

# Product and Systems Technology

## Installation of IMPERIAL® Gypsum Base over Steel Framing and Accessories

### PM3

When installing IMPERIAL® gypsum bases over steel studs, it is essential to follow the prescribed procedure for attaching the base. Good workmanship in applying the base will minimize the time required for treating joints, speed the application of veneer plaster and ensure satisfactory long-term performance of the system.

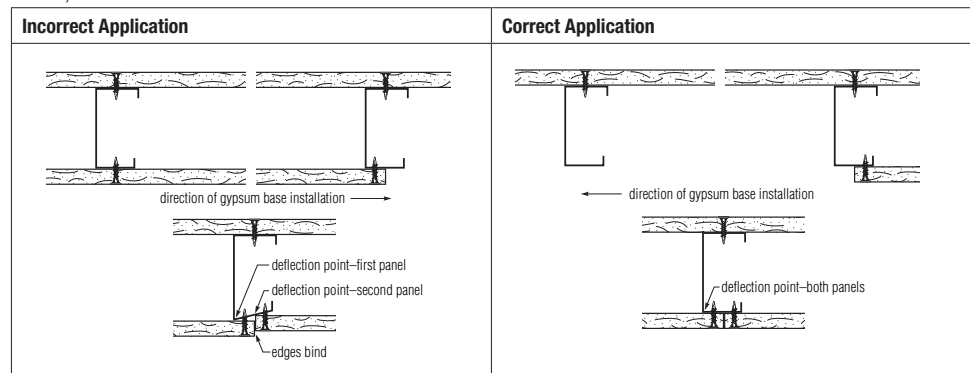
The IMPERIAL gypsum base should be cut to fit neatly at abutting ends, edges and around pipes and other openings. The base should not be forced into place (doing so will create stresses in the board). End joints must be staggered on both sides of the partition. Apply the base so the joints on opposite sides do not occur over the same framing member. Staggering the joints provides a more rigid diaphragm and minimizes the potential for cracking.

The gypsum base can be installed horizontally (across) the studs, or vertically (parallel) to the studs. Horizontal application is usually preferred, since this method reduces the lineal footage of joints to be treated, places the strongest base dimension across framing, bridges irregularities in alignment and puts horizontal joints at convenient height for treatment. Before placement of the base is started, job specifications should be checked to see if any fire-rated partition systems are specified.

Vertical base application is preferred for meeting fire endurance requirements. However, some designs, such as UL Design U419, allow horizontal application of base. Check the specific test in Technical Folder SA920 or SA100 to determine whether horizontal application is allowed. In vertical application all joints are fully backed by the stud flange, preventing fire penetration through the assembly. The job application must follow the fire test specifications precisely or the fire rating will not apply.

Trim requirements around window or door openings must be checked before application to determine if trim accessories must be installed before the base goes up.

With steel stud framing, it is very important that the steel studs be installed so that all the open sides of the studs face in the same direction. The base application must then be installed from one direction so that the leading edge of the gypsum base is always screwed to the open end of the steel flange first. This sequence of application minimizes joint lipping, aids in producing a flush joint, and speeds plaster application later (see sketch).



Lipped or stepped joints from improper framing or base installation will result in distortion of the joint area and an unacceptable finished wall.

Begin screw application at the center of the base and proceed toward the outer edges and ends. This prevents accumulation of stresses in the base that could contribute to joint deformation. Pressure must be applied adjacent to the screw being driven to ensure base is tightly secured against the stud. Adjust the screw gun so that screw heads are driven just flush with the paper surface. Overdriven fasteners cause defects in the base application, such as loose board, and can cause a high-absorption area or shrinkage or require a deep fill. Thus overdriven (or underdriven) screws make finishing difficult and reduce production. Drive screws at least 3/8" away from ends and edges of base to prevent fracturing the base.

At vertical and horizontal interior angles, "float" the base by eliminating fasteners on at least one surface. On side wall interior angles, fasten only overlapping base. At wall-ceiling angles, start fasteners 7" back from the edge on the ceiling. Where the base is perpendicular to framing and on the side wall, place first fastener 8" down from ceiling line. Apply the base to ceilings first.

The floating interior angle method of base application effectively reduces angle cracking resulting from stresses at intersections of walls and ceilings. It also eliminates interior angle fastener "pops."

In areas where the base has been damaged prior to plaster application, make repairs to ensure that a satisfactory finish surface can be achieved. Replace large areas of damaged base. Patch smaller areas, such as around electrical outlets, pipes or other openings, with USG™ plaster bonder, USG® moulding plaster or SHEETROCK® setting-type joint compound (DURABOND® or EASY SAND™).

To ensure bond of veneer plaster to patched areas, apply a single coat of USG plaster bonder prior to plaster application. Also apply bonder to base area where damaged face paper is removed to provide a sound surface for plastering. The bonding agent ensures bond to damaged areas, but the suction over the bonder-treated areas is eliminated in the process, making single-coat veneer plaster finishing over these areas somewhat difficult, especially where large areas are concerned.

To achieve designed system performance and acceptable esthetic qualities, it is essential that the gypsum base installer does a good job of IMPERIAL gypsum base application, since it is virtually impossible for the plasterer to hide imperfections with a thin veneer plaster application. Conversely, no matter how perfect the gypsum base application, if the plasterer does poor application and finishing work, the entire job is unsatisfactory. As a result of the poor final appearance, both the trade factors and you can lose.

For additional information on framing spacing, fastener size and spacing, refer to *Gypsum Construction Handbook* H17, Technical Folder SA920.

For joint reinforcement for all steel framing systems, see PM 5.

**Trademarks**

The following trademarks used herein are owned by United States Gypsum Company: DURABOND, IMPERIAL, SHEETROCK, USG, USG in stylized letters.

**Note**

Products described here may not be available in all geographic markets. Consult your U.S. Gypsum Company sales office or representative for information.

**Warning**

Store all Imperial gypsum base flat. Panels are heavy and can fall over, causing serious injury or death. Do not move unless authorized.

**Notice**

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Follow good safety and industrial hygiene practices during handling and installing products and systems. Take necessary precautions and wear the appropriate personal protective equipment as needed. Read material safety data sheets and related literature on products before specification and/or installation.

