



# TAKTL® FIELD GUIDE

Doc. P10-1 Rev. 2002

## TAKTL FIELD GUIDE: Introduction



This reference guide is a collaboration between our project managers, quality assurance team, and some of our most successful installation partners, drawing on the experiences and “lessons learned” of over 280 TAKTL facade installations in North America across a wide range of applications, climates, and challenging installation conditions.

We recognize that our success hinges upon the the success and alliance of our installers. We’ve been gratified by how enthusiastically facade designers and engineers have embraced TAKTL; however, our focus during expansion and continued investment has been to build an increasingly comprehensive program to support the successful installation of our product.

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## Architectural Ultra High Performance Concrete (AIUHPC®)

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TAKTL® is an advanced Architectural Ultra High Performance Concrete (AIUHPC) that is over four times as strong as traditional precast concrete and performs exceptionally well in demanding conditions. The key to TAKTL's strength is the carefully calibrated ratio of engineered ingredients and a mixing sequence that tightly packs molecules together and creates very strong bonds. TAKTL panels are reinforced with Alkali Resistant (AR) Glass Fiber and two layers of AR Glass Fiber Mesh. Panels are cast utilizing a proprietary, automated production process into molds that yield an intrinsic pattern and color. Additional surface finishes available include mediablasting, decorative aggregate, and opaque sealer.

Although highly durable, TAKTL panels are susceptible to irreversible damage if stored or handled improperly. This TAKTL Field Guide details approved procedures for handling, processing, and installing TAKTL panels in order to achieve a successful project. Per the TAKTL Terms + Conditions of Sale (Doc. L-2), the purchaser is responsible for following these directions in order to keep warranty benefits intact. Improper storage or handling will result in product damage that is not covered by the TAKTL Limited Product Warranty.

## Technical Assistance, Installer Training, and Field Support

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Our knowledgeable staff is available to provide support before and during the installation process. Your TAKTL Project Manager is the primary point of contact for all project related communications, but you can also call the main line at any time with project-related questions: 412-486-1600.

First-time installers are encouraged to visit our manufacturing facility in Pennsylvania to talk through the logistics of a project and receive training on field processing, installation, and proper storage protocols. If you would like to set up a visit to our facility, please do so through your Project Manager or Sales Representative.

TAKTL personnel make field visits regularly to provide support, review material, and ensure storage and handling procedures are being followed. Depending on the size of a project TAKTL will proactively schedule one or more site visits during the installation process. Clients can also request a site visit if additional training, technical assistance, or material review is required. Site visits can be requested through your TAKTL Project Manager.

## Customer Satisfaction

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Exceeding customer expectations is our goal on every project. To report a problem with material or service following the arrival of TAKTL panels to your project location, please provide a description of the problem to your TAKTL Project Manager. When the problem relates to product quality or conformance, please submit a TAKTL Customer Claim Form (Doc. Q6-1) to the Project Manager and be prepared to send photographs and provide panel serial numbers or crate numbers.

If the TAKTL Project Manager is unavailable for an urgent matter, call the main line for assistance: 412-486-1600.

## Site Storage

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Site storage is critical to maintaining the integrity of the panel surface, and it will be necessary to unpack and stage panels for installation. Establishing a location and method of storage and staging in advance of crate delivery is essential. Our project managers are available to assist in developing a successful strategy for storing, staging, and sorting panels, as required.

## Receiving + Storing Crates

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Our team is dedicated to shipping high quality products. Prior to shipment, parts are inspected according to the TAKTL Quality Management Tolerances + Acceptance Criteria (Doc. Q2-1). The product is then packaged in crates designed to hold the panels upright, protect the finish faces, and minimize damage during shipment. A master schedule of the crates and contents will be transmitted electronically to the installing contractor at the time of shipment. Crates are shipped with a manifest that lists each panel and its reference to the project panel list and panel layout designations.

## Crate Inspection Upon Delivery

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The receiving party is responsible for inspecting crates upon delivery, per the TAKTL Terms + Conditions of Sale (Doc. L-2), and immediately reporting any visible damage to the crate or signs of mishandling. Once crates are delivered to the site, handling and storage are the responsibility of the installing contractor. Use the following checklist for crate inspection prior to opening crates:

Inspect immediately upon unloading and confirm **BEFORE** the freight carrier leaves the site:

- Crates are tarped on arrival.
- Crates are individually covered in plastic.
- Crates do not appear to have any structural or water damage.
- Crates are upright on/in the truck.
- The number of crates and quantity of hardware received matches the number of crates on the shipping manifest sent to the installing contractor.

If any of the above conditions of receipt cannot be confirmed:

1. Photograph the receiving conditions.
2. Note the receiving conditions on the freight carrier bill of lading.
3. Call your TAKTL Project Manager within 48 hours to initiate the process of filing a claim.
4. Do NOT install material. Installation of material from improperly handled shipment crates will compromise the potential for remediation processes.

## Crate Offload Instructions

- Crates must be lifted broadside from trucks with a forklift, exercising care to avoid jostling crate contents.
- Standard weights of a full crate of TAKTL material range up to 5,000 LB. In some cases, TAKTL Project Managers will seek prior approval to send heavier crates, provided there is appropriate equipment at the job site to unload and move them. Make sure the forklift used to move crates is rated for the necessary weight.
- In the event that crates are shipped in a dry van or covered truck, crates should be slid off the truck from the short end. Do not attempt to lift a crate fully off the ground from the short end.

### 01 Crate Offload Instructions

Crates must be off-loaded from trucks with a forklift, exercising care to avoid jostling crate contents (FIG. A).



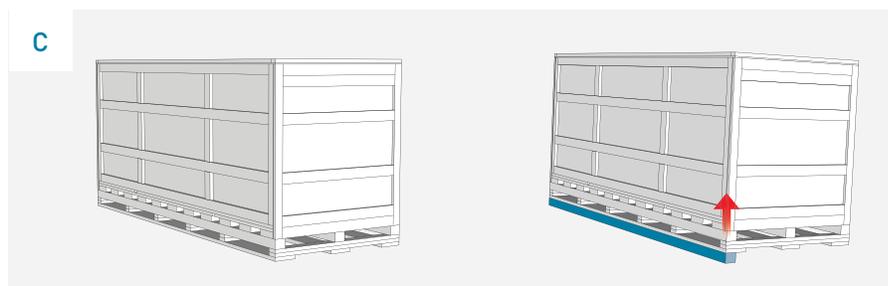
### 02 Support the Crate

Ensure that the forks fully support each crate and are balanced and centered (FIG. B).



### 03 Brace the Front of Crate

Crates must be angled and blocked, using a 4x4 or 2-2x4's, to raise the edge 3 to 3.5 inches prior to opening. The supporting block must be continuous and set on level ground to avoid uneven stress on the crate or the panels (FIG. C).



## Crate Manifests + Shipment Notifications

Panels are cut and labeled with part numbers that correspond to approved panel layout drawings for the building. Part numbers are used to determine the correct location of the panel on the building. Part numbers start with the three letter project and start year, then a series of numbers indicating line item and installation location, and end in an alphanumeric suffix, if necessary, to indicate mitering or bonded corners.

### Part Numbering Example: ABC17 – 1 – 478G – 2M0B

- Project: ABC
- Corresponding Line Item Number on Purchase Order: 1
- Location on Building: 478G
- 2M0B indicates that the panel has 2 mitered edges and 0 bonded edges (ie. is not a corner)

- Individual panels are also given unique serial numbers at the time of manufacture. The serial number is the means of traceability that links a part to the raw materials that were used to manufacture it.
- Both the part number and the serial number are written on the part with marker, and are present on the adhesive label on the back of the panel.
- Each crate is assigned a unique number as it is created. The number is painted on the outside of the crate.
- There is a document envelope on each crate that contains the Crate Manifest. The Crate Manifest lists the part numbers and quantities for everything in that crate.
- When reporting issues with a crate, your TAKTL Project Manager will need the crate number. Similarly, when reporting an issue with a part or parts, part serial numbers of the individual panel will be required.

### Shipment Notifications

Shipment notifications that contain the parts list for an entire shipment are generated when the panels are loaded onto a truck at our facility and emailed to our customer within one business day. The manifest is sent to the site contact on file (FIG. A).

A

TAKTL		TAKTL, LLC 503 Bradbrook Avenue Turle Creek, PA 15145 Tel 412.486.1600		Project Shipment Manifest				
Shipment No	Ship Date	Customer / Project	Master Unit No	Line #	PART #	Part Name	Ship Qty	Ship Sq Ft
04693	8/15/2017 1:13:00 PM	GAMA Construction Company / Canada Goose 1 - CGO17	M020460	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020462	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020465	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020466	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020470	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020471	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020572	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020580	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020663	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020687	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020689	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	5	200.0
			M020692	1	CGO17-1-100	TAKTL Flat Panel, Std White, Crinkle, Cast, CS	4	160.0

Plex 8/15/2017 3:02 PM jearwright.tak

## Handling + Storage Instructions

### 01 Crate Safety

Crates are loaded with the panels facing the front. The front and back of the crates are marked, both inside and outside of the protective plastic.

**NEVER OPEN THE BACK OF A CRATE** (FIG. A).

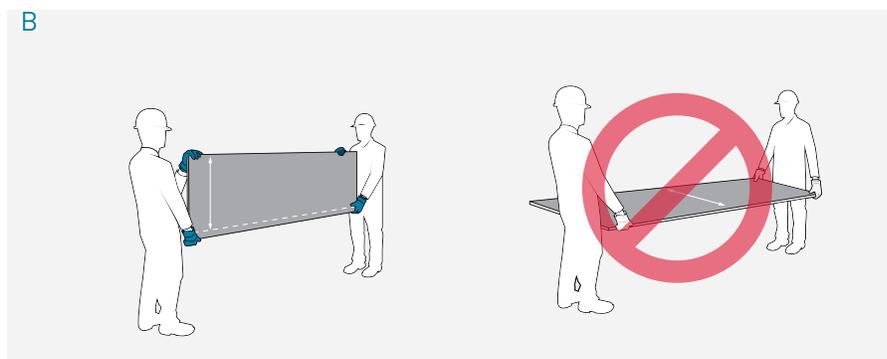


### 02 Panel Handling

Panels should be lifted and moved vertically to avoid cracking.

Panel edges can be sharp, so gloves should be worn when moving panels to prevent injury.

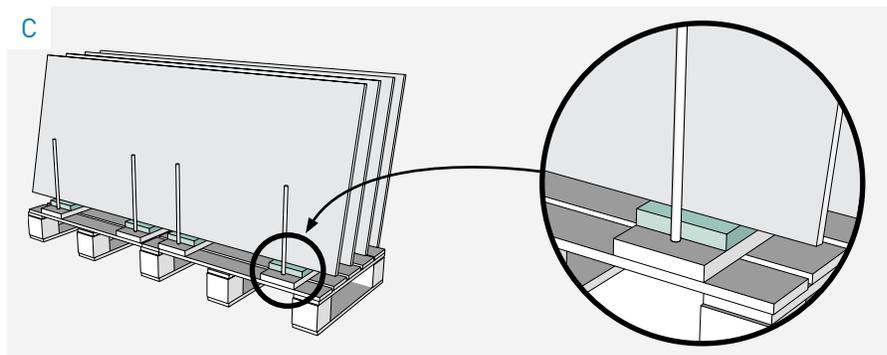
Gloves must be clean – oil and grease can stain the surface of the panels (FIG. B).



### 03 Panel Storage + Staging

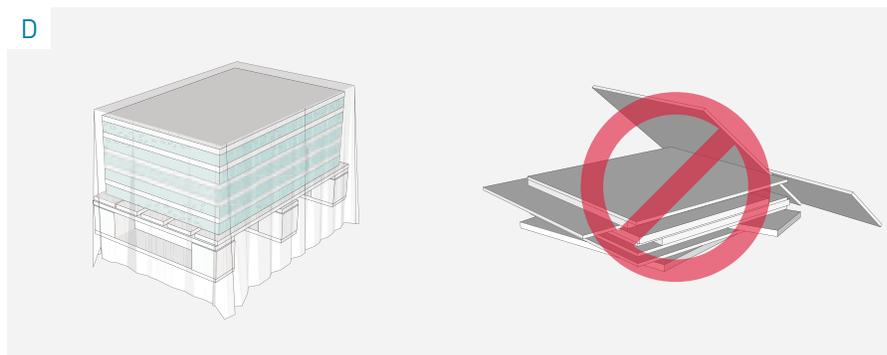
Panels must be stored vertically, resting on back edge, padded with clean foam to prevent chipping.

Plan to prepare staging pallets if panels are not going to be installed directly from crates (FIG. C).



### 04 Flat Stacking Panels (Not Advised)

If panels cannot be stored vertically and must be stacked flat then clean, protective foam must be placed between panels. Stacks must be on level pallets or on raised platforms, and covered completely. Only completely dry panels can be stacked. Panels must be stored in the same conditions to weather evenly and maintain expected surface quality (FIG. D).



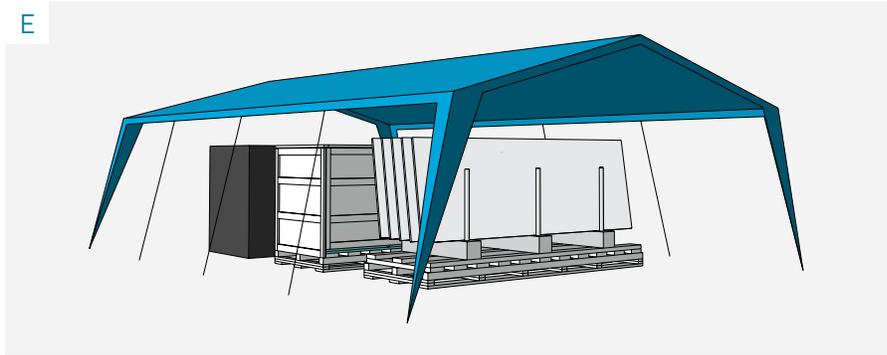
### 05 Crate Storage

Crates must be protected from moisture at the job-site and in long-term storage.

Crates must be stored under cover with ventilated tarps.

The shipping plastic is NOT sufficient for outdoor site storage (FIG. E).

E



### 06 Crate Ventilation

Crates must NOT be stacked vertically and space must be left on all sides of each crate for proper air circulation (FIG. F).

F



Panels may be subject to natural efflorescence staining, and in almost all cases natural efflorescence will go away with time. However, a distinctly different type of efflorescence can be caused by water exposure in storage. There is a significant visual and chemical difference between efflorescence caused by weathering and efflorescence caused by storage conditions. Any time a panel is wet and cannot dry evenly across the surface, even for a short period of time, storage damage is likely to occur. Examples of situations that will cause storage damage include:

- Water or condensation in closed crates
- Stacking crates vertically or horizontally without air circulation outdoors
- Keeping any wet foam or plastic in contact with panel surfaces
- Storing panels horizontally where water can pool on the surface
- Leaving crates open onsite

*TAKTL cannot be held responsible for water damage caused by mishandling. In order to prevent it, keep crates and panels dry, and store with adequate ventilation. If water damage DOES occur, do not install the panels. Contact your TAKTL Project Manager to discuss remediation options.*

## Uncrating Instructions: Standard Panels | TAK Crates

### IMPORTANT



Before Uncrating



Phillips Head Screws are used to attach the lid of the crate and the front braces. Screw locations are marked with paint.



Star Drive (Torx) Screws are used to attach the crate to its base and the back to the sides. Star drive (Torx) screws are NOT marked with paint and should NOT be removed.

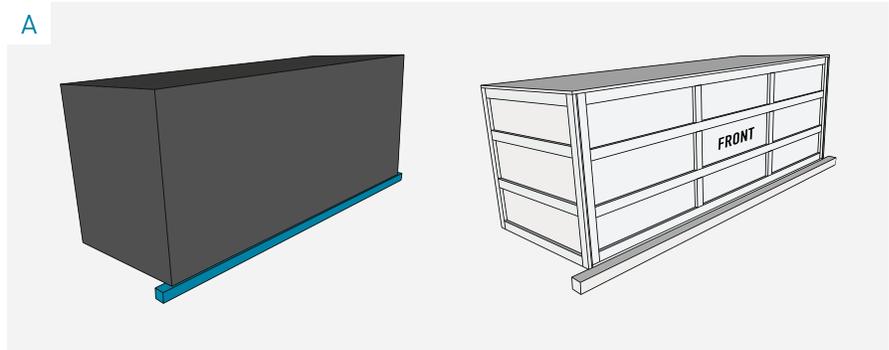


Desiccant Packets are located inside of the plastic wrap. Open the plastic wrap to access the panels. If the panels will be re-wrapped and stored in the crate, keep the desiccant packs to put back inside.

### 01 Unwrap Plastic + Prop Crate

Prop the front of the crate up at least 4" above back of crate using a 4"x4" piece of lumber the full length of the crate. If the ground is not fully level, the prop might need to be larger in order to get the front of the crate 4" higher than the back. Remove the protective plastic. Crates should be clearly marked "front" and "back" on the wood (FIG. A).

A



### 02 Remove Lid

Remove the lid of the crate and set it aside. The panels inside the crate are wrapped in black plastic. Look in the top of the crate and make sure the panels are leaning toward the back before opening the front of the crate. If the panels are not vertical or leaning toward the back, do not open the crate further and increase the height of the front prop (FIG. B).

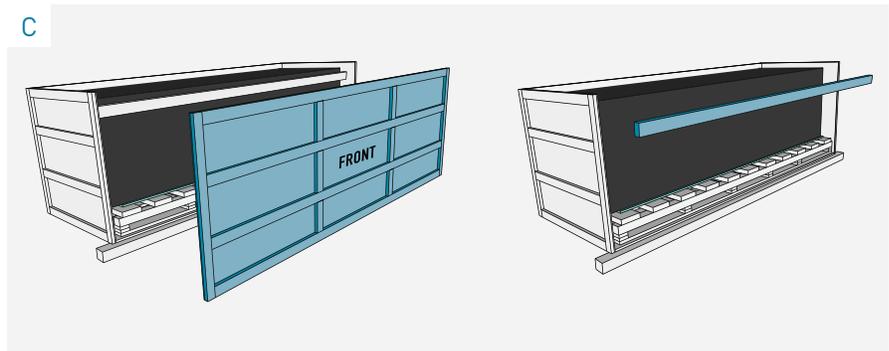
B



### 03 Remove Front

Remove the front of the crate and any internal bracing by unscrewing at the sides and base (FIG. C).

C



### 04 Unwrap Panels

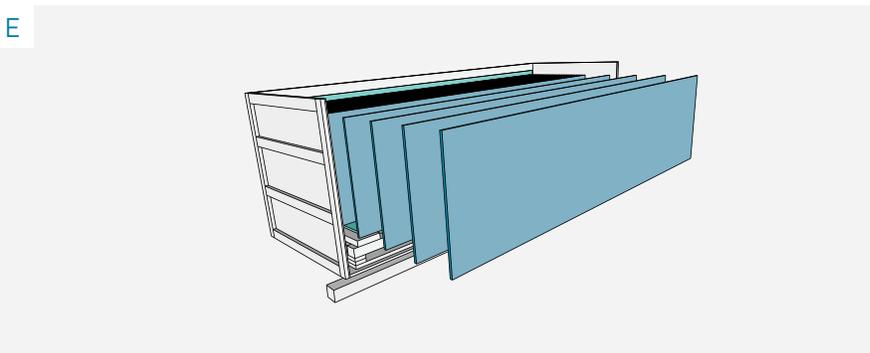
Panels are wrapped in plastic with desiccant inside. Open the plastic wrap to access the panels. (FIG. D).



### 05 Remove Panels

Remove panels vertically to avoid any flexing (FIG. E).

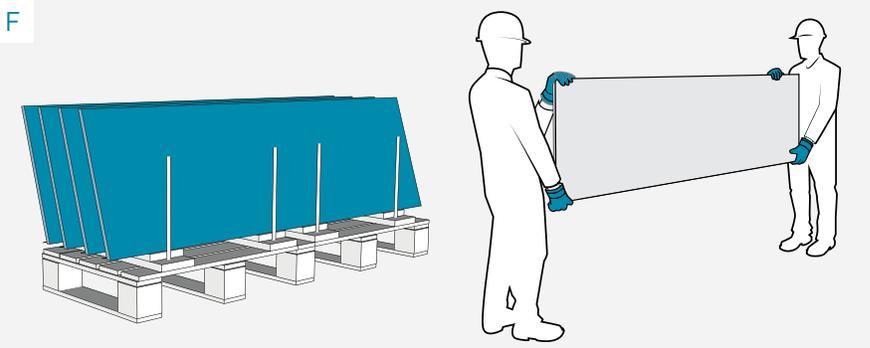
**NOTE:** Take precautions to prevent any damage to the face of the panel.



### 06 Stage Panels

Removed panels should be placed on a staging pallet to prevent damage to the panels prior to installation (FIG. F).

**NOTE:** Safety gloves are required for handling panels.



## STORAGE REQUIREMENTS



Moving + Storage

- If the crate must be moved, reattach any bracing that was removed.
- Do NOT attempt to move the crate without securing panels in the crate.
- Make sure crates are covered with tarps at the end of the day with the desiccant packets placed inside of the plastic wrap.
- The plastic sheeting is NOT sufficient to protect the panels from weather.

## Uncrating Instructions: Oversize Panels | A-Frame Crate

### IMPORTANT



Before Uncrating



Phillips Head Screws are used to attach the lid of the crate and the front braces. Screw locations are marked with paint.



Star Drive (Torx) Screws are used to attach the crate to its base and the back to the sides. Star drive (Torx) screws are NOT marked with paint and should NOT be removed.



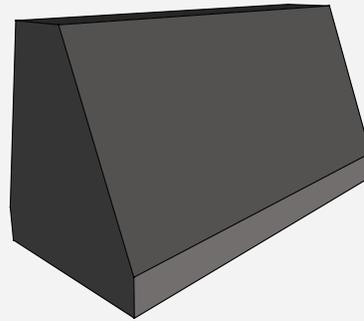
Desiccant Packets are located inside of the plastic wrap. Open the plastic wrap to access the panels. If the panels will be re-wrapped and stored in the crate, keep the desiccant packs to put back inside.

### 01 Unwrap Crate Plastic

Remove the plastic covering from the outside of the crate.

The panels are tilted backwards when they are packed in A-Frame crates, so this crate does not need to be propped up in front (FIG. A).

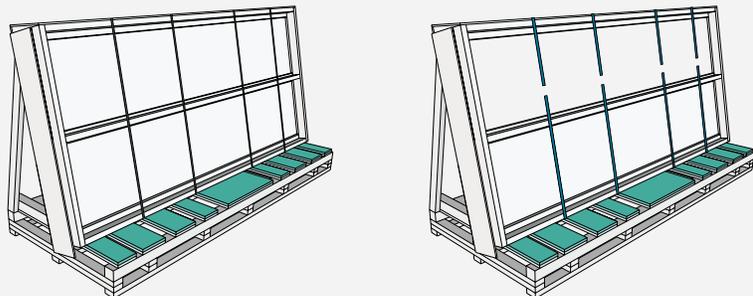
A



### 02 Cut Banding

Cut the steel banding that goes around the whole crate (FIG. B).

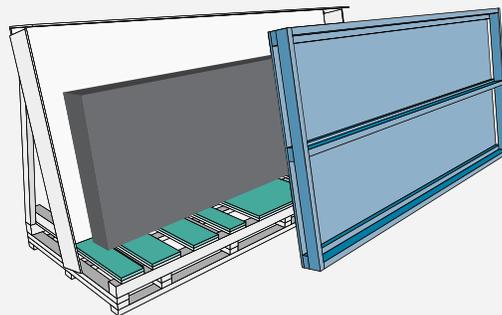
B



### 03 Remove Front

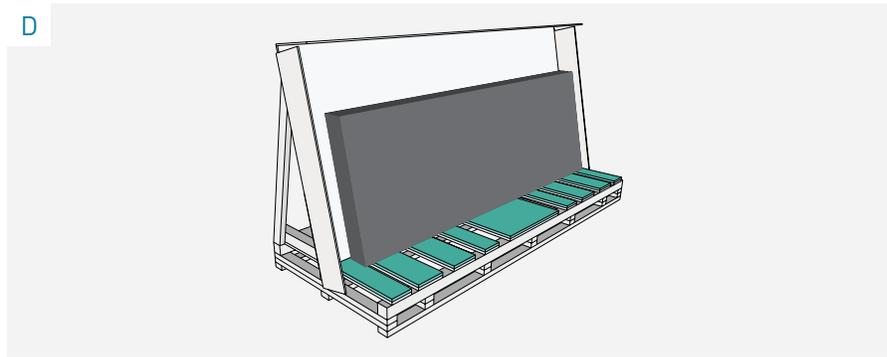
Unscrew the plywood holding the front of the crate in place. Remove the front of the crate and place to the side (FIG. C).

C



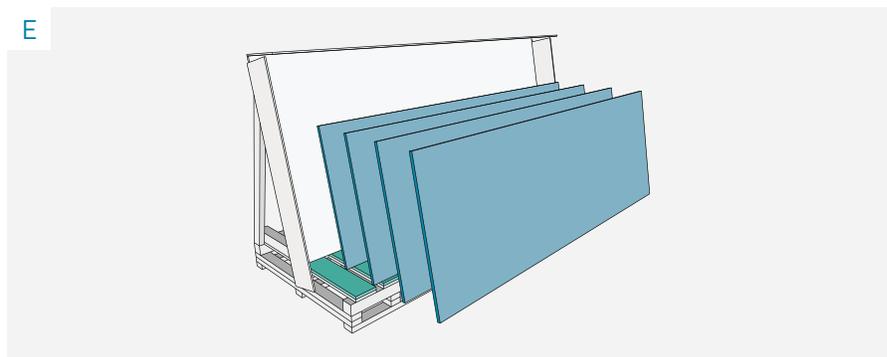
### 04 Unwrap Plastic

Panels are wrapped in plastic with desiccant inside. Open the plastic wrap to access the panels (FIG. D).



### 05 Remove Panels

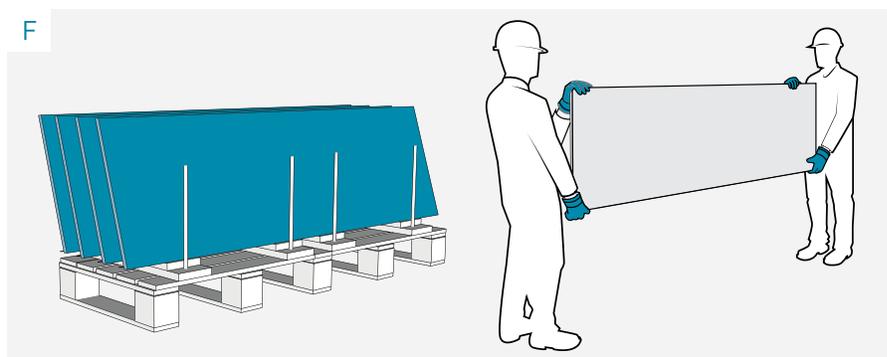
Remove panels vertically to avoid any flexing. Take precautions to prevent any damage to the face of the panel (FIG. E).



### 06 Stage Panels

Removed panels should be placed on a staging pallet to prevent damage to the panels prior to installation (FIG. F).

**NOTE:** Safety gloves are required for handling panels.



## STORAGE REQUIREMENTS



Moving + Storage

- If the crate must be moved, reattach any bracing that was removed.
- Do NOT attempt to move the crate without securing panels in the crate.
- Make sure crates are covered with tarps at the end of the day with the desiccant packets placed inside of the plastic wrap.
- The plastic sheeting is NOT sufficient to protect the panels from weather.

## Uncrating Instructions: Planks + Short Panel | TAK Crate with Shelves

### IMPORTANT



Before Uncrating



Phillips Head Screws are used to attach the lid of the crate and the front braces. Screw locations are marked with paint.



Star Drive (Torx) Screws are used to attach the crate to its base and the back to the sides. Star drive (Torx) screws are NOT marked with paint and should NOT be removed.

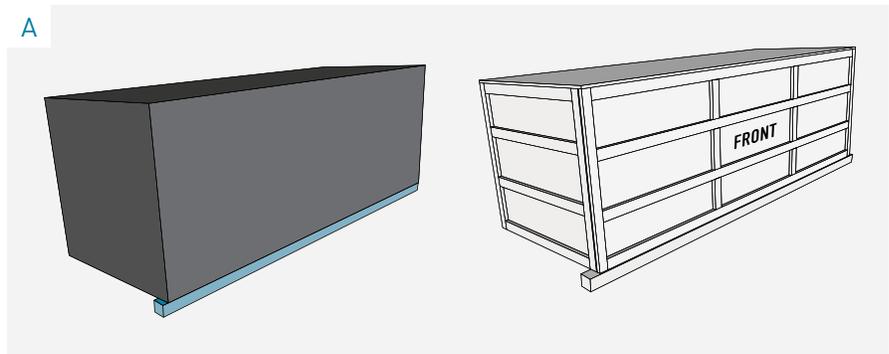


Desiccant Packets are located inside of the plastic wrap. Open the plastic wrap to access the panels. If the panels will be re-wrapped and stored in the crate, keep the desiccant packs to put back inside.

### 01 Unwrap Crate + Prop Crate

Prop front of crate up at least 4" above back of crate using a 4" x 4" piece of lumber the full length of the crate. If the ground is not fully level, the prop might need to be larger in order to get the front of the crate 4" higher than the back. Remove the protective plastic. Crates should be clearly marked "front" and "back" on the wood (FIG. A).

A

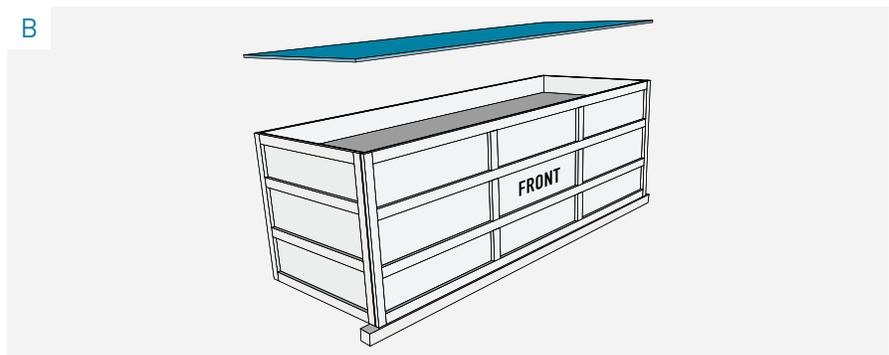


### 02 Remove Lid

Remove the lid of the crate and set it aside.

The panels inside the crate are wrapped in black plastic. Look in the top of the crate and make sure the panels are leaning toward the back before opening the front of the crate. If the panels are not vertical or leaning toward the back, do not open the crate further (FIG. B).

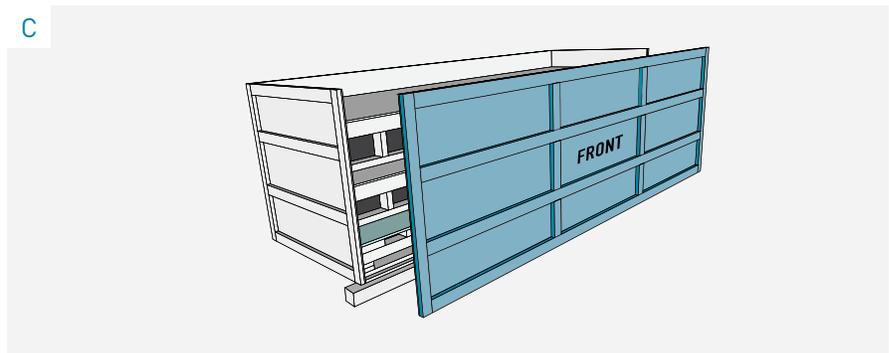
B



### 03 Remove Front

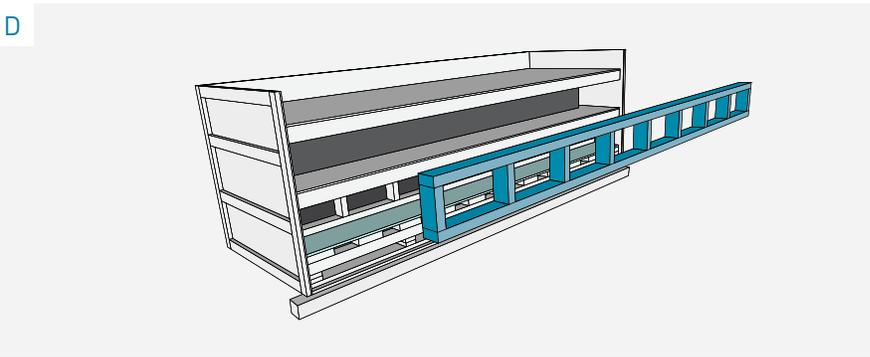
Remove the front of the crate by unscrewing at the sides and base (FIG. C).

C



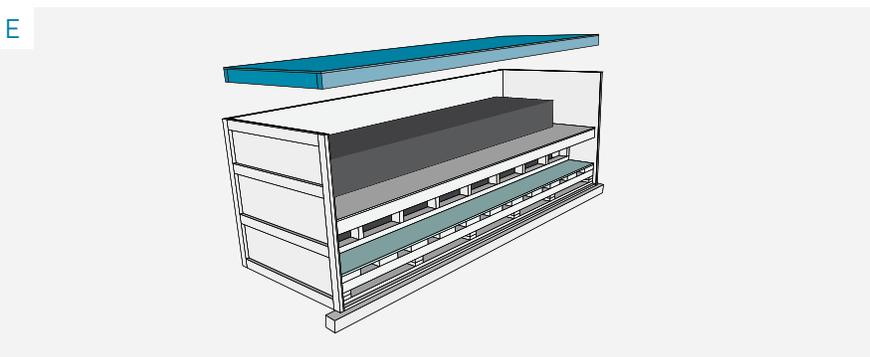
#### 04 Remove Shelf Brace

Short panels or planks are crated with two or more shelves in a crate. Each shelf layer is wrapped and braced individually, and the crate must be unloaded from the top shelf down. To access panels on the top shelf, unscrew and remove the front brace from the top shelf ONLY (FIG. D).



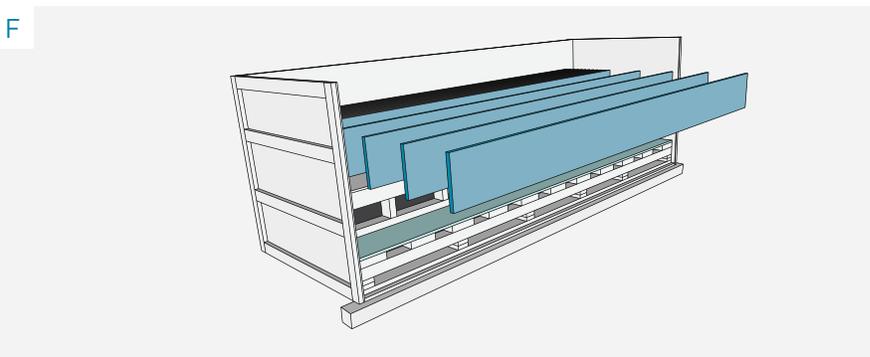
#### 05 Remove Shelf + Unwrap Panels

Remove the shelf and set it aside. Panels are wrapped in plastic with desiccant inside. Open the plastic wrap to access the panels (FIG. E).



#### 05 Remove Panels

Remove panels vertically to avoid any flexing. Take precautions to prevent any damage to the face of the panel (FIG. F).



### STORAGE REQUIREMENTS



Moving + Storage

- If the crate must be moved, reattach any bracing that was removed.
- Do NOT attempt to move the crate without securing panels in the crate.
- Make sure crates are covered with tarps at the end of the day with the desiccant packets placed inside of the plastic wrap.
- The plastic sheeting is NOT sufficient to protect the panels from weather.

## Uncrating Instructions: Custom Parts | TAK Crate

### IMPORTANT



Before Uncrating



Phillips Head Screws are used to attach the lid of the crate and the front braces. Screw locations are marked with paint.



Star Drive (Torx) Screws are used to attach the crate to its base and the back to the sides. Star drive (Torx) screws are NOT marked with paint and should NOT be removed.



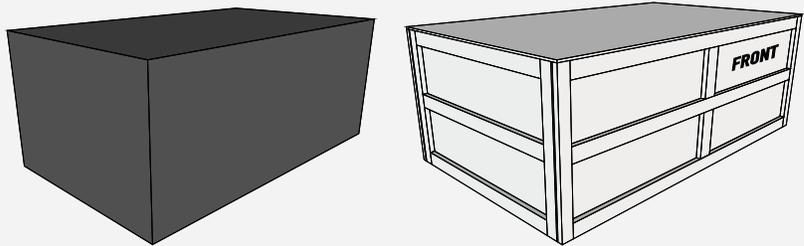
Desiccant Packets are located inside of the plastic wrap. Open the plastic wrap to access the panels. If the panels will be re-wrapped and stored in the crate, keep the desiccant packs to put back inside.

### 01 Unwrap Crate

Custom parts and large bonded corners are crated flat. The fronts of these crates do not need to be propped up because the panels cannot fall out.

Remove the protective plastic. Crates should be clearly marked "front" and "back" on the wood (FIG. A).

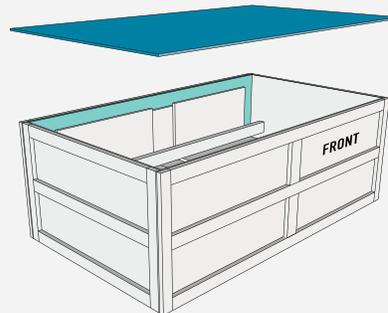
A



### 02 Remove Lid

Remove the lid of the crate and set it aside (FIG. B).

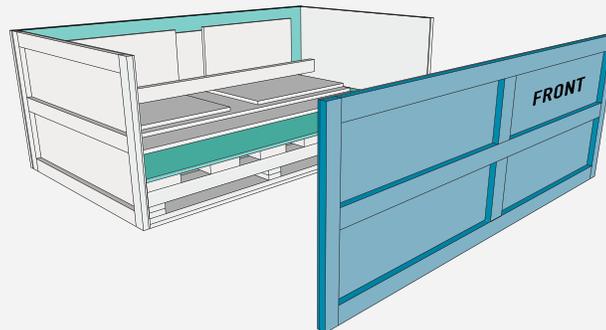
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### 03 Remove Front

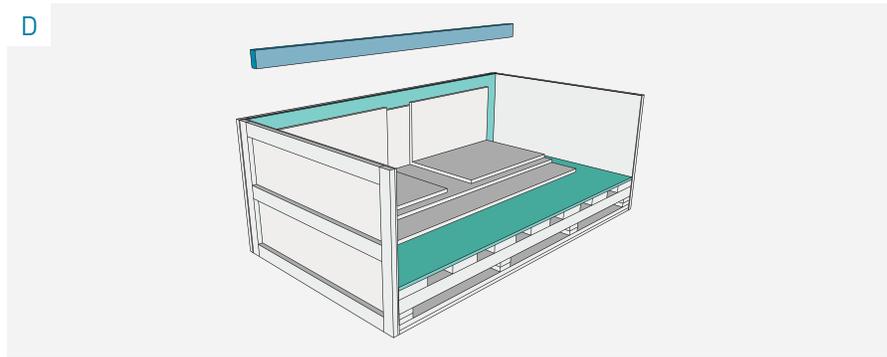
Remove the front of the crate by unscrewing at the sides and base. (FIG. C).

C



#### 04 Remove Shelf Brace

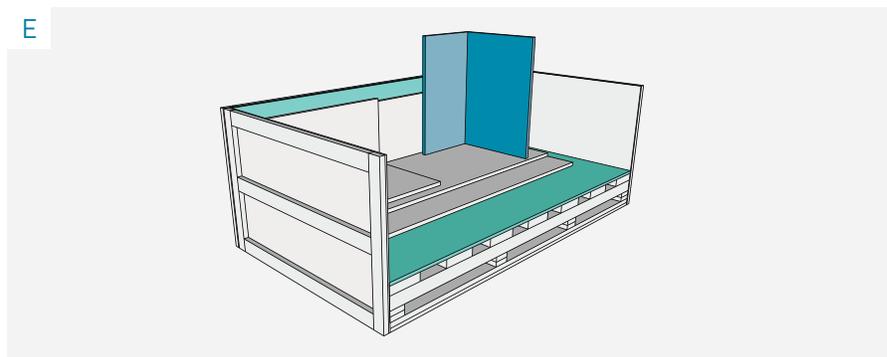
Depending on the geometry and shape of corners or custom parts, there may be internal bracing or a front brace to keep parts from shifting during transit. Remove this to extract panels (FIG. D).



#### 05 Remove Shelf + Unwrap Panels

Remove parts one at a time by first tilting them up so they can be moved vertically (FIG. E).

**NOTE:** Avoid stepping on parts during the unloading process as it can damage panels.



### STORAGE REQUIREMENTS



Moving + Storage

- If the crate must be moved, reattach any bracing that was removed.
- Do NOT attempt to move the crate without securing panels in the crate.
- Make sure crates are covered with tarps at the end of the day with the desiccant packets placed inside of the plastic wrap.
- The plastic sheeting is NOT sufficient to protect the panels from weather.

## Quality Control + Expectations

---

Each TAKTL panel is inspected prior to shipment for compliance with our Quality Management Tolerances and Acceptance Criteria (Doc. Q2-1). This inspection includes dimensions, surface quality, color, drill hole layout, and flatness. It is not necessary to conduct a secondary inspection once panels arrive onsite except in the following situations:

- Crates are damaged or shockwatches are activated upon receipt
- Water has seeped into, the crates during shipping or storage

Per our Quality Management Tolerances and Acceptance Criteria (Doc. Q2-1), expectations for some surface imperfections, color variation, and dimensional variation should include the following.

### Chips and Scratches

Chips and scratches outside of our acceptance criteria are patched in our factory prior to shipment. Additional chips and scratches will inevitably occur during shipping, handling, and installation. Most chips and scratches that occur during shipping or onsite should be fixed onsite prior to installation. In general, TAKTL will not be responsible for chips and scratches once the panels are onsite as we are no longer in control of the panels.

### Dimensions and Anchor Locations

Panels are inspected prior to shipment but some isolated errors in drill hole placement or panel dimensions are to be expected. Please document these issues with photographs and serial numbers of affected panels and your TAKTL Project Manager will assist in resolution.

### Back Surface

Due to the nature of our manufacturing process, panel backs are not completely flat. Deviations from flatness in the back of the panel are acceptable if they do not interfere with the installation of the panel.

### Panel Bowing

Panels are thin enough to bow slightly from their own weight. Gradual curvature in a panel will flatten out when the panel is installed on the subframe. Bowing that interferes with the installation of the panel should be rejected.

### Surface Conditions

Surface imperfections from the manufacturing process are unavoidable. To determine acceptability of surface imperfections, view at a right angle from 20' in normal day light conditions. Anything not readily visible is acceptable.

### Thickness Variation

Panels are measured for thickness in accordance with ASTM C1186 protocols. Some variation in thickness within a panel and between panels is acceptable. Generally speaking, a 1/8" variation between installed panels is acceptable.

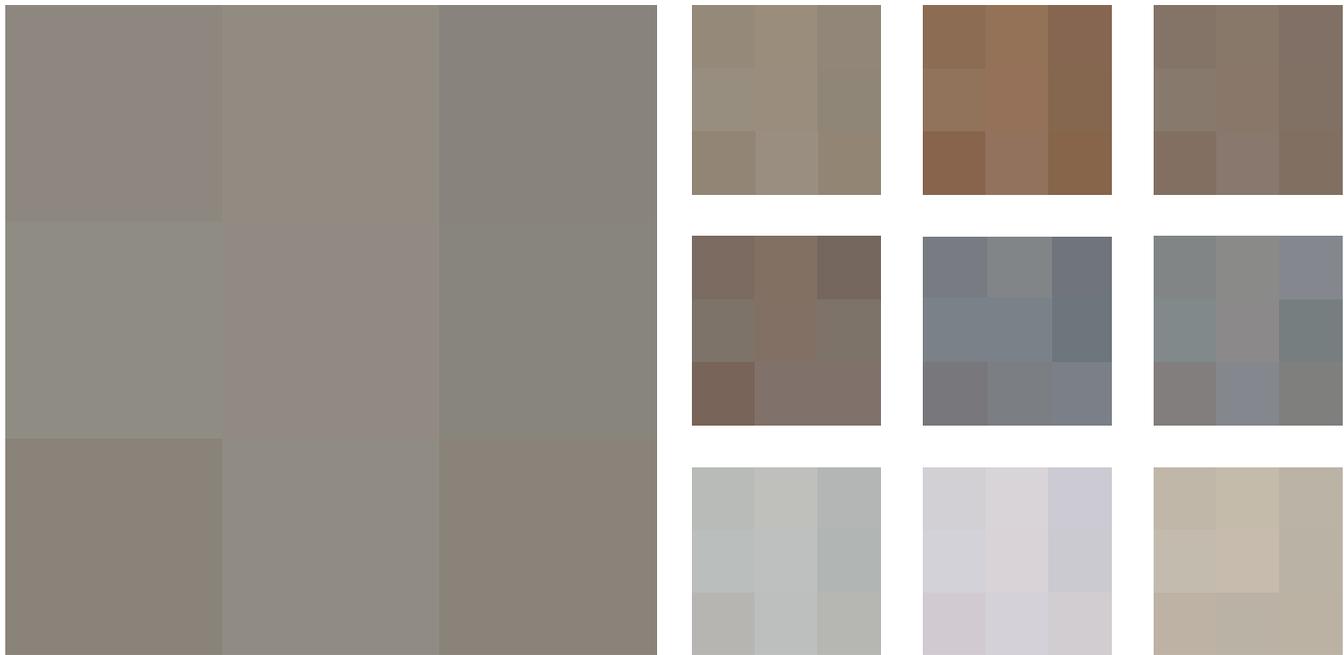
### Aggregate Distribution and Appearance

When ordered, decorative aggregate is added to panels by hand to achieve a natural look. The density and distribution of aggregate will vary within and between panels and this is acceptable as long as it does not form a distinct pattern or acute contrast.

### Color Variation

If the specified sealer is Microseal, color variation is to be expected. This is communicated prior to the project start by way of the TAKTL Natural Color Variation (Doc. SP36-1) and it an important reference for all project participants, as the color variation is largely unpredictable and will be perceived differently depending on the position of panels on the building relative to the sun and aspect of an elevation.

### Example Natural Color Variation References



### Example Natural Color Variation (MicroSeal/T)



Prior to shipment, panels are visually assessed in our facility, and the color of each lot is assessed during the manufacturing process to determine whether adjustments need to be made. Most frequently, objections to color variation are based on the placement or grouping of panels on the building wall. A contiguous block of panels of one shade next to a block of panels of another shade can produce a non-random look. This is something that TAKTL cannot control. Often, installing contractors have been able to shift panels onsite to achieve an acceptable visual effect.

## Weathering and Efflorescence

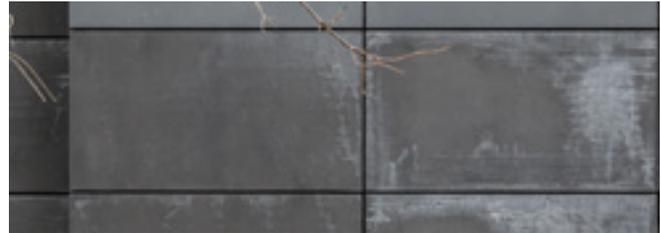
Exposure to rain and sun will cause the panel surface to weather over time, and this to be expected. Depending on the finish and local weather conditions, the panels may effloresce.

Efflorescence is aesthetic issue, not a product defect, and it does not affect panel performance. Because efflorescence is white it is more apparent on dark colors. Mediablast finish panels display more efflorescence than panels with cast finish. Efflorescence most often occurs during or shortly after the completion of construction. Weather plays a key role in both the creation and removal of staining. Efflorescence reduces in severity over the course of 12-24 months as rainwater interacts with panel surfaces. The drier and warmer the climate the longer this process takes, but in areas that see a substantial amount of rain the reaction can happen more rapidly. The first impulse is to immediately try to remediate the issue, but in nearly all literature this is ill-advised. Instead, it is recommended to wait for the aforementioned period, because in most cases efflorescing salts will be removed by normal weathering. For more information, please reference our Memorandum on Efflorescence on Cement-Based Products (Doc. Q10-1).

### Natural Efflorescence



### Improper Storage + Mishandling Efflorescence



## Surface Tension Lines

Surface tension lines are hairline imperfections in panels that do not affect panel performance and may be visible when the effected panel is wet. Surface tension lines are acceptable if not visible when the panel is dry, do not span more than one-third of the panel surface, and are isolated, not clustered which are not visible when the panel is dry.

## Reporting a Product Quality Issue

Our goal is high quality on every project. If there is a problem with product quality onsite, please report it to your TAKTL Project Manager using the Customer Claim Form (Doc. Q6-1), so we can respond promptly. When reporting an issue, the following information is required, as applicable:

- Photographs
- Crate numbers(s)
- Part numbers(s)
- Serial number(s)
- Installed location (elevation)

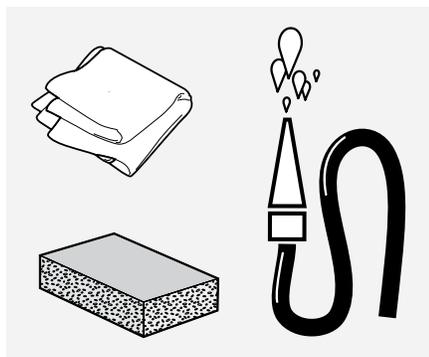
In order to address product quality claims, a site visit by TAKTL personnel may be required.

		<b>Customer Claim Form</b> Q6-1-1704-1	
<b>PROJECT NAME:</b>		<b>DATE:</b>	
Customer:	Contact Name:		
Address:	Phone:		
	Email:		
<b>PRODUCT DESCRIPTION</b>			
<b>DESCRIPTION OF COMPLAINT</b>		<b>PART #</b>	<b>QTY</b>
<b>COMPLAINT ATTACHMENTS</b>			
<input type="checkbox"/> Photographs	<input type="checkbox"/> Test Reports	<input type="checkbox"/> Other Documentation:	
Signature:		Name + Title:	

## Standard Cleaning Procedures

For TAKTL panels with MicroSeal/T™ or ColorSeal/T™ finish, most dirt and dust can be effectively removed with a dry microfiber rag. If further cleaning is required:

- Do NOT use harsh cleaners, solvents or abrasives as they might alter the appearance of the panels.
- Use only a mild soap (such as liquid dish soap) and a soft (plastic) scrub brush or non-abrasive sponge.
- Dry with an air stream from a compressed air gun or electric leaf blower.
- Rinse the soap off with clean water, scrubbing lightly to ensure complete removal
- Allow the panel to dry evenly and thoroughly. Do NOT leave anything in contact with the panel surface while it is drying as it will permanently stain the surface of the panel.
- Power washing is an acceptable means of cleaning. Use a wide nozzle at a minimum of 5 feet from the surface of the panel. Close range and small (concentrated) nozzle size will damage the finish.



Panels must be cleaned thoroughly with clean water after any field drilling or cutting. It is important to remove any concrete residue from the panel surface following this type of field processing as it can stain the panels and change the appearance of the surface.



After cleaning of any kind, allow the panels to dry evenly. Do not leave anything (plastic, foam, rags, tape, etc) in contact with the panel surface while it is drying as it will permanently stain the surface of the panel.

## Sealer Repair

TAKTL offers a choice of two sealers at the time of purchase. The sealers are not compatible with each other, so neither can be applied on top of the other.

### MicroSeal/T™

MicroSeal is a clear hydrophobic sealer designed to maintain the look of natural concrete while regulating the flow of moisture between the material surface and the environment. It is invisible and provides a baseline level of non-sacrificial graffiti protection.

- The sealer will allow some water to pass through the surface, so panels must be protected from moisture in the crates and during storage.
- If repeated cycles of graffiti removal are conducted, then the sealer should be re-applied.

### Colorseal/T™

ColorSeal is an opaque concrete sealer that can be matched to virtually any color. Because it is opaque, it will significantly reduce the amount of color variation seen on the project. If Colorseal is selected as the finish, the underlying concrete will be cast in a similar color to minimize any visual difference between the faces and cut edges of the panel.

- The sealer will allow some water to pass through the surface, so Colorseal panels must be protected from moisture in the crates and during storage.
- To fix scratches, smudges, or handling damage to a ColorSeal finish, the sealant can be field-applied over the factory-applied coating. Your TAKTL Project Manager can assist in ordering the correct color to match the rest of the panels and provide instructions for completing this work if necessary.

## Graffiti Removal Procedures (MicroSeal Finish Only)

Microseal/T™ sealer provides a baseline level of non-sacrificial graffiti protection. The recommended method for removing graffiti is with [Citristrip® Stripping Gel](#).

### 01 Working with Citristrip

Follow all Citristrip Stripping Gel manufacturer safety instructions and precautions as outlined in the product [Safety Data Sheet](#). Citristrip will not remove the MicroSeal finish.<sup>1</sup>

Shake the Citristrip container well to mix contents thoroughly (FIG. A).



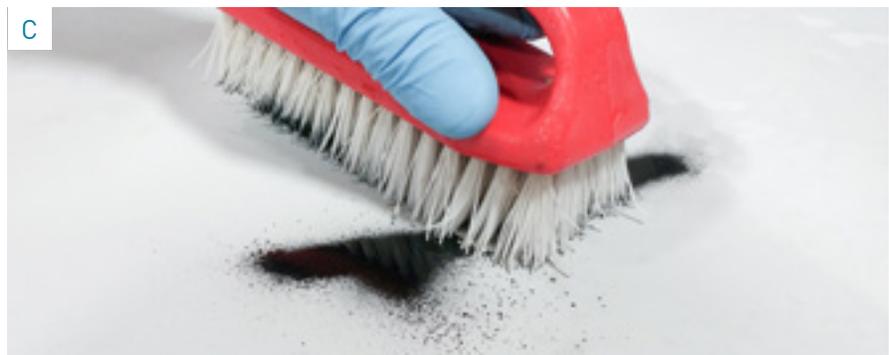
### 02 Cleaning Instructions

Apply the cleaner liberally to the defaced surface using a clean paintbrush. Allow the cleaner to set for 10 minutes. Scrub lightly with a clean plastic brush. If the graffiti is not fully loosened from the surface, leave the cleaner on for increments of 10 minutes until it appears the graffiti has been dissolved into the cleaner (FIG. B).



### 03 Rinsing Instructions

Rinse the cleaner off completely, brushing lightly with the plastic brush to ensure that all the cleaner and graffiti are removed from the surface. Once graffiti is removed and the panel is rinsed, allow it to dry. Rinse again if there is residue from the cleaner still on the surface (FIG. C).



NOTE: The cleaner will change the appearance of the panel when wet; so, it is recommended to clean the entire panel for a uniform-looking part.

<sup>1</sup>After approximately 3 graffiti removal cycles (depending on site-specific conditions and the type of graffiti), MicroSeal will need to be re-applied in order to retain graffiti protection properties. Please contact your TAKTL Project Manager for further instructions.

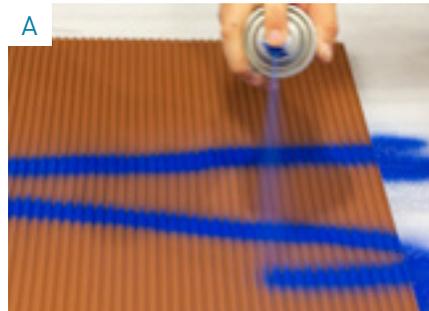
## Graffiti Remediation Procedure | MicroSeal/T™ Finish (Not-Mediablast)

MicroSeal/T™ sealer provides a baseline level of non-sacrificial graffiti protection. The recommended method for removing graffiti is with [Citristrip® Stripping Gel](#). Depending upon site-specific conditions and the type of graffiti, MicroSeal/T should be re-applied after approximately three graffiti removal cycles, when water no longer beads on the surface, in order to retain graffiti protection properties. Follow all Citristrip Stripping Gel manufacturer safety instructions and precautions as outlined in the product [Safety Data Sheet](#). For the purpose of demonstration, spray paint and Sharpie marker are applied to the panel face (FIG. A).

### 01 Cleaning

Shake the Citristrip container well to mix contents and apply the cleaner liberally to the entire surface of the defaced panel using a clean paintbrush. Allow the cleaner to sit on the surface for 30 minutes (FIG. B).

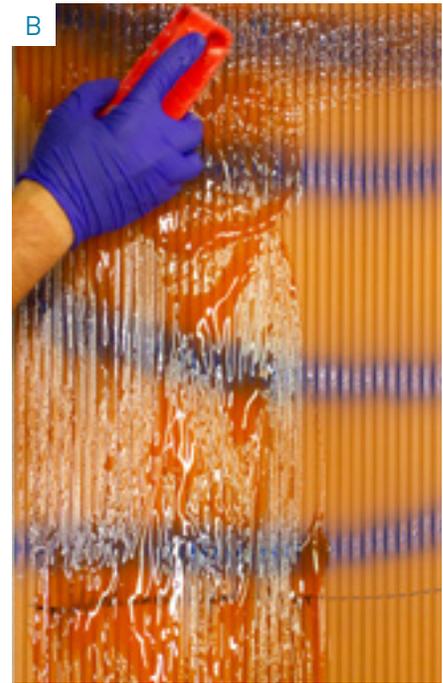
**Note:** To ensure a uniform result, the entire panel face must be treated.



Application of Rust-Oleum® spray paint



Application of Sharpie® marker



Application and agitation of Citristrip®

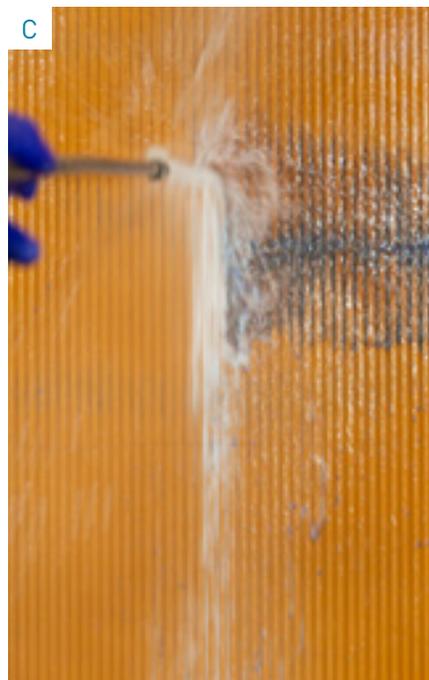
### 02 Rinsing

Pressure wash the surface ( $\leq 2,500$  psi,  $\geq 6''$  from surface) (FIG. C), or rinse the cleaner off while brushing lightly with a plastic brush to ensure that all the cleaner and graffiti are removed from the surface. If the graffiti is not fully removed, repeat the cleaner application process in increments of 30 minutes until it appears that the graffiti has been dissolved into the cleaner.

**Note:** Do not exceed 30 minutes in each cleaner application cycle.

Once graffiti is removed and the panel is rinsed, allow it to dry. Inspect the surface to ensure all cleaner residue has been removed (FIG. D).

**Note:** Graffiti is not removed as easily from Mediablast panels, and may require additional remediation steps. Reference [Graffiti Remediation Procedures – MicroSeal/T™ Finish \(Mediablast\)](#).

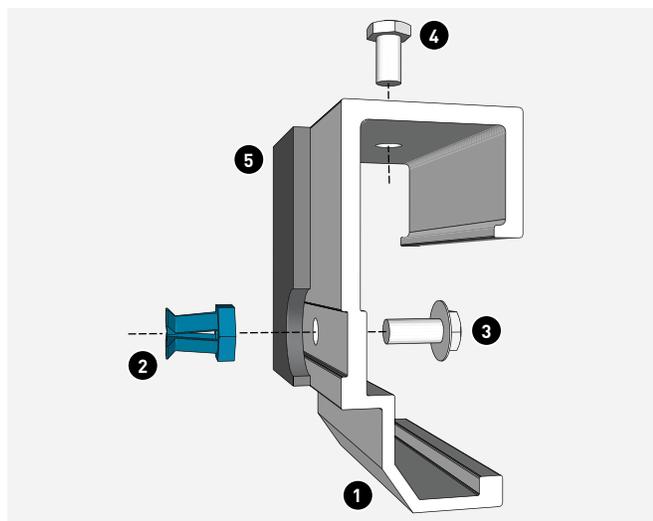
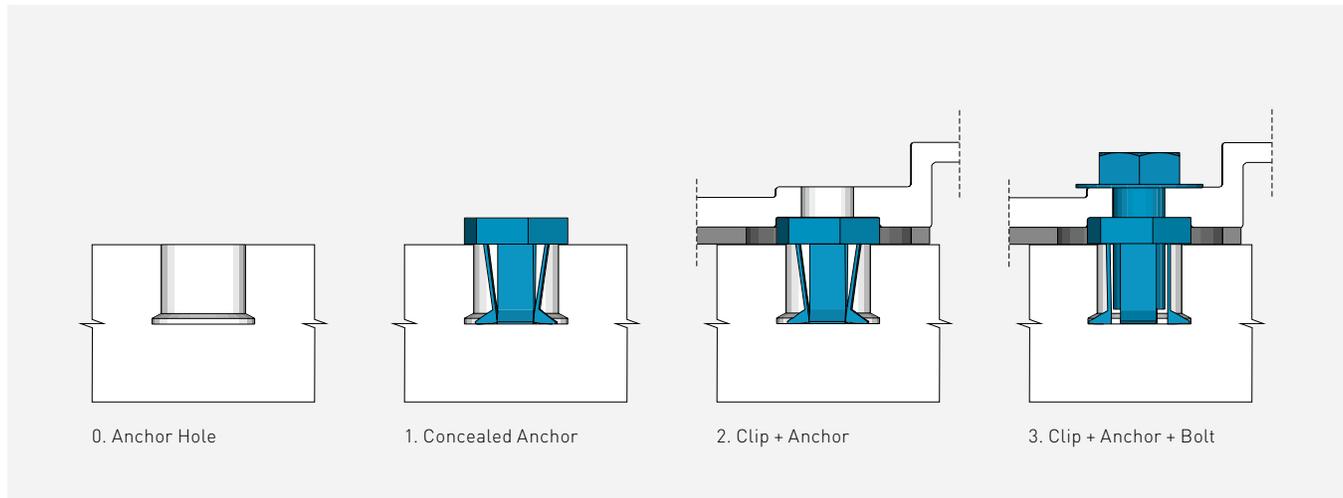


Pressure washer set to  $\leq 2,500$  psi



Allow panel to dry and inspect surface

## Installing Clips on Pre-Drilled Panels for Concealed Attachments



**TAKTLHARDWARE** is primarily used for exterior applications in back ventilated facade wall assemblies (rainscreen), with or without continuous exterior insulation. It is compatible with a wide range of sub-frame products:

- Close-cladding (without sub-girts) for concealed fixing both interior finishes and exterior cladding
- Ceiling and soffit conditions
- Sloped roof applications with appropriate detailing and support system engineering
- Large and heavy panels

For more information reference **TAKTLHARDWARE** Concealed Panel Attachment (Doc. SP34-1).

### REQUIRED TOOLS AND EQUIPMENT

TAKTL Clips

Cordless Nut Driver / Ratche Wrench

### CLIP INSTALLATION ELEMENTS

1. TAKTL Clip

2. Undercut Anchor

3. Attachment Bolt

4. Adjustment Bolt

5. Neoprene Pad (Crosscut)

## Installing Clips on Pre-Drilled Panels

### IMPORTANT



Before Working



Work on flat work surface with continuous support to prevent flexing. Do NOT span the panel across unsupported saw horses.



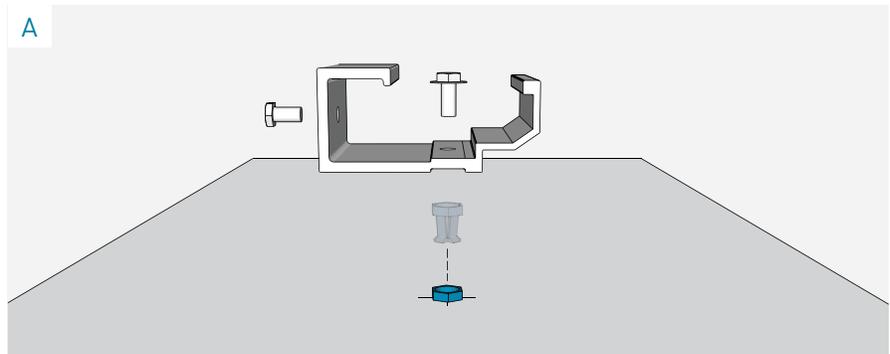
Panels should be stored on edge in a staging rack for ventilated drying.



Remember to maintain all TAKTL handling instructions while staging, moving, thoroughly drying and storing panels.

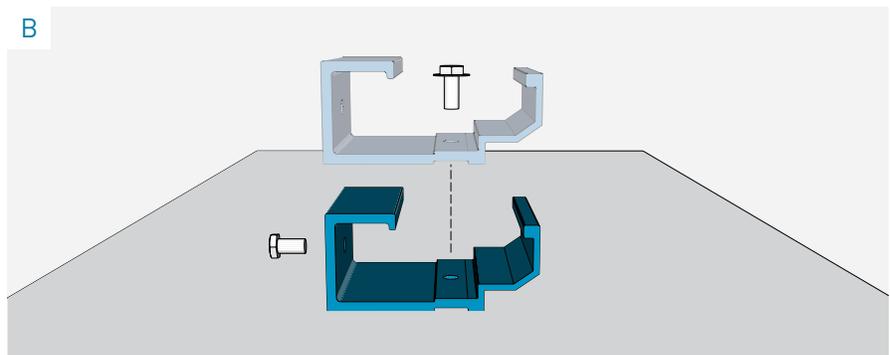
### 01 Clip Installation

Insert the undercut anchor into the hole in the panel (FIG. A).



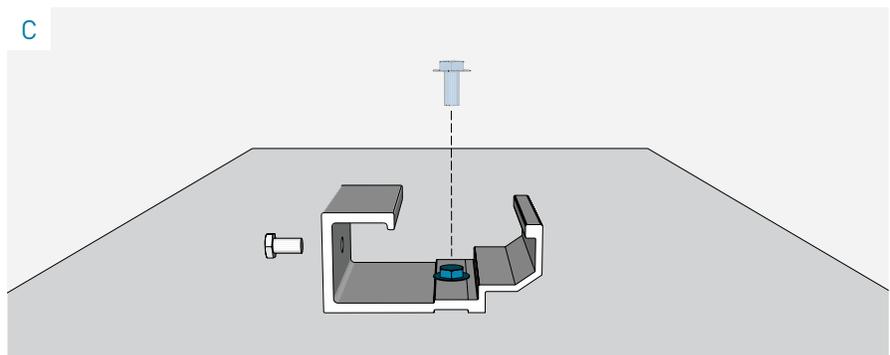
### 02 Clip Installation

Place clip over the anchor. Compress the clip to engage the anchor head with the clip channel so that the anchor cannot spin when the bolt is driven in (FIG. B).



### 03 Clip Installation

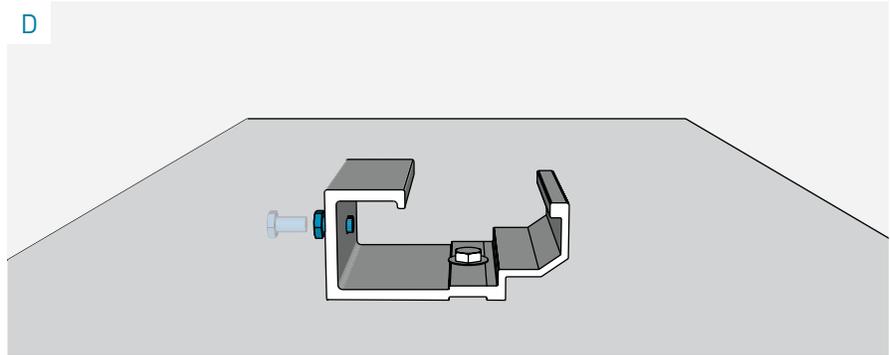
Using a cordless nut driver or ratchet wrench, tighten the bolt until it is set tight to the clip (FIG. C).



#### 04 Clip Installation

Identify the top of the panel and install adjustment bolts set to 1/8in below the inner face of the rail wall (FIG. D).

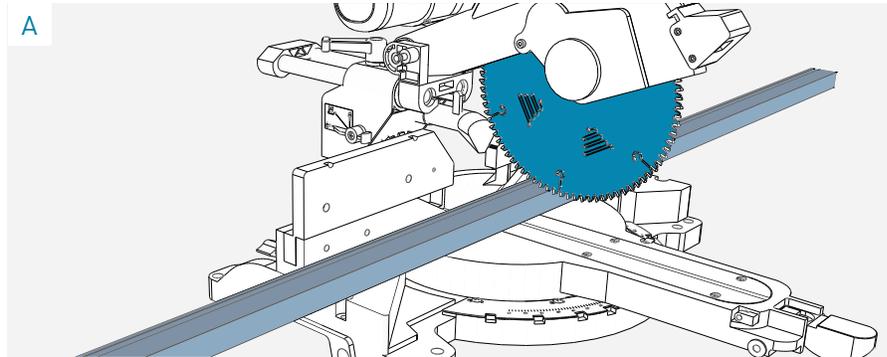
**NOTE:** Proper coordination of the clip thickness, anchor depth and bolt length is required for a safe and structurally sound connection. Only anchors, bolts, and clips supplied by TAKTL shall be used.



## Installing Rails on Sub-Frame

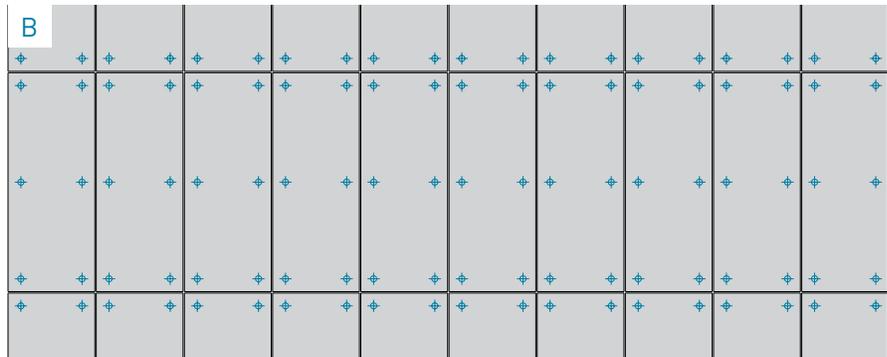
### 01 Cutting Extrusions

Cut extrusions in the field with TCG non-chip, grind-proof saw blade with carbide teeth count 72-100 (10in diameter) or other recommended non-ferrous metal cutting methods (FIG. A).



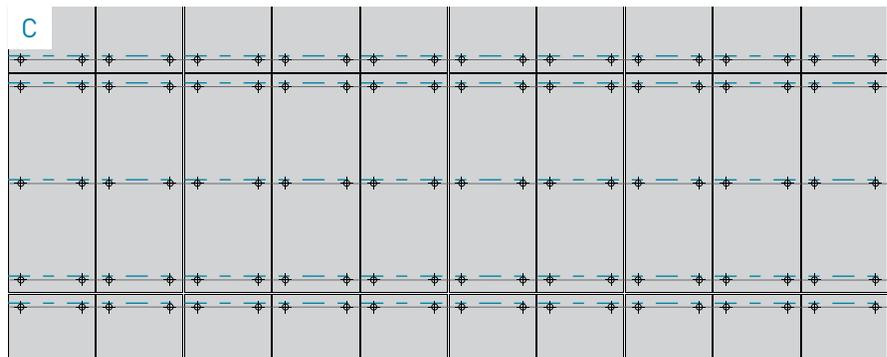
### 02 Review Shop Drawings

Set elevations of rail datum/work points and locate rail positions per the approved shop drawings (FIG. B).



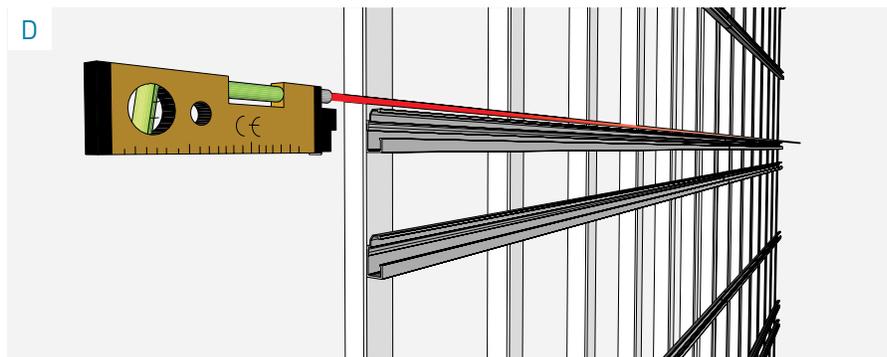
### 03 Clip Offset

Note the offset of panel clip anchor location relative to the rail and layout rails accordingly (5/16") (FIG. C).



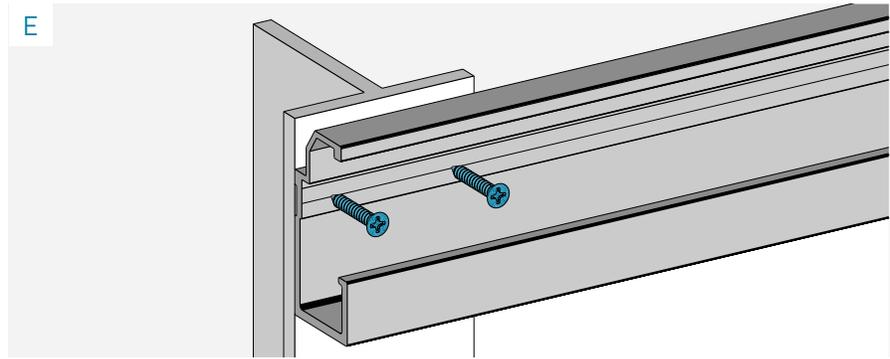
### 04 Rail Installation

Install rails level, plumb, and true to the finished plane of the facade (FIG. D).



#### 4.1 Rail Installation

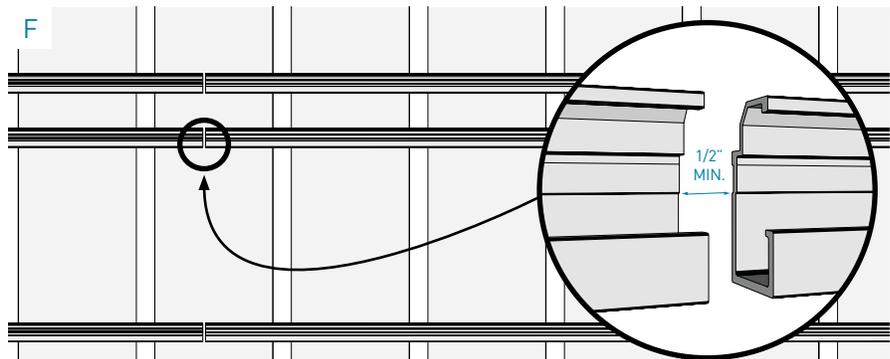
Fasten the rail to the sub-girts or back-up wall with self-drilling stainless steel screws (spacing, size, and thread of screws per the stamped engineer's calculations) (FIG. E).



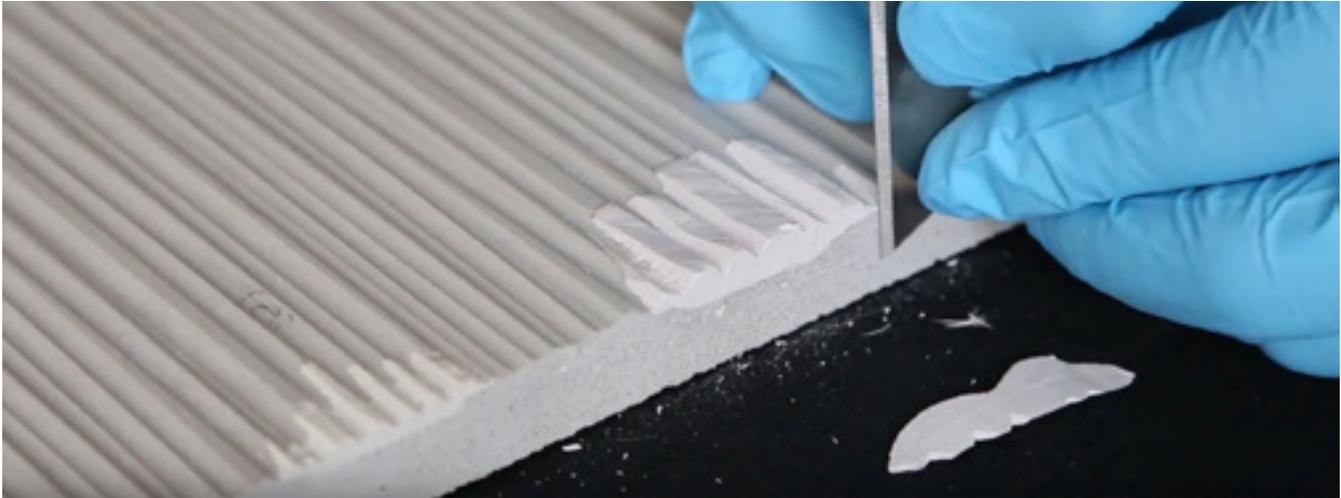
#### 4.2 Rail Installation

Allow space between joining rails' sections for expansion of aluminum (Example:  $\pm 1/4$ in per 10ft, therefore minimum  $1/2$ in gap between two 10ft rails) (FIG. F).

**NOTE:** Do NOT bridge rails with fixed connections to back-up wall across building expansion joint or seismic joints. Consult engineer and TAKTL for rail placement and panel layout details.



## Chip Repair Instructions



### REQUIRED TOOLS AND EQUIPMENT

- TAKTL ColorSeal/T™
- Loctite Repair Putty (5 Minute Cure)
- Sharp Knife
- Sandpaper (60 Grit maximum)
- Compressed Air or Microfiber Cloth
- Latex Gloves

### SAFETY + WORK GEAR

Wear gloves as well as eye and respiratory protection when cutting TAKTL panels. Safety Data Sheets for TAKTL panels are available on request.

### ENVIRONMENT

Please adhere to all local, state, and federal regulations pertaining to the treatment and discharge of wastewater generated as a result of cutting and drilling TAKTL material. TAKTL is a non-hazardous material for the purpose of wastewater classification. Requirements for treatment of wastewater will be specific to project, site location, and cutting/drilling conditions.

### CAUTION

Adhesive contains epoxy resin, amine resin and polymericaptan. Do not get in eyes or on skin. Wash hands after using.

### FIRST AID

For eye contact, flush with water for 15 minutes, call a physician. For skin contact, wash thoroughly with soap and water, call a physician if symptoms persist. If swallowed, do not induce vomiting, call a physician. **KEEP OUT OF THE REACH OF CHILDREN.**

Minor chips will occur in standard field handling and can be successfully repaired using Loctite® Repair Putty. When cured, it provides a waterproof surface that can be sanded and coated with TAKTL's ColorSeal/T™ to blend with the panel finish. ColorSeal/T is one of TAKTL's standard finishing options that has been extensively tested for weathering performance. A Patch Repair Kit with Loctite Repair Putty, ColorSeal/T, and foam brush will be shipped at time of first delivery. Please contact your TAKTL Project Manager for more information.

**IMPORTANT**



Before Working



Review manufacturer's safety procedures for working with Loctite Repair Putty and H&C Water Based Concrete Stain.



Remember to maintain all TAKTL handling instructions while staging, moving, thoroughly drying and storing panels.

**01 Prepare Surface**

If necessary, roughen repair surface with sandpaper. Remove loose material from area using compressed air (FIG. A).



**02 Prepare Putty**

Cut desired volume of LOCTITE REPAIR PUTTY using a sharp knife. Store unused portion in a sealed container (FIG. B).



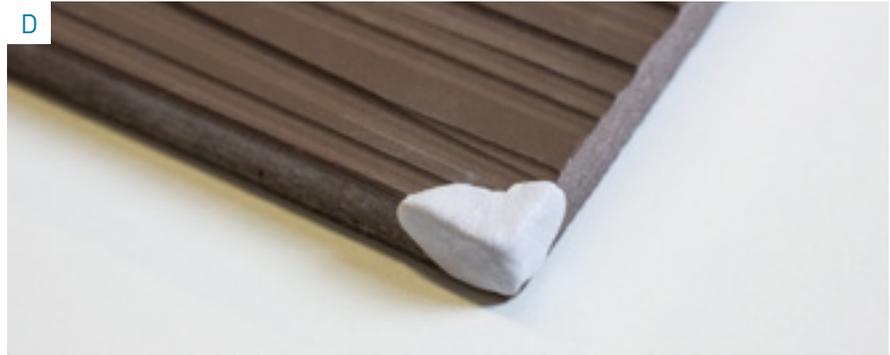
**2.1 Prepare Putty**

Knead the putty from its initial blue and white parts into a consistent light gray material. The working time before setting is ~5 minutes (FIG. C).



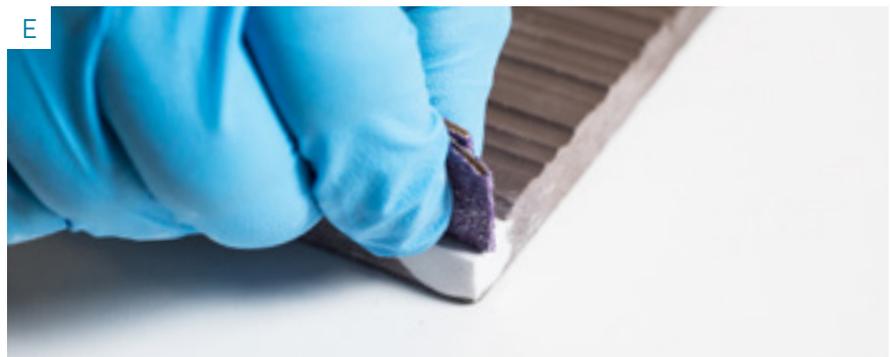
### 03 Apply Putty

Apply putty to chipped area, pressing firmly onto chipped area, molding enough to form a mass of the same shape and slightly larger than desired. Allow 45 minutes to set to full strength; putty will cure to a near-white color (FIG. D).



### 04 Shape the Putty

Reduce putty fill to desired shape and smoothness using sandpaper and a knife (FIG. E).



### 05 Clean

Free repair surface of loose material using compressed air or microfiber cloth (FIG. F).



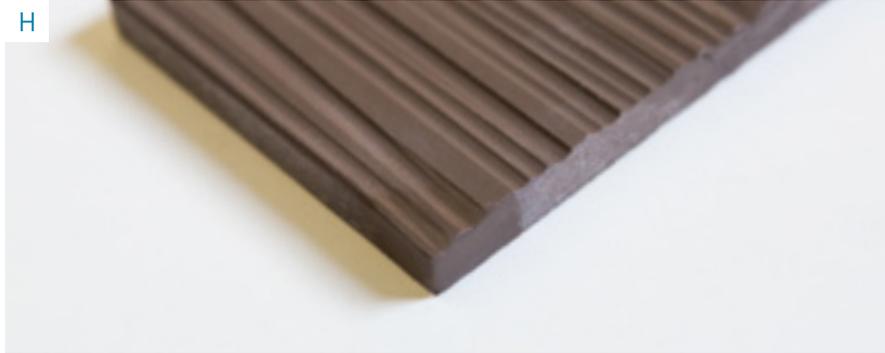
### 06 Seal

Apply paint and/or sealer in several thin coats (FIG. G).



07 Dry

Allow to dry and inspect for surface quality (FIG. H).



## Field Cutting Instructions



### SUGGESTED CUTTING TOOLS

*Use a wet saw with continuous diamond rim blade (examples listed below)*

DeWalt DWC860W 4-3/8" Wet/Dry Masonry Saw

Alpha 5" Wet Stone Cutter/Saw AWS-125

Makita 4101RH 5" Cutter

MK-1590 Wet Cutting Rail Saw

*Recommended for longer cuts or higher volume.*

MK Diamond 159414 MK-212-4 Wet Cutting Tile and Stone Saw

*Recommended for cross or narrow cuts.*

### SAFETY + WORK GEAR

Eye protection is required for all cutting operators.  
Material Safety Data Sheets (MSDS) are available upon request.

### ENVIRONMENT

Please adhere to all local, state, and federal regulations pertaining to the treatment and discharge of wastewater generated as a result of cutting and drilling TAKTL material. TAKTL is a non-hazardous material for the purpose of wastewater classification. Requirements for treatment of wastewater will be specific to project, site location, and cutting/drilling conditions.

TAKTL panels are typically cut per approved drawings prior to shipment. However, situations may arise in which field cutting is required. Be prepared to cut TAKTL in the field in order to accommodate any of the following situations:

- Building dimensions that do not match drawn conditions and require panel adjustments
- Panels ordered as "field cuts" where building dimensions could not be finalized in advance of drawing submission
- Panels ordered as overage in the event that a project panel was damaged during installation
- Occasional errors in drawing, design, or manufacture

## Field Cutting + Drilling General Guidelines

NO PENETRATIONS WITHIN 8" OF ANCHOR LOCATIONS

Panel Edge

1/5 PANEL DIM. MAX

8" MAX OR REVIEW REQ.

8" CLR.

Panel Edge

8" MIN

6" MIN

8" MAX OR REVIEW REQ.

8"

2" MAX PENETRATION SIZE AT <8" FROM EDGE OR REVIEW REQUIRED

**SETTING UP THE CUT/DRILL PLACEMENT**

- Guideline drawing (above) is provided as a general recommendation.
- Anchor quantity and spacing are to be determined by the project engineer or installation contractor per local codes, standards, and environmental conditions.
- Check for anchor hole locations prior to starting cuts.
- Pilot holes recommended for all drilling larger than 1/4".
- Penetrations should be made only with:
  - 8" minimum clearance from any anchor location
  - 2" minimum clearance from edge for any penetrations <2" diameter
  - 8" minimum clearance from edge for any penetrations >2" diameter
  - 6" minimum clearance between penetrations

**IMPORTANT**



Before Cutting



Wet cutting is required to reduce heat build up, sustain blade life, and produce clean cuts with the least amount of chatter.



Generally, the tools and techniques used for cutting and drilling stone or ceramics will provide effective results with TAKTL products.

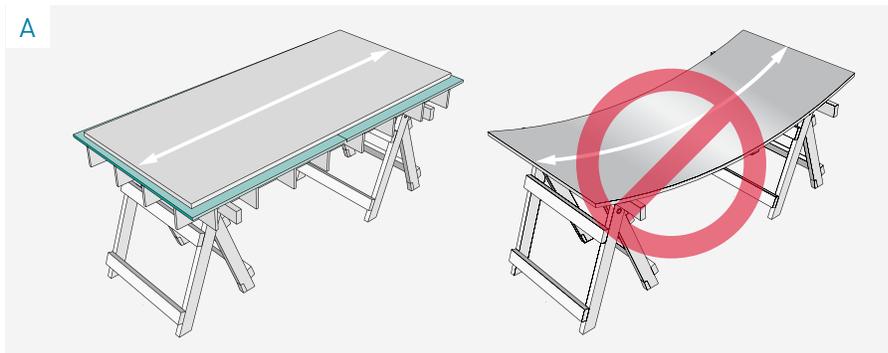


Remember to maintain all TAKTL handling instructions while staging, moving, thoroughly drying, and storing panels.

**01 Securing the Panel**

Cut on a large, flat work surface with continuous support to prevent flexing. Do NOT span the panel across unsupported saw horses (FIG. A).

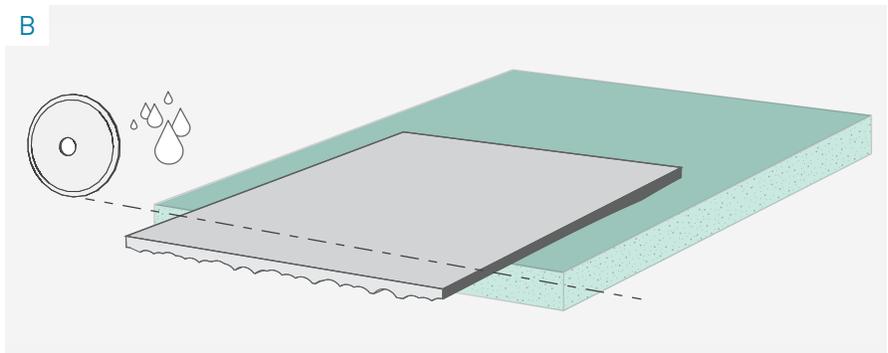
A



**02 Cutting Face Down**

[Recommended] Lay the panel face down on the clean foam provided in shipping crate. Cut from back. Keep the surface uniformly wet (FIG. B).

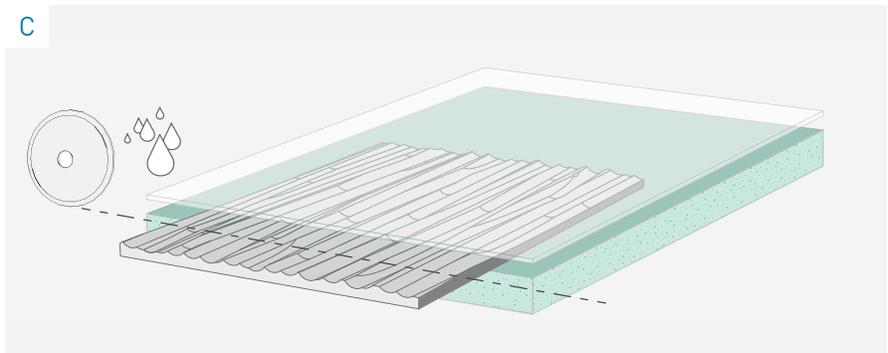
B



**2.1 Cutting Face Up**

[NOT Recommended] Lay the panel face up on the clean foam sheeting provided in shipping crate. Shield the panel face with Plexiglas, or similar material, to prevent scratching or abrasion to finished surface (for both smooth and textured surface). Keep the surface uniformly wet (FIG. C).

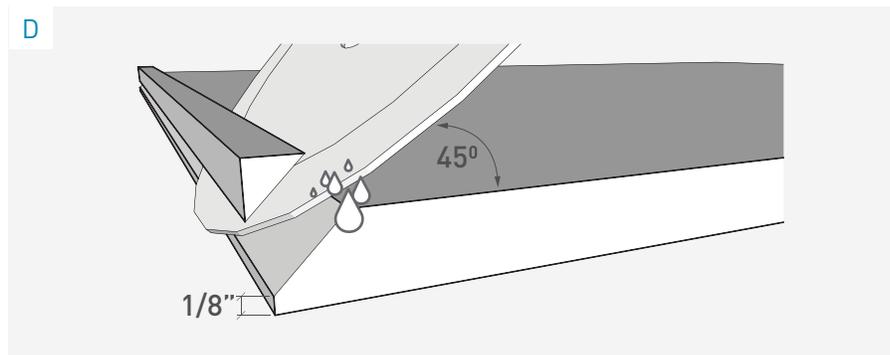
C



### 03 Cutting Quirk Miters

Quirk miters are used in corner applications on some projects to minimize potential for edge chipping.

Set the saw at a 45 degree angle and adjust the fence so that the blade does not cut through the corner, leaving 1/8" return. Keep the surface uniformly wet while cutting (FIG. D).



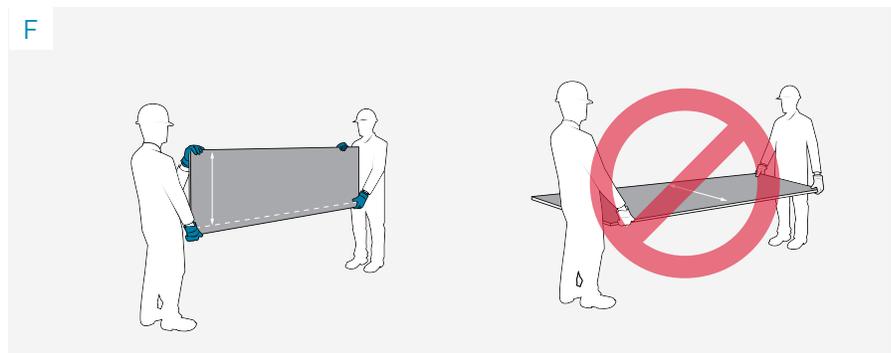
### 04 Handling the Cut Panel

Immediately after cutting, rinse the panel surface, wipe completely with a non-abrasive cloth or sponge, rinse, and dry with an air stream from a compressed air gun or electric leaf blower. Improper surface cleaning and drying will result in surface staining, water spotting, or adherence of slurry (FIG. E).



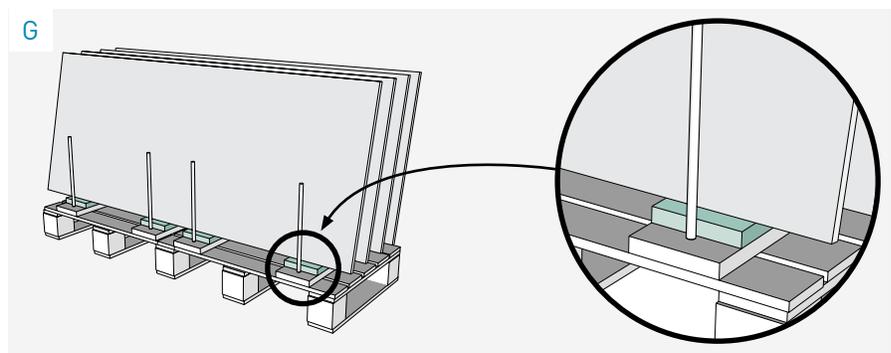
### 05 Moving Processed Panel

Panels must be carried with the shortest dimension perpendicular to the ground, similar to how glass would be handled (FIG. F).

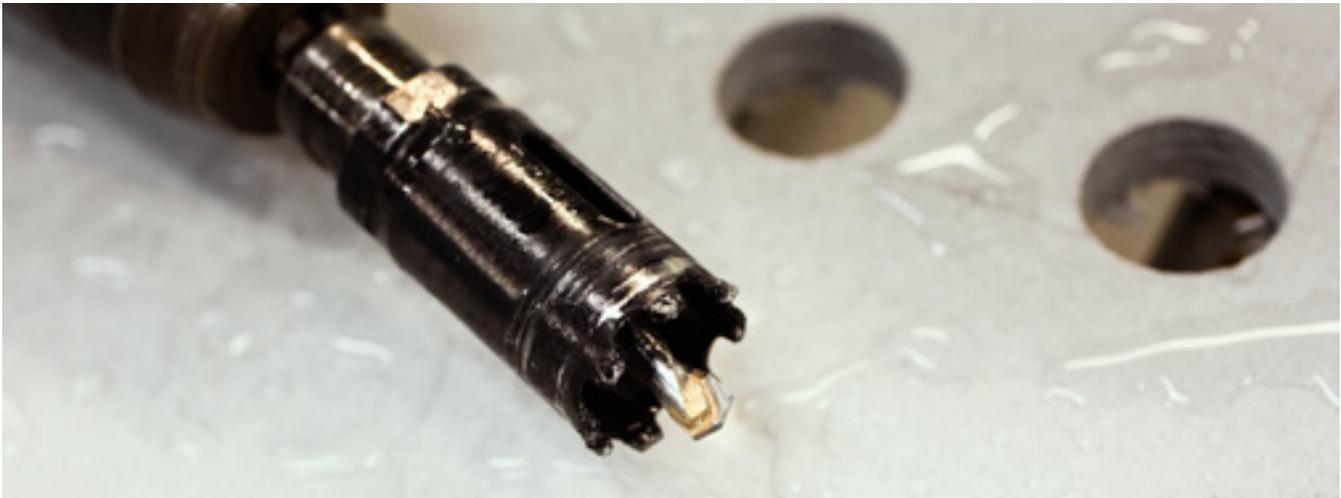


### 06 Processed Panel Storage

Panels should be stored on edge in a staging rack for ventilated drying. Alternatively, panels may be re-created with original padding (only if completely and evenly dried). Panels should always rest on back edge atop clean foam, provided in shipment, to prevent chipping (FIG. G).



## Exposed Fastener Field Drilling Instructions



### SUGGESTED DRILLING TOOLS

Do NOT use a hammer drill.

### RECOMMENDED FOR ANCHOR HOLES

1/4" Glass/Ceramic/Masonry Bit

### RECOMMENDED FOR SMALL HOLES

Bosch GT3000 Glass & Tile Set | 1/8" - 3/4"

Steelex D3731 Glass Cutting Drill Bits | 1/8" - 3/4"

### RECOMMENDED FOR LARGE HOLES (Misc. Penetrations)

Hitachi 728792C Carbide Grit for Hole Saw | 2 1/2"

Greenlee 725-4-1/8 Carbide-Grit Hole Saw | 4 1/8"

Amico Pilot Bit Hole Saw Alloy Cutter Kit w/Hex Wrench | 22.5 mm

### SAFETY + WORK GEAR

Eye protection is required for all drilling operators.  
Material Safety Data Sheets (MSDS) are available upon request.

### ENVIRONMENT

Please adhere to all local, state, and federal regulations pertaining to the treatment and discharge of wastewater generated as a result of cutting and drilling TAKTL material. TAKTL is a non-hazardous material for the purpose of wastewater classification. Requirements for treatment of wastewater will be specific to project, site location, and cutting/drilling conditions.

TAKTL panels are typically drilled per approved drawings prior to shipment. However, situations may arise in which field drilling is required. Be prepared to field drill holes and penetrations in TAKTL panels in order to accommodate the following conditions:

- Panels ordered as "field cuts" where building dimensions could not be finalized in advance of drawing submission
- Panels ordered as overage in the event that a project panel was damaged during installation
- Penetrations required for HVAC or electrical building components

**IMPORTANT**



Before Drilling



Wet drilling is required to reduce heat build up, sustain drill bit life, and produce clean holes with the least amount of chatter.



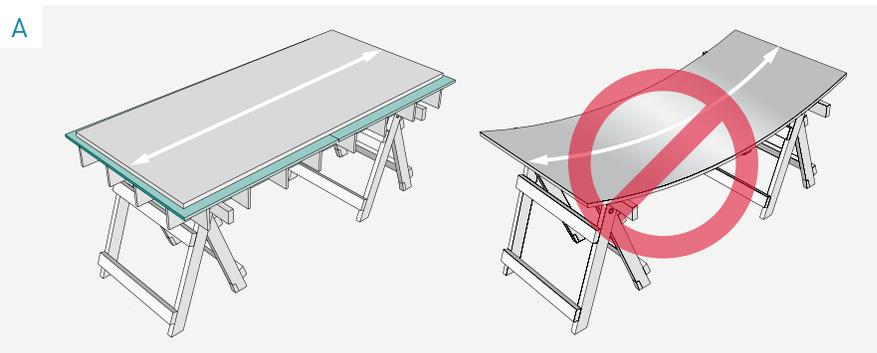
Generally, the tools and techniques used for cutting and drilling stone or ceramics will provide effective results with TAKTL products. Do NOT use a hammer drill.



Remember to maintain all TAKTL handling instructions while staging, moving, thoroughly drying, and storing panels.

**01 Securing the Panel**

Drill on a large, flat work surface with continuous support to prevent flexing. Do NOT span the panel across unsupported saw horses (FIG. A).

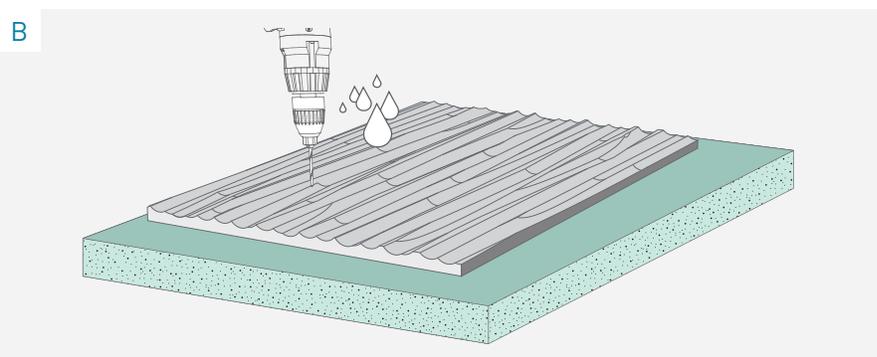


**02 Drilling Face Up [Recommended]**

Lay the panel face up on the clean foam sheeting provided in shipping crate. Drill from the panel face to rear so any chipping occurs on the back of the panel. Keep the surface uniformly wet while drilling.

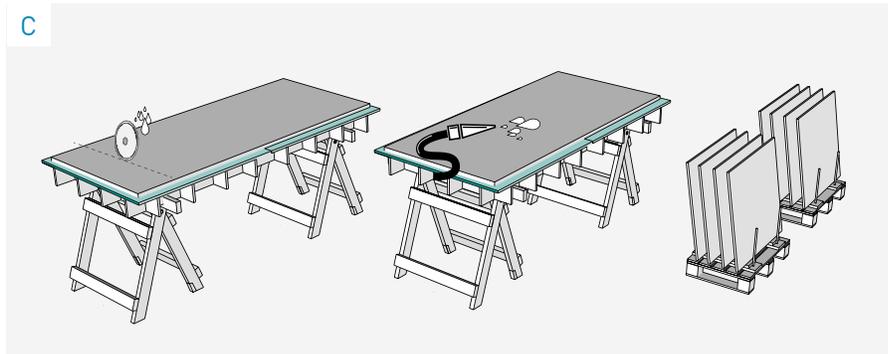
**NOTE:** Hammer function on drill must be DISABLED.

**NOTE:** Drilling at a slow speed while applying light, constant pressure will reduce the amount of heat generated by friction and maximize the life of the drill bit (FIG. B).



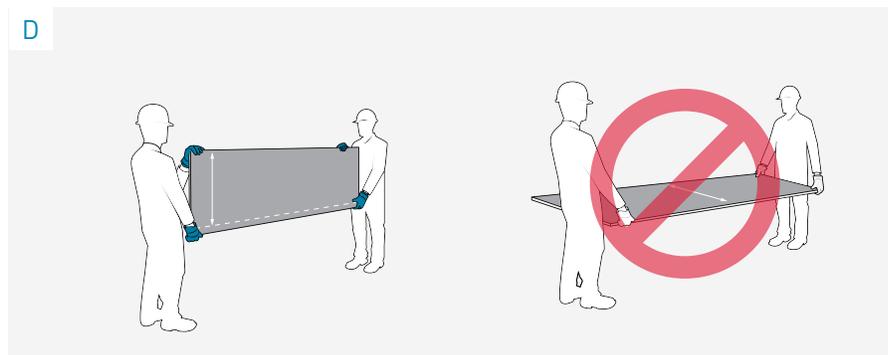
### 04 Handling the Drilled Panel

Immediately after drilling, rinse the panel surface, wipe completely with a non-abrasive cloth or sponge, rinse, and dry with an air stream from a compressed air gun or electric leaf blower. Improper surface cleaning and drying will result in surface staining, water spotting, or adherence of slurry (FIG. C).



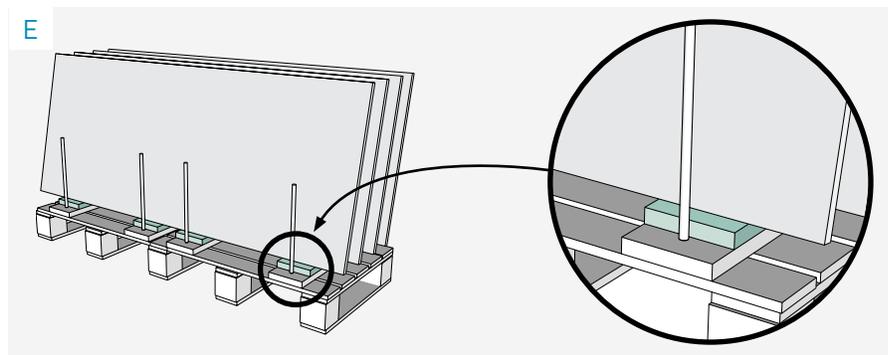
### 05 Moving Processed Panel

Panels must be carried with the shortest dimension perpendicular to the ground, similar to how glass would be handled (FIG. D).



### 06 Processed Panel Storage

Panels should be stored on edge in a staging rack for ventilated drying. Alternatively, panels may be re-created with original padding (only if completely and evenly dried). Panels should always rest on back edge atop clean foam, provided in shipment, to prevent chipping (FIG. E).



## Concealed Fastener (KEIL Anchor): Field Drilling Instructions



Installers for projects with concealed anchors should be prepared to drill panels in the field. The KEIL Portable Drilling Machine is REQUIRED for drilling concealed anchor attachment holes. Drilling machines can be purchased or rented through TAKTL. Please contact your TAKTL Project Manager for more information and review the following instructions thoroughly before operating the machine.

### REQUIRED TOOLS AND EQUIPMENT

- KEIL Portable Drilling Machine
- Tri Flow Lubricating Oil
- Lithium Grease
- Clean Drilling Surface Waist-high Tables
- Air Compressor + Hose with 1/4 in. Coupler
- Water source + standard garden hose
- Electrical source and small extension cord with circuit breaker provided with drilling machine
- Depth Gauge and shim for measuring hole dimensions
- Safety glasses
- Waterproof apron, boots, and gloves

### SAFETY + WORK GEAR

Wear gloves as well as eye and respiratory protection when cutting TAKTL panels. Safety Data Sheets for TAKTL panels are available on request.

### ENVIRONMENT

Please adhere to all local, state, and federal regulations pertaining to the treatment and discharge of wastewater generated as a result of cutting and drilling TAKTL material. TAKTL is a non-hazardous material for the purpose of wastewater classification. Requirements for treatment of wastewater will be specific to project, site location, and cutting/drilling conditions.

### REQUIRED DRILL CONNECTIONS

**Air** The KEIL Portable Drilling Machine utilizes a vacuum seal to maintain stability while drilling. In order for the vacuum seal to function, an air compressor hose with a 1/4in coupler is required.

**Water** The KEIL Portable Drilling Machine incorporates a water cooling system to prevent overheating and to facilitate the cleaning of slurry from holes as they are being drilled. A standard garden hose will fit the water supply line on the drill. Water can be turned on at the source and will only flow through the machine when the drill trigger is depressed. Water will spray out of the center of the drill bit while the machine is running. The water flow will shut off once the drill trigger is released.

**NOTE:** If water does not flow from the drill bit when the trigger is depressed, please follow the steps outlined in the section 6 of this document.

**Electricity** Each KEIL Portable Drilling Machine is supplied with a small extension cord, equipped with a built-in circuit breaker. The machine must be plugged into this cord, then plugged into the power source to operate. Check the reset button on the circuit breaker before use.

**IMPORTANT**



Before Drilling



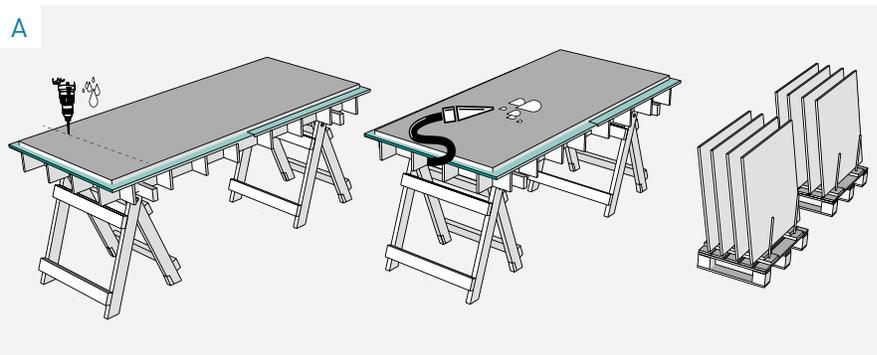
Wet drilling is required to reduce heat build up, sustain drill bit life, and produce clean holes with the least amount of chatter.



Remember to maintain all TAKTL handling instructions while staging, moving, thoroughly drying, and storing panels.

**01 Securing the Panel**

Lay the panel face down on the clean foam sheeting provided in the shipping crate. Prep a clean secondary table for washing and drying panels after drilling. Set up staging rack for completed panels (FIG. A).



**02 Preparing the Drill**

Lubricate the slide rails with Tri Flow lubricating oil and drill bit attachment areas with lithium grease as shown. Parts should be lubricated every two hours when using the drilling machine and at the start of each work day (FIG. B).



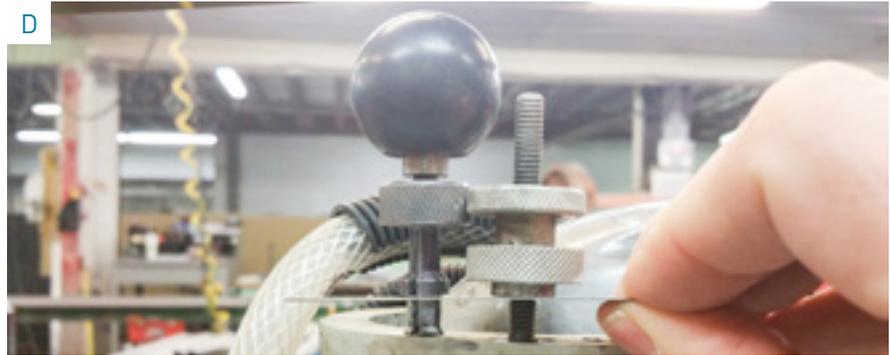
**03 Calibration**

To set the desired hole depth, locate the depth adjustment bolt (FIG. C).



#### 04 Adjusting the Depth

Turn on the valve to actuate the vacuum seal. Depress the front lever until the drill bit touches the surface of the material to be drilled. While the bit is touching the material, place the depth gauge next to the adjustment bolt and turn the stop washer until the bottom lines up with the flange of the depth gauge (FIG. D).



#### 05 Confirming the Depth

When satisfied with the adjustment, tighten down the lock nut to secure in place. Drill several practice holes on a scrap piece of material to tune the machine and make any adjustments by quarter turns to the stop washer. Turning the stop washer clockwise will drill a more shallow hole, counter-clockwise will drill a deeper hole (FIG. E).



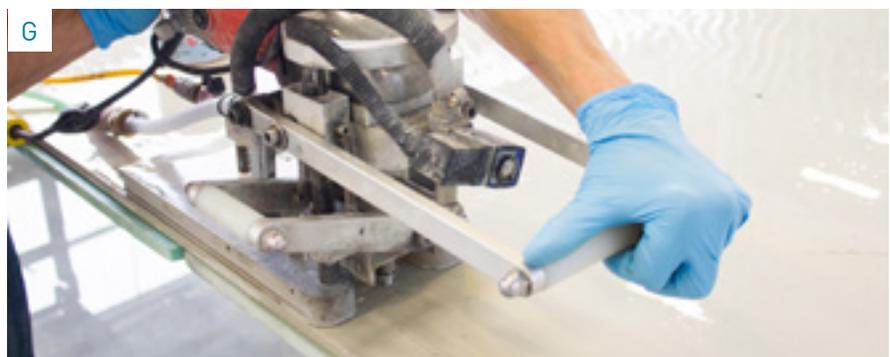
#### 06 Preparing to Drill

Locate the hole markings or mark the panel back with an X at the exact hole location. Place the machine over the X marking the hole location, depress the lever until the drill bit touches the surface of the panel. Adjust until the bit is centered over the X marking as shown (FIG. F).



#### 07 Drilling the Undercut

Once the machine is in place, turn the valve to actuate the vacuum seal. Squeeze the trigger to start the drill. With the trigger fully depressed, press the black button on the side of the machine to hold the trigger in the ON position. Gently push the lever down toward the panel surface (FIG. G).



### 7.1 Drilling the Undercut

Drill small amounts of the material, then slightly release the level to allow the bit to retreat from the panel so water can spray out any slurry from the hole. Continue to pump the lever until it bottoms out (FIG. H).



### 7.2 Drilling the Undercut

While holding the front lever down (FIG. G), depress the side toggle lever (FIG. I) to kick the drill bit for the undercut. Release the side toggle lever before raising the bit out of the panel with the front lever.



### 08 Using the Depth Gauge

After drilling each hole, review the depth to ensure the anchor will engage properly. Insert the end of the depth gauge into the hole, then depress the plunger as far as it will go. Twisting in a clockwise motion will help to seat the plunger. Don't be afraid to use some force (FIG. J).



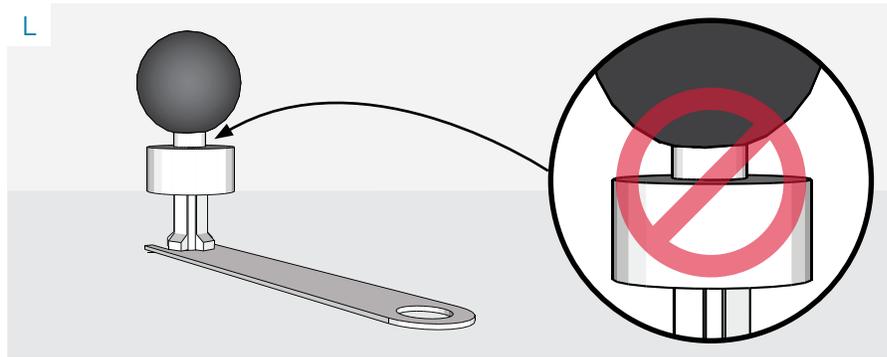
### 09 Checking the Hole Depth

The amount of exposed shaft will determine a passing or failing hole as shown. If the plunger seats down completely, remove the gauge and place the U-shaped notch of the shim under the flange (FIG. K).



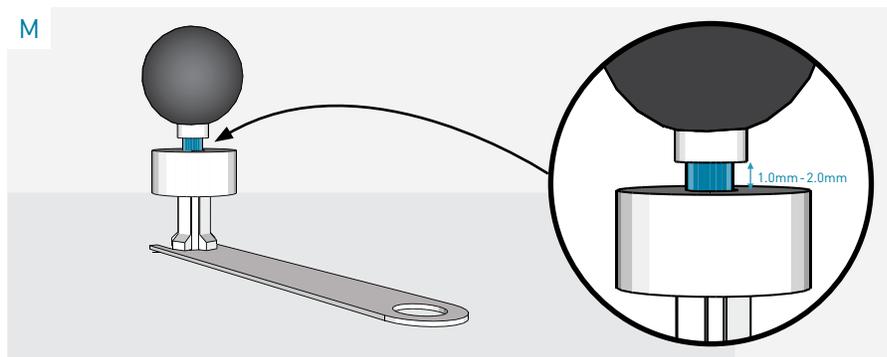
### 9.1 Hole Fails

Depress the plunger again. If the plunger seats fully with the shim in place, the hole fails (FIG. L).



### 9.2 Hole Passes

If there is some of the shaft exposed (1mm-2mm) with the shim in place, the hole passes (FIG. M).



## DAMAGE PREVENTION



Water Damage

- Keep panels uniformly wet during processing.
- Minimize the time panels are exposed to saw slurry water – do not leave panels sitting in cut water for more time than is necessary.
- Thoroughly rinse panels after cutting, scrubbing with a plastic brush if necessary to completely remove saw water residue.
- Dry panels with compressed air or an electric leaf blower after they have been rinsed.
- Store cut panels in a vertical position with nothing touching the face or back until they are completely dry.

## Portable Drilling Machine User Guide: Maintenance

### 01 Clearing a Clog

Turn the machine on its side. Press the trigger and insert a small wire (such as a paperclip) into the tip of the spinning drill bit (FIG. A).

**WARNING:** Water will spray from the bit when the clog is cleared. If the bit has been clogged for any length of time, the initial burst of water may be hot.



### 02 Removing Drill Bit O-Ring

Turn the machine on its side. Roll the black O-ring (around the drill bit shaft holding two set pins in place) off of the shaft (FIG. B).



### 03 Removing the Pin Set

Gently remove the two set pins from the shaft of the drill bit. These will appear to be slot head screws, but there are no threads and they can be removed by hand (FIG. C).

**WARNING:** Do NOT operate the machine without both set pins in place and the black O-ring holding them securely.



### 04 Removing Old Bit

Slide the bit out of the machine. If the bit is stuck, gently push down on the side toggle lever to loosen it. When the drill bit is removed from the mounting pin, make sure the small gasket is still in place in the tip. If it is not, it will also need to be replaced (FIG. D).



### 05 Attaching New Bit

Place the new drill bit over the mounting pin and align the set pin holes with the recesses in the mounting pin.

Insert the set pins into the shaft of the drill bit, making sure they seat firmly in place (FIG. E).



### 06 Re-attaching Black O-ring

Roll the black O-ring over the shaft so that it seats into the notches on the heads of the set pins (FIG. F).



### 07 Test

Turn the drill upright and gently push the side toggle lever down. If the toggle does not move, remove the O-ring and set pins, turn the drill bit 180 degrees and reinstall the pins and O-ring. Over time, the black gasket around the base of the drill may begin to wear (FIG. G).



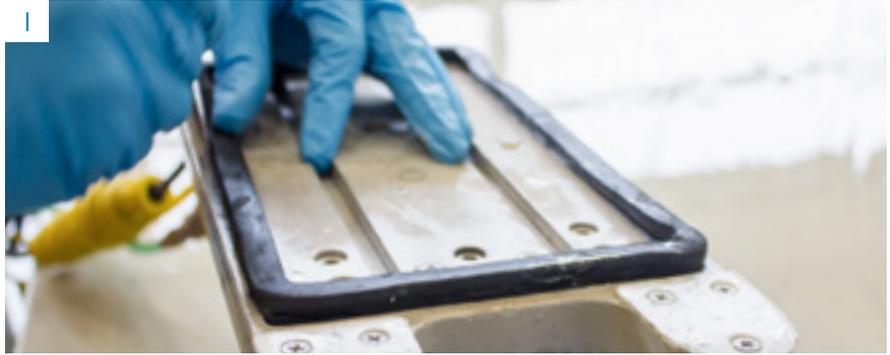
### 08 Removing Faulty Gasket

Pull the gasket out of the groove around the base of the machine and secure a new one into place. It may have to be worked a bit to seat completely into the groove (FIG. H).



### 09 Inserting New Gasket

Once replaced, test for vacuum capability and adjust as necessary. (FIG. 1).



## Field Grinding Instructions



### SUGGESTED GRINDING TOOLS

Serrated diamond grinding disc can be used for small areas – OR – a diamond grinding cup for larger areas with dust shielding system (examples below). Dust should be collected by a shop vacuum with a HEPA filter.

DEWALT DW4774 4 1/2" Double-Row Diamond-Cup Grinding-Wheel

DEWALT DW4701 Industrial 4 1/2" Dry or Wet Cutting Continuous Rim Diamond Saw Blade with 7/8" Arbor

DEWALT DWE46150 5" Surface Grinding Dust Shroud

### SAFETY + WORK GEAR

Eye protection is required for all drilling operators. Material Safety Data Sheets (MSDS) are available upon request.

### ENVIRONMENT

Please adhere to all local, state, and federal regulations pertaining to the treatment and discharge of wastewater generated as a result of cutting and drilling TAKTL material. TAKTL is a non-hazardous material for the purpose of wastewater classification. Requirements for treatment of wastewater will be specific to project, site location, and cutting/drilling conditions.

Typically, TAKTL panels do not require any surface grinding for successful installation. However, situations may arise in which field grinding is required.

- Field dimension adjustments require field drilling and hole location is not flat enough for proper drilling.
- Attachment clip is not resting on back surface properly.

**IMPORTANT**



Before Grinding



Wet grinding is required to reduce heat build up and minimize dust exposure.



Generally, the tools and techniques used for cutting, drilling and grinding stone or ceramics will provide effective results with TAKTL products.

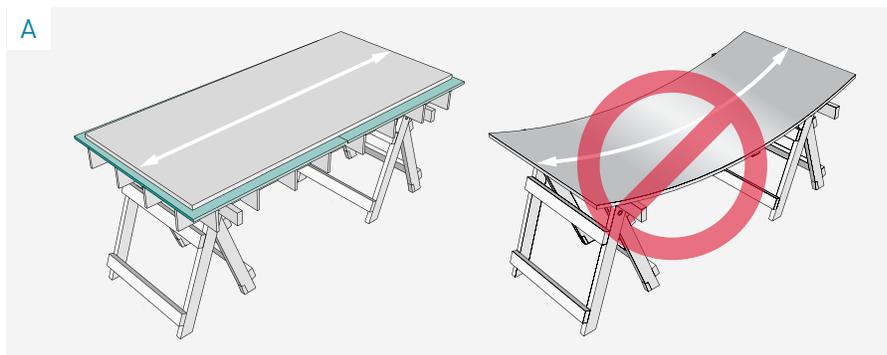


Remember to maintain all TAKTL handling instructions while staging, moving, thoroughly drying, and storing panels.

**01 Securing the Panel**

Grind on a large, flat work surface with continuous support to prevent flexing. Do NOT span the panel across unsupported saw horses (FIG. A).

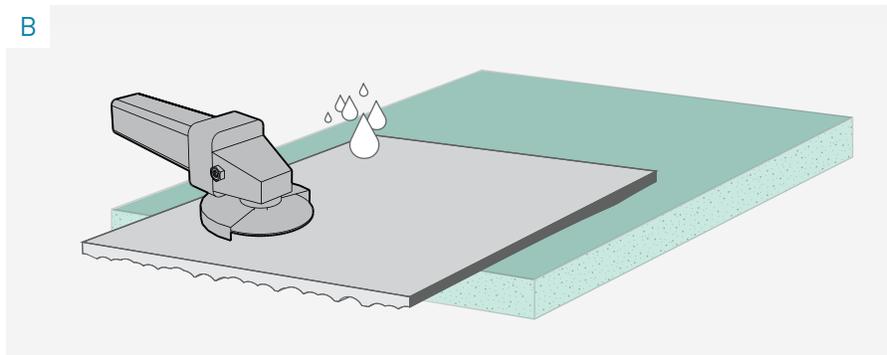
A



**02 Grinding Instructions**

Lay the panel face down on the clean foam sheeting provided in shipping crate. Grind from the back, keeping the surface uniformly wet (FIG. B).

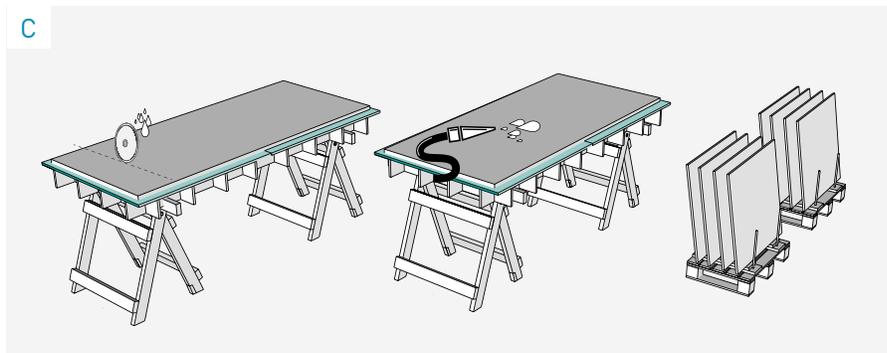
B



**04 Handling the Panel after Grinding**

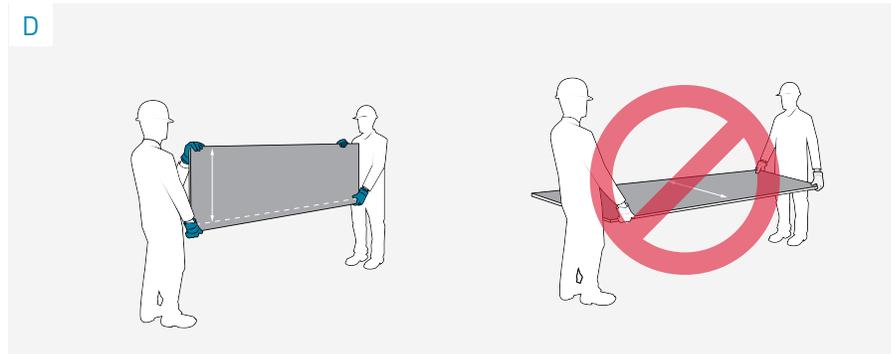
Immediately after grinding, rinse the panel surface, wipe completely with a non-abrasive cloth or sponge, rinse, and dry with an air stream from a compressed air gun or electric leaf blower. Improper surface cleaning and drying will result in surface staining, water spotting, or adherence of slurry (FIG. C).

C



### 05 Moving Processed Panel

Panels must be carried with the shortest dimension perpendicular to the ground, similar to how glass would be handled (FIG. D).



### 06 Processed Panel Storage

Panels should be stored on edge in a staging rack for ventilated drying. Or, panels may be re-crated with original padding (only if completely and evenly dried). Panels should always rest on back edge atop clean foam, provided in shipment, to prevent chipping (FIG. E).

