

## **Topic: TREMstop MP Putty Pads – Guidelines for Use and Installation**

**Release Date: December 12, 2006**

For more information, contact the Technical Service Department at 866-209-2404.

You may be asking why putty pads are necessary. You may even be asking what a putty pad is – what is its purpose? What is the point in placing a thin moldable sheet of dough around the outlet or switch box? Our goal is to help you understand why, when, and how putty pads are used. We'll start by answering some commonly asked questions:

### **What is the purpose of a putty pad?**

Did you realize there are special requirements in the model building code for outlet and switch box penetrations in fire-rated walls under certain circumstances? The most common of these circumstances is when adjacent boxes on opposite sides of the wall are closer than 24 in. horizontally. The code calls these types of penetrations "Membrane Penetrations", and recognizes Listed Putty Pads as an option to protect boxes that are within the required 24 in. horizontal separation. TREMstop MP Putty Pads meet this requirement of the code, so you can rest assured proper application will be acceptable to the inspector of record.

### **Why can't I locate the Listed System showing proper application, as I commonly do with through-penetration firestops?**

Simply stated, putty pads are not through-penetration firestop materials. They sometimes can be used in this capacity, but the pads themselves, when applied to electrical outlet boxes, are Classified by Underwriter's Laboratories as "Wall Opening Protective Materials". They have a special 4 letter category code in the UL Fire Resistance Directory – CLIV. The systems do not have Design Numbers, like those you may be familiar with in typical Through-Penetration Listed systems. They do appear in the UL Fire Resistance Directory Volume 1, and online. Just look for Category Code CLIV and for the TREMstop MP Putty Pad.

### **I have heard that putty pads can be used to reduce sound through walls? Is this true?**

The idea of the putty pad application did not originate as a fire protective material. Pads, similar to the TREMstop MP Putty Pad in look and feel, have been used for many years to reduce sound transmission for outlet and switch box penetrations in walls. However, it was discovered that some putty pads commonly used for sound attenuation were potentially hazardous due to the flammability of the putty material. This concern is very real, in light of the fact that the pads are placed close to a possible ignition source should electrical arcs be present. Thus, the fire protective putty pad was born. TREMstop MP Putty Pads still have the same sound deadening features as before, with the added comfort of knowing the pad will not contribute to a fire should arcing occur.

### **What is the STC rating of the TREMstop Putty Pad?**

This is a very complex question with an equally complex answer that we will explore in as simple a fashion as possible. If you were to run a sound transmission test on a wall of putty, you might find that the STC rating is much less than you had hoped for. Keep in mind these two things. First, the TREMstop MP Putty Pad is only 0.20 in. in thickness. Second, when was the last time you saw a wall constructed of 0.20 in. thick putty? In other words, the STC rating is relative to the wall, not the putty pad. For example, a wall may have an STC rating of 53. Then, it is penetrated when outlet boxes are applied. A simple opening like this can have a disastrous affect on the realized STC of the wall. By placing the TREMstop MP Putty Pad on the back of the outlet boxes on both sides, you are restoring the STC ratings of the wall. Applying an STC rating to a putty pad, or any other accessory such as box inserts, is a misrepresentation of the product capability.

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Sound transmission is affected by several physical characteristics, namely density and modulus. The more dense and malleable a material, the better it will absorb sound waves. TREMstop MP Putty Pads are both dense and malleable, making the material an excellent choice to place over steel or plastic outlet boxes that may be dense, but are certainly not malleable.

**What are the benefits of using putty pads over the other options allowed by the model building code?**

First, we have to look at the other options. The first option noted (for metallic boxes only), is that a horizontal separation equal or greater to the depth of the wall cavity is acceptable, should the cavity be filled with cellulose loose fill, rockwool, or slag mineral wool insulation. This is a very expensive option, in both materials and labor. The second option noted is the use of solid fireblocking in accordance with provisions in the code. Not only is fireblocking in accordance with the code somewhat cumbersome and labor intensive, the code also says that integrity of the fireblocking must be maintained. Once the wall is up, this can be difficult to evaluate for maintenance requirements. The third option is application of a Listed putty pad. This solution may appear expensive on the front end. However, TREMstop MP Putty Pads are simple to install and are maintenance free.

**Tell me more about the code requirements for penetrations of electrical outlet and switch boxes.**

Penetrations of outlet and switch boxes in fire-rated wall construction are called "Membrane Penetrations" by the model building code and are subject to several conditions. These are addressed in Sections 712.3.2 of the 2003 International Building Code. The conditions are as follows:

- The total area of penetration in a fire-rated wall may not exceed 100 sq. in. for every 100 sq. ft. of wall space.
- The total area of a single penetration item may not exceed 16 sq. in. (See Item 2 in Figure 1)
- A minimum 24 in. horizontal separation is required between penetrating items on opposite sides of the wall. (See Items 1 and 3 in Figure 1)

If the field condition meets all these requirements, putty pads are not requirements. But, what if you have the following conditions:

- My total area of penetrating items exceeds the 100 sq. in. limitation.
- I have 6 gang switch boxes that easily exceed the 16 sq. in.
- My horizontal separation is less than 24 in. and I have Listed fire-rated plastic outlet boxes.

TREMstop MP Putty Pads are tested to accommodate these code variances.

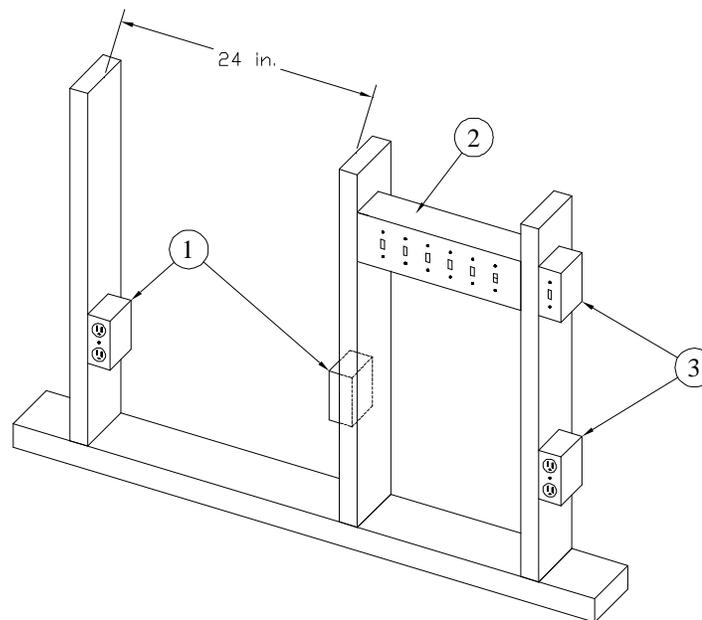
**I have installed plastic outlet boxes that are Listed as fire-rated for 2 hours by UL. Why do I need putty pads since these already have a rating?**

These boxes are tested for applications that do not exceed the code limitations as noted in the first 3 bullet points above. If installed with less than 24 in. separation, for example, you have to protect the boxes with means acceptable to the code, which is covered when using TREMstop MP Putty Pads.

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**Figure 1 – Where putty pads may be required**

1. Outlet boxes sharing a stud cavity with less than 24 in. separation.
2. 6 gang switch box, having cross-sectional area of approximately 58 sq. in.
3. Outlet and switch boxes may have vertical but not horizontal 24 in. separation.