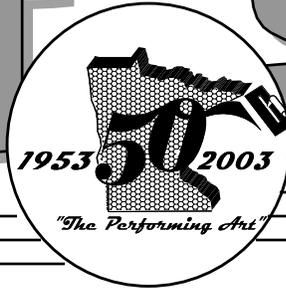


# HOT SPOT



Volume 14, Issue 2

Fall, 2004

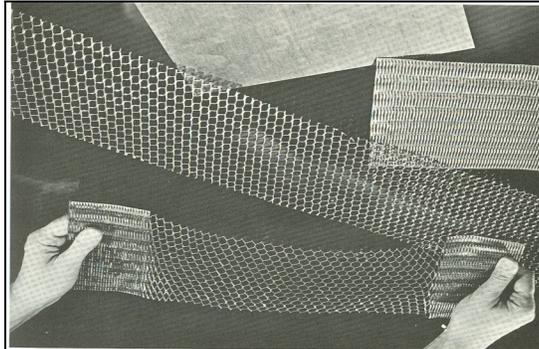


## Prosit! Salud! Cups up! Cheers!



### ... Expounding on Expanded Metal Lath

As you may guess, the Minnesota Lath and Plaster Bureau gets all kinds of inquiries, ranging from the exceptionally technical to the uniquely weird. While the topic of this article does not extend to either side of this spectrum, it is one that perhaps needs some clearing up. And no, we are not talking about common drinking salutations, but the term “Cup’s up” seems apropos to that event.



*Expanding metal lath. Photo from Manual of Lathing and Plastering, John Diehl, 1960*

What “cups up” refers to is the orientation of expanded metal lath fastened to a vertical wall plane. Why, may you ask, is this interesting? One reason is that it is critical to the proper installation of a plaster wall system. A second reason is that it is not addressed by the current lath standard, and moreover it is not addressed by any known authority on plastering. We have chosen to write about this subject because we have gotten calls about it. And in fact we now reference it in our new checklist for residential stucco installation.

To understand what “cups up” means, we must first take a look at how expanded metal lath is made: It starts out as a sheet of steel with a series of parallel slits cut into it (see *top illustration*). When cut in this manner and then pulled in opposing directions it yields the “hexagonal” pattern matrix that we have become accustomed to.

By virtue of this process the resulting pattern has what might be described as a grain pattern. Depending on the orientation of the lath on a wall, you will feel a roughness or friction as you run your hand in one direction and smooth evenness in the opposing direction. As a comparison you might consider the scales or fins on a fish,

which are smooth when you run your hand from the head to the tail, but spiny and rough when you move from the tail back to the head.

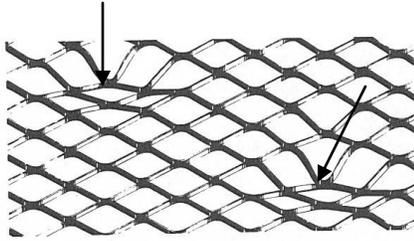
The pattern of “cups up” is rarely noticed by the casual observer, so the tactile test of rubbing your hand over the lath is perhaps as good indicator of its orientation as any. Considering the terminology, you might expect that this feeling of roughness would be experienced as you rub your hand down the face of the lath, but quite to the contrary you will find that it is rough as you run your hand up on the face of the lath.

The trained eye can also detect the difference in orientation visually. “I can spot an upside down lath job a mile away,” explains Ham Lake Building Inspector and former lather, Carl Stephenson. “The indicator that the cups are down is the reflectiveness of the lath. The shininess can be seen from down the street.”

The other problem you run into in describing “cups up” is that many will interpret this description as referring to the self furring dimples. With that, some well intending do-it-yourselfer may install lath not only upside down (cups down) but inside out (dimples projecting outward) as well (see illustration top of next page).

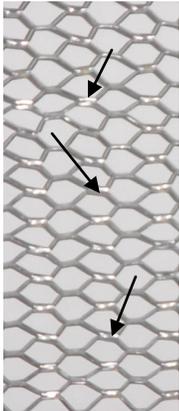
*(Continued on page 2)*

Self Furring Dimples (arrows): Photo taken from the Metal Lath/ Steel Framing Assoc.

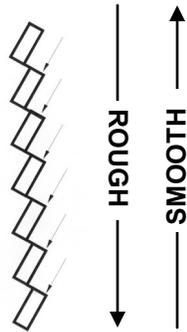


(Continued from page 1)

To provide a little more clarity on this subject we have taken a couple of snapshots of metal lath and added some graphics to illustrate the point. Below is a view of metal lath in the “cups down” orientation. When you look closely at the lath, the cups (indicated by arrows) can be seen at the bottom of each little hexagon and are pitched downward. Also notice the slight shininess of each of these little cups. This is probably better described to think of these “cups” as more like little slides on a sunny afternoon. This may be a cute representation, but it is what we are trying to avoid.

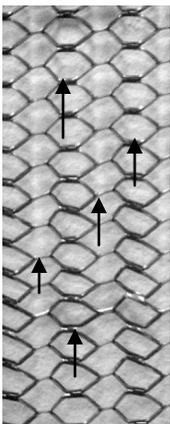


“Cups Down” orientation that should be avoided

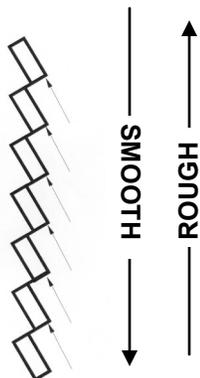


Profile illustration

Contrast that snapshot above with the one below which shows the lath in the correct, “cups up” orientation. Note the lack of reflectiveness in this snapshot and the orientation of the hexagons in the “cups up” position. This creates little hollows that cleat into the stucco when it is installed in a swath from the bottom up.



Correctly oriented lath in the “Cups Up” position, creates little hollows that cleat into the stucco.



Profile illustration

**Implications**

To the experienced plasterer the ramifications of orienting the lath “cups down” is akin to piling snow on that playground slide. The snow just ends up on the ground at the bottom of the slide. Similarly, when a plasterer draws a swath of mud (plaster) over the lath in a bottom to top motion, a lot of the material could end up on the ground. Orienting the lath in a “cups up” position however and the lath grabs and holds the mud as the plasterer pushes and completes the action of placing the material. The mud is then set by the retracting opposite motion from top to bottom

What does this mean to the future of the plaster application? Much like an artist working with clay on a wire armature, lath is the armature for the fresh plaster in its plastic state. Orienting the lath in a “cups down” orientation defeats the plasterer in trying to place and push the plaster through the weave of the lath. This can lead to inconsistent thickness, weak plaster and even air pockets in the application. This results in an application with limited restraint capacity to stresses imposed upon it, which shows itself as cracks and spalls and is less impact resistant.

While examples of stucco failures as a result of this issue may exist, they are perhaps more urban myth than fact. We have not seen instances where a bounced basketball against a stucco wall has led to the fracture of large sheets of stucco. However, we do not want to see it happen either. 3/4” stucco weighs approximately 9 pounds per square foot. The potential for calamity is there. So take the meaning of “cups up” seriously. Better yet, hire a lather who knows what he is doing. If you are uncertain, give us a call, we know plenty of good contractors with highly qualified and trained lathers. After all you don't really want “mud in your eye,” do you? - Steve Pedracine