Brick veneer cladding

Drained and vented cavity

Spray-applied closed-cell high-density foam (2 lb/ft$^3$) water control layer (also air control layer, vapor control layer and thermal control layer)

Concrete masonry unit wall

Metal channel

Gypsum board interior lining

Latex paint
Brick veneer/stone veneer

Drained cavity

Spray-applied closed-cell high-density foam (2 lb/ft³) water control layer (also air control layer, vapor control layer and thermal control layer)

Non paper-faced exterior gypsum sheathing, plywood or oriented strand board (OSB)

Uninsulated steel stud cavity

Gypsum board

Latex paint or vapor semi-permeable textured wall finish
Brick veneer/stone veneer

Drained cavity

Spray-applied closed-cell high-density foam (2 lb/ft$^3$) water control layer (also air control layer, vapor control layer and thermal control layer)

Non paper-faced exterior gypsum sheathing, plywood or oriented strand board (OSB)

Insulated wood stud cavity

Gypsum board

Latex paint or vapor semi-permeable textured wall finish
Brick veneer/stone veneer

Drained cavity

Exterior rigid insulation — extruded polystyrene, expanded polystyrene, isocyanurate, rock wool, fiberglass

Membrane or trowel-on or spray applied drainage plane, air barrier and vapor retarder

Non paper-faced exterior sheathing, plywood or OSB

Spray foam insulation

Gypsum board

Latex paint or vapor semi-permeable textured wall finish
Brick veneer/stone veneer

Drained cavity

Exterior rigid insulation — extruded polystyrene, expanded polystyrene, isocyanurate

Spray foam insulation

Gypsum board

Latex paint or vapor semi-permeable textured wall finish
Brick veneer/stone veneer

Drained cavity

Drainage plane

Non paper-faced exterior sheathing, plywood or OSB

Spray foam insulation

Gypsum board

Latex paint or vapor semi-permeable textured wall finish
Long screw

Sleeve (spacer)

"Hat" channel

HD spray foam

Steel stud

Exterior gypsum sheathing
Brick veneer

Building paper

Interior gypsum should extend to underside of floor deck and be sealed

Exterior sheathing

Metal stud wall

Cavity insulation

Top chord bearing truss

Return plenum operates under negative pressure relative to occupied space and exterior

Suspended ceiling

Interior gypsum
Leaky air handling unit and supply ducts

Supply

Return

Supply

Depressurized conditioned space inducing infiltration
Each "Ping" and "Pong" bounces the water molecules up the slope
3" HD spray foam

OSB/plywood sheathing

2x4 frame wall

Drainage plane

Air seal
1" HD spray foam
4½" cellulose or spray fiberglass
OSB/plywood sheathing
2x6 frame wall
Drainage plane
Air seal
Metal cap
OSB sheathing
Scupper
Sealant
Rigid insulation
OSB
Cavity insulation
Sealant
Polymer modified (PM) or traditional cement stucco
Metal lath
Building paper bond break over drainage plane

18" wide membrane strip under parapet folded down over exterior rigid insulation
Coping wedge
OSB
Rubber roofing membrane
Rigid insulation
Air barrier membrane (membrane roofing in very cold and cold climates; housewraps, building paper in all other climates)

Gypsum board with semi-permeable (latex) paint
Sealant, adhesive or gasket at top plate
Cavity insulation

1/4" cant/ft
Map of DOE's Proposed Climate Zones

March 24, 2003

All of Alaska in Zone 7 except for the following Boroughs in Zone 8:
Bethel
Dillingham
Fairbanks N. Star
Nome
North Slope
Northwest Arctic
Southeast Fairbanks
Wade Hampton
Yukon-Koyukuk

Zone 1 includes Hawaii, Guam, Puerto Rico, and the Virgin Islands

Warm-Humid Below White Line
Low density spray foam insulation

Asphalt shingles

Roofing paper

Roof sheathing

Raised heel truss

Rigid foam, or comparable, as backdam

Soffit

Roof underlayment sealed to drip edge

Non-occupiable space

Gypsum board with latex paint (acts as thermal barrier separating occupiable space from non-occupiable space)
1” HD spray foam

2x6 top chord

OSB/plywood sheathing

Drainage plane

Cellulose or spray fiberglass; 8” nominal

Gypsum board

2x6 frame wall

4½” cellulose cavity insulation

1” HD spray foam
Roof cladding

Roof underlayment

2x6 top chord

1" HD spray foam

"Netted" cellulose; 8" nominal (R-23.5)
Roof cladding

Roof underlayment

2x6 top chord

1" HD spray foam
Spray fiberglass;
8" nominal (R-23.5)
Roof cladding

Roof underlayment

3" HD spray foam (R-19.5)

6 1/4" cellulose or spray fiberglass (R-21)
Vented roof with I-joist
Notes:
- 1 1/2" vented air space connected to soffit and ridge vents
- Gypsum board as air barrier
- Use care at recessed fixtures
- Latex paint as primary vapor retarder

Unvented roof with I-joist
- Roof shingles
- Roofing felt
- Roof sheathing
- 1 1/2" XPS foam
- 2" XPS foam
- Low density spray foam
- Gypsum board
- Latex paint
Airspace

Wood-based subfloor

Gypsum board

Rigid insulation

Cavity insulation
Wood flooring (back-coated)

- Slip surface (rosin paper or building paper)

- Floor sheathing (OSB or plywood)

- Closed cell (2 lb/ft³ density) spray foam
- Carpet
- Carpet pad
- Floor sheathing (OSB or plywood)
- Closed cell (2 lb/ft³ density) spray foam
Vinyl flooring

Floor sheathing (OSB or plywood)

Closed cell (2 lb/ft³ density) spray foam