SIP No. 2064

Subject: **Exposure to Excessive Temperatures**

Date: **November 2007**

R-Control SIPs are commonly used as a structural component due to the fact that they provide both insulation and structure in a single component. R-Control SIPs are manufactured with Exposure I rated Oriented Strand Board (OSB) facings and a Foam-Control Expanded Polystyrene (EPS) foam core. The Foam-Control EPS provides the structural connection between the OSB facings and must be protected for the life of the structure from exposure to excessive heat that may damage the EPS.

Temperature:

The maximum recommended use temperature for Foam-Control EPS is 165°F (75°C). The temperature that the R-Control SIPs are exposed to is a function of exterior temperature, building orientation relative to the sun, building elevation, and the type of roof covering material(s) used. In most locations across the United States and with the use of standard roof covering material(s), the R-Control EPS will not be exposed to temperatures over 165°F.

Peak temperatures typically occur under the following conditions: south facing, low or medium slope, and dark colored roofs. In these situations, roof surface temperatures have been documented to reach temperatures of 200°F or higher on sunny days in the southern U.S. Roof designs which includes wall/roof intersections oriented toward the sun may also result in high roof temperatures.

If the roof temperature is anticipated to exceed 175°F a ventilated roofing system is recommended over R-Control SIPs.

Metal roof systems have inherent properties that transfer and build heat that potentially could cause an R-Control SIP roof deck to exceed a safe use temperature. When installing metal roof systems over R-Control SIPs, additional design considerations may be necessary to protect the roofing underlayment and the R-Control SIP from excessive temperatures. These design strategies may include the use of a ventilated air space above the R-Control SIP to minimize temperature exposure. Consult your local R-Control representative for specific recommendations for your geographical location and building design.

In addition, temporary roof, wall or floor coverings must be breathable to ensure that R-Control SIP structures are not subjected to excessive temperatures. For example, the use of clear poly (not breathable) as a temporary roof covering may lead to a greenhouse effect that could damage the SIP structure.

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