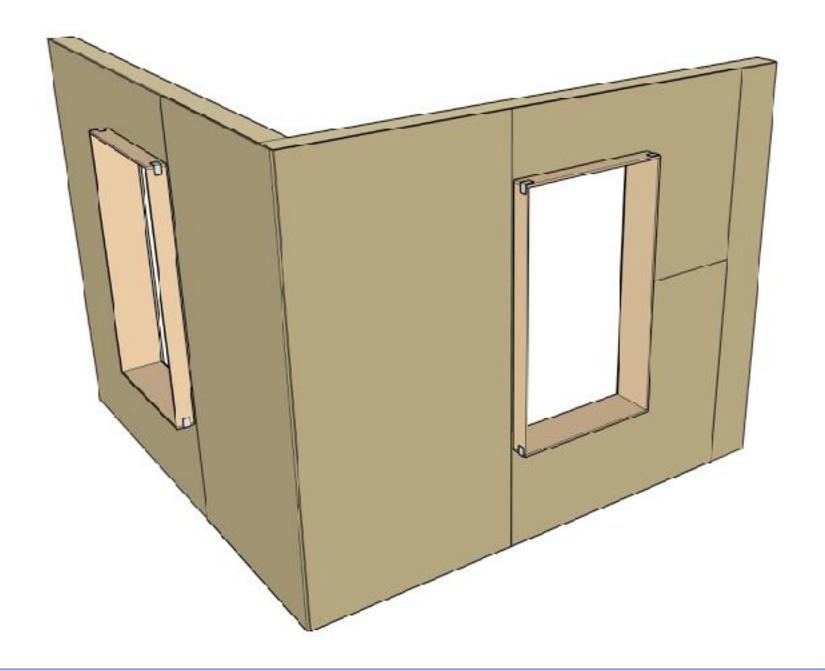
....Plus a Ford F-150 electric....

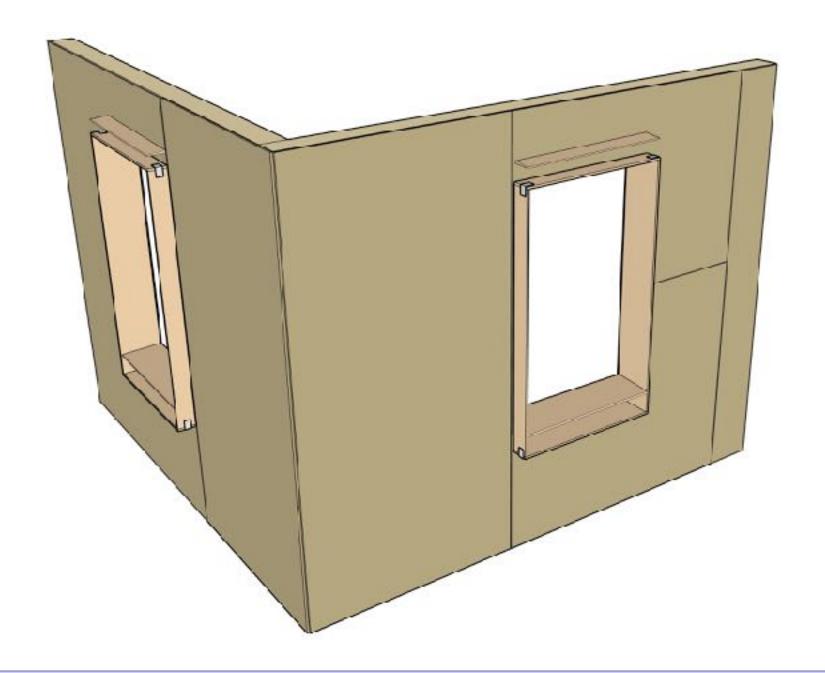


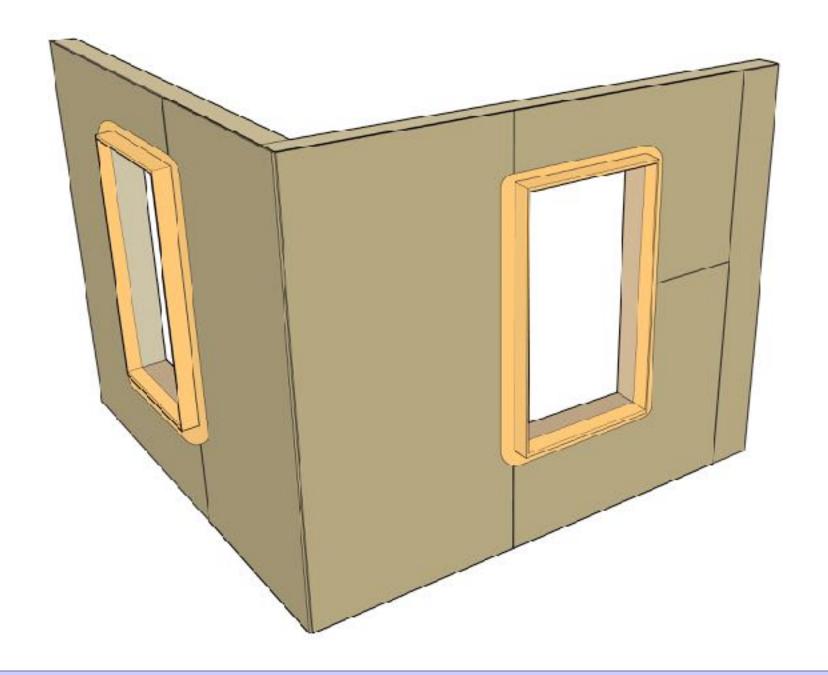


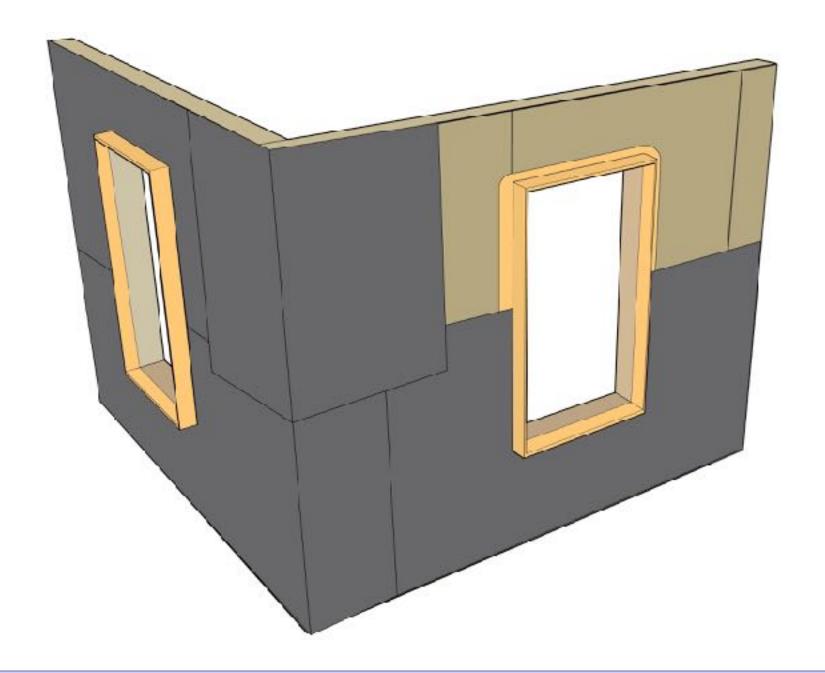


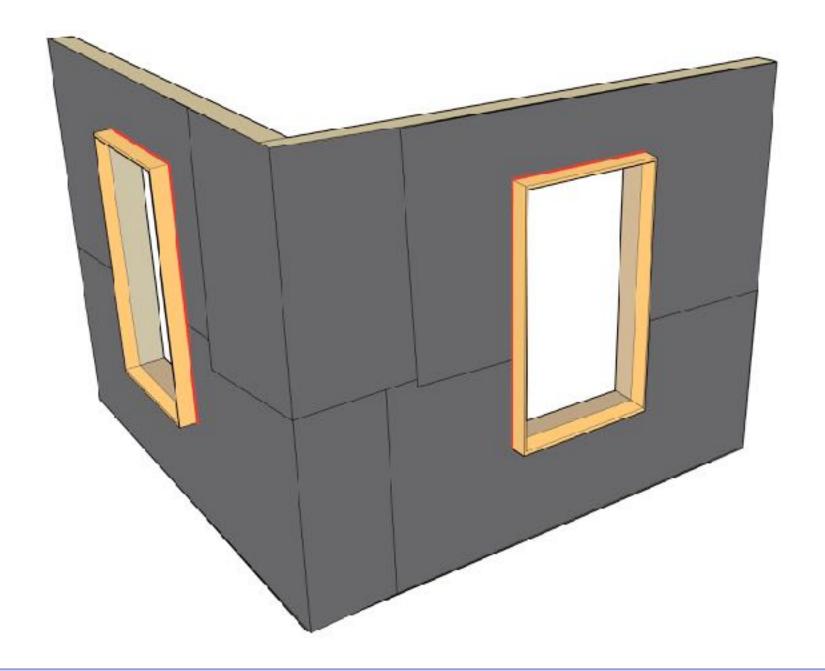


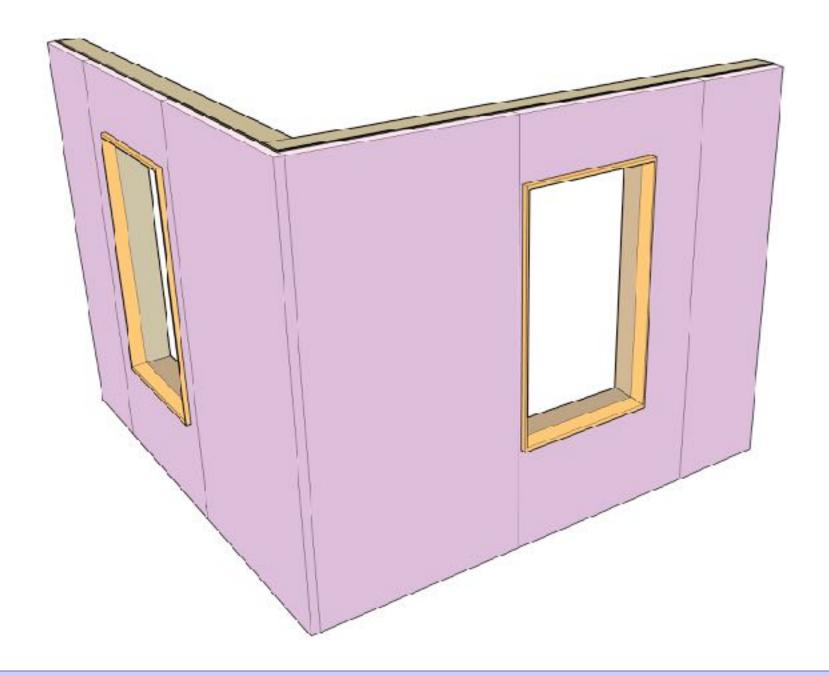


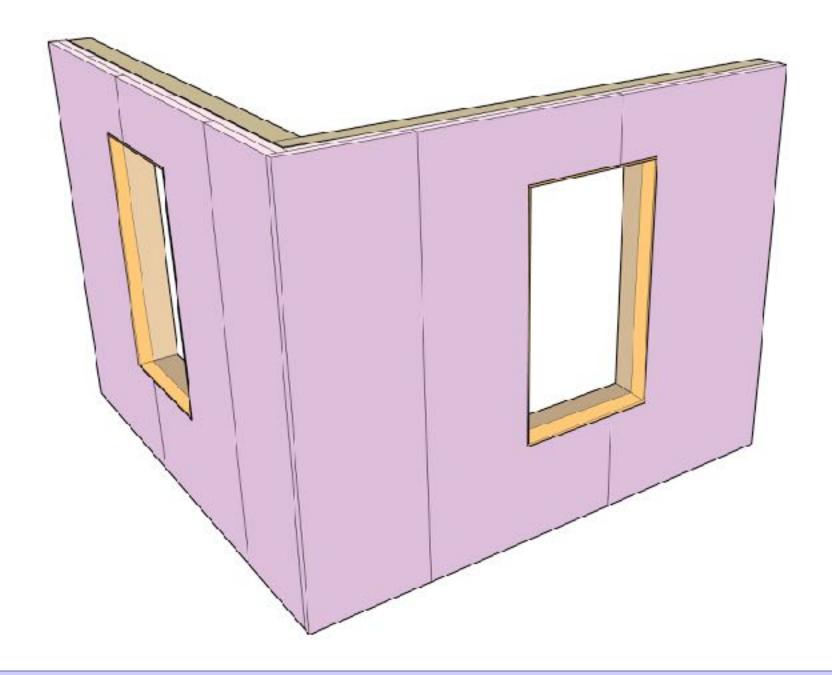


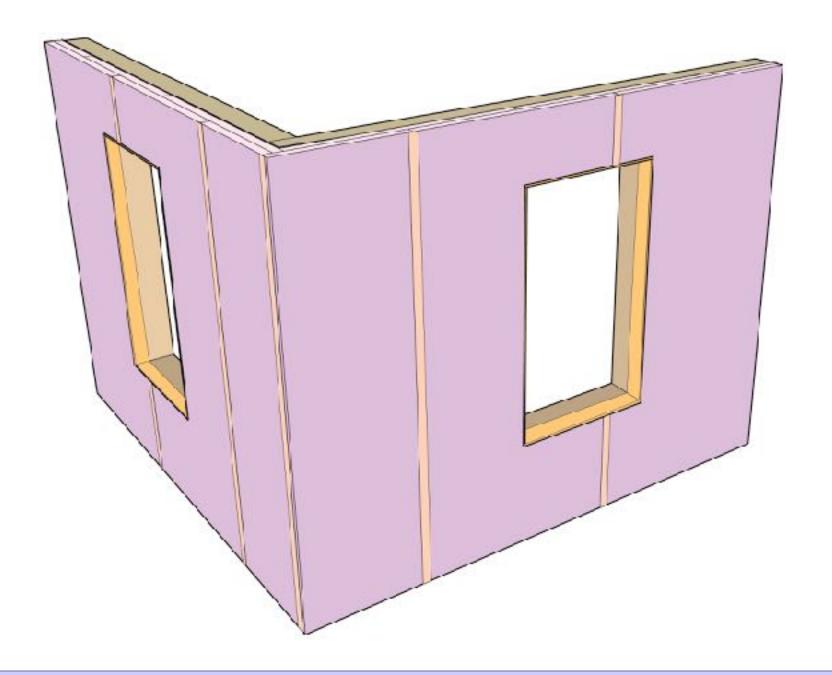


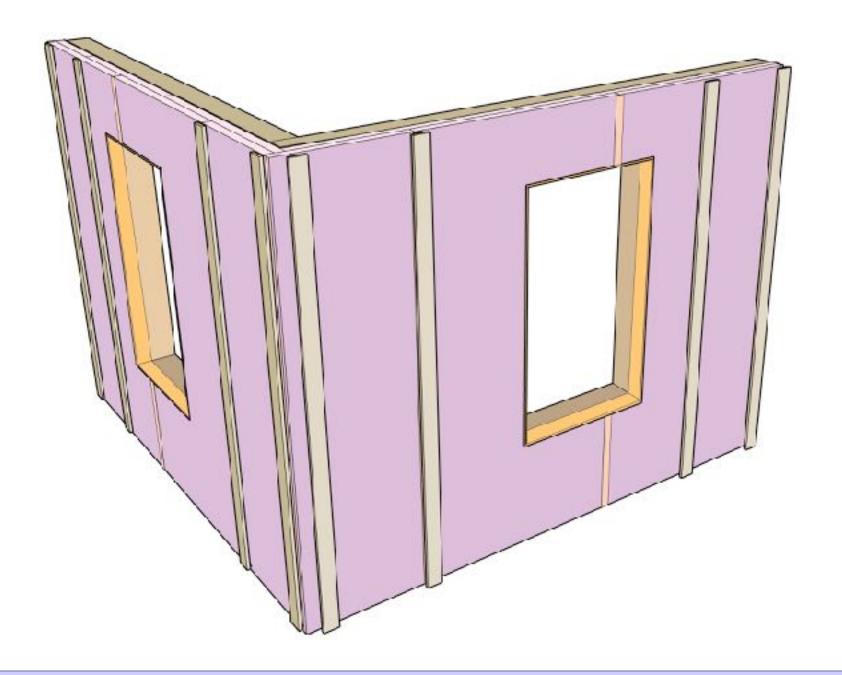


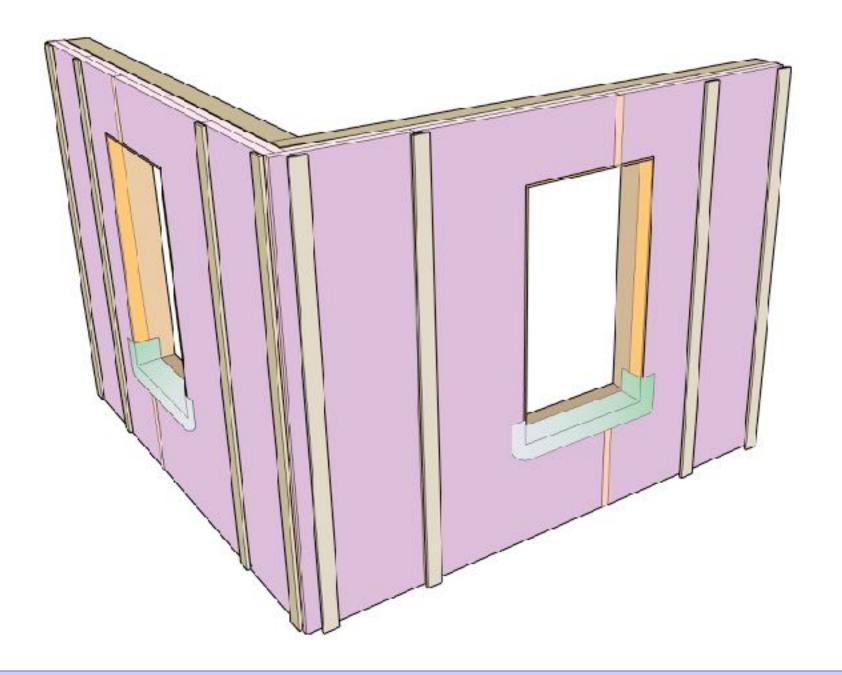


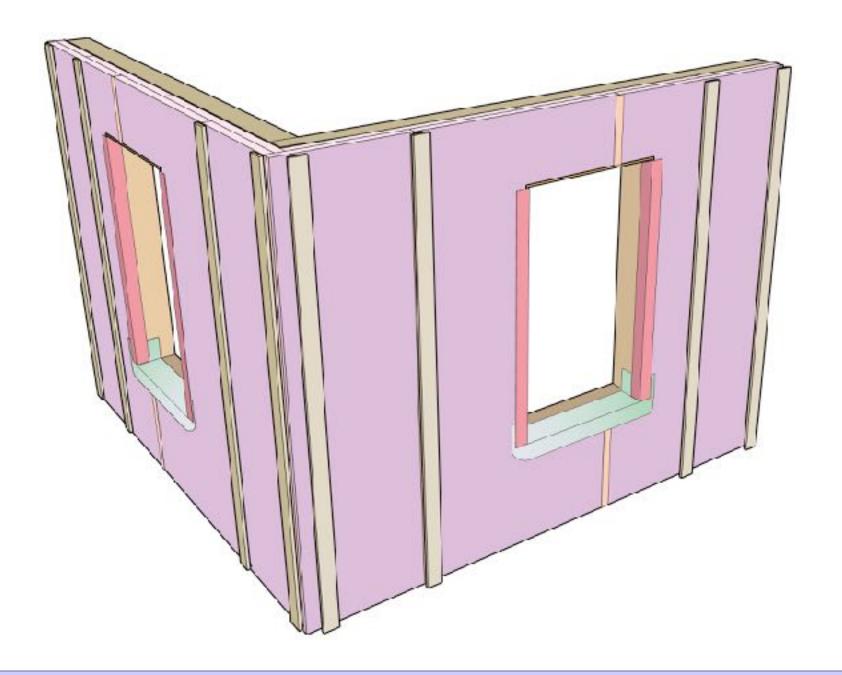






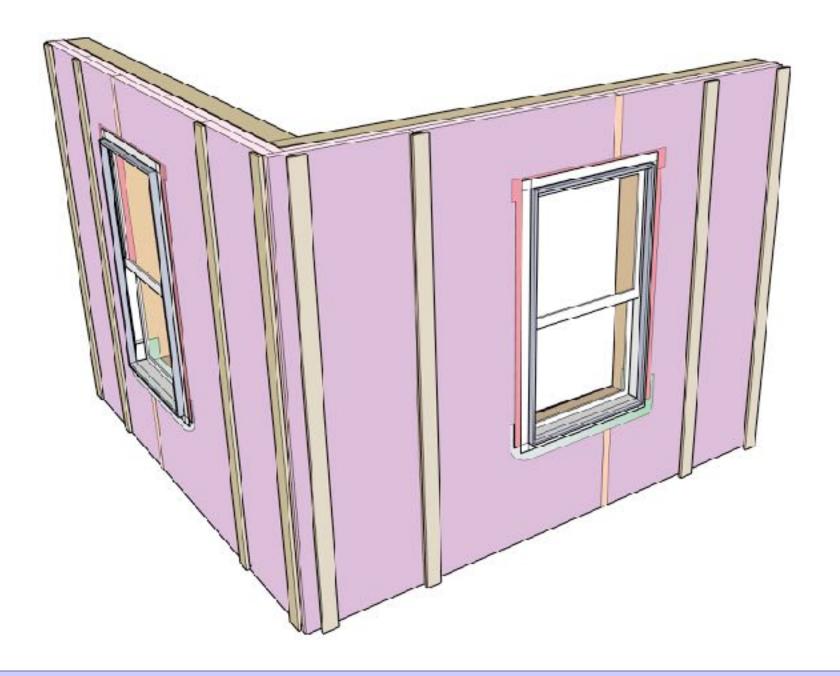


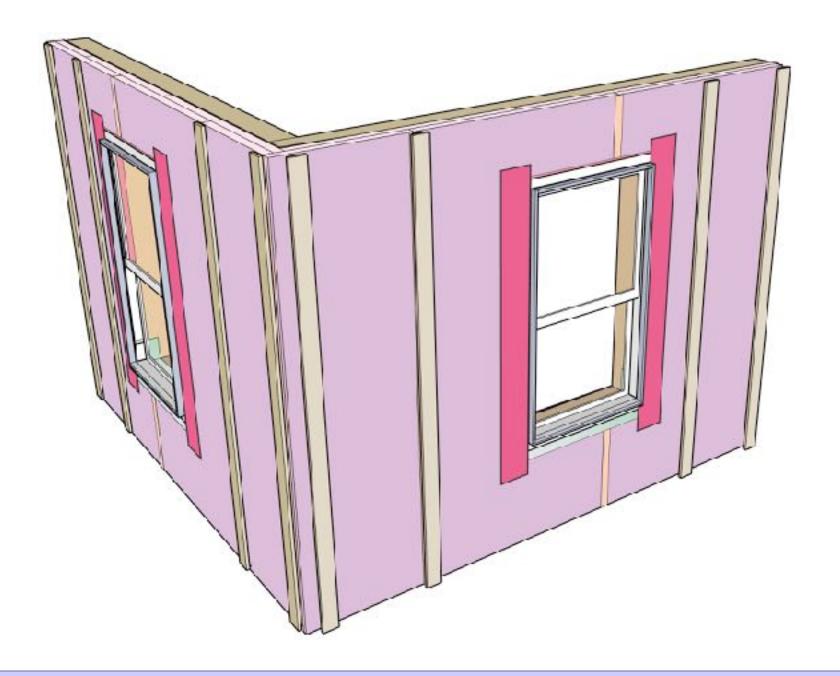


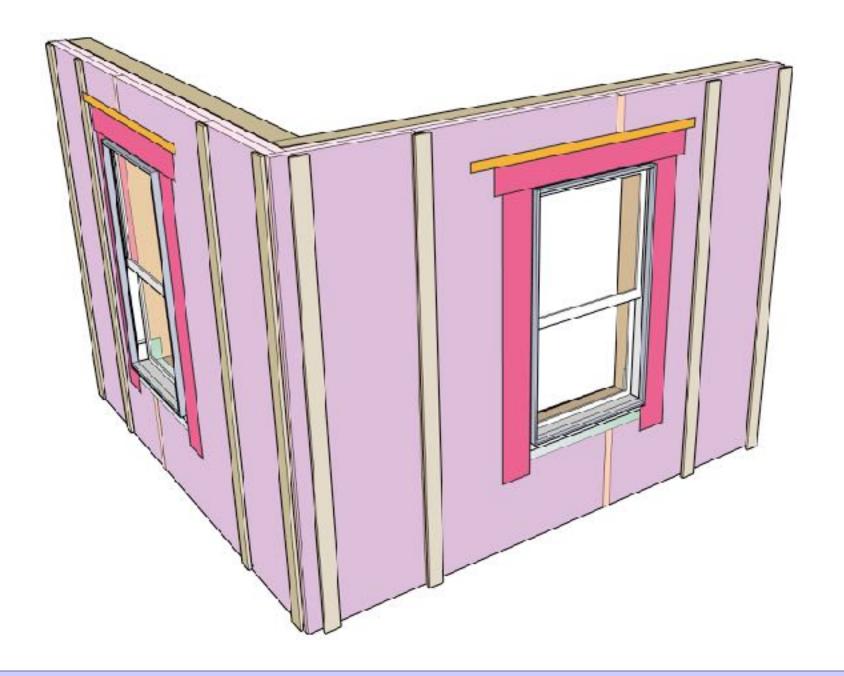


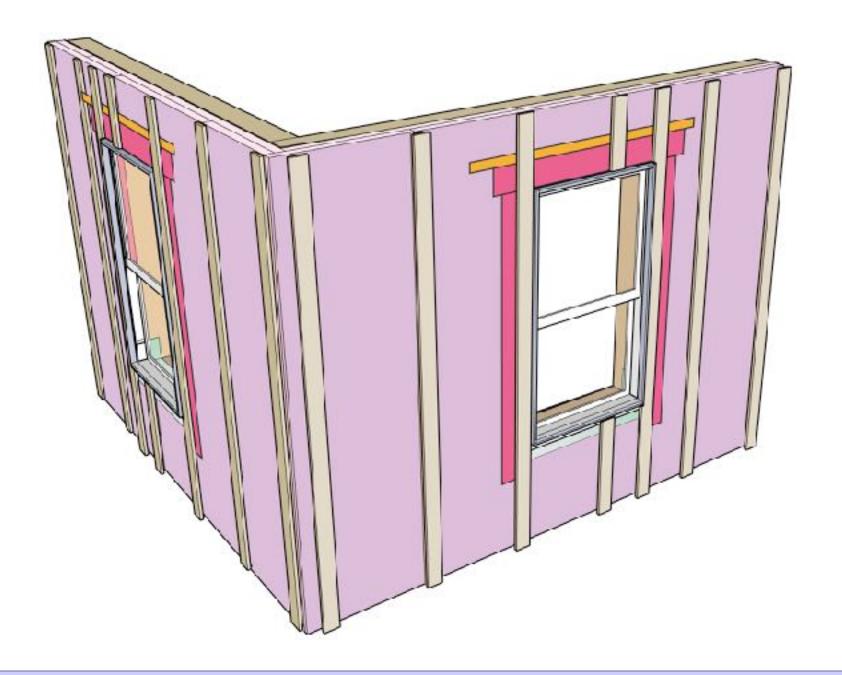


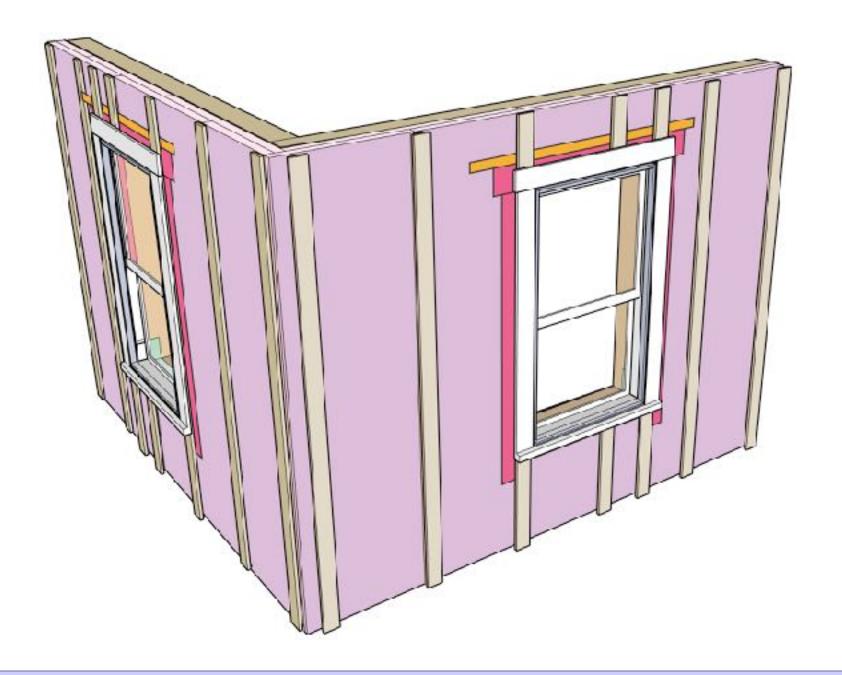


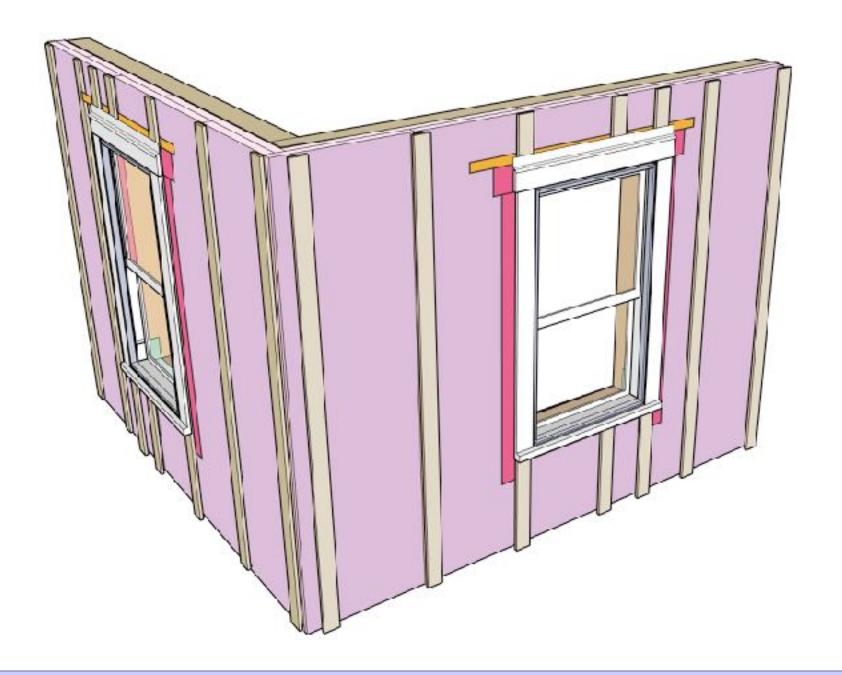










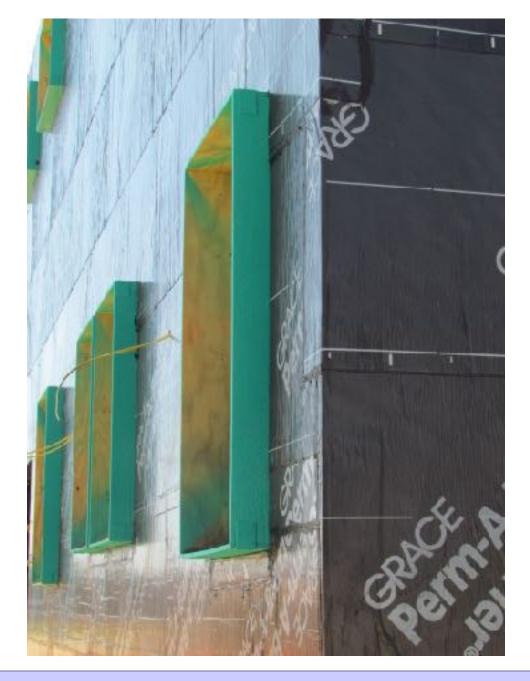


















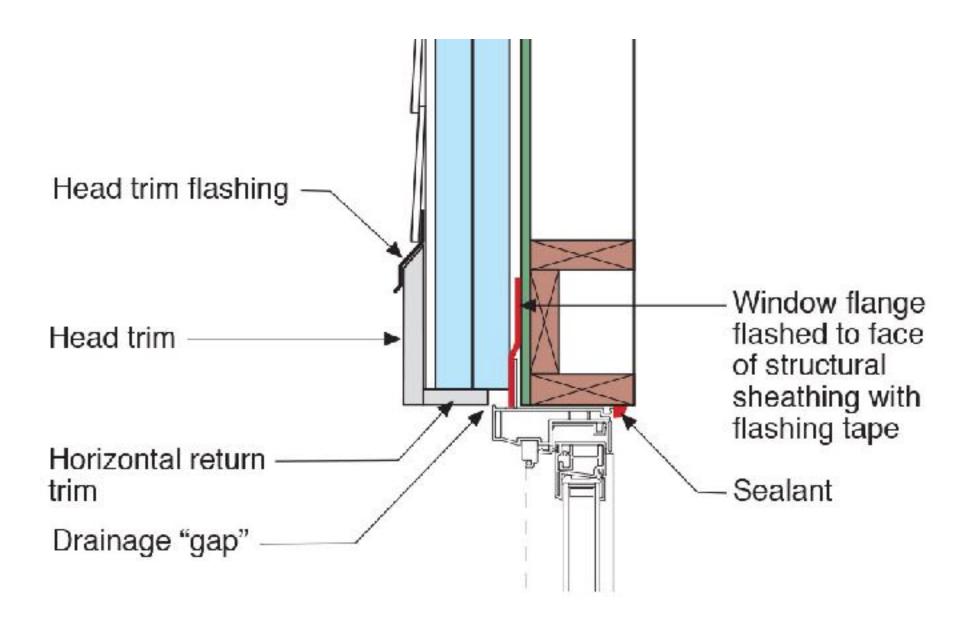












Retrofits



