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Energy Step Code Requirements for Part 9 Residential Drawings

No.: BUILDING-43

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This bulletin is to inform Applicants, Builders, and Energy Advisors of the requirements for the energy efficiency upgrades to be presented in the Building Permit application for Part 9 buildings.

Summary

- The Energy Step Code entails increasingly stringent airtightness requirements.
- **Effective December 15, 2020**, architectural drawings submitted with all Building Permit applications for new Part 9 buildings must present **detailed envelope assemblies, including details of a continuous air barrier strategy**.
- For the applicable Energy Step Code level and energy modeling requirements, see bulletins:
 - City of Richmond [Bulletin-37: Energy Step Code: Part 9 Buildings Overview](#)
 - City of Richmond [Bulletin-38: Energy Step Code: Part 9 Single Family Dwellings and Duplexes](#)
 - City of Richmond [Bulletin-39: Energy Step Code: Part 9 Townhouses and Apartments](#)
- For more information on airtightness techniques, see BC Housing's [Illustrated Guide to Achieving Airtight Buildings](#).

Envelope Assemblies

Envelope assemblies shown on architectural and structural drawings **must exactly match** those used in the energy model. **The second page of the Pre-Construction Energy Report must be reproduced in the architectural drawings** (e.g. Sections sheet). Note that the prescriptive energy efficiency requirements, including RSI calculations, are **no longer required** to be shown on the drawings.

Air Barrier Strategy

Air barriers control air leakage into and out of the building envelope. Uncontrolled air leakage can lead to moisture issues from condensation, excessive heat loss, and poor indoor air quality. **Section 9.25.3 of the BC Building Code** lists the air barrier requirements for Part 9 buildings.

The air barrier strategy must be presented in the architectural drawings through a "**red-line diagram**" for each building section, showing how the proposed air barrier will fully encircle the building envelope. **See the sample diagram in Appendix I.**

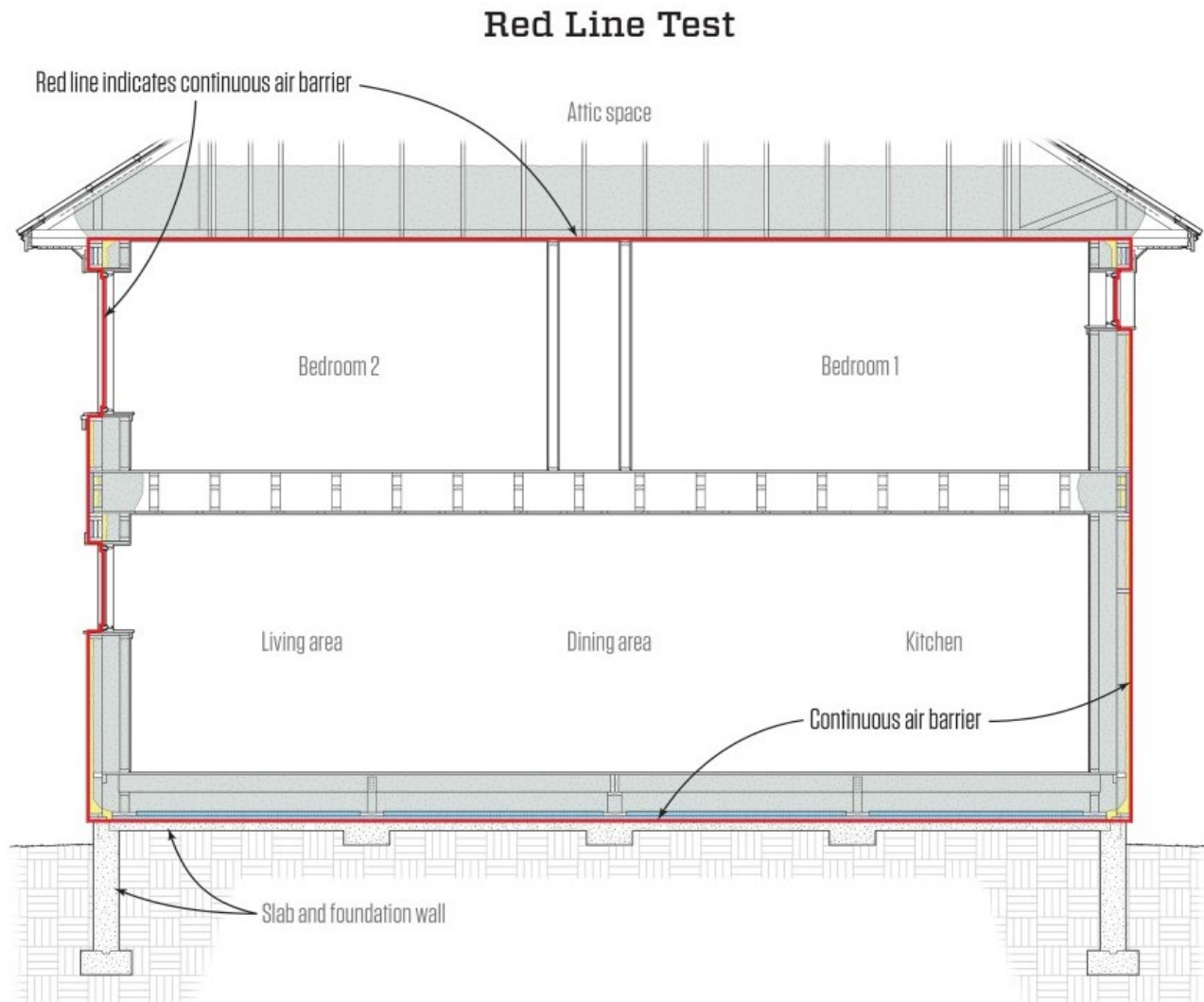
Details at critical junctions must clearly show the viability and constructability of the proposed air barrier. This includes **any location where a horizontal or horizontally-inclined element intersects with a vertical or vertically-oriented element**, as well as windows and doors.

The air barrier material and location must be clearly indicated on Section Details. **The primary air barrier material element must be called out on all assemblies. See the example in Appendix II.**

Should you have any questions, comments, or suggestions concerning this bulletin, please reference the Bulletin number and email building@richmond.ca or call the Building Approvals General Inquiries line at 604-276-4118.

See attached →

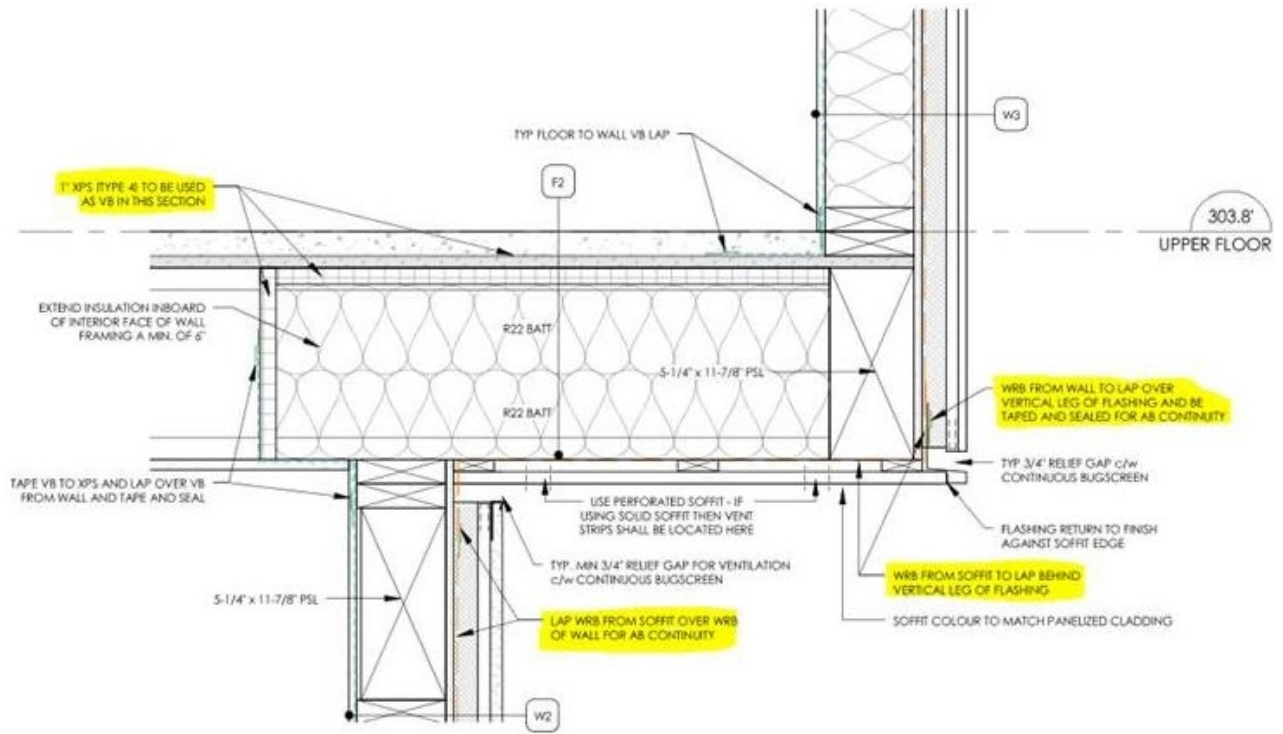
Appendix I: Sample “Red-Line” Diagram Showing Continuity of the Air Barrier



“One should be able to take any section of a building on paper, put a red pen on the paper, and trace the building’s air barrier without lifting the pen. Eventually, the red line of the pen should connect to the starting point.”

Source: *The Journal of Light Construction* (JLCOOnline.com/Training-the-Trades/Air-Barrier-Basics_o)

Appendix II: Sample Air-Barrier Call-Outs on Section Details



5 CANTILEVERED FLOOR DETAIL
1 1/2" = 1'-0"

Drawing courtesy of Joe Gerl