

Are You Confusing Type X and Type C Panels?

Know the Differences.

The wallboard industry often refers to two types of fire-rated gypsum panels—Type X and Type C. Understanding the differences between Type X and Type C fire-rated panels is important. You don't want your contractor using these panels incorrectly, or if you're installing them, you don't want to be the one installing them incorrectly. Use of the wrong fire-rated gypsum panels could be problematic. It can not only be costly monetarily, but it can compromise safety.

Here's why.

At the end of a project, all parties involved with the job want to ensure the building occupants, and the integrity of the building are safe during a threatful event—such as a fire. Fire-rated gypsum panels increase the ability of assemblies to resist fire longer than regular gypsum board. The fibers in Type C and Type X gypsum panels reduce the severity of cracks when exposed to flames or heat from a fire, which may increase the amount of time they perform without failure under these types of conditions; however, performance varies for Type X and Type C.

Type X gypsum board is defined by ASTM C1396 and generally requires a fire-resistance rating of not less than one hour for 5/8" thick boards or 45 minutes for 1/2" boards. Type C is an industry phrase to designate enhanced gypsum panels that exceed the requirements for Type X gypsum board in ASTM C1396. Type C panels typically have a shrinkage-compensating additive, and when exposed to heat, the Type C gypsum board expands providing more fire-resistance at joints and seams. You may have heard of the term "Swelling" to describe this. For other gypsum boards including Type X, although they are all non-combustible, shrinking occurs when exposed to a flame or heat. So, when comparing Type X to Type C, Type C can perform longer when exposed to a flame or heat. In effort to keep commercial and residential building occupants safe, fire-rated gypsum panels are specified for most of the building walls and ceilings. At the end of the day, it's important to always look at the fire-designs specified on the project, as these dictate whether a Type X or a Type C should be used. The UL Product IQ Fire Design Directory and Georgia-Pacific Gypsum Assemblies Library are both great tools to use for this.

Drilling Down the Main Differences:

1. Type X is typically 5/8" thick. There is one exception to this rule, though! We offer ToughRock® Fireguard 45® for use in a UL-classified, 45-minute fire-rated wall assembly! Learn more about our ToughRock® Fireguard 45® Gypsum Board [here](#).
2. Type C can be 1/2" or 5/8" thick, and is often referred to as the an "Enhanced" version of Type X.
3. Type C gypsum panels have an enhanced formulation compared to Type X formulations, such as, more glass fiber to help maintain its integrity better under fire conditions.
4. 5/8" Type C gypsum panels can replace 5/8" Type X panels in most designs, but never vice versa; Type C designs require a greater level of fire protection than Type X designs

5. For Type X, the American Society for Testing and Materials standard test methods for fire tests of building construction and materials (ASTM E119) is included in all gypsum board standards. Type C is not currently defined by a standard.

6. ½” Type C gypsum panels are more often used for ceiling applications



An overwhelming majority of homeowners believe fire safety is their number one concern for natural disasters in their home*. Because safety is top of mind for both commercial and residential construction, knowing these differences will help address this worry for building owners & building occupants. Depending on whether a Type X or Type C product is specified on your job, there is an array of design solutions available to enhance your building occupant's safety.

To achieve the performance objectives specified for your project, carefully consider these important differences to ensure success of your next project.

*2014 Georgia-Pacific Survey

FIRE SAFETY CAUTION: A 1-hour, 45-minute or other fire resistance rating is based on testing of the product in select assemblies/systems in a controlled laboratory setting and does not mean the product or assembly/system will necessarily provide 1-hour, 45 minutes or other indicated time period of protection. In an actual fire, immediately take all actions necessary for your safety and the safety of others without regard to the fire resistance rating. For additional fire safety information, go to www.buildgp.com/safetyinfo.