

# PENTALTEK

## TECHNICAL MANUAL V.1.4 2018

PentalTek combines the strength and durability of a porcelain slab with sophisticated design and a refined palette. By utilizing innovative technology, we're able to expand the design potential for both interior and exterior spaces. Along with the technical performance of a porcelain surface, PentalTek's large slab size allows for seamless installations from large kitchen islands, to long stretches of countertops and expanses of walls.

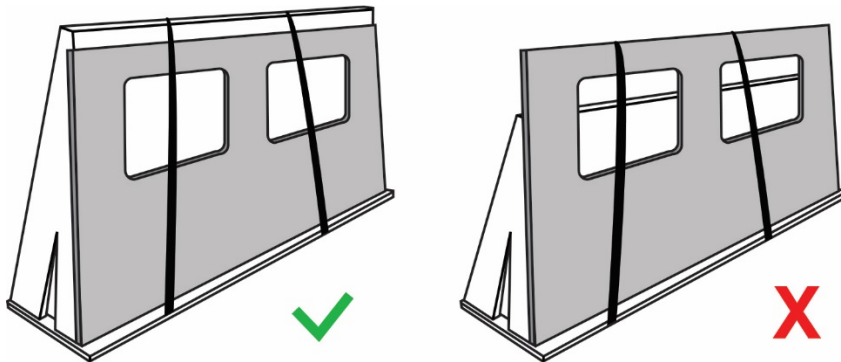
PentalTek slabs are produced from 100% natural materials including clays, feldspars, kaolin, and quartz powders that are formed and fired at temperatures over 1200° C. This composition and process creates an extremely durable finished slab. PentalTek contains no resins!

PentalTek slabs are 62" x 125.5" x 12mm  
Slab weight: 330 lbs.

### STORAGE AND TRANSPORTATION

#### Slab Storage

- All PentalTek slabs should always be stored with sufficient support over the entire slab surface to prevent excess stress.



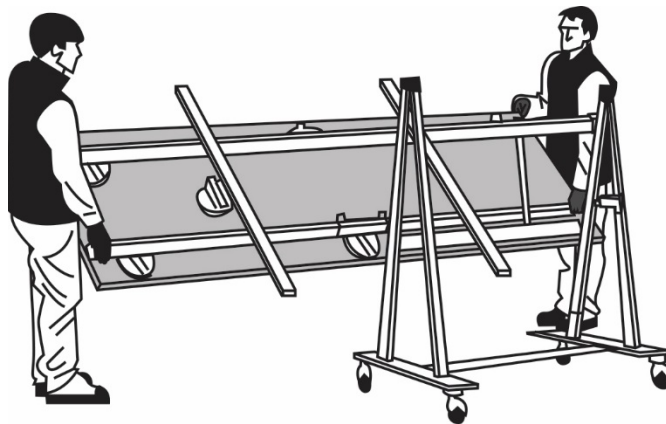
- PentalTek slabs must be stored on wood or metal frames. Metal frames should have wood or plastic bases to prevent damage to slabs during storage or movement.
- It is recommended to store slabs against those of similar size. Storage against smaller slabs may result in damage.

### **Transportation with a clamp**

- Clamping and transporting more than 2 slabs at the same time is not recommended.
- Be sure that all clamping surfaces are clear of debris or exposed metal before clamping to avoid damage to the slabs and risk of slipping.
- Always be sure the clamp is centered on the slab before lifting to prevent tilting of the slab.
- Always avoid sudden directional changes while moving slabs to avoid damage and injury.

### **Transportation by hand**

- The use of aluminum lifting kits designed for the movement of porcelain slabs is recommended for the handling of PentalTek.
- Lifting should always be done with the slab in the vertical position.
- Lifting should limit the amount of torsion on the slab at all times.
- Lifting should be done by personnel trained in the movement of large format porcelain slabs



### **Transporting via truck**

- Slabs should only be transported on trucks suitable for the material weight.
- Slabs should only be transported on an A-frame providing full back support over the full width of the slabs.
- Slabs must be fully secured to the A-frame and in accordance with all local laws and regulations.

## SLAB INSPECTION

All slabs should be inspected prior to fabrication in sufficient lighting conditions.\*

### Slabs should be checked for the following:

- Shade Variation
- Sheen Variation
- Surface Imperfections
- Slab Damage
- Flatness

*\* No claims will be accepted for any material that is fabricated or installed with any defects that were present at the time of slab delivery. It is the responsibility of the fabricator to inspect the slab and determine its fitness for use. Any slabs that are determined to contain defects at time of inspection should be exchanged prior to cutting at the supplying warehouse.*

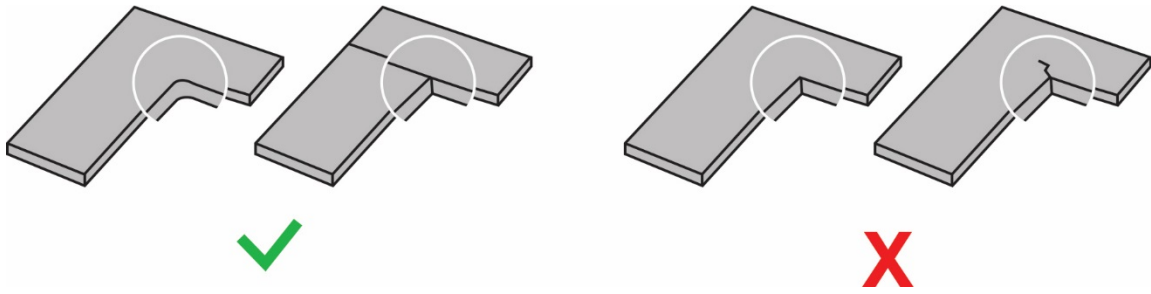
## FABRICATION

### Cutting Recommendations

When cutting PentalTek it is important to reduce the feed rate of the cutting tool by 50% when within the first 6" or the last 6" of the slab edges.

### Cutting Sequence

- True outside edges of slab as needed per design.
- Drill countertop inside corners with minimum 1/4" radius core drill to provide best resistance to stress points.
- **No 90° inside corners are permitted without the required radius or a seam.**
- Drill sink cutout corners with minimum of 1/2" radius core drill to provide best resistance to stress points.
- Sink cutouts should be completed last in the cutting sequence and are recommended to be done by drilling 4 corners using a core drill and then cutting with a disc to the edge of the hole.
- Cutouts should never be attempted using plunge cuts prior to corner holes being drilled.
- Sink cutouts may also be completed using a waterjet.
- The mesh on the back of the slabs does not pose a problem, but you will need to check the slab and remove any clumps or adhesive residue.



### Cutting using Bridge Saw

- Always be sure the entire slab rests on the saw table. If the slab size exceeds the table, it is recommended to cut the slab as needed to be sure all cuts are completed over the table surface with no cuts on unsupported areas of the slab.
- It is recommended to clamp or weight slab ends to prevent vibration or movement during the cutting sequence.
- For best results, use tools specifically designed for porcelain slab. Each piece must be evaluated according to colors, geometrical specifications, and critical points and outputs should adjust based on these criteria.
- Cutting feed rates will vary depending on equipment and conditions.

#### Advance Rate

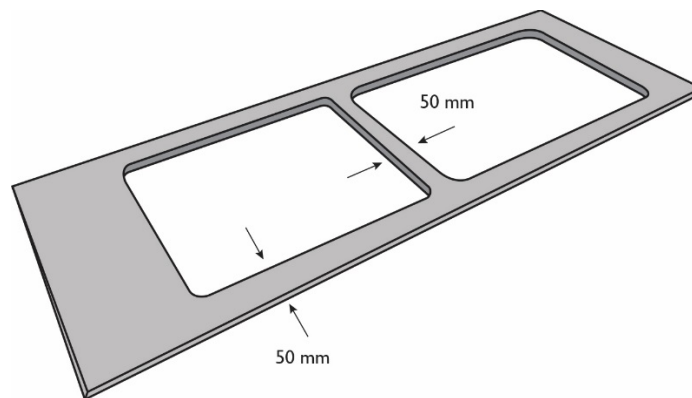
Straight Cuts: up to 40" per minute

45° Miter cuts: up to 25" per minute

All cutting rates should be reduced by 50% for the first 6" and last 6" of the slab.

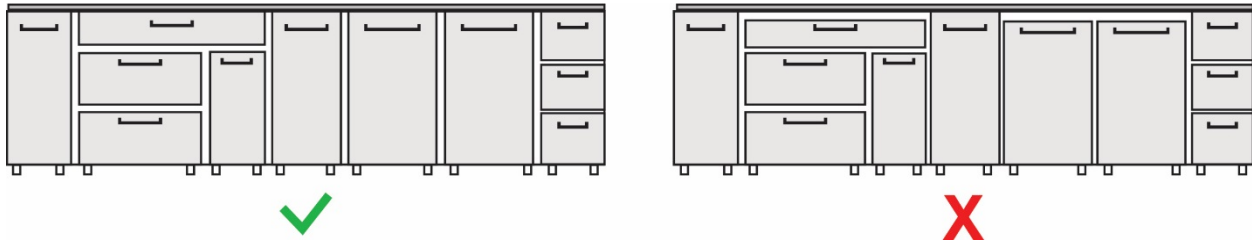
### Cutting Layout

- No cutouts should be made with less than 2.5" from the slab edge.
- No 90° or square inside corners.
- Cutouts should be positioned to the center of the slab if possible.
- There should be a minimum of 5cm spacing between any cutouts or holes.



- Seams should be avoided through any cutouts.
- Holes for switches, outlets, or other items should be created using a circular drill or waterjet.
- Avoid using a saw for these types of cutouts.

### Sub top – Support for Countertop Installations

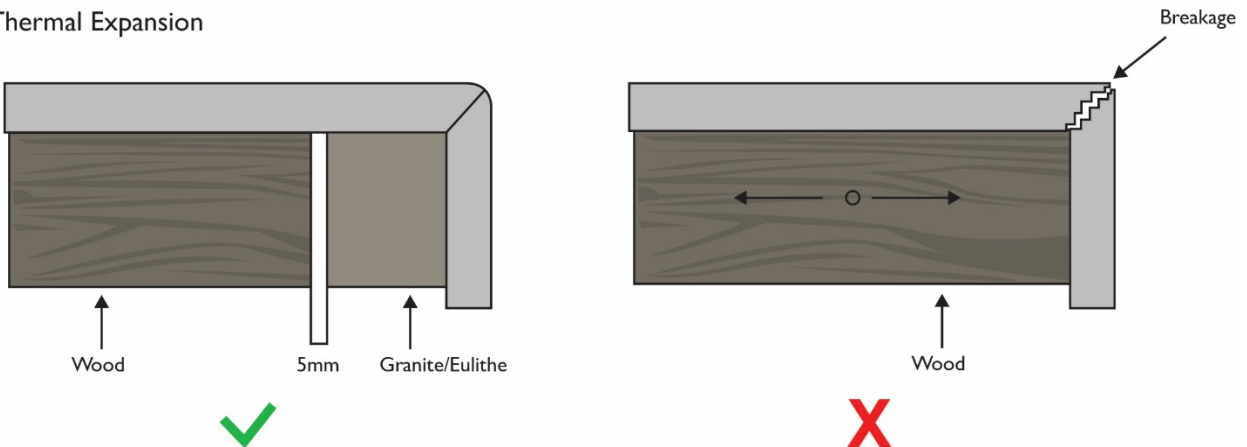


- Tops must be level within 1/8" over a 10' span.
- A sub top of cement board or hardi-backer is recommended.
- PentalTek should never be used as a means of structural support. This includes sinks and countertop appliances. Always make sure that the base cabinets or structure as well as the sub top bear all structural weight.
- Perimeter spacing should be minimum 1/8" between the PentalTek countertop and surrounding walls on all sides.

### Mitered Edges

It is recommended to use a piece of PentalTek as a backer behind the finished miter piece for additional strength. A piece of granite may also be used for this purpose, but quartz material should not be used as it is more susceptible to expansion and contraction with changes in temperature or humidity.

### Thermal Expansion



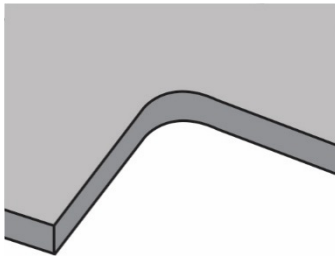
## Edge Details

- All edge details should provide a minimum 1/8" radius or 1/8" bevel to minimize the risk of chipping or other impact damage to the PentalTek surface.
- The greater the radius, the more resistant the edge will be to potential impact damage.
- **Note that all beveled edges will expose the slab color body.**
- Edges can be polished using normal granite/marble diamond polishing pads.

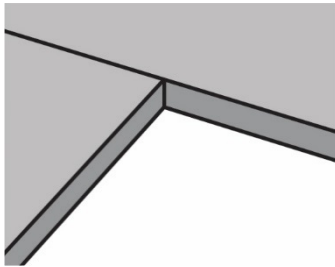
## Seaming

### For L-Shaped countertops

- L-Shaped counters must have a minimum radius of 1/2" at the L if no seam is present.



- It is recommended to place a seam at the inside corner of an L-shaped top.
- Both sides of the L-shaped top must be level within 1/16" over 10'.

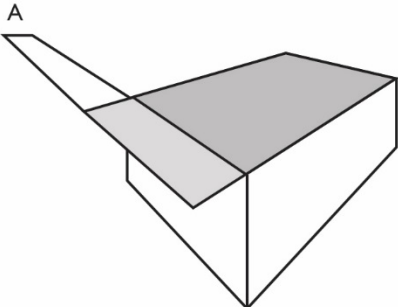
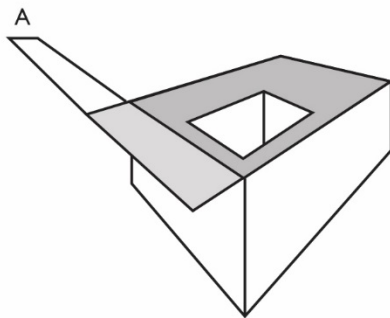


### For All Countertops

- Seaming should be completed with a color matched epoxy adhesive.
- Seams should be level.
- Seams should not be polished or ground to avoid removing the surface graphic on PentalTek.

## Overhangs

- Max. Unsupported overhang without additional support is 6" with no cutouts in top.
- Max unsupported overhang without additional support is 3.5" with any cutouts in top.

|                                       | 0.47"       |   |
|---------------------------------------|-------------|---|
| Top with unsupported overhang         | $A < 6''$   |   |
| Drilled top with unsupported overhang | $A < 3.5''$ |  |

## PENTALTEK HEAT RESISTANCE

PentalTek is very resistant to heat. It is recommended to avoid PentalTek coming into contact with heat in excess of 1000°F.

## PENTALTEK USES

### For Fireplace Surrounds or Mantles

- PentalTek may be used for fireplace surrounds and/or mantle pieces.
- PentalTek should not be installed in direct contact with fire box or heat source.
- PentalTek is not recommended for use inside a fire box.
- PentalTek installed against a metal firebox unit must have a minimum 1/2" space to allow for the firebox unit to expand with heat and not damage the PentalTek material.
- PentalTek edges adjacent to heat sources should be polished and have a minimum 1/2" radius on both edges to avoid stress points of sharp corners.

### **Outdoor Countertops**

- It is recommended to avoid the use of wood for outdoor countertop structures and substrates.
- It is recommended to use cement board or Hardiebacker as the substrate and/or base wrap to minimize the amount of expansion and contraction of the cabinet structure.
- It is recommended to use an adhesive that is UV resistant for all visible areas to avoid color change and deterioration of the adhesive due to exposure.

### **Outdoor Kitchens and Around BBQ Grills**

- PentalTek installed adjacent to a BBQ Grill or outdoor oven must have a minimum 1/2" space between the top and the heat source to allow the heat source to expand and contract with changes in temperature.
- PentalTek edges adjacent to heat sources should be polished and have a minimum 1/2" radius on both edges to avoid stress points of sharp corners.

## **INSTALLATIONS FOR WALLS OR FLOORING**

- Concrete must be adequately cured prior to installation of PentalTek.
- A moisture barrier and/or anti-fracture coating should be applied to all concrete substrates prior to installation of PentalTek.
- Adhesive should be selected that is appropriate for the specific application of PentalTek slabs. All installations are recommended to comply with the most recent TCNA recommendations.
- Bonding surface must be clean, dry, and free from any contaminants.
- Slabs must be back buttered for all installation types.
- The back side of the slab should have the adhesive spread with a 3mm square notched trowel.
- The substrate should have the adhesive applied in the same direction as the back of the slab using a 15mm rounded tooth trowel. Adhesive should be applied to avoid any gaps over the span of the slab.
- Slabs should be tamped with a rubber mallet or other tamping device to remove air bubbles and assure securing setting of the slab on the adhesive.