

# Flooring Specification Guide



# Airfloat Flooring Requirements

## Introduction

The floor condition is an essential and integral part of any successful air film transport system. New installation or existing floor repair methods for air bearing use are generally different from those found in a typical plant or warehouse. Airfloat LLC designs, manufactures, and tests our air bearings to the floor requirements listed below. Compliance to these floor requirements will ensure that your air bearing system operates at its optimum performance levels for which it was designed.

## Required Air Flow

The amount of airflow required to float a specific platform is determined mainly by the floor conditions. If the operating surface is ideal, the required airflow will be very low. As the surface texture becomes rougher, more airflow will be required. Friction-free movement requires adequate airflow. To determine the required airflow for a specific size of platform, first determine which floor condition listed below most closely describes the actual floor conditions.

**Smooth Floor** – smooth steel, aluminum or plastic sheet, machine troweled concrete with a dense polished appearance, asphalt, rubber or vinyl tile with tight joints, un-textured linoleum.

**Normal Floor** – steel with slightly textured mill scale, good concrete with a slight texture.

**Textured Floor** – Steel plates with some flaky scale, slightly textured concrete or smooth concrete with minor pits and hairline cracks.

**Rough Floor** – Broom-finished concrete or highway-type asphalt surfaces. Note: This surface is not suitable for air bearing use.

Use the chart below to determine the approximate airflow requirements for a specific utility platform. Since air bearing sizes may vary for special platforms, verify from the name plate tag which air bearings size is being used.

SCFM* Airflow Requirement per Platform				
		Floor Condition		
No. of Air Bearings	Air Bearing Diam.	Smooth	Normal	Textured
4	12 inch.	11	24	54
4	17 inch.	16	34	80

## Flatness

Floor flatness refers to the length and amplitude of waviness, humps, bulges, ridges, gullies, troughs or depressions. Floor undulations considered here must be non-abrupt with well rounded edges. Abrupt floor irregularities must be repaired or avoided. Ways to navigate cracks, expansion joints, holes, seams, etc. are discussed further below in this document. Airfloat air bearing equipment is engineered to operate on floors that meet the following flatness specification:

Deviation under straight edge (inches)	1/16	1/8	1/4	3/8
Length of straight edge (feet)	1/2	3	10	12

Chart #1

Chart #1 (above) lists allowable depression deviations under various lengths of straight edges laid anywhere on the floor surface where the air bearing transportation system is intended to operate. Diagram #1 (below) illustrates the relative floor flatness of any given location in the air bearing equipment operating area.

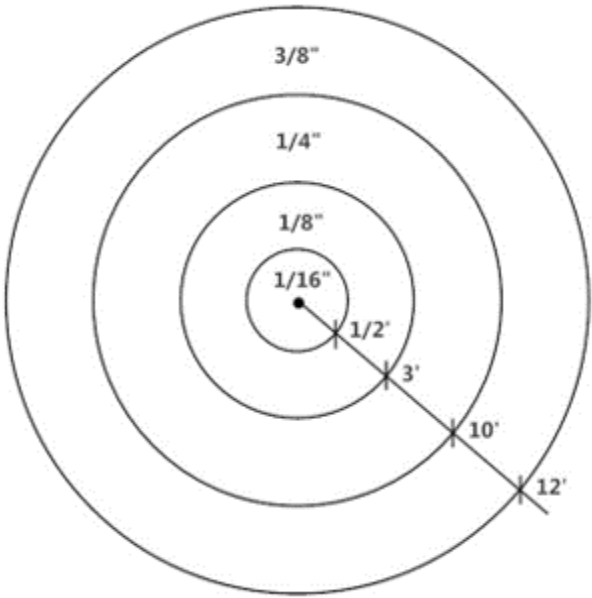
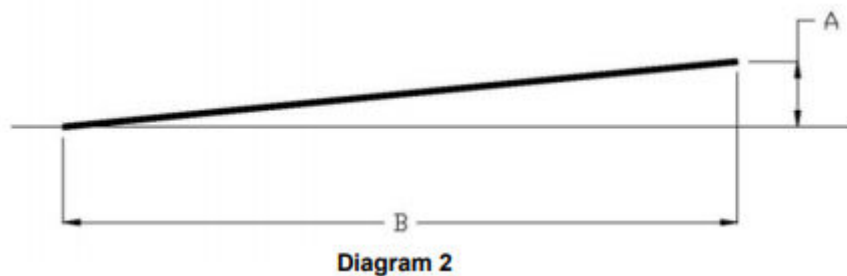


Diagram #1

### Levelness

The levelness of a floor does not affect the air film produced by an air bearing and therefore does not degrade its performance. Floor levelness is only considered within the context the overall control and maneuverability of the air bearing transport system. For manually operated equipment, it is recommended that the floor not exceed a slope of 1/8 inch rise in any 10 feet. For power driven or assisted equipment, it is required that the floor not exceed a slope of 1/4 inch rise in any 10 feet. See Diagram #2 in which A = rise and B = run. Please note that unlevelled floors will allow an air bearing transport system to drift along the floor grade if a guide wheel or power drive is not provided.



### Surface Texture

Air bearings operate with a paper thin film of air between the air bearing diaphragm and the floor. The degree of floor surface smoothness is of paramount importance. Airfloat air bearings are designed to operate on smooth, machine-troweled concrete floors, or other floor types with better or like finishes.

### Porosity

Our equipment is designed for efficient operation on non-porous floors. Air bearings make a floating pressure seal with the floor. A porous floor wastes air through the pores of the floor surface which degrade the pressure seal.

### Cracks & Expansion Joints

Hairline cracks are generally acceptable for air bearing use. As cracks widen, they must be filled and sealed to avoid air loss. If at all possible, expansion joints should be avoided in the path of air bearing movement. If unavoidable, the joint should be filled with a backer rod, finished with a flexible epoxy and sanded flush to blend with the rest of the floor.

### Projections

Any floor projections such as anchor bolts, or cover plates should be finished flush with the floor surface. Blind holes with a diameter less than  $\frac{3}{4}$ " will work acceptably with air bearing systems, but should be filled if not used.

### Bridge & Ramp Transitions

A bridge or ramp can be used to transition from one surface to another or navigate over obstacles. Typically only light gauge sheet metal is needed to bridge seams, cover floor grating, or ramp to differing floor materials. Please note that bridge and/or ramps must be longer than the diameter of their bearing so that the bearing only transitions over one edge at a time. It is recommended that a very slight break be placed two inches behind the leading and trailing edges of the sheet metal so to help keep the edges in uniform contact with the floor.

### Sheet Material Overlays

Overlays are typically used in temporary rigging moves as they are the most cost effective way to achieve floor compliance over rough or porous floor surfaces. The most common materials used for overlays are sheet steel, plastic, hard tempered Masonite, and non-textured linoleum. The overlay material thickness should not exceed  $\frac{1}{32}$ " to easy transition on to the overlay. When thicker overlay materials are required, they may necessitate the use of a ramp, which can be created by breaking the edge of the overlay material or by taping the leading edge with a thinner material. Overlay selection needs to consider subsurface conditions. Please consult with factory.



Please note that in some instances, Airfloat LLC may have the ability to design air bearing transport systems which can be specially engineered to operate on floors conditions outside the parameters of the requirements listed in the document. Any such deviations to the flooring requirements must be specifically noted in our proposal.