

TEMPORARY FLOOR REPAIRS FOR AIR BEARING FLOORS

Temporary floor repairs are intended to be an inexpensive upgrading of a poor floor surface, to quickly render a floor suitable for air bearing traffic. Normally the following methods are intended to work well for one-time or infrequent moves. The repairs will quickly deteriorate with repeated air bearing or wheeled traffic use.

Sheet Material Overlay

Use of an overlay material is probably the fastest way to get air film equipment over rough or porous floor surfaces. Just about any smooth sheet material will work well as an overlay. Some materials which have been used successfully for air bearing pathway surfaces are sheet steel, plastic, hard tempered Masonite® and non-textured Linoleum. Thinner materials less than .030" are easier for air bearings to get up on. Thicker materials may require a ramp up, which can be made by breaking the edge of the material or by making a ramp with tape or another thinner material.

Thinner compliant materials such as .005" to .010" polyethylene film are not effective air bearing pathways. The air pressure causes the material to conform too well to the floor and the imperfections show through. Also the material tends to wrinkle and overlap upon itself when traversed. Compliant materials such as .015 to .030" vinyl or linoleum work well in most instances; however, they will not bridge large floor gaps.

Semi-rigid materials such as sheet steel (24-18 gauge), stiffer plastics such as .040" to .060" polyethylene or polypropylene or 1/8" or thicker tempered Masonite® are flexible enough to conform to rolling concrete floors and work well when bridging gaps or ramping up or down to different slab levels. Sheet metal is the most durable; however, it will normally take on a permanent set when crossed.

Certain plastics such as polyethylene or polypropylene will normally spring back and will only deform if the load-rest bars exert high point loading when the air bearings are turned off. Masonite® may break or fray if bent too sharply. If long runways require that multiple sheets be used, thicker materials should be butted together with joints taped. Thin sheets may be overlapped so that the air film equipment steps down in the direction of movement. This only helps avoid movement of the next consecutive sheet. The extra drag forces encountered in stepping up or down on a sheet are about the same. Taping of the joints helps to reduce drag by providing a ramp.

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Any floor condition which presents a ridge causes problems for air bearings. Ridges may occur at expansion joints, floor cracks, sheet overlays, and many other situations. When an air bearing traverses a ridge, the ridge blocks the air film lubrication to the leading or trailing edge of the air bearing causing increased drag. Therefore, if an overlay must be used to bridge a floor joint, best operation will occur if the overlay is at least as long as the air bearing. Then each air bearing will only have to contend with one ridge at a time.

Tape

Tape may be used to bridge floor cracks and small expansion joints and also form ramps. Thinner tapes such as 3" wide cellophane package sealing tape or a wide vinyl tape work well. Duct tape is less desirable because it tends to roll up when crossed by air bearings. After a few crossings, the tape will get pressed down into the joint. Its effectiveness lessens and it must be stripped and reapplied.

Fillers

Plastic auto body filler can be used as a good, quick, temporary floor repair material. Body filler should be pressed into the floor depressions with a wide blade putty knife or plastic spreader and the excess scraped away. Floor pits as well as rough areas can be repaired by the same method. Once the filler has hardened, a flexible disc sander held flat to the floor will quickly smooth the surface without digging in.