

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

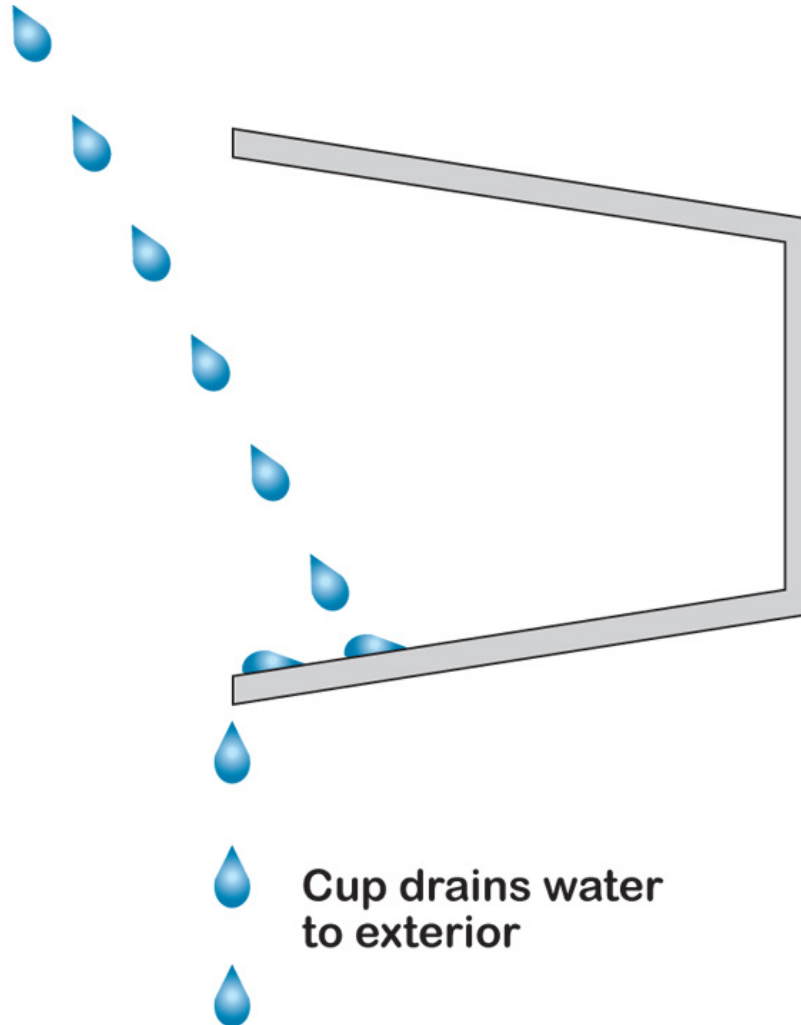
Building Science

Adventures In Building Science

Innies, Outies and Tweenies

www.buildingscience.com

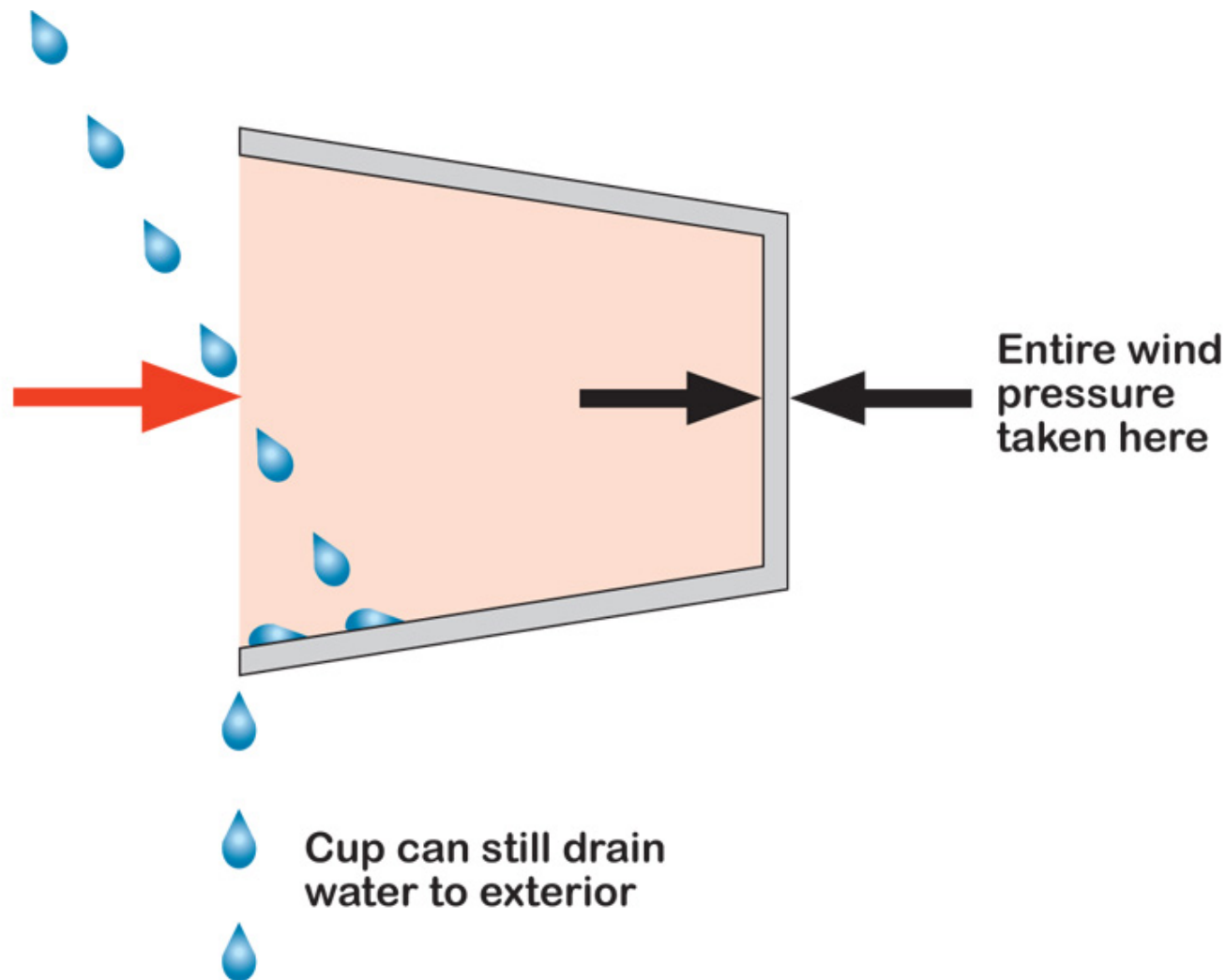
Rain enters cup
due to momentum
("kinetic energy")



Cup drains water
to exterior

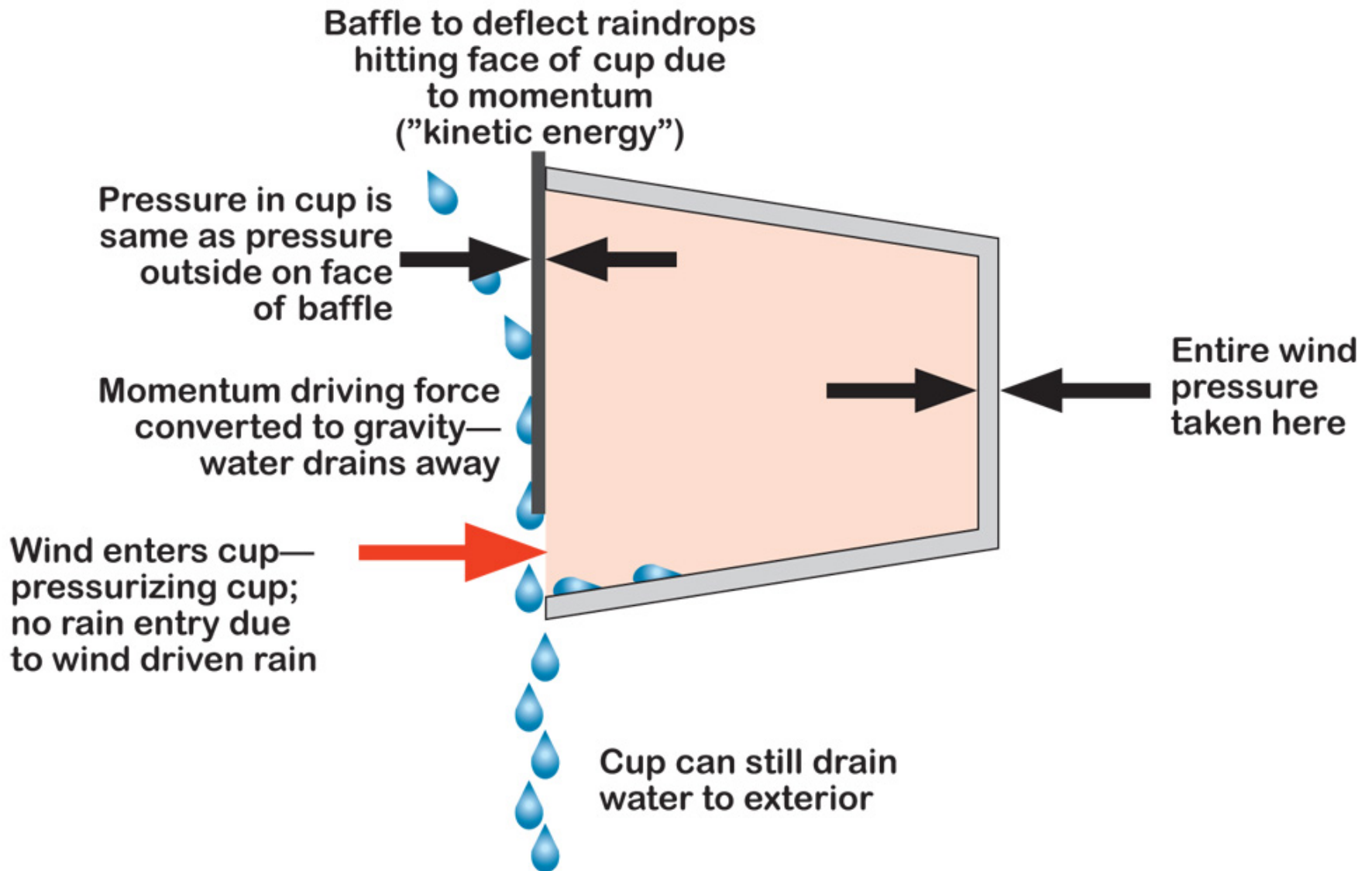
Rain enters cup due to momentum ("kinetic energy")

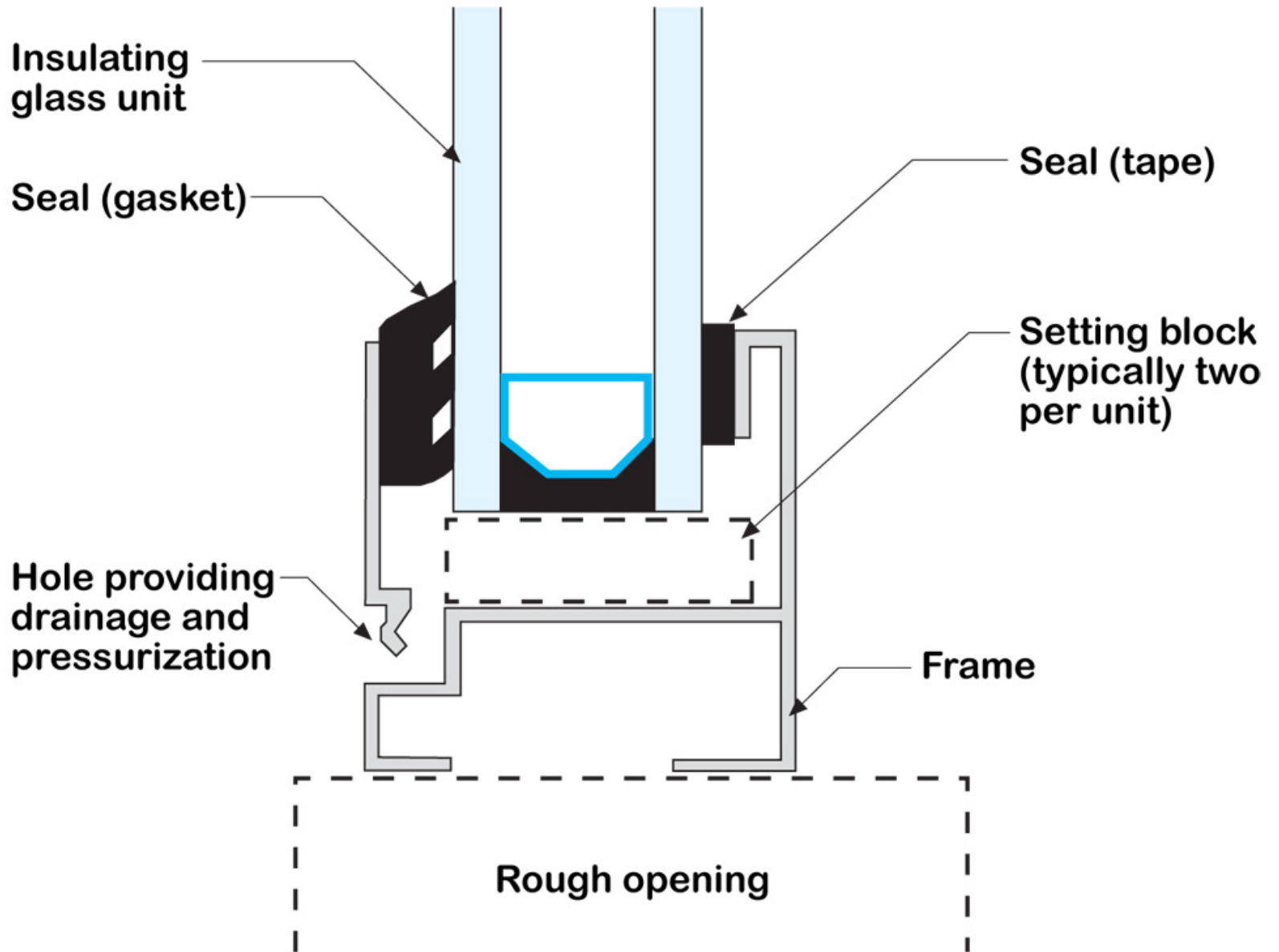
Wind enters cup—pressurizing cup; no rain entry due to wind driven rain

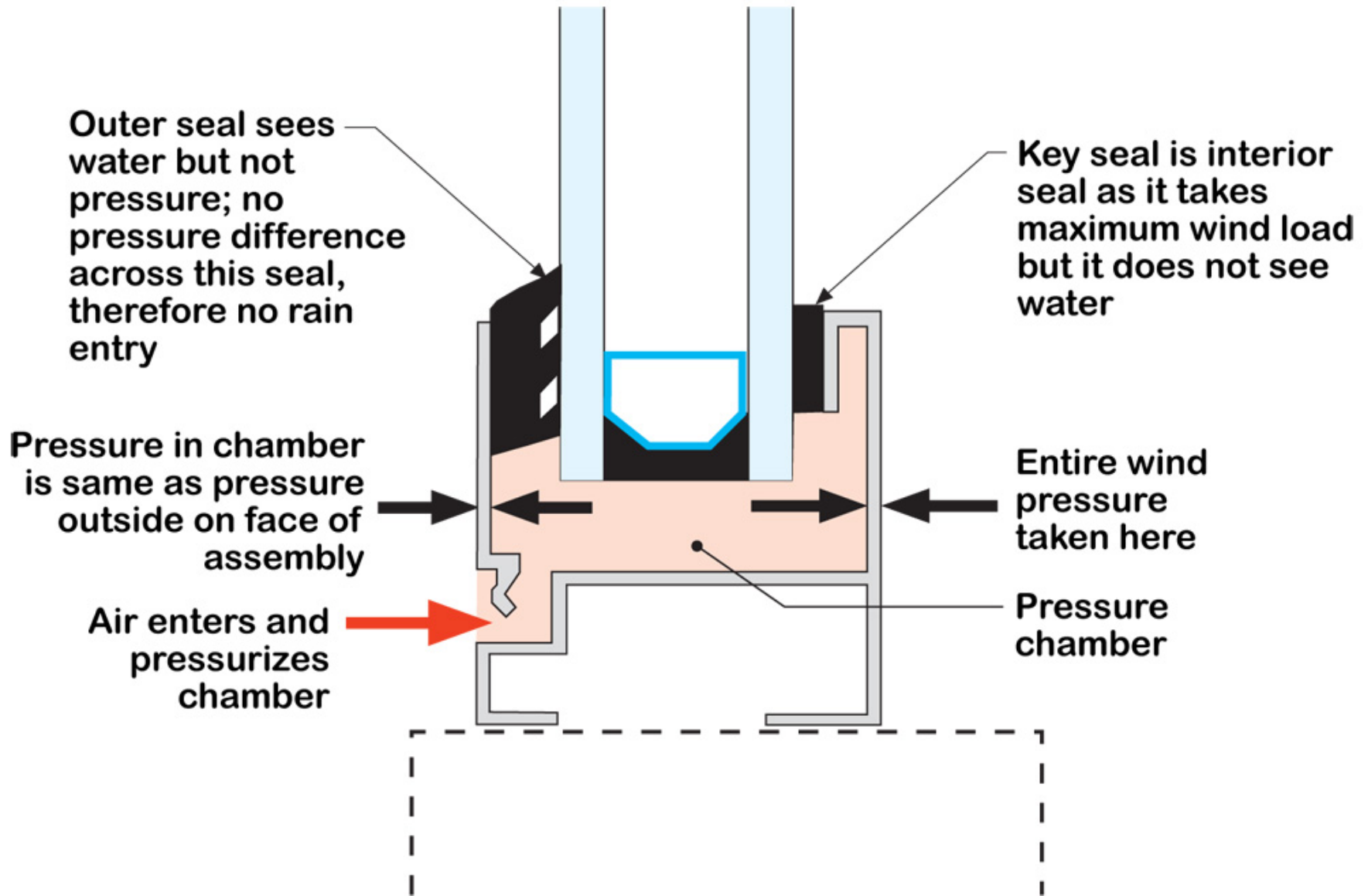


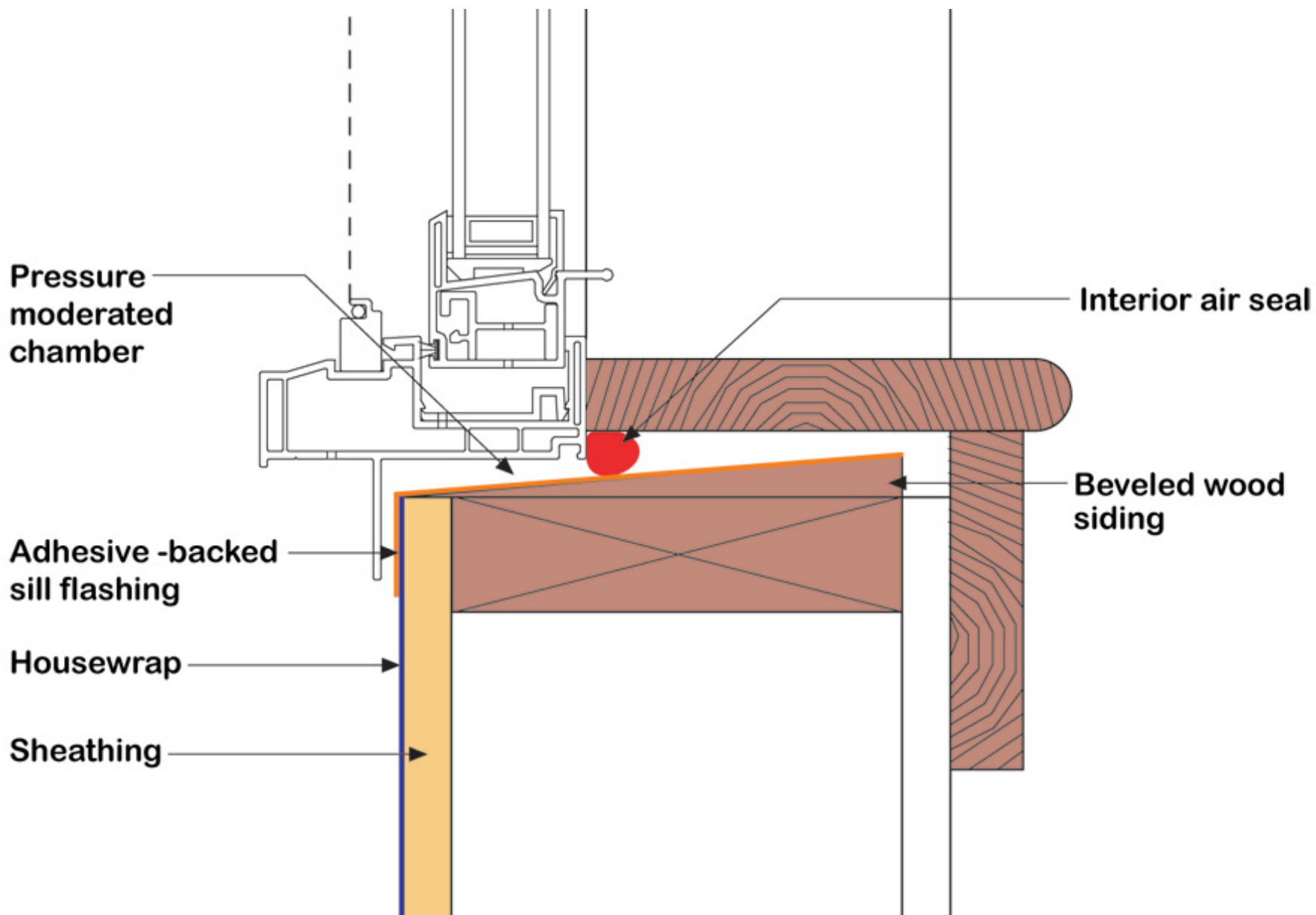
Entire wind pressure taken here

Cup can still drain water to exterior

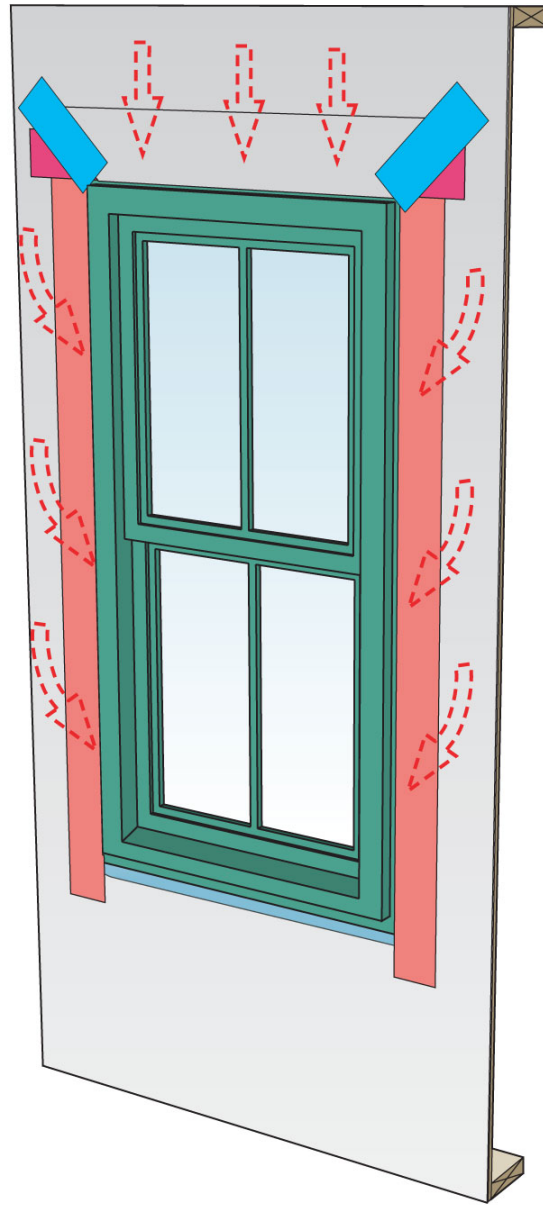


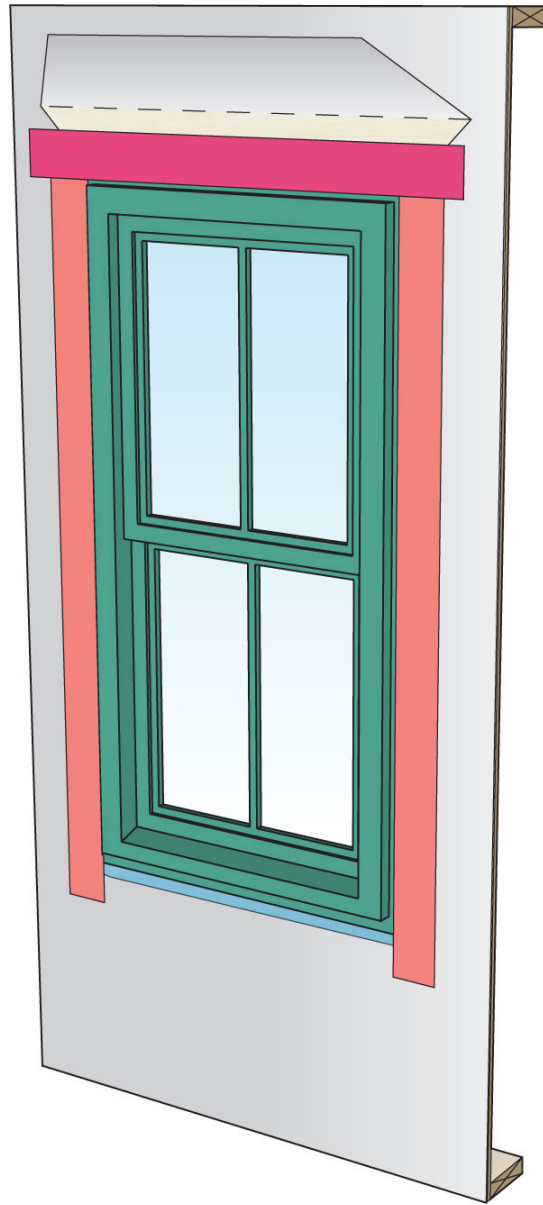




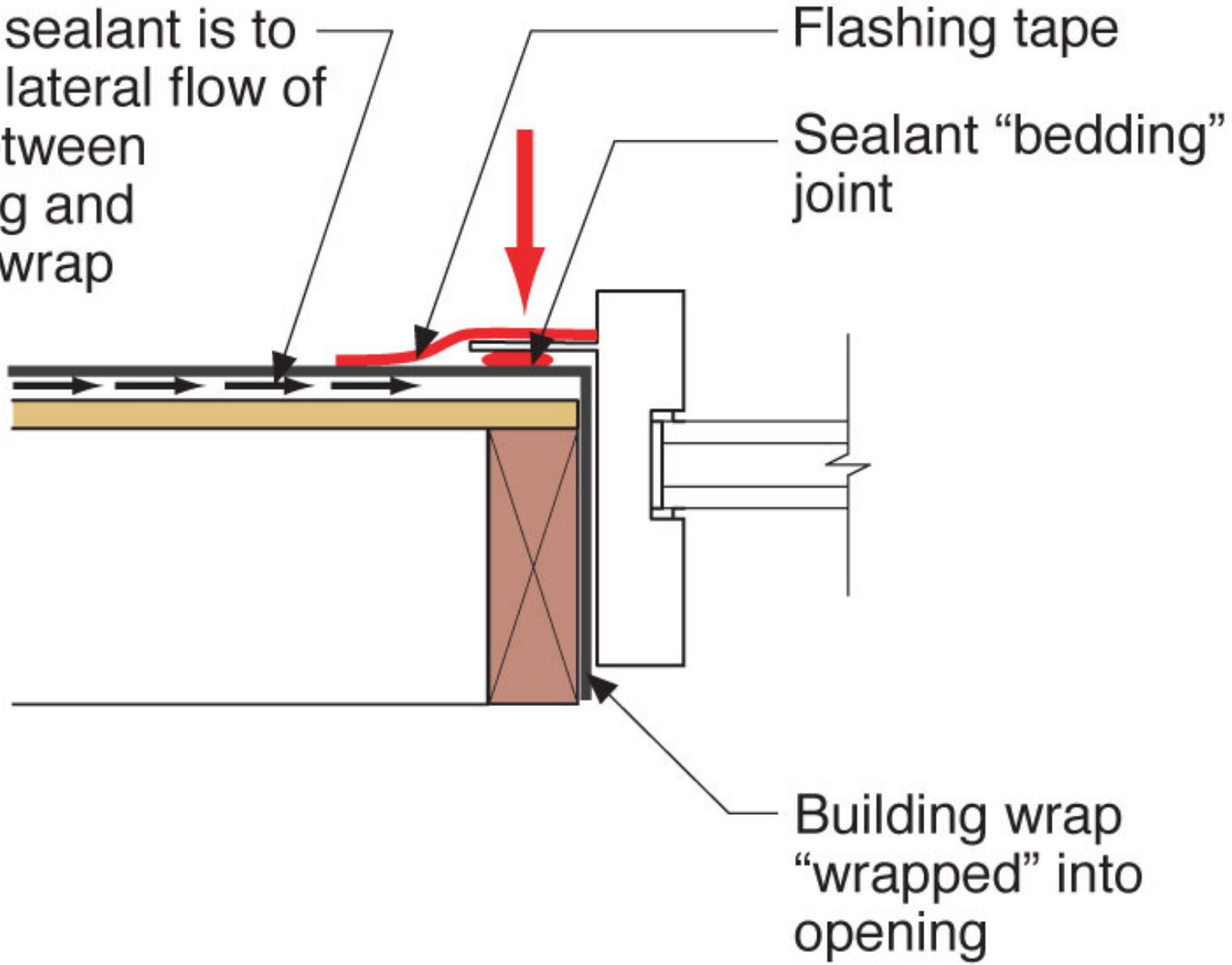


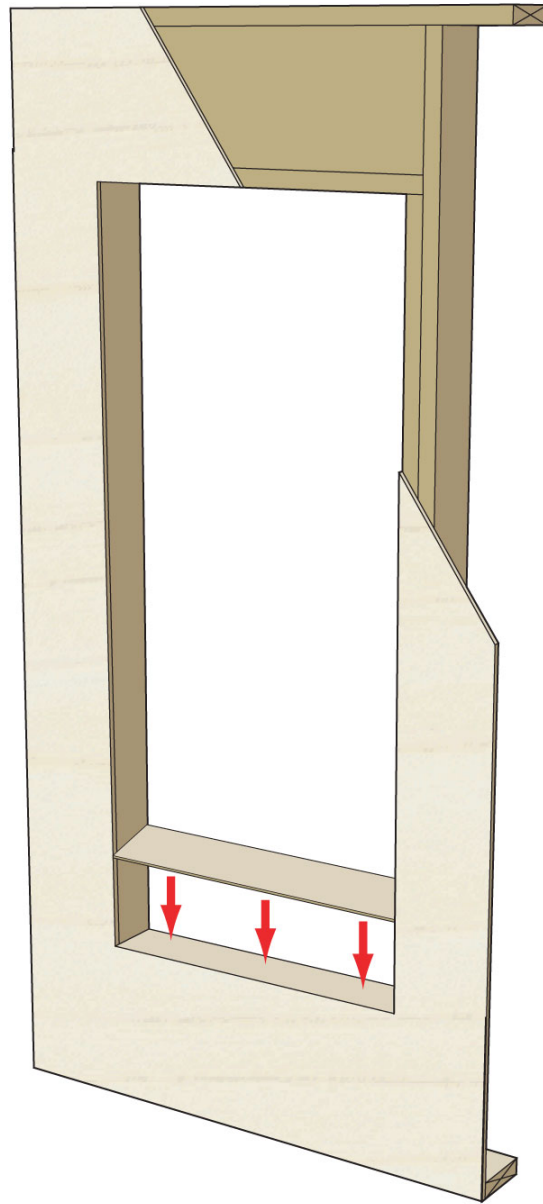


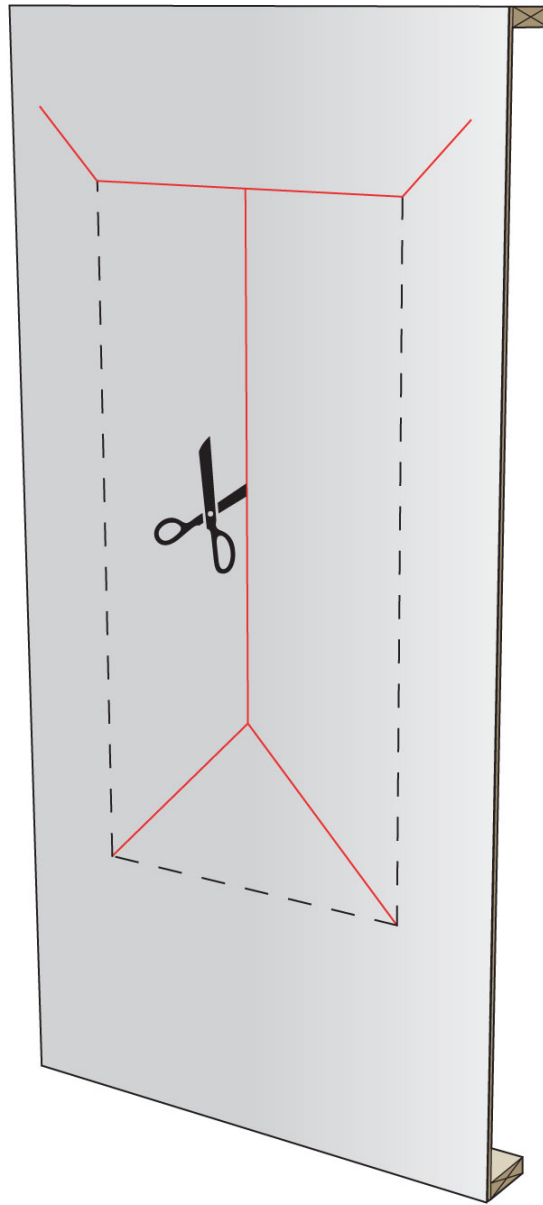


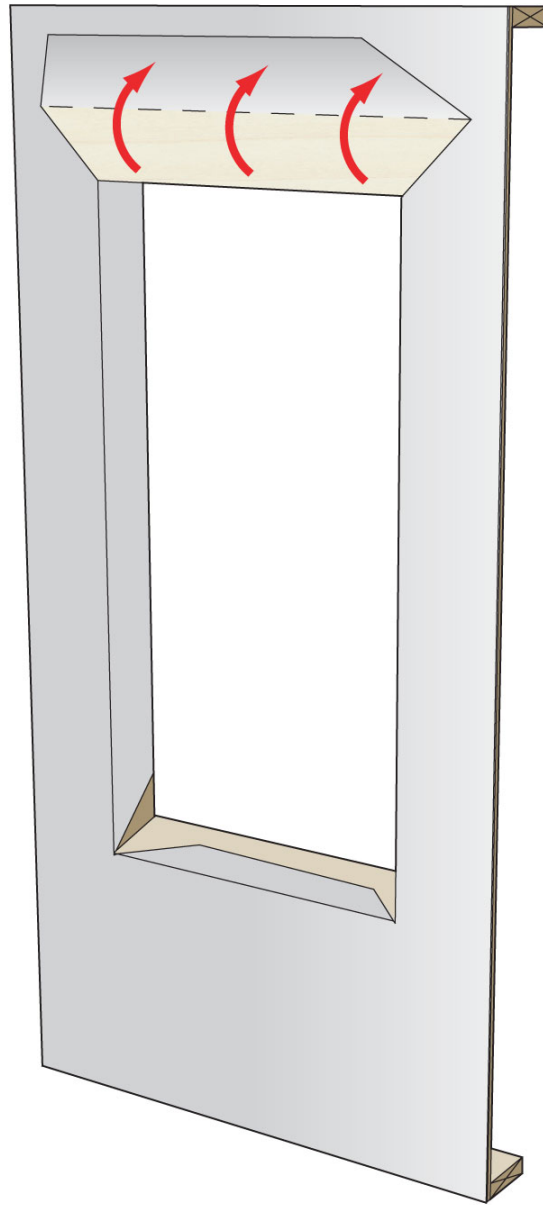


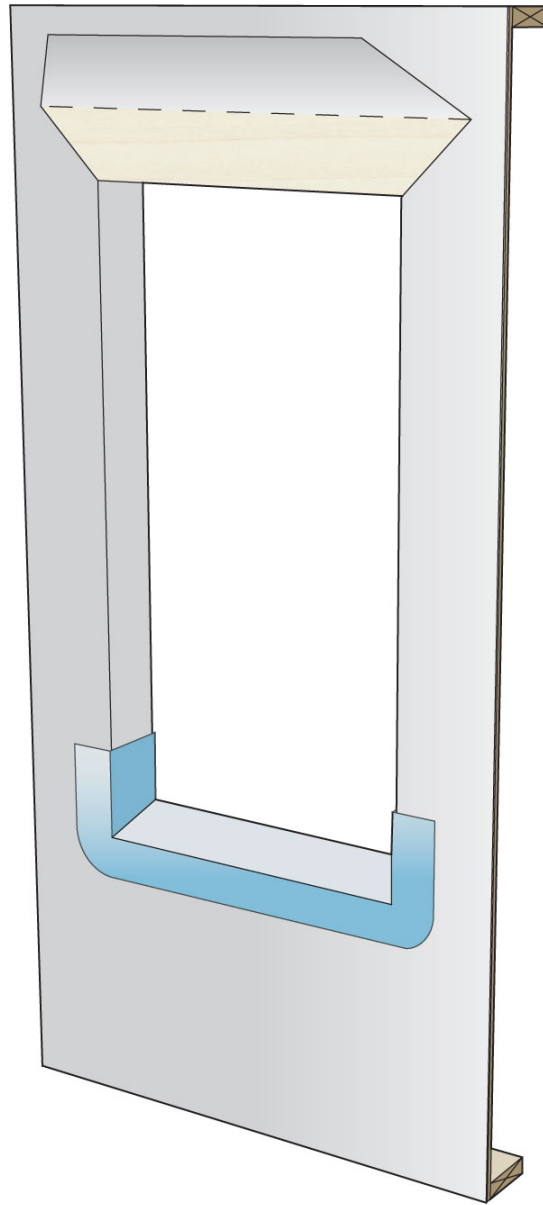
Intent of sealant is to limit this lateral flow of water between sheathing and building wrap

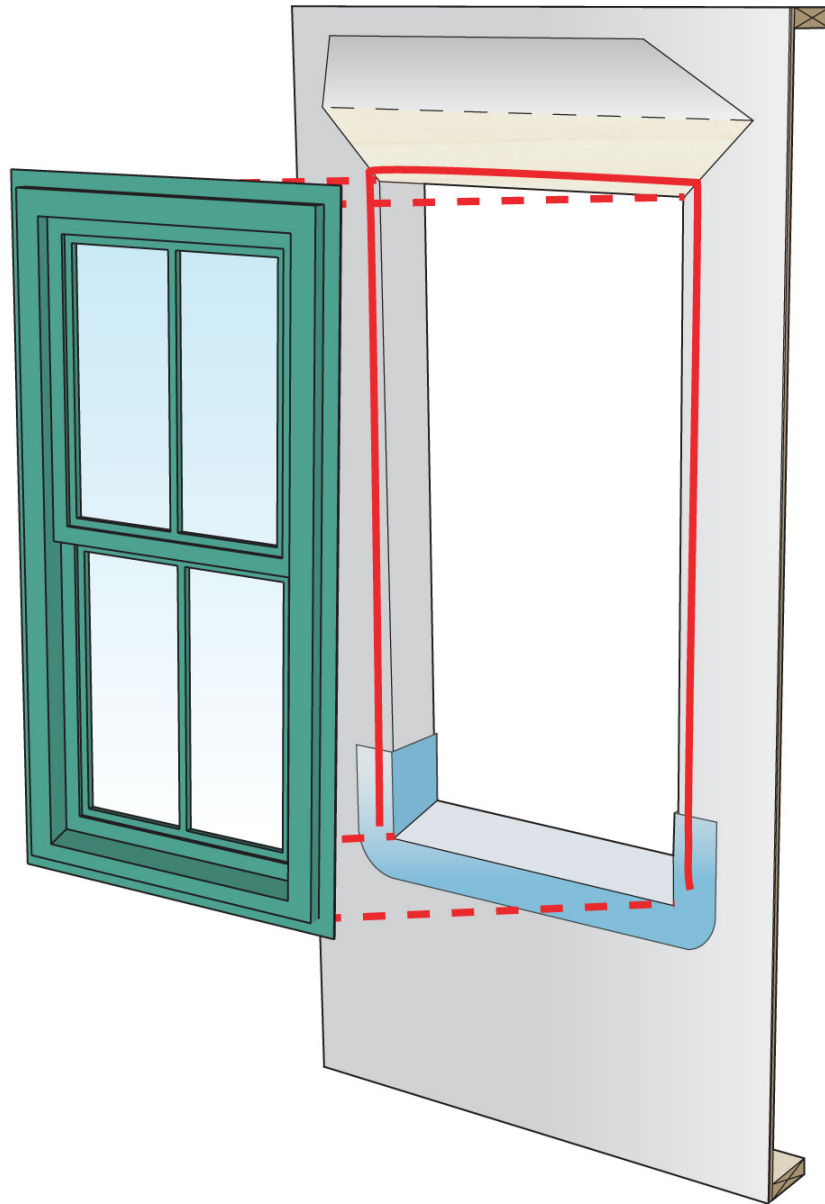


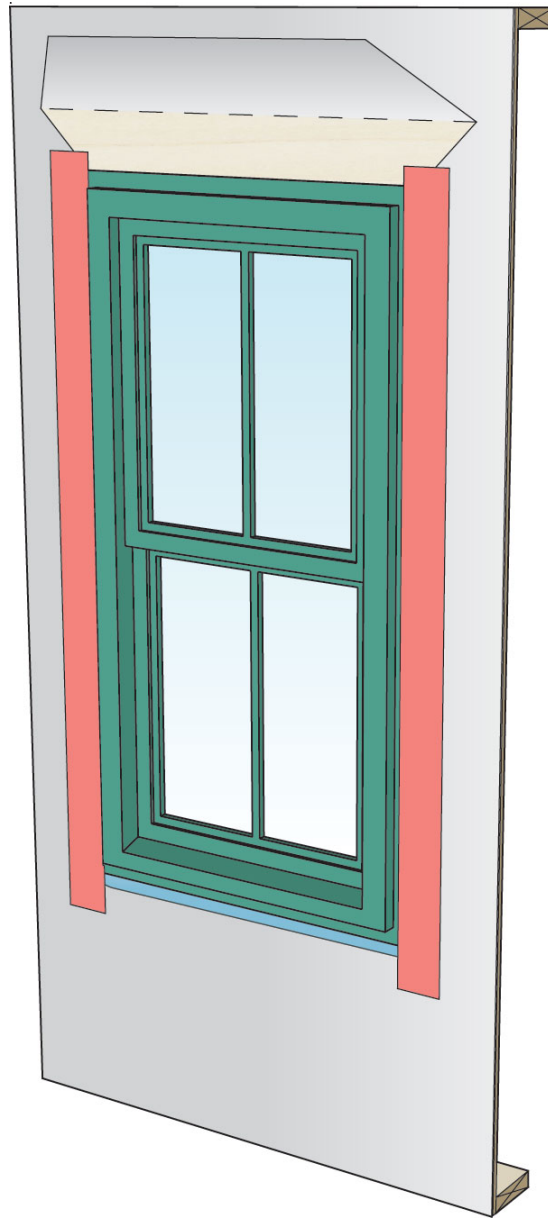


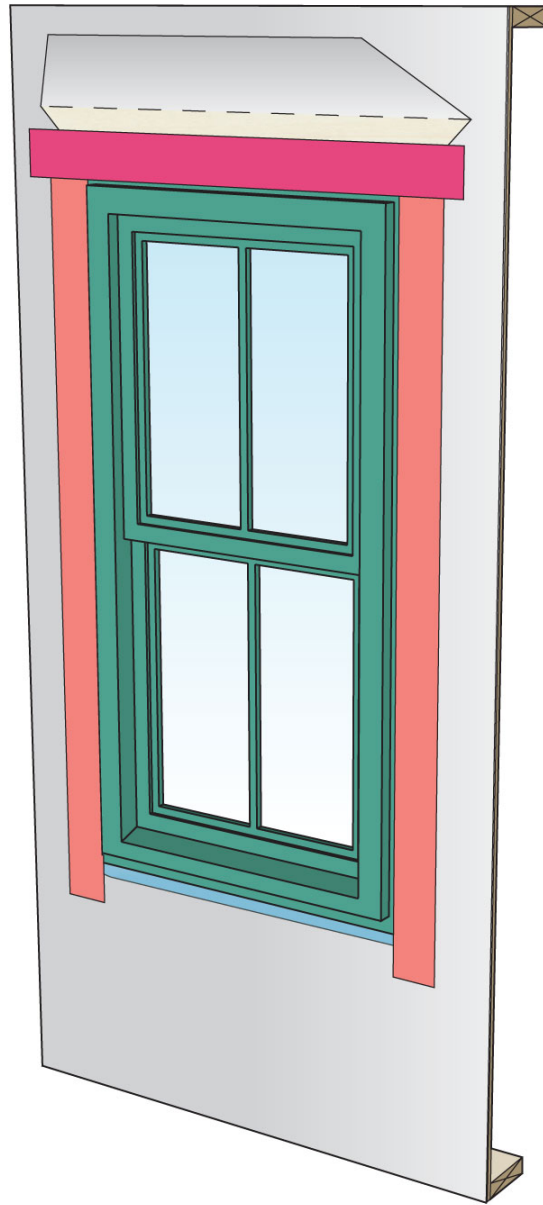


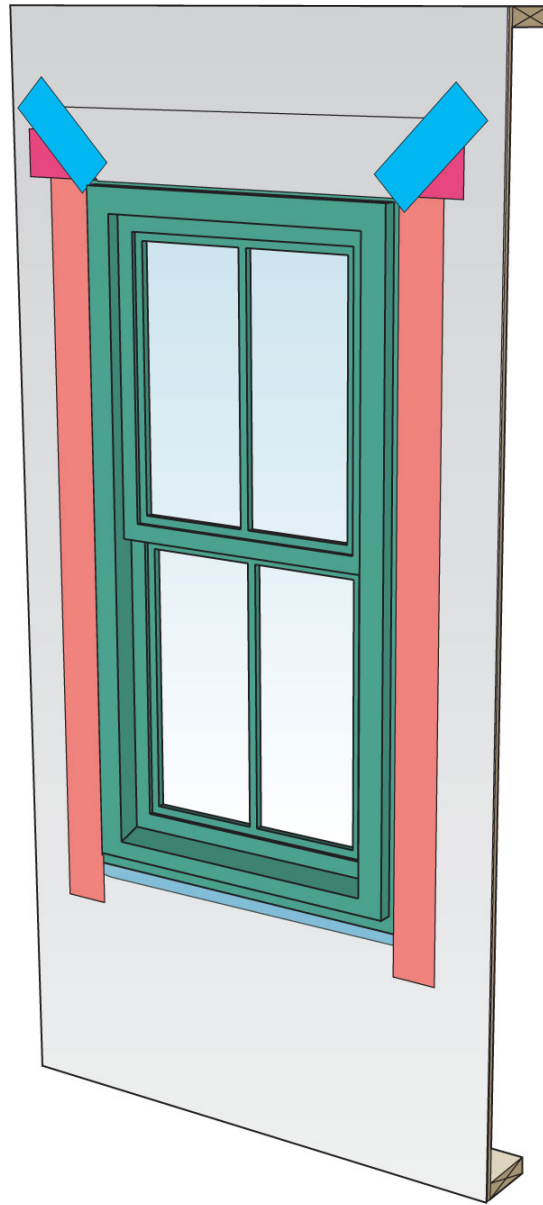


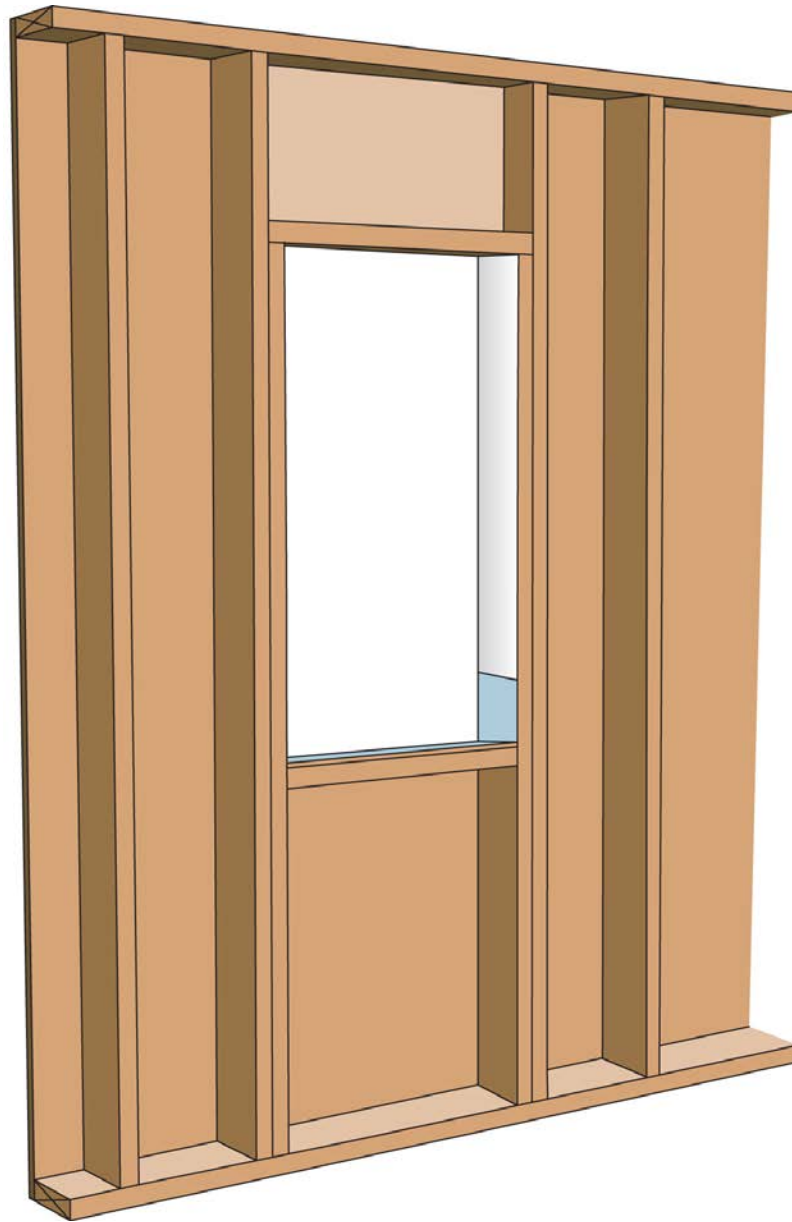






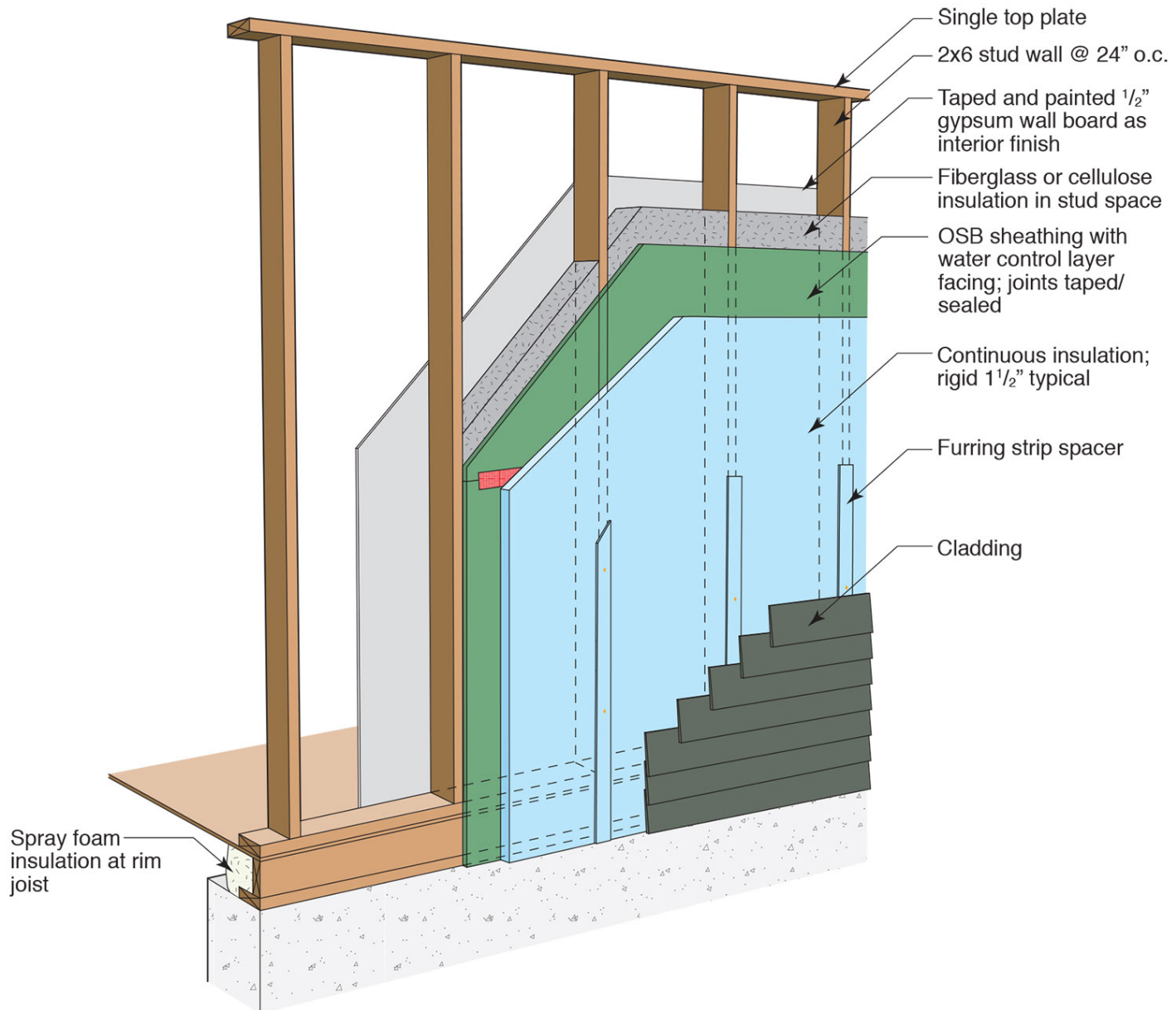


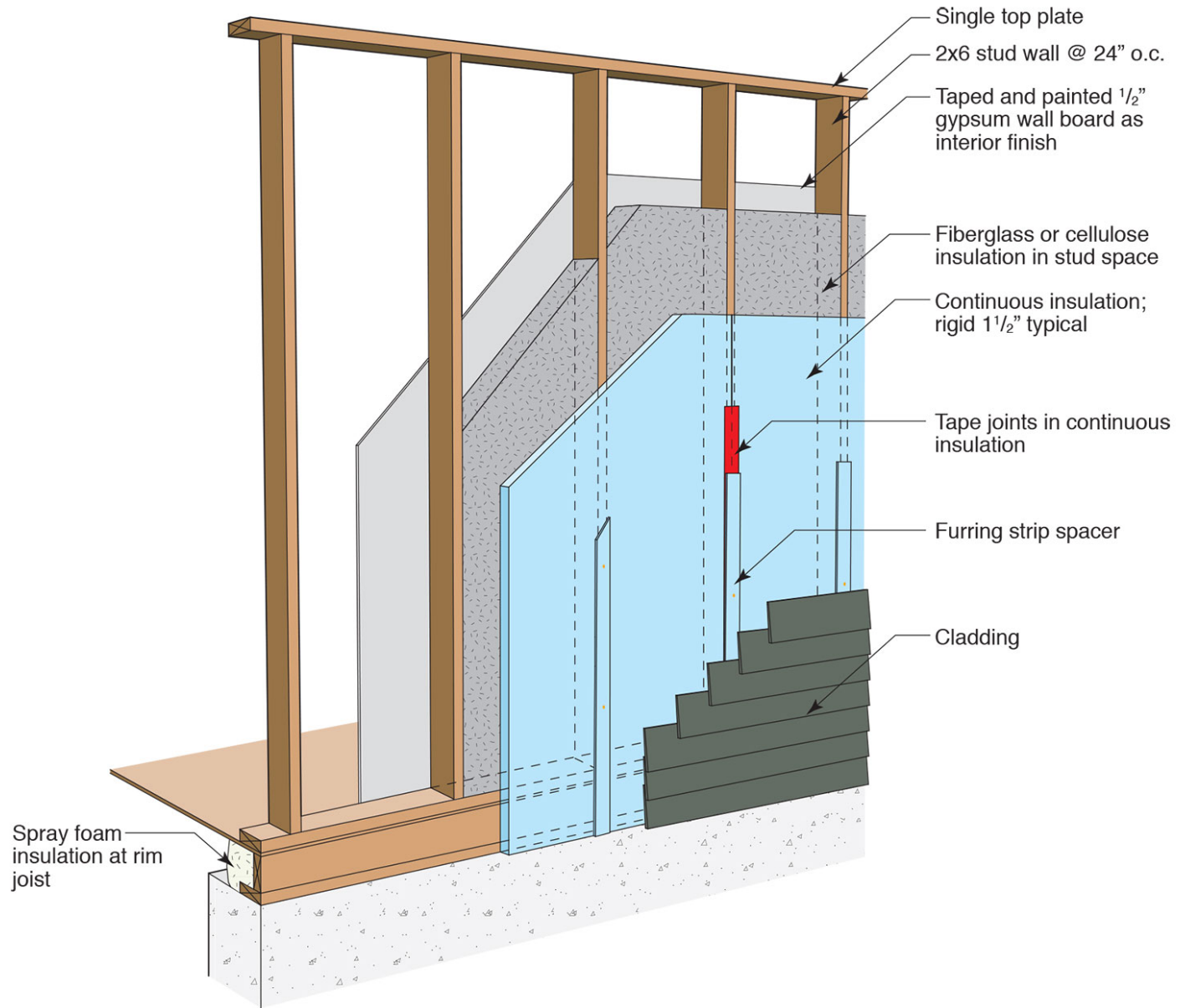










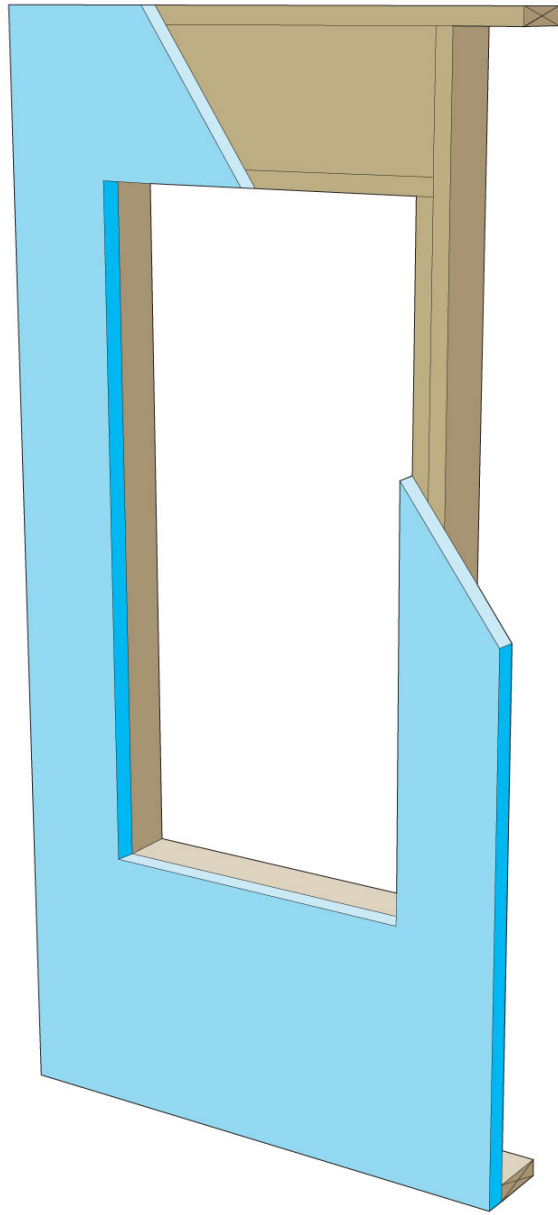


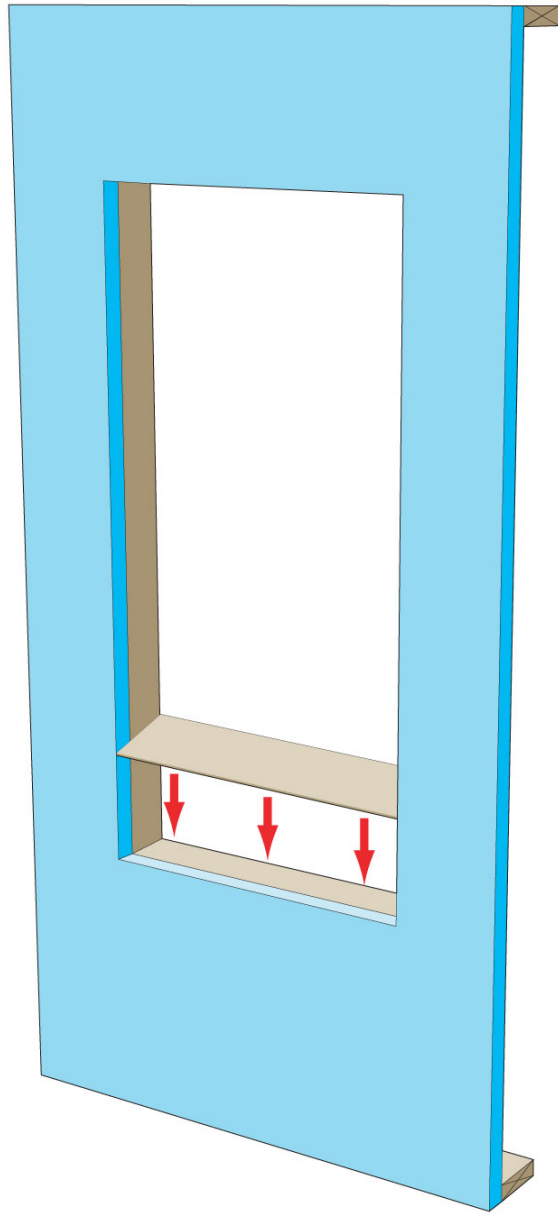
Where Is The Water Control Layer?

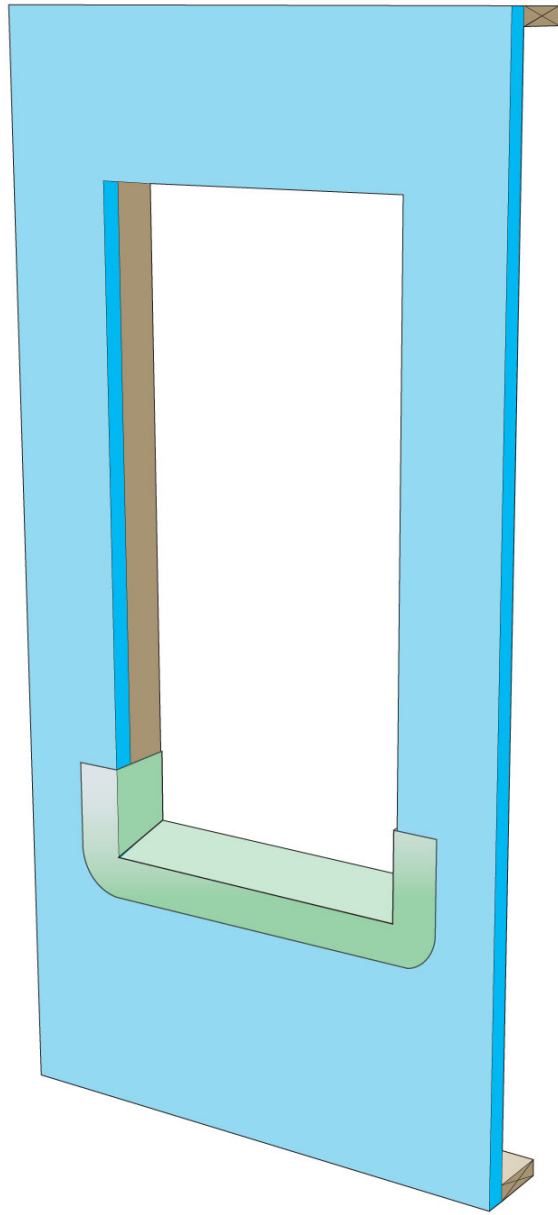
Where Is The Water Control Layer?
Behind The Continuous Insulation?
Or The Face of The Continuous Insulation?

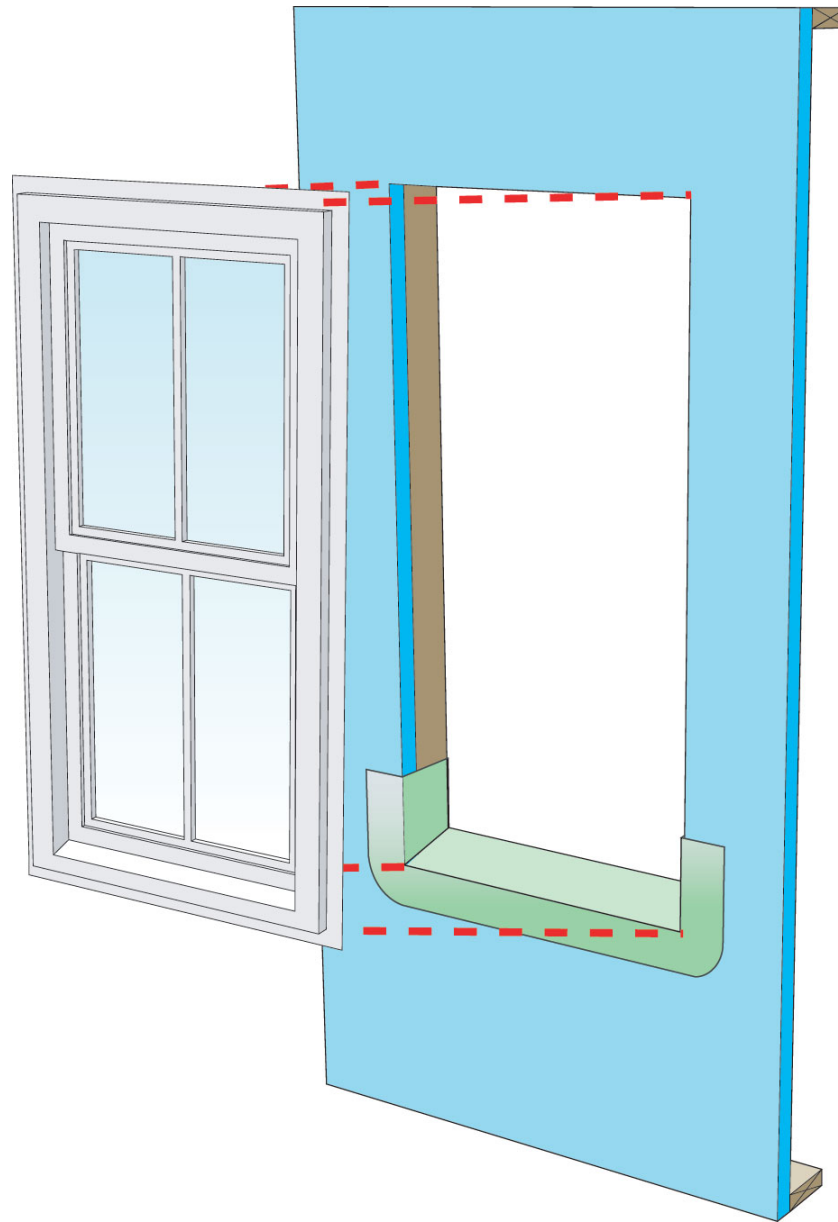
Where Is The Water Control Layer?
Behind The Continuous Insulation?
Or The Face of The Continuous Insulation?
Where Is The Window?

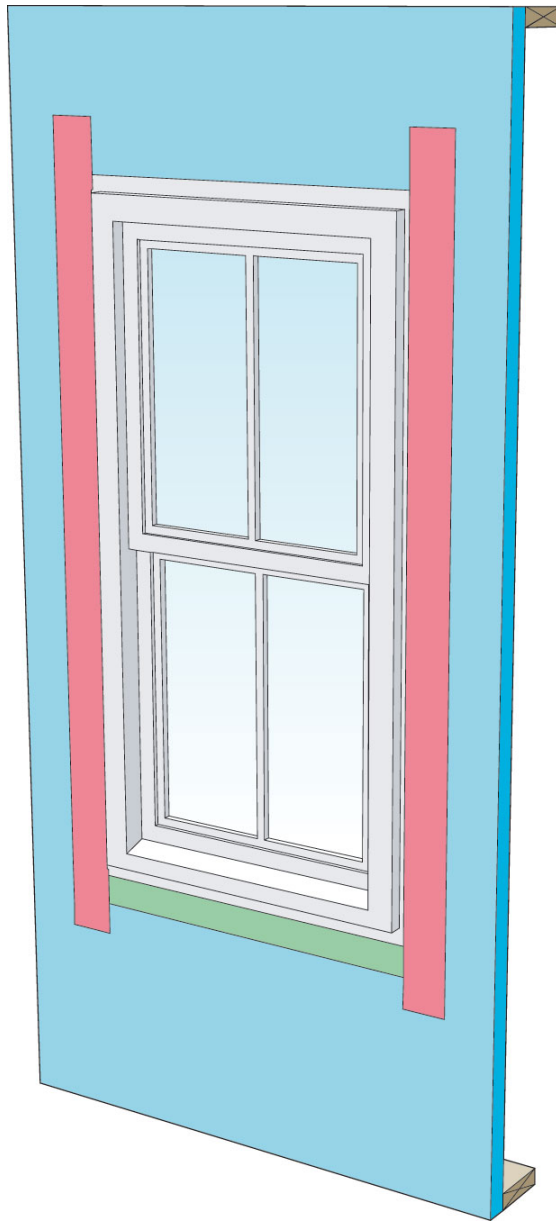
Where Is The Water Control Layer?
Behind The Continuous Insulation?
Or The Face of The Continuous Insulation?
Where Is The Window?
Is It An Innie Or Outie Or Tweeny?

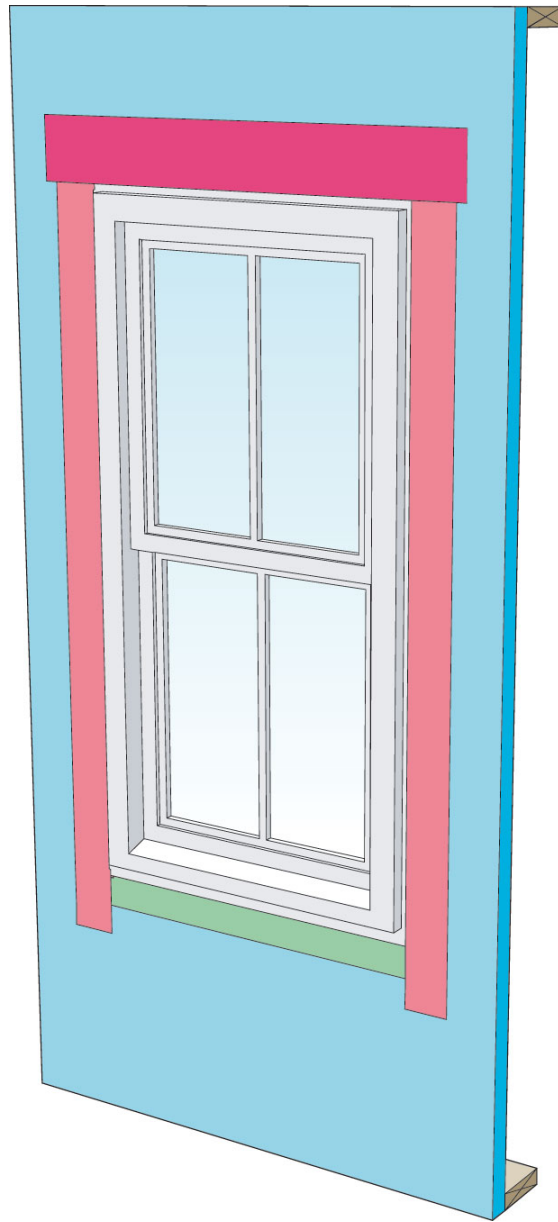


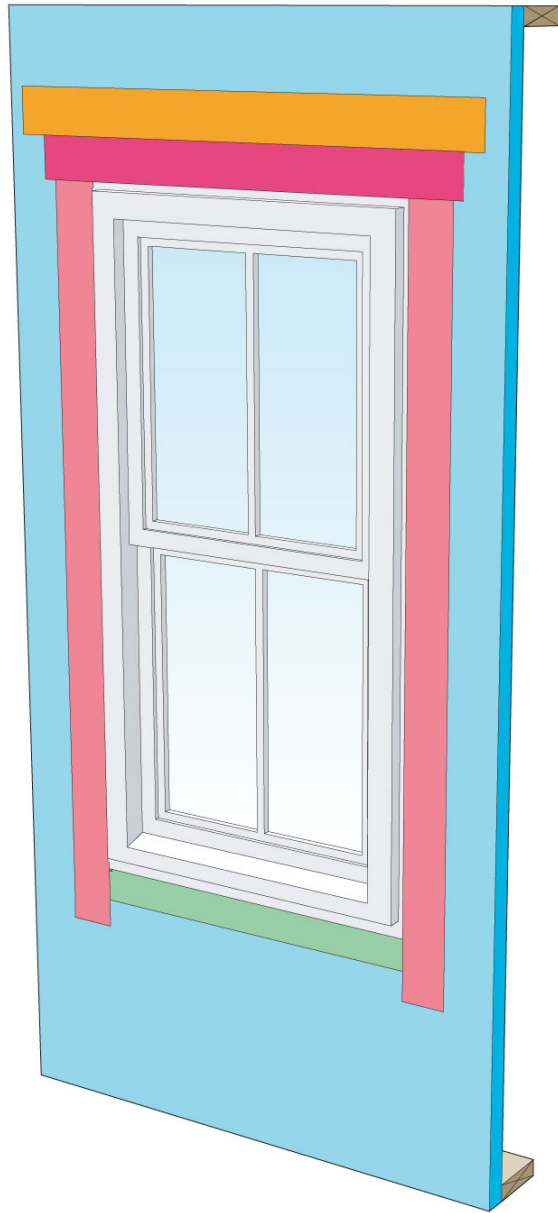


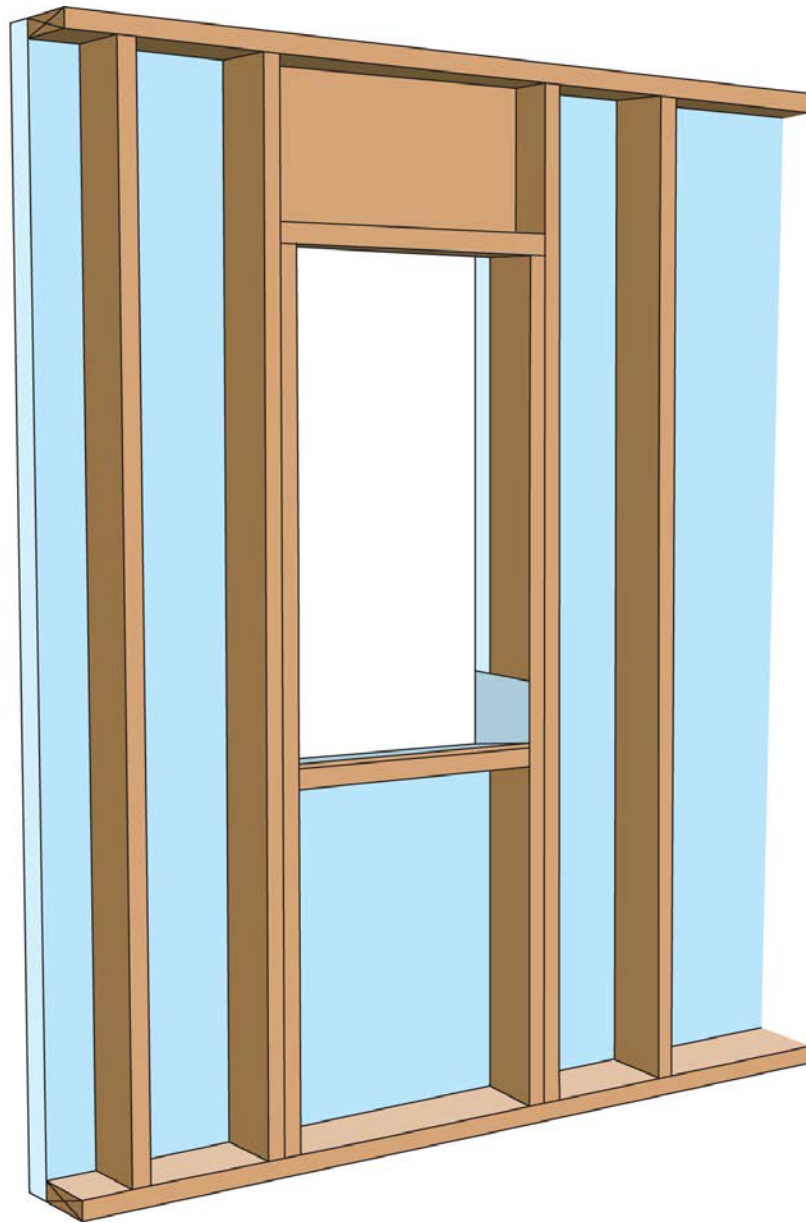


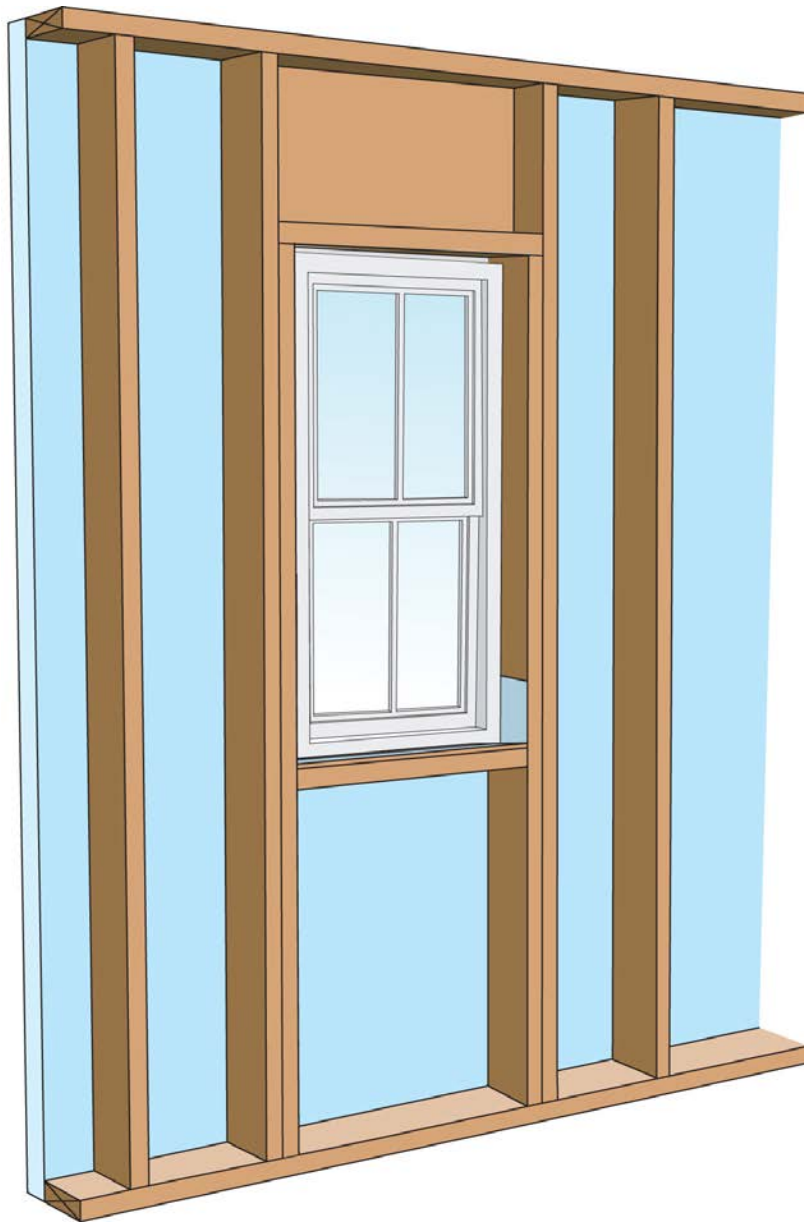


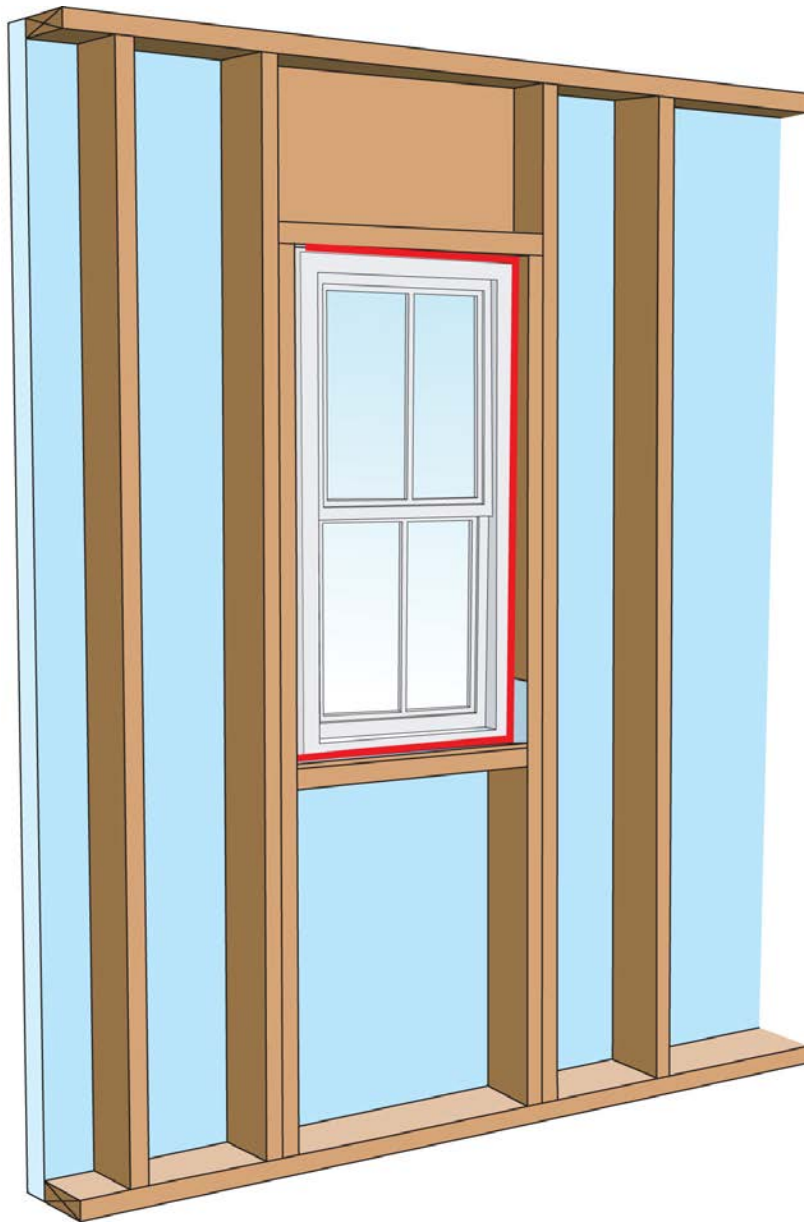


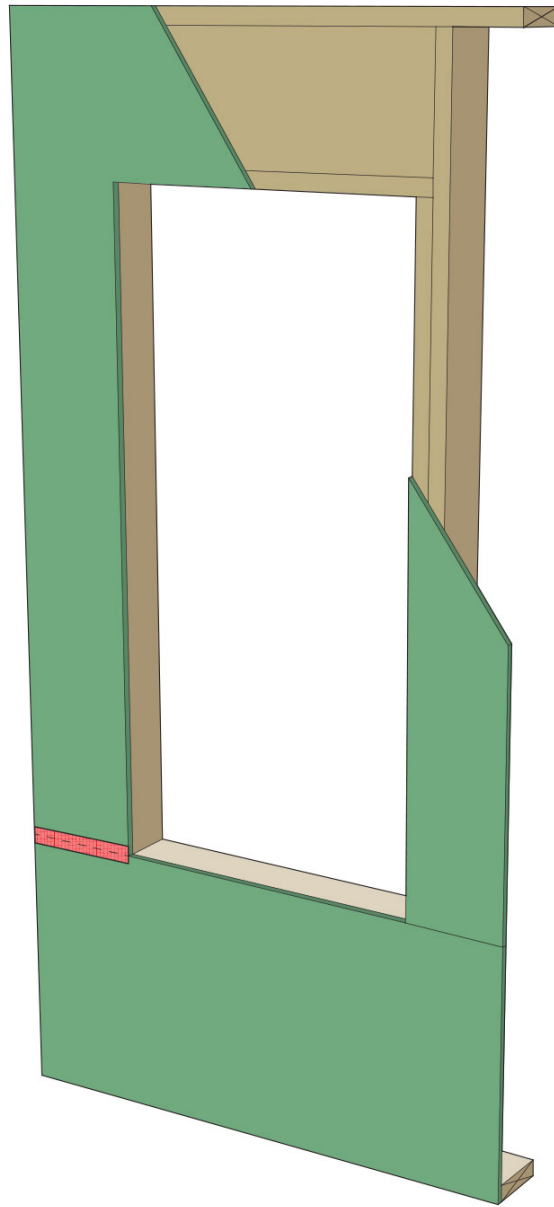


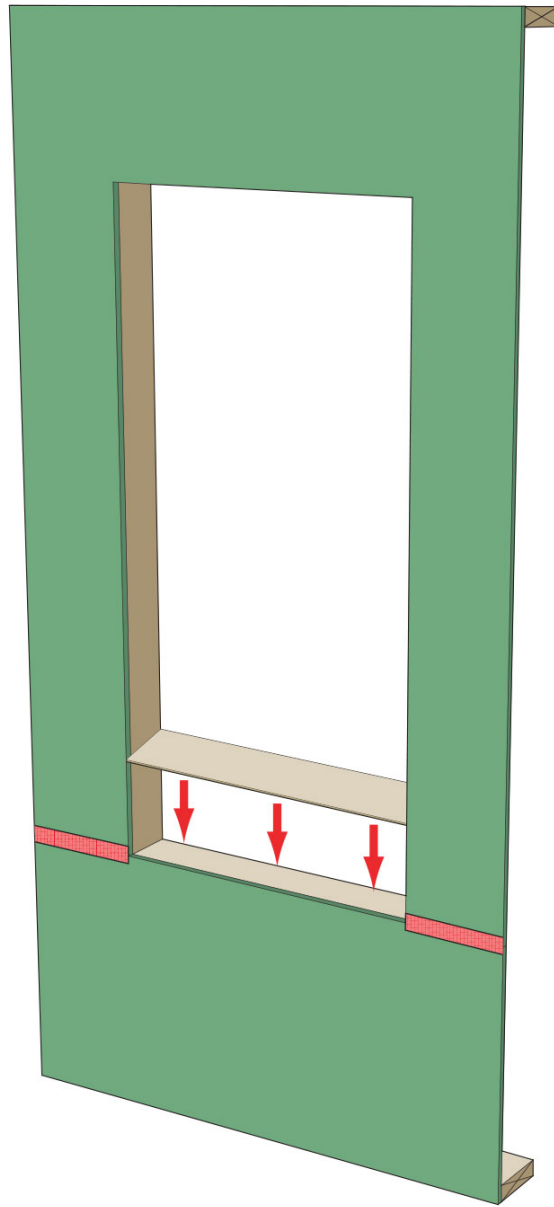


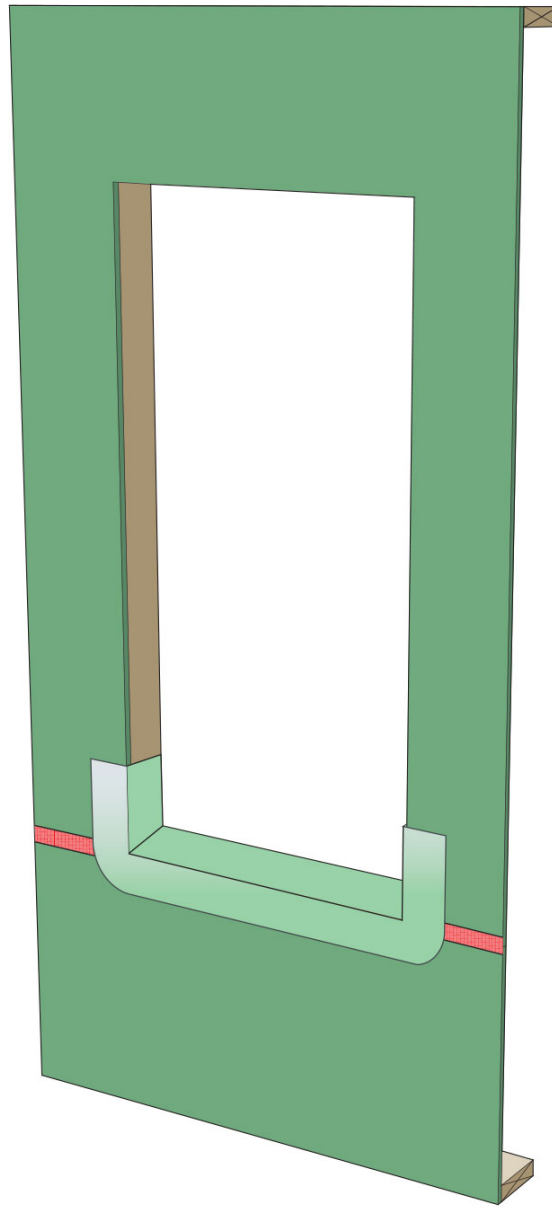


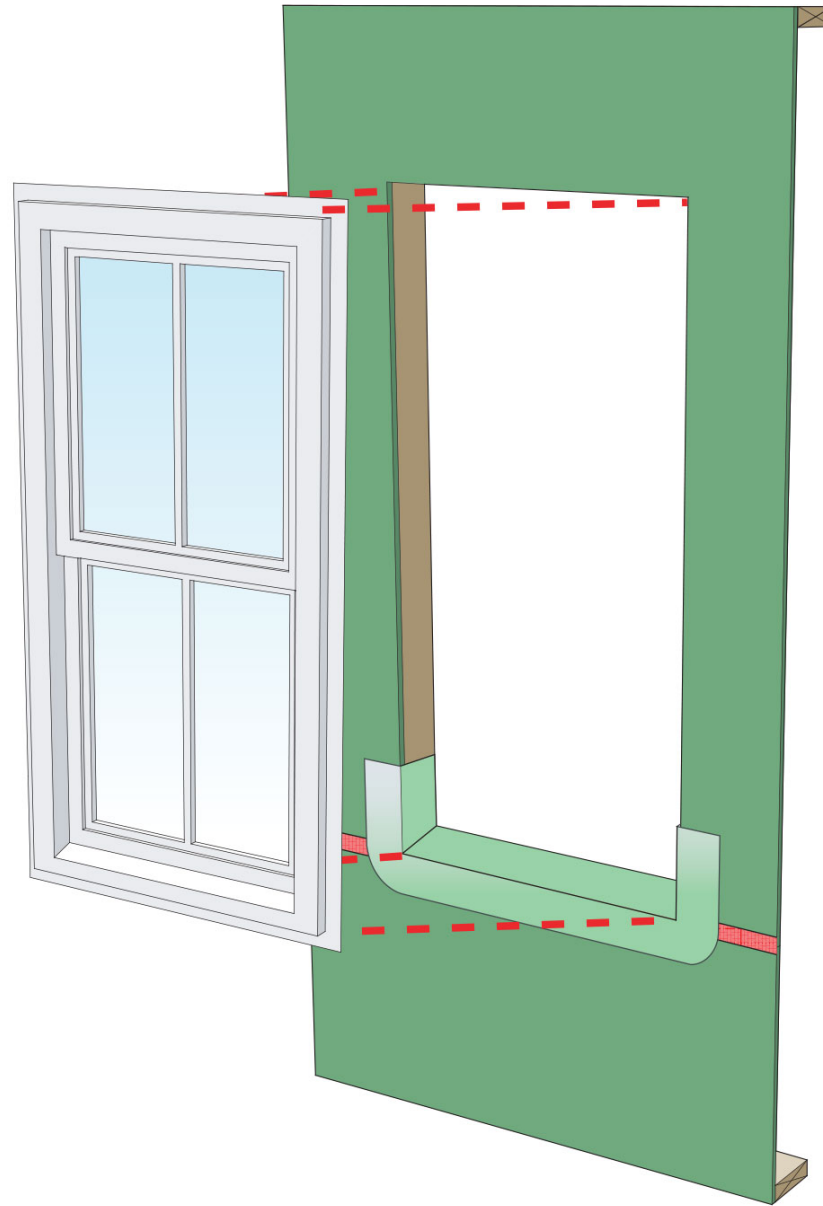


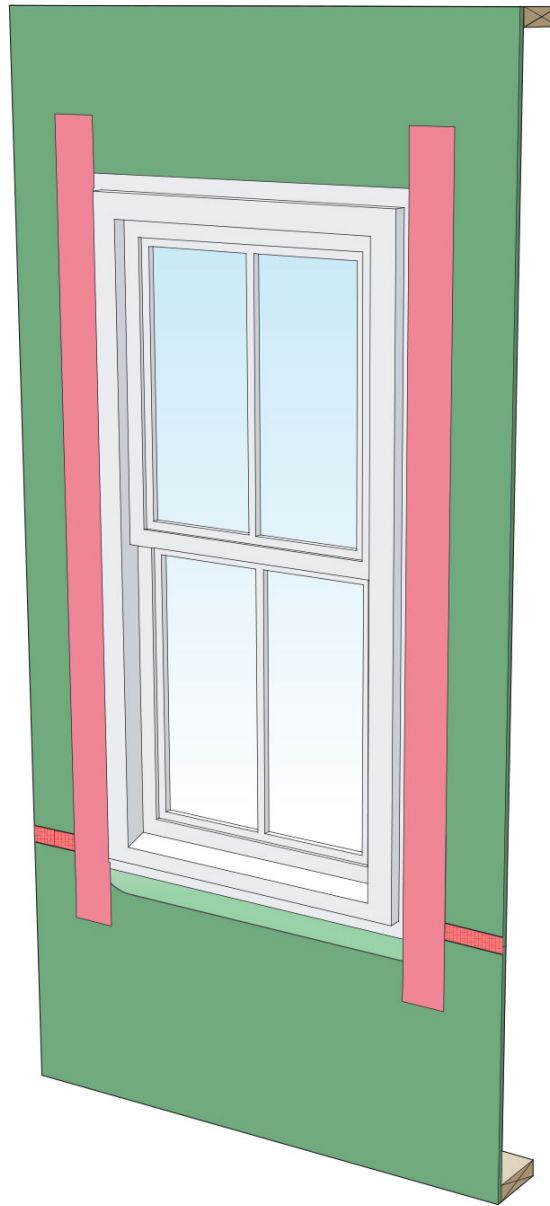


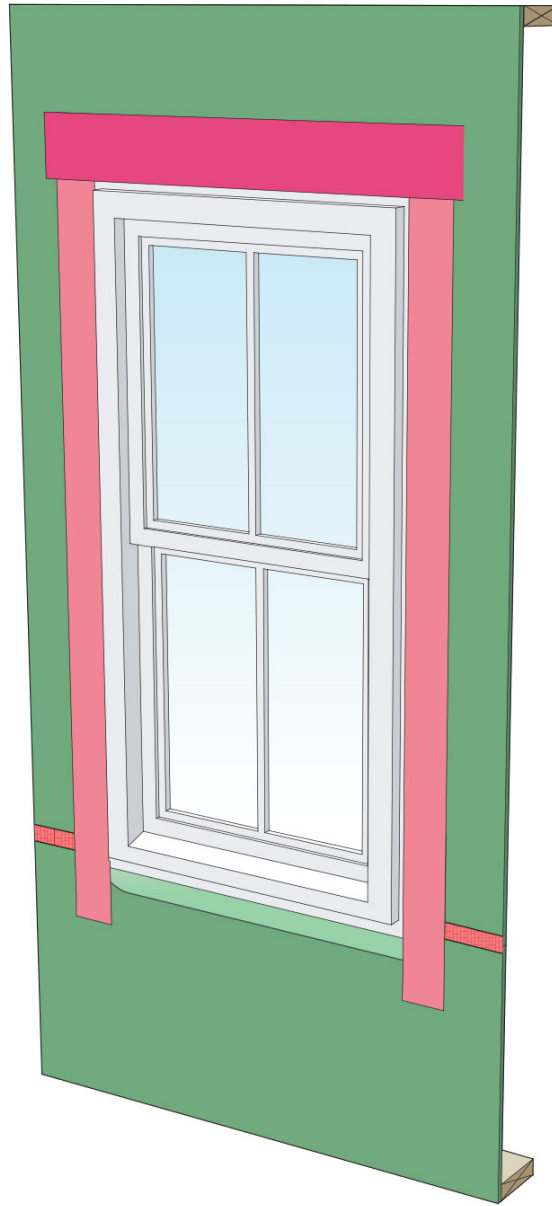


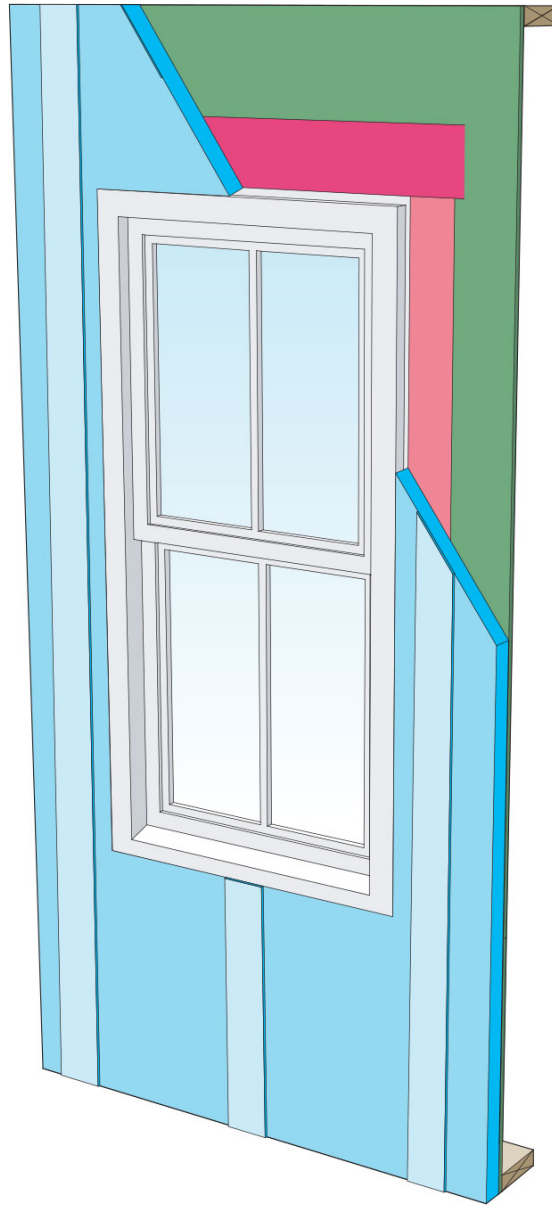


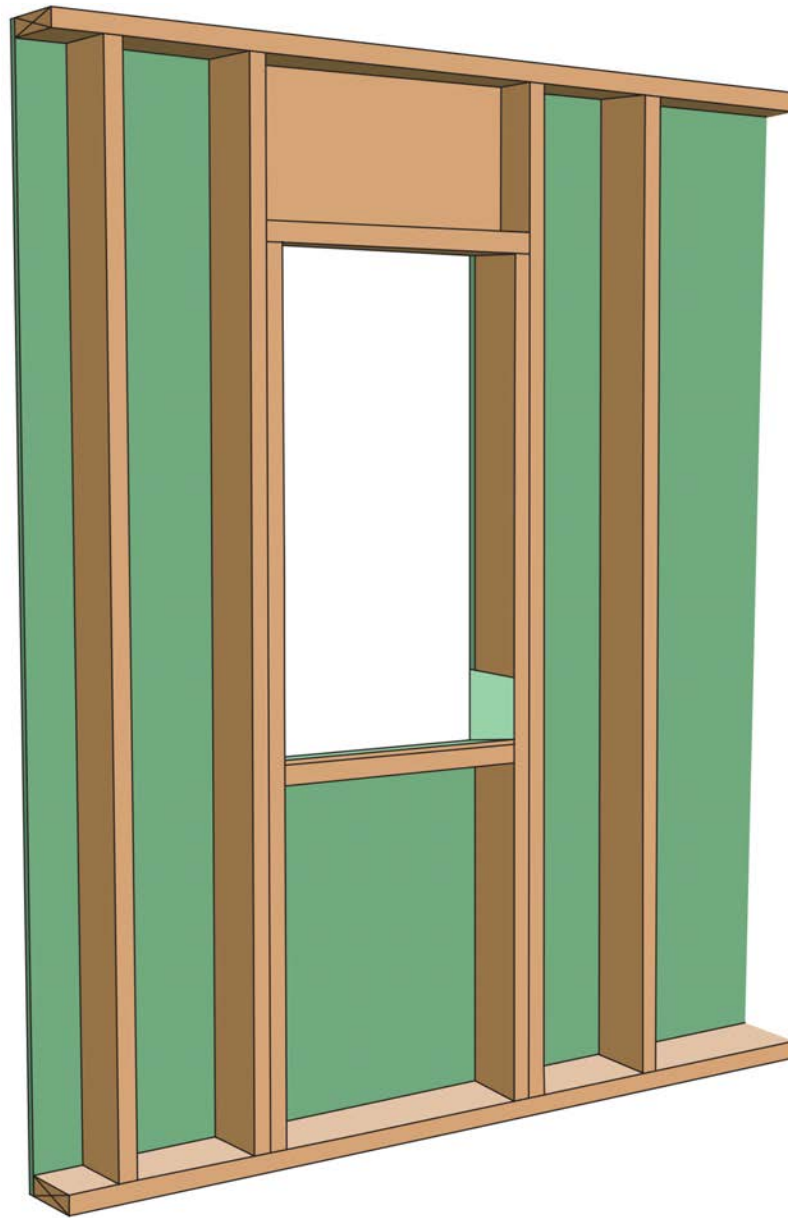




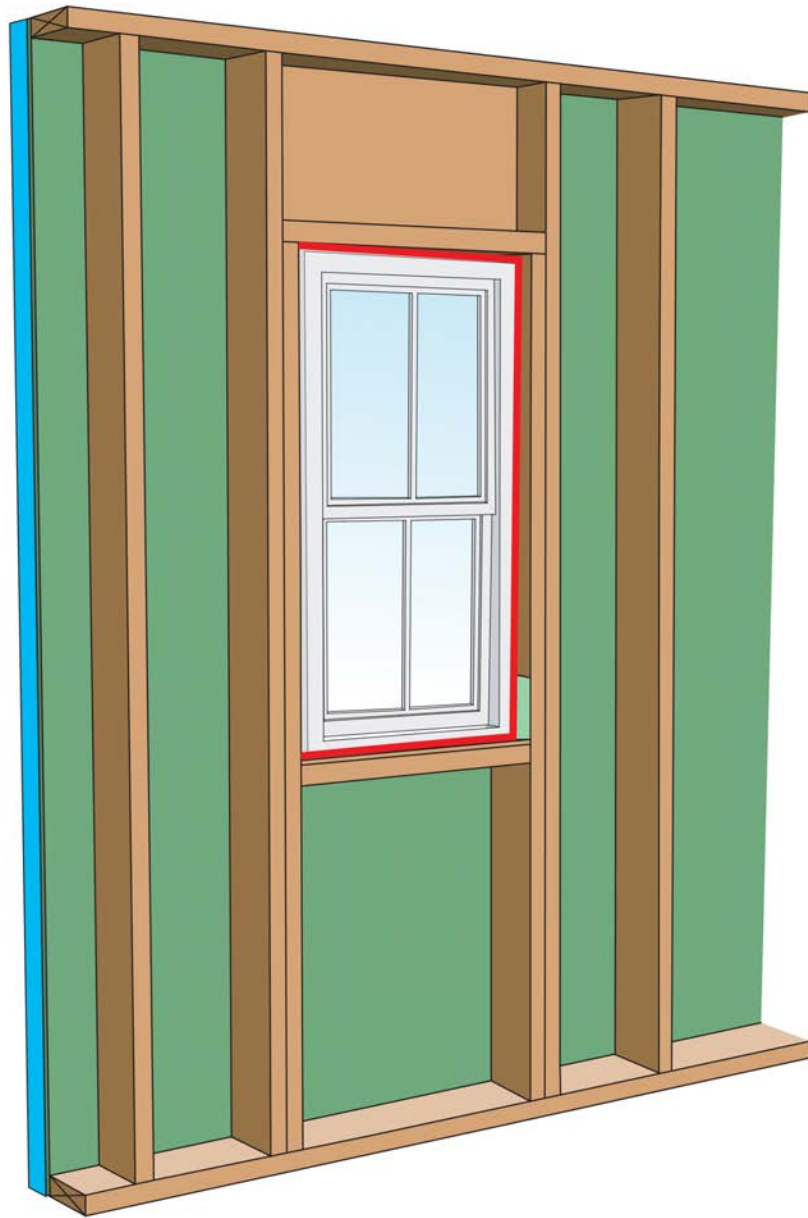


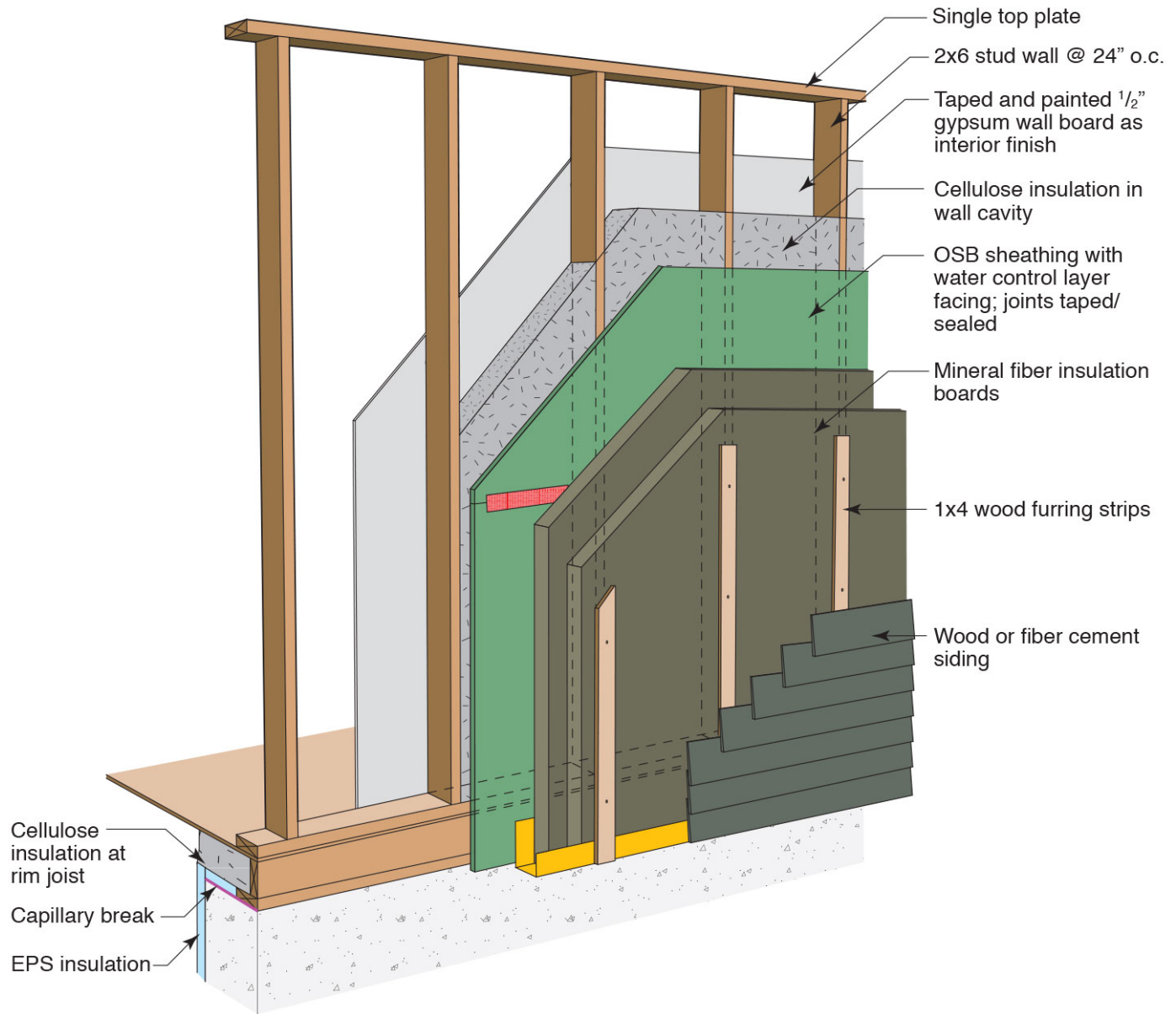


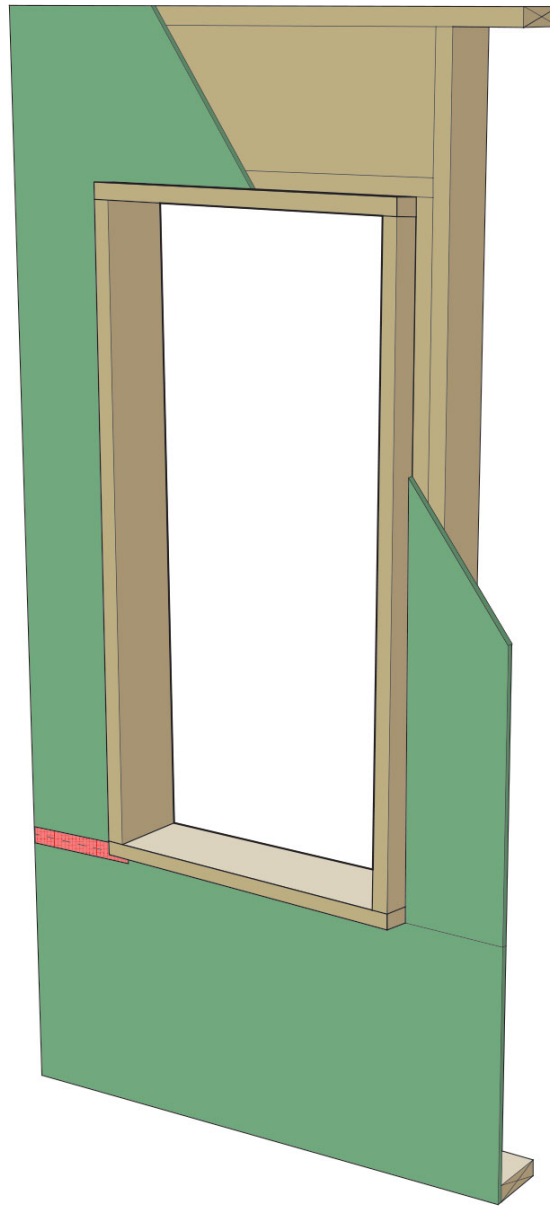


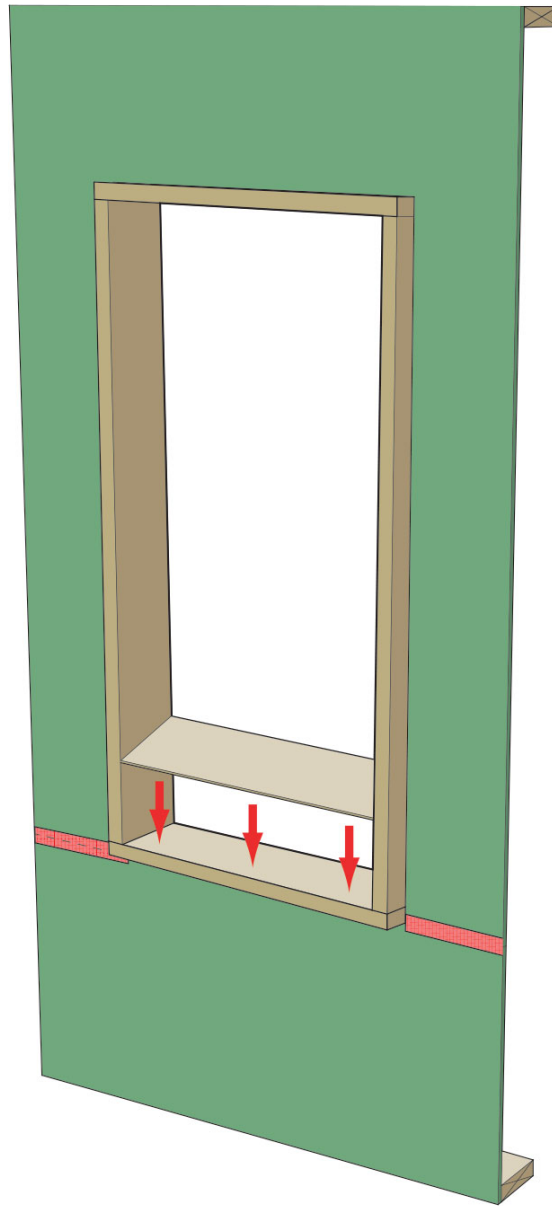


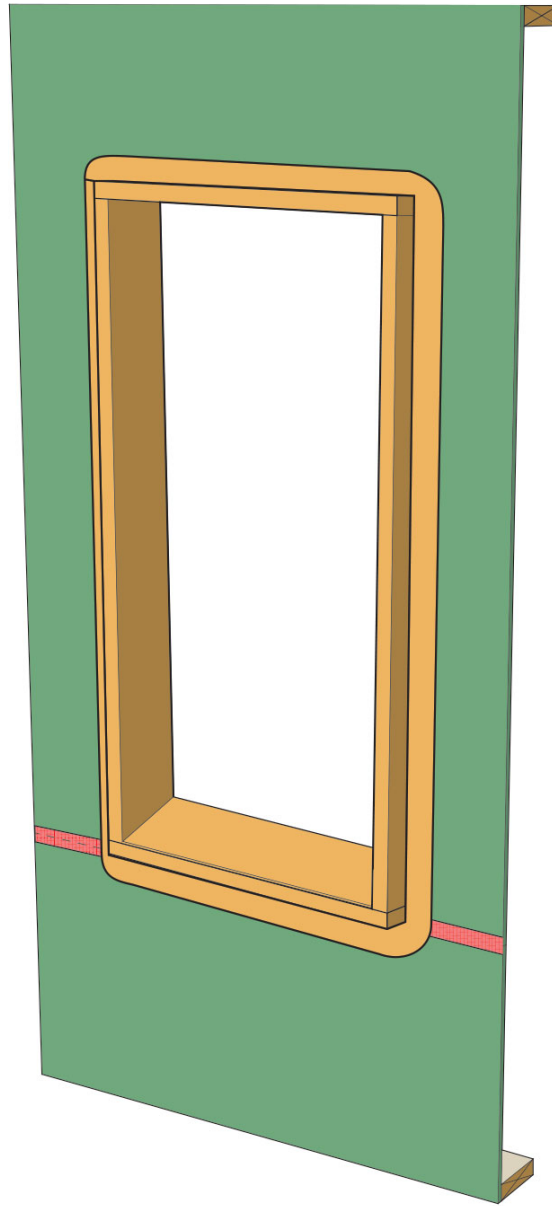


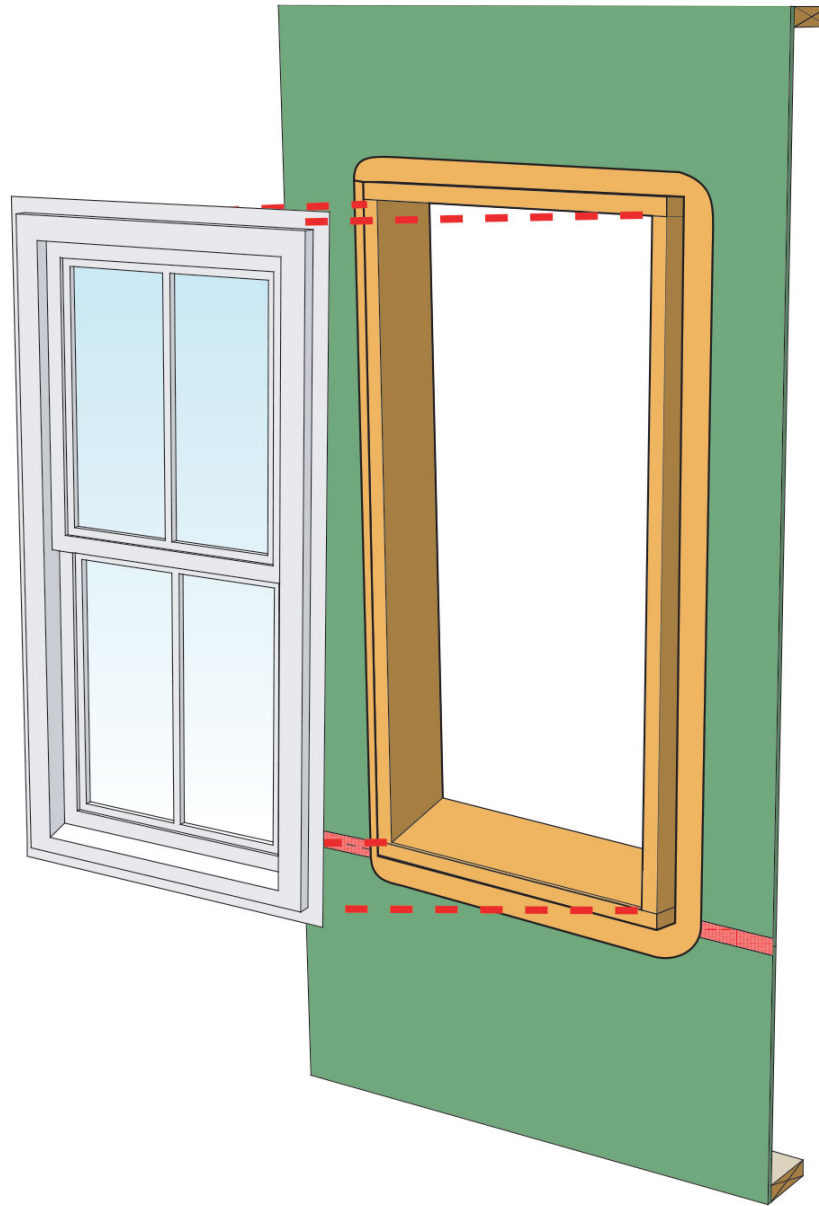


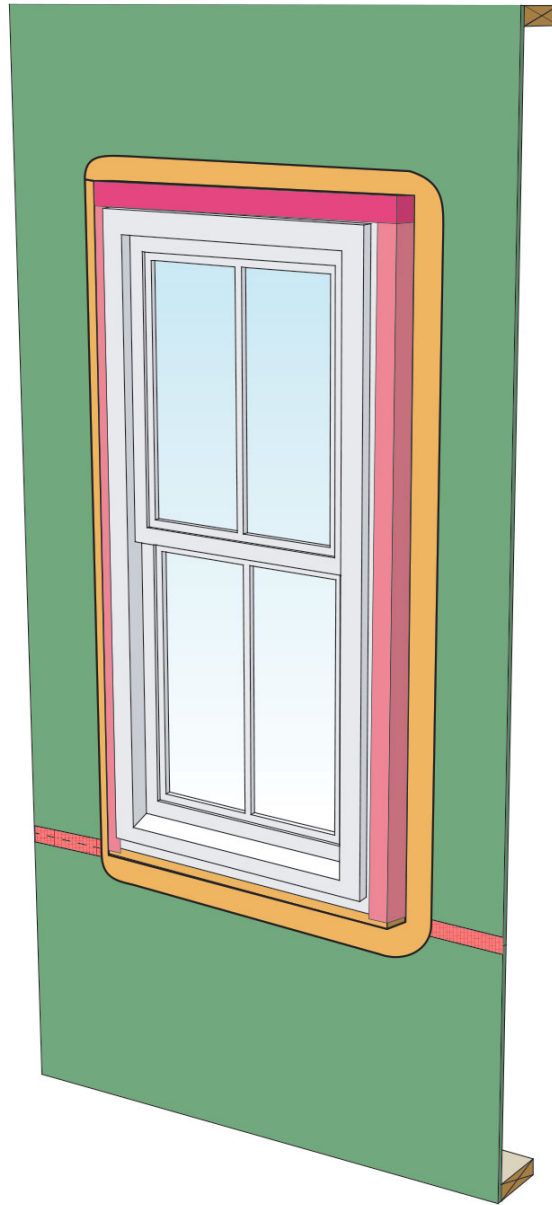


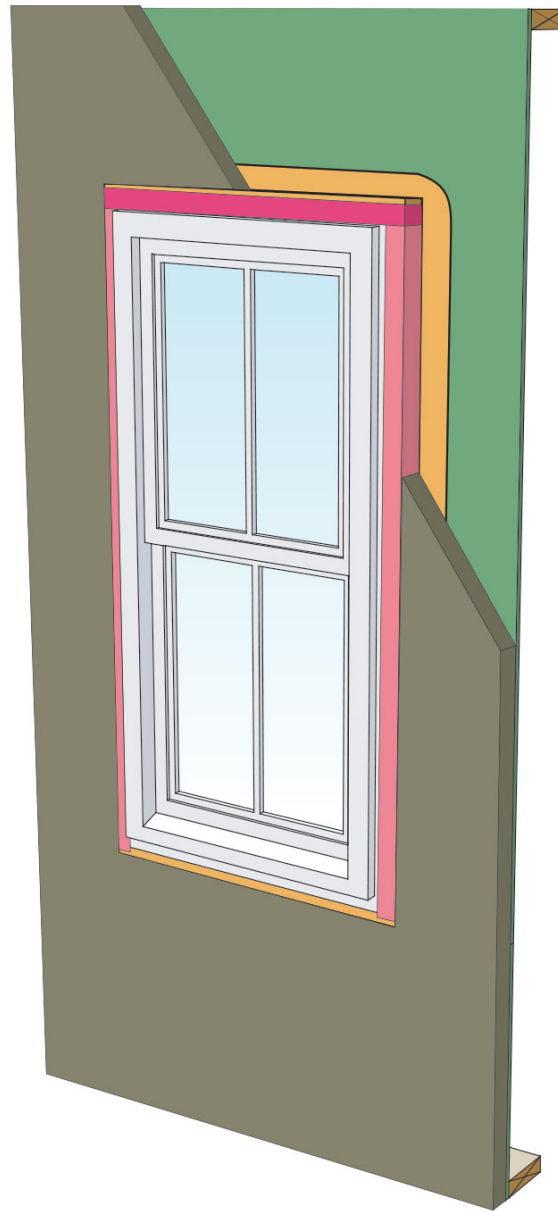


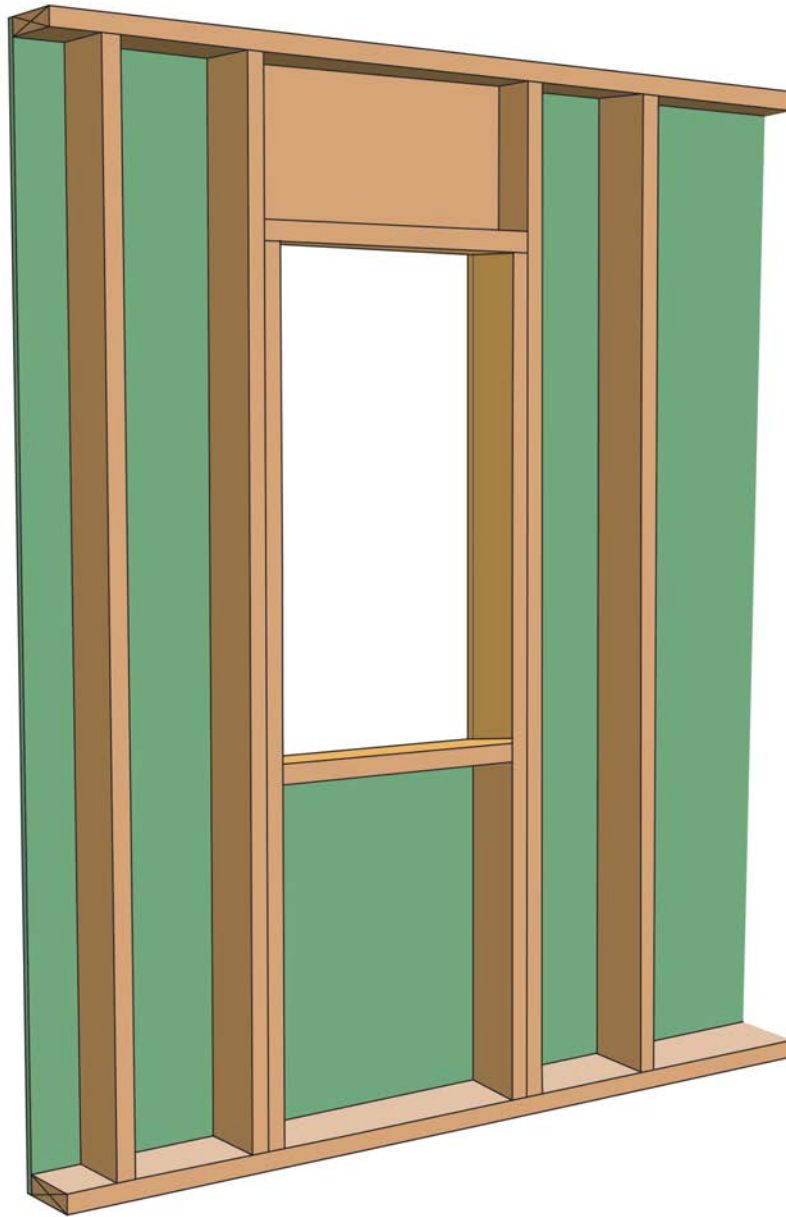






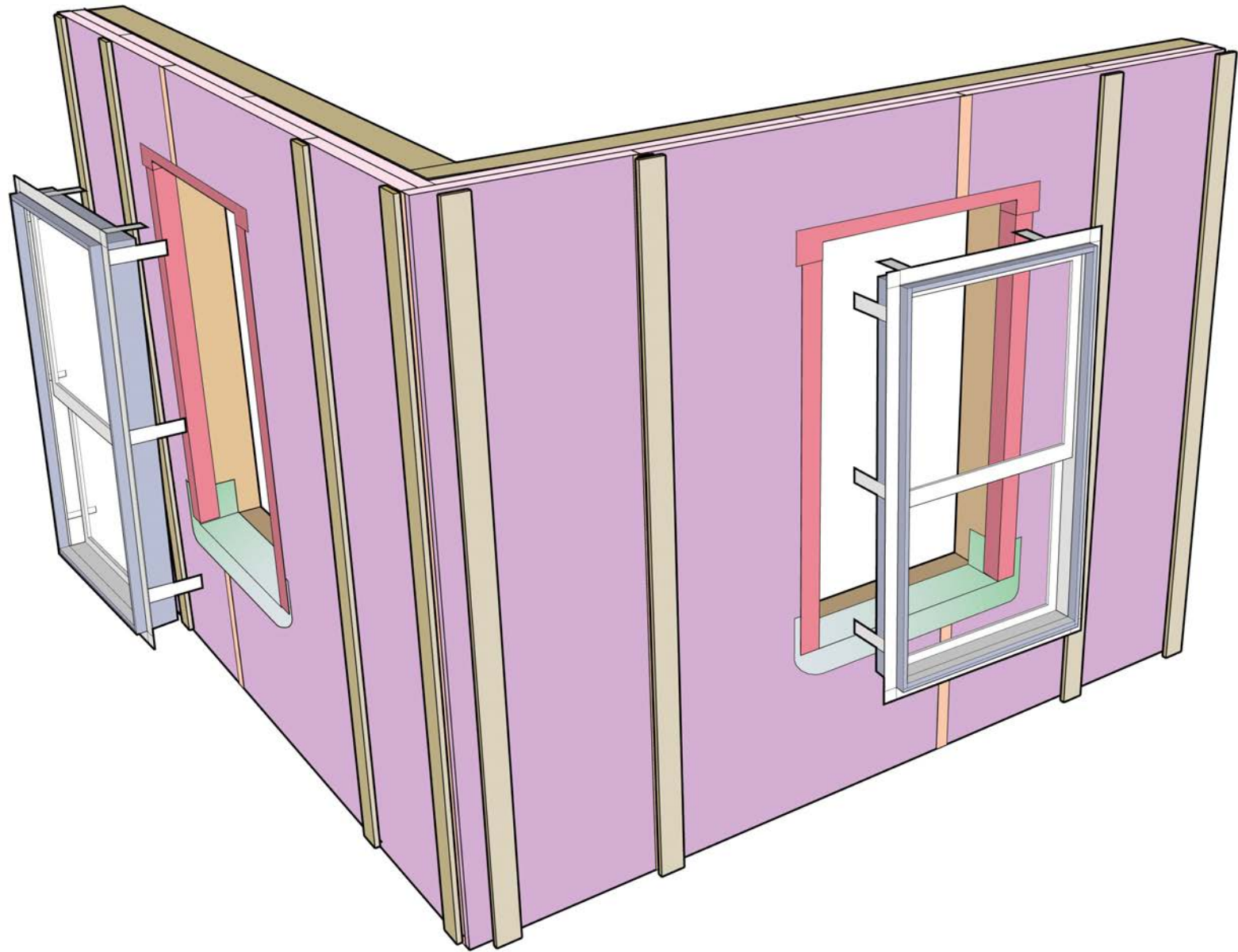


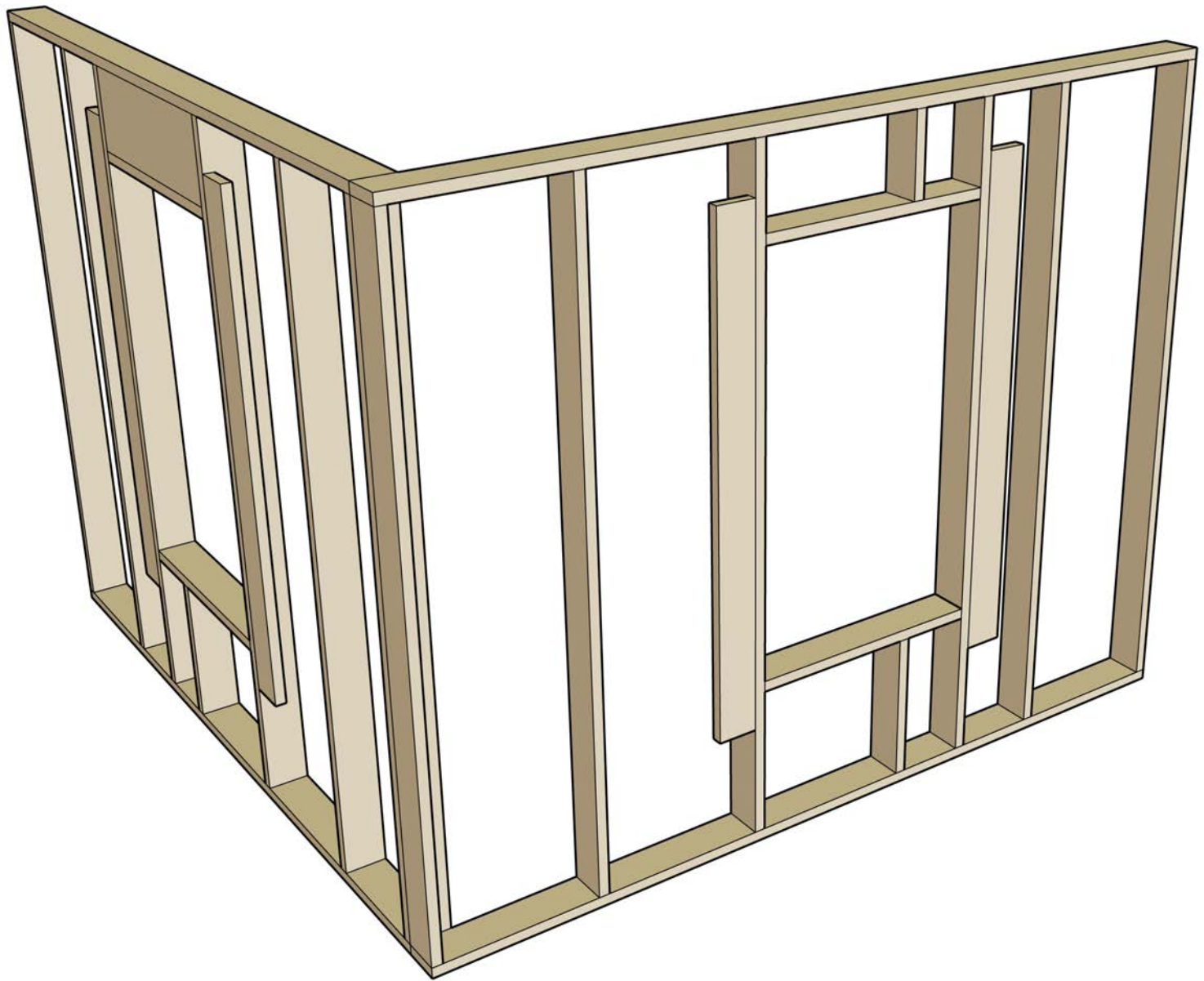


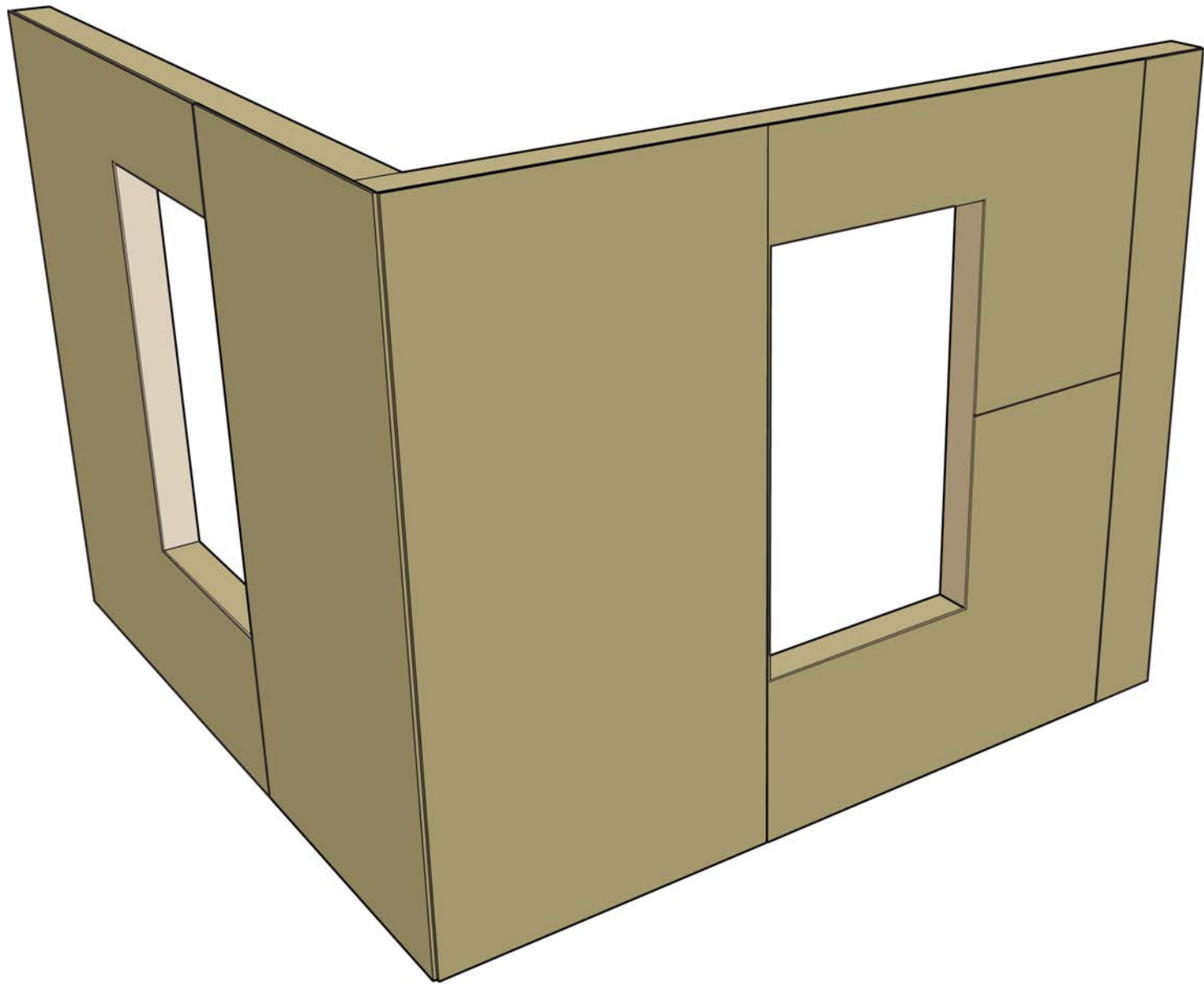


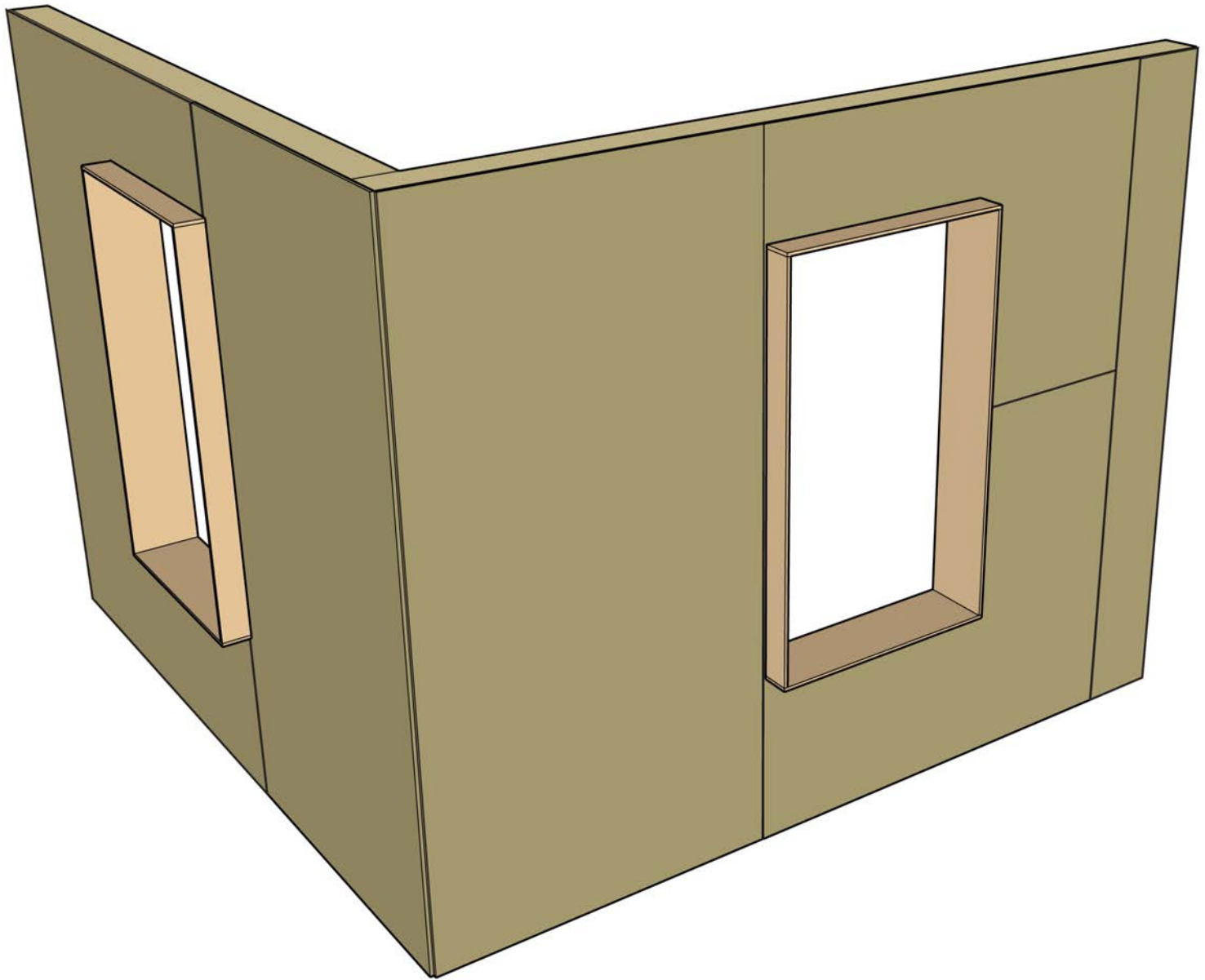


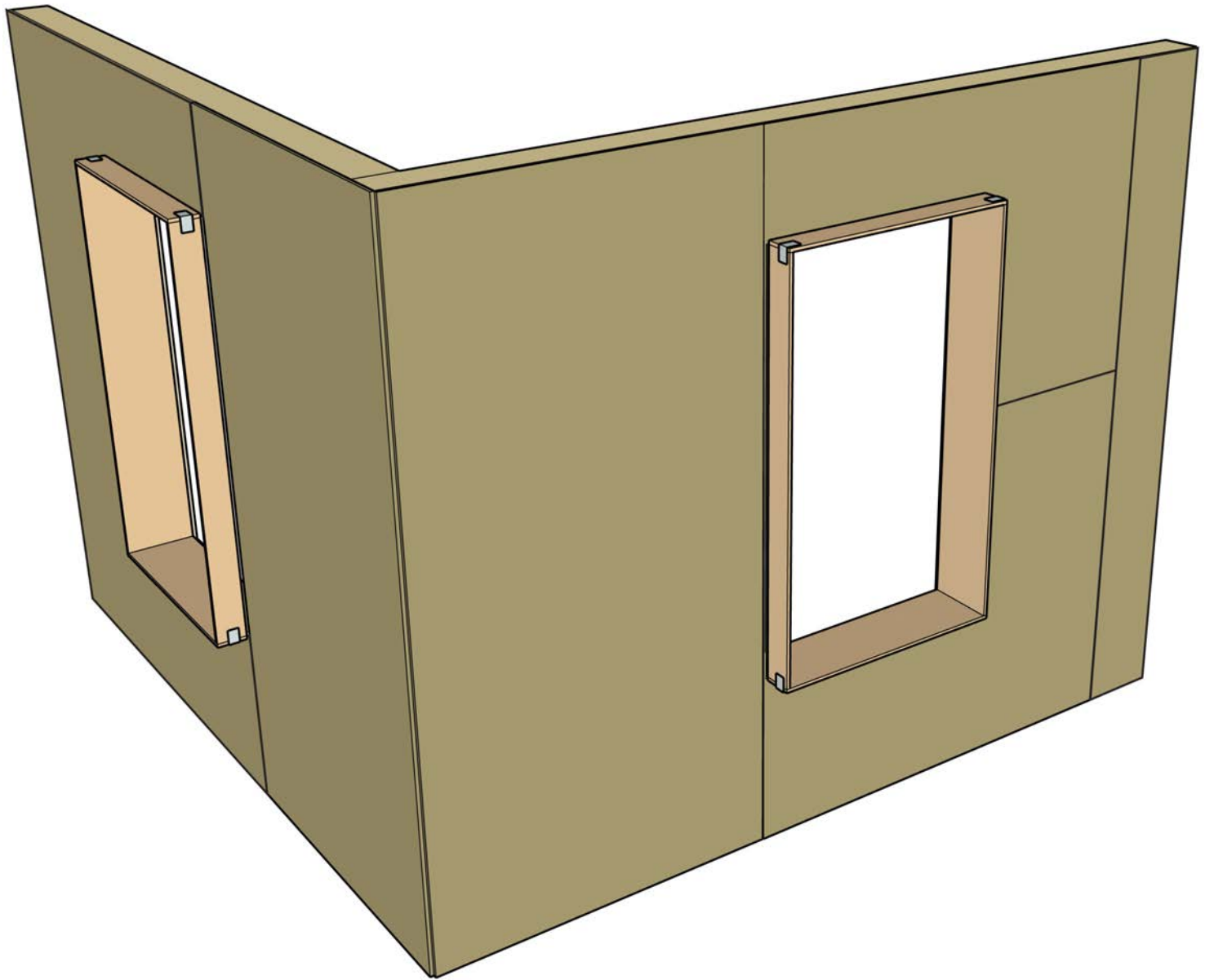


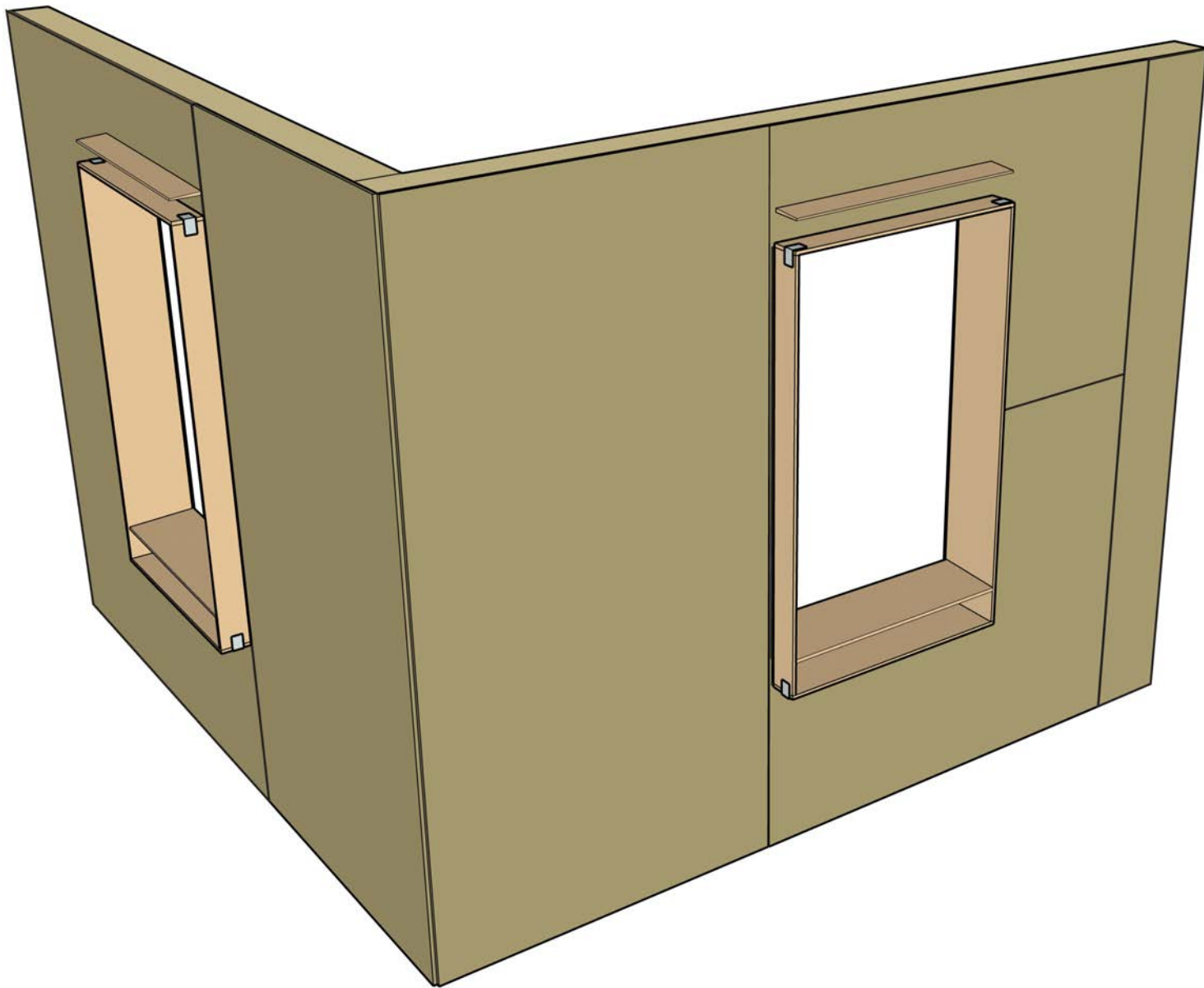


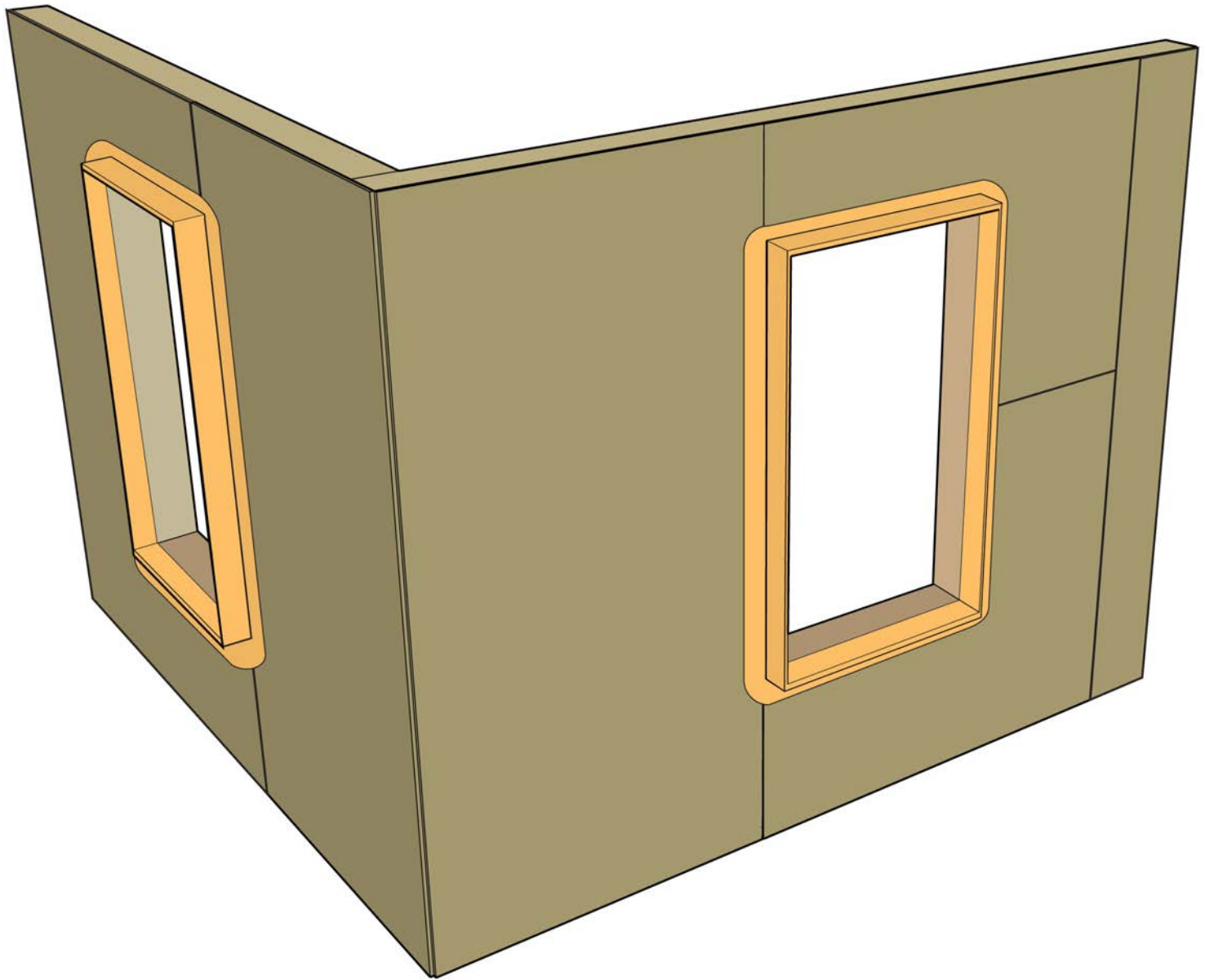


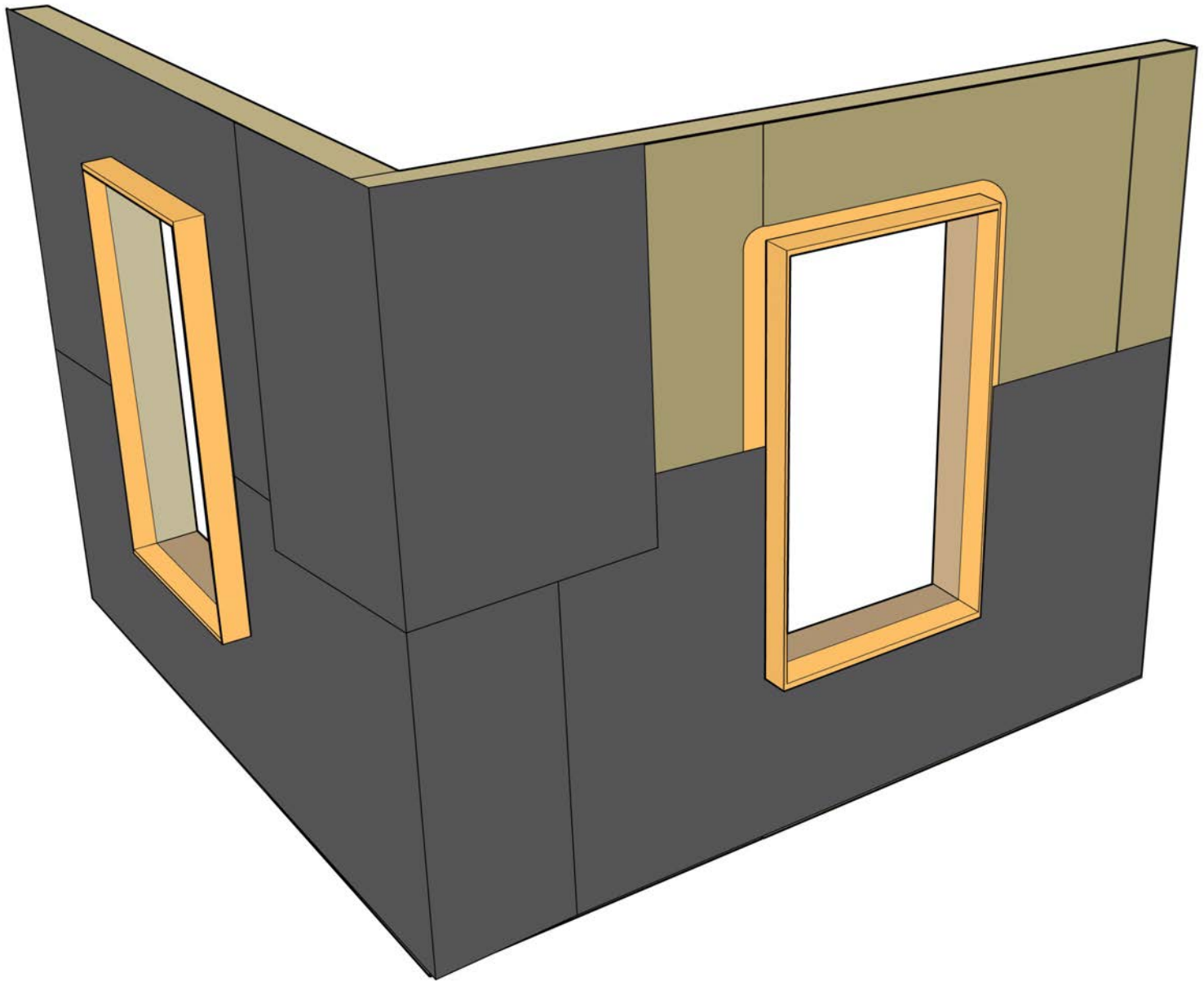


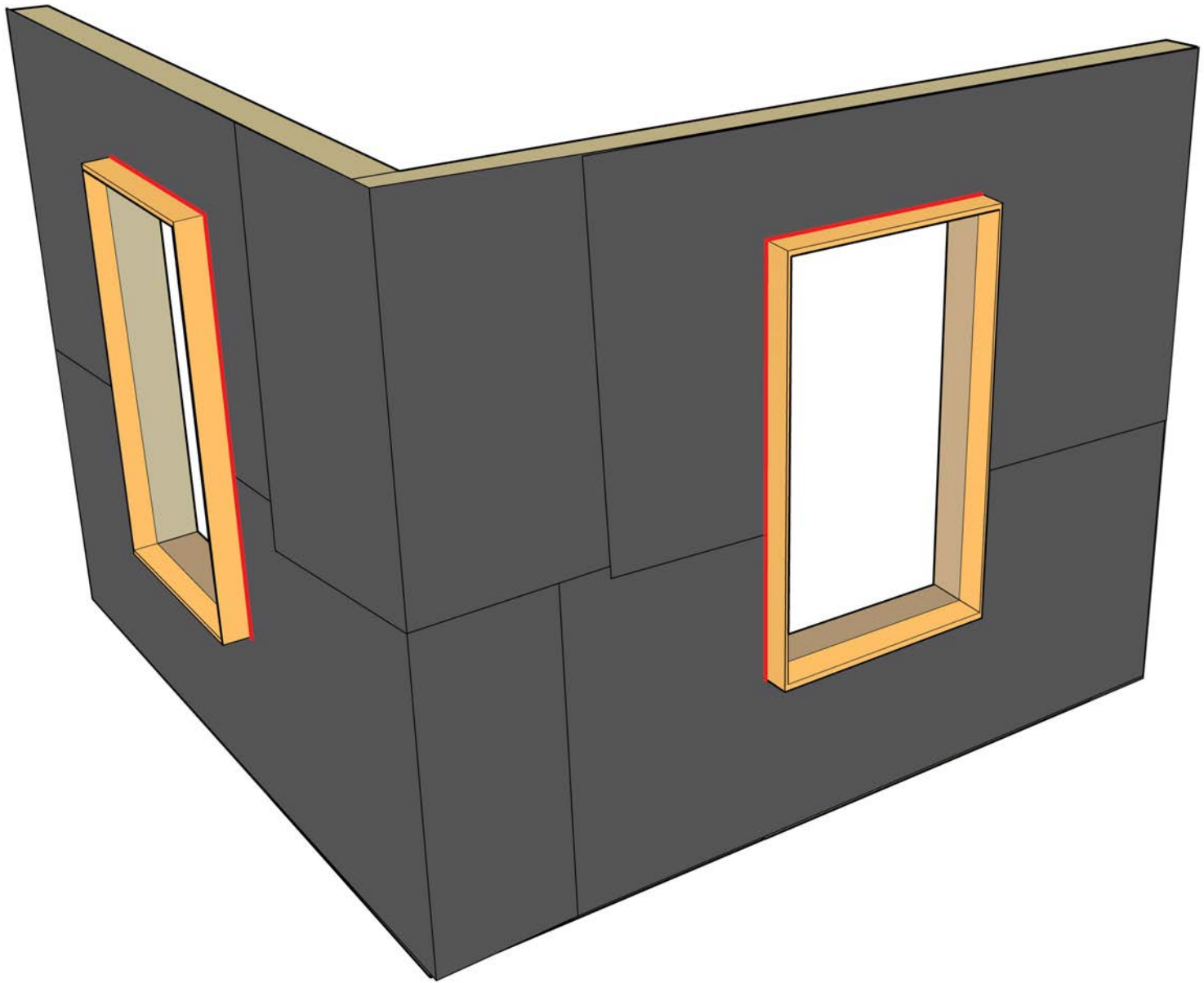


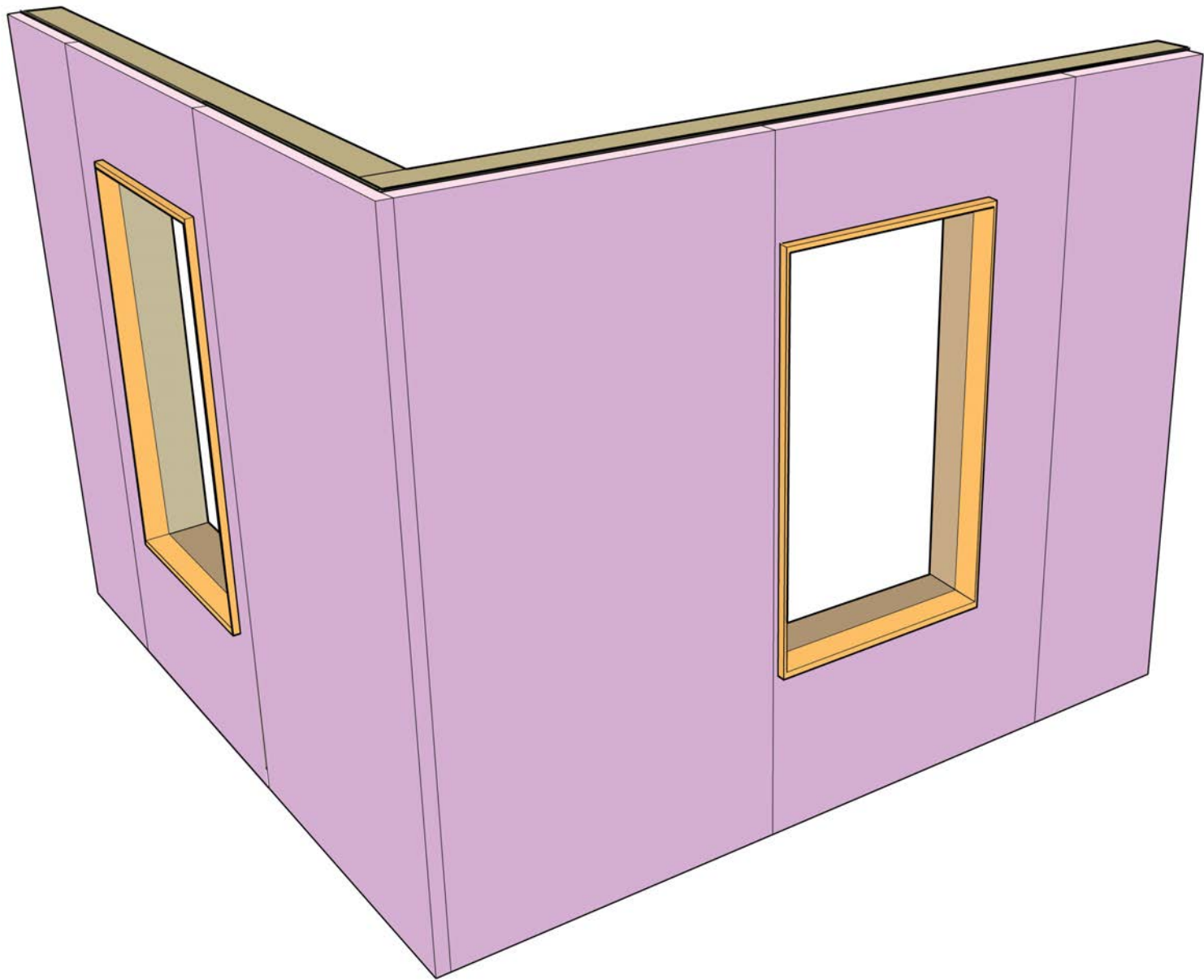


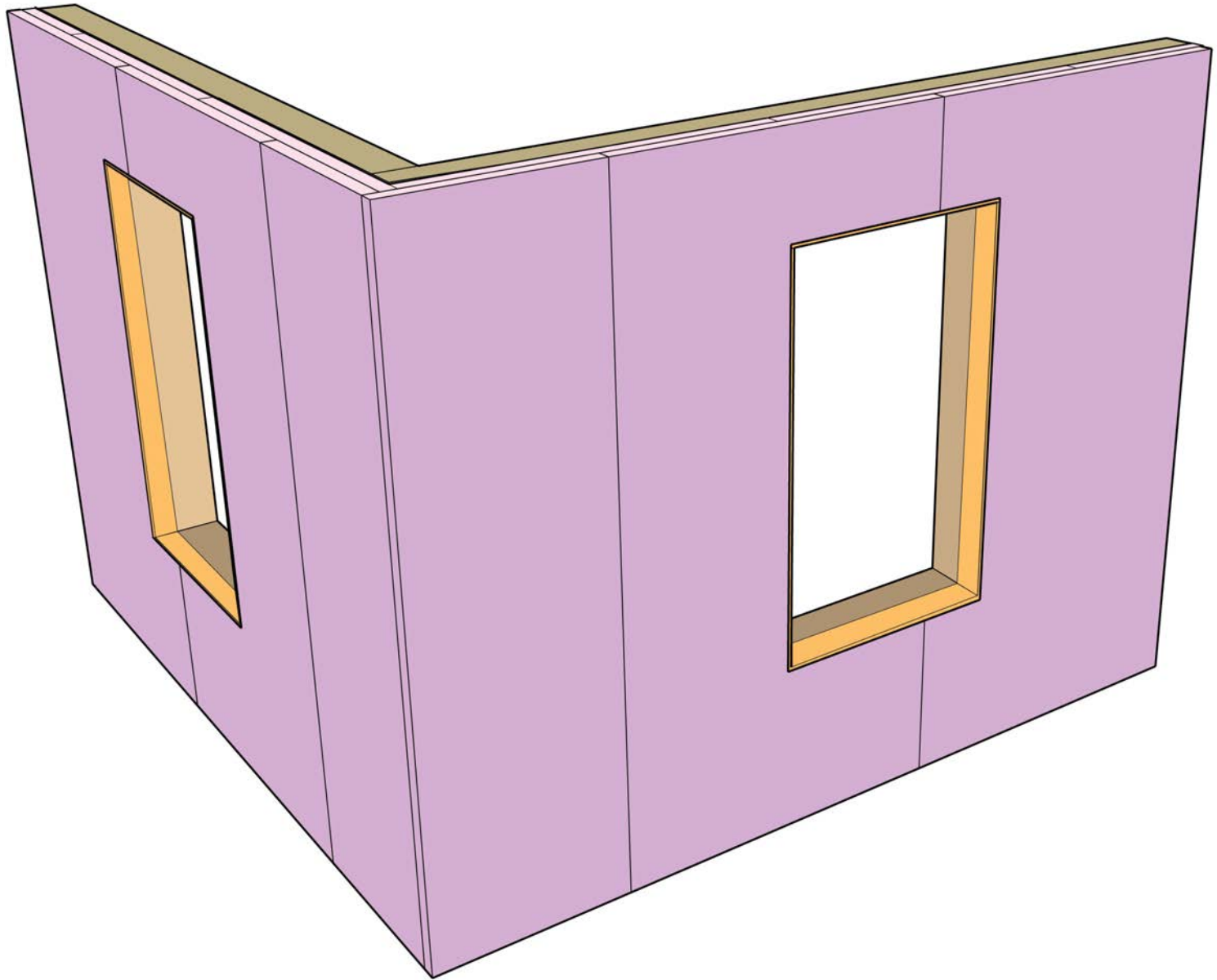


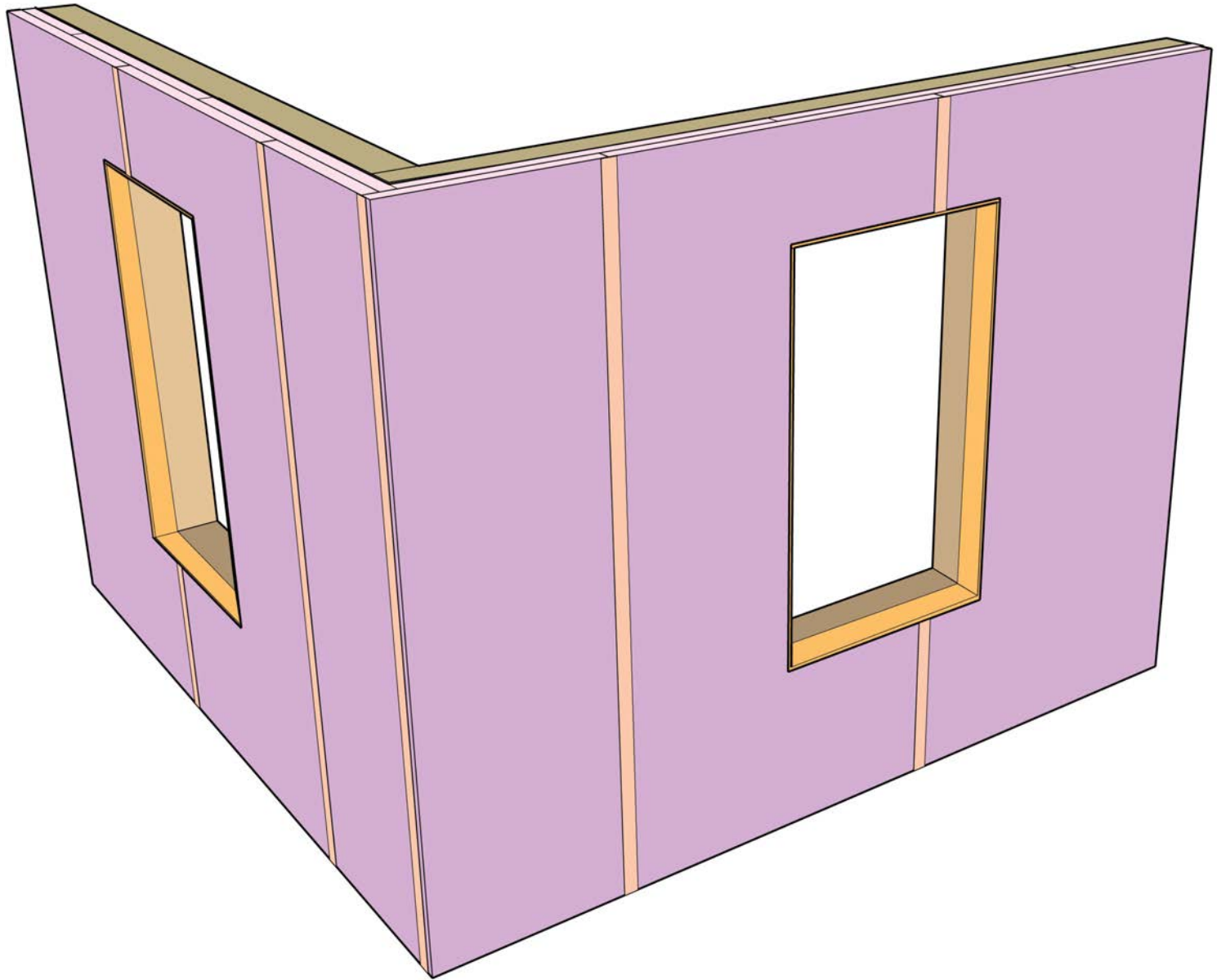


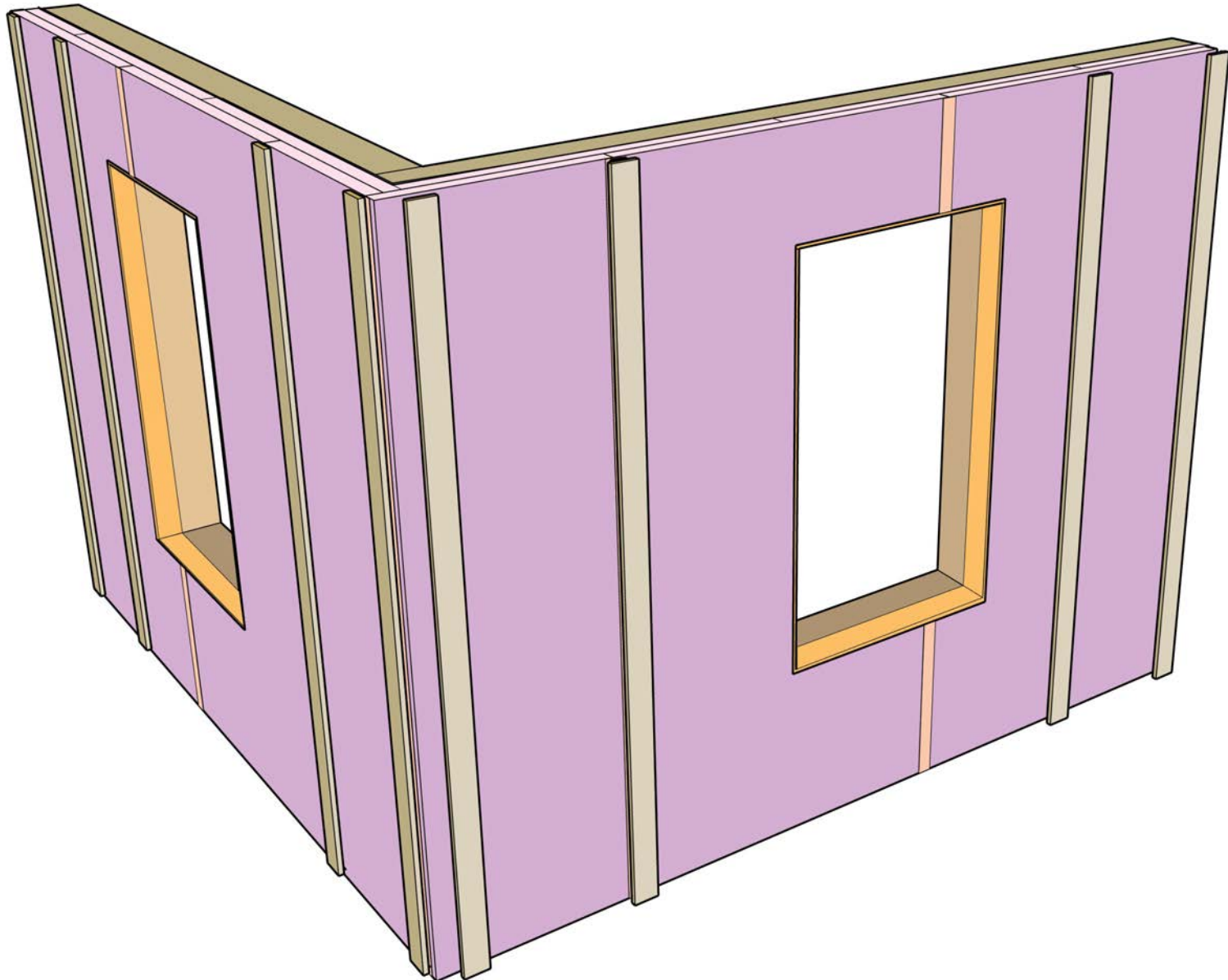


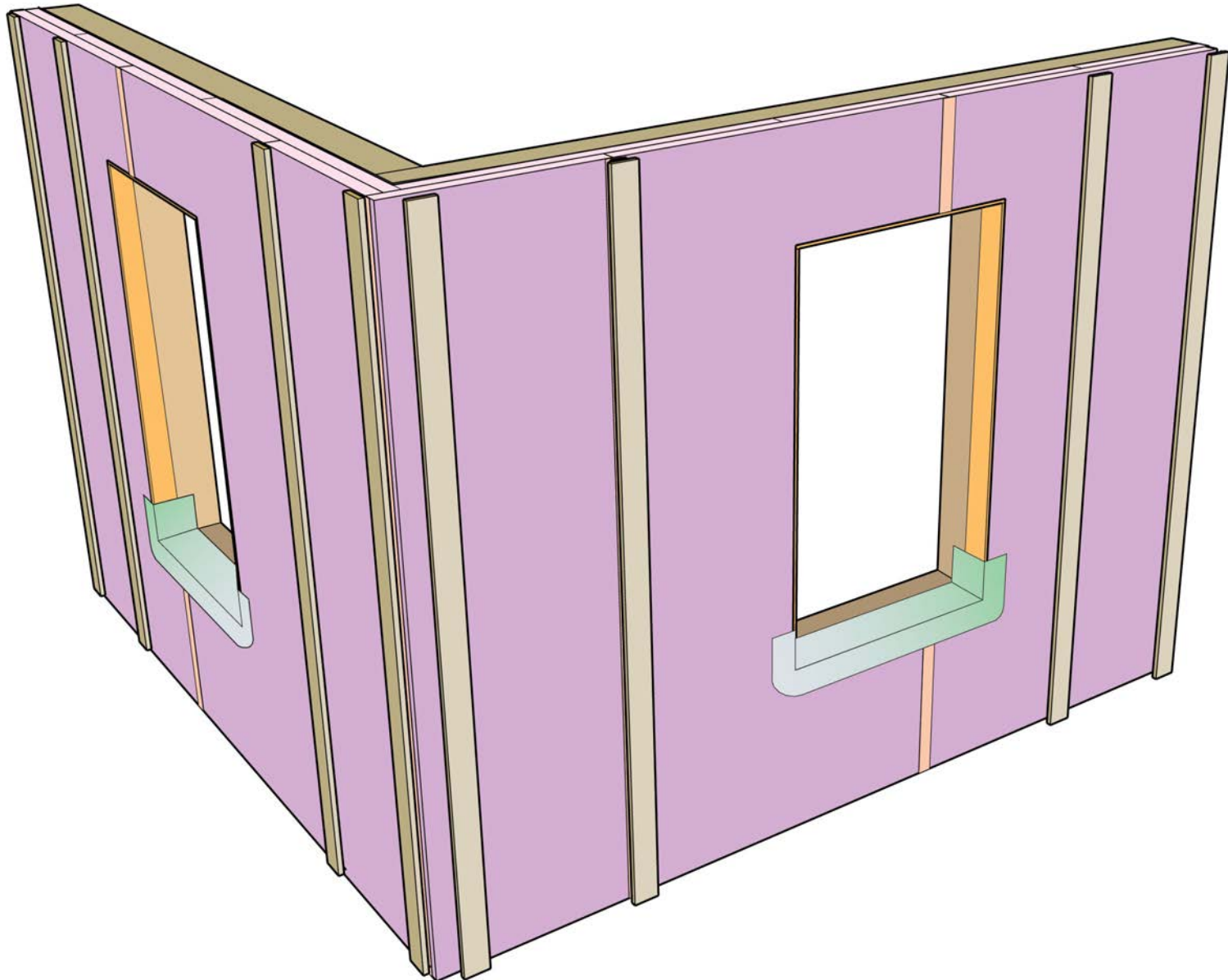


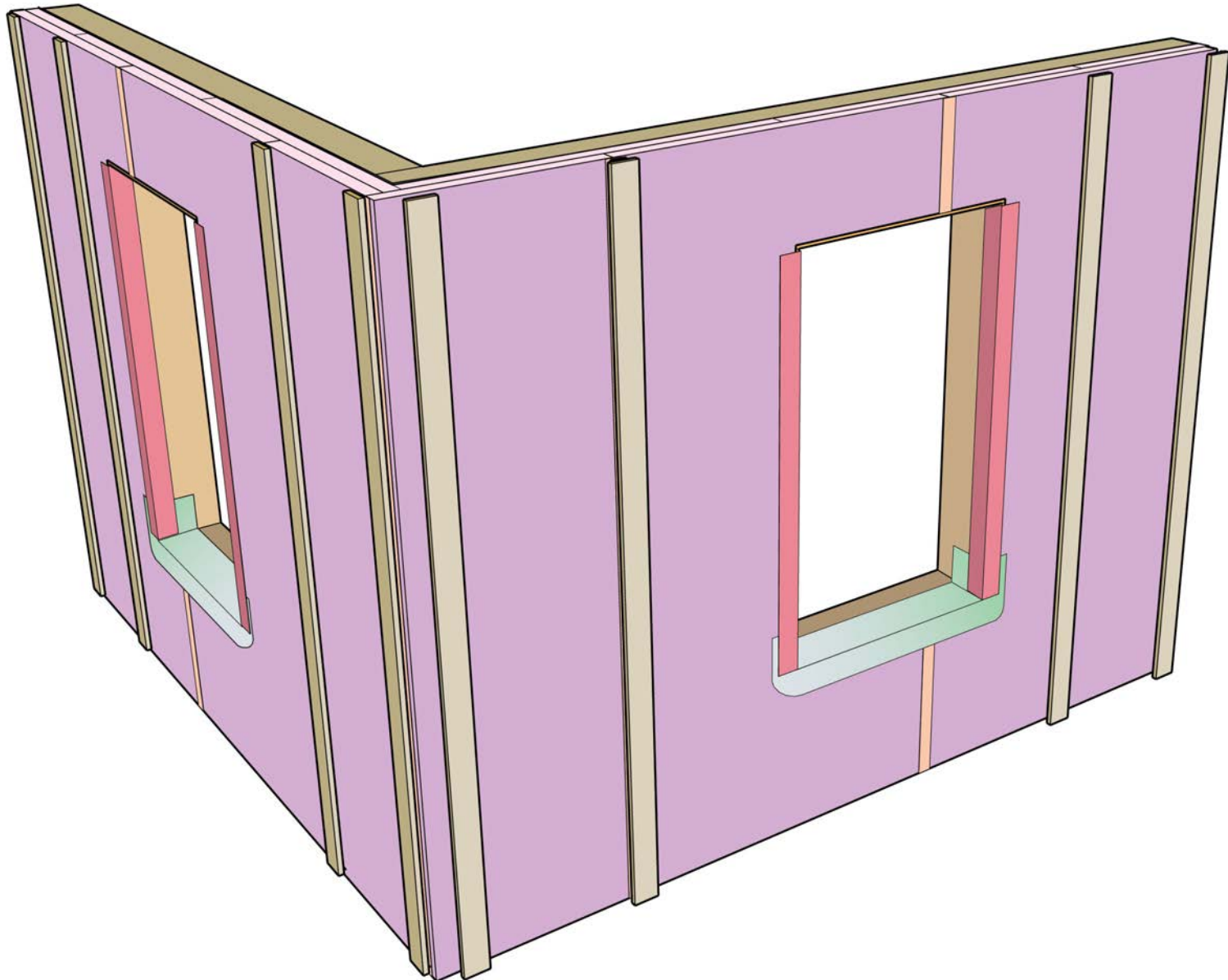


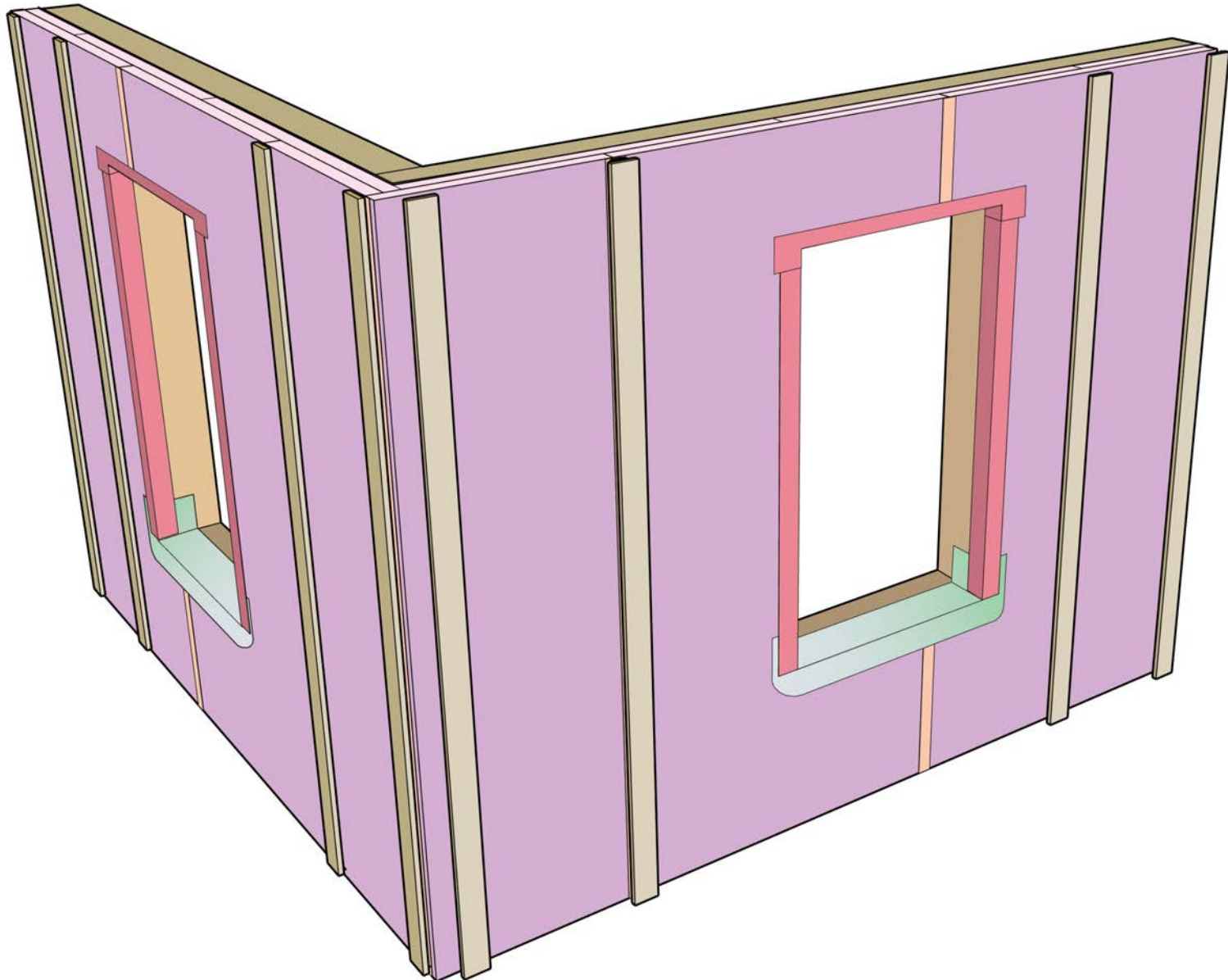


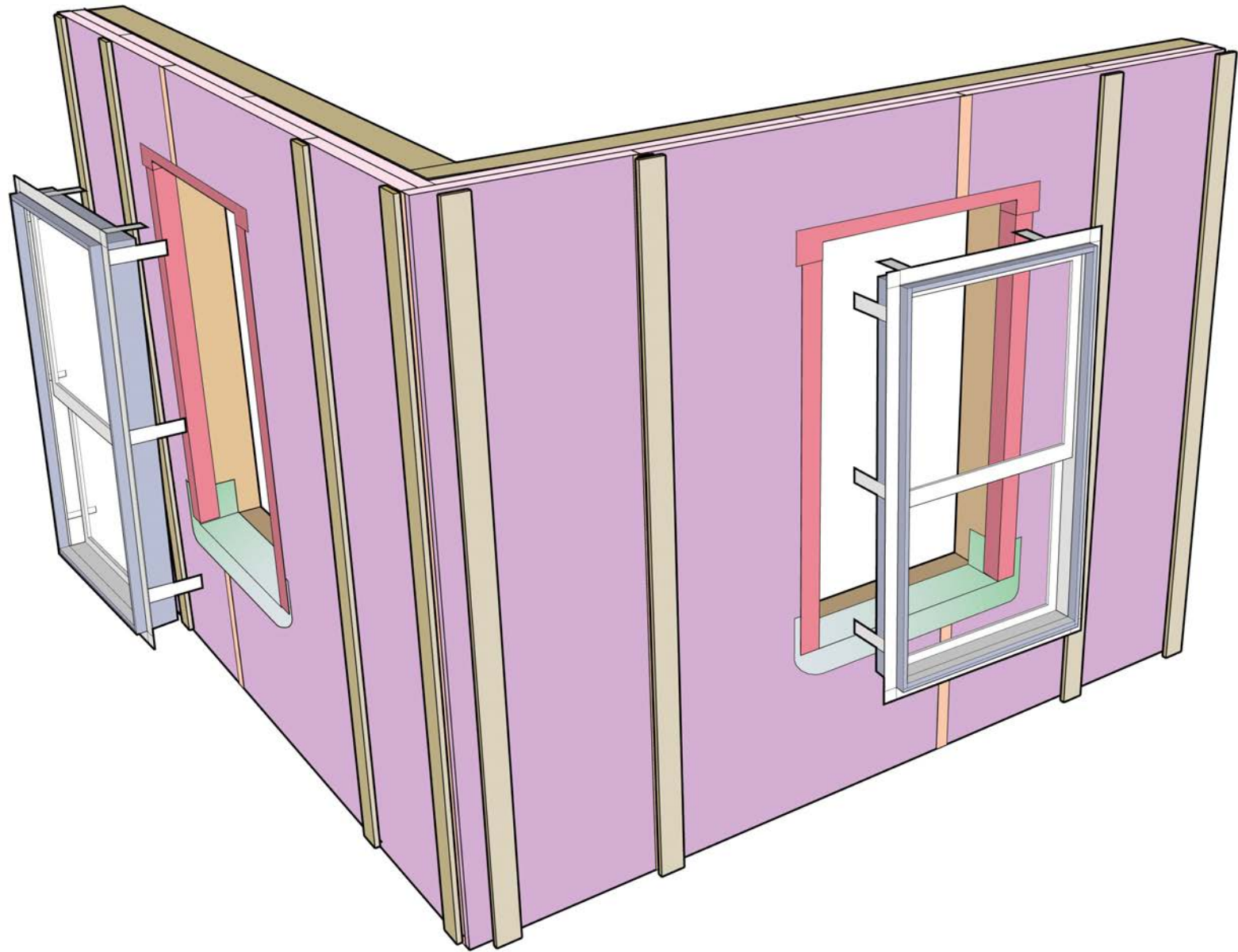


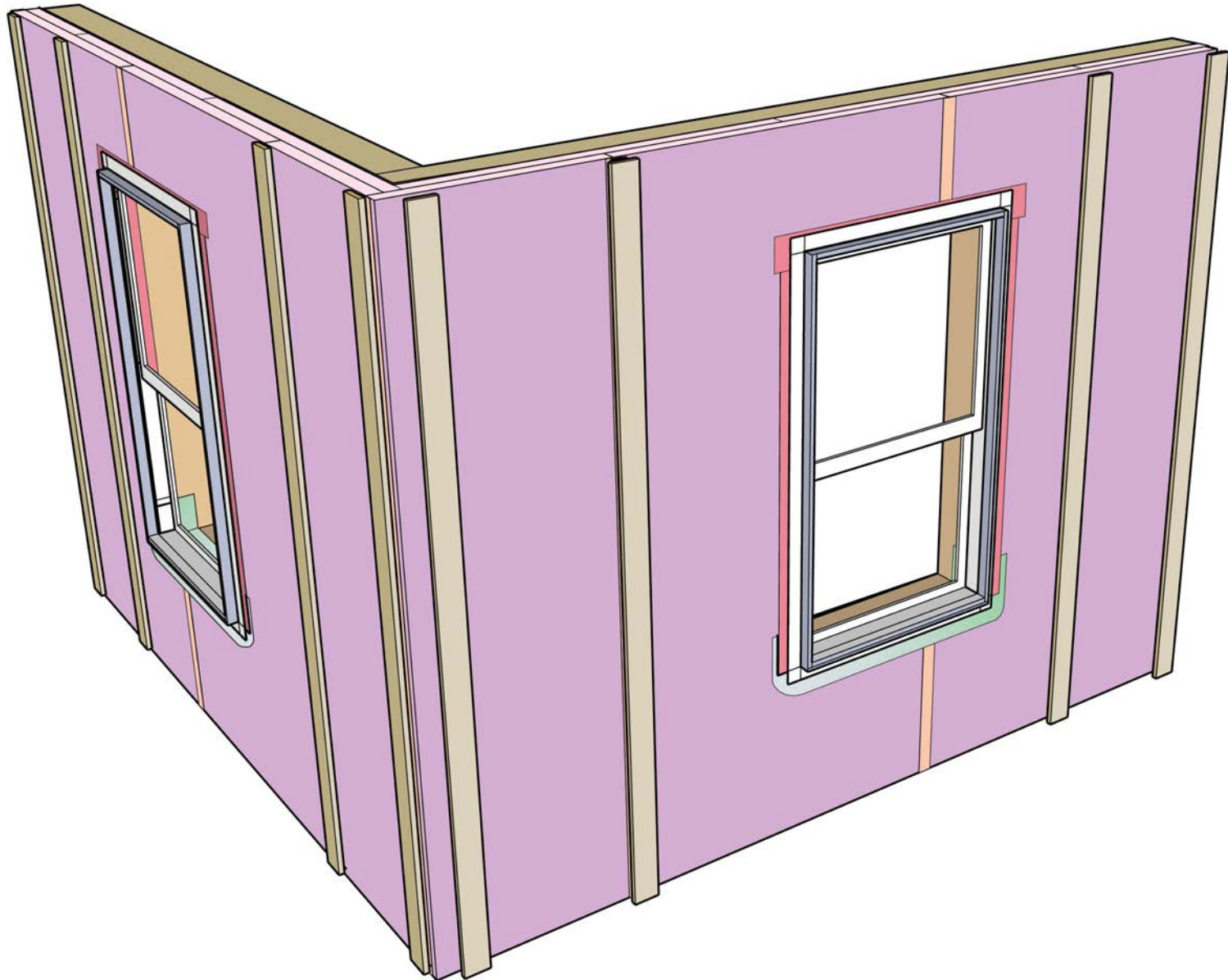


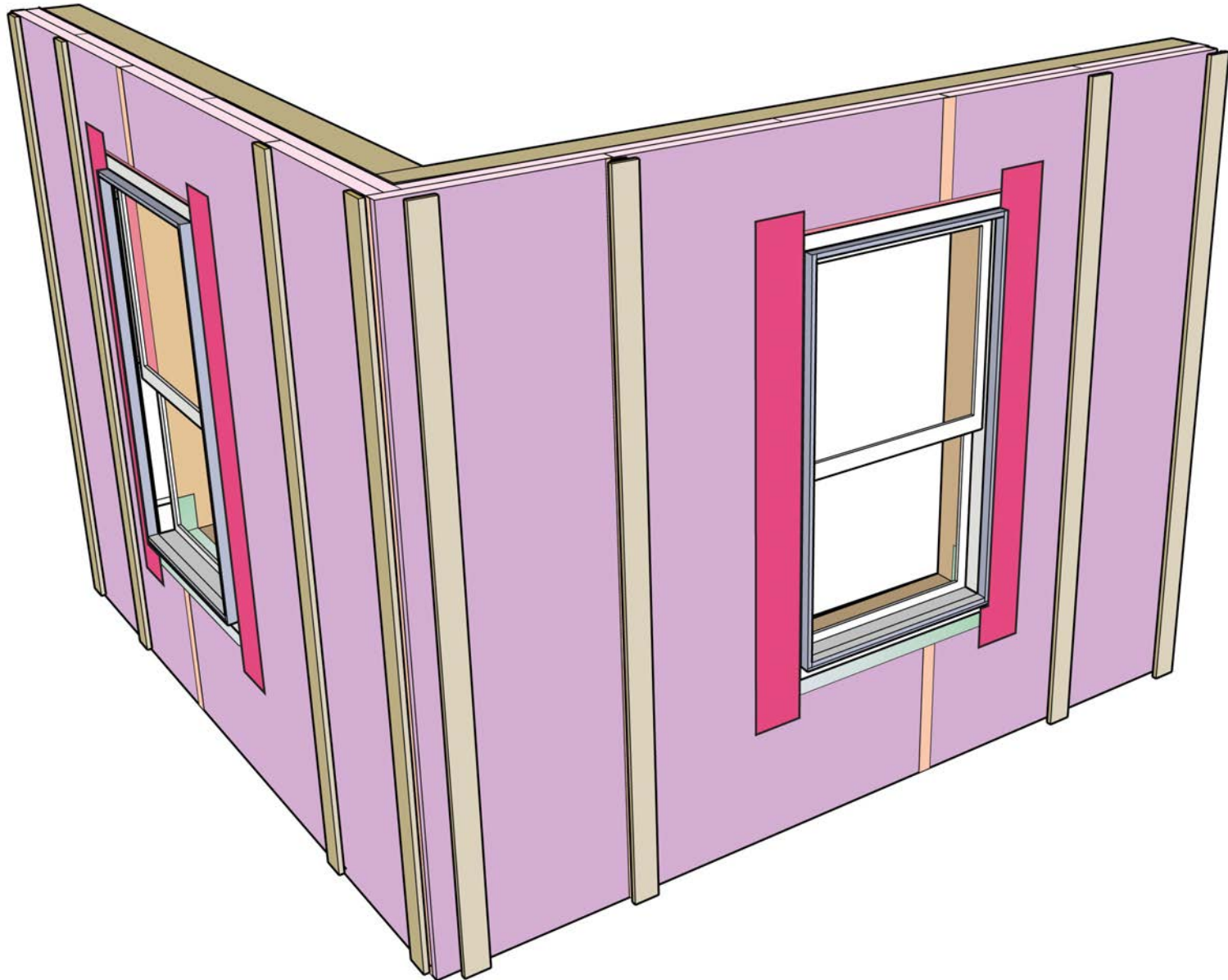


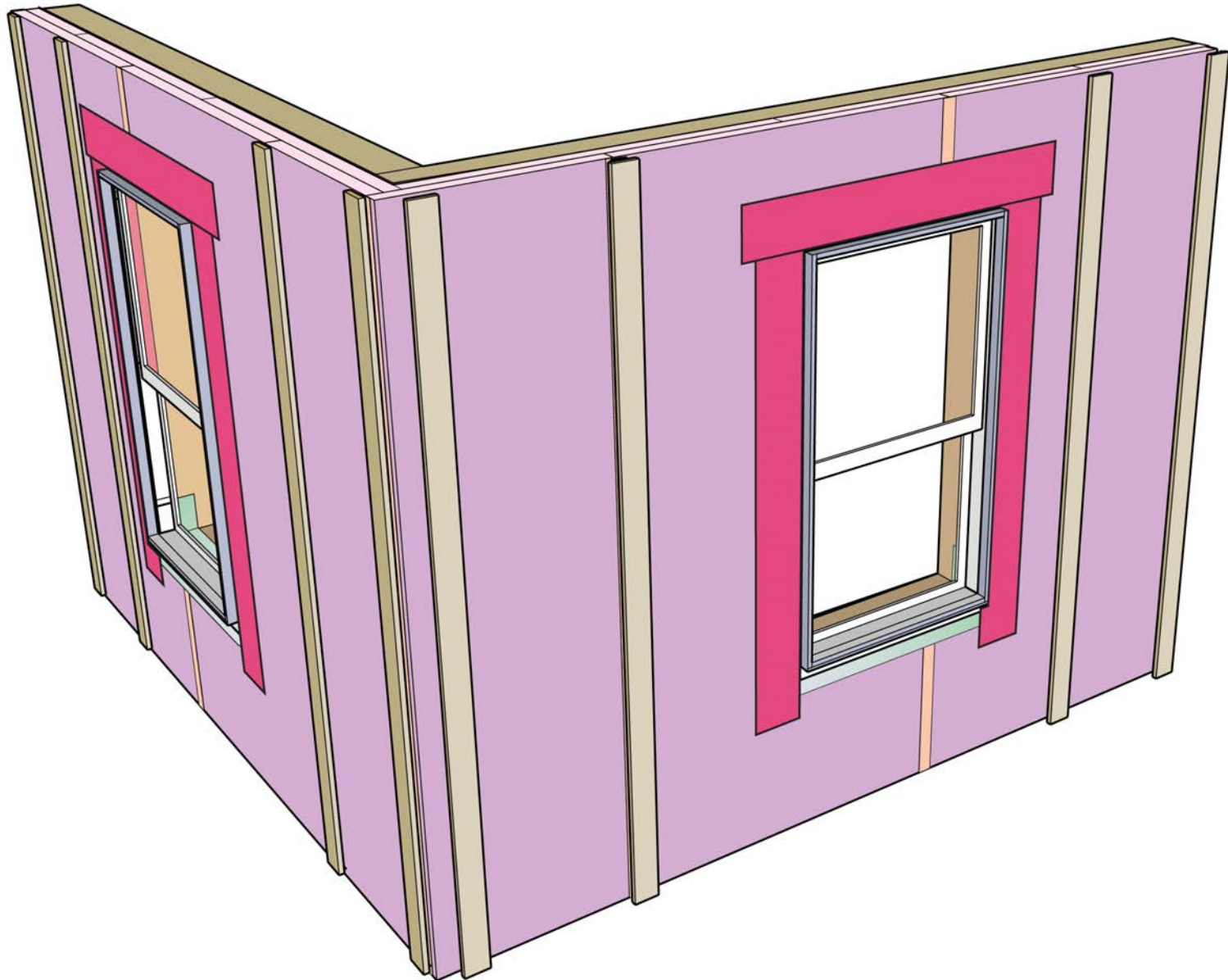


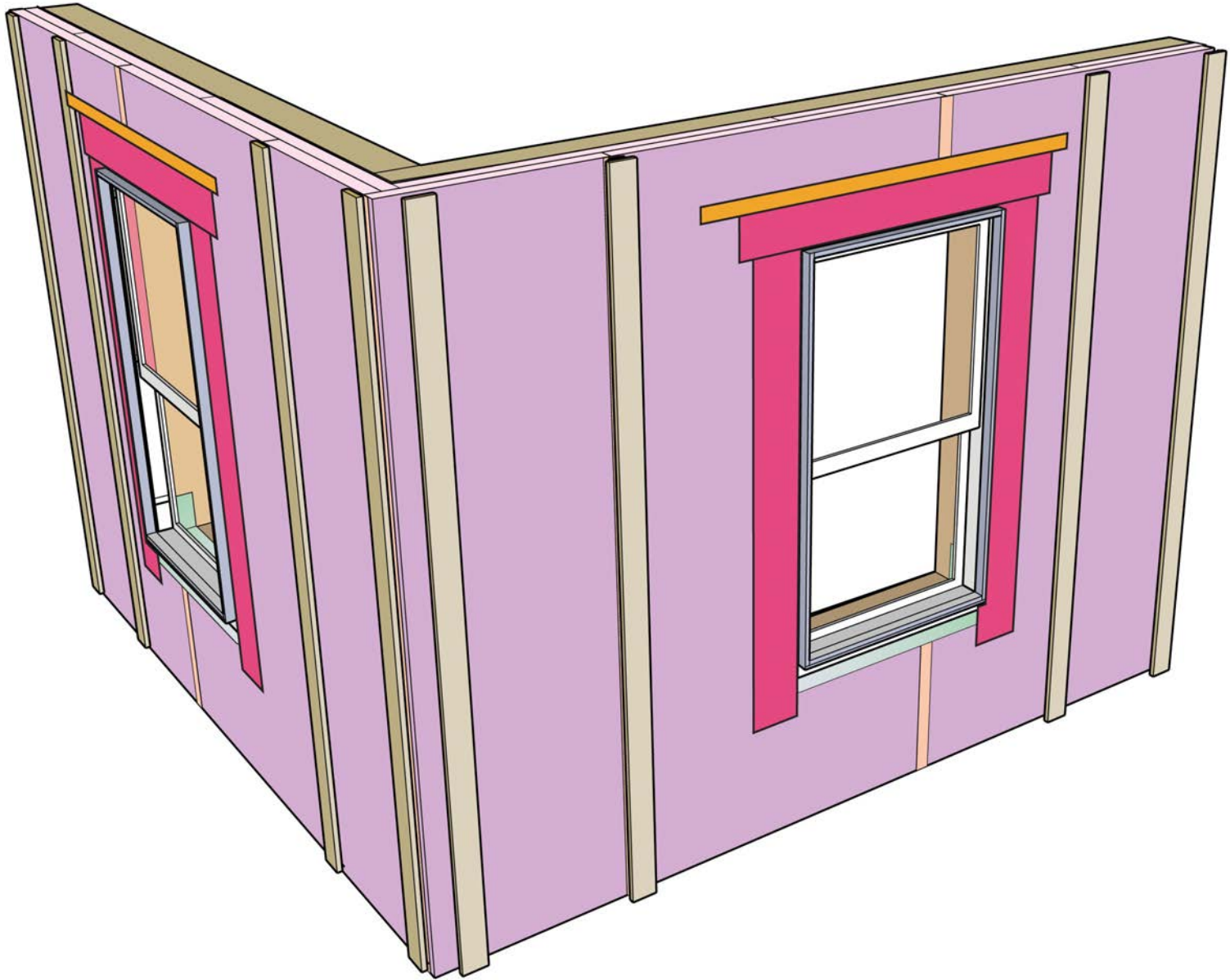


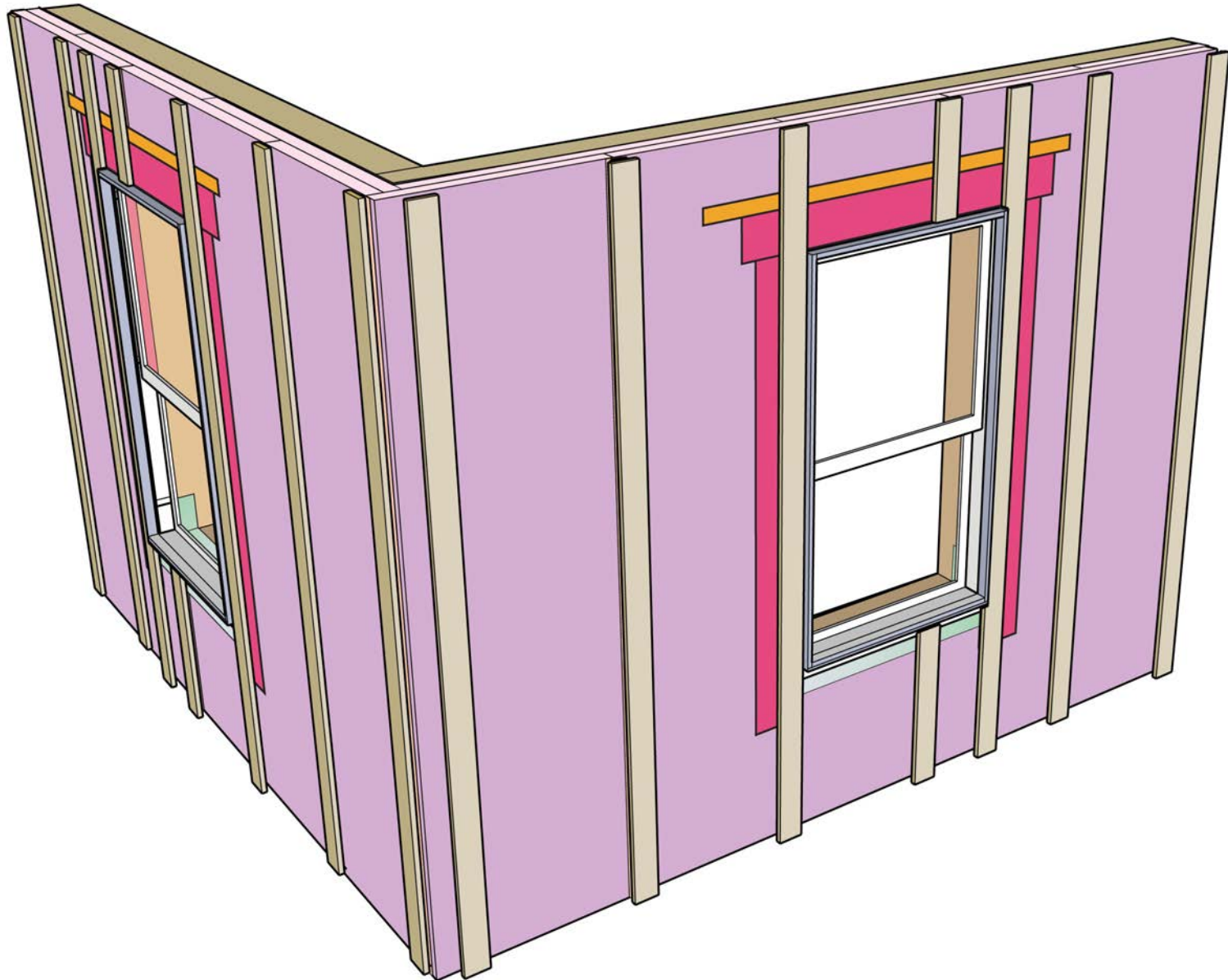


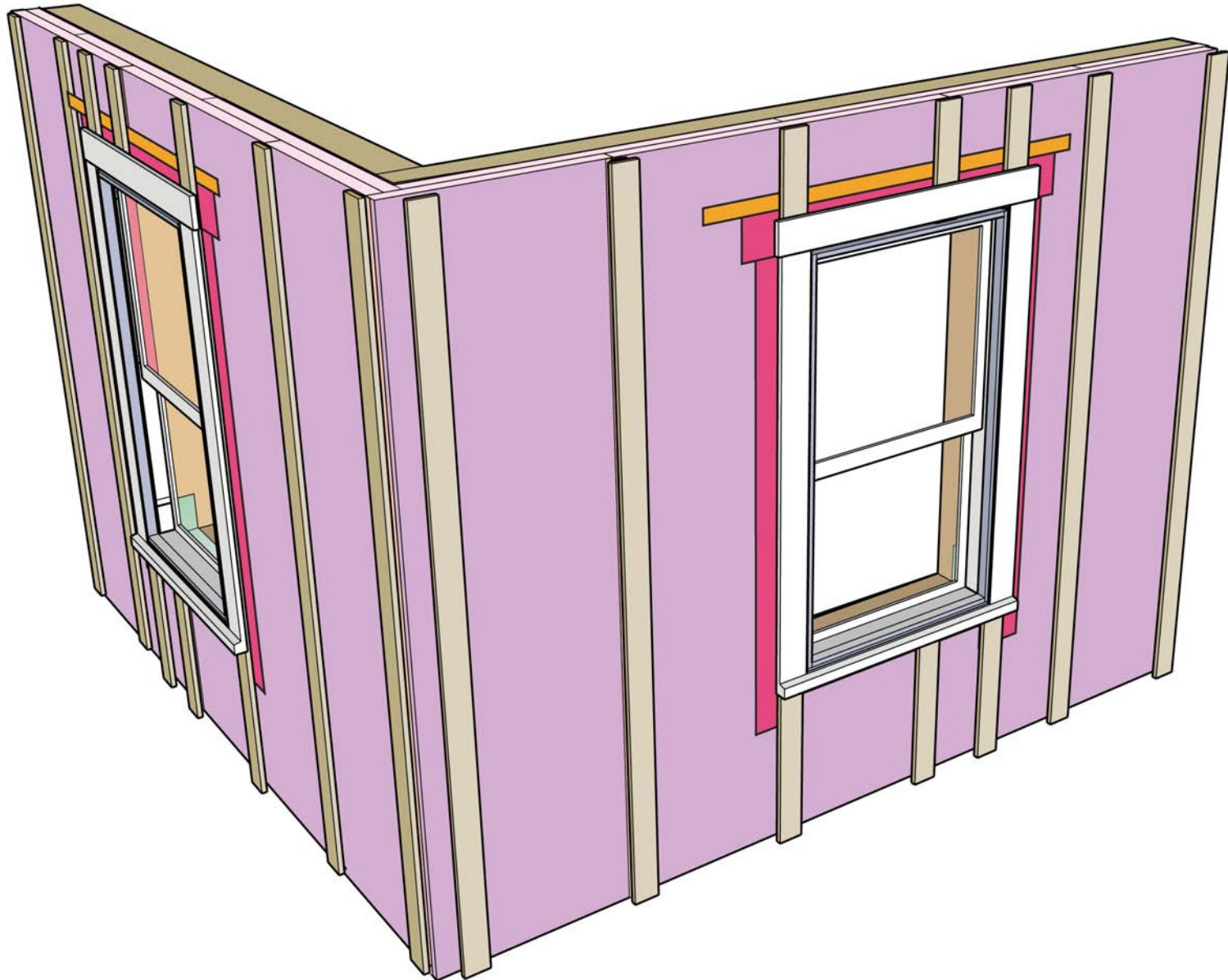


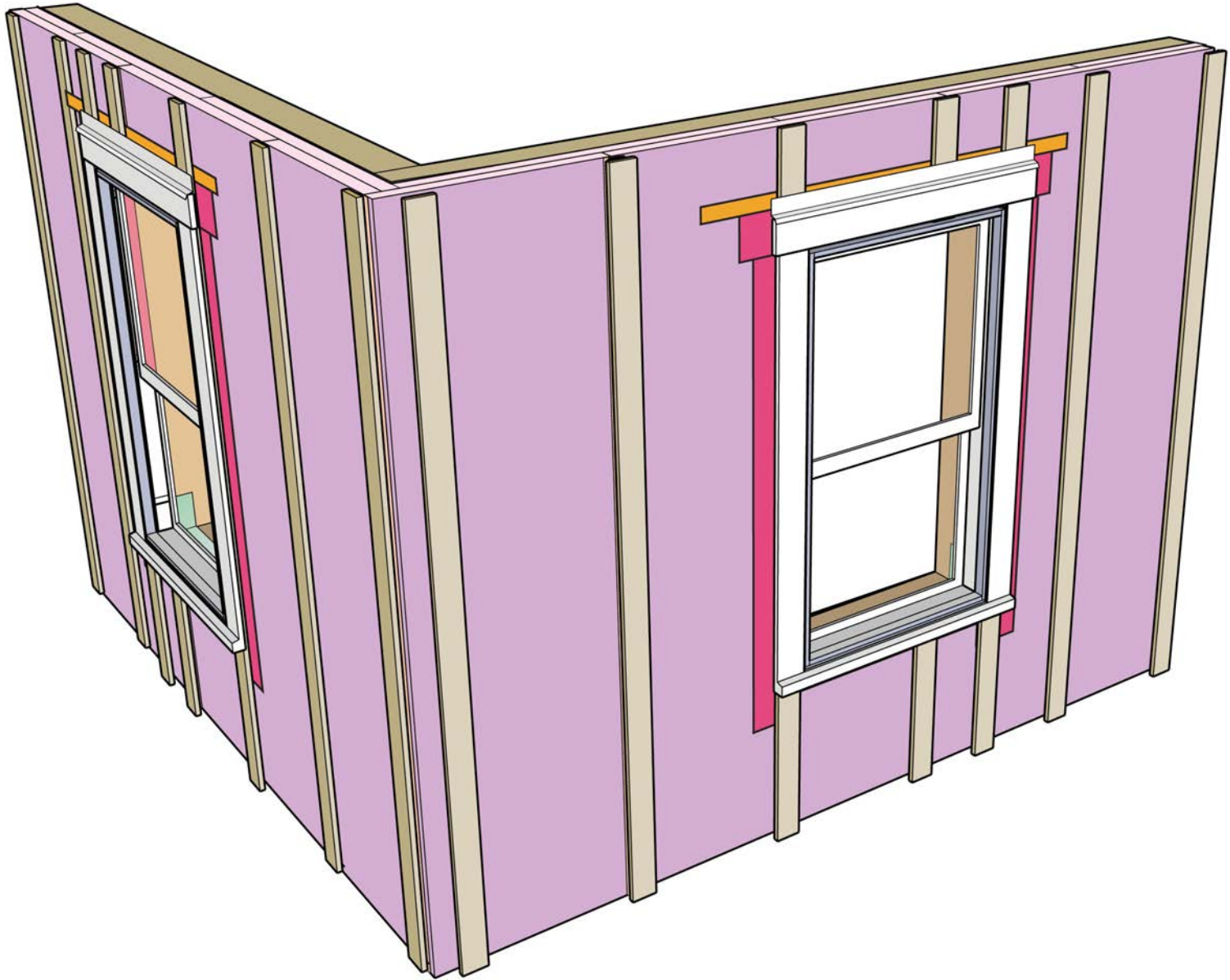


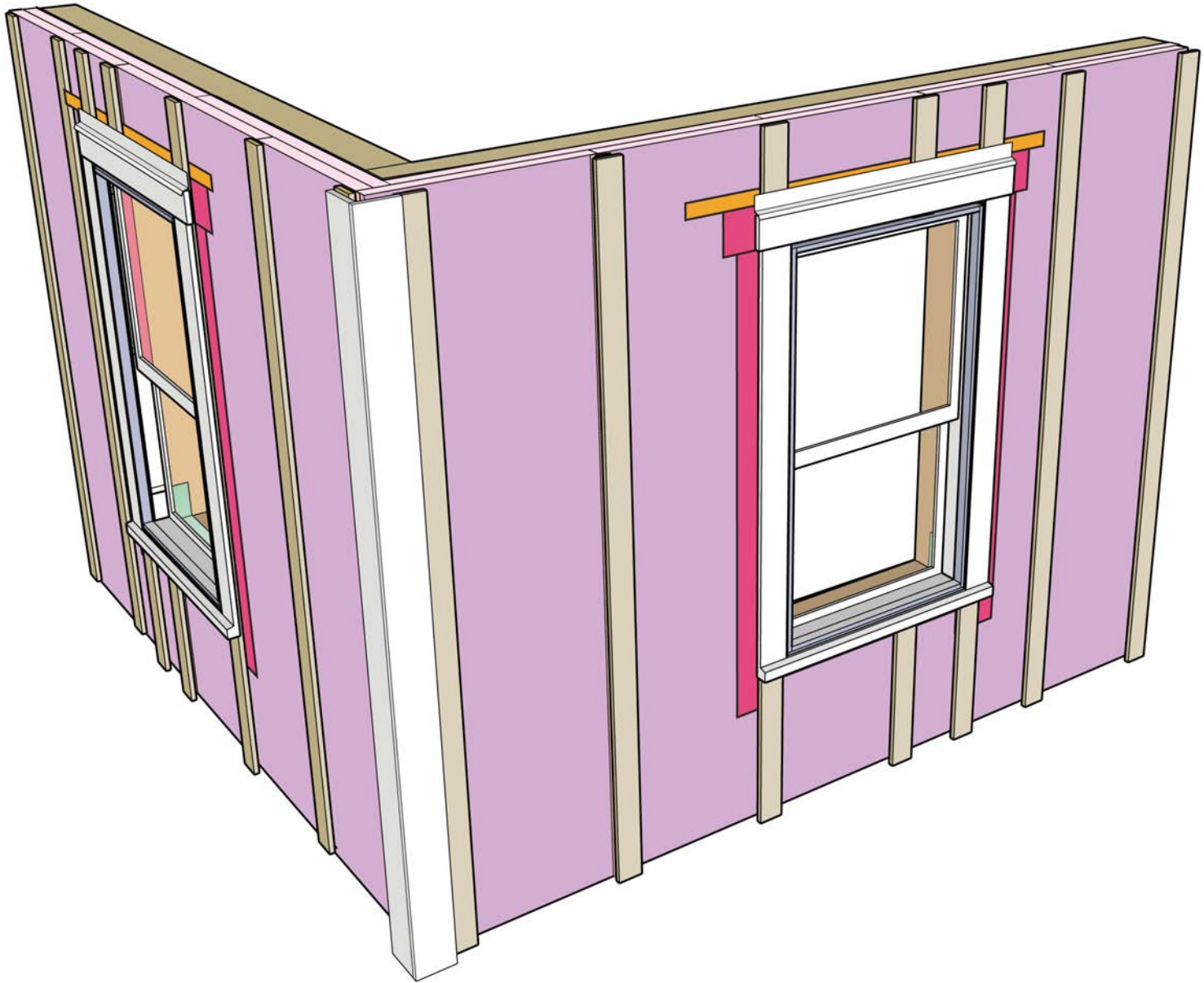




























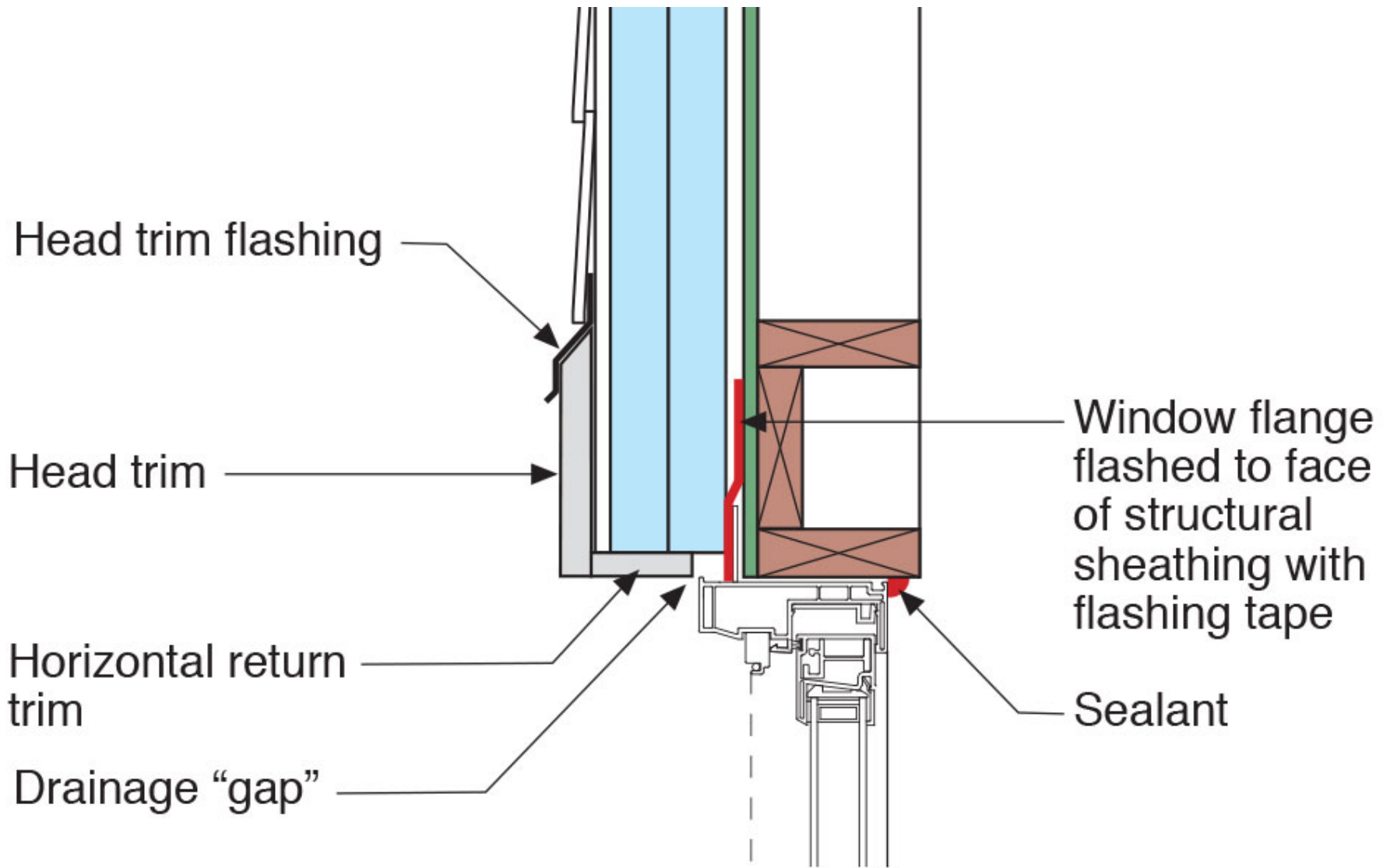










































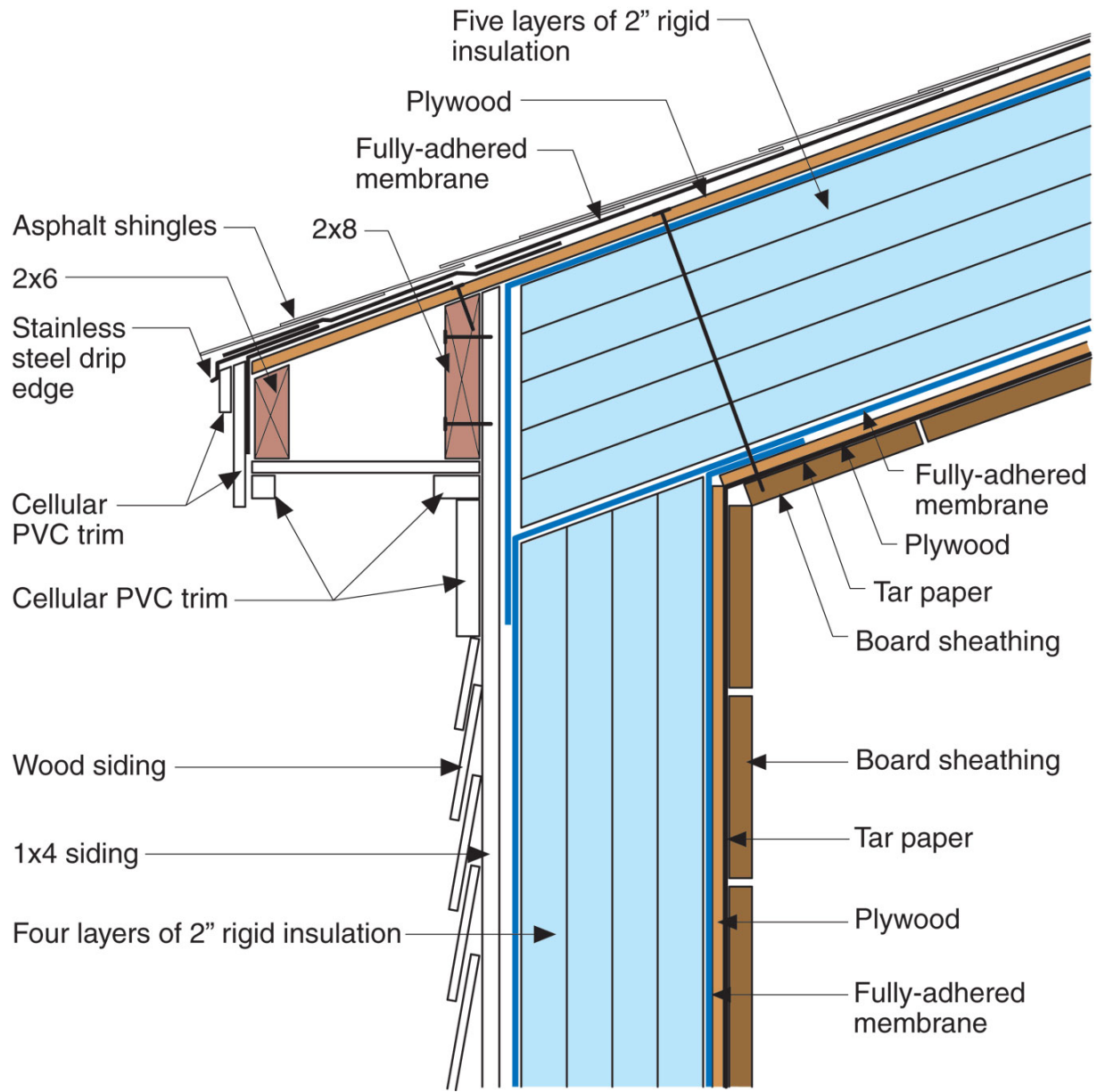






























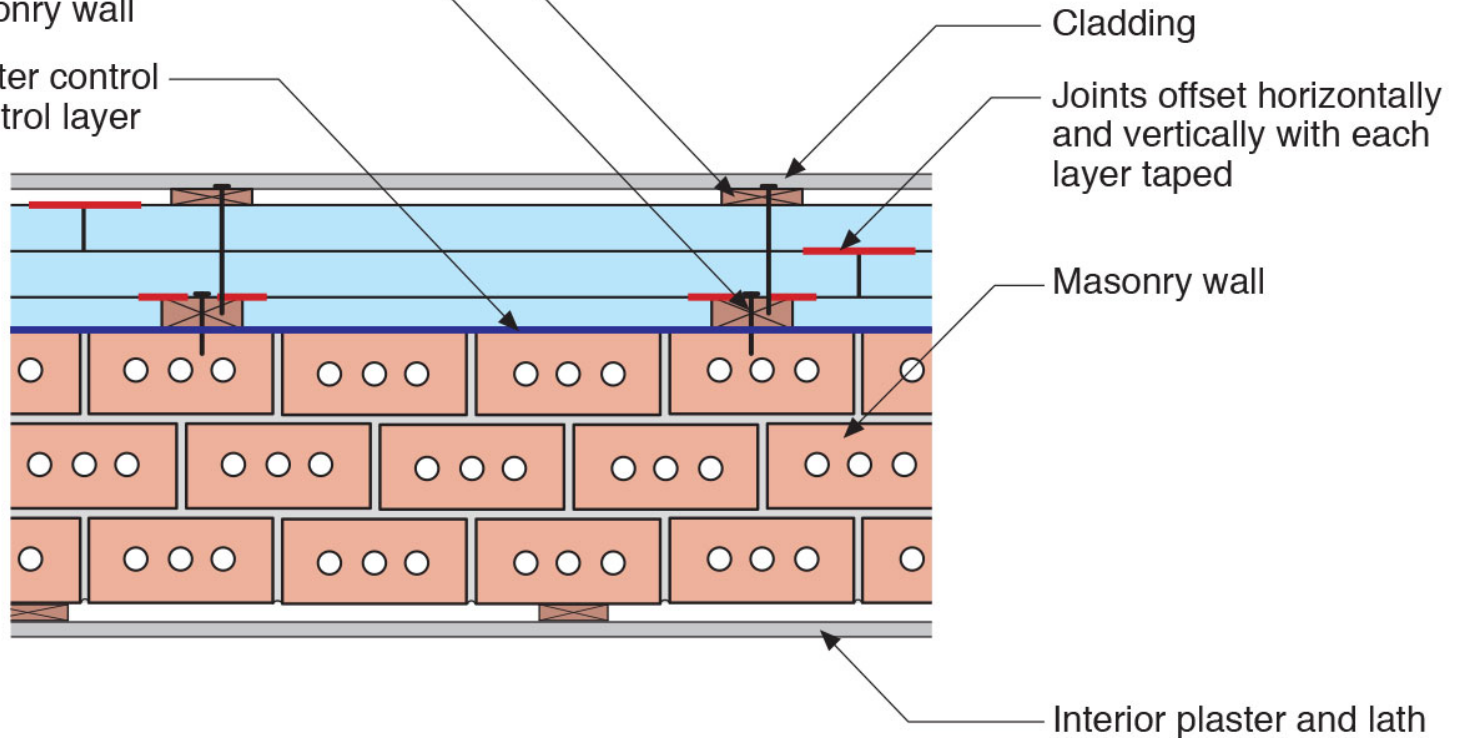


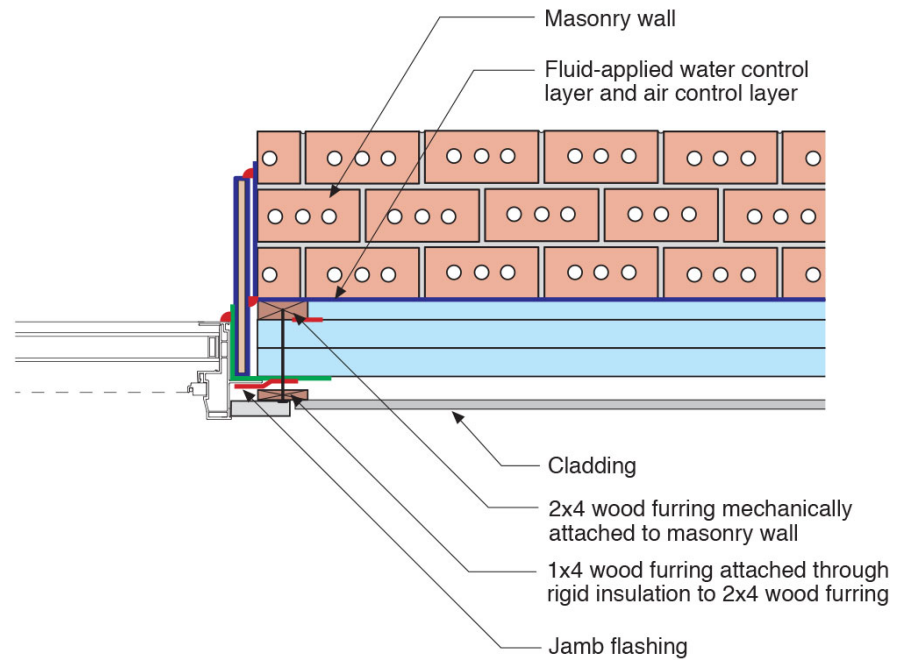
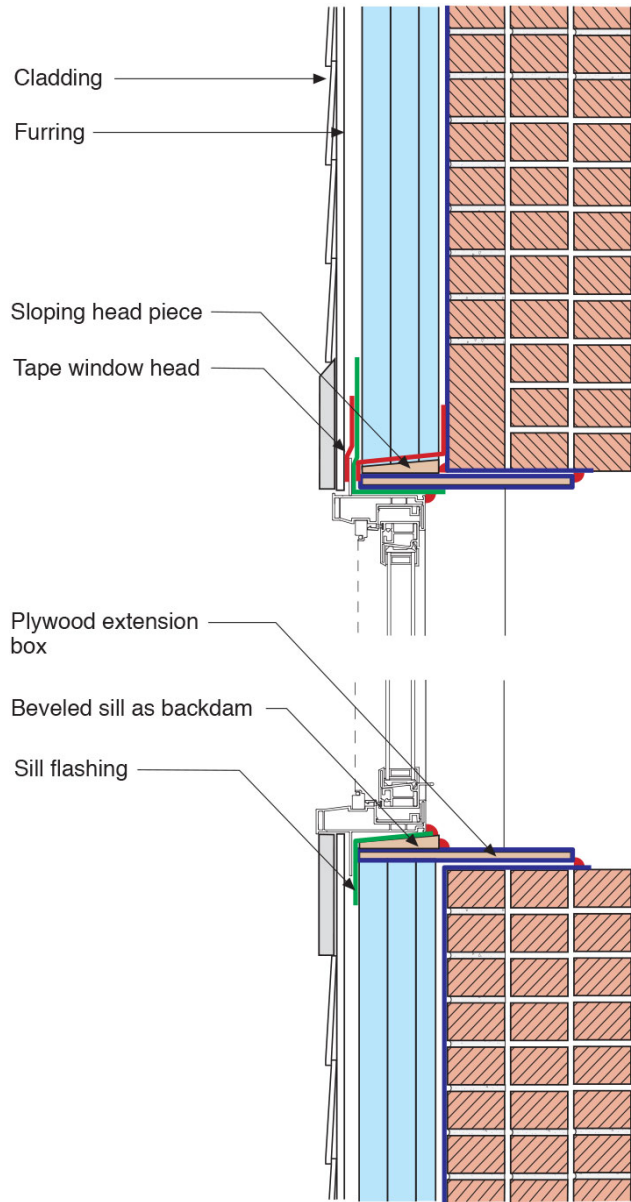


1x4 wood furring attached through rigid insulation to 2x4 wood furring

2x4 wood furring mechanically attached to masonry wall

Fluid-applied water control layer and air control layer











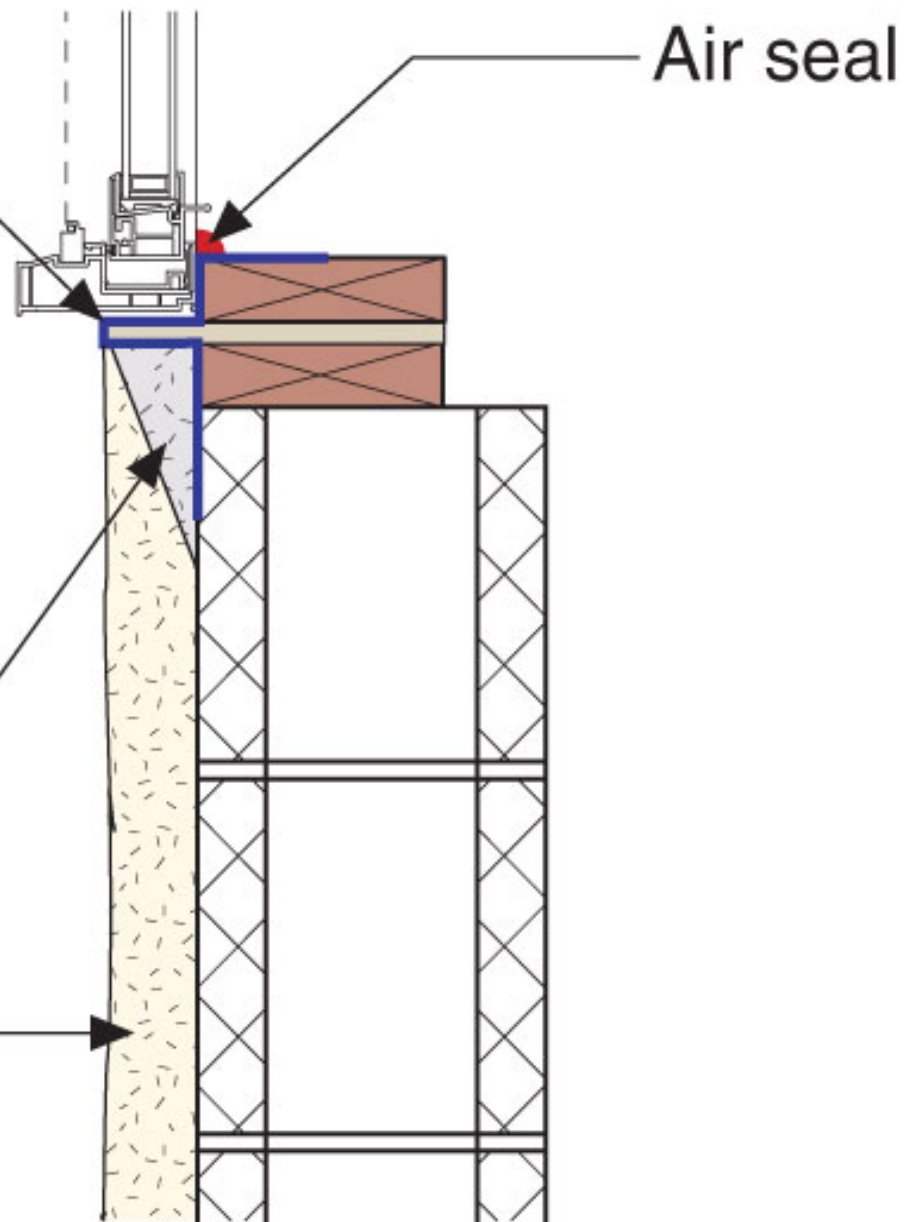




Liquid-applied
membrane lining,
sub-sill window
flashing, air and water
barrier transition
membrane

HD spray foam “filet”
to be applied before
rest of foam

HD spray foam



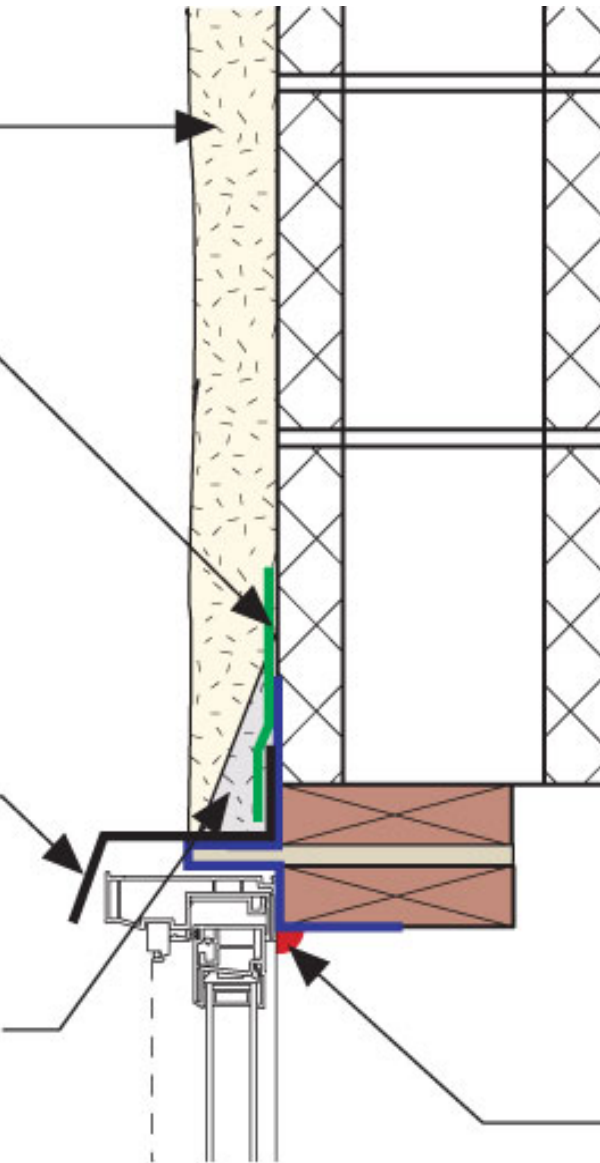
HD spray foam

Liquid-applied
membrane lining,
window flashing,
air and water barrier
transition membrane

Flashing

HD spray foam "filet"
to be applied before
rest of foam

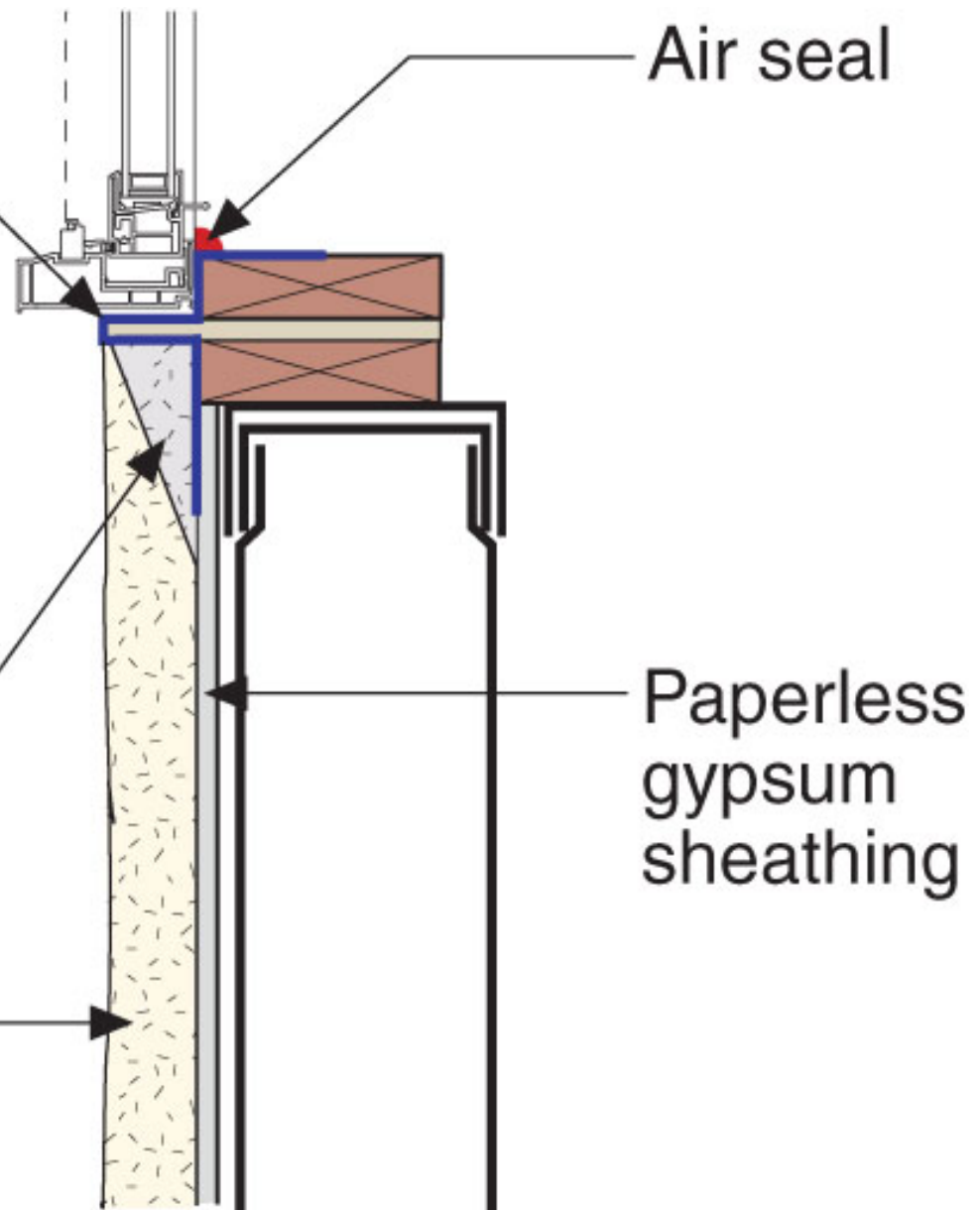
Air seal



Liquid-applied membrane lining, sub-sill window flashing, air and water barrier transition membrane

HD spray foam "filet" to be applied before rest of foam

HD spray foam



Paperless gypsum sheathing

HD spray foam

Liquid-applied
membrane lining,
window flashing,
air and water barrier
transition membrane

Flashing

HD spray foam "filet"
to be applied before
rest of foam

Paperless
gypsum
sheathing

Air seal

