

## Material Handling and Slab Storage

Z-2005-002

Zodiaq® is a heavy material weighing 10 lbs/ft<sup>2</sup> and 15 lbs/ft<sup>2</sup>, for 2 and 3 cm product, respectively. Consequently, every business handling Zodiaq® must be outfitted with the appropriate material handling equipment to ensure the safe movement of slabs and work-in-process product. The following is a description of the material handling issues that one needs to address in handling Zodiaq®. ***It is the responsibility of each business to determine the right material handling equipment for their facility.***

### Safety:

- To ensure the safe operation of equipment, all equipment should be inspected prior to use.
- DuPont recommends two operators to ensure safe optimal handling of slabs: one operating the forklift and one on the floor to manage the slab.
- Proper personal protective equipment should be worn at all times, leather gloves, sturdy shoes, safety glasses, and a hard hat if lifting material overhead.
- Slabs are very heavy and awkward to handle. When moving a slab, avoid lifting the slab any higher than necessary.
- Operators should never position themselves directly under, in front of, or between slabs. Always stand in a position that would prevent the slab from accidentally falling towards you.

### Material Handling:

Every business that handles slabs of Zodiaq® will need a forklift to off-load A-frames from delivery trucks, move A-frames of slabs in and out of inventory, and to load A-frames for delivery to fabricators (AMI's), or installers (AZI's). Most businesses will equip forklifts with a slab boom (or forklift arm) and a slab lifter (clamp) to move slabs, and work-in-process, through their building. ***Since a fully loaded A-frame can weigh as much as 5500 lbs, DuPont recommends a forklift with a minimum capacity of 8000 lbs.***

### Moving slabs on A-frames:

A-frames are intended to be moved only when slabs are secured to the A-frame. Secure the slabs to the A-frame with banding or ratcheting tie down straps placed around the entire A-frame. The intent is to replace the original banding as it comes from the factory.

Moving A-frames using clamps to secure the cross members is an unsafe practice as the A-frames are not designed for this use.

Dragging A-frames across a floor can cause damage and is an unsafe practice.

### Slab Storage:

At present, the most cost effective way to store Zodiaq® slabs is on an A-frame, or in vertical storage racks. A-frames used for storage are generally constructed of wood, while vertical storage racks are generally constructed of steel. Steel posts are often covered at the point of contact with carpet, rubber pads, wood, plastic, etc. to prevent scratching, gouging, or scoring of a slab. Vertical storage racks should be capacity rated and designed for stone slab storage.

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Slabs can be stored on A-frames without banding, but they should be protected from the weather and any impact that may tip a slab or the entire A-frame. The number of slabs on either side of the A-frame should be balanced to make the A-frame the most stable. **A-frames are designed for delivering slabs and providing temporary storage.** If slabs are to be stored on A-frames for an extended period of time, the A-frame should be periodically inspected to insure integrity. A-frames should not be stored outside or in a wet environment for an extended period of time because they are not made of treated wood. **If Zodiaq® is stored outside in storage racks, it needs to be kept covered. Slabs should be stored with the polished faces unexposed.** In addition, the use of waterproof canvas to cover the product or storage under a roof has been utilized to protect Zodiaq® from the sun. Over prolonged periods of time fully or partially exposed slabs can experience color fading due to exposure to direct sunlight.

In northern climates where rain, ice, and snow fall during the winter months, ice can build up under the wood braces of the A-frame. The combination of ice build up and metal forks on a fork-lift require special handling. Care should be taken to defrost the ice. The fork-lift should be outfitted with rubber sheaths to prevent the A-frames from slipping during transport. In addition, individual slabs which are icy or frozen should be thawed prior to hoisting. This prevents slippage when gripping individual A-frames with rubber grips.

### Moving Slabs and/or Work-in-Process through a Fabrication Shop:

There are a number of products that are effective for moving product through a shop. The following is not an exhaustive list. Please consult the appropriate vendor for the right equipment for your shop. Verify that the equipment is capacity rated for the intended use.

- Forklift with a boom and slab clamp
- Overhead crane with vacuum lift or slab lifter (clamp)
- Carts/Tables/Dollies:
  - Slab Cart/Buggy (Hydraulic and battery operated versions are available)
  - Tilting hydraulic Transport Tables
  - Workshop Cart with Wheels
  - Fabrication Carts (A-frame mode that pivots to horizontal mode is available)
  - Hand Trucks (multi-position versions available)
  - Slab Dolly
- Jib Crane
- Conveyors

### Note:

**This technical bulletin is intended to replace technical bulletin Z-2001-015, dated November 2001.**

If you have any questions regarding the information contained in this technical bulletin, contact DuPont Technical Service at (877) 229-3935 or [www.zodiaq.dupont.com](http://www.zodiaq.dupont.com)

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