

TOLERANCE OF A CMU WALL



QUESTION: *What is the tolerance of a CMU wall? How far out of plumb can a CMU wall be and still be within code?*

As everyone should be aware the "code" in question is the "Building Code Requirements and Specification for Masonry Structures" (aka, TMS 402/602). The answer to the question is found in TMS 602: Specification Article 3.3F titled "Site Tolerances", which gives several construction tolerances.

But before we answer the question regarding plumb walls, we need to go back to Specification Article 1.6C commentary. This is important enough that we will quote it. "Tolerances listed in Specification Article 3.3F were established to assure structural performance and were not based on aesthetic criteria."

What this means is that any tolerances given will allow the wall to perform as designed. Some of these tolerances given may not look pleasing to the architect or owner. They are not meant to! They are for structural performance.

Now, to answer the question regarding plumb. Article 3.3F.2.b states that we have +/- 1/4 inch in 10'-0", 3/8 inch in 20 feet, and 1/2 inch maximum tolerance. The symbol +/- means plus

or minus not plus and minus. Any wall height beyond 20 feet has a maximum of 1/2 inch deviation out of plumb.

Please understand there are other publications that list construction tolerances. A couple of these are BIA Tech Notes 11C and D and NCMA Tek Note 03-8A. Unless they are specifically referenced, they are only guidelines. Also note, there are tolerances listed in the Canadian Masonry Standards.

“TOLERANCES LISTED IN SPECIFICATION ARTICLE 3.3F WERE ESTABLISHED TO ASSURE STRUCTURAL PERFORMANCE AND WERE NOT BASED ON AESTHETIC CRITERIA.”

One thing you must absolutely read are the project specifications. All projects should have specifications that will follow the layout of a published set of specifications, such as Master-Spec, or they (designers) can write their own. This is where you must read with your very best comprehension.

An architect/engineer (A/E) can design/specify tolerances more stringent than TMS 602. If they do, and the tolerances the A/E specify cannot be met for whatever reason, you MUST notify the A/E immediately. Notification after the work is complete could mean the wall comes down at your expense.

Currently there is no ASTM Standard that include construction tolerances. There is a proposed Standard on Masonry Workmanship that has been worked on for well over 20 years. One of the major stumbling blocks are tolerances. A single set of tolerances has gotten nowhere. Multi-level tolerances have also been discussed. The general belief is that a specifier will select the highest (precision) level every time while specifying the lowest grade of unit masonry. So, a discus-

sion on tolerances for visual aesthetics will have to happen another day.

Remember, read your project specifications and understand what they are saying. Just because it is in writing doesn't make it workable. When in doubt ask questions.

If you have questions regarding a Code or Standard issue send it to MCAA.

Raise the line and come on around the corner!