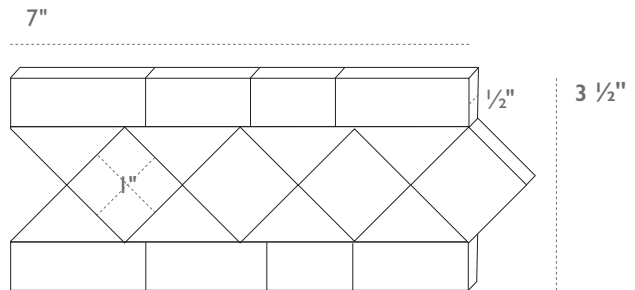
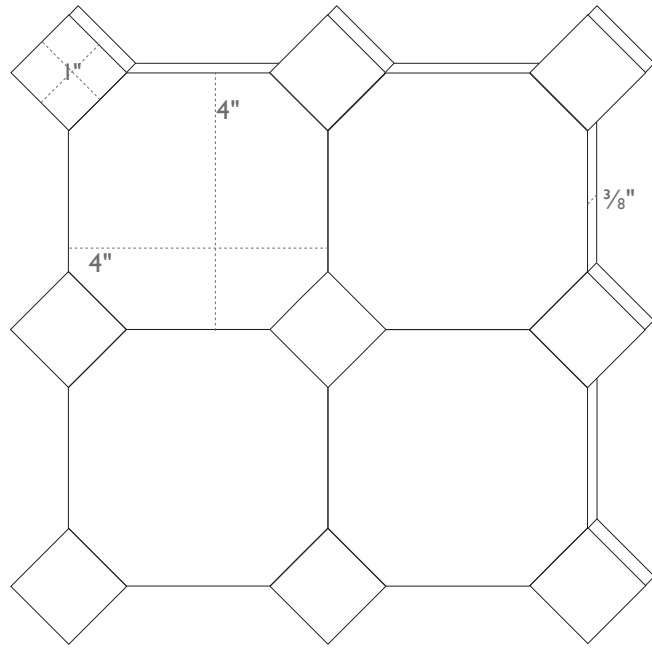


ZIO & SONS + clé

USAGE	Y/N
interior floor	Y*
interior wall	Y*
exterior floor	N
exterior wall	Y*
residential heavy traffic	Y
commercial light traffic	Y
radiant heating compatible	Y
fireplace surround	Y
shower	Y*
steam shower	Y*
fountain waterlines	Y*
freeze thaw	N
pool waterlines	Y*
heat resistant	N
sink backsplash	Y*
stove backsplash	Y*
grout type	ultracolor plus fa & flexcolor cq
grout joint size	butt joint or $1/16''$
UV resistant	Y



Standard thickness for zio & sons is $3/8''$ and $1/2''$ for border piece. Note that border pieces come pre-assembled and can appear to be thicker than $1/2''$ due to the white setting material underneath that is used to glue the individual tile pieces together.

Please note all dimensions can vary plus or minus $1/4''$.

* There are specific installation requirements for this usage, read more information under the installation, sealing, grout, and wet area application sections of this document.

ZIO & SONS + clé—TRADE

INSPECTING YOUR SHIPMENT

- All Zellige tiles are made by hand, therefore noticeable variations in thickness, depth, color, shade, size and crazing is to be expected.
- **IMPORTANT:** Due to the noticeable color and shade variations, it is very important to blend the tiles from ALL BOXES once they arrive and place them in their installation area to ensure you have the layout you want before installing. Do not install without blending tiles from all boxes.
- Industry standard suggests adding at least 15% overage due to tile cuts, potential breakage, or future repairs.
- Note that due to the firing methods and raw materials used to create glazed clay tiles, your order of Zellige will have a percentage of tiles greater than 15% with cracks, crazing, edge-chipping, iron spots and pits through the glaze to the clay body.

clé **WARNING:** having an installation with tiles that experience any of the above imperfections is the traditional look for Zellige installations. Any editing of these naturally occurring imperfections from your tile shipment will greatly reduce the traditional appeal of your installation.

- If these imperfections do not fit your project's needs we recommend ordering more than 15% overage. This allows your contractor to cherry-pick these imperfections from your order.
- Dust and residue from shipping should be cleaned prior to installing. This is typically done as tile is being set with a quick dip of each tile into a water bath.

INSTALLATION

- clé's guides are only to help direct you in the right path for a proper installation. Each project is unique and therefore requires a professional who can provide the exact specifications for your project.
- Please refer to the current edition of the TCNA Handbook for best installation results and ANSI A137.1 American National Standard Specifications for Ceramic Tile to reference for specifications.
- Tile is merely the surface of your construction. Installation problems will arise from substrate or construction engineering and/or installation issues. Please refer to your project architect, structural engineer and/or installer to have the best results for your tile finish.
- As is standard in the tile industry, installation deems acceptance of materials. Do not install if there are visible issues. If you have any doubts or are unsure of what qualifies as a visible issue for the tile you are installing, please reach out to us prior to installation. Our tiles are subject to variations in color, texture, size and finish. Do not install if you have any doubts about visible issues. Misuse by contractor or end-user including but not limited to negligence, physical and/or chemical abuse is not covered by clé's warranty.
- Prior to installation, dampen the tiles before setting by quickly dipping tiles in water for 2-3 seconds.
- Be sure to have 95% or more adhesive on the back of the tile to ensure the best bond when setting the tile.
- To accommodate variations in tile sizes, wedge spacers should be used when needed to keep tile lines straight.
- **DO NOT USE TAPE** during product installation, or otherwise. We cannot guarantee our products' safety against various construction tapes—INCLUDING BLUE TAPE.

- We recommend setting the octagons first (leaving the bouchon space empty) and then setting the bouchons. Working in small areas (every 15 sq. ft.) is recommended.
- For mounted border pieces, the installer should do everything they can to make the pieces fit together perfectly—this may mean cutting/trimming down the end pieces slightly so that the border pieces easily fit into each other.
- If you are installing on a shower floor, increasing the grout joint size to $\frac{3}{16}$ " can help increase slip resistance.
- The natural variation in thickness and size of zellige creates an uneven surface which can increase slip resistance because of the bare foot's ability to form around the tile.
- **IMPORTANT:** Zellige tiles cannot be placed where heat is directed onto them (inside fireplaces, pizza ovens and oven venting). If you are wanting to install Zellige behind a stove range/oven vent, we recommend that there is at least a 4" metal splash (provided by the range manufacturer) between the tile and the vent to deflect heat from directly onto the tiles.

SEALANT

- clé only recommends the use of [Miracle 511 Porous Plus](#) for an invisible sealant finish.
- **IMPORTANT:** In the case of natural unglazed Zellige, due to its extremely porous nature, natural Zellige must be sealed on all applications before and after grouting as the final step of installation in order to be cleaned and to avoid staining.
- For low commercial traffic floor installations or areas susceptible to grease build-up we recommend three to five coats of [Miracle Mira Matte](#) top-coat sealant in addition to sealing for natural Zellige.
- If you are installing natural Zellige on a busy kitchen backsplash where heavy staining is a concern, we recommend applying the [clé top coat kit](#) to the tile surface and grouted areas instead of using Miracle 511 Porous Plus. The clé top coat kit can provide even more protection against stains on backsplashes. Apply the top coat kit as the final step of installation.
- Stains on natural unglazed zellige may be impossible to remove if unsealed.
- For glazed zellige, we recommend applying sealant or using a grout release prior to grouting if the tile has visible crazing.
- **IMPORTANT:** If zio & sons tiles are being grouted with a contrasting grout color vs. a matching one, then you must also apply a penetrating sealant or grout release prior to grouting in order to minimize the possibility of the contrasting grout curing in the inherent hairline cracks, pits, and/or chips.
- Dry applications of glazed Zellige do not need to be sealed as the final step of installation.
- In wet areas of glazed Zellige (backsplashes, showers, steam showers, pool waterlines and fountain waterlines) grouted areas, including grouted pits and chips and areas of visible crazing must be sealed as the final step of installation. Sealant will not penetrate the glazed tile surface but it will penetrate and protect grouted areas, pits and chips and areas of crazing or etching that reaches the clay body.
- If your contractor is having any issues or questions regarding this sealant, please have them reach out to Miracle tech support directly, as they are the best and fastest line of resolution.
- PLEASE FOLLOW ALL MIRACLE SEALANT INSTRUCTIONS FOR BEST RESULTS as well as MAINTENANCE UPKEEP RECOMMENDATIONS.*
- *** HINT:** if water and oil do not bead up on the surface of your tiles and/or grouted areas then the sealant was not applied properly.

- clé ONLY recommends [Mapei Ultracolor Plus FA](#) grout for glazed zellige and [Mapei Flexcolor CQ](#) for natural zellige to reduce the risk of grout haze and staining. Make sure to always follow the manufacturer's instructions. Letting the grout sit for even a short period of time can be problematic.
- Ultracolor Plus FA must be used for pool waterline and fountain waterline installations.
- Zio & Sons border pieces come pre-assembled, revealing white setting material in between each piece. We recommend applying Mapei Grout Refresher onto the setting material to match the grout color you select for your installation.
- [Mapei Grout Refresher](#) comes in the same colors as Mapei Ultracolor Plus FA and Mapei Flexcolor CQ, allowing the color to be consistent and matched easily to your grout.
- Because all Zellige tiles are hand cut into the individual tiles after firing, they are crafted to allow for a very tight grout joint.
- clé recommends a 1/16" grout joint or butt joint.
- Grout is customarily used to fill any gaps left by wedge spacers between tiles as well as any pits, chips or cracked portions of Zellige.
- If installing on a shower floor, a larger grout joint can be used—3/16"—to help increase slip resistance.
- **IMPORTANT:** Contrasting grout color with zellige will highlight the thin hairline cracks/crazing found on the tiles and it will also fill in any pits, and/or chips. If you use a contrasting grout (i.e. white grout with black tile) please order 20-30% overage in order to cherry-pick the tile of the imperfections that are standard to zellige. Additionally, you must make sure to apply a penetrating sealant or grout release prior to grouting in order to minimize the possibility of the contrasting grout curing in the inherent hairline cracks, pits, and/or chips.
- For the octagon/bouchon bundle that has a combination of varied colors, we recommend matching the grout color to the octagon. For type of grout we recommend choosing unglazed grout if there is ANY unglazed tile in the installation.
- Grout color selection is always up to our client and/or their design professional. However, clé is often asked for our opinion on best grout selections for our tiles. And due to the large array of grout colors that are now available, clé would like to offer this general guideline on a foolproof grout color selection for any of your clé tiles.
 - First, have your professional tile contractor complete your tile installation, except for the grout portion.
 - Next, when ready to grout, ask your contractor to bring ALL grout color charts from his preferred grout manufacturers, for your review.
 - Lastly, choose a time of day when you are most pleased with the lighting in your space (either natural lighting, installed lighting or a blend of both). During that lighting and time of day, select the grout color that best matches your tile selection.
- Note that the full Mapei Ultracolor Plus FA & Flexcolor CQ color catalogue contains 40 colors to choose from. Visit the [Mapei website](#) to view.
- If you are working with a highly color-variegated tile or a combination of tiles (checkered or otherwise), we recommend that you follow the above recommendations—but match your grout to the color in your varied tile or tile combination that you would most like to accentuate.
- If your contractor is having any issues or questions regarding this grout, please reach out to Mapei tech support directly at 1-800-992-6273 as they are the best and fastest line of contact.

STAINING

- Grout staining is only a problem if the guidelines set for Flexcolor CQ and Ultracolor Plus FA by Mapei aren't followed properly.
- Please make sure to follow the Mapei Flexcolor CQ [application and cleanup instructions](#) and Mapei Ultracolor Plus FA [application and cleanup instructions](#) to avoid the risk of staining/grout haze and to allow for easy application and cleanability. Read all installation instructions thoroughly before use. Using consistent application procedures will produce consistent results.
- Some of these procedures for Mapei Flexcolor CQ include:
 - During grout application, immediately remove any excess grout off the face of the tile with a clean, damp cloth/sponge.
 - Use a "clean as you go" approach to spreading and washing the grout, to ensure that cleaning begins before the grout skins over and dries on the tile surface.
 - Grout small areas of between 30 to 40 sq. ft. (2.79 to 3.72 m²) at a time, so that cleaning can begin before the grout skins over and dries on the tile surface.
 - Change your water bucket frequently to prevent the development of a haze on the tile surface.
- Some of these procedures for Mapei Ultracolor Plus FA include:
 - Spread Ultracolor Plus FA immediately into the joints with a rubber grout float. Make sure that all joints are well-compacted and free of voids and gaps.
 - Remove excess grout from the tile surface, moving the grout float diagonally to the joints while Ultracolor Plus FA is still fresh.
 - After the grout has set (follow proper setting time) use two buckets of cleaning water: One for rinsing the majority of the grout residue from the grout sponge, and one for moistening the sponge in clean water.
 - Change your water buckets frequently to prevent the development of a haze on the tile surface. To prevent discoloration and soft/powdery joints, avoid cleaning with excessive water.
- If your contractor selects brands other than Mapei grout or Miracle sealant, please have them reach out to the respected representatives of those manufactures for advice and support on failures.

EXTERIOR INSTALLATIONS

- **IMPORTANT:** Zio & Sons tiles are not freeze thaw rated. Therefore we do not recommend and cannot warrant installing these outdoors in areas that regularly experience freezing temperatures*
- * If you plan on installing these outdoors in areas that experience freeze/thaw, we cannot guarantee there won't be installation failures. Installations in freeze/thaw locations require flashing the top of vertical installations to prevent moisture from dripping behind the installation. In addition, the installation must be completely sealed and maintained with a weather and water resistant sealant like Miracle 511 Porous Plus.
- With application of Miracle Sealant, these tiles can have resistance to freeze/thaw issues. However, oftentimes there are installation failures because the specific installation guidelines and sealant maintenance is not properly followed. But if completed and maintained correctly (see manufacturer's instructions) then you can proceed WITH CAUTION.
- If you can comply with all of the above and understand that without the sealant your install won't hold up—then it's up to you to proceed with installing this tile in a freeze/thaw location. We recommend your contractor reach out to both Mapei tech support for installation support and Miracle Sealant tech support on the waterproofing of the tiles.

MAINTENANCE

- Over time, a natural patina will occur on floors as they are maintained and naturally wear.
- Depending on specific site conditions, Zellige are subject to wear over time. This inherent traffic pattern is a highlight of using Zellige and should be both anticipated and favored.
- To minimize sizable traffic damage, a means for people to clean abrasive materials off their shoes before walking on a glazed Zellige floor should be provided.
- Topical sealants on natural zellige will require periodic stripping and re-application of sealant—please refer to a professional for this.
- Single coat reapplication of the penetrating sealant is required once a year in shower applications due to the continuous exposure to water. For glazed Zellige, this includes all grouted areas. For natural Zellige, this includes the tile surface and all grouted areas.
- Reapplication is needed more often if installation is in a steam shower or pool/fountain waterline. Please refer to a professional for this.
- For steam showers, opening windows/doors to help some of the moisture dissipate faster after use will help rid extra moisture.
- For superior water repellency in steam showers we recommend applying Miracle 511 Impregnator sealant in addition to 511 Porous Plus.
- Check with the Miracle Sealant tech support directly at 1-877-385-8155 for best advice on applying and maintaining sealants.

CLEANING

- Mild, pH neutral soaps should be sufficient for most cleaning—test before general use. Clean using soft materials, like a cloth, instead of coarse materials.
- Always avoid harsh chemicals and acidic or alkaline cleaning products.
- Immediately clean up spills—do not allow liquids to sit on the tile surface. Excess liquid and moisture can stain, pit and crack tile - even when properly sealed.
- Vacuum or sweep regularly—abrasive dirt and materials can scratch the surface.
- Non-slip mats or area rugs should be placed inside and outside entrance ways to remove abrasive materials that can scratch and dirty the tile surface.
- Mop floors when necessary with warm, clean water and pH neutral cleaner. Interior wall installations can be cleaned with warm water and damp microfiber cloth.
- Shower installations should be squeegeed after each use to prevent hard water stains, soap scum and mildew.
- Grout lines can be cleaned with warm water and a soft bristled cleaning brush.
- Most stains on natural Zellige can be removed with a pH neutral dish soap, hot water and the scrub side of a sponge.
- clé recommends the use of Miracle Porcelain & Ceramic Tile Cleaner to remove stubborn stains, grease build up, soap scum, hard water deposits and everyday grime.
- Miracle Tile & Stone Cleaner is effective as an ongoing maintenance cleaner and is gentle for everyday use.
- To remove difficult mildew, mold or soap scum, we recommend Miracle Sealants Liquid Poulitice.
- Oil stains are difficult to remove from natural Zellige. They will require the use of a poulitice, like Miracle Sealants Poulitice Plus to draw out the stain. Follow the manufacturer's instructions for application and use.

ZIO & SONS + clé SPECIFICATIONS

Drawing upon the rich mosaic patterns of Morocco, this collection, in collaboration with designer Anthony D'Argenzio of Zio & sons, offers two simple terracotta shapes that fit together—a 4" octagon and 1" bouchon. In four neutral shades: weathered white, sea salt (our newest bright white zellige color), charred cedar and natural. Each octagon can be mixed with a contrasting bouchon to create countless pattern combinations and a truly custom look. The collection is perfect as an accent wall or even for a floor surface. The collection also includes pre-assembled mosaic borders perfect to frame floors, cap backsplashes and more.

What's in our tile: Zellige is a tile that has retained its ancient and archaic tile making process and, therefore, has all the primitive qualities that have become synonymous with it. Zellige is a glazed terracotta tile, hand hewn, olive-pit fired and hand chiseled to-size, and is a testament of ancient tile craft. If your order doesn't contain tiles with pits, iron spots, cracks, shade/size variations and chipped edges—it's not Zellige.

clé has worked with our Moroccan studios to provide the finest quality Zellige tiles available. However, for the best installation, it is important that you hire a highly qualified tile contractor for your project.

COLOR AND TEXTURE VARIATION

zio & sons are rated V3, T3

Due to the handmade craftsmanship of many of our tiles and the variety of materials used, there are degrees of variation in our tiles color, shade and texture. These differences are more pronounced in certain types of tiles than others, especially in tiles from separate production lots, or "batches".

The following is a guide for the different degrees of variation that we have assigned our tiles:

COLOR VARIATION

- V1** low variation
- V2** slight variation
- V3** medium variation
- V4** heavy variation
- V5** extreme variation

TEXTURE VARIATION

- T1** smooth
- T2** light texture
- T3** medium texture
- T4** heavy texture

FLOOR RATING

zio & sons are rated III (can be used for light residential to light commercial foot traffic)

- I** light residential (powder room, bathroom floor, dining room, bedrooms, etc.)
- II** heavy residential (entry way, laundry room, kitchen, mudroom, hallway, stairs, etc.)
- III** light commercial (boutique, health offices, hotel bathrooms, etc.)
- IV** heavy commercial (hotel lobby, retail, office building, shopping mall, restaurant, etc)
- V** industrial (restaurant kitchen, bar work area, winery production, exterior hotel entry, airport, car showroom, driveway, etc)

PRODUCT DESCRIPTION

Zellige are handmade, glazed terracotta tiles.

**PITTING, CRACKING &
EDGE-CHIPPING**

Note that due to the firing methods and raw materials used to create glazed clay tiles, your order of Zellige will have a percentage of tiles greater than 15% with cracks, crazing, edge-chipping, iron spots and pits through the glaze to the clay body.

If these imperfections do not fit your project's needs we recommend ordering more than 15% overage. This allows your contractor to cherry-pick these imperfections from your order.

PRODUCT COMPONENTS

Clay, glaze, pigments

DIMENSIONS

Octagon	10.16 cm x 10.16 cm x .95 cm (4" X 4" X 3/8") / .18 kg per tile (.40 lb)
Bouchon	3.18 cm x 3.18 cm x .95 cm (1 1/4" X 1 1/4" X 3/8") / .05 kg per tile (.10 lb)
Border	20.3 cm x 8.9 cm x 1.27 cm (8" X 3.5" X 1/2") / .30 kg per piece (0.67 lb)

* Please note all dimensions are nominal and can vary plus or minus 1/4".

**AVERAGE COEFFICIENT OF
FRICTION (DCOF ACUTEST)**

“Wet Dynamic Coefficient of Friction” (DCOF) /
Natural zellige 4"x4" butt joint: avg. .80
Glazed zellige 4"x4" butt joint: avg. .25

* Application of Miracle 511 Porous Plus and/or Miracle 511 Impregnator can help increase slip resistance of natural zellige.

**FREEZE/THAW RESISTANCE
(ASTM C1026)**

Zellige tiles are not freeze/thaw resistant.

**WATER ABSORPTION
(ASTM C373)**

Natural: avg. 21.9%
Glazed: avg. 22.9%

ACID RESISTANCE

Zellige tiles are not resistant to acids and should be cleaned with pH neutral cleaners.

LEED CREDITS

The product is an inherently non-emitting source of VOCs (stone, ceramic, metals, powder-coated metals, plated or anodized metal, glass, cement, clay brick, and unfinished or untreated solid wood) and has no integral organic-based surface coatings, binders, or sealants.

Zellige tiles are considered ‘inherently non-emitting sources’ under the Low-emitting Materials Credit of LEEDv4/v4.1. **This is currently the only credit for our Zellige tile that is eligible to be used toward LEED.**

‘Inherently non-emitting’ means that these tile types have been shown to not contribute emissions to indoor environments and are therefore exempt from demonstrating compliance with CDPH v1.1-2010 or CDPH v1.2-2017.

Use of these tiles as Wall or Flooring materials should be entered in the LEED v4.1 low-emitting materials Calculator and identified as ‘inherently non-emitting’ in the Products Tab (Column L).

Disclosures for MR Credit Material Ingredient Disclosures under LEEDv4/v4.1, are not available at this time. We are exploring our disclosure options and have not established a timeline for completion.

Disclosures for MR Credit Environmental Product Declarations under LEEDv4/4.1, are not available at this time. We are exploring our disclosure options and have not established a timeline for completion.

Contribution to MR Credit Material Sourcing under LEEDv4/v4.1, does not apply as there is no recycled content, no bio-based materials, no wood, no reused products included in our tile at this time. Extended producer responsibility programs are highly difficult to manage given the nature of end-of-use tile removal methods. *Tile can last hundreds of years but fashions often change, which is the dominant reason for its removal. We work hard to ensure our terracotta tiles can withstand the test of time while remaining timeless.*

RECYCLED CONTENT

There is no recycled content in our zellige tiles at this time. See Material Sourcing disclosure above.

PERCENTAGE OF PRE-CONSUMER AND/OR POST-CONSUMER MATERIALS

There is no pre-consumer or post-consumer material content in our tiles at this time. See Material Sourcing disclosure above.

FIRE RATING

Typically, ceramic tile does not need to have fire rating testing performed. It is our understanding from TCNA that the explanation that ceramic is inorganic, inert, and typically free of materials that could burn or produce smoke is generally enough to satisfy a specifier and that testing is not necessary. Also, the temperatures observed in the testing are typically lower than the temperatures at which ceramic tiles are fired.

Zellige is a ceramic tile and falls under the description, “because ceramic tile is non-flammable and does not produce smoke in a fire, it inherently meets the flame spread and smoke development requirements of Section 803 of the International Building Code (IBC) for interior wall and ceiling materials.” Please follow the link for a TCNA document supporting this and many other positive attributes to using ceramic tiles. TCNA Bulletin: Ceramic Tile for a Safe & Healthy Home

All zellige tiles can be installed on backsplashes, showers and steam showers with application of a waterproofing, penetrating sealant. Glazed zellige can be installed on pool waterlines and fountain waterlines with application of a waterproofing, penetrating sealant.

When installing, make sure these specific waterproofing precautions are taken:

- A waterproof membrane is used under the tile and a waterproof, penetrating sealer is used to seal the grouted areas and the tile surface of unglazed tile. We recommend Miracle Sealant 511 Porous Plus.
- A waterproof membrane is used under the tile and a waterproof, penetrating sealer is used to seal the grouted areas of glazed tile and any pits and chips on the tile surface. We recommend Miracle Sealant 511 Porous Plus.
- Single coat reapplication of the penetrating sealant is required once a year in shower applications due to the continuous exposure to water. For glazed Zellige, this includes all grouted areas. For natural Zellige, this includes the tile surface and all grouted areas.
 - Reapplication is needed more frequently if installation is in a steam shower.
- For superior water repellency in steam showers, we recommend applying Miracle 511 Impregnator in addition to Miracle 511 Porous Plus.
- For pool and fountain waterlines, contact Mapei at 1-800-992-6273 (U.S. and Puerto Rico) or 1-800-361-9309 (Canada) and Miracle Sealant tech support directly at 1-877-385-8155 for best waterproofing application methods, installation suitability and maintenance requirements.
- Due to the extremely porous nature of natural zellige, we only recommend glazed zellige for pool and fountain waterlines, in non-freeze thaw locations only.