



CERAMIC TILE INSTITUTE OF AMERICA, INC.

12061 Jefferson Blvd., Culver City, CA 90230-6219

CTIOA FIELD REPORT 80-2-5 (R-85)

SUBJECT: BASICS OF LAYOUT FLOOR AND WALLS

A. INTRODUCTION

1. Layout is unquestionably one of the most important aspects to a good tile installation. Quite often a good layout goes unnoticed by the untrained eye because it looks right. If a poor layout is done, however, the entire effect can be ruined and displeasing even to the untrained eye.

2. Proper layout is required by the tile industry, and there are four basic items considered important to proper layout.
 - a. The size of the cuts.

 - b. Straight and true work.

 - c. Straight and uniform joint lines.

 - d. Accurate floating of mortar walls to obtain flat and true surfaces as well as aid to good layout.

3. The Inspector's Check List is an important evaluative tool used by two committees in the Ceramic Tile Institute structure. These being the Technical Committee and the Project Awards Committee

B. DISCUSSION

1. Floating mortar walls and floors.

- a. Prior to floating surfaces to receive tile, measurements should be taken to determine if the mortar could be placed to improve layout.
- b. By adding mortar thickness or minimizing thickness, layout of tile may be greatly enhanced by eliminating cut tile or providing an area, which will allow the greatest size cut.
- c. Properly floated surfaces cannot only make an installation more appealing visually, but actually save installation time by eliminating unnecessary cutting.
- d. Remember that before setting tile a good tile setter will know where the last piece of tile will go before the first piece is set.

2. The size of cuts.

- a. The Inspector's Check List states, "(1) No small or excessive amount of cuts, (usually no cuts smaller than half size.), (2) Balance cuts, (3) Areas centered." This means measuring a wall before tile is placed; it is then either centered, and the same large size cut used on each side, or half tile used down one side, resulting in a large cut down the other. The centering should always be done on a conspicuous wall, such as the back wall of a tub splash or shower.
- b. When an inspection team finds cuts only 1/2 inch wide, at the corners or at the ceiling, the installation is immediately down graded. This is regardless of how well the balance of the work is done.

3. Straight and true work.

- a. The Inspector's Check List states, "(1) Wall and floor areas level and plumb, (2) Surfaces true to plane." Inspection teams do expect level, plumb and true to plane work. In addition to this, they expect the tile to be installed square with the structure. This is a simple layout operation and is done by squaring off from the longest walls in the room and establishing straight lines, square with the walls, to lay the tile to.
- b. On three recent inspections, quite large floors were installed out of square with the structure. This resulted on the need to make wedge shaped cuts at every wall in the installation. Such out of square work is not acceptable. Time spent in proper layout would have been quickly recovered when straight cuts could be used instead of wedge shaped cuts.

4. Joint lines.

- a. The Inspector's Check List states, "All joint lines are straight and of even width including miters. NOTE: Lines are to remain straight even if they are required to vary from thick to thin to compensate for tile that are by character slightly varied in size." There are many handcrafted tile on the market now that are by character, off size. The inspection teams see many of these used on projects that are done in an excellent way.
- b. On those few jobs where there are complaints, the tile is often given the blame for the unsatisfactory work. Most owners are quite sophisticated and merely go and find the same tile satisfactorily installed in another project; this they use as an example of how theirs should have been installed. Installers and tile contractors do not do themselves or the tile trade a favor when they use such excuses. Such excuses cannot be, and are not, backed up by the inspectors.

5. Specialty installations.

- a. Herringbone, basket, pinwheel patterns.

1. These patterns are also subject to all requirements of a standard installation.
2. In order to effectively install 3" x 6" and 4" x 8" tile in these patterns, the length of the tile must be twice the width plus the thickness of the grout joint. If this is not the case, the aforementioned patterns cannot be uniformly maintained.

6. Running bond patterns 1/4, 1/3, 1/2.

- a. After layout, chalk lines are snapped so that tile spacing remains constant. Although the end joints are staggered, they can be read easily and must be kept straight.

C. CONCLUSION

1. Learning proper layout techniques is not difficult.
2. A tremendous amount of time and money can be saved if just a small amount of time is taken laying out the installation prior to placing the tile.
3. Attached is the Inspector's Check List. This tool is used for job evaluation by the Technical and Job Problem Committee and could also be used effectively in the field.
4. Proper layout is required by the Standards but, more than that, good layout techniques will create a more aesthetically pleasing job and one that can be completed in a shorter amount of time and ultimately be more profitable.

INSPECTOR'S CHECK LIST

Findings on the complete tile work:

- | | | |
|----|--|---------------------------------|
| a. | Layout | Accepted Rejected |
| | 1. No small or excessive amounts of cuts. (Usually no cuts smaller than half size) | _____ |

	2. Balanced cuts	_____	_____
	3. Areas centered		
b.	Straight and True Work		
	1. Wall and floor areas level and plumb	_____	_____
	2. Surfaces true to plane	_____	_____
c.	Smoothness of Installation		
	1. Corners of all tiles are flush or level with corners of adjacent tiles	_____	_____
	2. Edges of all tiles are on an even plane and feel smooth to the touch Note: Allowances within tolerances of TCA 137.1-76 are to be made for all tiles. Some facial warpage is characteristic of quarry tile and Faience tile	_____	_____
d	Joint Lines		
	All joint lines are straight and of even width including miters.		
	Note: Lines are to remain straight even if they are required too vary from thick to thin to compensate for tiles that are by character slightly varied in size.	_____	_____
e.	Cut Tile		
	Tiles have been stoned smooth with a carborundum stone and do not show jagged or flaked edges.	_____	_____
f.	Shading of Tile		
	The tile shades are harmonious although there may be slight variations	_____	_____
g.	Bonding		
	Tiles are well bonded and sound	_____	_____
h.	Appearance of Tile		
	The complete work is free of pitted, chipped, cracked or scratched tiles.	_____	_____

- i. Cleanliness of Tiles
 - All tile surfaces have been washed clean upon completion of setting and grouting. _____

- j. Condition of Grout
 - 1. Uniform color _____
 - 2. None of the pure coat of setting material is showing _____
 - 3. Dense and cured to maximum hardness. Resists penetration or removal with pocketknife blade. _____
 - 4. Smooth, without voids, pinholes or low spots. _____
 - 5. Finished flush to the top of square edge tile. _____
 - 6. Tooled or struck to the depth of the cushion on cushion edged tile. _____

Signed

Date

Title
