
AIR SEALING GUIDE

MULTIFAMILY WOOD CONSTRUCTION



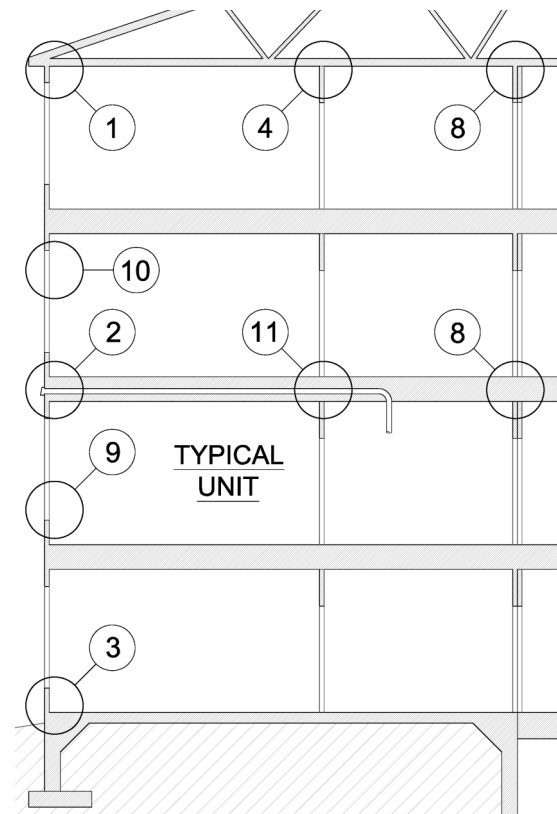
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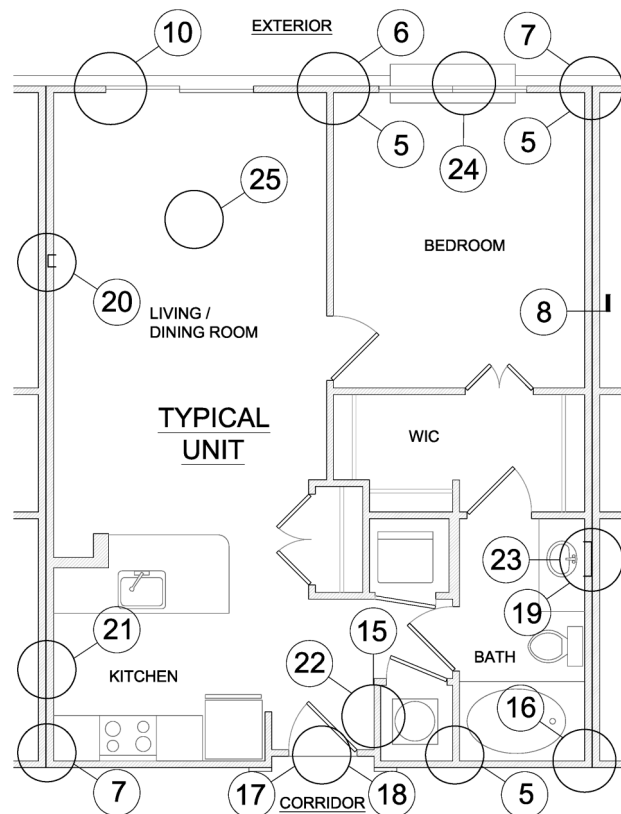
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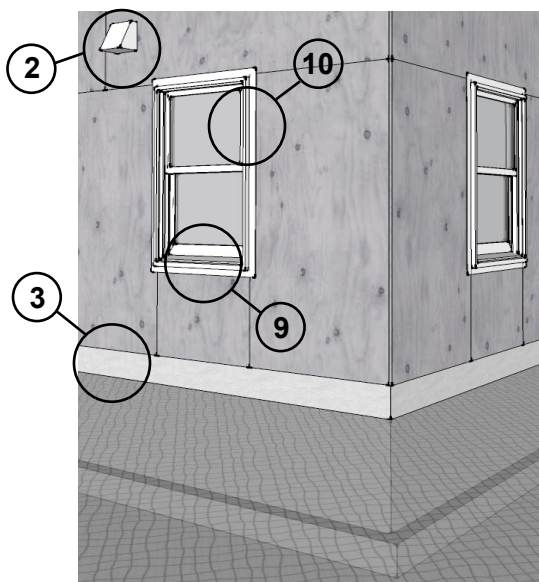


SECTION KEY
TYPICAL MULTIFAMILY BUILDING



PLAN KEY
TYPICAL UNIT PLAN

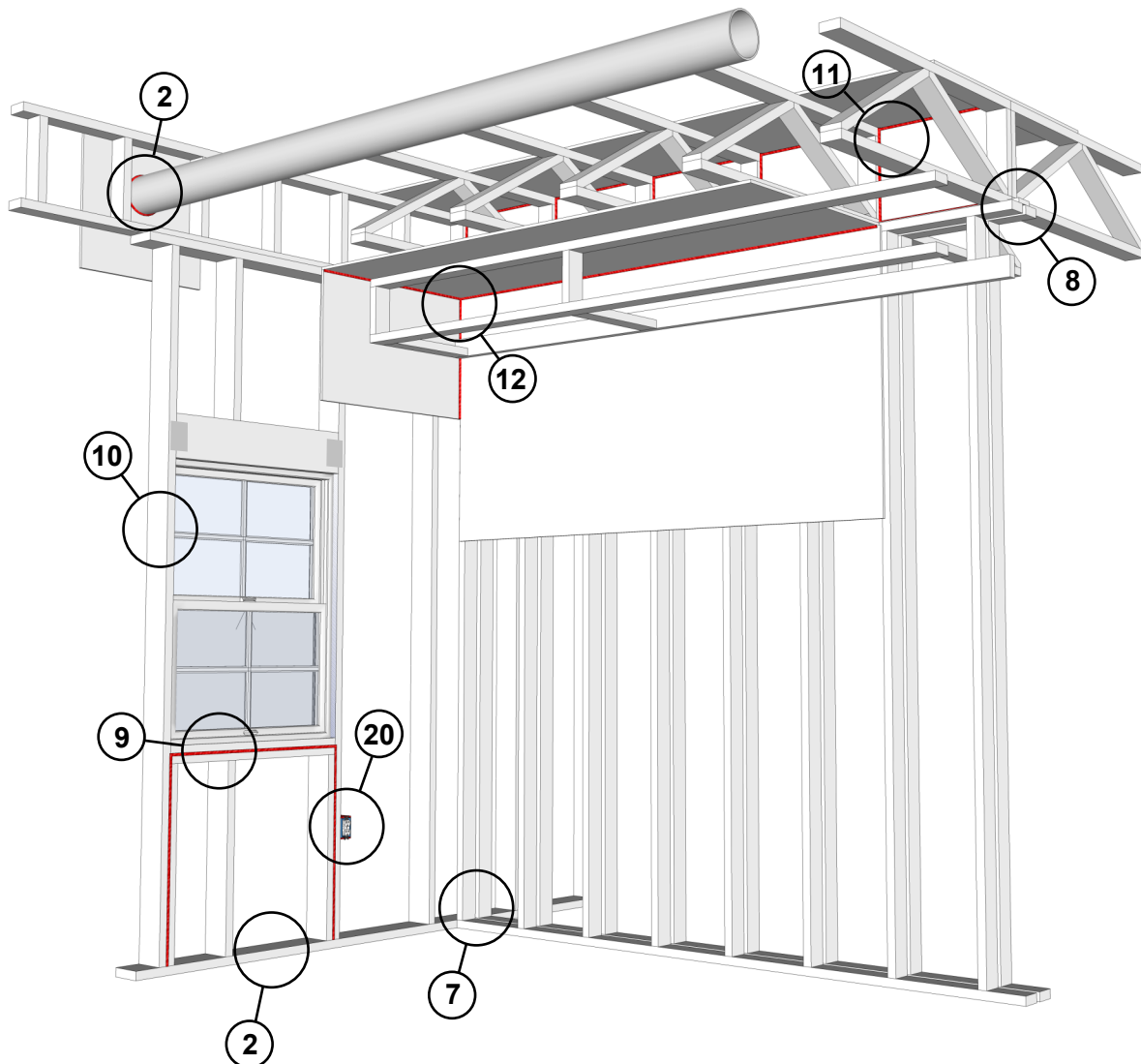
ELEVATION KEY
TYPICAL WOOD-FRAMED BUILDING



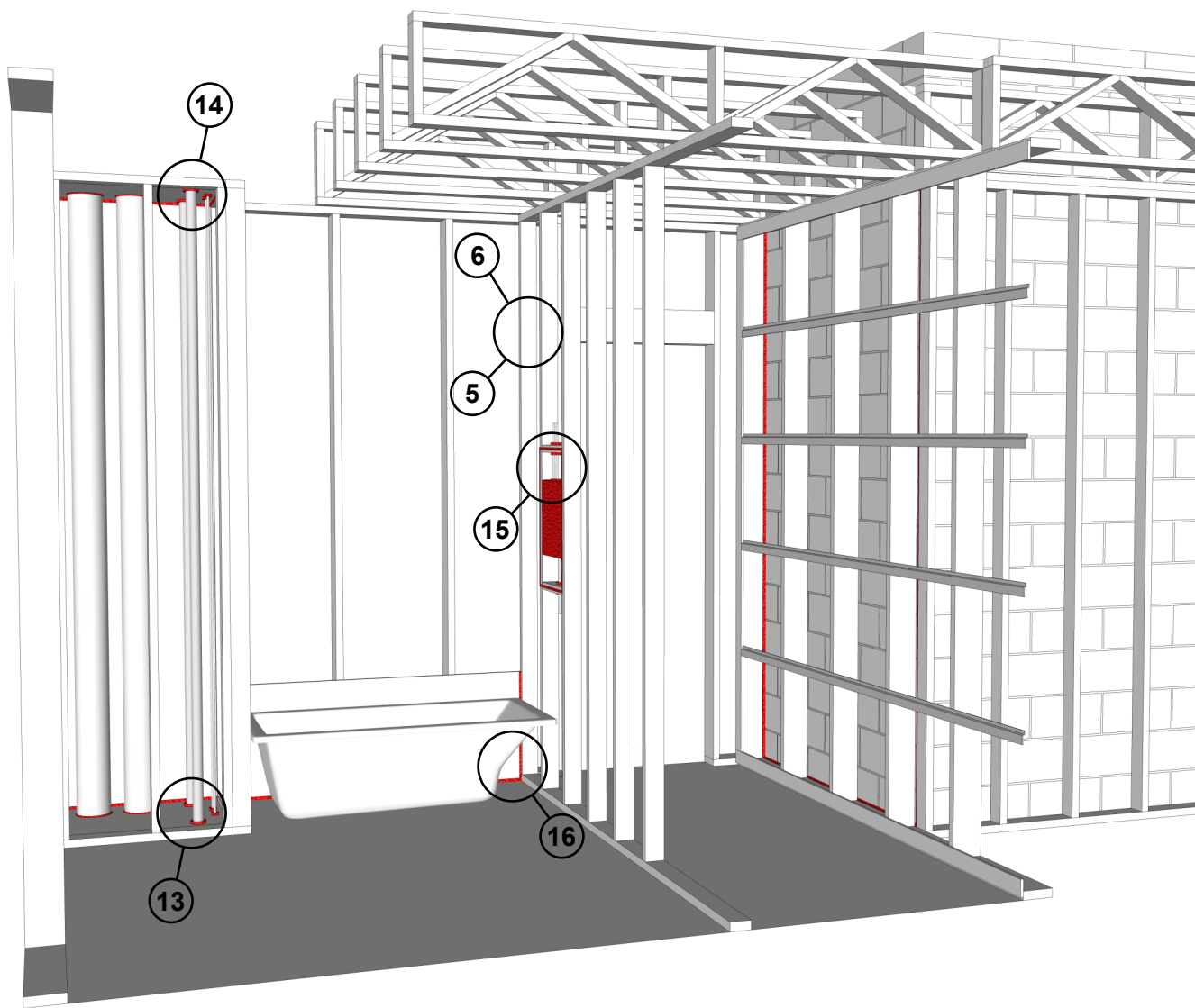
RULES OF THUMB

1. Use shrink/crack-proof caulk to seal gaps smaller than 1/4"
2. Use expanding foam to seal gaps larger than 1/4"
3. Spray-on air sealing products are very effective (i.e. EcoSeal)
4. Use low-expanding foam at window and door openings
5. Use temperature-appropriate sealant (i.e. high-temp caulk at flues, heating pipes, etc.)
6. Clean out cracks before applying sealant (i.e. compressed air, vacuum, damp cloth, etc.)
7. Assign to one trades person or party the responsibility of confirming completion of the air sealing tasks for each type of penetration or condition (this guide includes suggestions for which trades should be initially responsible for each task)

The next 4 pages, have 4 scenarios (SCENARIO A-D) that show specific conditions that can be found in multifamily wood construction buildings and the details to properly air-seal those conditions.

SCENARIO A
EXTERIOR WALL AT DOUBLE WALL

SCENARIO B
CHASE AND BATHTUB



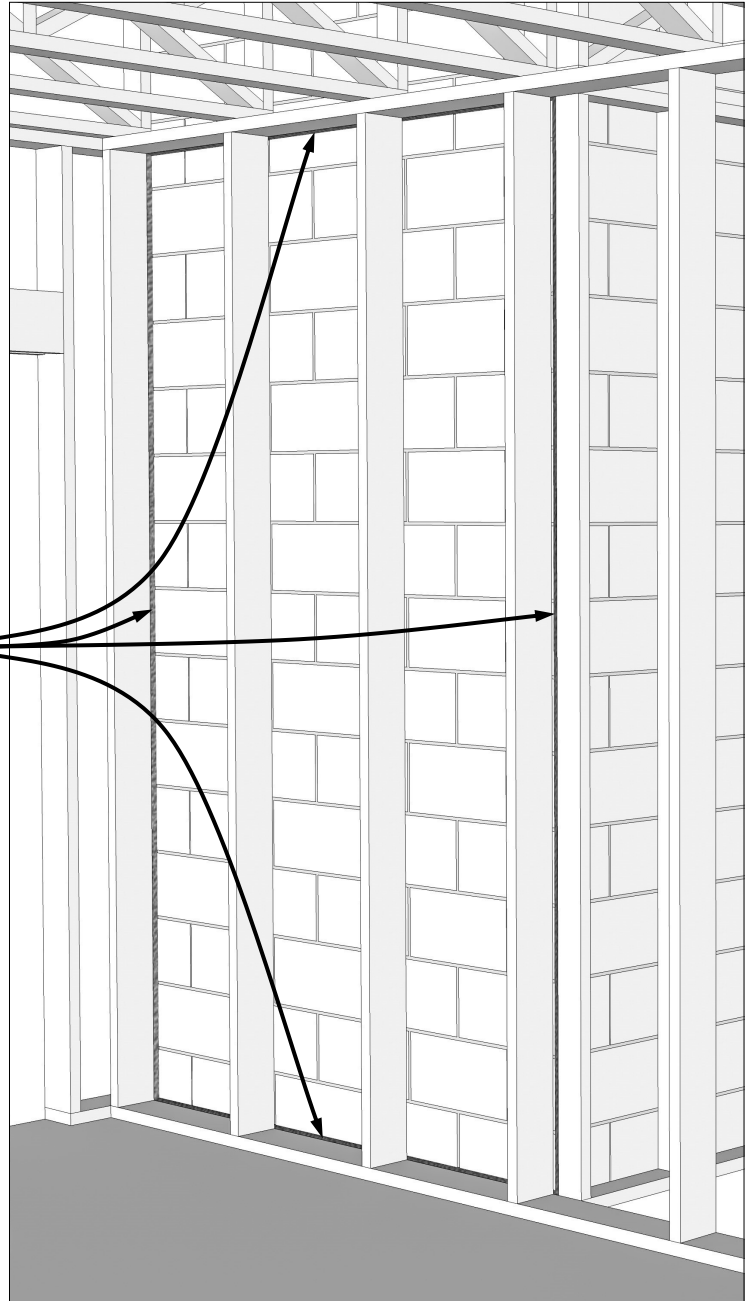
SCENARIO C
FRAMED WALL AT CMU WALL**Notes:**

- A. Intent: reduce leakage between floors along the CMU wall and through the framed wall to the unit
- A. If there is a wide gap, blocking might need to be installed before applying the sealant.

Responsibilities:

Framing: A

A. SEAL FRAMING
TO CMU WALL



SCENARIO D
RESILIENT CHANNEL WALL**Notes:**

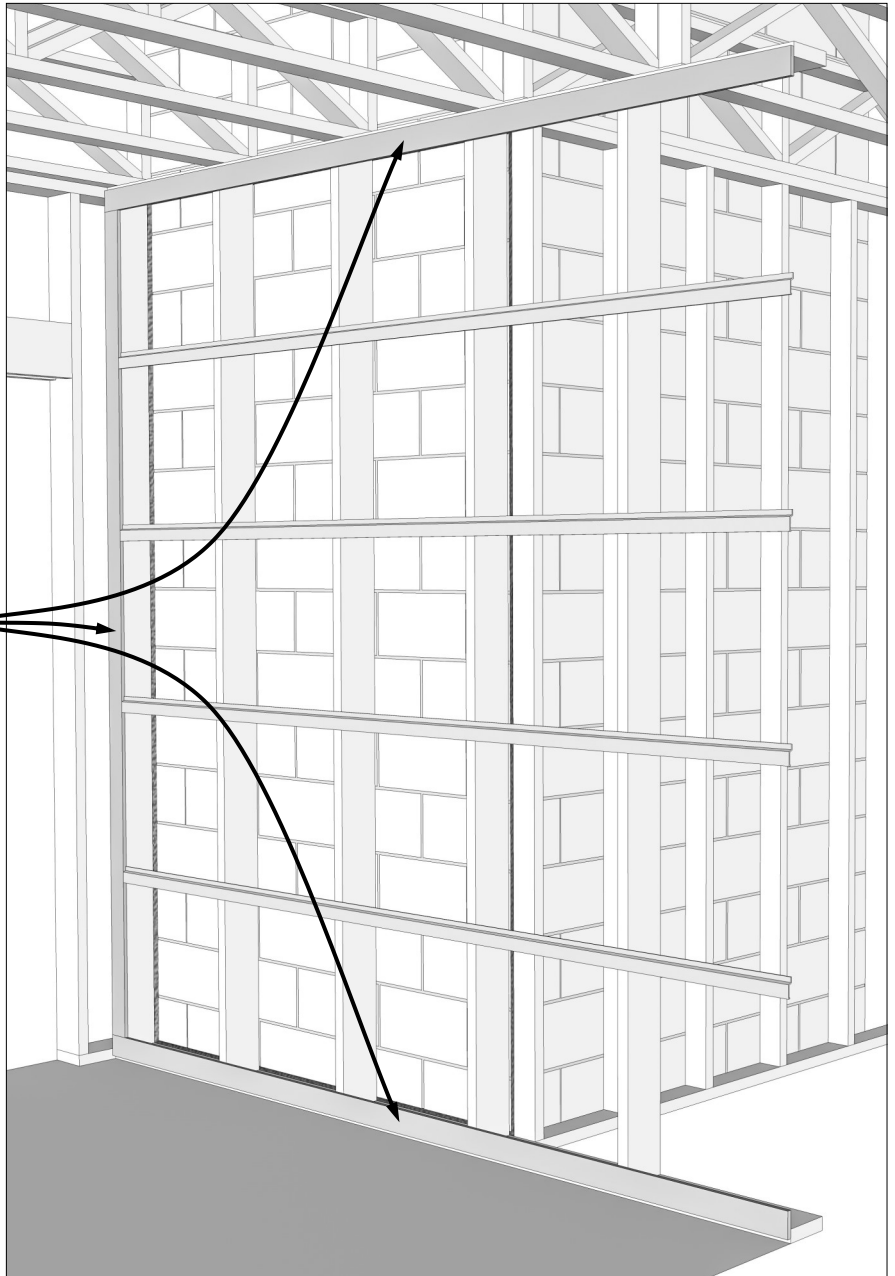
A. Intent: reduce leakage through Resilient Channel walls and the unit

A. Install drywall strips, the same thickness as the Resilient Channel. Then seal the finish drywall to the drywall strips.

Responsibilities:

Drywall: A

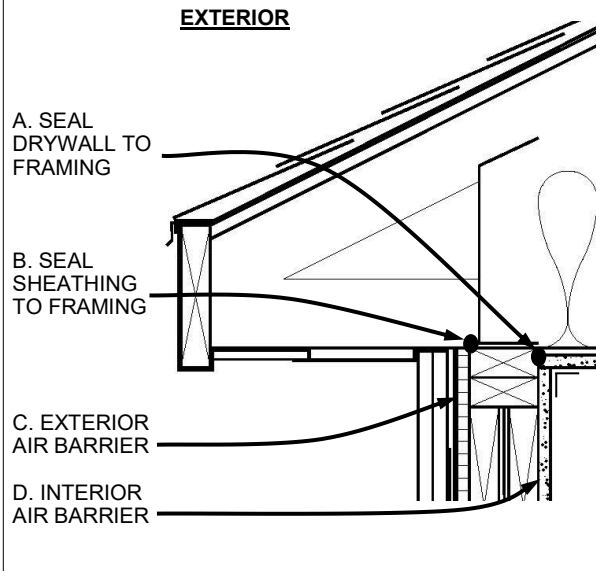
A. INSTALL DRYWALL
STRIPS AND SEAL TO
FINISH DRYWALL



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EXTERIOR WALL - TOP

(SECTION VIEW)

**Notes:**

A, B. Intent: reduce leakage between unconditioned attic and wall cavities

A. Option: apply drywall adhesive to framing BEFORE installing drywall ("screw & glue")

C. Options:

- Sheathing with seams sealed (i.e. ply wood or rigid foam board)
- Fluid-applied/adhesive membrane on sheathing (i.e. Grace / Henry products)

D. Typically drywall

Responsibilities:

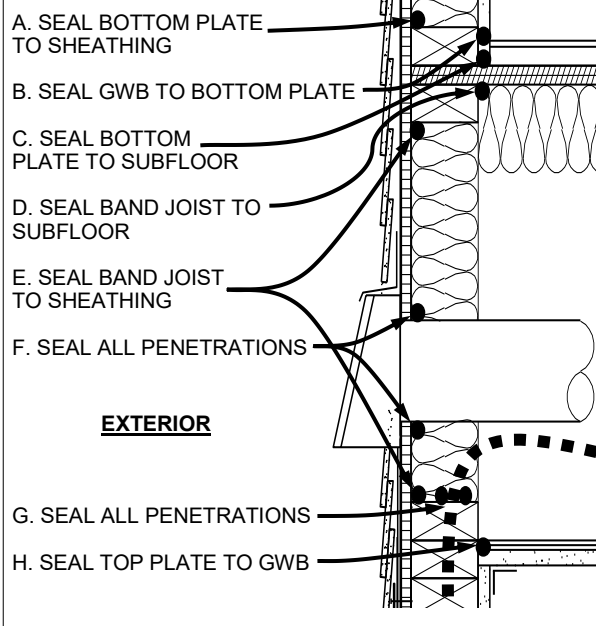
Framing: B, C

Drywall: A, D

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EXTERIOR WALL - PENETRATIONS, BOTTOM AND TOP PLATE

(SECTION VIEW)

**Notes:**

A, C. Intent: reduce leakage between floor and wall cavities

B. Intent: reduce leakage between wall cavity and apartment

B, C. Option: self-leveling subfloor (i.e. gypcrete)

E, H. Intent: reduce leakage between floor and wall cavities

E. Continuous seal of the rim/band joist to sheathing, if a TJI joist seal at top and bottom

F, G. Includes ducts, pipes, wires, etc.

H. Option: apply drywall adhesive to framing BEFORE installing drywall

Responsibilities:

Framing: A, C, D, E

Drywall: B, H

Mech/Elec/Plumb: F, G

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**EXTERIOR WALL - BOTTOM
(INTERIOR WALL SIMILAR)**

(SECTION VIEW)

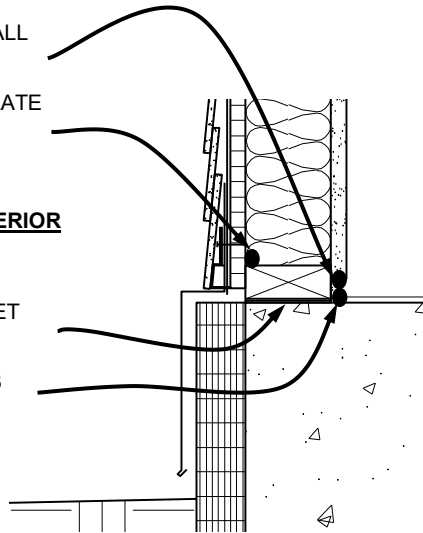
A. SEAL DRYWALL
TO SILL PLATE

B. SEAL SILL PLATE
TO SHEATHING

EXTERIOR

C. FOAM GASKET

D. SEAL SILL
PLATE TO SLAB



Notes:

A. Intent: reduce leakage between wall cavity and apartment

B. Intent: reduce leakage between wall cavity and outdoors

A. Option: apply drywall adhesive to framing BEFORE installing drywall

A, B. Option: self-leveling subfloor (i.e. gypcrete)

C. To be installed in addition to sealant between the plate and slab

D. Same intent as item B

Responsibilities:

Framing: B, C, D

Drywall: A

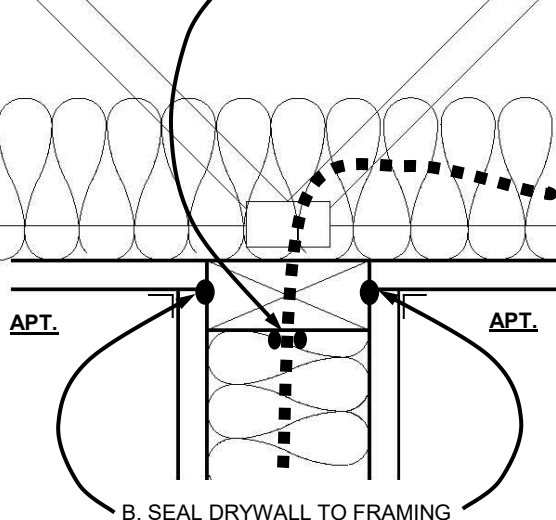
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**DEMISING / CORRIDOR / INTERIOR
WALL - TOP**

(SECTION VIEW)

ATTIC / CEILING CAVITY

A. SEAL PENETRATIONS



Notes:

A. Intent: reduce leakage between attic / ceiling cavity and demising / corridor / interior wall

A. Includes pipes, wires, etc.

B. Intent: same as item A

B. Option: apply drywall adhesive to framing BEFORE installing drywall

Responsibilities:

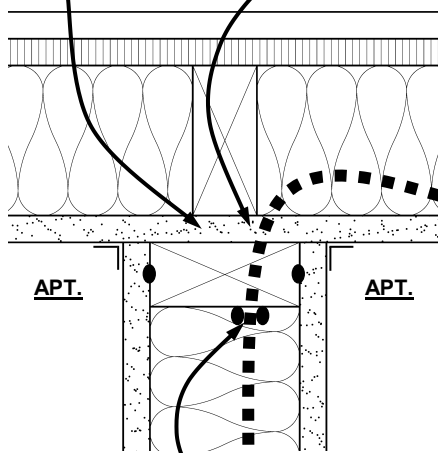
Drywall: B

Mech/Elec/Plumb: A

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**DEMISING / INTERIOR WALL AT
EXTERIOR / CORRIDOR WALL**

(PLAN VIEW)

EXTERIOR / CORRIDORA. LEAVE GAP BETWEEN
FRAMING MEMBERSB. INSTALL DRY-
WALL WITHIN GAP

C. SEAL PENETRATIONS

Notes:

A, B. Intent: reduce leakage between exterior / corridor wall and demising wall / interior partition

A. Size of gap depends on thickness of drywall to be installed

B. Option: sheathing (at shear walls)

A, B. Similar at double walls

Responsibilities:

Framing: A

Drywall: B

Mech/Elec/Plumb: C

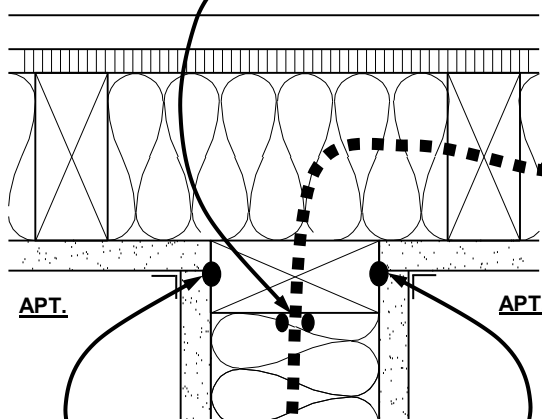
6

**ALTERNATE - DEMISING / INTERIOR
WALL AT EXTERIOR / CORRIDOR WALL**

(PLAN VIEW)

EXTERIOR / CORRIDOR

A. SEAL PENETRATIONS



B. SEAL DRYWALL TO FRAMING

Notes:

A, B. Intent: reduce leakage between exterior / corridor wall and demising wall / interior partition

A. Includes ducts, pipes, wires, etc.

B. Option: apply drywall adhesive to framing BEFORE installing drywall

Responsibilities:

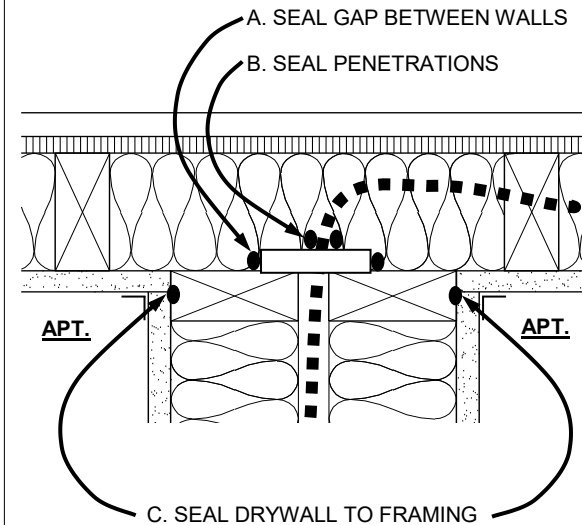
Drywall: B

Mech/Elec/Plumb: A

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**DEMISING DOUBLE WALL AT
EXTERIOR / CORRIDOR WALL**

(PLAN VIEW)

EXTERIOR / CORRIDOR**Notes:**

A, B, C. Intent: reduce leakage between exterior / corridor wall and demising wall / interior partition

A. Options:

- Expanding foam
- Plywood, drywall or rigid foam board with edges caulked

A. Mineral wool or fiberglass batts are NOT acceptable as an air barrier

C. Option: apply drywall adhesive to framing BEFORE installing drywall

Responsibilities:

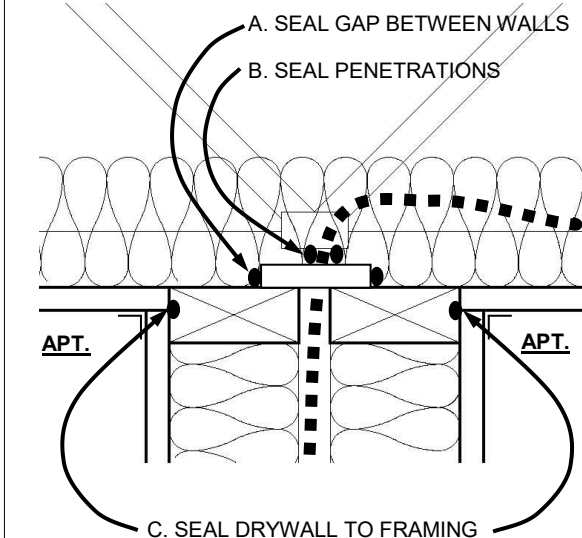
Drywall: C

Mech/Elec/Plumb: A, B

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**DEMISING DOUBLE WALL - TOP
(SHAFTS SIMILAR)**

(SECTION VIEW)

ATTIC / CEILING CAVITY**Notes:**

A, B, C. Intent: reduce leakage between attic / ceiling cavity and demising wall / interior partition / shaft

A. Options:

- Expanding foam
- Plywood, drywall or rigid foam board will edges caulked

A. Mineral wool or fiberglass batts are NOT acceptable as an air barrier

C. Option: apply drywall adhesive to framing BEFORE installing drywall

Responsibilities:

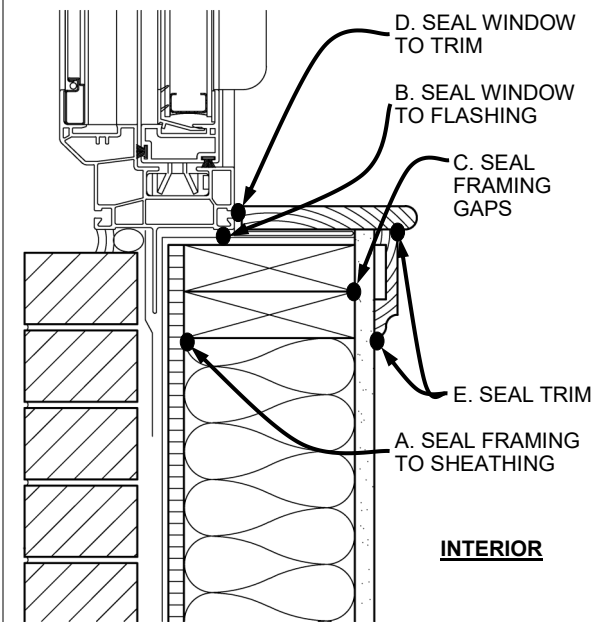
Drywall: C

Mech/Elec/Plumb: A, B

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WINDOW SILL

(SECTION VIEW)

**Notes:**

A, B. Intent: reduce leakage between wall cavity and outdoors

C, D, E. Intent: reduce leakage between wall cavity and the interior

B. Continuous perimeter seal of window to rough opening (seal any gaps at shims) and if using foam, use low-expanding foam

Responsibilities:

Framing: A, B, C

Drywall: C

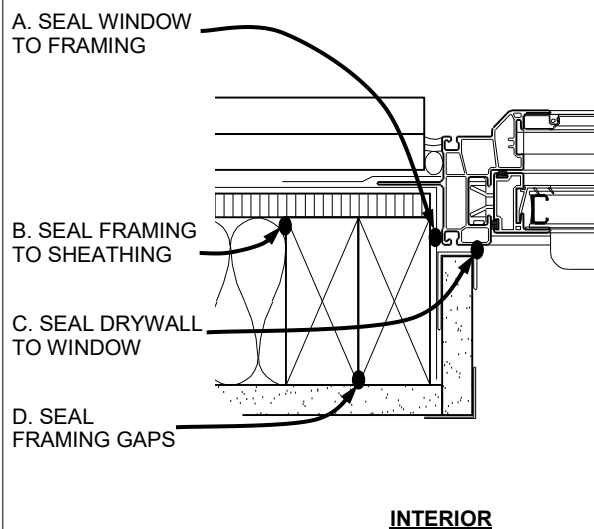
Millwork: D

Paint: E

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WINDOW JAMB
(HEADER SIMILAR)

(PLAN VIEW)

**Notes:**

A. If using foam, use low-expanding foam

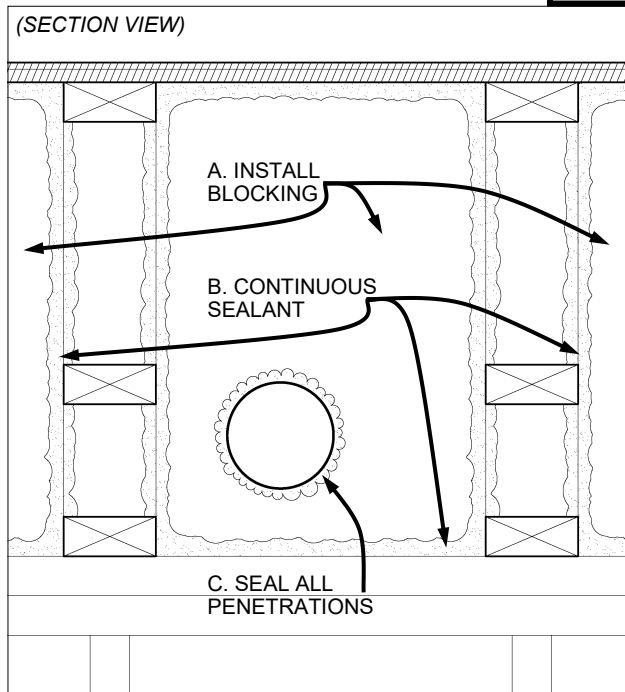
B, D. Intent: reduce leakage between wall cavity and outdoors (stops air movement through crack between sheathing and framing)

C. Similar detail at wood casing/trim

Responsibilities:

Framing: A, B, D

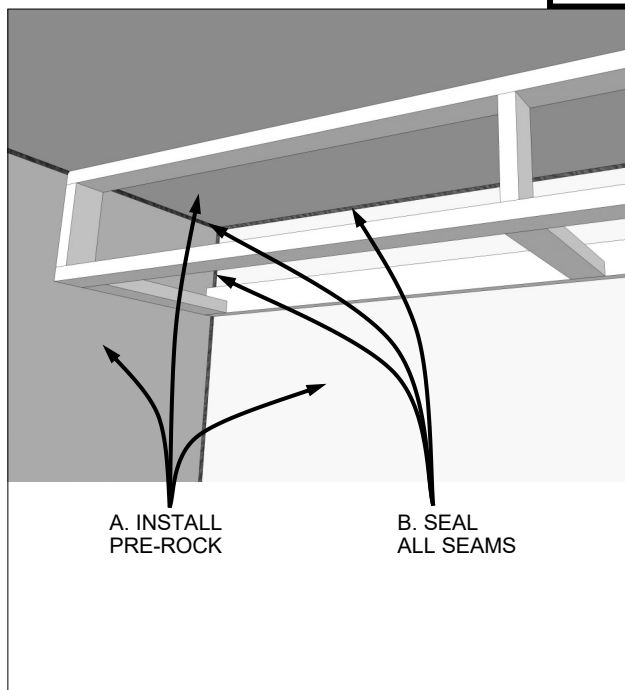
Drywall: C

11**CEILING CAVITY BLOCKING & SEALING AT DEMISING / CORRIDOR WALL****Notes:**

A, B, C. Intent: reduce leakage between the unit and adjacent spaces

Responsibilities:

Framing: A, B
Mech/Elec/Plumb: C

12**SOFFIT PRE-ROCK****Notes:**

A, B. Intent: reduce leakage through soffit

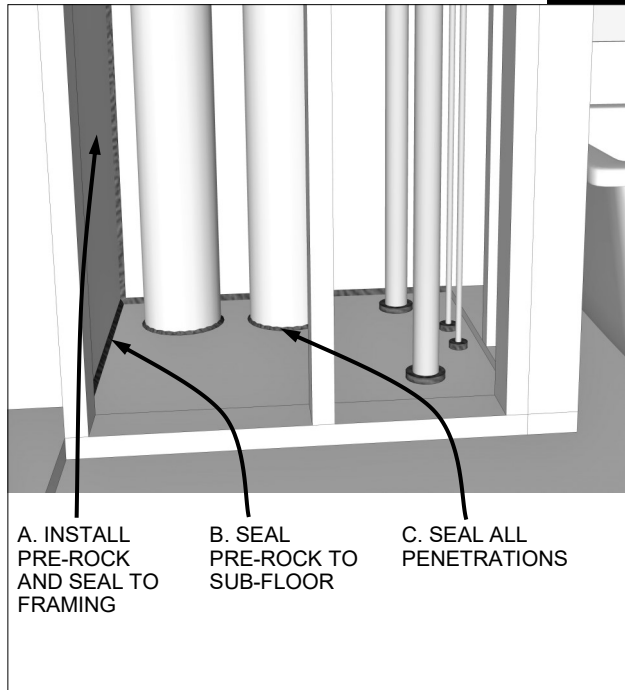
A. Install pre-rock BEFORE framing the soffit

Responsibilities:

Drywall: A, B

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CHASE / INTERSTITIAL / WET WALL - BOTTOM



Notes:

A, B, C. Intent: reduce leakage between floors and through the chase to the apartment

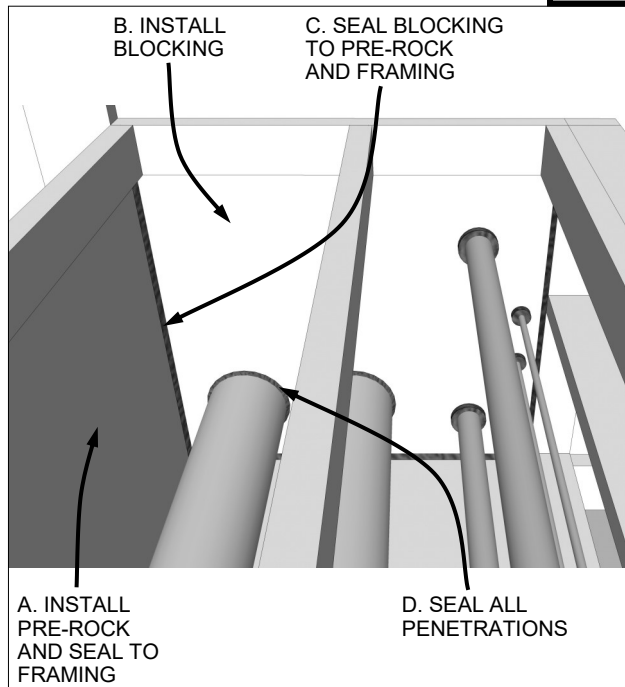
A. Install pre-rock on the sides of the chase that are along demising / corridor / exterior wall(s). Seal the entire perimeter of the pre-rock to framing or blocking and seal the seams between pre-rock sheets.

Responsibilities:

Framing/Drywall: A, B
Mech/Elec/Plumb: C

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CHASE / INTERSTITIAL / WET WALL CAP - TOP



Notes:

A, B, C, D. Intent: reduce leakage between floors and through the chase to the apartment

A. Install pre-rock on the sides of the chase that are along demising / corridor / exterior wall(s). Seal the entire perimeter of the pre-rock to framing or blocking and seal the seams between pre-rock sheets.

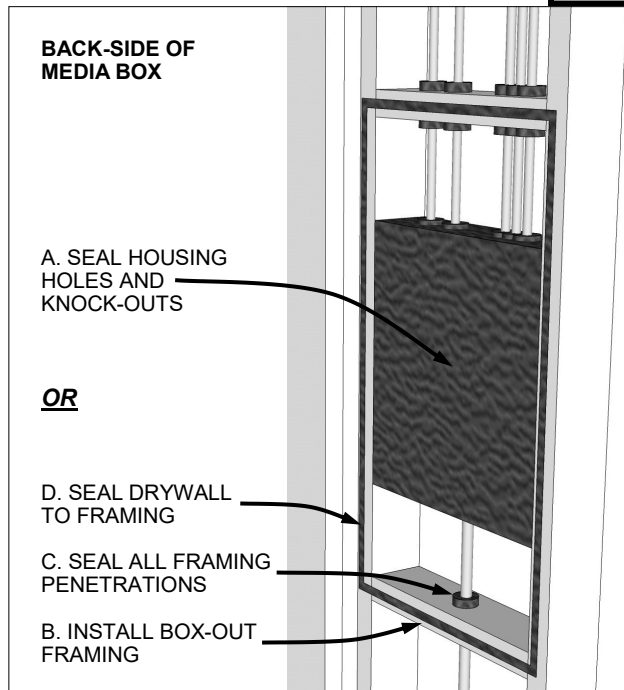
B. Install blocking at the top of the chase

Responsibilities:

Framing/Drywall: A, B, C
Mech/Elec/Plumb: D

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MEDIA BOX AIR-SEALING

**Notes:**

A, B, C, D. Intent: reduce leakage between wall cavity and the apartment

A. Seal all openings on the back, top, bottom and sides of the media box shell/housing. Make sure that each opening/knock-out with wiring running through it is completely sealed on all sides and in-between multiple wires. Unused/closed knock-outs also need to be sealed at the seams.

OR

B. Box-out the media box with framing

C. Completely seal around wiring on all sides and in-between multiple wires

D. Seal drywall to framing

Responsibilities:

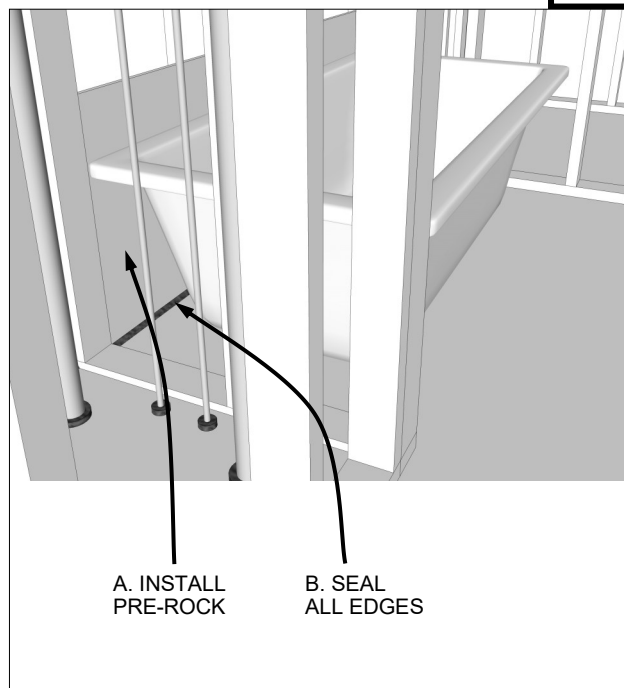
Framing: B

Electrician: A **OR** C

Drywall: D

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BATHTUB PRE-ROCK AT DEMISING / EXTERIOR / CORRIDOR WALL

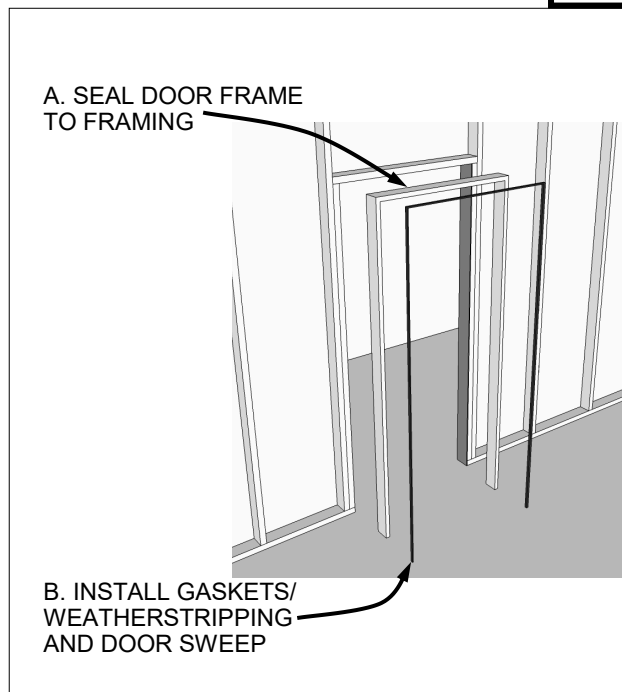
**Notes:**

A, B. Intent: reduce leakage through the demising / exterior / corridor wall from behind the bathtub

B. Seal the entire perimeter of the pre-rock BEFORE installing the bathtub.

Responsibilities:

Drywall: A, B

17**CORRIDOR / EXTERIOR DOOR****Notes:**

A, B. Intent: reduce leakage between apartment and corridor / outdoors

A, B. Also applicable at rooms that are vented to outdoors (i.e. boiler room, trash room, etc.)

Responsibilities:

Framing: A
Window/Door: B

18**MILLWORK (TRIM)****Notes:**

A. Intent: reduce leakage between the wall cavities and the apartment

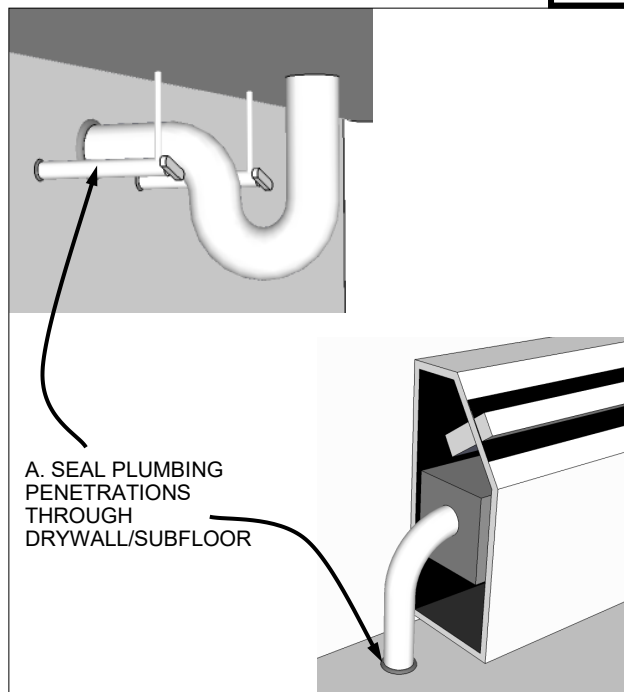
A. Seal ALL edges of millwork

Responsibilities:

Painter: A

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PLUMBING PENETRATIONS

**Notes:**

A. Seal all penetrations BEFORE installing cabinetry and escutcheons

A. Intent: reduce leakage between wall cavities and apartment

Typical plumbing penetrations include:

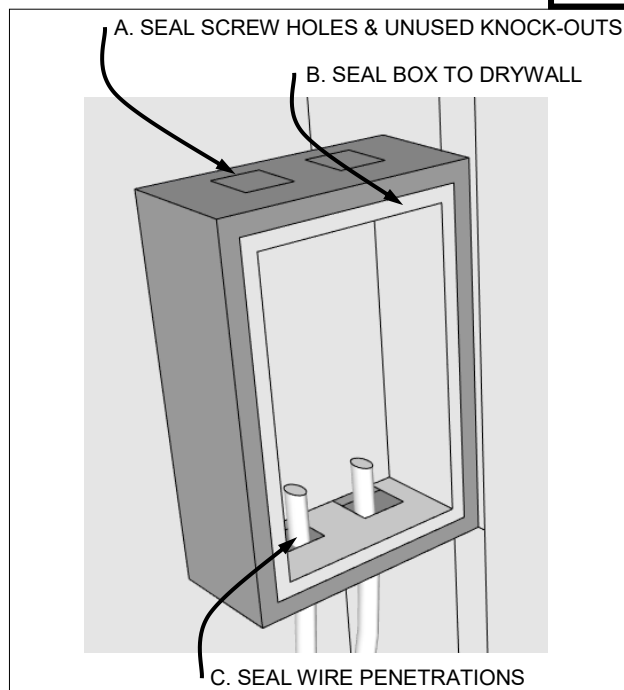
- Sink faucet supplies & drain
- Toilet supply
- Showerhead stub-out
- Heating supply/return
- Gas supply
- Sprinklers

Responsibilities:

Drywall: A

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ELECTRICAL BOXES

**Notes:**

A, B, C. Intent: reduce leakage between framing cavities and apartment

A, B, C. Includes boxes in floors, walls and ceilings

A, C. Options:

- Caulk
- Foam
- Mastic (over entire box)
- Putty pack

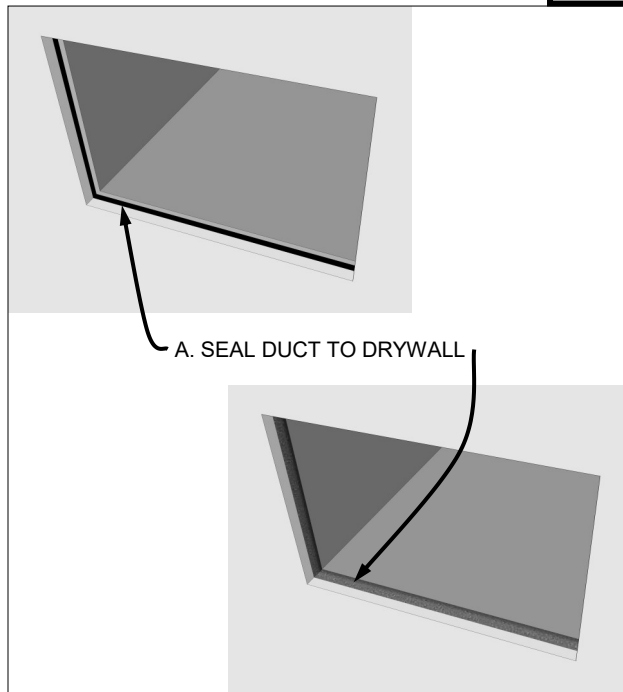
Responsibilities:

Drywall: B

Electrical: A, C

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DUCTWORK

**Notes:**

A. Intent: reduce duct leakage into the wall cavities and reduce air leakage between the wall cavities and the apartment

Typical penetrations include:

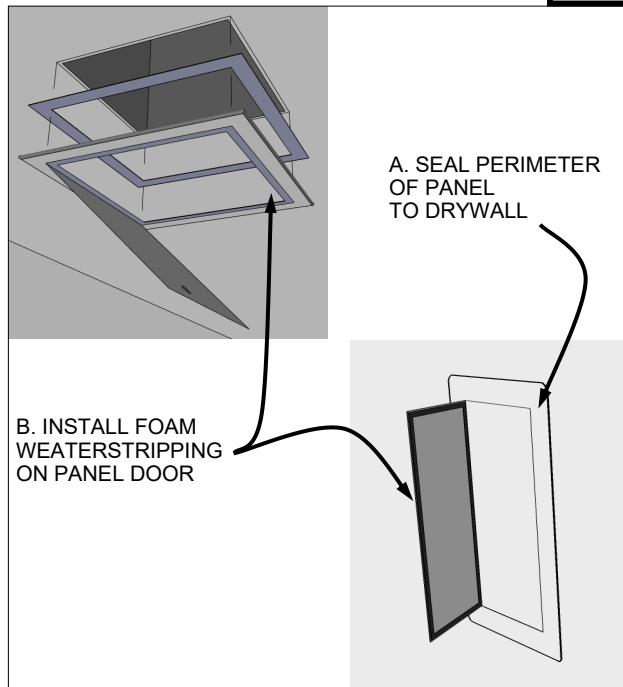
- Heating/cooling ductwork
- Exhaust ductwork
- Exhaust fans
- Dryer vent

Responsibilities:

Drywall: A

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UTILITY / ACCESS PANELS

**Notes:**

A, B. Intent: reduce leakage between structural cavities and apartment

A. Options:

- Caulk
- Foam
- Gasket

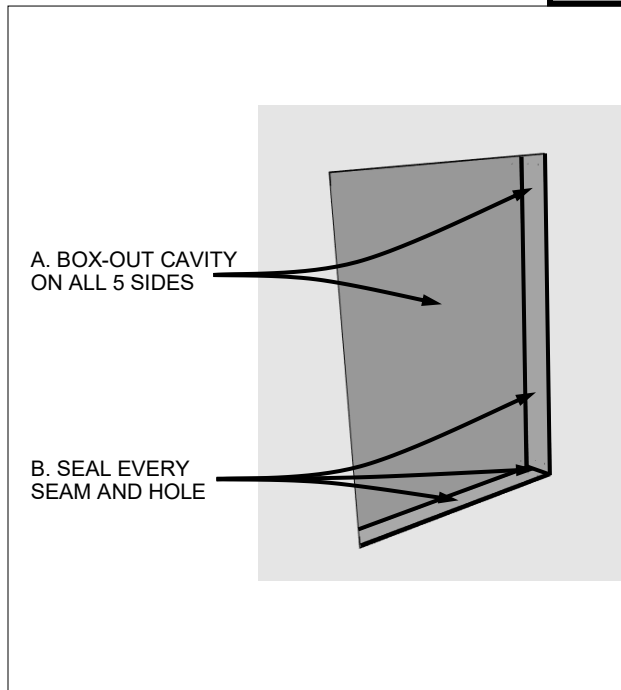
B. Inexpensive, adhesive-backed weather-stripping usually works best

Responsibilities:

Drywall: A
Mech/Elec/Plumb: B

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RECESSED COMPONENTS

**Notes:**

A. Intent: reduce leakage between wall cavities and apartment

A. Box-out/enclose the recessed cavity on all 5 sides

A. Drywall preferred on all 5 sides

B. Seal all seams, cracks or holes BEFORE recessed component is installed

B. Seal holes in metal framing (if applicable)

Typical recessed components include:

- Medicine cabinet
- Fire extinguisher cabinets
- Mailboxes

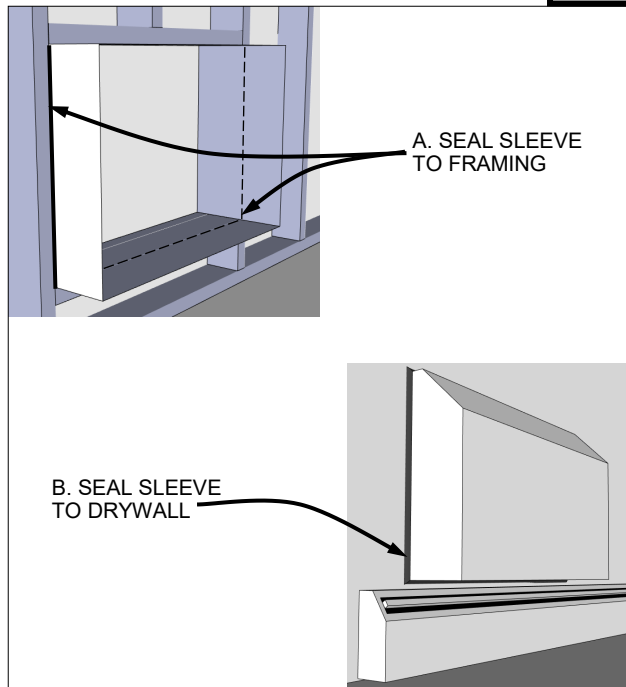
Responsibilities:

Drywall: A, B

Framing: A

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PACKAGED HEATING / COOLING EQUIPMENT (PTACs)

**Notes:**

A. Intent: reduce leakage between apartment and outdoors

B. Intent: reduce leakage between wall cavity and apartment

Additional measures:

- Seal PTAC equipment to sleeve
- Provide insulated interior cover with compressible gasket

Responsibilities:

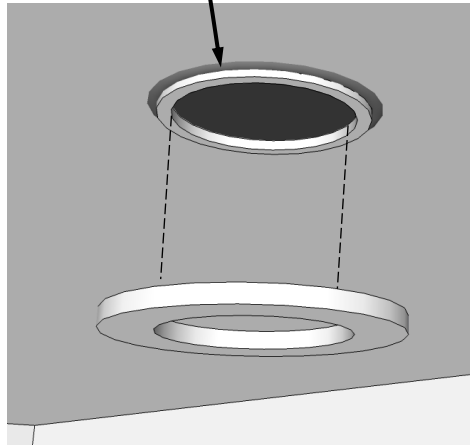
Mechanical: A

Drywall: B

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RECESSED LIGHTING

A. SEAL RECESSED LIGHT
HOUSING TO DRYWALL

**Notes:**

A. Intent: reduce leakage between ceiling/floor cavities and apartment

A. Options:

- Caulk
- Foam
- Gasket

A. Use insulation contact air-tight cans (ICAT)

Responsibilities:

Drywall: A

