

I. INTRODUCTION

1. Purpose

The purpose of this manual is to define the basic technical requirements, suggestions and guidelines related to the introduction of the product, design, its usage, installation and maintenance.

2. Terminology

The phrase "Chroma Quartz by European" when used in this document refers to any engineered stone in slab, tile or cut to size forms, manufactured, marketed and sold by European Granite & Marble or its approved distributors or agents.

"The Customer" used in this document refers to any person, firm or company placing an order with European Granite & Marble or its approved distributors ("the Company") for the purchase of any Chroma Quartz by European.

"Product Manual" used in this document refers to the technical information, specification, design, fabrication, maintenance and other data relating to the use and application of Chroma Quartz by European.

3. General Information

Chroma Quartz by European is a composite of natural minerals and rocks, mainly Quartz, bound with resin, pigments and other fillers. Chroma Quartz by European is manufactured using the most advanced and latest technology from Breton machinery of Italy.

Chroma Quartz by European is a high quality solid non porous surface product that is resistant to scratches, heat, stains and water. Chroma Quartz by European requires minimum maintenance and the surface remains in immaculate condition for years

Chroma Quartz by European can be used in a variety of domestic and commercial interior applications including: kitchen and vanity counter tops, splash backs, flooring, wall cladding, stairs, furniture, surrounds, food service counters etc. It can also be used for fire place mantles; however it should not be one fabricated piece with the fireplace opening cut out of the center.

Chroma Quartz by European is manufactured using the world renowned Breton Stone technology (Breton SPA of Italy). The quality of engineered stone will vary from brand to brand depending on the quality of resin and raw materials used in the manufacture of the stone. Chroma Quartz by European has been manufactured using the highest quality of raw materials; as specified and recommended by Breton SPA of Italy

4. Limitations and Responsibilities

We have taken every care to provide complete information in this document; this information should be used as a guide in the design, installation and care of Chroma Quartz by European. No warranty, however implied or expressed, is given in relation to the procedures outlined in this Product Manual except that is required by law.

European Granite & Marble assumes that the designers, fabricators and installers using Chroma Quartz by European, are familiar with all aspects outlined in this Product Manual and strictly adhere to the recommendations and specifications described herein. Any deviation from the recommended guidelines may result in the products not performing as expected and may result in the warranty becoming null and void.

Though every care and precaution has been taken in the preparation of this document, European Granite & Marble assumes no responsibility for errors and or omissions, or for the damages resulting from the use of information contained in this Product Manual. European Granite & Marble shall not be liable for any loss of profit or any other loss or damage caused or alleged to have been caused either directly or indirectly as a result of any person solely relying upon any information contained in this Product Manual.

European Granite & Marble reserves to change or modify this Product Manual or its electronic version from time to time without notice, it is the responsibility of the Consumer to consult or contact European Granite & Marble for the latest version or updates.

II. VARIOUS APPLICATIONS OF CHROMA QUARTZ by European

1. Interior Applications

Chroma Quartz by European is ideal for use in the interior applications such as: kitchen counter tops, bathroom vanities, walls, stairs, restaurants, hotels, hospitals, and laboratories and also wherever high quality, sanitary and maintenance -free counter tops are required. Chroma Quartz by European offers many advantages:

- Uniform coloring permits coordinated applications.
- Consistent slab size minimizes waste.
- Highly resistant to heat.
- Scratch and chip resistant
- Resistant to stains
- Resistant to acids, alkalis, chemicals and solvents.
- Resistant to mildew and mold
- Immune to freezing and thawing.

Exposure to Unfiltered direct sunlight may result in color change and/or warping. Most windows manufactured in the last 30 years block a sufficient amount of the UV rays to prevent color change or warping, however it should be taken into account, especially in older homes. It is advisable to avoid direct unfiltered sunlight over a prolonged period on the surfaces used in the above applications.

2. Exterior Applications

European Granite & Marble does not recommend Chroma Quartz by European for use in exterior applications. Its use in an exterior application will void the warranty.

III. TECHNICAL SPECIFICATIONS

Chroma Quartz by European is a high quality solid surface product that is long lasting and is practically maintenance free. Chroma Quartz by European has a carefully designed color palette of products that can be used in a variety of domestic and commercial applications. However, Chroma Quartz by European is not an ideal product for exterior use, as exposure to direct sunlight for prolonged periods can result in color changes, fading and/or warping.

1. SPECIFICATIONS; CHROMA QUARTZ BY EUROPEAN

Chroma Quartz by European can be manufactured in a wide range of sizes and thicknesses to accommodate any application. However some may be available on a special order bases only. For information about availability, minimum purchase quantities, and lead time, please contact your sales representative.

Chroma Quartz by European slab sizes:

- 1cm (3/8") – 3000mm x 1200mm (118 x 47) – Special order only*
- 2cm (3/4") – 3000mm x 1400mm (118 x 55)*
- 3cm (1 3/16") – 3000mm x 1400mm (118 x 55)*

Chroma Quartz by European tile sizes, available in most colors:

- 300mm x 300mm (12 x 12) – Special order only*
- 400mm x 400mm (16 x 16) – Special order only*
- 600mm x 600mm (24 x 24) – Special order only*
- 600mm x 400mm (24 x 16) – Special order only*
- 600mm x 300mm (24 x 12) – Special order only*

Tiles are offered in various thicknesses:

- 10mm (3/8")*
- 12mm (1/2")*
- 20mm (3/4")*
- 30mm (1 3/16")*

All tiles are calibrated for both dimension and thickness and beveled around the edges.

2. Chroma Quartz by European; color, Surface Finish and Pattern

Chroma Quartz by European manufacturing process is renowned worldwide and contains 90- 93% of natural quartz and 7-10% combined bonding agent, special additives and pigments, making it an extremely hard wearing, practical and highly versatile surface.

Chroma Quartz by European is the ultimate in stone technology and sophistication has a color palette ranging from the subtle beige tones to the vibrant beauty of the luminescent Starlight Colors, which provide you the opportunity to perfect your individual style and decor.

Chroma Quartz by European slabs are generally available in the gloss finish; however, a honed finish can be supplied to special projects, on a case by case basis.

3. Chroma Quartz by European; Color Consistency and Tonal Characteristics

Variation in color may occur from batch to batch of Chroma Quartz by European slabs and tiles due to the location from which the natural material is sourced. The composition of natural quartz and granite particles used in the products may sometimes produce minor irregularities such as crazing in the grains, blotches, spots, colored particles. Such imperfections are generally accepted by the industry.

Chroma Quartz by European is a non porous product, but very fine micro pores could be present in certain colors/finishes and is unavoidable during the manufacturing process.

4. Chroma Quartz by European; Technical Characteristics

CHARACTERISTICS	TEST METHOD	CHROMA QUARTZ by European (Range of Values)
Density	ASTM C97 EN 14617-1	2.2-2.4 gr/cm ³ 2.2-2.4 gr/cm ³
Water Absorption	ASTM C97	≤0.03%
Flexural Strength	ASTM C880 EN 14617-2	6,200 -11,000psi 42.7-75.8 MPa
Dimension Stability	EN 14617-12	Class A
Electrical Stability	EN 14617-13	Volume resistance (R _v)= 0.9x10 ¹⁴ Ω Volume resistivity (ρ _v)= 4.9x10 ¹⁴ Ωm
Impact Resistance	ASTM D1709	27lbs (122N)
Compressive Strength	ASTM C170 EN 14617-15	22,000-28,000 psi 190 – 220 MPa
Abrasion	ASTM C1243	Volume of chord: V=89-194mm ³
Freeze-Thaw Resistance	ASTM C1026	No detects after 15 freeze-thaw cycles
Mohs Hardness Scale	EN101	6.0-7.0
Microbial Resistance	ASTM D6329 -98 (2003)	Ranking 3: Resistant to Mold Growth
Resistance to Chemical Acids	ASTM C560	Not affected
Slip Resistance at Honed 400	DIN 51130	R9-R10
Determination of resistance to immersion in boiling water	AS 2924.2-7 1998 (EQUIV. TO ISO 4586.2-7 1997)	Effect of surface (rating): 5 (no visible change)
Determination of resistance to dry heat	AS 2924.2-8 1998 (EQUIV. TO ISO 4586.2-8: 1997)	Effect of surface (rating): 5 (no visible change)
Determination of resistance to thermal shock	AS 2924.2-9:1999 (EQUIV. TO ISO 10545-9: 1994)	Specimens showing defects: NIL
Determination of resistance to staining (Procedure A)	AS 2924.2-15: 1998 (EQUIV. TO ISO 4586.2-15: 1997)	Effect of surface (rating): 5 (no visible change)

NOTE: *The values quoted above for Chroma Quartz by European are an average range of values of the different products tested and should be considered as an indication only. The test results may vary between colors and different production runs.*

MICROBIAL RESISTANCE: ASTM D6329-98
Tested and Approved by Green Guard

IV. GENERAL INSTRUCTIONS TO CUSTOMERS

1. General Instructions for Fabricators

When taking delivery of Chroma Quartz by European, please make sure of the following:

- Check all the slabs for uniformity of color and granulometry (aggregate distribution) as slabs vary in color and granulometry from batch to batch.
- Check the slabs for any surface defects including: Contamination of grains, fine fissures, stains, chipping, warping and thickness variation.
- Do not transport slabs horizontally and use proper "A" frames to transport the slabs. Always keep the polished surface protected and remove any sharp tools or implements from the vicinity of the slabs to avoid scratches on the polished surface.

If you detect any of the above defects after taking delivery of the slabs, and prior to cutting, do not proceed with the processing and return the slabs immediately.

2. Product Identification

Each slab has a serial number label on one side of the slab. This number is also referenced on your packing list. Serial number(s) of installed slabs must be given to the owner of the property of the installation, for proper processing of the warranty.

If a slab is cut, and used on two different installations; the serial number for the slab must be given to the owner of each property so they may each register their installation. The act of splitting the slab between different installations will not have any bearing on the warranty, as long as the installations would otherwise meet the warranty criteria.

V. DESIGN AND INSTALLATION GUIDE

1. Tips for Fabricating Chroma

When fabricating Chroma Quartz by European, care should be taken when cutting. Tension within the slab can cause cracking. Following these simple rules can minimize the chance of this occurring

- When planning a plunge cut, drill a 1" relief hole at the termination point of the cut, prior to beginning the cut. Always cut **towards** the relief hole
- When planning a "U" shaped cut, mark and drill relief holes where the cut lines will intersect.
- Always make the shortest cuts 1st.

- When planning an "L" shaped cut, mark and drill relief holes where the cut lines will intersect. Always cutting the shortest length 1st, and cutting towards the relief hole.
- When planning a cut that will be the full length of the slab, either with a plunge cut, or starting at the edge, mark and drill a relief hole at the termination point of the cut, then cut towards the relief hole.

2. Kitchen / Vanity Cabinets

Prior to installing counter tops, care should be taken to check the cabinets and base units for the following:

- Strong and stable, the cabinets and sub strata base should be able to withstand weight in excess of 12lbs per SqFt.
- All units are fastened to both the wall and between the base units.
- Cabinets are leveled properly. The top of the cabinets must be plumb, true, and flat. Make sure that the level does not vary more than 1/16" over 10'
- Remove any nails, screws or sharp edges from the surfaces where the tops would be placed.

3. Installation of Counter Tops

No two kitchen counter tops are the same; however there are some general guidelines for installing Chroma Quartz by European counter tops. When installing 3cm material, as long as the base cabinets are level, and they allow for the same support outlined below, no additional support is needed. When installing any material less than 3cm in thickness, you must insure that there is proper support for the counter top. For material less than 3cm thick, the base supporting the counter top can either be Complete Perimeter support or Complete Underlay support.

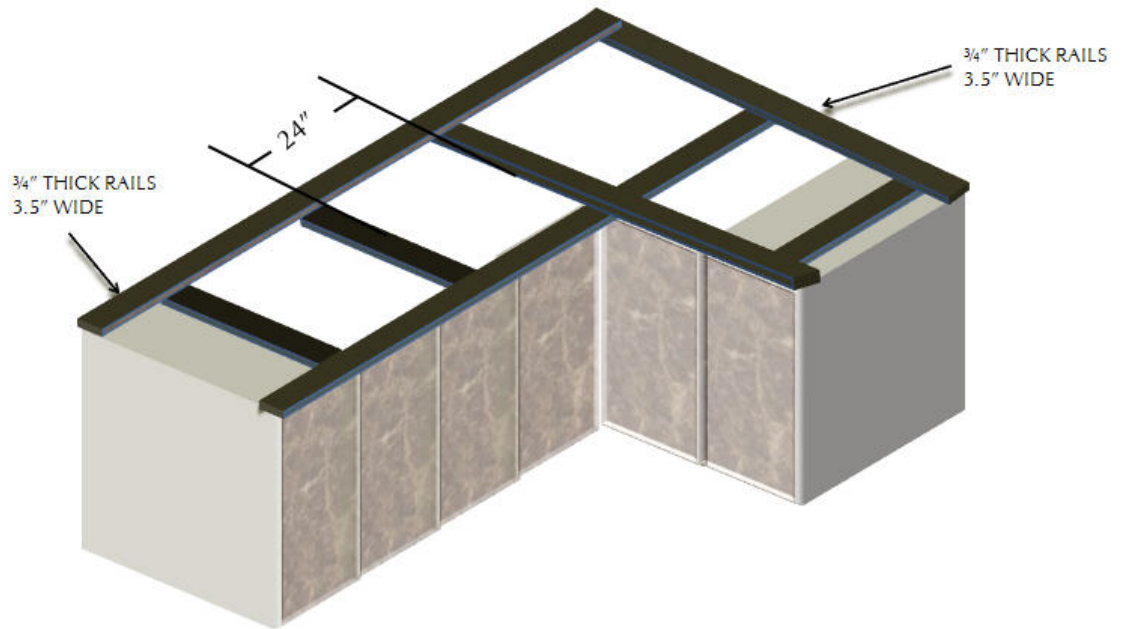
- Rarely will all the walls be perfectly square. Please make allowance for such imperfections prior to cutting.
- Counter tops should be placed on a very sound and solid frame or a base which is perfectly plumb, level and true.

Complete Perimeter Substrate Support

- Support the top, both front and back with a rail of not less than 3.5" in width and 5/8" thick. Then support the back of the slab with rails 3.5" wide spaced at regular intervals of approximately 24", as shown below
- It is important to provide a minimum of 1/16" between the edge of the slab and the wall so that any expansion in the wall or slab, due to temperature variation can be

accommodated. An additional gap of $\frac{1}{16}$ " per 5' for all counter tops exceeding 10' should be provided.

- Apply dabs of flexible 100% silicone adhesive, at regular intervals of not less than 12" apart on the back of the top, then place the top gently, and level the tops before the adhesive gets hard.



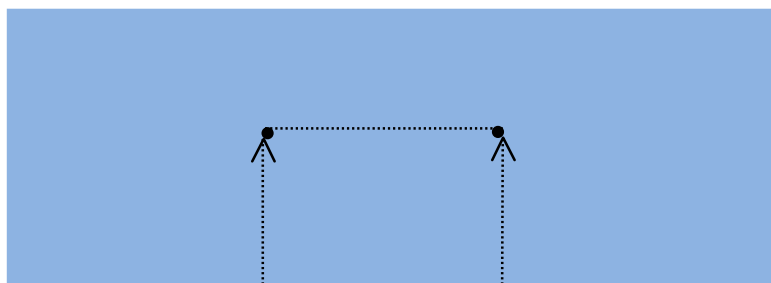
Complete Full Substrate Support

Alternately the complete surface area of the counter top can be supported over the kitchen cabinets with full width self supporting underlay made up of plywood with a minimum thickness of $\frac{3}{4}$ ".

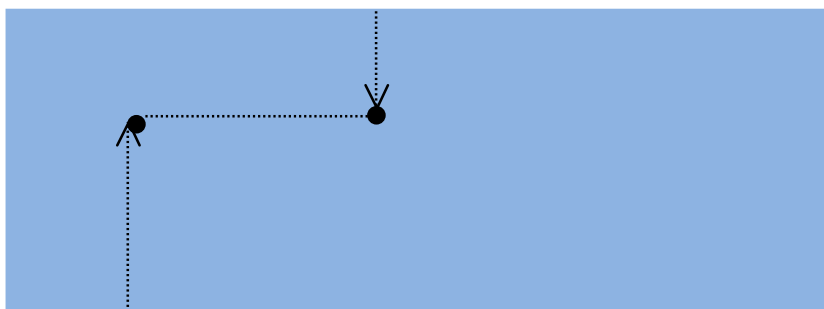
6. Cutting Chroma Quartz by European



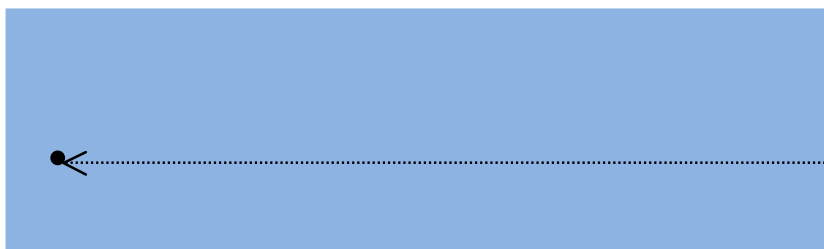
When making a plunge cut, drill a relief hold 1" in diameter near the end of the cut.
IMPORTANT: *always* cut toward the relief hole.



When cutting a "U" shaped piece, mark, and drill relief holes where the cut lines intersect, always making the shortest cut 1st.



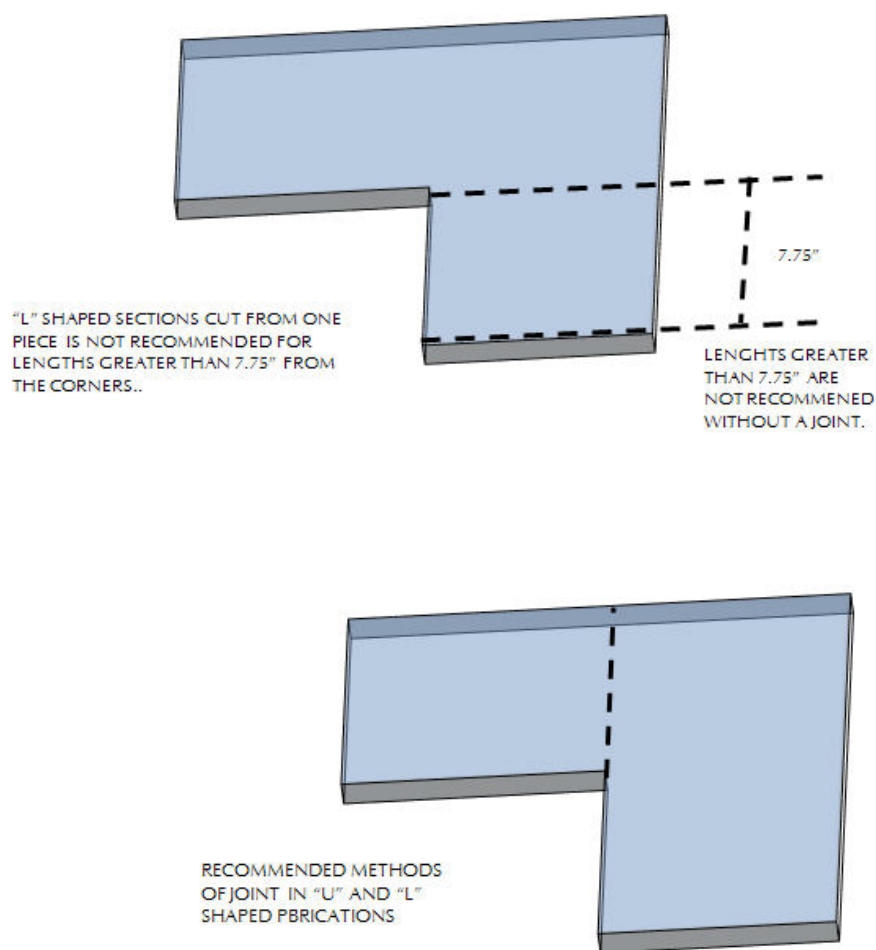
When cutting a "L" countertop, drill relief holes where the cut lines intersect, always making the shortest cut 1st.



If ripping the full length of the slab, drill a relief hole prior to cutting. Always cut towards the relief hole.

5. Planning and Installation of Tops with Joints & Cut Outs.

- Do not place joint within 6 inches of a planned cut out, such as for a sink, cook top, etc.
- European Granite & Marble does not recommend installing "L" shaped counter tops without a joint at the corner of the "L" shape, due to various mechanical stresses to be experienced by such tops after installation. Fabricator should use their own discretion when fabricating.



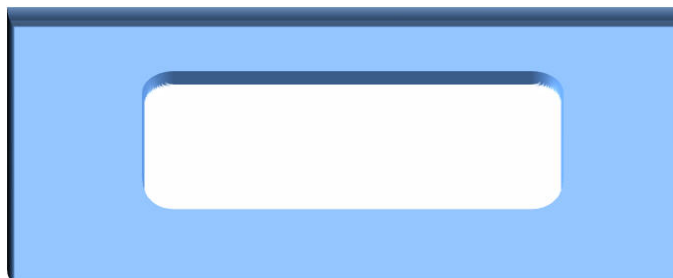
- All the joints in the tops should be well supported from underneath.
- All the joints should be properly cleaned with acetone or denatured spirit to get rid of dust and grime.
- All the sides of the joints should be grooved or slotted in the middle so that the glue joining the two slabs will be well distributed for good adhesion.

- Check that the top is well aligned, both along the joint(s) and also along the front.
- Check that the top is leveled properly and is plumb and true.
- Use paper masking tape at the joints so that the glue applied to the joints does not move to the polished face.
- Ensure that the joints are perfect and then place clamps at the joints until the adhesive sets properly.
- Once set, remove the masking tape and clean off any excess adhesive and the contact surface, with acetone or denatured spirit.
- Do not use any mechanical fasteners like screws and nails to Chroma Quartz by European.

If you are planning to make your cut outs on site, it is essential that the operation is in an area where you can use wet tools. It is not recommended that you cut the sink or cook top cut outs, on the top of cabinets with dry cutting tools.

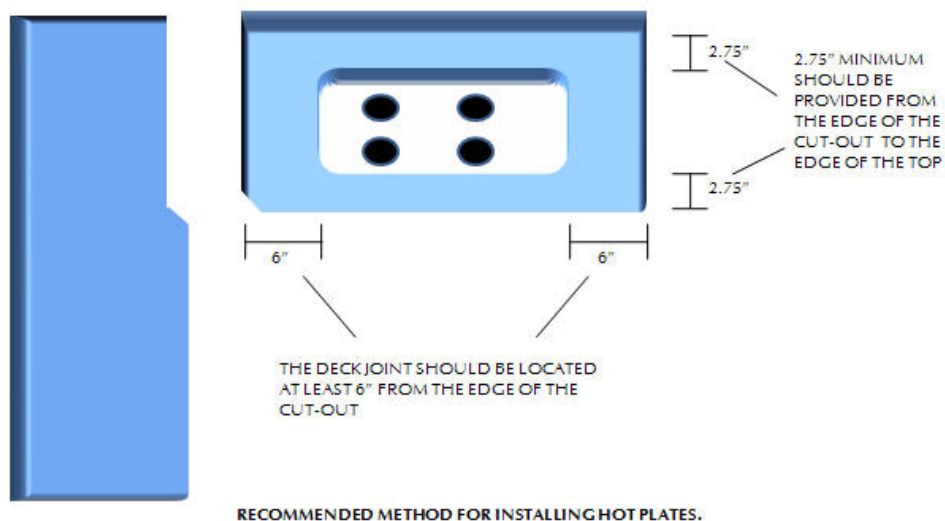
All the cut outs should be cut using only wet cutting tools to avoid generating excess heat to the tops and the corners. The radius of the corner should be around 1/4". When cut out are planned allow extra 1/8" between the appliance edges and the top cut out sides. This is essential to accommodate any expansion that may develop in the top due to temperature changes.

INTERNAL CORNERS OF CUT-OUTS SHOULD BE ROUND. PRIOR TO CUTTING, DRILL THE CORNERS WITH A DRILL, 1/2" MINIMUM HOLE DIAMETER.

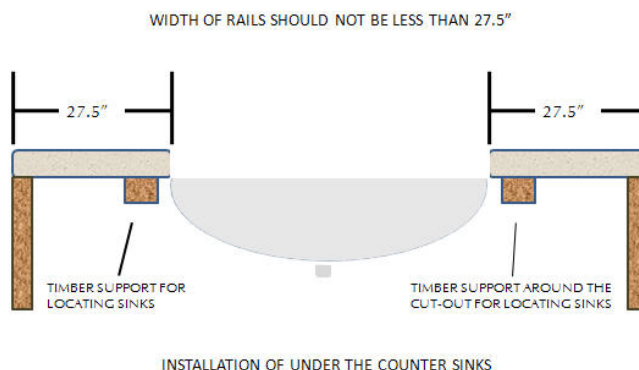


PLANNING CUT-OUTS

- All care should be taken when installing appliances, like cook tops and sinks etc. Read the instruction manual that was supplied by the appliance manufacturer prior to installing the appliances. Make sure that all the brackets and supporting hardware are included.
- Center all the appliances in the cut out and make sure that you allow a minimum of 1/8" space between the inside edges of the appliance the cut out walls.



- Position all the appliances in place and make sure that the seals provided with the appliances are properly placed prior to tightening the fasteners. All fasteners should be only finger tight, never use force in tightening the fasteners.
- Any appliances weighing more than 11lbs should be adequately supported by the cabinet frames.

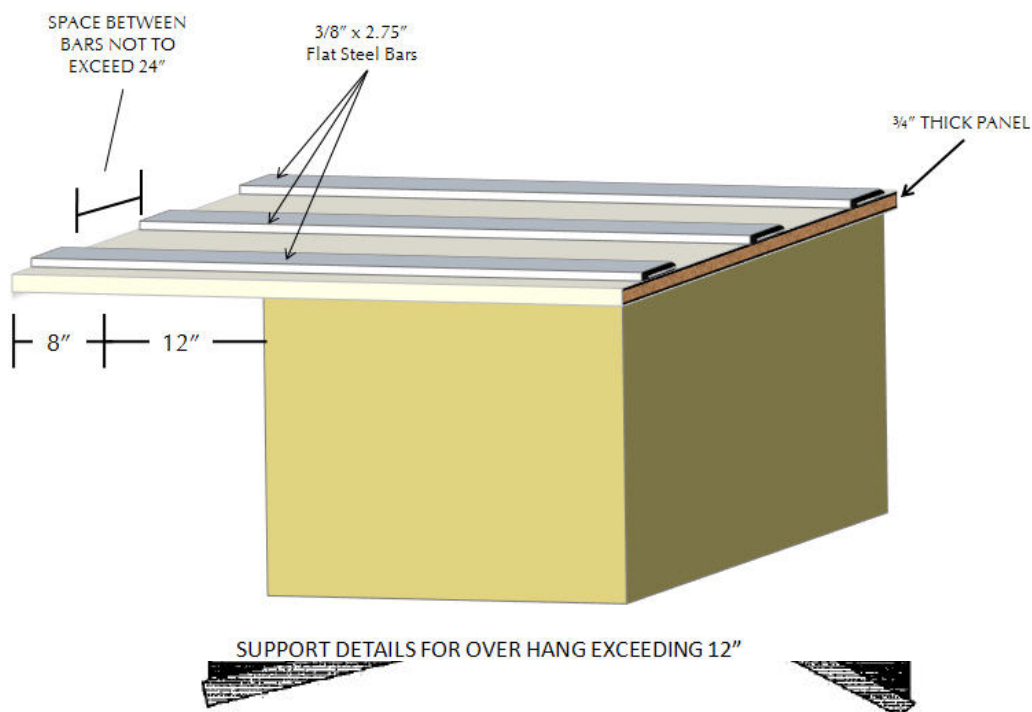


- All of the joints between counter top and appliance edges can be sealed with a high quality transparent flexible sealant. Clean any excess sealant immediately.
- Uneven thermal distribution may occur in areas above dishwasher and over hot water plumbing systems which may cause the top to crack. To avoid this all the hot water plumbing should be thermally insulated; it is a good practice to make the tap holes slightly oversized so that the hot plumbing system is not direct contact with the product.

6. Over Hang and Supporting Brackets:

All over hangs should be properly supported. Any over hang that exceeds 12" for 3cm material (8" for 2cm) shall require the support of a 3/8" thick steel bar, no less than 2.75" wide, placed underneath the top. If a 1 1/2" laminated edge is used, then piece pasted to the top can extend the whole width of the over hang to take some stress placed on the overhang.

If the over hang is less than 20" then general practice is to provide a support base made up of timber and the brackets placed approximately 20" apart. All over hangs exceeding 20" should be supported with proper metal legs. The brackets should be fastened to a backer plate, which is secured to the cabinet with screws.



7. Installation of Backsplash

Chroma Quartz by European can be used for a backsplash application in wet areas, behind wash basins, sinks, and behind cook tops. However, when installing backsplashes behind gas cook tops and heat generating appliances, it is important that the installer must follow all instructions and safety requirements as outlined by the appliance manufacturers, as well as conforming to any local building standards or codes.

The installer must also ensure that the following general guidelines are strictly followed:

- Make sure that the walls are vertical and free from dirt and grime; if needed clean the entire surface.
- It is not advisable to install a backsplash on gyprock boards and any paper lined gypsum product.
- The backsplash pieces should be thoroughly cleaned on the back and on the top, place it in the area to be installed and check whether the pieces fit properly.
- After the pieces of cladding satisfactorily fit, then clean the surface of contacts with acetone or denatured spirits and apply dabs of transparent two part epoxy glue to both the surfaces of the contact and place the cladding. It is not advisable to use grout between the cladding and the counter top. Use a flexible silicon based sealant to fill the gap between the counter top and backsplash.

8. Cladding Walls:

Chroma Quartz by European can be used for all internal cladding of walls and vertical applications. The installation of vertical panels varies from location to location. When designing and installing vertical panels and cladding, it is necessary to take the mass of the product into account and the services of an experienced structural engineer should be sought during the design and installation phases.

If fasteners are needed for safe installation, care should always be taken; Damage caused by the attachment or use of Mechanical Fasteners is not covered by the warranty.

9. Installation of Tiles:

Selecting Chroma Quartz by European slabs or tiles for a wall or floor application is an excellent choice that offers the flexibility and visual impact not previously available in the market place. However, as with any tile application it is important to follow the correct method for affixing the tile that is most suitable for that specific application.

Installers tend to affix engineered tiles in the same way they handle ceramic tiles, using adhesives meant for ceramic tiles. Such practices have lead to failures in installation.

The environment of every tile installation is different, and the installations can be handled in a number of ways. It is important for installers to take into consideration, the following characteristics of the materials that make the different aspects of an installation, if the final installation is to function successfully.

- Differential movement
- Structural deflections
- Foundation movements
- Thermal movements
- Moisture movements

- Radiant Heat Source
- Dimensional stability

Most importantly the thermal movement (expansion and contraction) of engineered tiles should be taken into consideration when designing a tiling system, as engineered stones have a much higher linear thermal expansion when compared to natural stones and ceramic tiles.

Moisture movements both permanent and reversible may occur due to moisture content of the environment. Engineered stones have been known to possess appreciable reversible moisture movement.

Dimensional stability refers to the ability of an engineered stone tile to resist curling or warping when exposed to water contained in the adhesives. When the tile surface absorbs moisture the surface of the wet side expands more than the dry side, the result of this is that tiles tend to warp.

The adhesive manufacturers have vast experience in the installation of a Tiling system using Engineered Stones. Accordingly, we strongly recommend that the installer should consult the relevant manufacturers and seek their advice prior to installation of Chroma Quartz by European slab and tile.

Custom Building Products: <http://www.custombuildingproducts.com>

Mapei: <http://www.mapei.com>

Laticrete: <http://www.laticrete.com>

European Granite & Marble, Inc. does not accept any responsibility nor does it recommend a particular method of installation, it is the responsibility of the installer/buyer to design the tiling system based on the advice obtained from the engineered tile adhesive manufacturers.

VI. CARE & MAINTENANCE

1. Countertops & Floors

Chroma Quartz by European is a high quality solid non porous product that is resistant to scratches, heat, and stains. However, Chroma Quartz by European is not heat, stain and scratch proof. Chroma Quartz by European requires minimum maintenance and the following care and maintenance guidelines will help to keep the surface in immaculate condition for years.

2. General Routine Care and Maintenance

- Chroma Quartz by European is highly resistant to stains caused by fruit juices, liquid food coloring, coffee, tea, wine, grapes, soft drinks, paints, nail polish and remover, automotive fluids, and permanent markers. Should a spill occur, wipe off the stained area with any commonly available multi-purpose cleaner or household detergent and then rinse area with ordinary water immediately. For more stubborn spills and stains, repeat the procedure several times and use a soft, non-metallic scouring pad to remove the stain. It is possible that some of the stubborn stains may leave a light mark or very slight discoloration of the stones.

3. Preventing Heat Damage to Countertops

Chroma Quartz by European is designed and manufactured to withstand moderate heat but the **product is not heat proof**. The Thermal Shock resistance is increased with the increase of the thickness of the material; 3cm slabs are far more resistant to heat than a 1cm slab. Like any other composite material, Chroma Quartz by European may be damaged by a sudden and/or lasting exposure to high temperatures, mainly at the edges and cut outs of the product, resulting in cracks. To prevent thermal shock, discoloration or other damages, it is necessary to use insulating pads when putting hot objects aside and not to expose the surface to open flames or prolonged contact with very hot pots. We always recommend using a hot pad or trivet, especially when using cooking appliances such as electric frying pans, crock pots, or roaster ovens.

4. Use of Common Kitchen Implements

Common kitchen implements including sharp knives won't harm Chroma Quartz by European, as it is made up of pure natural quartz. Continued use of kitchen knives on the counter top could dull the polished surface. Care should be exercised when moving heavy objects and avoid dropping heavy kitchen tools.

5. Removing Foreign Materials

If food, chewing gum, nail polish, paint or any other foreign material is found sticking to the top/floor, simply scrape away the material with a sharp blade or sharp plastic scraper. The use of a metal scraper may leave grey metal marks on the surface, and nylon scouring pad can easily remove them. Wash and rinse the surface in the normal way with water.

6. Exposure to Chemicals and Solvents

Chroma Quartz by European can be permanently damaged by prolonged exposure to strong chemicals and solvents. It is advisable not to use hydrofluoric acid, or any product containing trichlorethane or methylene chloride and paint strippers.

7. Exposure to Direct Sunlight

Chroma Quartz by European slabs and tiles, when exposed to direct sunlight may result in color change and warping. It is advisable to avoid direct sunlight over a prolonged period.

8. Maintenance of Floors

Dust, grit, and barrier materials from the floors should be removed on a daily basis by sweeping with a soft brush and when necessary by use of a machine. Sand can scratch the Quartz Based Tile floor and those surfaces should always be kept free from dust, sand and soil. Chroma Quartz by European surfaces can be easily cleaned with warm water and mild household detergent, using a standard mop. Make sure the floor is completely dry before allowing people to walk on it.

9. Maintenance of Honed Finishes

A surface with a honed finish requires additional daily maintenance and care, compared to polished surfaces. There is more surface area exposed on a honed finish than a polished one, hence any dirt, markings and scratches will be more obvious on a honed finish than on a polished finish. These markings can be removed using a non abrasive cleaning product.

10. Advise to the Installer

It is the duty of the installer to advise customers of the important aspects of Care and Maintenance for Chroma Quartz by European.