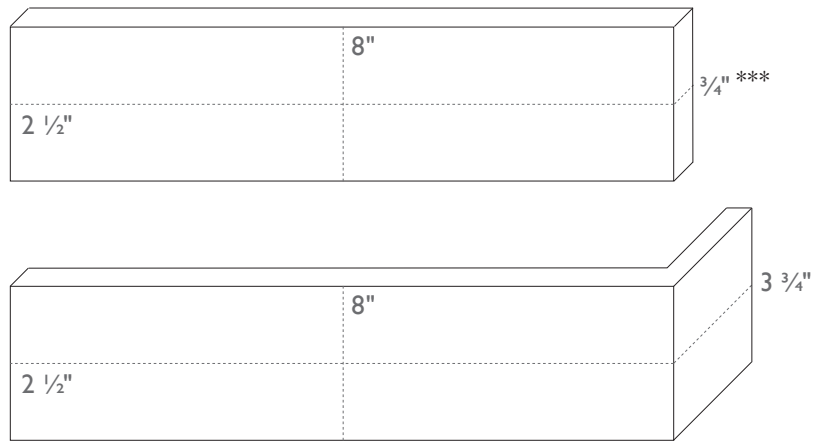


FOUNDRY FLATS FORGE



| PRODUCT USAGE | interior floor | interior wall | exterior floor | exterior wall | residential light traffic | residential heavy traffic | commercial light traffic | commercial heavy traffic | radiant heating compatible | fireplace surround |
|-------------------------------|----------------|---------------|----------------|---------------|---------------------------|---------------------------|--------------------------|--------------------------|----------------------------|--------------------|
| PETROL. BRAZE | Y* | Y* | Y* | Y* | Y | Y | Y | Y | Y | Y |
| FACTORY, VOLCANIC, CAST IRON | N | Y* | N | Y* | N | N | N | N | Y | N |
| SAWDUST, SEDIMENT, ALLOY FLUX | Y*,** | Y* | Y*,** | Y* | Y** | N | N | N | Y | Y |

| PRODUCT USAGE | shower walls | steam shower walls | fountain | freeze thaw | pool | heat resistant | sink backsplash | stove backsplash | UV resistant |
|-------------------------------|--------------|--------------------|----------|-------------|------|----------------|-----------------|------------------|--------------|
| PETROL, BRAZE | Y* | Y* | N | Y | N | Y | Y* | Y* | Y |
| FACTORY, VOLCANIC, CAST IRON | Y* | N | N | N | N | N | Y* | Y* | Y |
| SAWDUST, SEDIMENT, ALLOY FLUX | Y* | Y*,** | N | Y | N | Y | Y* | Y* | Y |

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

** The tile and/or its coating will slowly wear down over time in floor traffic areas.

*** **Standard thickness for Forge bricks is 3/4" with the exception of Sawdust which has a 5/8" thickness and Factory which has a 1/2" thickness.**

90°corner piece return is 3 3/4" on Forge.

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

FOUNDRY FLATS FORGE

INSPECTING YOUR SHIPMENT

- Unglazed brick colors vary from brick to brick, some more than others. These variations are intentional, resulting from clé's particular production methods and choice of raw materials.
- Variations in depth, thickness, size, color and shade are to be expected. When specifying unglazed bricks, if color consideration is paramount, always work from a sampling of three or more bricks, which represents the range of color you can expect on the job.
- **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 bricks from all boxes.
- Industry standard suggests adding at least 15% overage due to tile cuts, potential breakage, or future repairs.
- Dust and residue from shipping should be cleaned prior to installing. This can be done with a damp sponge or microfiber cloth.

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 and the [Thin Brick Veneer technical notes](#) from The Brick Industry Association (BIA) for best installation results.
- 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.
- The following recommendations are considered "best practice" with respect to thin brick used as floor covering:
 - Thin brick must be placed on a rigid substrate of either 4" (nominal) reinforced concrete or suspended floor framing of concrete on metal deck, or wood subfloor plus underlayment with support members designed for live load deflection less than L/400.
 - To ensure proper bonding when setting, we recommend lightly wiping the back of each brick if there is excessive dust.
 - Thin brick shall be fully supported and fully bedded in polymer modified adhesive mortar worked into a clean substrate and worked into the clean back of tile with a notched trowel following the guidelines of TCNA floor assemblies for stone or tile, designed/chosen/specified by a responsible design professional. Use anti-crack membranes or crack control membranes on substrate surfaces as per requirements of TCNA for stone and tile installation and per the design professional's project requirements.

- Provide control joints in the thin brick flooring as required and locate control joints consistent with joints as recommended for the substrate material being used. Do not bridge movement joints in substrate layers with thin brick units.
- Work polymer modified adhesive mortar onto the clean receiving substrate surface, working into the surface, and finish with a notched trowel. Apply polymer modified adhesive mortar to the clean back of the thin brick, working into the brick with a trowel and finish with a notched trowel in the opposite direction of the notched surface of the adhesive mortar on the receiving surface. To install thin brick, press the brick into the prepared receiving surface and rotate slightly to ensure full, proper bonding while the polymer modified adhesive mortar is wet; press the unit into the receiving mortar prior to it becoming thumb-print hard. All corners and edges must be fully adhered.
- Exposed edges of thin brick flooring must be protected from chipping by flanking walls, concrete curbs, metal edge material, or any other effective anti-chip edge restraints.
- Furniture or fixtures should be located and placed vertically, not dragged over the brick surface.
- All cementitious materials used for installation should be made with clean, washed sand, and clean, washed aggregate.
- Thin brick shall not be used where vehicular traffic is planned/anticipated.
- When used for exterior applications, avoid using: de-icing salts; non-breathable sealers, and continuous or excessive moisture.
- When used for interior flooring, avoid continuous or excessive wetting.
- Drilled inserts and post-installed anchors should be avoided, unless embedded into the substrate material and isolated from the thin brick.
- **DO NOT USE TAPE** during product installation, or otherwise. We cannot guarantee our products' safety against various construction tapes—INCLUDING BLUE TAPE.

SEALANT

- clé only recommends the use of [Miracle 511 Porous Plus](#) for an invisible sealant finish.
- Due to the texture of the bricks you must apply sealant or a grout release prior to grouting to minimize risk of grout haze and to allow for an easier clean up.
- However if you choose to use grout as a design element then you don't need to seal or use grout release prior to grouting.
- Although unglazed thin bricks do not have to be sealed after grouting for dry applications (interior walls, fireplace surrounds), it is recommended that they are sealed when used on wet areas like backsplashes, showers, bathrooms and floor installations.
- Grout lines and the tile surface should be sealed as the final step of installation for the above mentioned applications.
- Sealing will help maintain their appearance, prevent staining and further protect bricks in a moderate traffic area for at least a year or many years depending on usage.
- For 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.
- Always test sealers in a small area to ensure it provides the finish you prefer.
- 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 grout lines then the sealant was not applied properly.

- clé ONLY recommends [Mapei Flexcolor CQ](#) grout to reduce the risk of grout haze and staining. Make sure to always follow the manufacturer's instructions. clé recommends a $\frac{3}{8}$ grout joint.
- 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 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 you are using the recommended Mapei Flexcolor CQ, fill joints using a grout bag, grout gun or other grout delivery device.
- Even with a grout release, it will be nearly impossible to remove grout from the textured surface of this tile if you choose to use the traditional float method. This is another reason we recommend using a grout bag or gun.
- Flexcolor CQ is formulated to be non-staining. If you have chosen to use another type of grout we strongly recommend using a grout bag to minimize the subsequent staining.
- Working in small areas, use a grout bag to fill the joints.
- **IMPORTANT:** While applying, immediately remove any excess grout off the face of the tile with a clean, damp cloth/sponge. Do not push grout into tile texture while cleaning. Even with the use of a grout release, if grout is allowed to cure on the face of the tile it could cause grout haze and will be hard to remove due to the texture of the brick.
- Once the grout has cured per the manufacturer's instructions, bricks need to be cleaned in order to apply the final coat of sealant.
- Cleaning is much easier if a grout release is used and if care is taken during application to avoid smearing mortar or grout on the faces of the thin brick.
- Remove any remaining grout haze or grout spots to ensure it is not sealed into the bricks. Grout haze left by Mapei Flexcolor CQ can be removed with [Mapei Ultracare Heavy-Duty Stone, Tile & Grout Cleaner](#).
- Another way to clean the Foundry Flats surface from installation debris and grout is to brush down the surface with a bristle brush and clean water.
- There are tradespeople that would suggest cleaning with a chemical cleaner. We do not recommend this, as it has the ability to damage the bricks.
- **Cleaning instructions:**
 - For flats installed in the morning—clean flats in late afternoon.
 - For flats installed in afternoon—clean flats next morning.

- Begin at the top of the installation, soak the top surface of flats with clean water through to bottom tiles.
- When the surface is all wet, scrub the face of tiles with a bristle brush.
- Rinse the surface with water, afterward.
- Take care not to soak tiles through to the setting material. If this happens, it could encourage efflorescence.
- **Optional alternative grout application—using grout as a design element:**
 - For clients that want to enjoy the beauty of instant patina by leaving the grout film or applying excess grout film, the surface finish will be completely different. This rough and "coated" brick surface is achieved by using a grout float to intentionally apply grout film to random areas. In this case, you would want to ensure that you have selected the correct grout color for your "patina" and also to instruct the contractor for the depth of patina you will want your grout film to apply.
- Follow grout manufacturer's instructions on proper drying time before cleaning and applying final sealant.
- If your contractor selects brands other than Mapei grout or Miracle sealant, please have them reach out to the respected representatives of those manufacturers for advice and support on installation failures.
- 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.

WET AREA APPLICATION

Foundry Flats can be installed on backsplashes, shower walls and steam shower walls 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 water resistant, penetrating sealer (Miracle Sealant 511 Porous Plus) is used to seal the grouted areas and the tile surface.
 - Single coat reapplication of the penetrating sealant is required once a year in shower applications due to the continuous exposure to water.
 - Reapplication is needed more frequently for steam shower installations.
 - For superior water repellency in steam showers, we recommend applying Miracle 511 Impregnator in addition to Miracle 511 Porous Plus.
 - Contact Miracle sealant tech support directly at 1-877-385-8155 for sealant maintenance and upkeep questions.
- * Foundry Flats are not suitable for pool or fountain use.

EXTERIOR
INSTALLATIONS

- **IMPORTANT:** Factory, Volcanic and Cast Iron bricks are not freeze thaw rated. Therefore we do not recommend and cannot warrant installing these outdoors in areas that regularly experience freezing temperatures*

* Sand Cast can only be used for exterior walls in regions with a weathering index below 50.

* 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 and installing the tiles above grade for horizontal installations. 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, Foundry Flats are subject to wear over time.
- To minimize sizable traffic damage, a means for people to clean abrasive materials off their shoes before walking on a Foundry Flats floor should be provided.
- If using a topical sealant, bricks will need periodic stripping and resealing. Please refer to a professional for this maintenance.
- Single coat reapplication of the penetrating sealant is required once a year in shower applications due to the continuous exposure to water.
- Reapplication is needed more frequently for steam shower installations.
- For showers, opening windows/doors to help some of the moisture dissipate faster after use will help rid extra moisture.
- For superior water repellency in 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

- Bricks and grout lines can be cleaned using mild, pH neutral soaps (like dish soap) with hot water and a bristled cleaning brush—this should be sufficient for most cleaning and stains. Test before general use.
- If this is ineffective, a poultice which dissolves the stain and pulls it into an inert material may be necessary.
- Always avoid harsh chemicals and acidic or alkaline cleaning products. Unglazed bricks can be damaged by strong acidic or alkaline substances.
- Never use muriatic acid, wire brushes or other abrasive methods to clean thin brick.
- 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.
- Vacuum or sweep regularly.
- Don't leave liquids to sit on the tile surface for extended periods of time. Excess moisture can stain, pit and crack brick - even when properly sealed.
- Shower installations should be squeegeed after each use to prevent hard water stains, soap scum and mildew.
- Miracle Tile & Stone Cleaner is effective as an ongoing maintenance cleaner and is gentle for everyday use.

FOUNDRY FLATS FORGE TRADE SPECIFICATIONS

What's in our tile: We scoured the country looking for a thin brick and discovered these Foundry Flats at a family-run business with a long history of working with clay. Sourced from materials located within 25 miles of the factory, the flats are solidly made with a body that reflects a color palette that is both modern and enduring. Made from clay and water, Foundry Flats are a classic American, affordable, and recyclable product. Forge thin bricks have been manufactured with an artisan approach, manipulated at different stages of the production to create varied surfaces with visceral appeal.

COLOR AND TEXTURE VARIATION

Foundry Flats—Forge is rated V2 – V5 / T2 – T4

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:

Forge:

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

Foundry flats thin bricks Petrol, Braze, Sawdust, Sediment and Alloy Flux can be used as flooring for the CTDA load ratings noted below, if and only if the thin brick is:

- Installed on a sufficiently rigid substrate (please see “best practice” recommendations under the Installation section of this guide).
- Installed fully supported and fully bedded in adhesive (polymer modified/latex) mortar.
- Installed with edge restraint or anti-chip edge material on all exposed edges, where only lightly loaded wheels are used (50 pounds per wheel, with rubber or elastomeric “tread”), and never located where vehicular loading is possible.

Foundry Flats thin bricks Petrol and Braze are rated IV (can be used for residential light to commercial heavy foot traffic), and Sawdust, Sediment and Alloy Flux are rated I (can be used for residential light foot traffic) as outlined below:

- I** light residential
for residential areas with light foot traffic. examples can include bathroom, bedroom, formal dining and living rooms. please note the following:
 - not suitable for shoes with hard sole profiles (cleats, stilettos, etc.)
 - the floor must be kept clean from abrasive debris (gravel, mud, salt, etc.)
 - immediately clean all stains (food, personal and household care products, oils, paints, chemicals etc.)
- II** heavy residential
for residential areas with continuous foot traffic. examples can include entry, hallway, kitchen, foyer, laundry and mud rooms. please note the following:
 - the floor must be kept clean from abrasive debris (sand, gravel, mud, salt, etc.)
 - immediately clean all stains (food, personal and household care products, oils, paints, chemicals etc.)
- III** light commercial
for commercial areas with light foot traffic. examples can include commercial office, doctor’s office and boutique. please note the following:
 - the floor must be kept clean from abrasive debris (sand, gravel, mud, salt, etc.)
 - immediately clean all stains (food, personal and household care products, oils, paints, chemicals etc.)
- IV** heavy commercial
for commercial areas with continuous foot traffic. examples can include hotel lobby, retail, corridors in an office building, shopping mall and restaurant. please note the following:
 - the floor must be kept clean from abrasive debris (sand, gravel, mud, salt, etc.)
 - immediately clean all stains (food, personal and household care products, oils, paints, chemicals etc.)
- V** industrial
standard industrial floor use with no extreme, heavy breakage or spillage. examples can include restaurant kitchen, bar work area, winery production, exterior hotel entry, airport, car showroom, driveway. please note the following:
 - the floor must be kept clean from abrasive debris (sand, gravel, mud, salt, etc.)
 - immediately clean all stains (food, personal and household care products, oils, paints, chemicals etc.)

Flooring Load Rating Notes:

1. Wheel loads shall be restricted to 50 lbs maximum. No steel wheeled equipment or devices allowed (dollies, trolleys, carts, etc.). Rubber, soft plastic, or elastomeric wheel contact surfaces (“treads”) only.
2. Only where pedestrian occupancy loadings do not exceed 80 psf (100 psf in pedestrian egress corridors).
3. No vehicular traffic, with the exception of golf cart-type service vehicles with soft pneumatic rubber tires inflated to 20 psi maximum.

PRODUCT DESCRIPTION

American made, Foundry Flats Thin Brick emphasizes classic, industrial style and are manufactured to last and improve with age.

Foundry Flats shall be selected by the architect/designer/owner from manufacturer’s standard sizes, shapes and glazes. Foundry Flats meets or exceeds ASTM-CI088 Type TBS or TBX.

PRODUCT COMPONENTS

Clay and shale

DIMENSIONS

| | |
|---------------------|--|
| Forge | 6 cm x 20 cm x 2 cm (2 ½" X 8" X ¾") / .38 kg per tile (.85 lb) |
| Corner—Forge | 6 cm x 20 cm x 9.5 cm (2 ½" X 8" X 3 ¾") / .45 kg per tile (1 lb) |

* Please note all dimensions are nominal and can vary plus or minus ¼".

AVERAGE COEFFICIENT OF FRICTION (DCOF ACUTEST)

The textured, unglazed surface will provide slip resistance.

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

FREEZE/THAW RESISTANCE (ASTM C1026)

Foundry Flats are freeze/thaw resistant with the exception of Factory, Volcanic and Cast Iron.

| | | |
|---|------------|---|
| WATER ABSORPTION TEST (ASTM C373) | Alloy Flux | 5 hr boil: avg. 12.00% / 24 hr cold soak: avg. 9.0% / Saturation Coefficient: avg. 0.75 |
| | Braze | 5 hr boil: avg. 9.0% / 24 hr cold soak: avg. 5.7% / Saturation Coefficient: avg. 0.64 |
| | Cast Iron | 5 hr boil: avg. 9.3% / 24 hr cold soak: avg. 6.2% / Saturation Coefficient: avg. 0.67 |
| | Factory | 5 hr boil: avg. 9.4% / 24 hr cold soak: avg. 6.3% / Saturation Coefficient: avg. 0.67 |
| | Petrol | 5 hr boil: avg. 14.0% / 24 hr cold soak: avg. 5.9% / Saturation Coefficient: avg. 0.64 |
| | Sawdust | 5 hr boil: avg. 9.82% / 24 hr cold soak: avg. 6.7% / Saturation Coefficient: avg. 0.69 |
| | Sediment | 5 hr boil: avg. 10.0% / 24 hr cold soak: avg. 6.9% / Saturation Coefficient: avg. 0.70 |
| | Volcanic | 5 hr boil: avg. 9% avg / 24 hr cold soak: avg. 6.5% / Saturation Coefficient: avg. 0.70 |

As best practice, for thin brick used as flooring, a random 5 brick test sample must comply with a maximum 5-hour boil absorption of 20.0% for individual bricks, and a 5 sample average absorption of 17.0%, plus the saturation coefficient of each brick of the 5 brick sample must not exceed 0.80 and the average saturation coefficient of the 5-brick sample must not exceed 0.78.

Additionally, for thin brick used as exterior floor covering, a random 5 brick test sample must have 24-hour cold water soak absorptions less than 8.0% for each sample brick to be considered (note that Factory, Volcanic and Cast Iron bricks are not suitable for exterior floors).

ACID RESISTANCE

Foundry Flats 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.

Foundry Flats bricks are considered 'inherently non-emitting sources' under the Low-emitting Materials Credit of LEEDv4/v4.1. ***This is a credit for Foundry Flats 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, applies as there is pre-consumer recycled content in our bricks. ***This is a credit for Foundry Flats that is eligible to be used toward LEED.**

* Foundry Flats can contribute to two LEEDv4/v4.1 points under the Low-emitting Materials Credit and under the MR Credit Material Sourcing.

RECYCLED CONTENT

The clay mix in our Foundry Flats bricks consists of grog (ground up brick and brick waste). See Material Sourcing disclosure above.

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

There is approximately 8.4% pre-consumer material content (grog) in each of our Foundry Flats bricks.

FIRE RATING

Brick masonry has traditionally been used to provide superior fire resistance and safety for occupants. Since the primary ingredient in brick is clay which is fired to around 2000 F, it is classified as a non-combustible material. As such, it is an excellent choice to resist or confine fires.

