



## Design Considerations

### GENERAL FIRE SAFETY

Kraft and standard foil vapor retarders used to face glass fiber insulation will burn and must not be left exposed. Install facings in substantial contact with a code approved finish material. Protect facing from open flame or other heat source. Check local codes for application limitations.

Foam insulation will ignite if exposed to fire of sufficient heat and intensity. Rigid foam insulation installed in exterior walls must be separated from the building interior with code approved thermal barrier. Code accepted thermal barriers include 1/2 gypsum drywall, equivalent plaster on lath, 1 masonry or other materials that meet the performance requirements prescribed in Section 2603 of the model building codes.

When foam insulation is used in certain exterior wall applications, an ignition barrier such as mineral fiber insulation or sheet metal may be substituted for the required thermal barrier. Consult the local building codes and Owens Corning's building code reports for specific requirements.

Thermal barriers must be mechanically fastened, or installed in a manner to remain in position for the code specified time period, typically 15 minutes. Compliance with local codes must be verified.

Protect foam insulation from exposure to open flame or other ignition sources during shipping, storage and installation.

### WALL ASSEMBLY FIRE RATINGS

Fire resistance rating for a wide range of wood and steel frame, and masonry exterior wall assemblies can be found in the current edition of the Underwriters Laboratories Fire Resistance Directory.

### MOISTURE CONTROL

Moisture and its effects are all too often given minimum consideration in the design and construction of buildings. Accumulation of moisture in the building envelope can cause structural damage and reduce thermal performance. The need for a vapor retarder in commercial construction can be determined by calculating the building's occupancy-moisture rating. Detailed information on calculating the occupancy/moisture rating and on the effects of moisture control in building design and construction can be found in Chapter 20 of

consideration. Proper design and installation of a vapor retarder can also help reduce the latent load on the HVAC system.

Maintaining the integrity of the vapor retarder may be important for effective moisture / humidity control. Insulation boards and batts should tightly abut adjacent insulation. Punctures or tears in the vapor retarder should be repaired by taping. Follow the tape manufacturer's application recommendations.

the ASHRAE Handbook of Fundamentals. In northern heating dominated climates vapor retarders should generally be installed as close to the warm side of the building envelope as possible. In other climates the architect or specifier should evaluate the requirements of each project before making decisions about the use and placement of vapor retarders.

Adequate ventilation of the interior space and of certain sections of the building envelope is also an important

### THERMAL SHORTS

Minimize penetrations in the thermal envelope by structural and non-structural elements. It is especially important to isolate steel framing members which are excellent conductors of energy. Install a continuous

In wood and steel frame construction the use of rigid foam sheathing can help reduce moisture condensation in the cavity by maintaining the temperature of the cavity closer to that in the conditioned space. If the rigid foam sheathing utilizes a film facer for added strength, consideration should be given to using a 4 mil polyethylene interior vapor retarder in heating dominated climates.

layer of insulating sheathing over the steel framing to minimize thermal shorts. In other types of construction, establish thermal breaks to reduce energy loss.

### THERMAL EXPANSION AND CONTRACTION

When insulation is added to the inside perimeter of a structure, the area outside the insulation becomes exposed to greater temperature extremes. Building structures should be inspected to ensure they can

withstand the additional expansion and contraction forces. Check for piping which should be protected against freezing.

### CURTAINWALL FIRE SAFETY

Owens Corning has conducted curtainwall spandrel panel fire safety tests at Southwest Research Institute. Test results indicate that the use of safining and glass fiber or mineral wool insulation is ineffective in preventing the spread of fire from floor-to-floor. In curtainwall applications, insulation should be specified

for thermal control purposes. Mineral wool safining should be specified to meet code requirements. A fire suppression system should be used in conjunction with good construction practices to provide adequate fire protection.

### SERVICE TEMPERATURE

Foam insulation is not recommended for use where sustained temperatures exceed 165°F. Do not use foam insulation in contact with chimneys, heater vents,

pipes, or other surfaces with temperatures over 150°F. Contact Owens Corning for maximum recommended service temperatures for glass fiber insulations.

### JOBSITE STORAGE AND INSTALLATION

Protect insulation stored on the jobsite from physical damage, water, ice or snow. After

insulation installation, cover materials  
should be installed as soon as practical.

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