

# TILING & GROUTING THE ZAGAR METHOD

## MATERIALS

1. Tile Adhesive ( must say "solvent free" which makes it easy to wash off your hands.  
Tile adhesive with solvent has a strong odor and gives me a headache)
2. Plaque of wood - approximately 4" x 3". (thin 1/8" paneling works best - cut to size  
with Mat Knife)
3. Small hammer for breaking tile.
4. Cloth gloves
5. Inexpensive glass cutters - simple wheel cutter

You are ready to begin.

The surface to apply tile to must be compatible with cement. (for example, cinderblock, cementboard, clay bricks, stucco walls or sheet rock.) Wood is not a compatible surface - even wood paneling !

Make sure surface is clean & dry and does not have a layer of enamel paint or oil .

## BREAKING TILE

- Wear cloth gloves to break tile. (Tile of any kind can be broken with a hammer.)
- The tile is held in your gloved hand and given a light (light) tap.
  - Keep your eyes open at all times - you must see what you are doing.
- As the piece gets smaller you will need to place the tile **in** your palm ( in the palm of your hand ) and give a light tap.
- Always hit the tile on the glazed side **except** in the case of floor tiles that are high fired and unglazed which are always hit on the surface side.

## CUTTING MIRROR -

Use an inexpensive glass cutter with simple wheel cutter that can be discarded for a new one when it is no longer doing the job of cutting the mirror.

- Keep mirror cutters in a glass with some turpentine (the no odor kind) when not in use and when using the tool keep dipping it into the turpentine to revive and lubricate the tool (not too much though)

Mirror is used for two purposes :

1. To draw outlines
2. To fill in odd places - That means **any** place.
  - Theoretically you could do a complete mosaic in mirror - I DO NOT.

mirror on the mirror side

- do not worry about straight lines
- do not worry when mirror inadvertently breaks where you do not want it to break as you can use all size pieces.
- **Use only 1/4" thick mirror** (thinner mirror will not hold enough grout in the seams which is the separation between each tile & mirror or mirror & mirror or tile & tile, etc.)
- **NEVER LEAVE THE EDGE OF ANY MIRROR HANGING OVER THE EDGE OF YOUR WORK SURFACE DURING THE CUTTING PROCESS.**
- Listen for the cutting sound consistency and see a clear line as you cut.
  - Do not bear down too hard or too light while cutting.
  - Be patient, you will become an expert in no time.
- Work on a stable table at a good height for your comfort.
  - Cover the table with a piece of cloth as there will be an accumulation of tiny shards as you cut.
  - Dump the shards into the trash can periodically as they mount up
    - Fold the cloth up with the shards inside and take to trash can to shake shards out of cloth ( don't brush shards with your hands - even with gloves on )
  - Cut large mirrors in the middle - gently, then break on edge of table.
    - always cut (or score) mirror on mirror side !
    - continue cutting and make pieces approx. 7" long by 3" wide
    - You are now ready to cut lines of mirror .
      - Make a row of cuts 1" apart on your 7 x 3 piece
      - Turn mirror over and lightly tap the back of the mirror with the non cutting end of the glass cutter so that your 1 x 3 pieces break away from the whole.
      - Pile these strips into a bucket.

When you get several buckets full of mirror strips you might try triangles.

I do not use curved cuts of mirror. I do not use circles of mirror. Any pieces that are imperfect or odd broken shapes are just as useable as those you deem perfect. They are all perfect as the surface is all that is finally visible and when grouted and buffed the sharp edges are either disappeared under the colored cement grout or sand buffed smooth.

## PLACING MIRRORS / TILES

You are now ready to place mirrors / tiles on the wall using the wood palate to scoop mastic tile adhesive ( no solvent) out of the bucket which comes in 3 gallon and 1.5 gallon. I suggest the smaller bucket as it is easier to handle and can be reused to hold cement.

You need a gallon plastic bucket (paint bucket) to place your mirror strips in.

Hold the bucket in the crook of your elbow braced under your breast and against your body leaving your hand free to hold the wood palate which contains the adhesive. Your other free hand is ready to dip into the bucket to retrieve pieces of mirror to be placed on the wall.

- IMPORTANT : The adhesive is just temporarily holding the mirror and tile pieces. You must grout as soon as possible after finishing a section of tiles - especially outdoors as the adhesive is not waterproof. Indeed, the tile and glue supply house will not sell you the product if you tell him/her how you are going to use it. Remember, you are using the ZAGAR SYSTEM OF MOSIAC MURAL APPLICATION, an idiosyncratic method perfected by trial and error over a 30 year - day in and day out - work life.

Let us continue.....

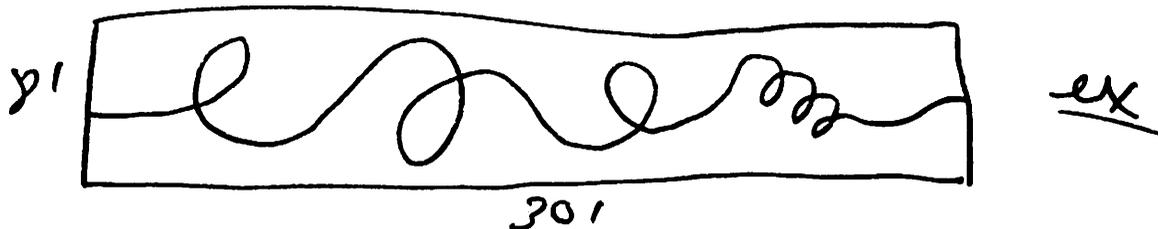
The palate has adhesive in one corner ( get used to using the corner of the palate as you will also use the corner of the sponge later )

The mirror or tile surface is to be held with the thumb while 3 fingers hold the bottom in a vice grip. Scrape the surface of the mirror/tile across the bottom of the palate thus picking up adhesive onto the mirror/tile to be placed on the wall (you are removing adhesive, slowly cleaning the palate of adhesive as a by product of placing mirror/tile.)

### DESIGN CONCEPT

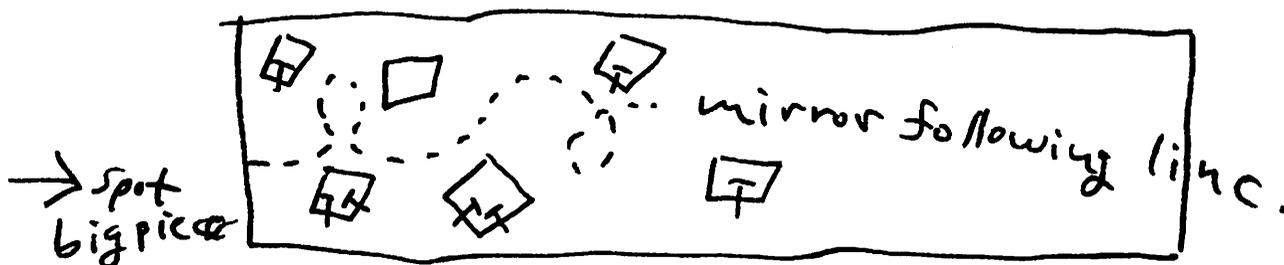
For the first mural, it is best not to worry too much about design, but to concern yourself with the craft of placing mirror and tile next to another like a puzzle - making sure the tile are not touching each other but are close enough as not to give you too much grief while applying cement and buffing clean. Example:

For the design concept of the first mural you should think of a rope with various loops :



The rope is drawn first in acrylic paint or chalk - then mirror pieces are applied one piece after another until the mirror line stretches from end to end. You are now ready to place tile in all the rest of the spaces.

I suggest for the pleasure of the eye and the speed of execution, you now apply large unbroken tiles of high colors if you have them :



A glob of adhesive on the middle back of each large tile will be sufficient but you will notice that the adhesive has no power to hold the large tiles in place, they will slip down the wall if not secured. Place a brick nail under the larger pieces of tile to hold them in place until the adhesive dries. Choose a place on the wall where the nail will enter easily (The seams between the brick are softer and receive the nails better) The nails will stop the heavy tile or piece of slate or marble from sliding. The glue has tremendous pulling/gripping power. When the glue is dry in 24 hours the heavy object will be set, but do not remove the nails until you are in the grouting process for assurance that the piece will not fall.

Do not hold fast in your mind to any spot or favorite placement for any particular tile. There is no such place - REPEAT- there is no perfect placement ! Do what is possible.

Once all of your large pieces are in place you should begin to fill in and fill in and fill in. I call this process SEAMING. It will take some practice. Do not get discouraged. Try to get used to the thumb in front of the tile. The tile will be already attached as the glue touches the surface of the wall and is gently moved into place squishing the glue over the back surface of the tile. When you see it come squishing out - stop putting pressure.

Your goal is to keep glue in back of the tile while keeping the wall surface clean in the seams which will allow the cement to contact the wall and make a continuous bond.

- you may have to break tile into small pieces or cut mirror into small shapes to fit into all the holes during this Seaming process. Keep scanning the mural and filling holes until you become tired of filling in tiny tile shards.
- Do not worry about the colors of the tile you are using. They do not matter. The color or shapes of the tile are of little consequence to the outcome. Do not be afraid - just follow The Method.

O.K. - You are finished tiling. Now you must wait 24 hours drying time and then you are ready to grout.

## **MATERIALS FOR GROUTING**

Cement:

Type 1 Portland - (White) preferred

Sand white preferred

Bar Sand brown - not as fine

Colorant:

Pratt & Lambert Chemical Dyes

Chroma Color Dyes

Sponge:

1 inch thick - 3" x 4" - Brand name - Niagara # 63N - Light Duty Scrubbing Sponge

Inexpensive Brown Cloth Gloves

Latex Gloves

Several 1 gallon plastic paint buckets for cement grout

1.5 and 3 gal. used mastic (tile adhesive) plastic buckets

## Mixing the Grout/Cement

I mix grout/cement in a large metal trough. You could use a bucket or a cat litter box.

I use a hoe with 2 holes. You could use a stick.

I measure by eye and experience. You could use a small bucket (like the 1 gallon plastic paint buckets)

The mixture is <sup>4</sup>/<sub>1</sub> sand to 1 cement

The cement distributor says the ideal mix is 4 sand to 1 cement. If you mix 3 to 1 and it is too loose for grouting - you can add more sand to the mix.

- As a rule of thumb - always add more sand rather than more cement.

The grout must be the right consistency for application to the wall. If the grout is too watery - it will slump out of the seams between the tiles. If the grout is too dry - it will fall out of the sponge on the way to the wall and fall away from the seams onto the ground. The grout/cement must be mixed thoroughly.

### Step by Step Grout/Cement Mixing

- Take a 1 gallon bucket and measure 3 buckets full of white sand into your mixing pan in a pile.
- Put 1 bucket full of white cement next to - but separate from - pile of sand.
  - Look at relative sizes of both piles which will prepare yourself for measuring by eye !
- Take your Hoe (with 2 holes in metal hoe part) and pull one pile into the other by going from side to side of the pan.
  - If you have a helper - each of your stands at opposite ends of the mixing pan and pulls all of the mixture toward first end - then hand hoe to partner at other end who then pulls mixture back towards them.
- When the dry contents are all mixed together you are ready to **add colorant**.
  - Pratt & Lambert dyes are perfect for my method
  - Make an empty space on the bottom of the mixing pan by scraping the sand/cement mixture away.
  - Pour in color dye. ( I do it by eye) It is a liquid in quart size cans.
    - For the amount of sand/cement you have just mixed (4 gallon buckets) an 1/8 of a can (quart) will make a rich colored grout.
- Add water. ( I add water by spraying with a hose.) ( a little at a time)
  - Take the hoe and slish the water around mixing the color dye into the water in the pan.

- Pull the dry mixture into the water. (listen for a scraping sound of the hoe against the pan which tells you that you are pulling the cement even on the bottom of the pan)
- Continue pulling the cement from side to side in the same way that you mixed the sand and cement together until it is thoroughly mixed.
  - One of the ways to tell that you have a good grout mix is to lift the hoe out of the grout/cement. If the grout does not go through the holes in the hoe - it is a good mix.
  - Make sure there are no white speckles of dry cement in the mix.
- Push and pull your hoe through the mix with a swooshing motion - thoroughly mixing the wonderfully colored grout (muck).
  - I call it , in Spanish, Santa Mierda - or shit of the saints.

After mixing your grout/cement - transfer it into one gallon buckets for use during grouting process. Then - wash your mixing pan and hoe as you will want to get a long life of use from them. Set the hoe and pan against the wall for draining. (If you have a metal pan make sure the water drains away from the pan or it will begin to rust.

## THE GROUTING PROCESS

First - lay overlapping tarps on the floor or ground underneath where you will be working. I use tarps that are 3' x 4' which allow me to easily pick them up and dump the dry clumps of fallen grout into a bucket for reuse. (you will have to add water to this later to make it the right consistency again)

Second - put your gloves on. Cloth gloves first and latex gloves over top.  
 - If you only had latex gloves on your hands, you would begin to feel your hands getting very wet even though the exterior wetness would not be penetrating the gloves. Your hands will begin to sweat profusely. At the end of a few hours grouting, you would pull out sloppy puckered hands from the gloves. You would feel uncomfortable very soon and would not be able to continue your grouting work.

Ready to Grout - Hold a bucket of grout in the crook of your elbow with the bucket against your body. Hold a sponge in the other hand with the thumb on the soft side and fingers on the rough side of the sponge. Cove your sponge into the bucket and scoop grout onto the corner of the soft side of the sponge.

You will perfect your grouting technique with practice. Go slow at first, watching the wall, watching the amount of grout on your sponge, feeling the grout with your thumb.

- You must stay at an angle gently against the wall with your sponge. As much as possible, you must use the force of gravity rather than be used by it. Try to push the grout into the seams perpendicular to the parallel seam lines.
- Don't worry about grout falling to the floor or ground as you have placed tarps to catch it for reuse later.
- If the grout in your bucket doesn't feel like the right consistency then pour off some water from the top or remix the grout in the bucket or add some water if necessary.

As you are forcing grout into the seams with your sponge, you are slowly moving across the wall and up the wall and down the wall - extending the area that you are working. Constantly redipping the sponge into the bucket for more grout.

### **FEATHERING - Drying/Cleaning/Buffering Process**

As the surface of the mirror and tile dries in the heat of the sun and the dryness of the air, you should begin to **feather** - gently buffing all the surfaces. The buffering process can start almost immediately and will slowly carry to a finish.

The dry buffering has an emphasis on **DRY. NO WATER** is used after the initial application of grout. **THIS IS VERY IMPORTANT.** There is a great temptation as you are using up so much energy, it is taking so long, it almost looks finished - why not add some water and clean it off completely. **NO! NO! NO!** You will go back to the beginning. It will be completely disheartening.

In the last stage you are acting as an archeologist trying to discover all the edges of your tiles and mirrors. I call this stage **Searching for the Edge.** The final stage occurs about 3 hours after your initial application of wet grout. The chemical reaction oxidation bonding of materials has occurred or rather is occurring at an elevated rate. It will continue to get harder and harder, compressing around the tiles and grabbing hold of the wall.

Your buffering now continues using only the cloth gloves. Everything should get shiny clean. All your edges should be clearly demarcated and the grout seams should be fairly flat and nothing should be sharp against the bare hand touch as the sand rubbing has softened all the sharp edges.

There is still a residue from the loose sand and cement that did not bond with the bulk grout. When it rains you will see some streaking on tiles and mirrors. You can avoid that by waiting 2 days for enough hardening and water proofing to occur and hose and scrub down thoroughly.

Congratulations on a successful mosaic mural project.