SHINAGAWA
SPECIALTY CERAMICS

TECHNICAL REQUIREMENTS FOR INSTALLATION OF SHINDURAWEAR™ NEW FABRICATIONS

1.0 Surface Preparation / Ceramic Requirements

1.1 Welds / cleaning

A. All weld spatter on the lining surface shall be removed by power tool or mechanical means, i.e. grinder.
B. All interior welds interfering with the lining shall be ground smooth

1.2 Sandblasting/Surface Prep

A. All new surfaces to be lined with SHINDURAWEAR™ ceramic tile shall be; Commercial Blast cleaning-near white to SSPC-SP6 with a minimum surface profile of 2-3 mil. Then, cleaning with a fast evaporating; non-petroleum containing solvent per SSPC-SP1 shall be completed. The solvent step should also be practiced at the start of the next day's shift to ensure there is no dust, dirt, or loose debris.

1.3 Ceramic

A. The ceramic shall be SHINAGAWA SHINDURAWEAR™ fine grain 90% Alumina per size and thickness for the application, plain tile, Tongue and groove tile, weld-al tile, special tiles. (see MPDS - SHINDURAWEAR™ specification sheet)

B. The ceramic tile can be a pre-engineered system or standard shapes cut to suit by the installer. Field adjustment cuts will be required with any pre-engineered lining system.

1.4 Ceramic Installation

A. Pre-installation planning and dry fitting of the tile in the fabrication, or laying out the tiles on a flat surface per the drawing to check fit and plan adjustment cuts, up to 20% in an engineered lining; need to be carefully planned during this step. Failure could result in additional cutting.

B. Longitudinal joints between all tiles shall be staggered a minimum of ½" from each adjoining tile row. Tiles will be cut to suit, utilizing a tapered design on all sides to provide full surface contact between all adjoining tiles and bevel cuts when required to ensure proper fit. No joint shall be larger than 3/32" between the tiles with the flow direction of material. Joints are minimized, especially with the direction of the abrasive material.

C. Ceramic tile lining shall be flush with flange faces, +0, -1/16". Ceramic edges that are exposed to the material shall be capped with at a minimum; ¼" A-36 flat bar the same thickness of the Ceramic brick being installed.

D. Ceramic tile shall be cut when required to ensure proper fit. Cutting shall be done with a diamond saw blade and sawed completely through the tile thickness. Hammer chipping is unacceptable, except when adjusting for weld clearance or when soldering the brick in 60-90 degree corners. This procedure must be no more than half the brick thickness being installed. When cutting is required, each tile shall be cut with the appropriate side angle to ensure the key arch mechanical lock is maintained if applicable.

E. Ceramic tile shall be installed into the fabrication utilizing SHINAGAWA'S SHINDURAPAK™ line of adhesives suiting the application. All surfaces of the tile, with the exception of the "wear face" shall receive sufficient adhesive. Adhesive shall be placed on the entire back side of the tile. This thickness is usually 1/16-3/32" thick. Tile is laid ~ ¼" from its final resting area. Slight pressure is applied toward the base metal as the tile is "twisted" and slid into its final resting place. All excessive Adhesive created from the joint(s) shall be removed prior to curing

If using Weld-al tile only (F&G);

F. Weld-al inserts (carbon, 316SS, other) shall be welded in according to STD welding procedures with proper amperage and feed rate. (destructive testing should be performed at the beginning of each shift to ensure proper welding of the retainer to the base metal) Ceramic caps shall be coated with the proper amount of Adhesive and pressed into the brick so that it is flush with the wear surface. All Ceramic caps shall be installed by shifts end to keep "dust" out of the holes-See Weld-al Sheet for suggestions on welder type, wire, etc. Note: too much adhesive near the weld-al hole can cause issues with striking an arc to the insert and base metal.

G. In some instances, when ceramic lining equipment; the entire ceramic lining may not be weld-al tile, such as in a small corner. Pre-installation layout / planning is essential to reduce or eliminate this from occurring. Cuts near the weld-al hole should be at least 5/8" from the edge of the hole.