

STATE BUILDING CODE INTERPRETATION NO. I-25-07

October 22, 2007

The following is offered in response to your September 26, 2007 email to me in which you seek a formal interpretation of the provisions of Sections R314.2.3 and R318.1 of the 2003 International Residential Code portion of the 2005 State Building Code.

Question 1: The rafter bays of an attic will be insulated with spray applied polyurethane foam that meets the flame spread and smoke development ratings of Section R314.1.1. Does the code permit a layer of ½ inch gypsum board applied to the bottom of the ceiling joists (not in contact with the rafters) as the required thermal protection?

Answer 1: No. Section R314.1.2 provides a requirement for protecting the foam plastic insulation with a minimum thermal barrier of ½ inch gypsum board, mechanically fastened. The intent of that section is that the thermal barrier be essentially in contact with the foam plastic, indicating that in your case the ½ inch gypsum board would have to be installed on the underside of the rafters whose bays were filled with foam plastic. As an alternative, Section R314.2.3 provides reduced thermal barrier requirements (again, required to be installed to the underside of the rafters in your case) when the foam plastic is installed in attics or crawl spaces that are entered only for the purposes of servicing utilities, precluding the use of the attic or crawl space for storage. Given the nature of humans, one must assume that any attic provided with a point of access will be utilized for storage of some degree. In your case, it is thus prudent to apply ½ inch gypsum board to the underside of the rafters, assuming the use of the attic for storage.

Question 2: Section R318.1 requires a vapor retarder to be installed on the warm-in-winter side of the insulation in all framed walls, floors and roof/ceilings comprising elements of the thermal envelope. Several journal articles do not recommend the use of moisture vapor retarders with spray foam insulation. Does the code provide an exception to the vapor retarder requirement for spray foam insulation?

Answer 2: No. The requirements for a vapor retarder apply to all types of insulation. If, however, a specific manufacturer of a spray foam insulation product provided documentation that such a vapor barrier was not required or desirable with their product, the permit applicant would have two avenues to follow. The first would be to ascertain if the local building official was willing to omit the vapor barrier utilizing the provisions of Section R104.11, which permits the local official to accept alternative methods of construction that are deemed to be at least the equivalent of that prescribed by the code. The second would be to submit a request for modification of the requirements of the building code from our office on the form that is available on our website or at any local building department.