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Building Science

Moisture Management

www.buildingscience.com

A Building Is An Environmental Separator

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It Keeps the Outside Out and the Inside In

Damage Functions

Damage Functions

Water

Heat

Ultra Violet Radiation

The Three Biggest Problems In Buildings Are Water, Water and Water...

Rain Is The Single Biggest Thing To Worry
About....Duh....

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About....Duh....

Do The Best You Can On Rain Control...But
Assume Things

Will Get Wet...So Design For Drying...

Water Control Layer

Air Control Layer

Vapor Control Layer

Thermal Control Layer













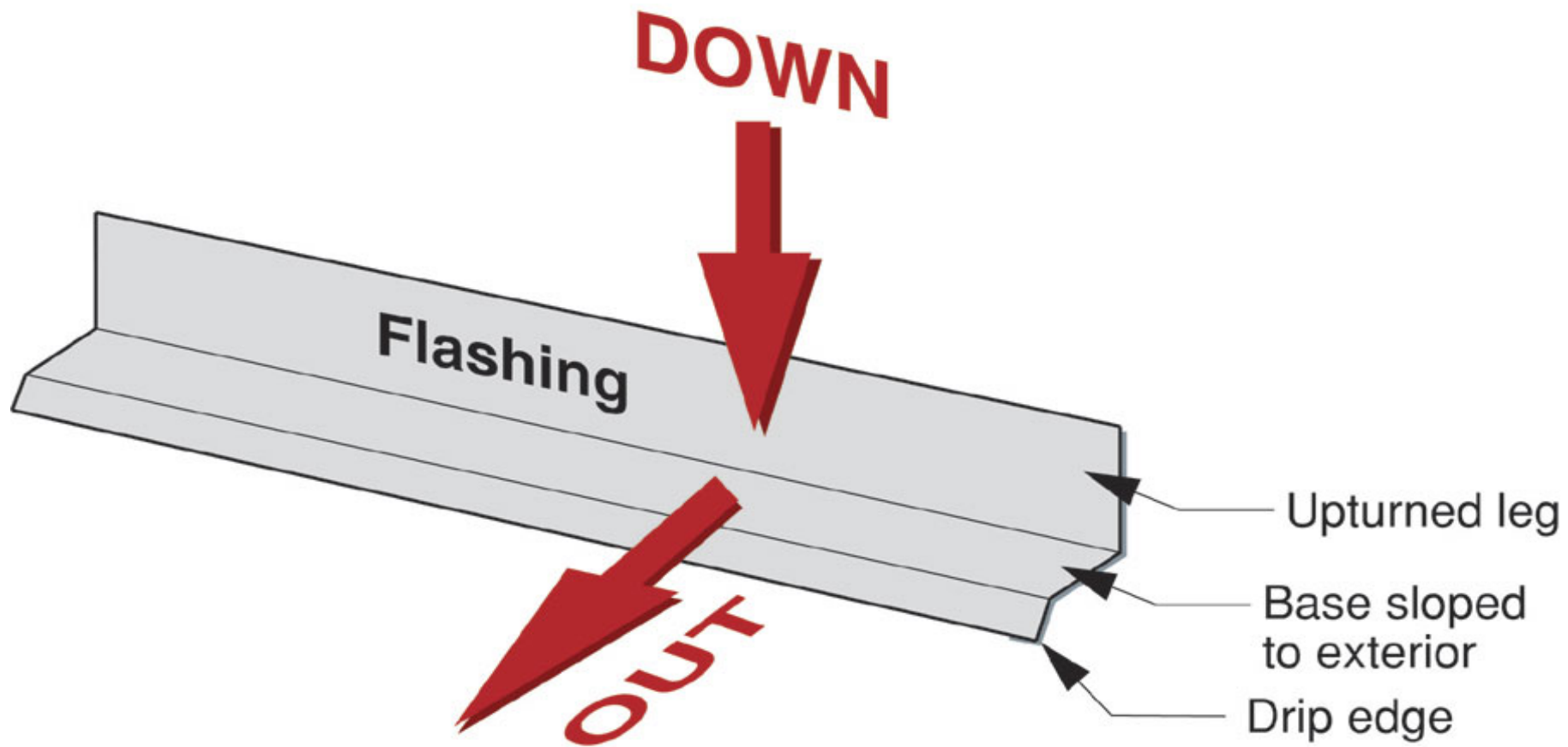


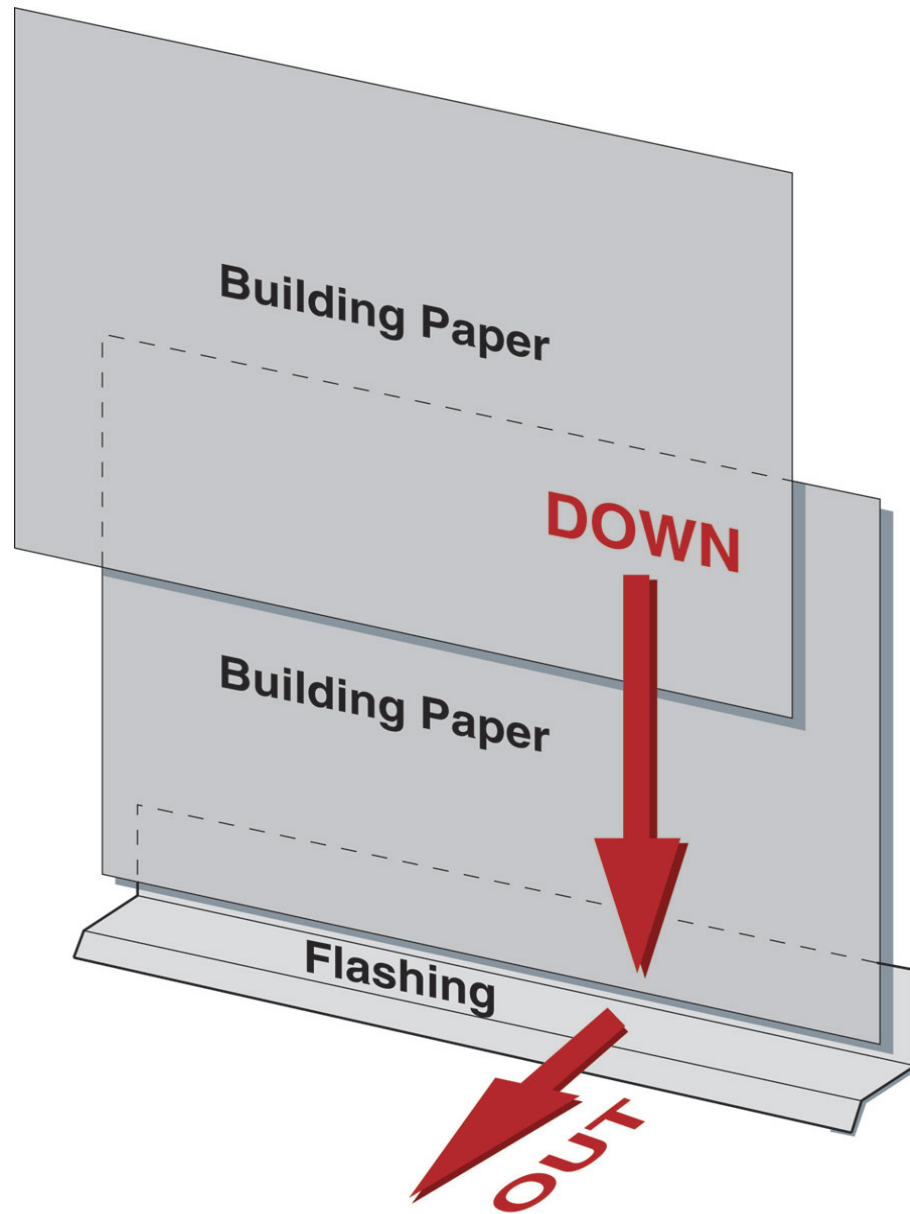


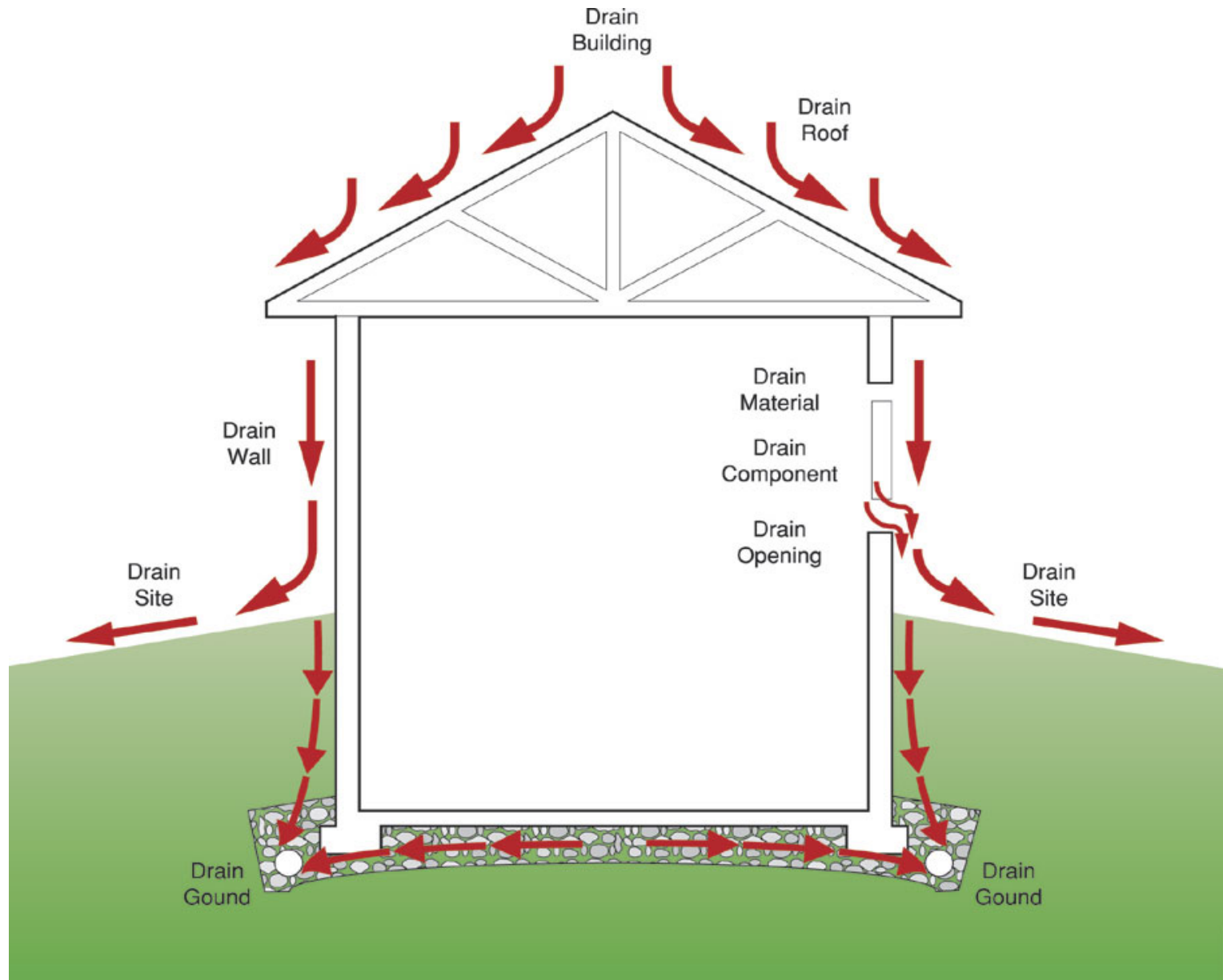


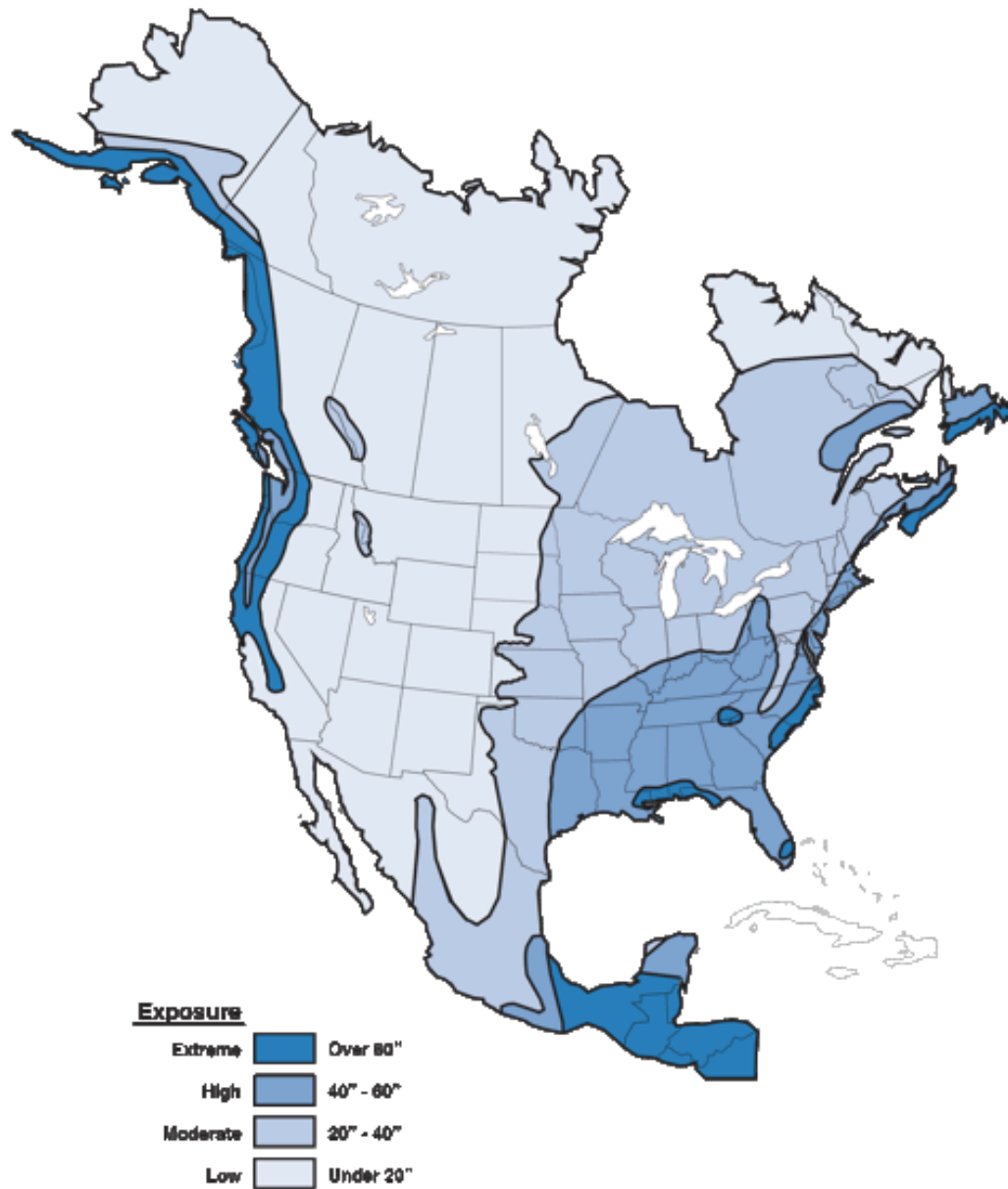


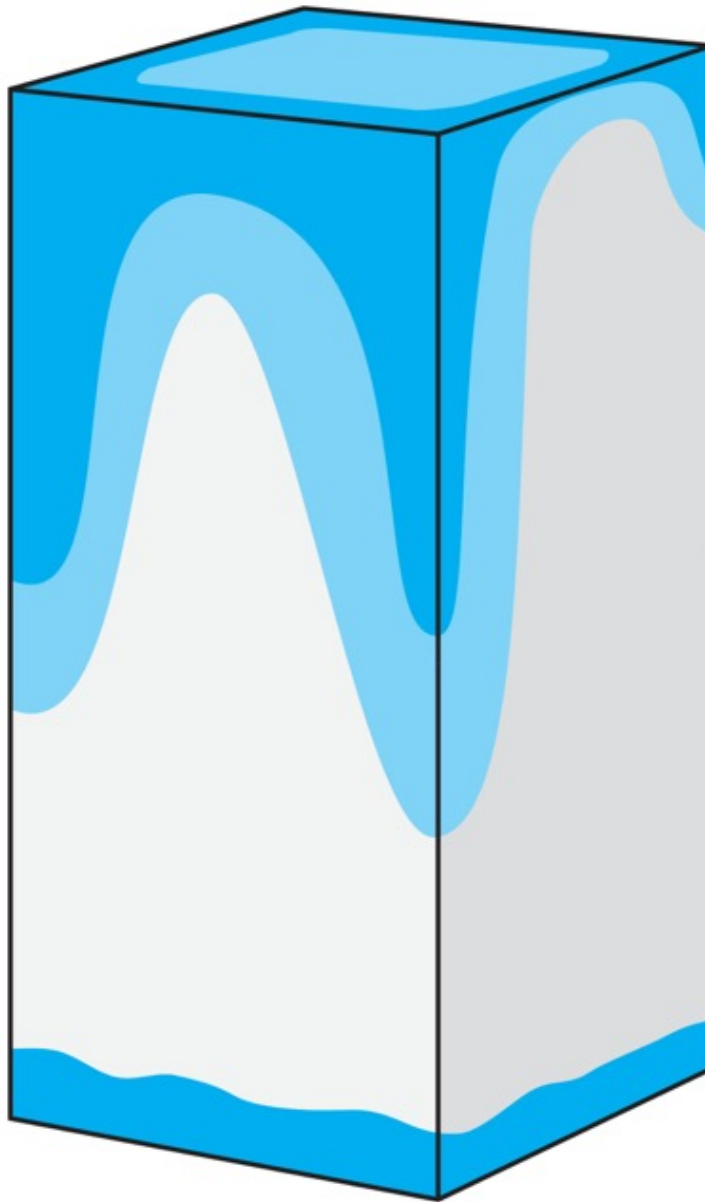


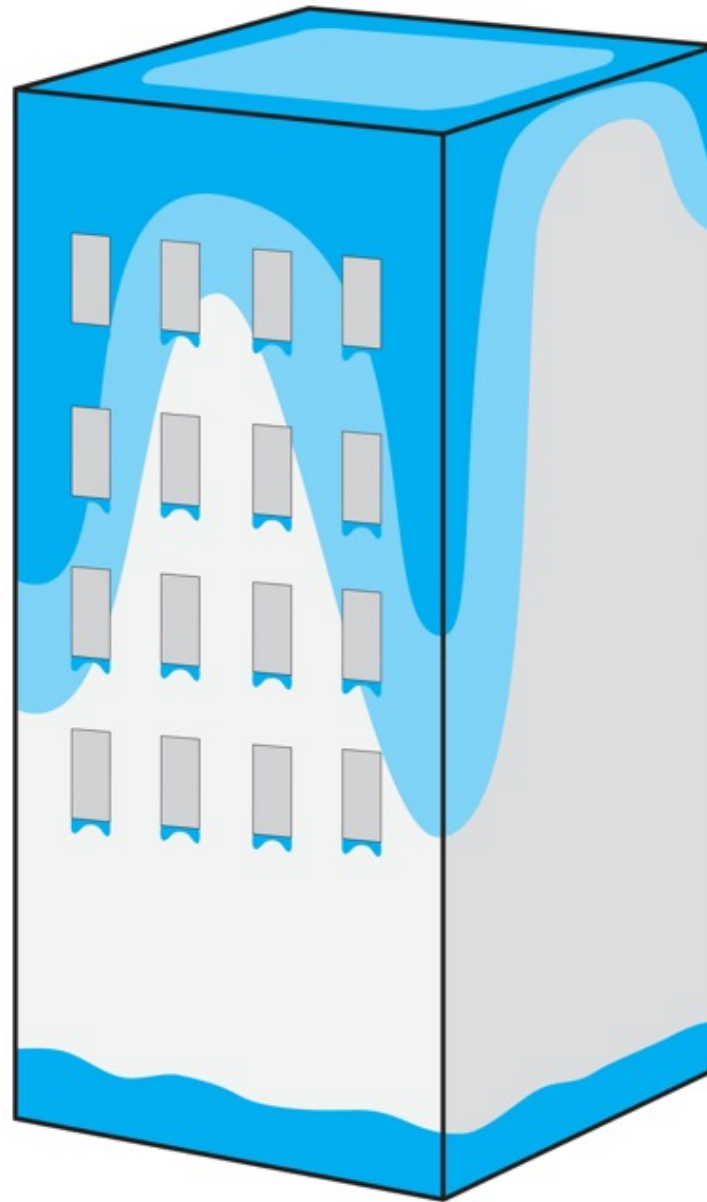












Exterior Conditions

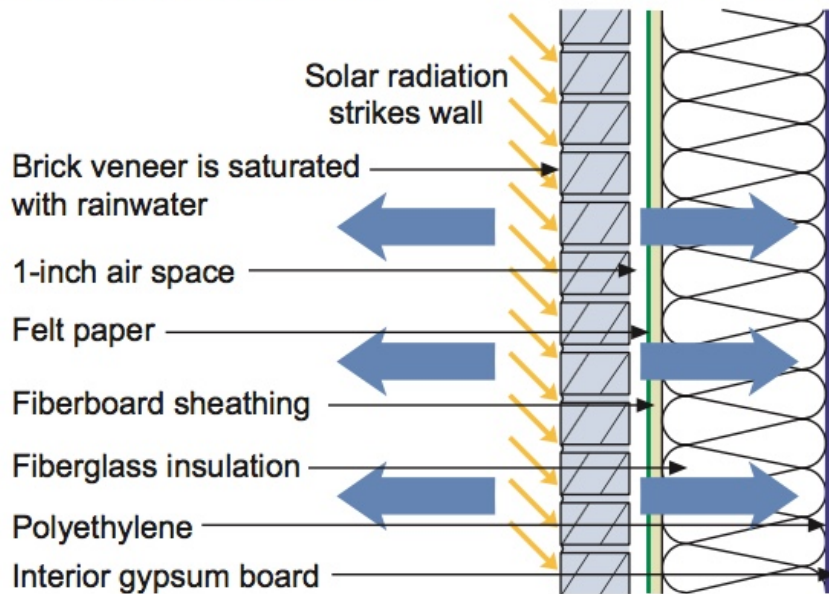
Temperature: 80°F
Relative humidity: 75%
Vapor pressure: 2.49 kPa

Conditions within Cavity:

Temperature: 100°F
Relative humidity: 100%
Vapor pressure: 6.45 kPa

Interior Conditions

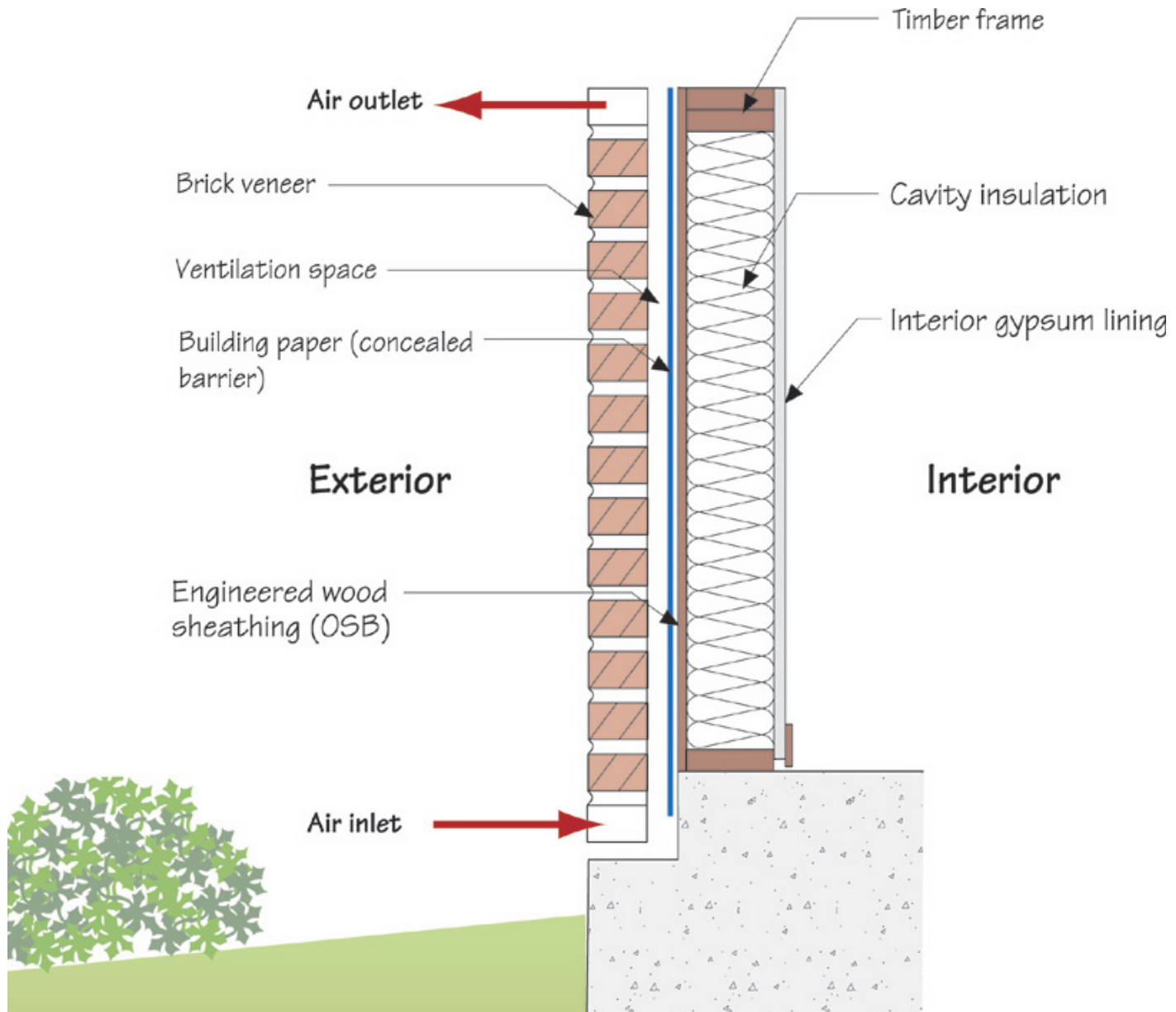
Temperature: 75°F
Relative humidity: 60%
Vapor pressure: 1.82 kPa

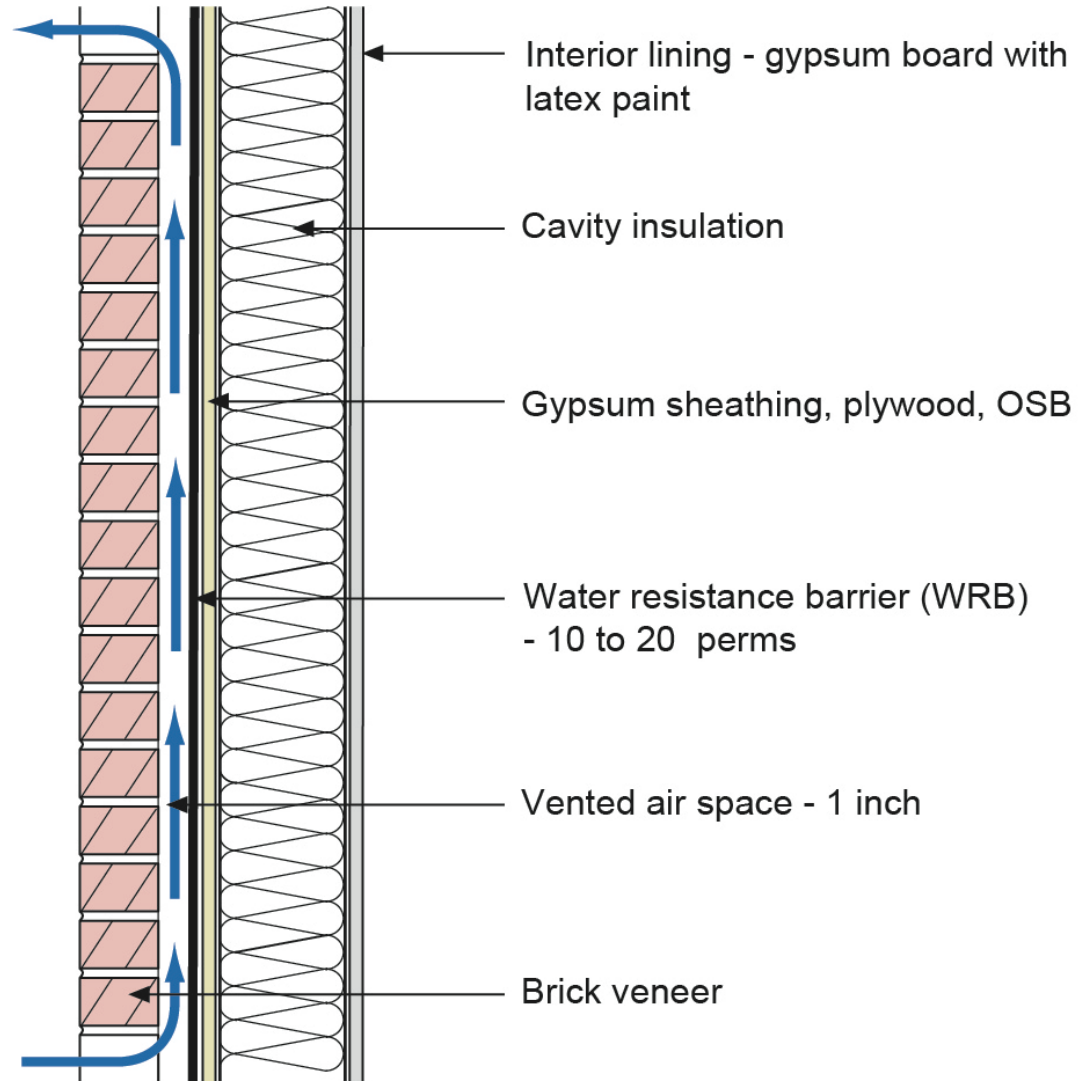


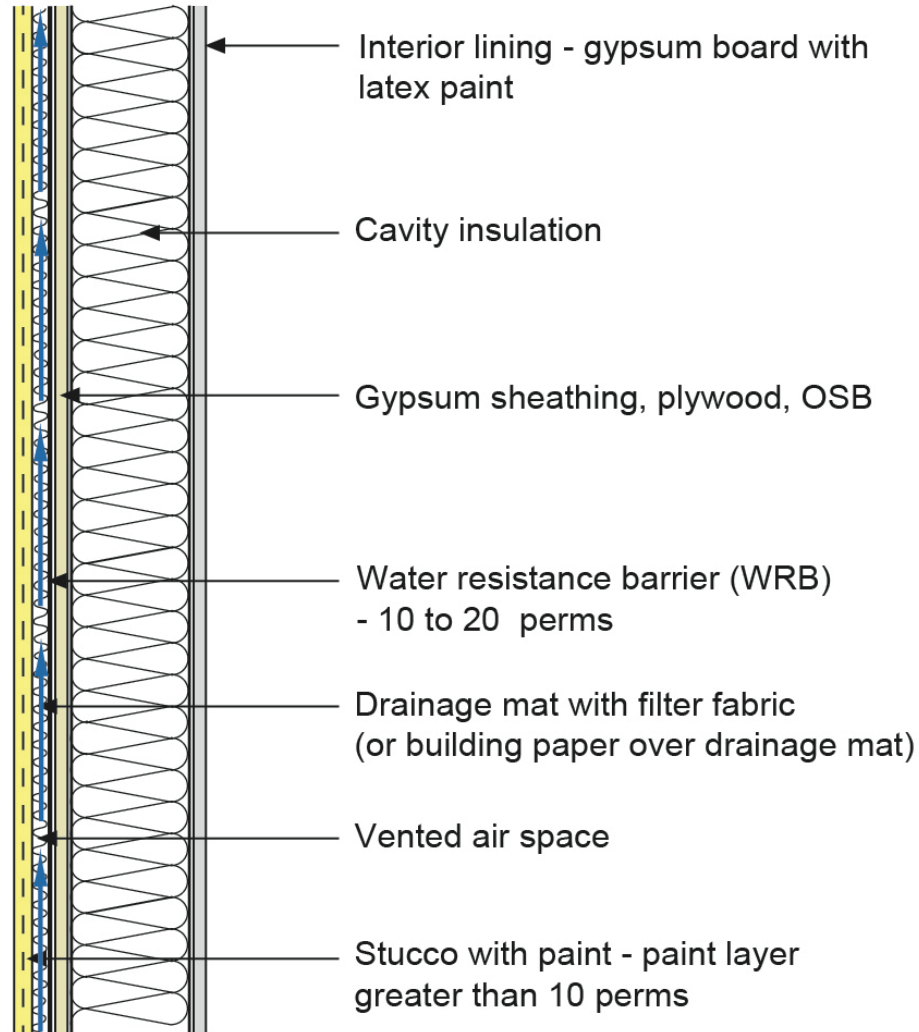
Vapor is driven both inward and outward by a high vapor pressure differential between the brick and the interior and the brick and the exterior.

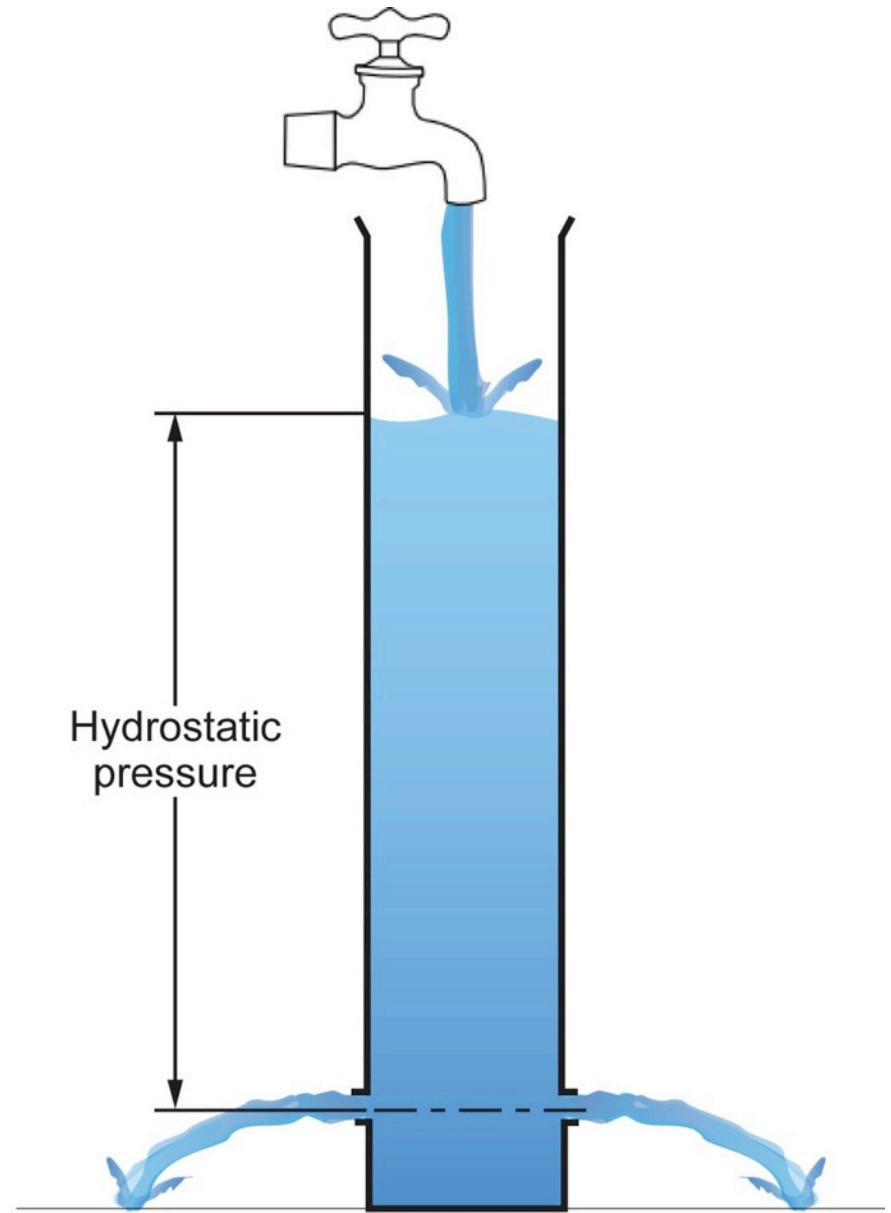
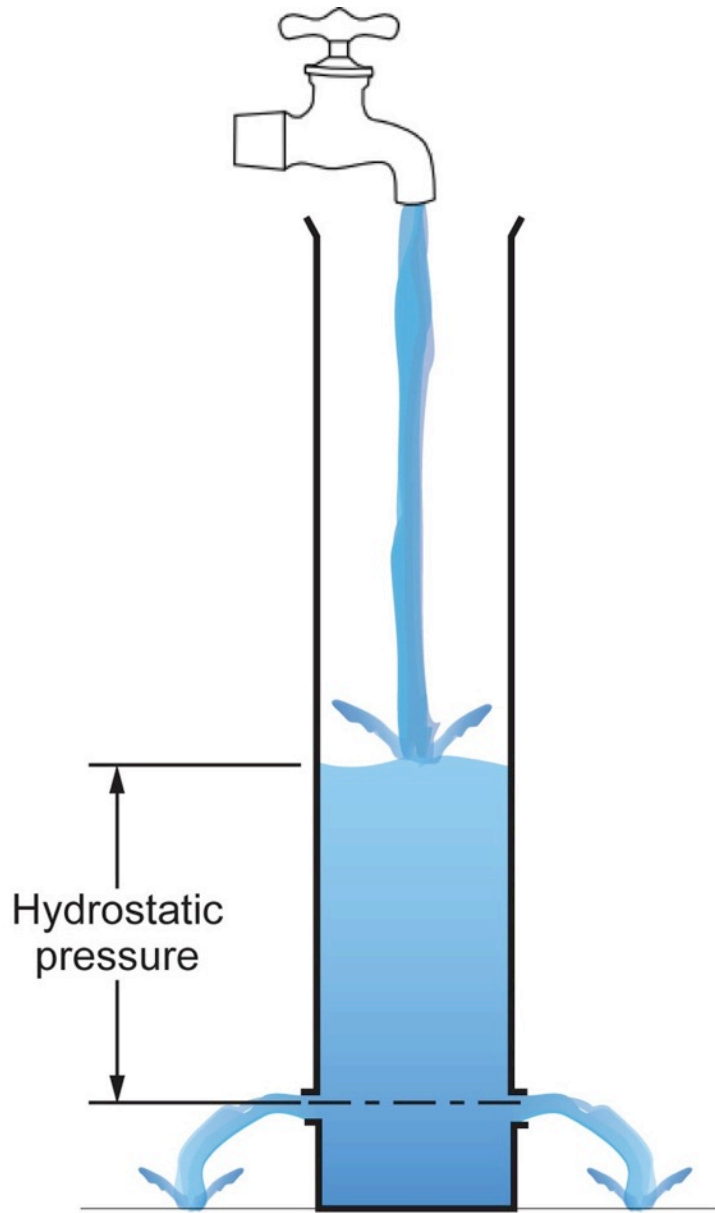




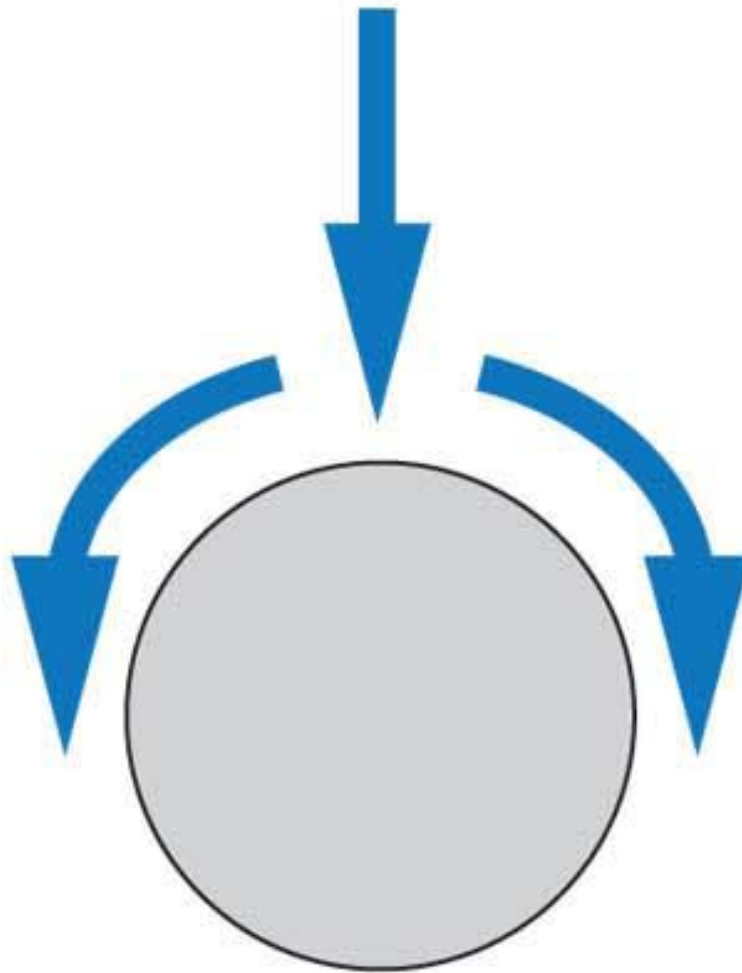


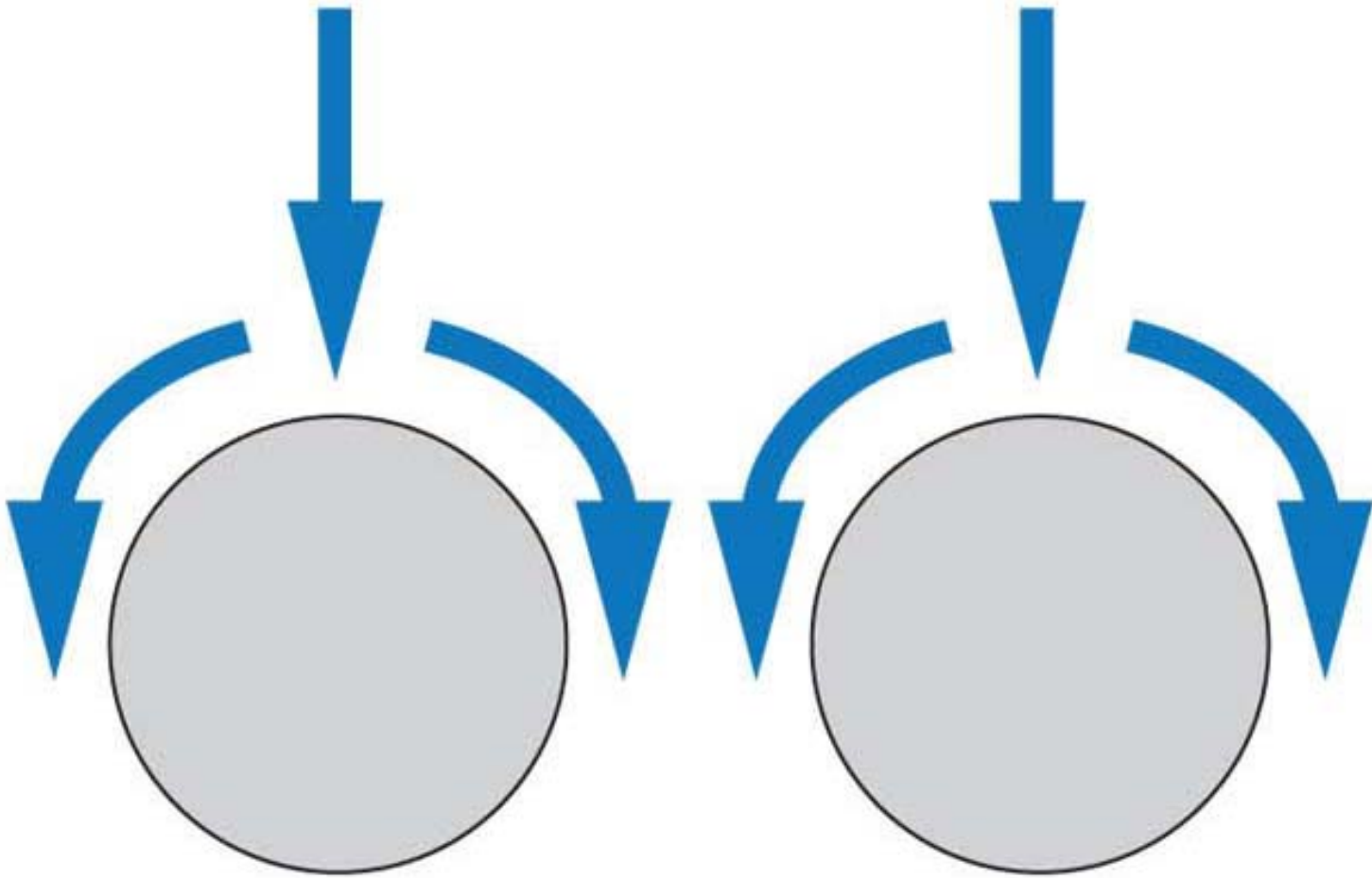


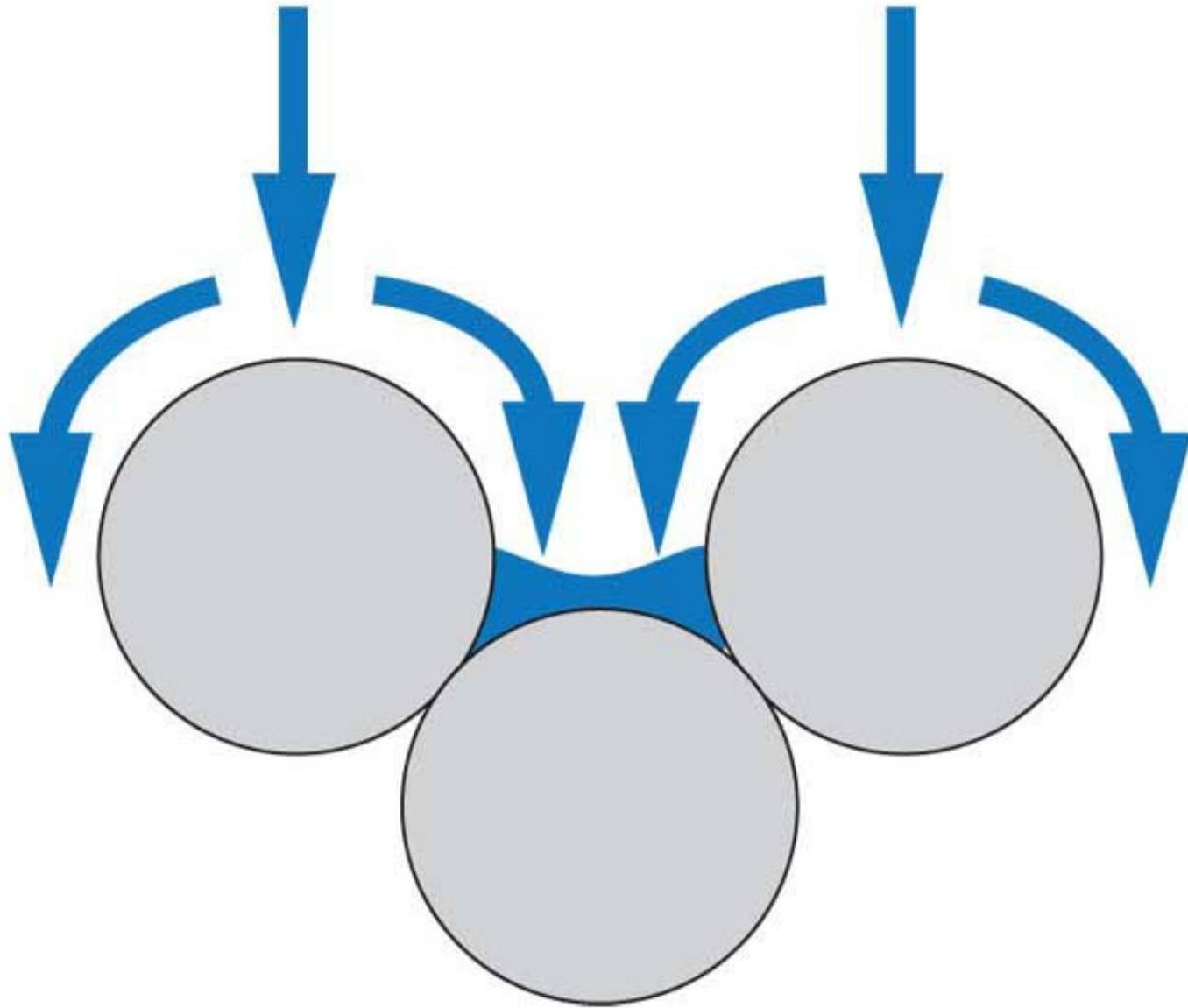




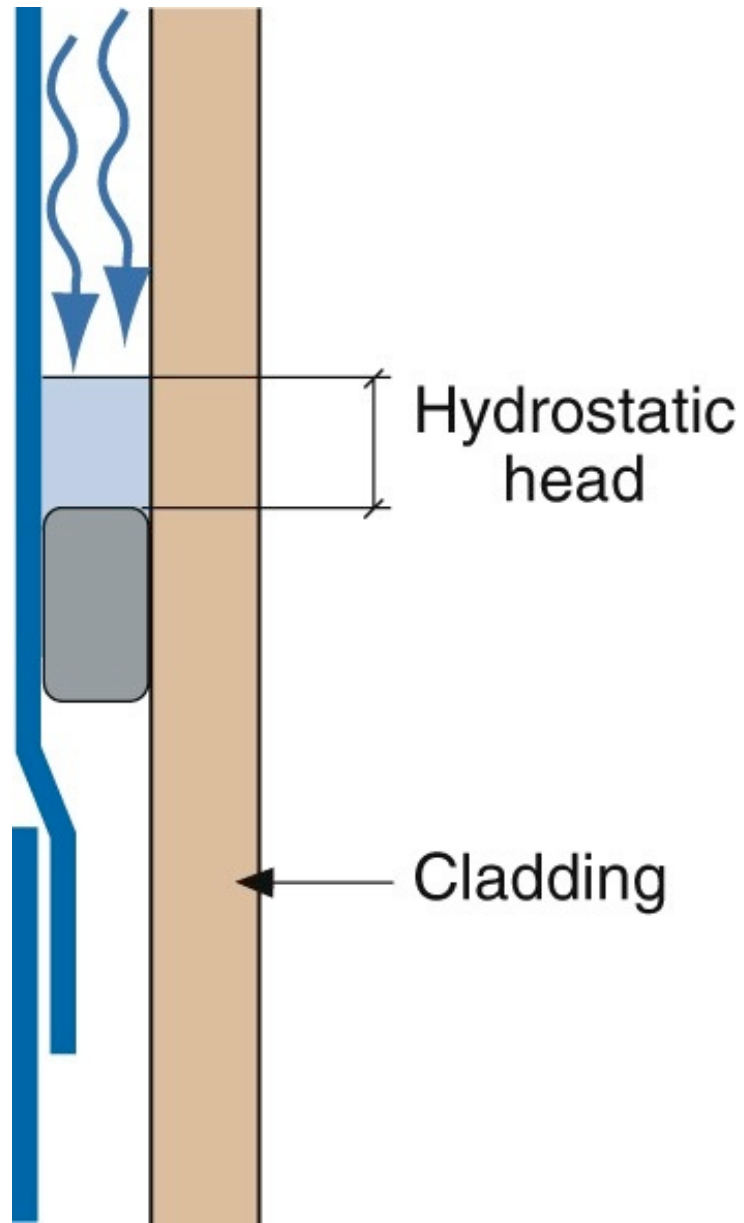


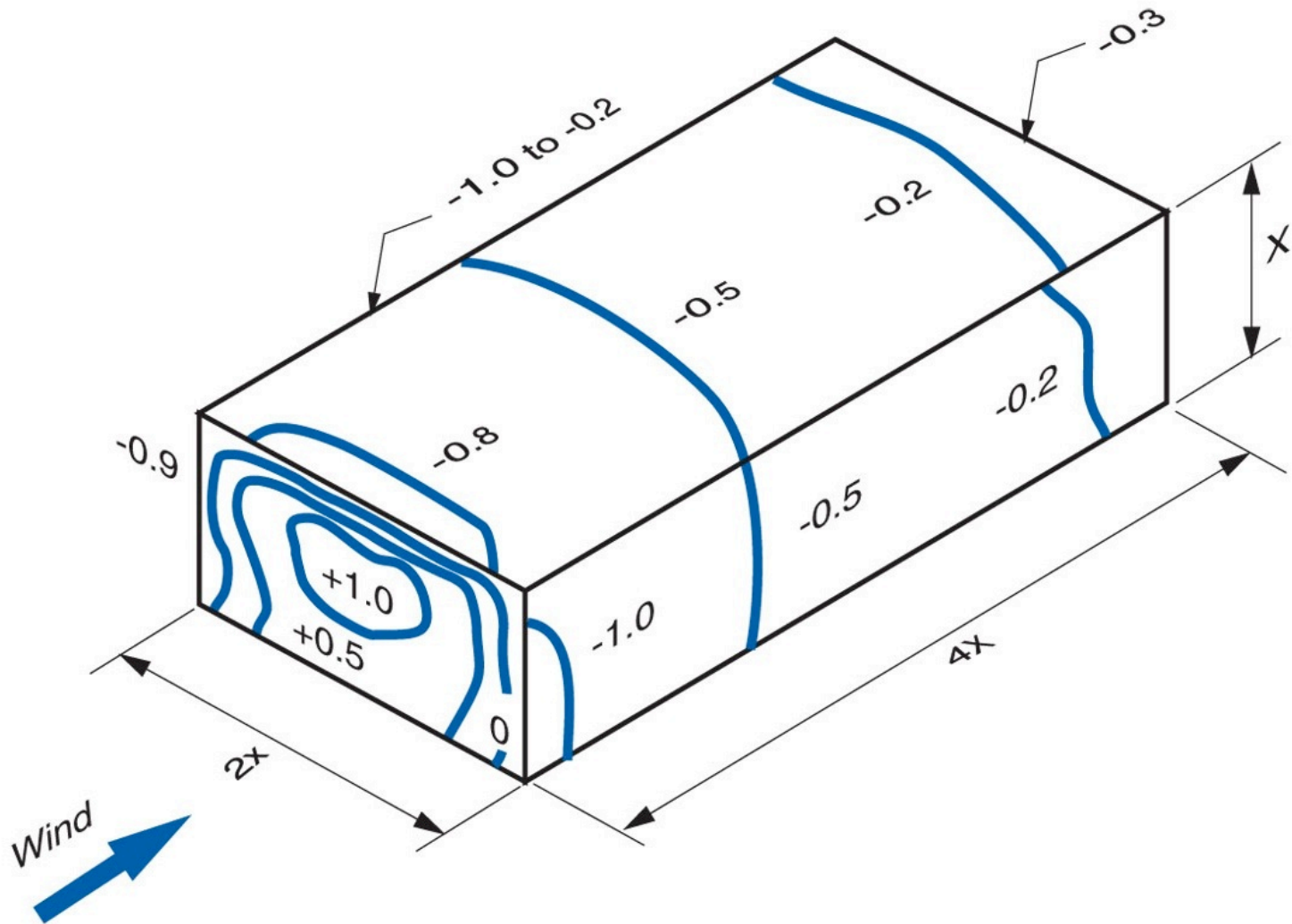




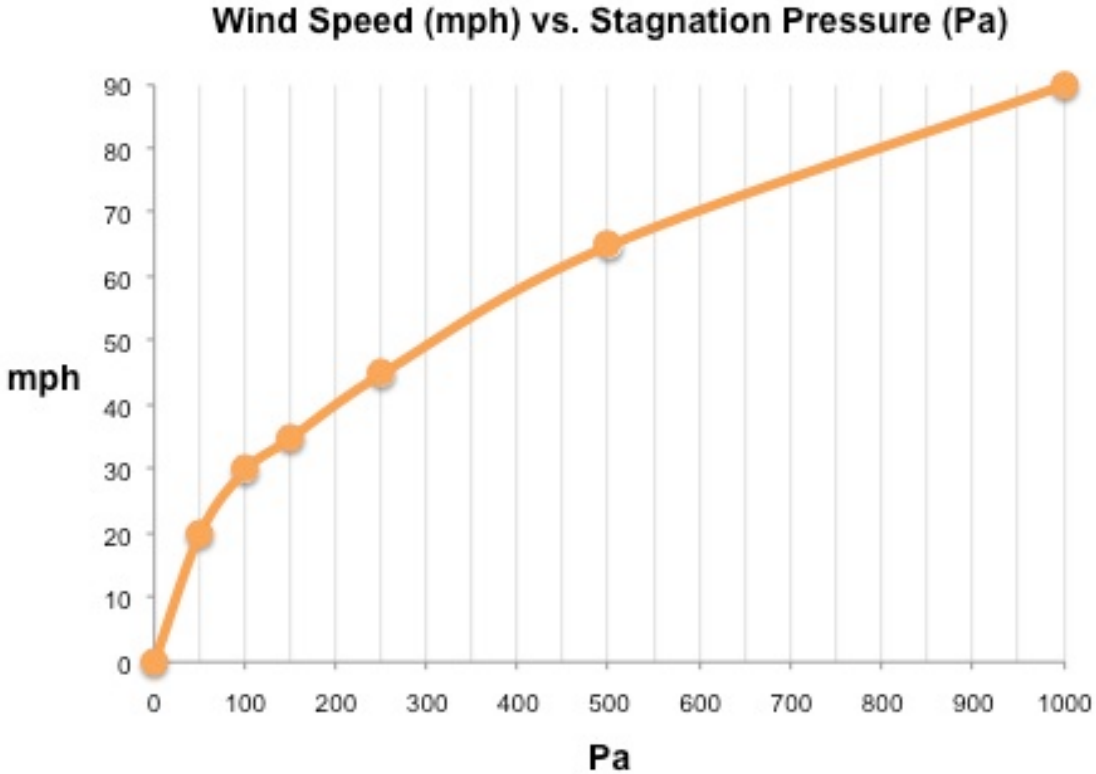


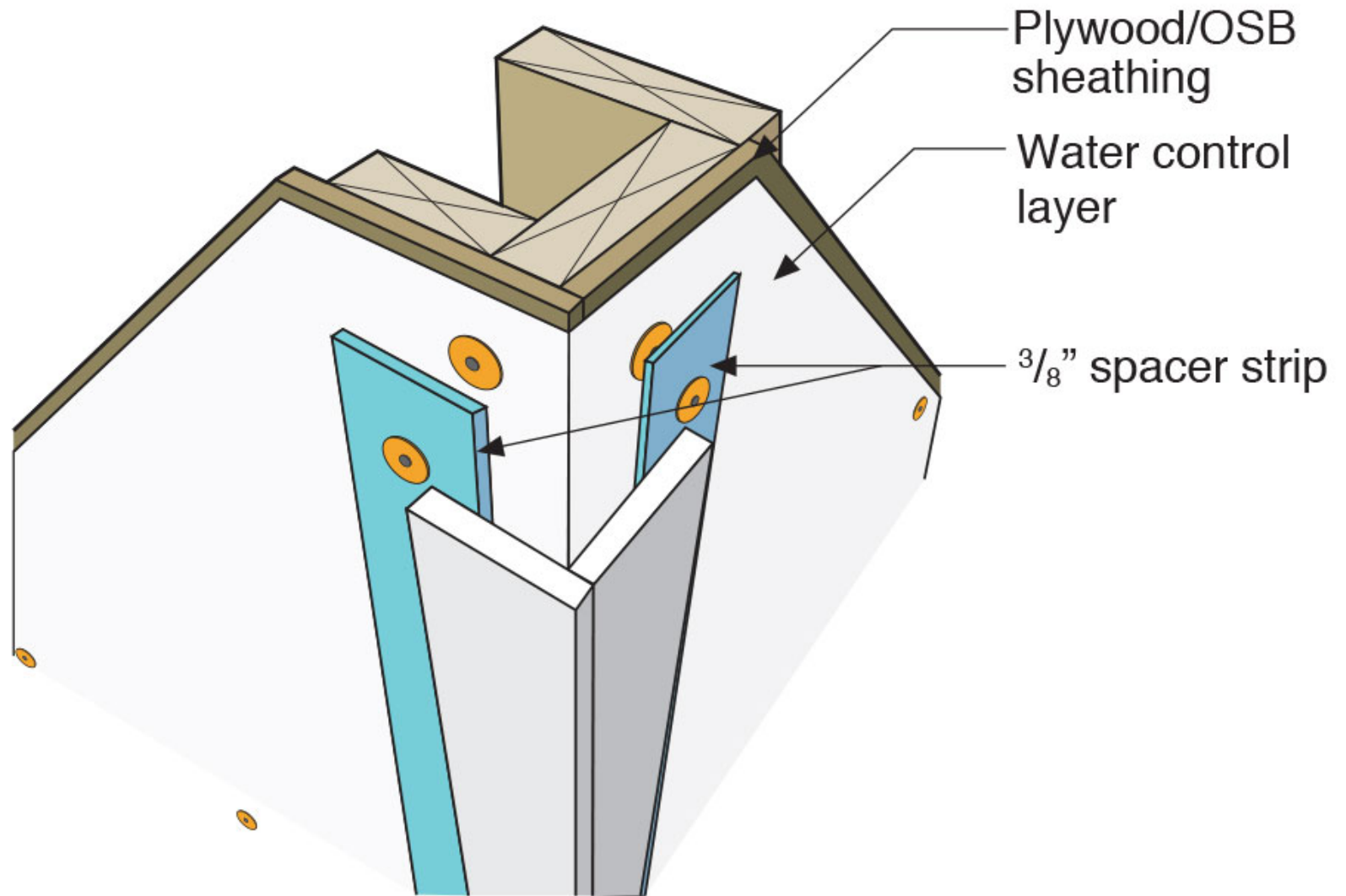


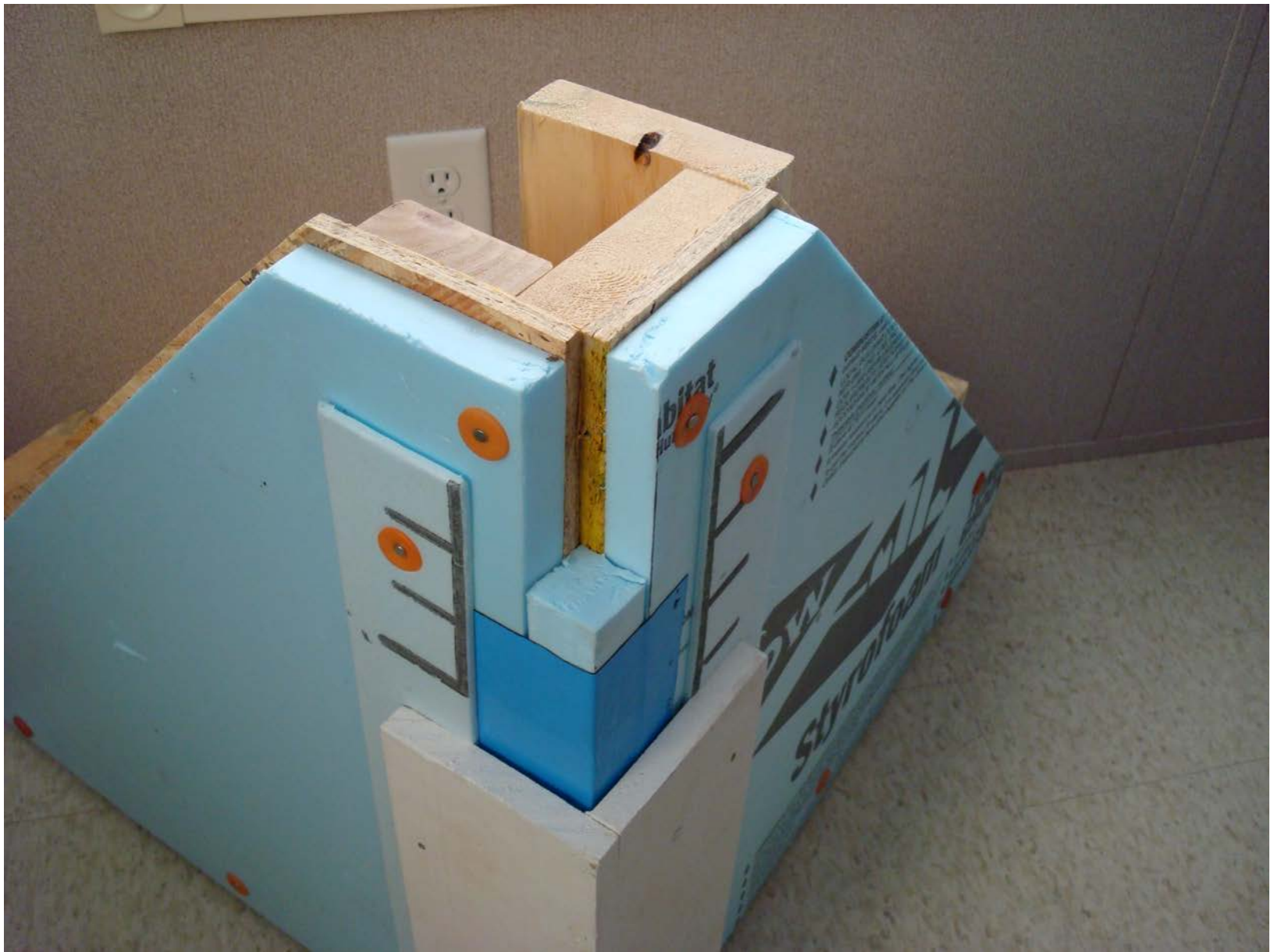




Pascals	mph
50	Pa = 20 mph
100	Pa = 30 mph
150	Pa = 35 mph
250	Pa = 45 mph
500	Pa = 65 mph
1,000	Pa = 90 mph







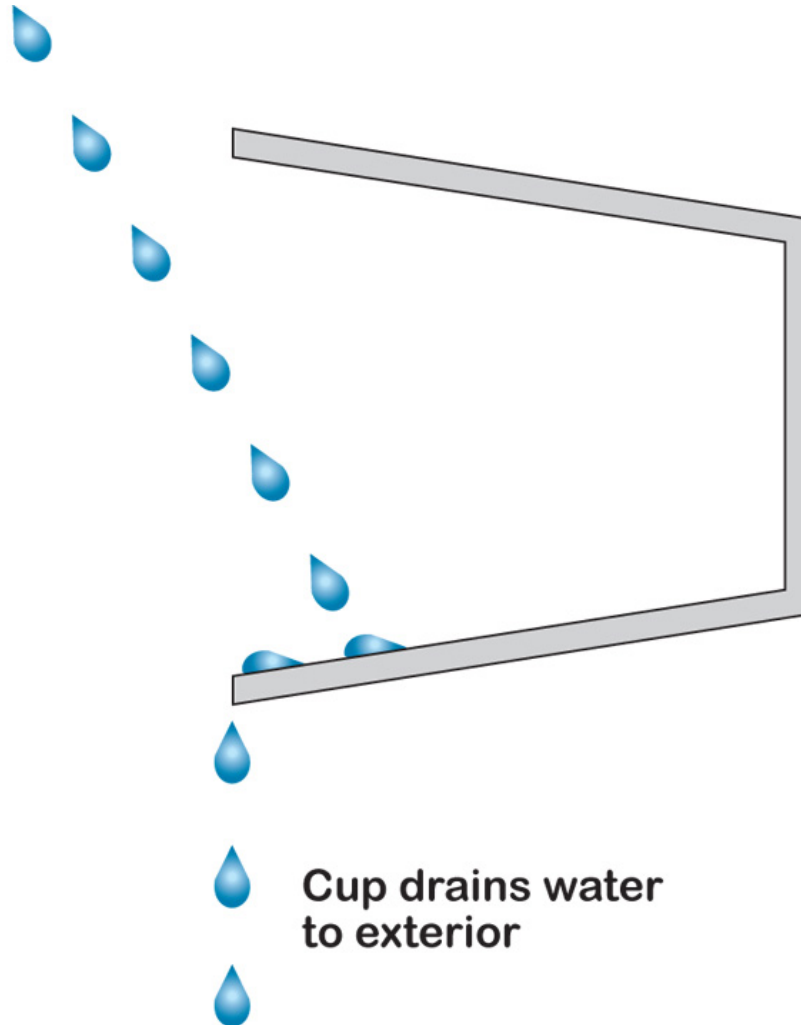








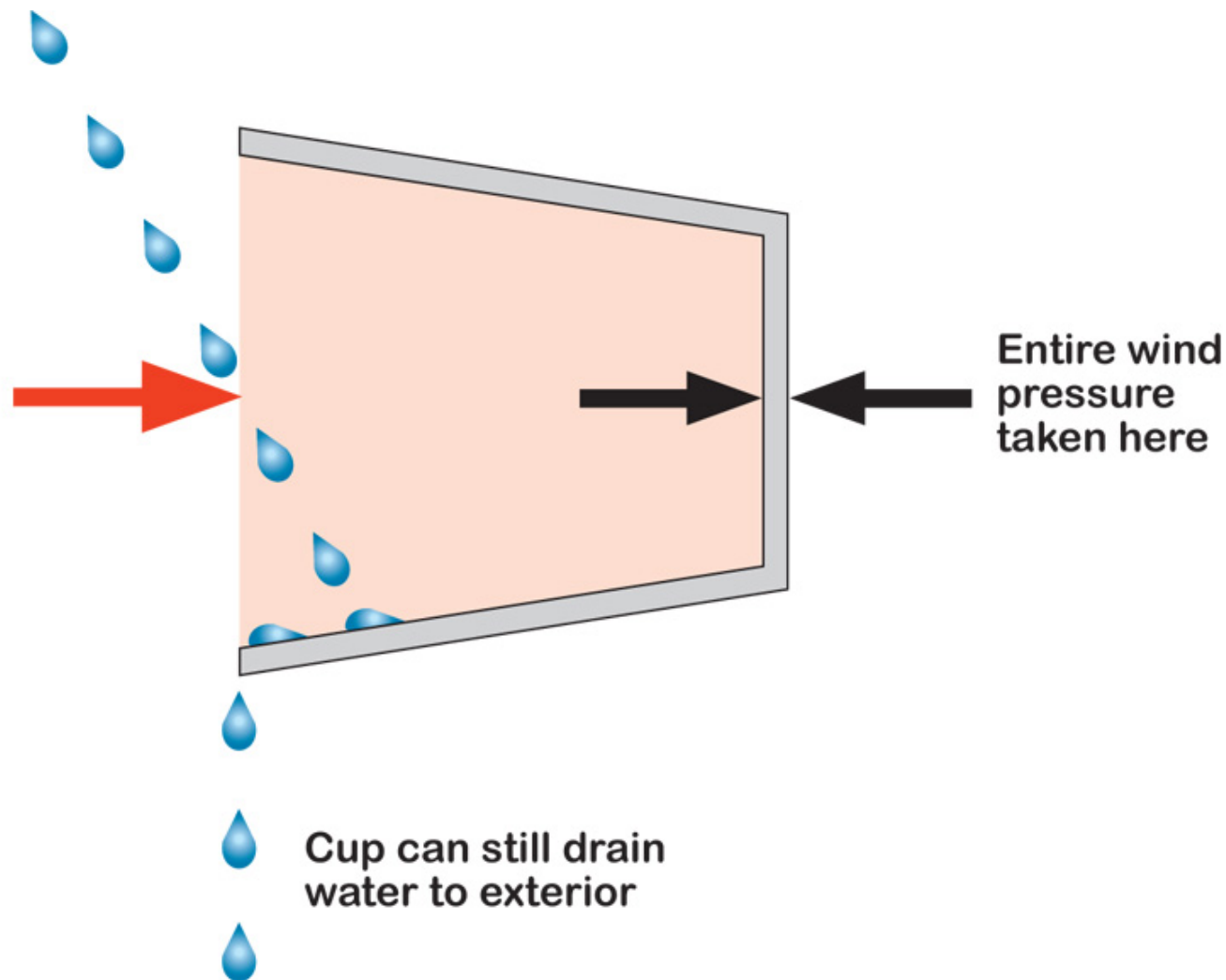
Rain enters cup
due to momentum
("kinetic energy")



Cup drains water
to exterior

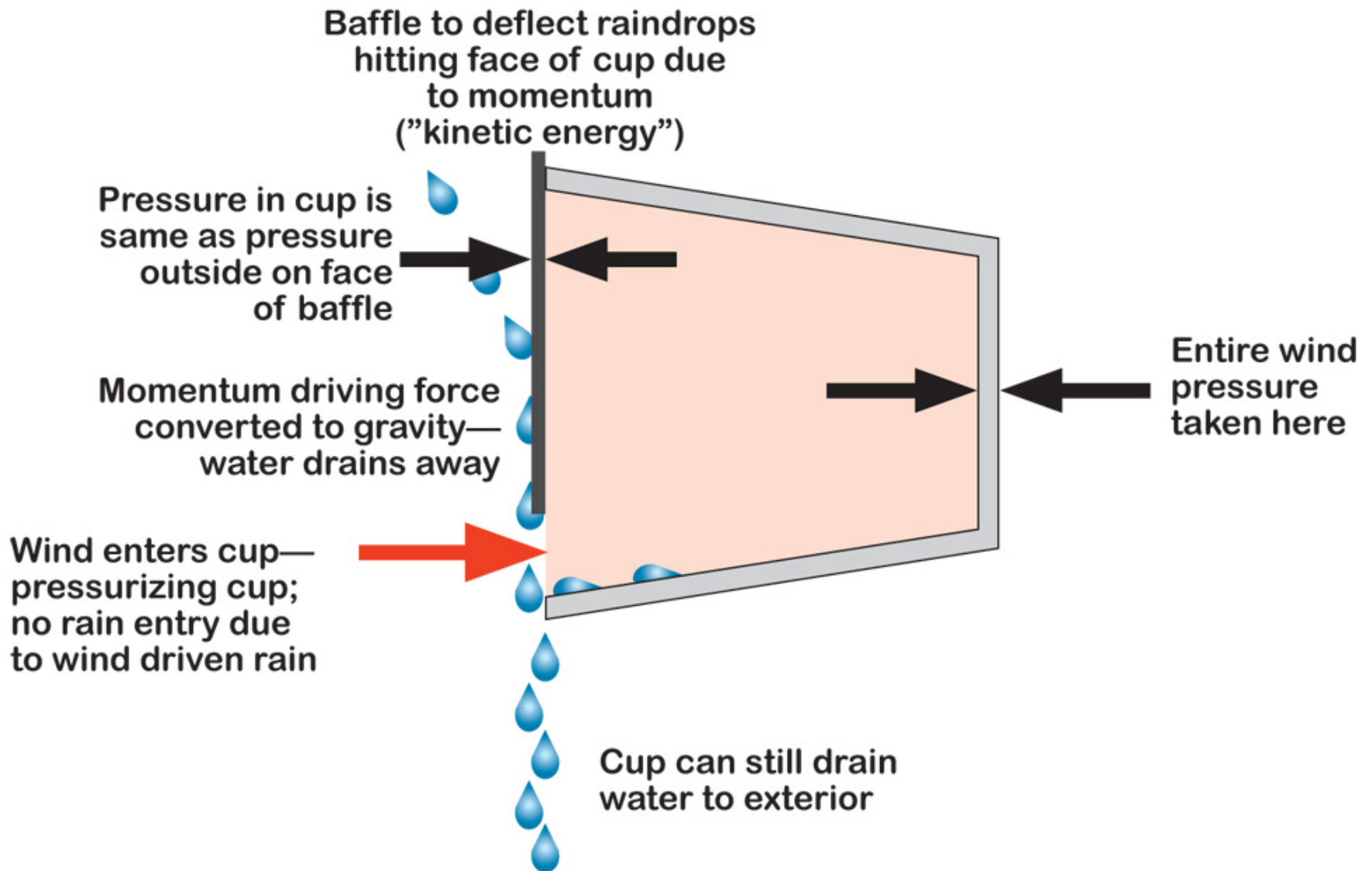
Rain enters cup due to momentum ("kinetic energy")

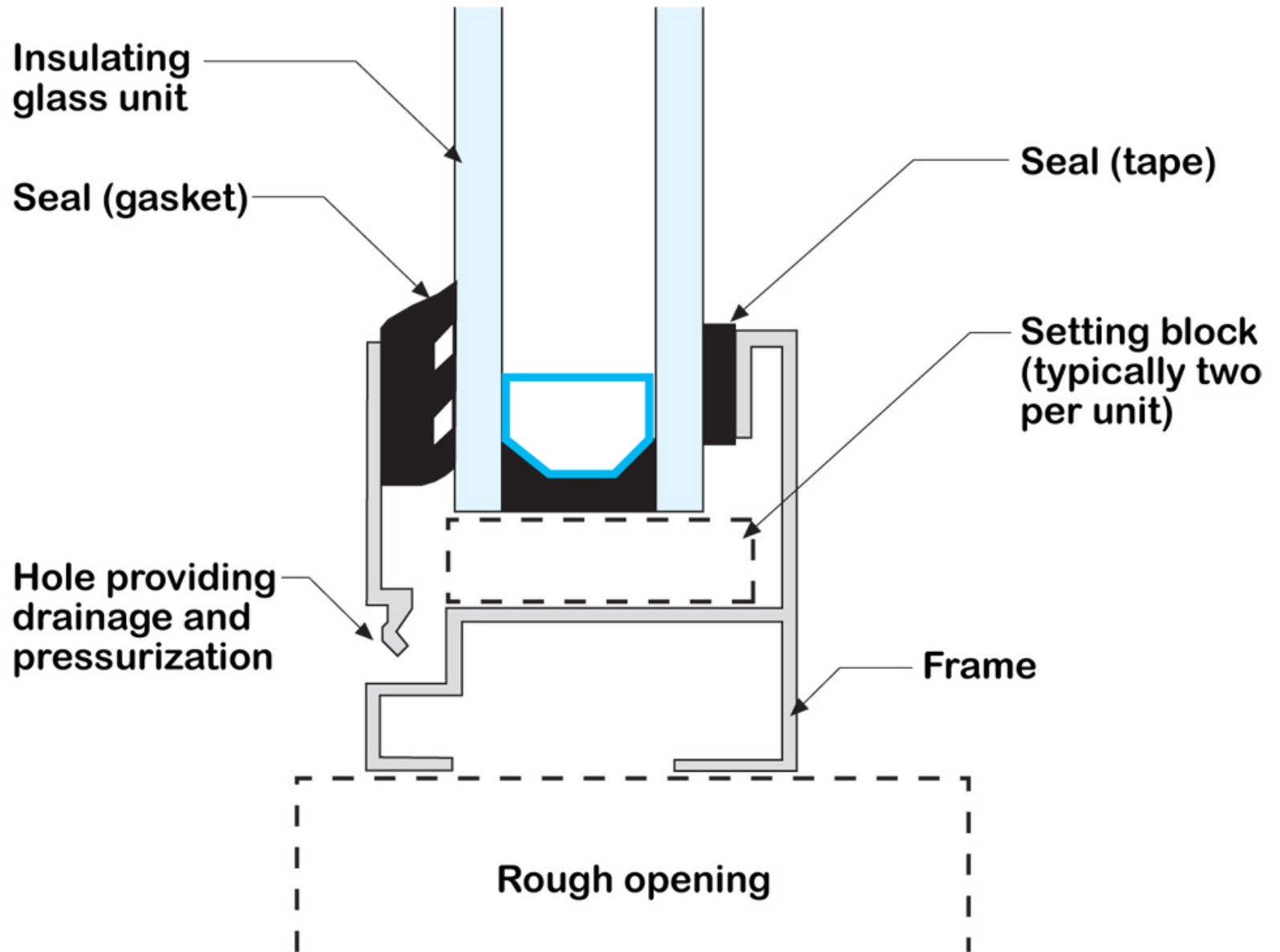
Wind enters cup—pressurizing cup; no rain entry due to wind driven rain

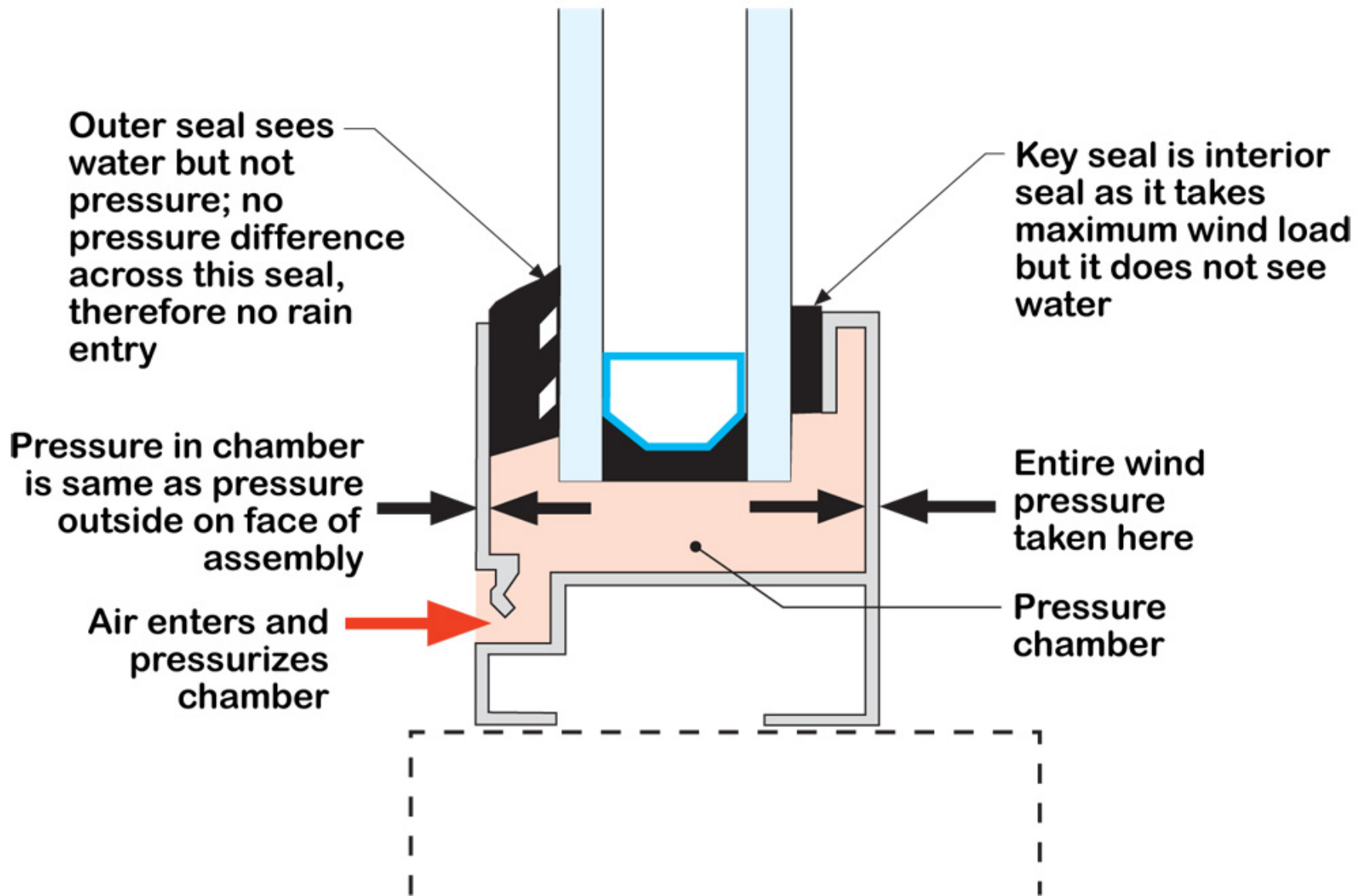


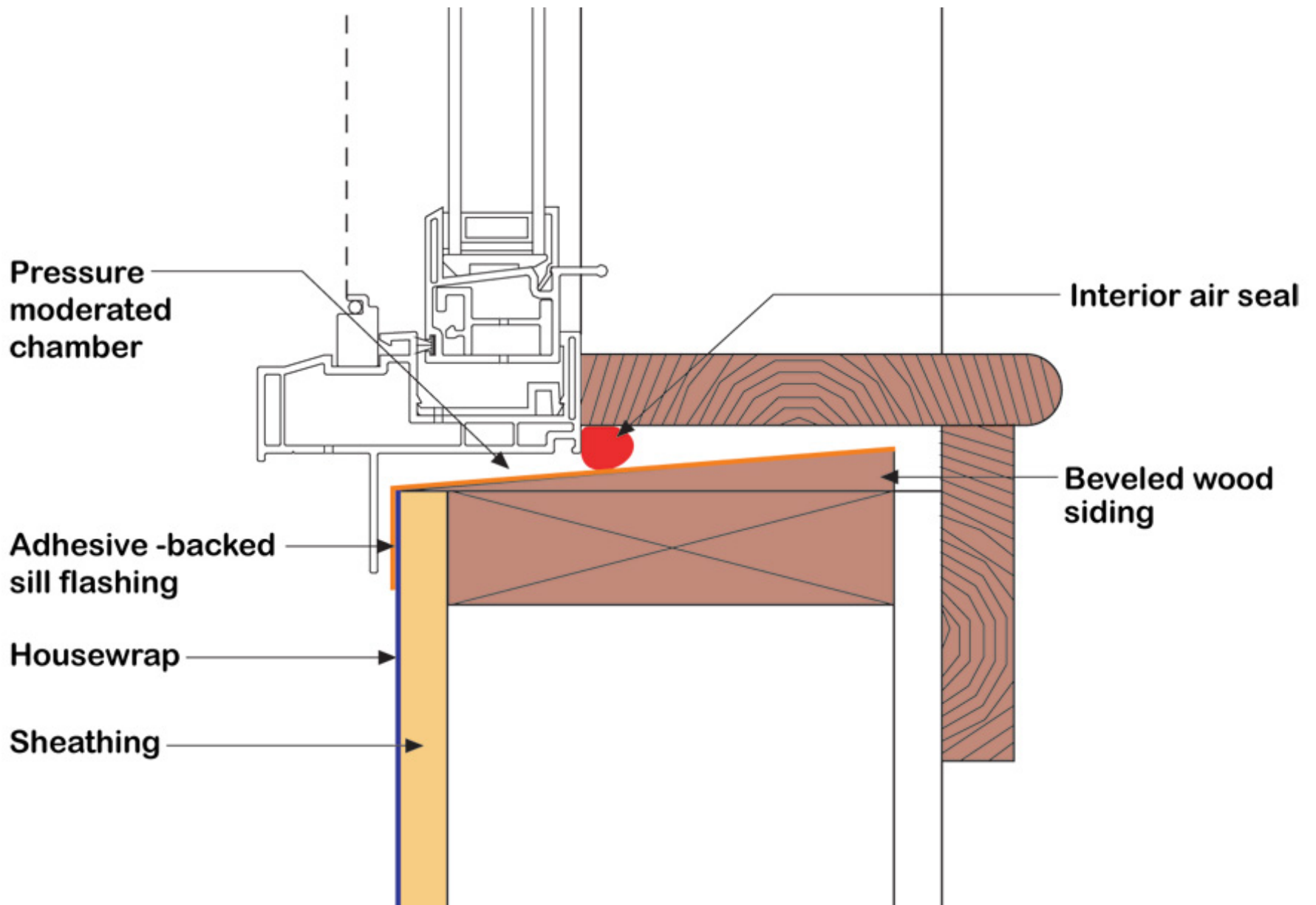
Entire wind pressure taken here

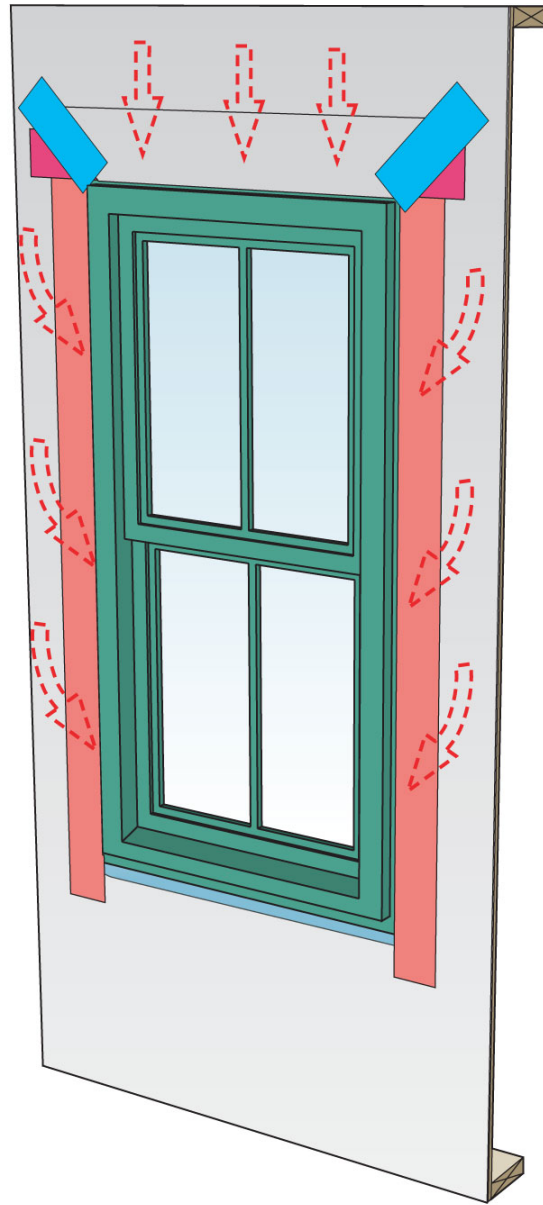
Cup can still drain water to exterior

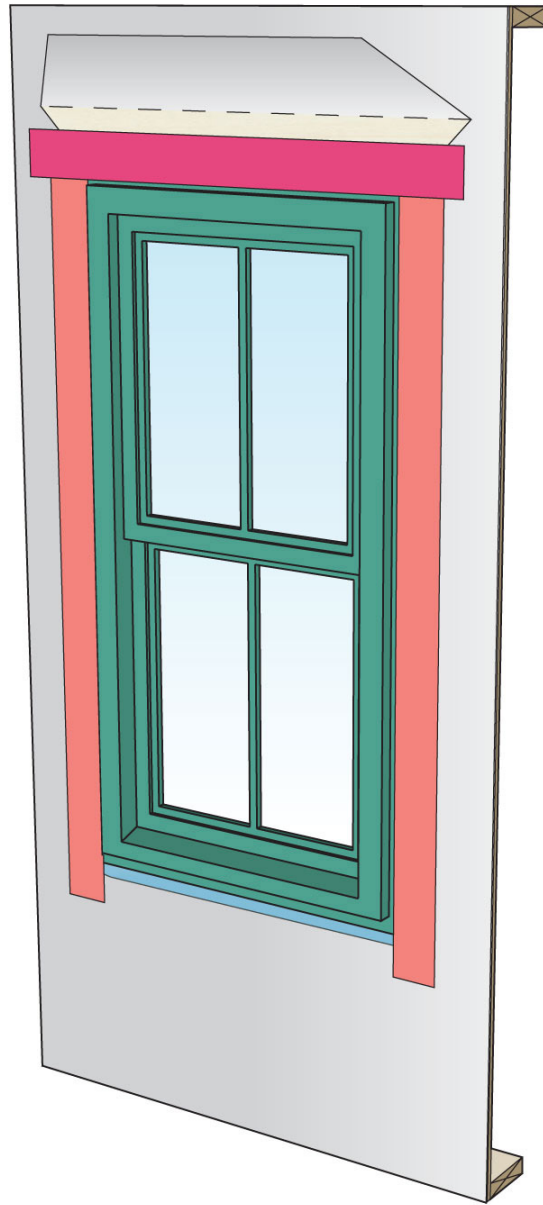




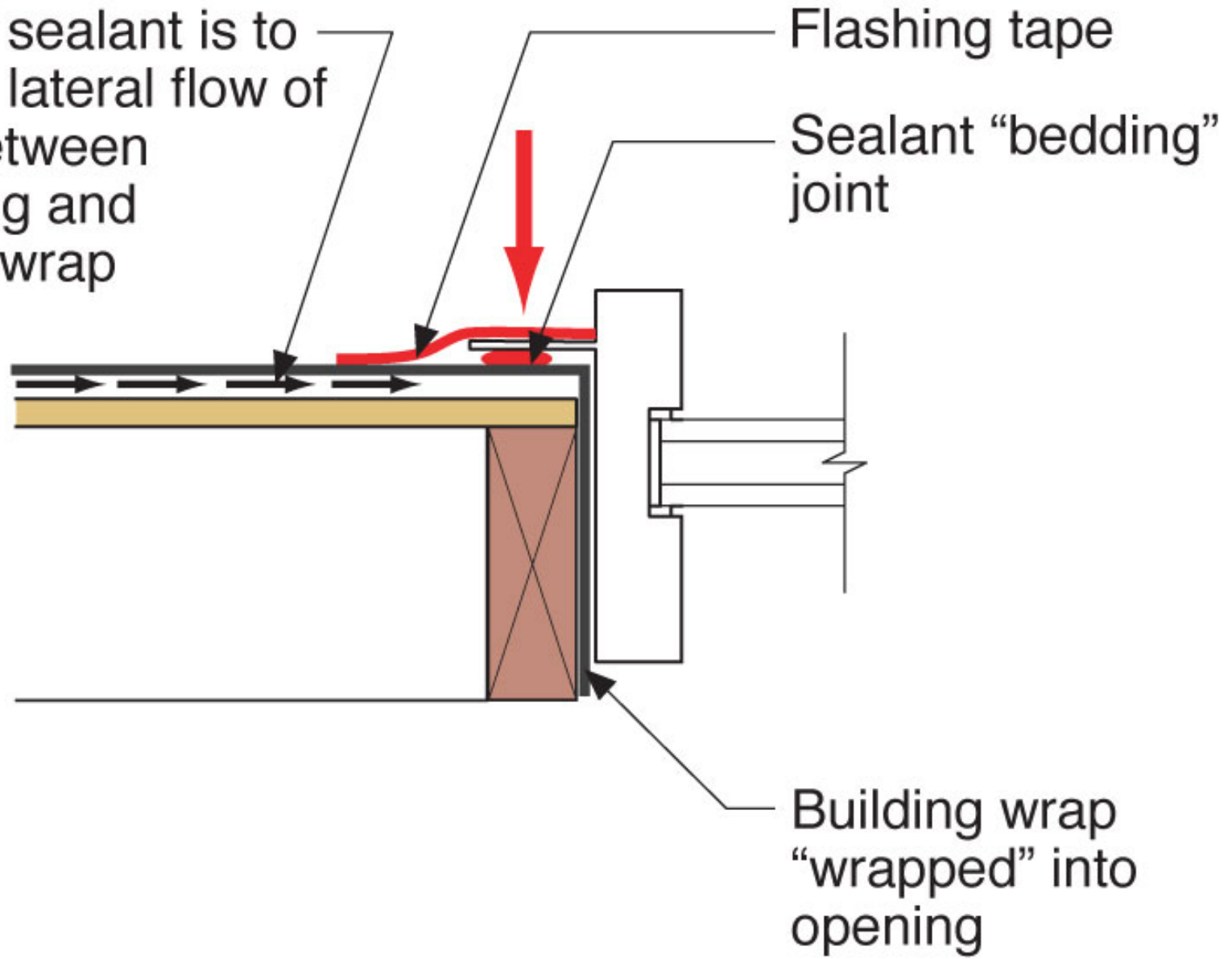


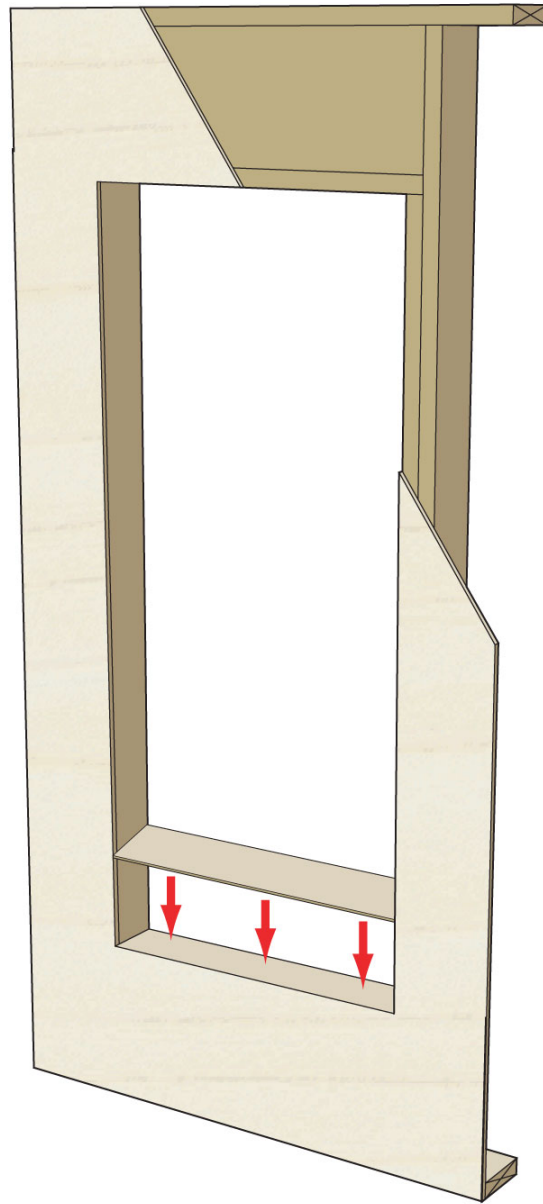


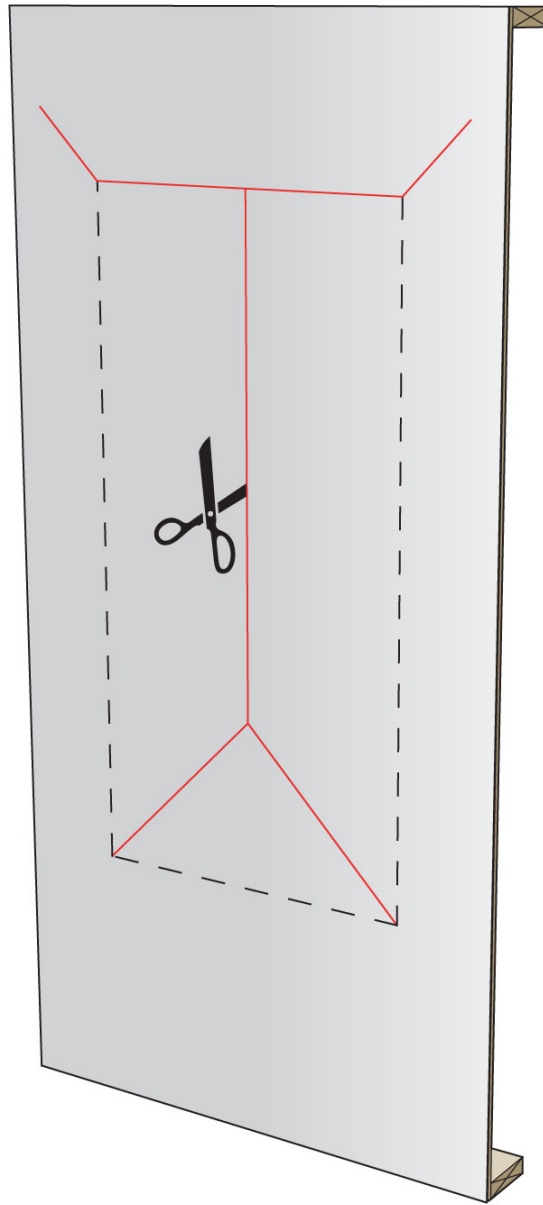


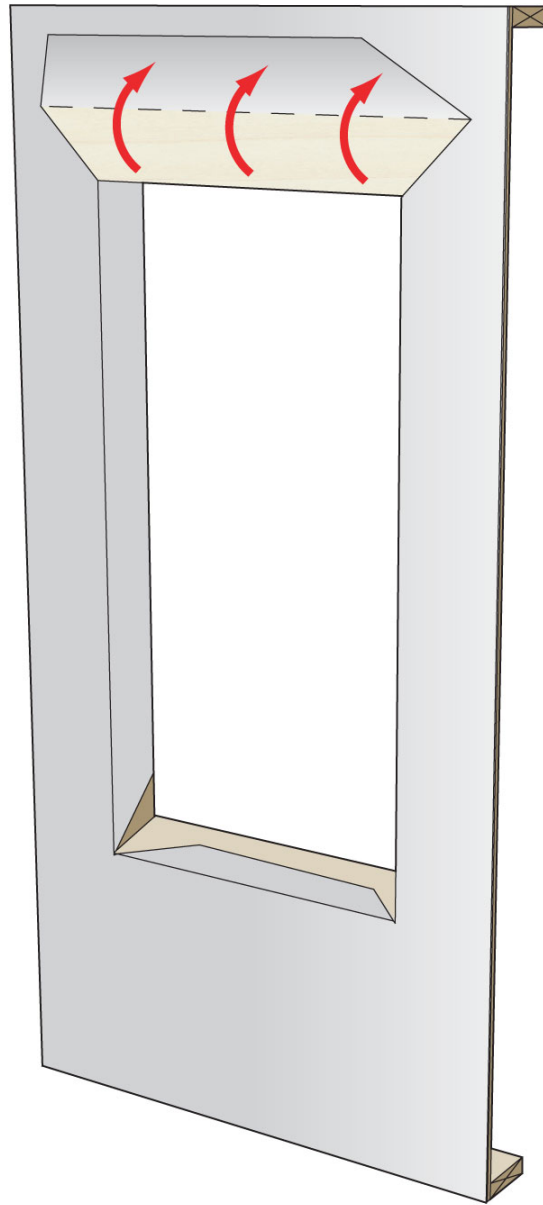


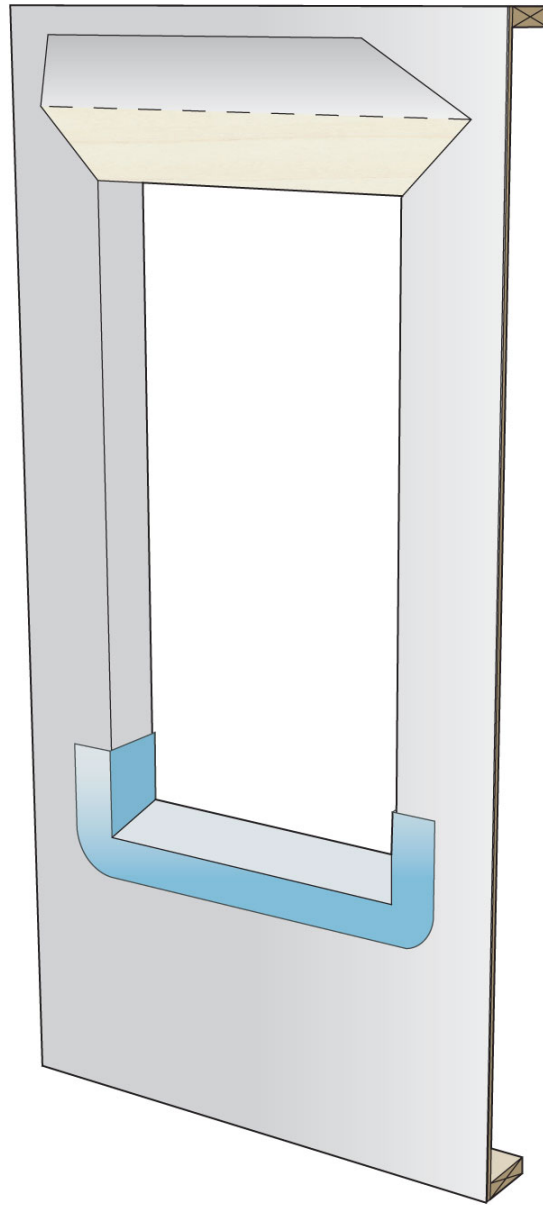
Intent of sealant is to limit this lateral flow of water between sheathing and building wrap

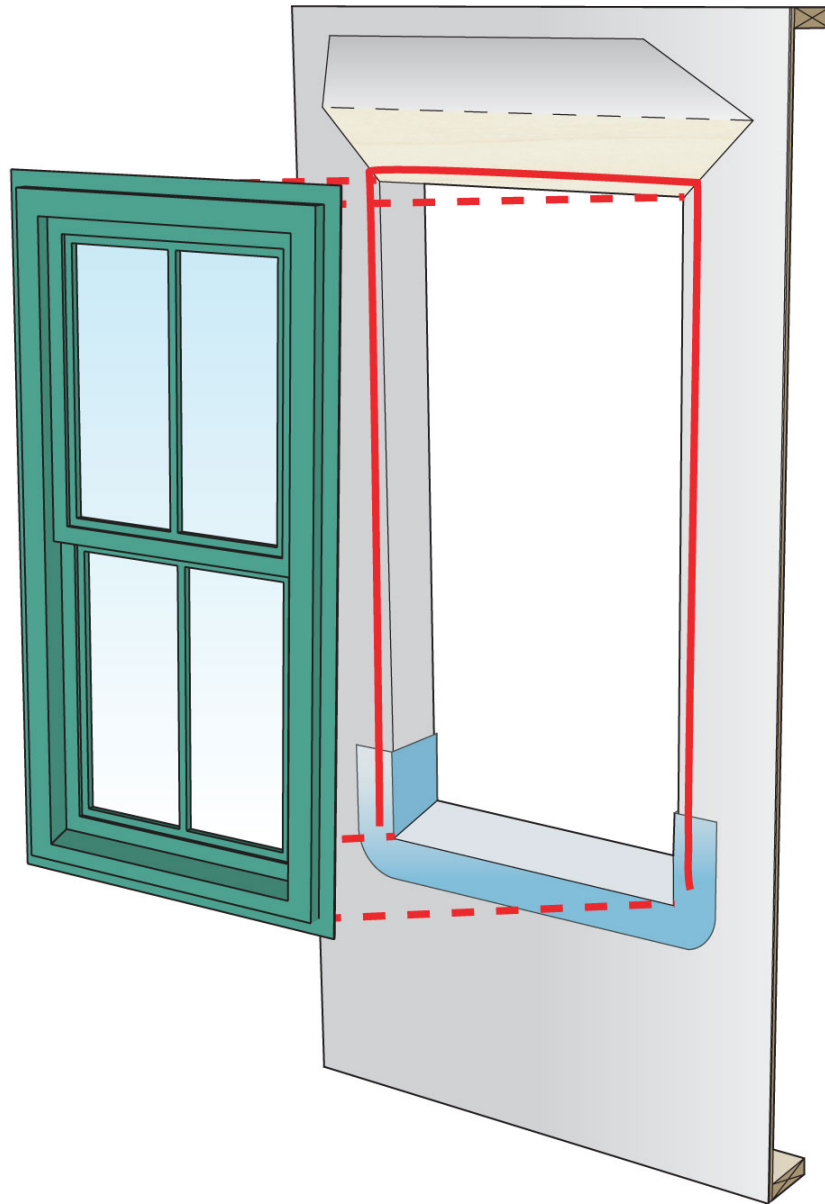


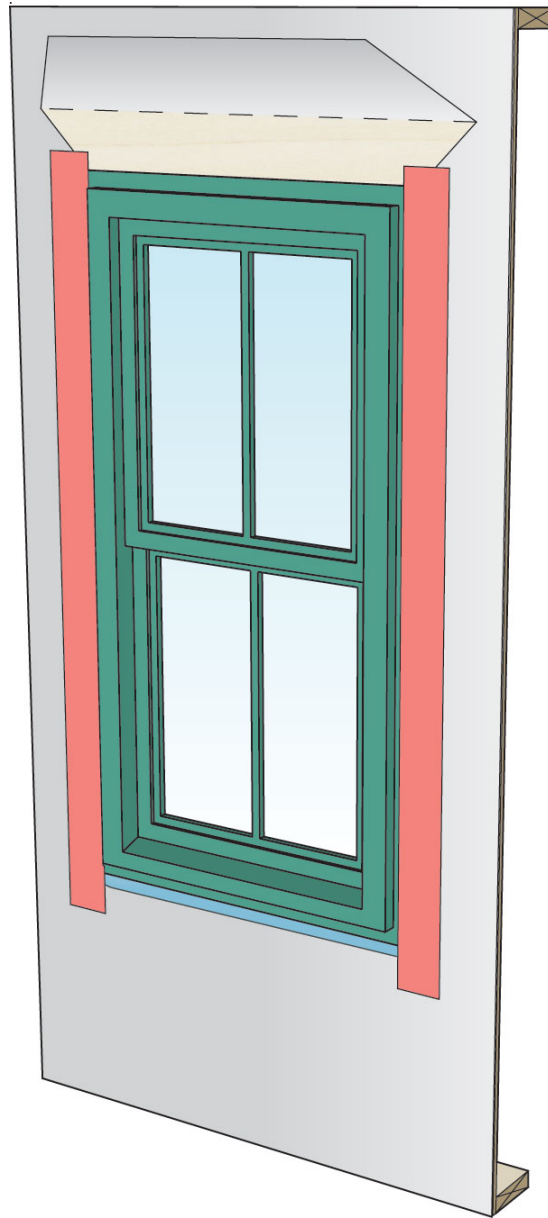


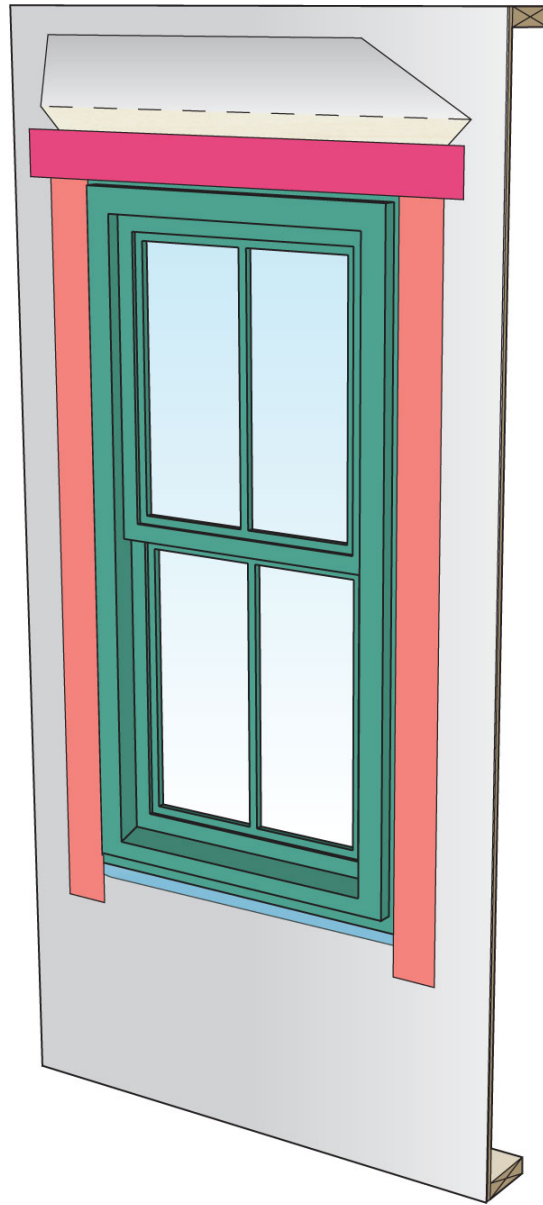


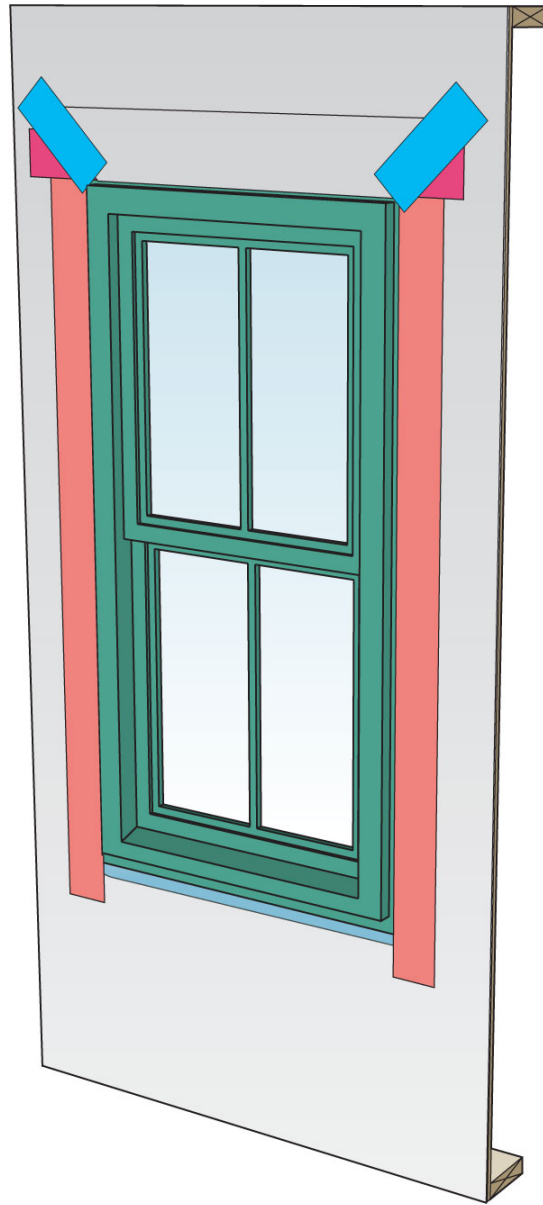


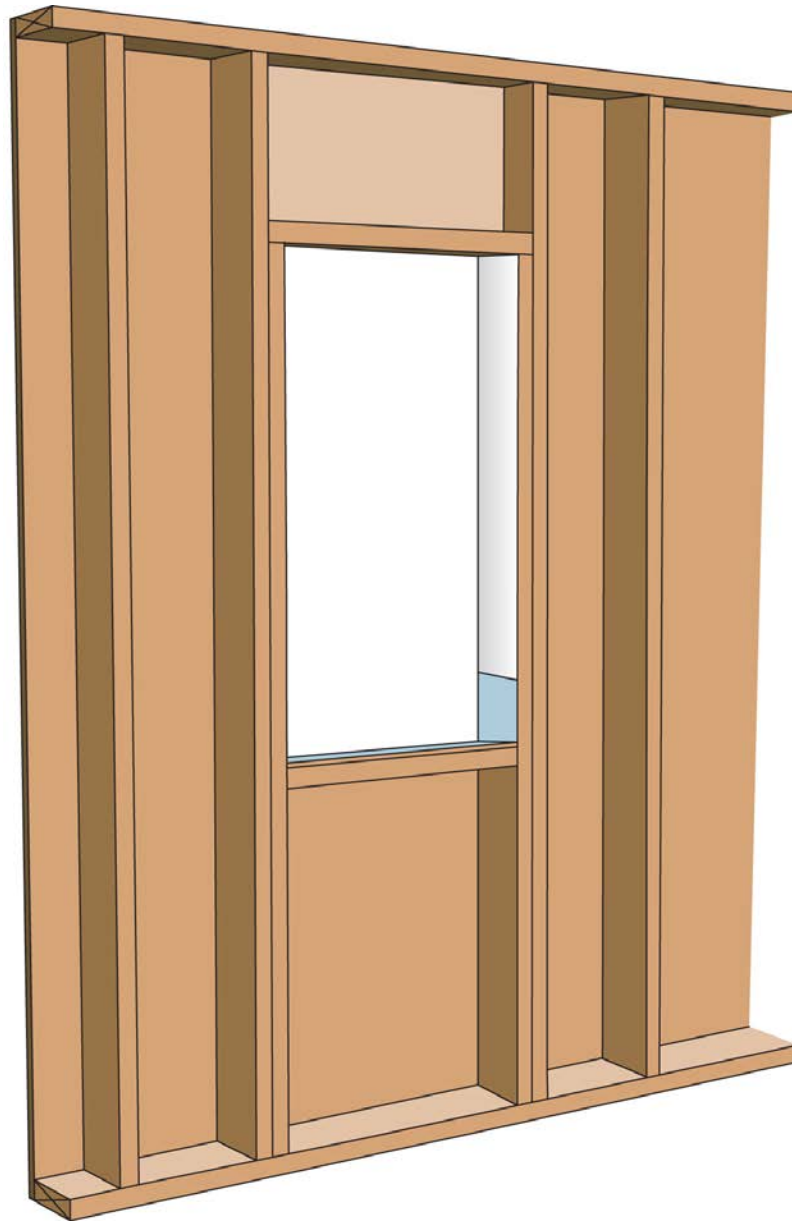




















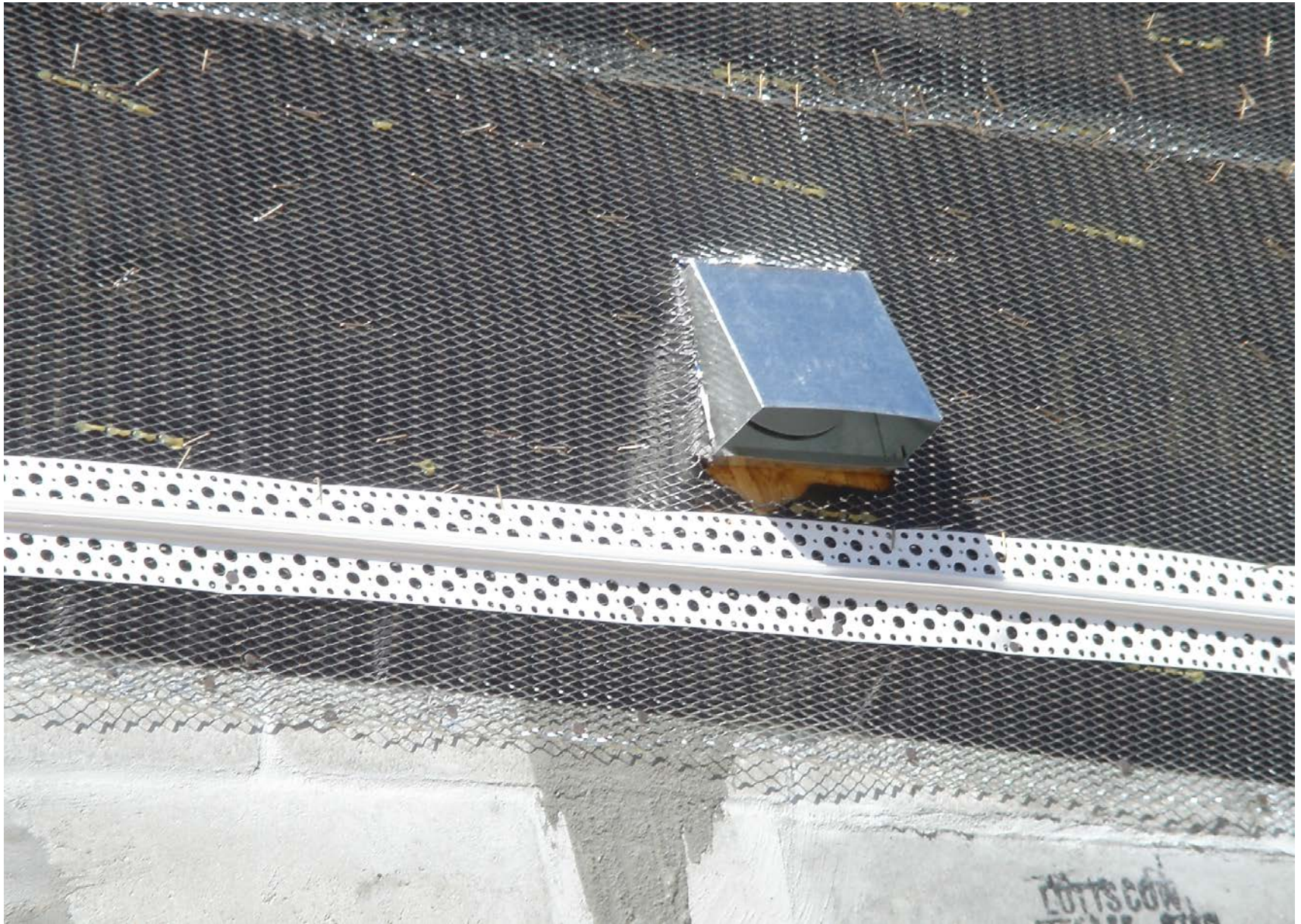


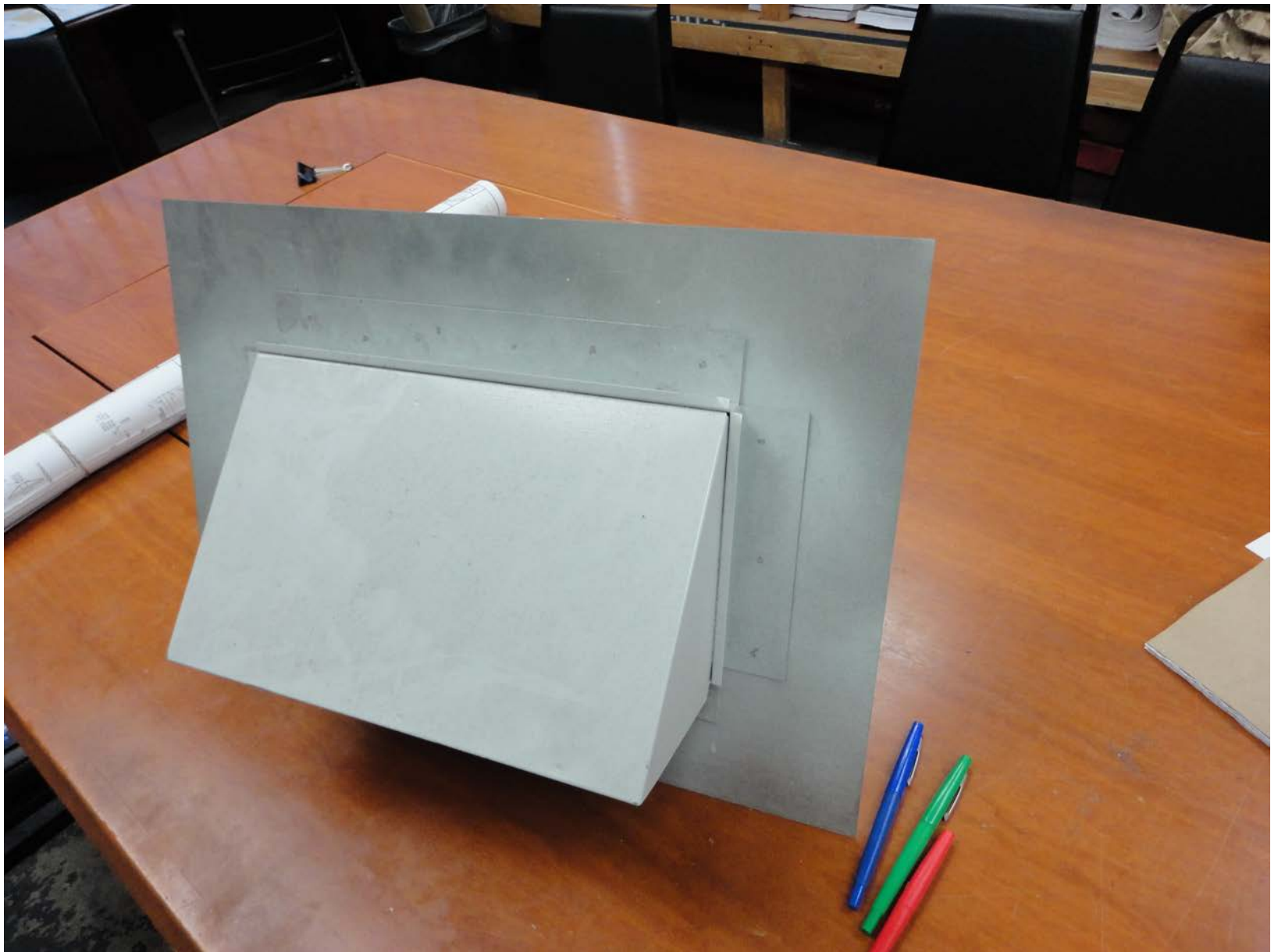














Don't Do Stupid Things



