CLAIMS

What is claimed is:

1. A moisture control assembly for use with a support beam extending through an insulation layer, the insulation layer positioned between an outer wall and an inner wall, the assembly comprising:

a moisture path close-out structure coupled to the insulation layer at an aperture defined through the insulation layer, the moisture path close-out structure including an opening substantially aligned with the aperture and configured to receive the support beam therethrough; and

a coupling mechanism comprising a flange coupled to the support beam to have direct contact with the support beam and that extends over a portion of the moisture path close-out structure and directly contacts and secures the moisture path close-out structure to the support beam, the coupling mechanism and the moisture path close-out structure configured to direct liquid flow down and away from the support beam and along an outboard surface of the insulation layer, the coupling mechanism being directly coupled to the moisture path close-out structure to pull the moisture path close-out structure in a direction away from the insulation layer;

wherein the coupling mechanism further comprises a plug positioned between the moisture path close-out structure and the support beam at a section where the moisture path close-out structure and the coupling mechanism overlap to secure the moisture path close-out structure between the coupling mechanism and the plug.

2. A moisture control assembly according to claim 1, wherein the coupling mechanism and moisture path close-out structure restrict air flow through the aperture when the moisture path close-out structure is secured to the support beam and coupled to the insulation layer.

3. A moisture control assembly according to claim 1, wherein the moisture path close-out structure is coupled to the insulation layer facing the outer wall.

4. A moisture control assembly according to claim 1, wherein the moisture path close-out structure is a patch placed over the insulation layer.

5. A moisture control assembly according to claim 1, wherein the flange diverges towards the insulation layer.

6. A moisture control assembly according to claim 1, wherein the moisture path close-out structure is attached to a side of the flange facing the insulation layer.

7. A moisture control assembly according to claim 1, wherein the moisture path close-out structure is secured to the plug.

8. A moisture control assembly according to claim 1, wherein the moisture path close-out structure is secured to the support beam by at least one of compression fit and friction fit between the flange and the plug.

9. A moisture assembly according to claim 1, wherein the coupling mechanism further comprises at least one fastener screw or tab or adhesive to attach the plug to the flange.

10. A moisture control assembly according to claim 1, further comprising a filler material disposed between the moisture path close-out structure and the insulation layer to fill a volume between the moisture path close-out structure and the insulation layer.

11. A moisture control assembly according to claim 10, wherein the filler material mechanically presses the plug into a flange cavity formed against the support beam where the moisture path close-out structure and the coupling mechanism overlap.

12. A moisture control assembly according to claim 1, wherein the moisture path close-out structure is an umbrella-shaped structure.

13. A moisture control assembly according to claim 1, further comprising an insulating material positioned between the support beam and at least one of the inner wall and outer wall.

14. A moisture control assembly according to claim 1, further comprising an insulating material wrapped around at least a portion of the support beam.

15. A method for assembling a moisture path close-out and thermal control system for use with a support beam extending through an insulation layer, the insulation layer positioned between an outer wall and an inner wall, the method including:

inserting the support beam through an aperture defined through the insulation layer and an opening defined through a moisture path close-out structure, the moisture path close-out structure directly coupled to the insulation layer;

coupling the moisture path close-out structure to the support beam using a coupling mechanism wherein the coupling mechanism directly contacts the moisture path close-out structure;

pressing the moisture path closeout structure into an overlapping section of the coupling mechanism with a plug that is positioned between the support beam and the moisture path closeout structure;

pulling a portion of the moisture path close-out structure away from the insulation layer to impart a slope to the moisture path close-out structure; and,

directing liquid flow down the support beam away from the support beam and along the insulation layer.

16. A method according to claim 15, wherein the step of coupling comprises securing the moisture path close-out structure between a flange located on the support beam and the plug inserted therein.