

## Floor Joint Filler Timing for Refrigerated Buildings

Filling joints in slabs that will be in refrigerated rooms calls for a totally different approach than filling in ambient areas. There are two primary issues that must be dealt with: (1) rapid shrinkage and excessive joint widening and (2) the ability of the filler to cure.

### 1. Shrinkage & Joint Widening

All concrete shrinks in linear dimension as excess mix water leaves the slab via evaporation through the surface. A typical slab in a non-controlled temperature environment will shrink gradually, but relatively slowly. The evaporation rate will speed up in a cooler and dryer environment, and slow down in a warmer and more humid setting.

When the temperature in a refrigerated room is lowered, slabs begin to contract, generally in proportion to the rate of reduction. But a reduction in temperature is almost always accompanied by a drop in ambient humidity, which also speeds up evaporation. The result is that slabs in refrigerated rooms shrink faster than ambient environment slabs. As slabs contract, joints get wider. It is not unusual to see 1/8" (3 mm) saw cut joints open to 3/8" (9.5 mm) in coolers and 1/2" (12.5 mm) in freezers.

As discussed in *Technical Bulletin T5*, optimum filler performance and durability is achieved when the joints are nearer their ultimate width. Therefore, filling in refrigerated rooms should not be performed until the room has reached its ultimate temperature and the slab shrinkage has ceased to be significant. In other words, the slab should preferably be dimensionally stable. ACI floor committees recommend that cooler room floors be stabilized at ultimate operating temperature for 5 days if at all possible, freezer rooms for 14 days. Longer is clearly better.

### 2. Joint Filler Cure

Not all fillers can or should be installed in cool/cold temperatures. Epoxies, for example, will not cure well or at all if room and slab temperatures are below 32°F (0°C). They will cure in temperatures above 32°F (0°C), but the cure is far longer, taking perhaps days instead of hours.

Polyureas, on the other hand, are generally not as temperature-sensitive and can usually cure in freezers.

Metzger/McGuire manufactures both epoxy and polyurea semi-rigid fillers. Our filler recommendations for various temperature installations are as follows:

### Joint Filler Recommendations For Joints In Cooler & Freezer Floors

**+55°F to +45°F (13°C to 7°C)**

**Spal-Pro RSF, Spal-Pro RS-88, or MM-80**

**+45°F to +32°F (7°C to 0°C)**

**Spal-Pro RSF or Spal-Pro RS-88**

**+32°F to -30°F (0°C to -35°C)**

**Spal-Pro RSF**

*Refer to Product Technical Data and Installation Instructions for installation procedures.*

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