

## Design and Installation Recommendations

### Temperature – Humidity

Particular emphasis must be given to the status of all interior wet work at job sites. Acoustical ceiling products are designed to be interior finish materials suitable for installation within a normal occupancy temperature range of 60°F to 85°F (16 - 29°C) with relative humidity no higher than 70% (certain products can withstand higher temperature of 104°F (40°C) and humidity conditions of 90, 95 or 100% relative humidity.) Prior to installation, all plastering, concrete, or other wet work must be completed and dry. All windows and doors must be properly installed. Furthermore, heating, ventilating, and air conditioning systems should be installed and in operation as necessary to assure proper temperature and humidity conditions before, during, and after installation of the acoustical material.

If using the ceiling plenum as a return air duct, caution should be exercised such that any introduction of outside air does not cause the plenum to exceed the recommended humidity levels. These ceiling materials should be stored at temperature and humidity conditions not exceeding maximums shown in previous section, and should not come in direct contact with water and moisture. Materials exposed to direct moisture or water must not be installed. Conditioning of material near actual design environment is the ideal situation. Ceiling product cartons must never be used as a substitute for scaffolding or ladders.

### Lighting

In considering job conditions and standards which affect the appearance of the completed ceiling installation, it is recommended that the lighting selected be the type that will enhance the ceiling rather than create an adverse or unsatisfactory appearance. Factors influencing ceiling appearance are: intensity of light, height of ceiling, direction of light including outside light through windows, and mounting of fixtures. The most critical of these is the direction of the light source in relation to the ceiling plane. Low angle light, whether from a fixture or from the building exterior, accentuates normal ceiling plane irregularities adversely affecting the final appearance of the installation.

An unfavorable appearance condition can result early in a ceiling installation before occupancy lighting is in place and in use. Temporary construction lighting seldom provides a satisfactory evaluation of the ultimate finished ceiling appearance. Architects should specify that occupancy lighting is in use before any critical inspection of the ceiling is made. If the normal occupancy use is under artificial light approval/acceptance inspections should be made only under these conditions.

### Concealed Tile for Glue-Up Installation

BPB tiles recommended for adhesive application are: BET-162, CM-462 and PCM-462. Apply to dry concrete, dry concrete block, gypsum board, dry plastered areas, or well-bonded paints. Do NOT use over wood or metal ceilings, uninsulated roof decks, wallpaper or loose peeling paint. Use adhesive that meets ASTM D1779, Specification for Adhesive for Acoustical Materials.

### Thermal Insulation Above Suspended Ceilings

The practice of installing insulation on the back of suspended ceilings (backloading) is not advised. The proper location for insulation materials is in the roof structure, because this places the dew point outside of the plenum thereby avoiding condensation damage to the grid, tile, light fixtures, etc. If other job considerations require insulation to be installed on the back of the ceiling, the following points must be carefully considered. BPB will not be responsible for damage or failure of the acoustical material, grid, light fixture, structure, etc. due to condensation, or excessive loading on back of ceiling.

1. If the ceiling must be insulated, a vapor retarder faced or non-faced roll insulation may be used. If the roll insulation is faced, install the vapor retarder facing down toward the back of the ceiling panel. Non-faced roll insulation is required for backloading fiberglass ceiling products. Batt insulation must be non-faced and used for 24" x 24" panels only.
2. Rolls are preferable to batts. Rolls span multiple cross tees with only occasional contact with back of acoustical material.
3. Insulation must weigh not more than 0.26 lb./sq. ft. (approximately 6" (R19) of glass fiber insulation) for mineral, fiberglass (24" x 24" and 24" x 48" panels only) and composite ceiling products. Commercial and Commercial Mat 5/8" fiberglass products may not be backloaded with insulation. Acoustical materials are not structural and excessive weight can cause ceiling to sag or even fall.
4. Insulation must weigh not more than 0.52 lb./sq. ft. (approximately 13" (R38) of glass fiber insulation) for gypsum ceiling products. Insulation is to be applied perpendicular to the suspension cross tees so that the grid carries main load of insulation.
5. Insulation must not be placed on back of Protectone® fire resistance rated ceilings.
6. A professional engineer must be consulted for design of plenum venting system to preclude condensation in the plenum.

### Installation of Speakers and Spotlights

BPB ceiling panels shall not be used to support the weight of speakers, grills, spotlights and the like, either wholly or in part. Components such as these must be supported independently of the ceiling panels themselves.

