

Provisional Application for United States Patent and Trademark Office

TITLE: MODULAR WALL GRAVITATIONAL ASSEMBLY SYSTEM

MW GAS

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BACKGROUND

Modular walls are used actually for many buildings spacing set up, inner and outside purposes. Office Partitions, Stands, Bureaus, Labs, Sheds, Cabins, Industrial stuff, Warehouses, etc.

Usually, the necessary works are 20-30% time in factory, 70-80% at building site deployment. Because of this ratio (factory time/deployment time), cost, quality and delivery time are not always well controlled.

New “Gravitational Assembly System” inverts this ratio, making the process quite more efficient, quick, cleanly, skill, accurate, and profitable at last.

BRIEF SUMMARY OF THE INVENTION

Attach a metallic rail guide, with preconfigured sockets, to the ceiling, following the plant blueprints. Then, the stilts are pushed and fitted in the sockets, hanging and allowing free swinging in order to auto alignment. Then, anchor the stilts to the floor so the wall weight is supported on floor. And then, the frames are hanged on stilts with a special movement shown in drawings. Level the frames with the incorporated rod and nuts. Seal the frieze and the plinth (with straps, vinyl, polyurethane foam, etc.) The wall is now done.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1. Top Rail Guide.

1.1 Shape for fixing screws.

1.2 Shape for hanging stilts

Figure 2. First, the top rail is fixed to the ceiling in order to build a single wall.

Figure 3a,3b. The stilts are hanged and allowed to swing 5-10 seconds to align themselves. Gravity will align them. Then, they are anchored to the floor with screws.

Figure 4. The stilt hang-pin fits into top rail sockets. It can be finished with a hemispherical or spherical head.

Figure 5. Stilt. Joined view and exploded view.

Figure 6, 7. Foot and Hanger views.

Figure 8a,8b,8c,8d,8e. Elements of the stilt. Active side and socket, Passive side and socket, Bracket Body, Foot pin and Hanger pin.

Figure 9a,9b. Once the stilts are hanged and fixed to the floor, the frames can be hanged between stilts.

Figure 10. Frame. This shows the skeleton of the frame to be hanged between stilts. Exploded and Joined views.

Figure 11a,11b. Stringer and Upright, respectively.

11a.1 Holes for fixing 11b.1

11b.1 Holes for fixing 11a.1

11b.2 Pin Barrettes for hanging the frame in stilt sockets.

Figure 12a,12b,12c. Schematic view of assembly procedure. Up shows the entire skeleton movement and down shows the relative position of pin-barrettes and sockets during the process.

Figure 13. Tiling the frame skeleton. The frame can be ended with chipboard covers, or vinyl, metallic sheet, glass, synthetic stone, whatever in the market.

13.1 Tiles. Both sides covering. There can be inside stuff settled between them.

13.2 Frame skeleton.

13.3 Fixing chipboards to metallic structure.

13.4 Screwing on the structure hollow spaces.

Figure 14. Completed frame. Solid and transparent views

Figure 15a,15b. Shows rendered wall building phases.

DETAILED DESCRIPTION AND BEST MODE OF IMPLEMENTATION

The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the term "and/or" includes any and all combinations of one or more of the associated used iteras. As used herein, the singular forms "a," "an," and "the" are intended to include the plural forms as well as the singular forms, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising," when used in this specification, specify the presence of stated features, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, steps, operations, elements, components, and/or groups thereof.

Unless otherwise defined, all terms (including technical and scientific terms) used herein have the same meaning as commonly understood by one having ordinary skill in the art to which this invention belongs. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and the present disclosure and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

In describing the invention, it will be understood that a number of techniques and steps are disclosed. Each of these has individual benefit and each can also be used in conjunction with one or more, or in some cases all, of the other disclosed techniques. Accordingly, for the sake of clarity, this description will refrain from repeating every possible combination of the individual steps in an unnecessary fashion. Nevertheless, the specification and claims should be read with the understanding that such combinations are entirely within the scope of the invention and the claims.

The present invention will be made in three phases.

First one will be to manufacture the structure. In future, could be aluminum or synthetic materials, but for our current purposes, will be steel made (Trimmed, bent and welded). The structure can be manufactured just for current projects following the project management blueprints and timetable planning (lean) or for stocking and cargo freight to different destinations. The structure can be packaged disassembled in standard containers for long distances.

The second phase will start in a workshop, to assemble the structure, if necessary, and set the boards on frames, preparing the MW GAS to be deployed at the building site. In this phase can be settled inner devices, using the big space inside between boards not only for isolating purposes, but whatever creativity performs. The job will be done in a workshop under controlled environment and the system allows communication wires between frames. So that, when the stuff is ready, it can be packaged to the outright deployment, usually in the workshop area.

Building up phase. This is the last phase and is well described in drawing description paragraphs, so I won't be redundant in this chapter.

It is important to think into account that the GAFS modular wall will work with any measure parameters, and will adapt easily to any standard or special project requirements.

- The Rail Guide: will follow the schemed plan for the room or rooms to build; modulates distances between stilts.

- The auto-aligned Stilt will provide vertical plumbed and level support for the wall.

- The Frame will close the rooms with a large variety of materials as chosen.

CLAIMS

What is claimed is

1. The “push and fit” system to hang and self-align the stilt with a spherical or hemispherical pin in a circular socket. Fig 4
2. The phases “ push, spin, , pull back, drop” sequence system to fit the frame between the stilts. Figs 12a,12b,12c
3. The “barrette-pin / funnel sockets” system to hang the frame on socket stilts by gravity force. Figs 12a,12b,12c,8a,8b,11b

ABSTRACT

MW SAG is a modular wall. Is that a rail steel strip with preconfigured sockets is attached to existing ceiling or structure, following project blueprints. These sockets are used to hang steel stilts, which will swing free until self-aligned and anchored to floor. At last, the frame modules (steel structure, any cover or wrapping) are hanged between stilts with a triple movement, push-gyro-pull back, guided by pivots or barrettes and drop in preconfigured stilt funnel sockets. The result is a high quality, accurate, strong hold modular wall, done with minimum effort, time and resources.

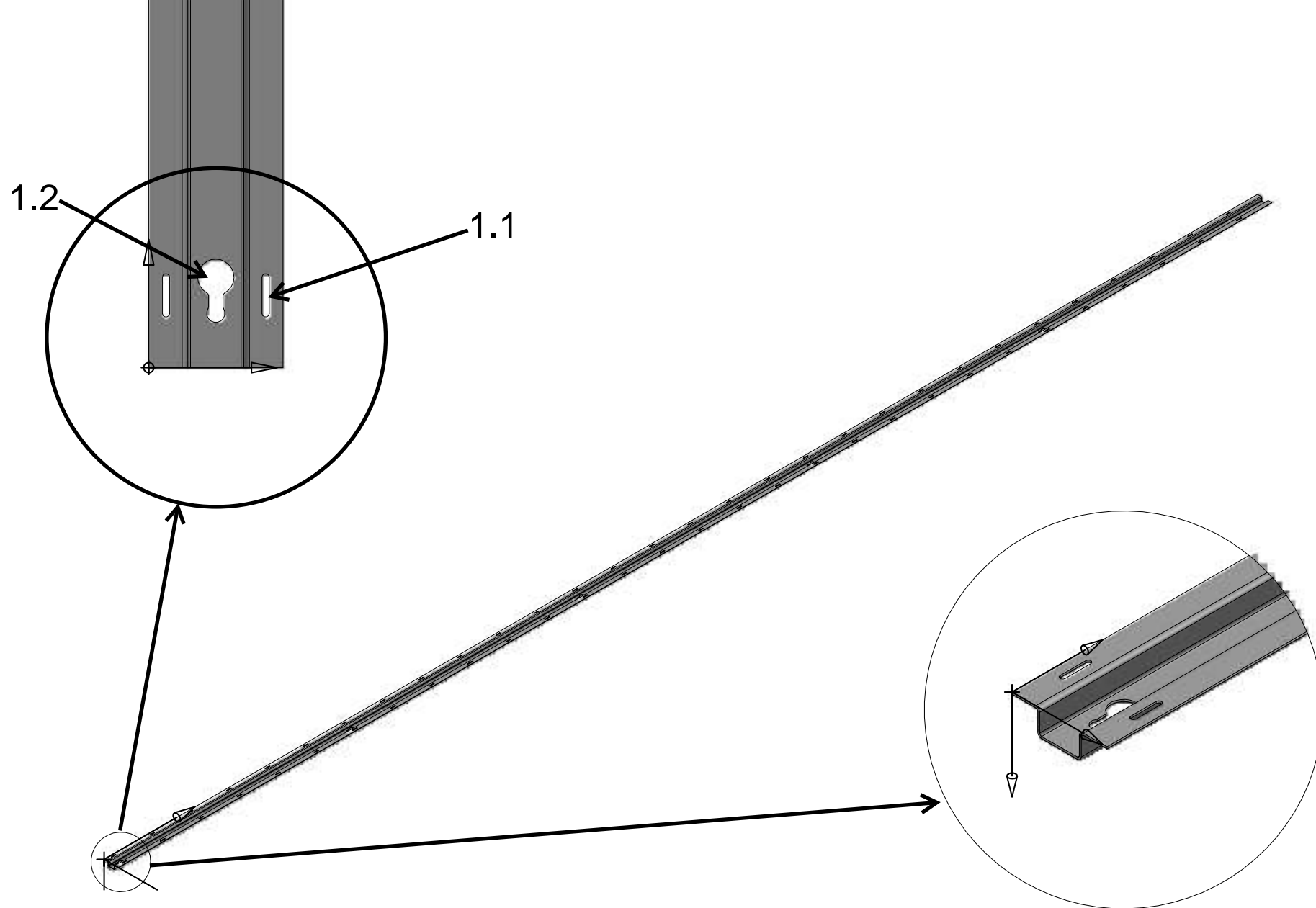


FIG # 1

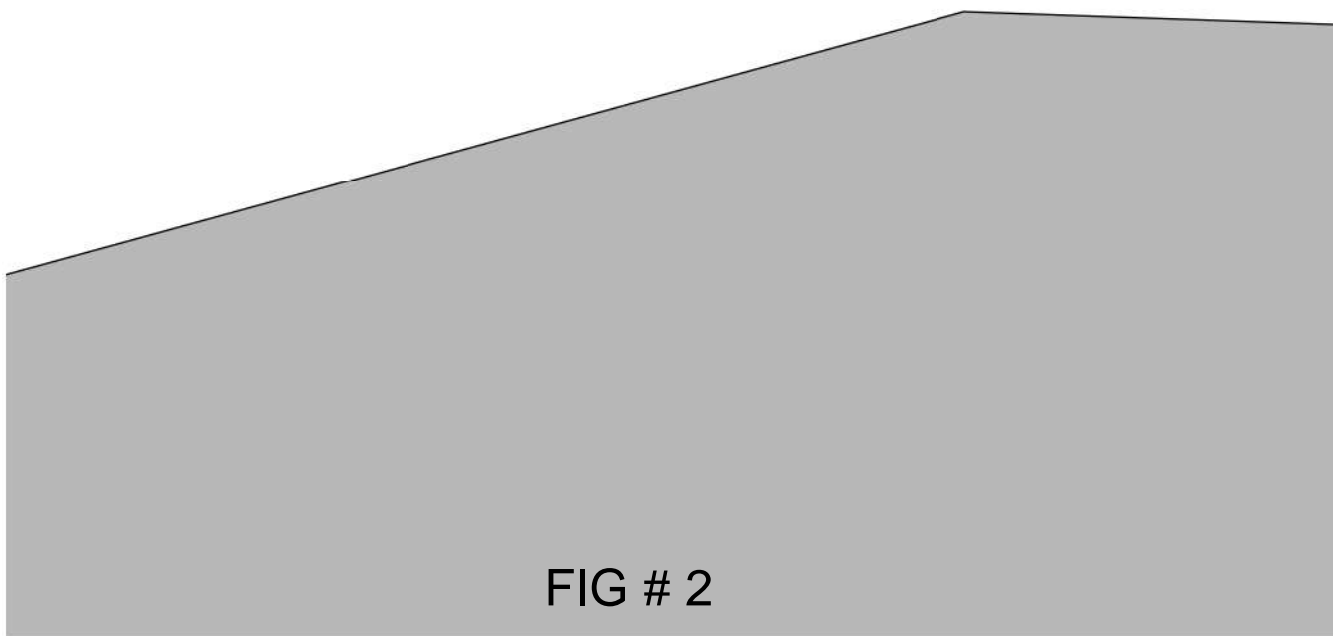
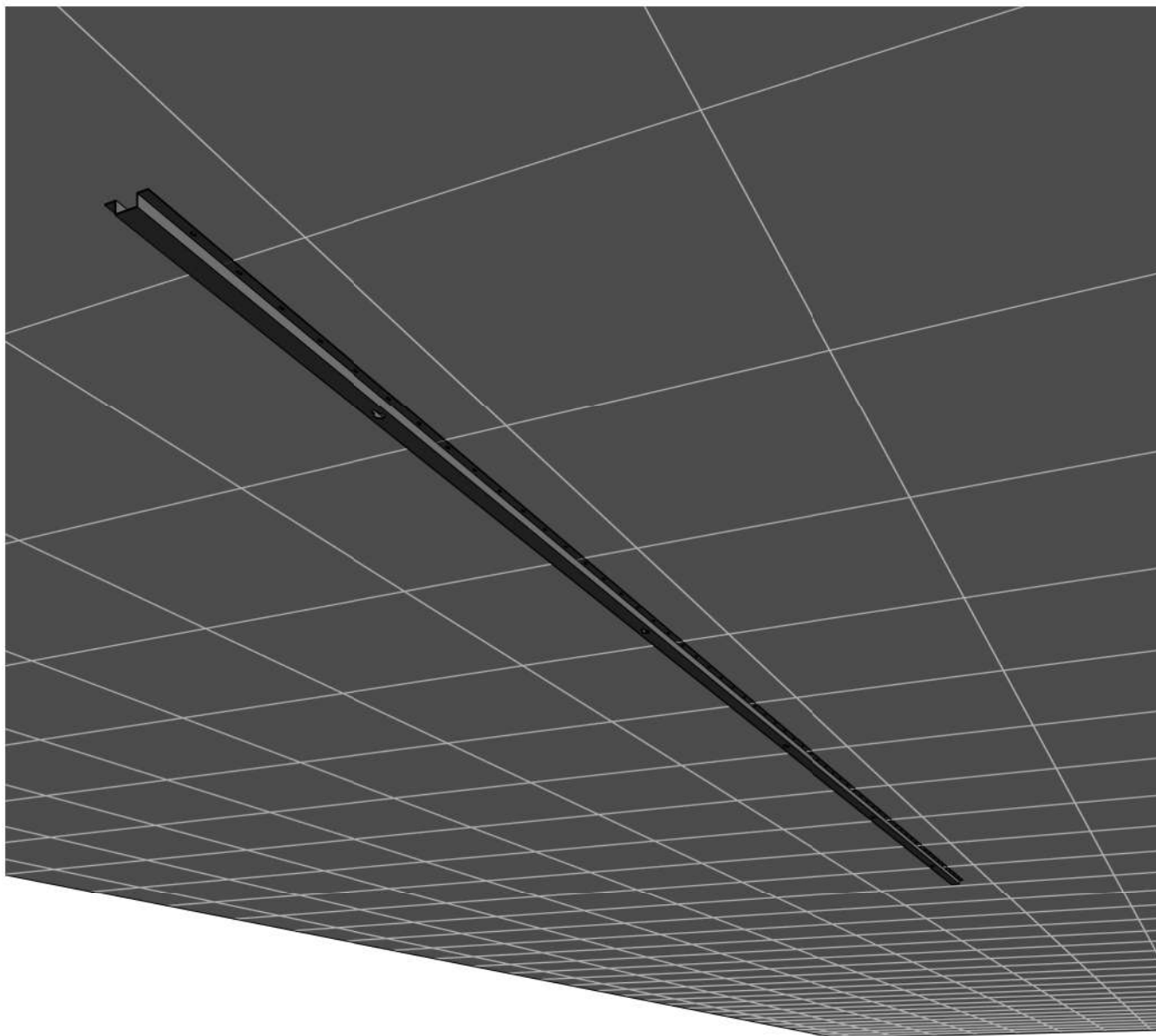


FIG # 2

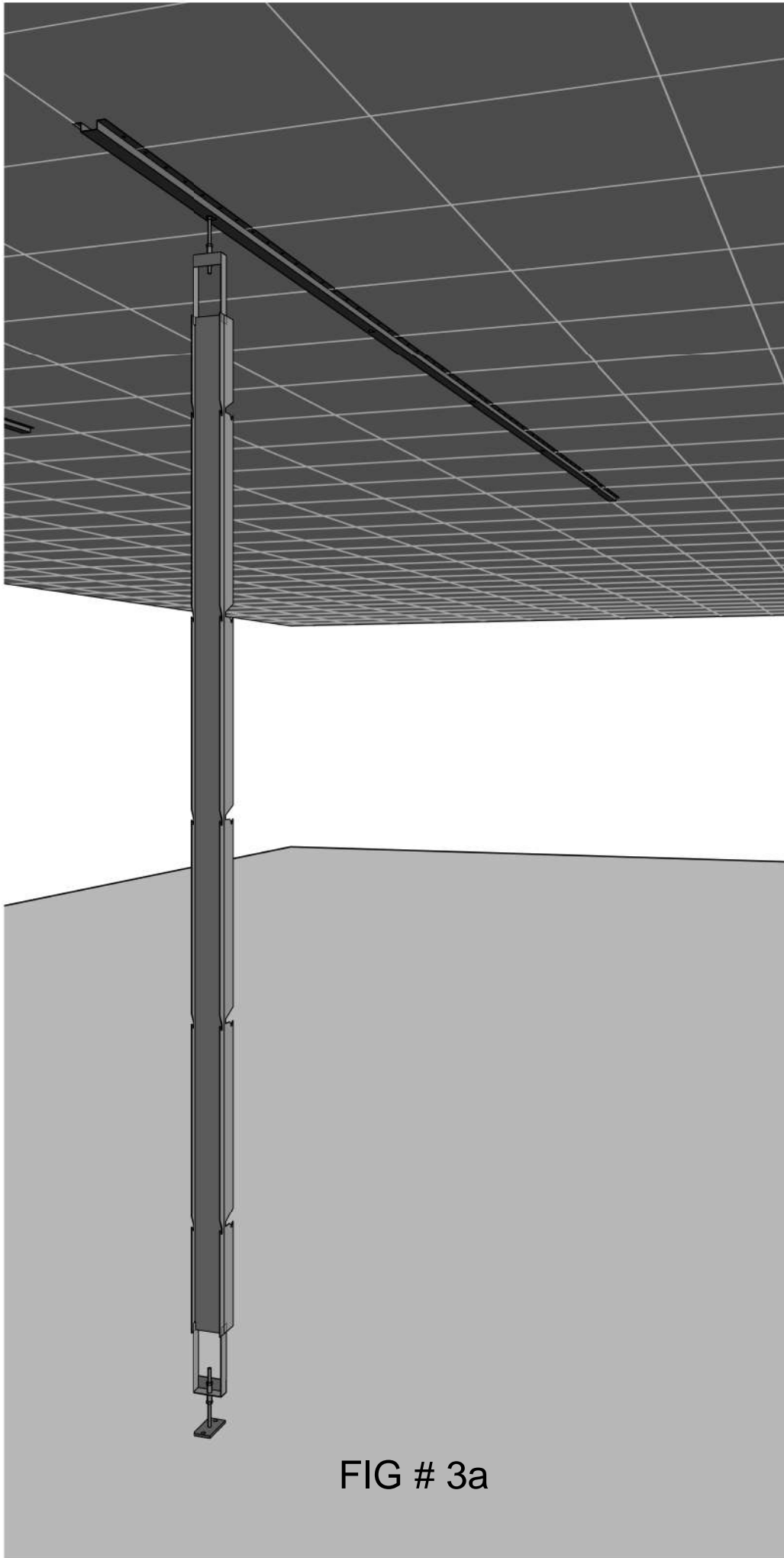


FIG # 3a

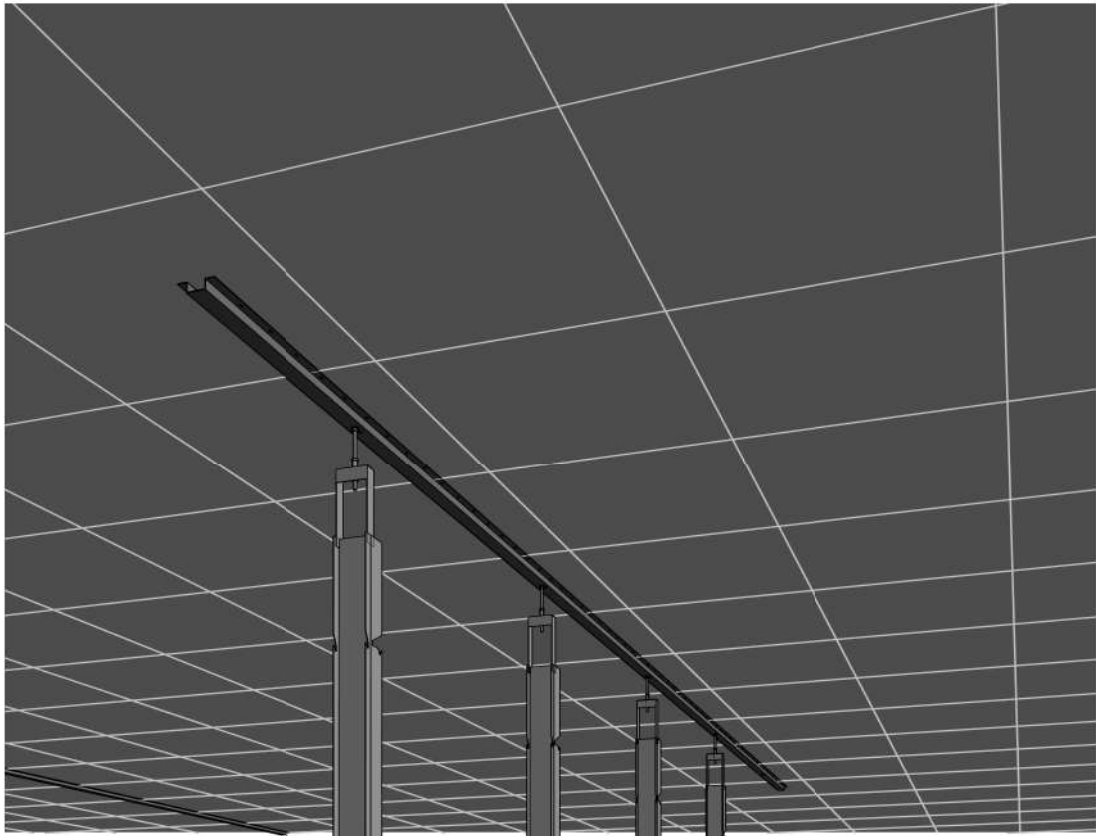


FIG # 3b

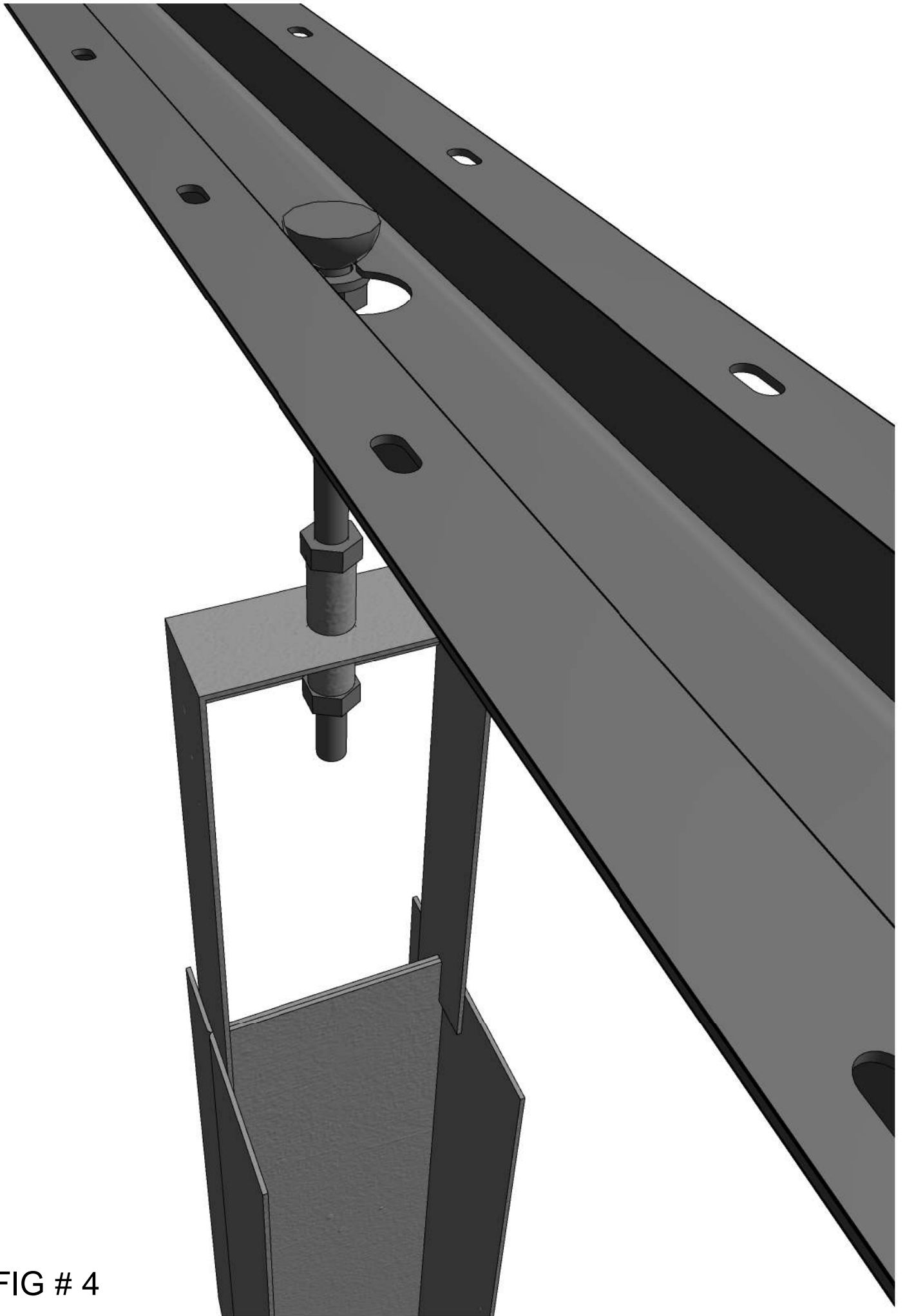


FIG # 4

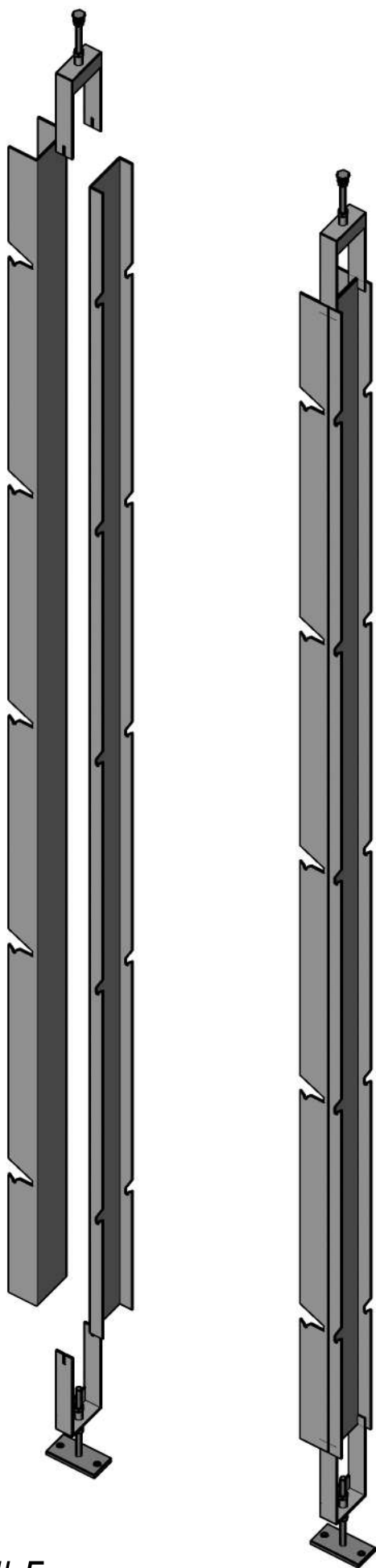


FIG # 5

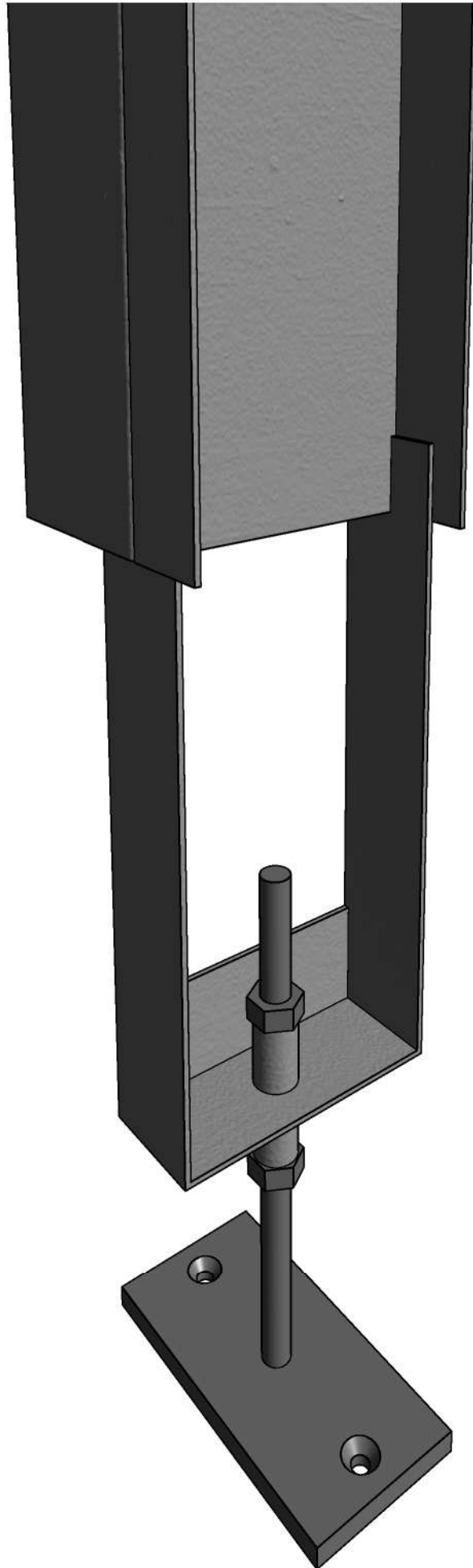


FIG # 6

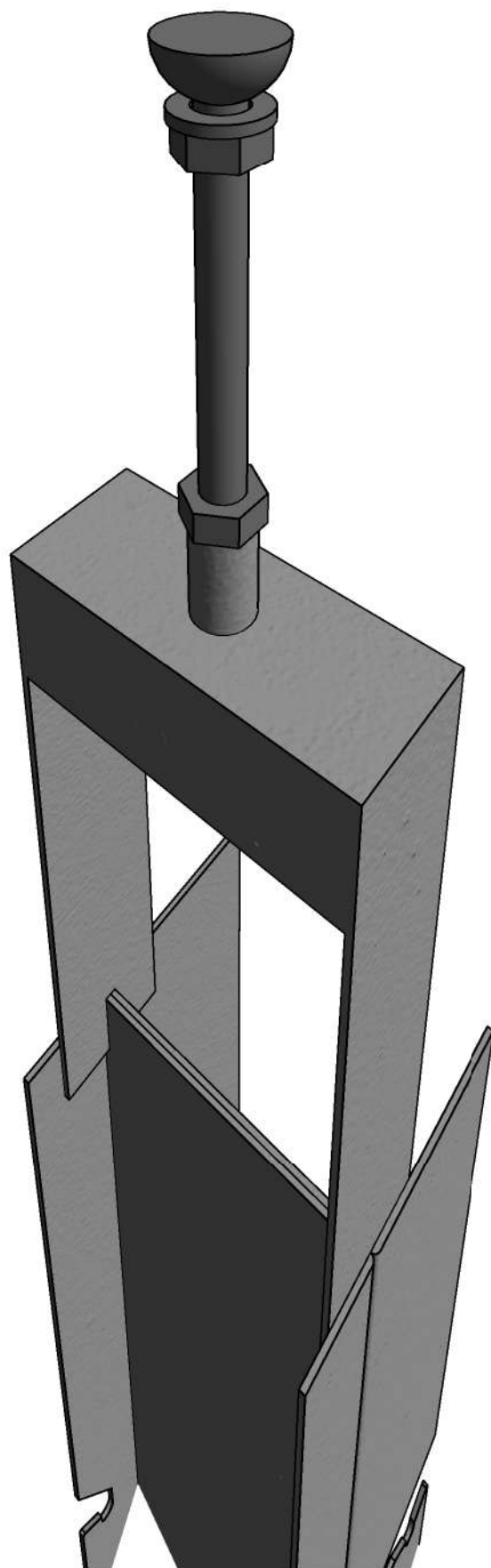


FIG # 7

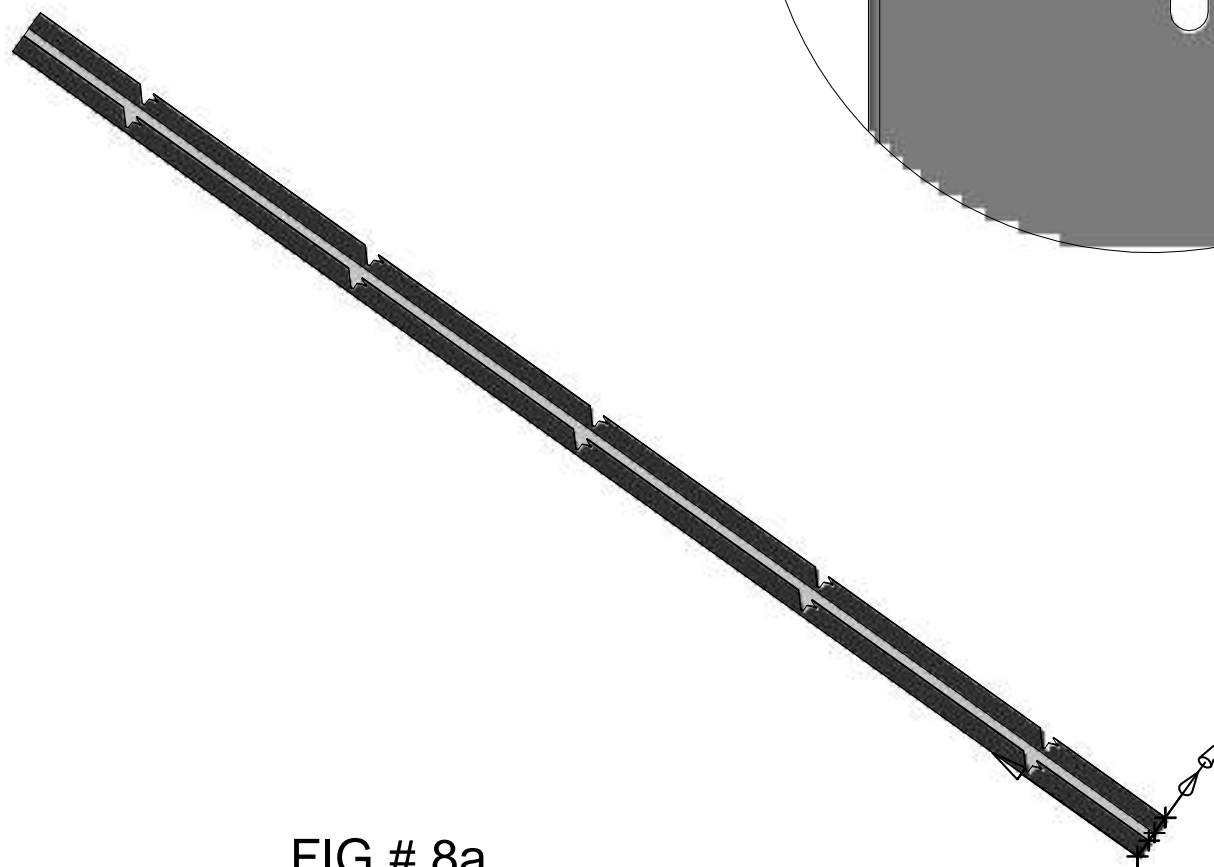
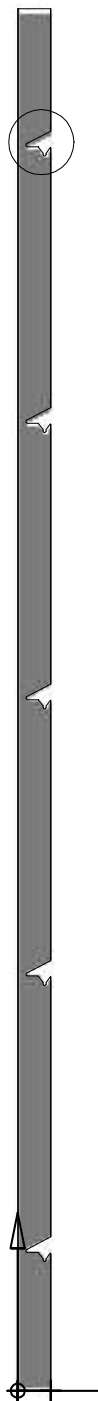


FIG # 8a

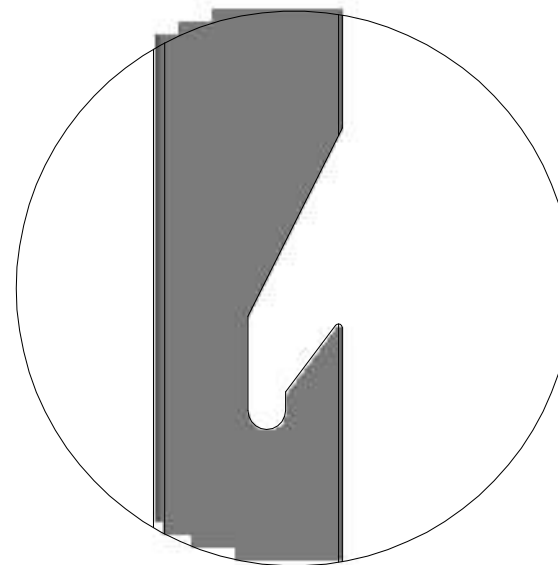
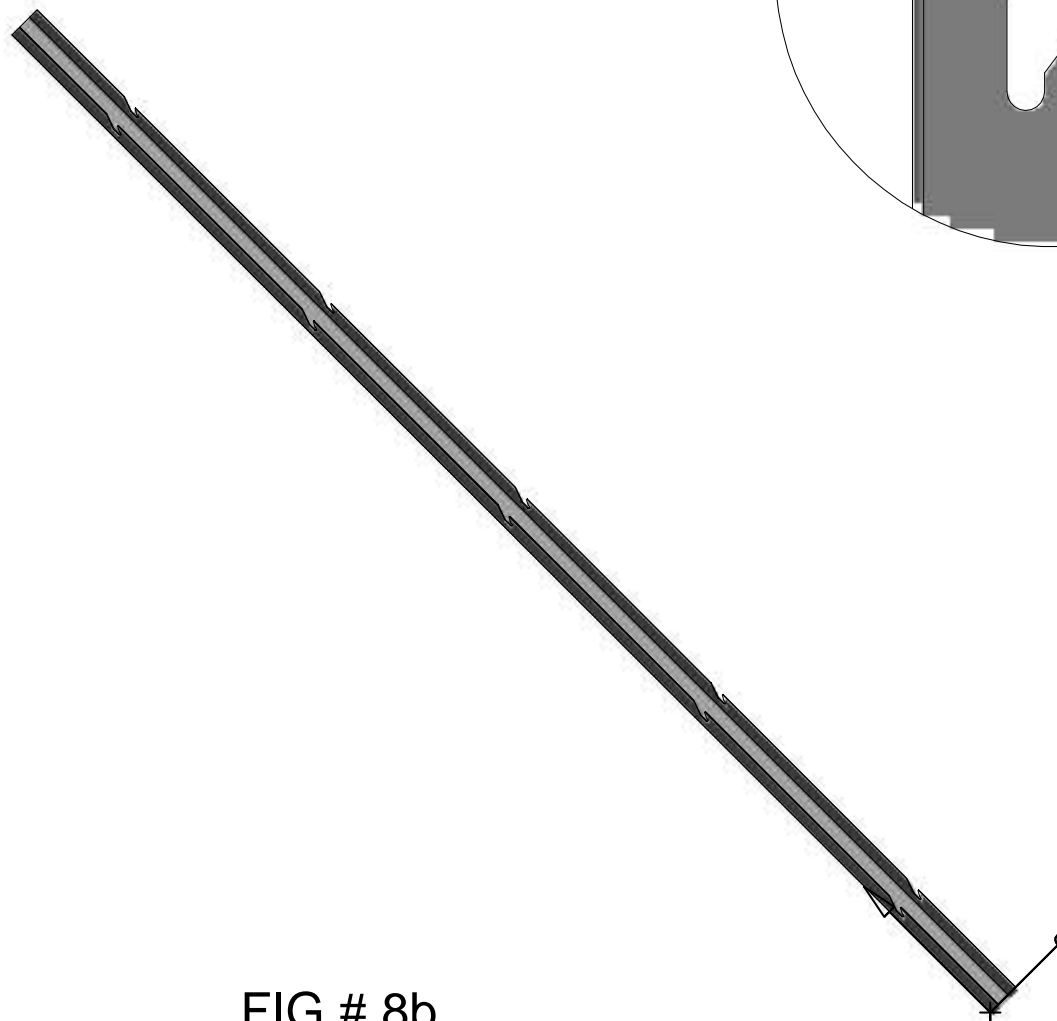
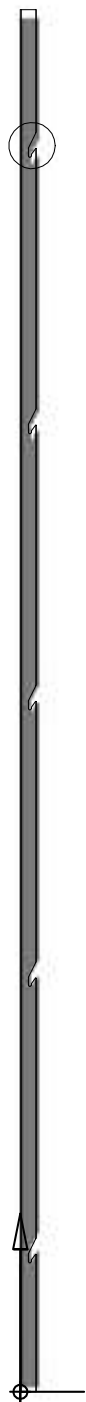


FIG # 8b

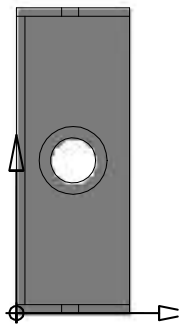
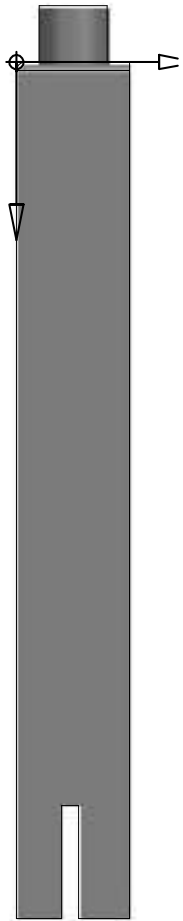
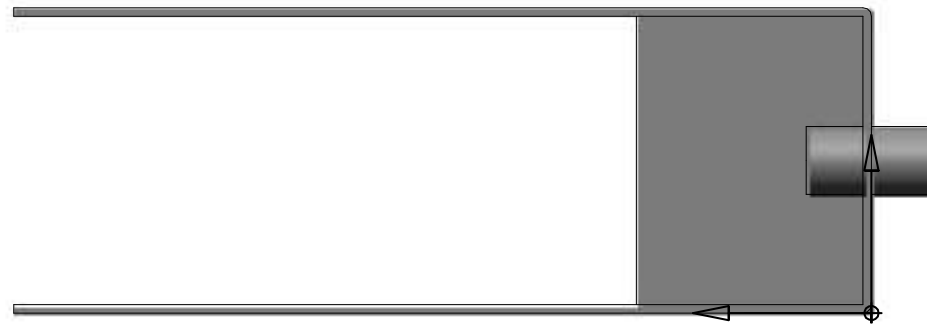
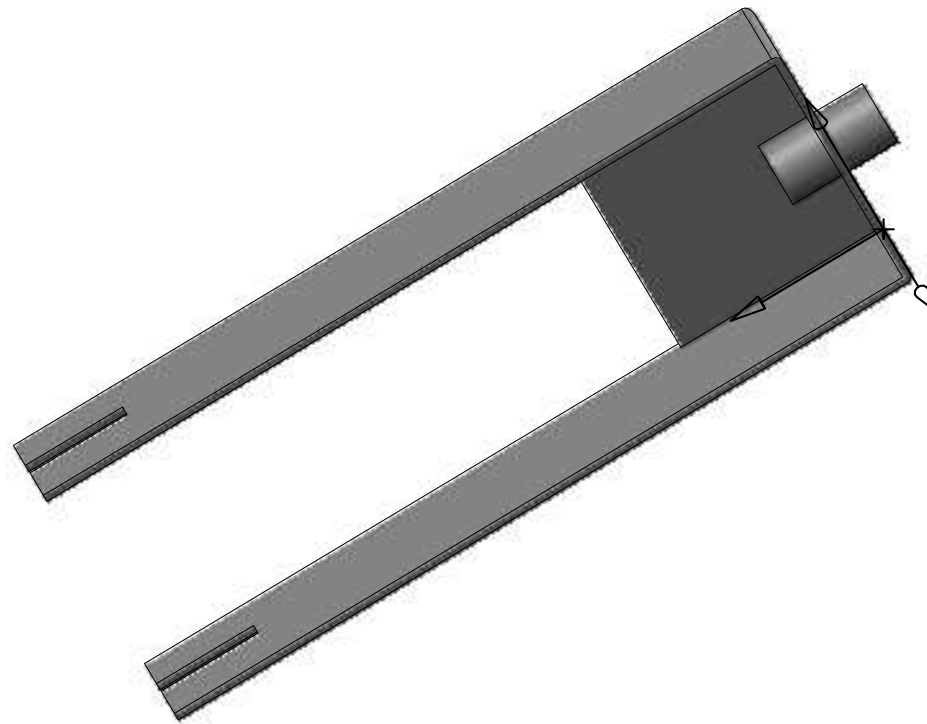


FIG # 8c



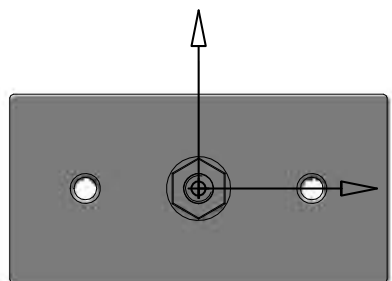
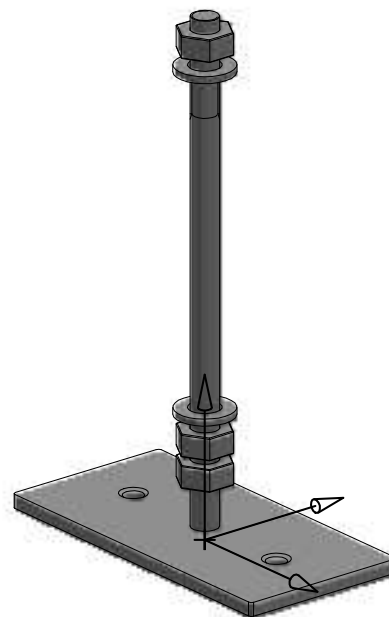
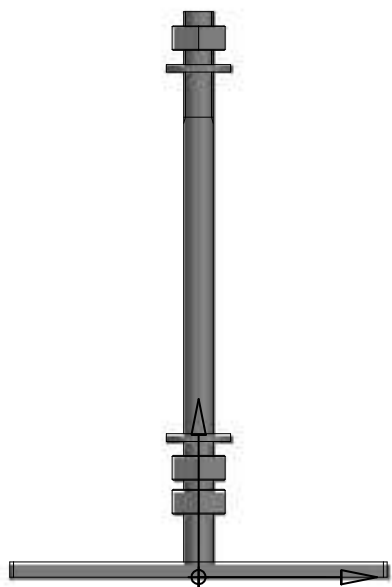


FIG # 8d

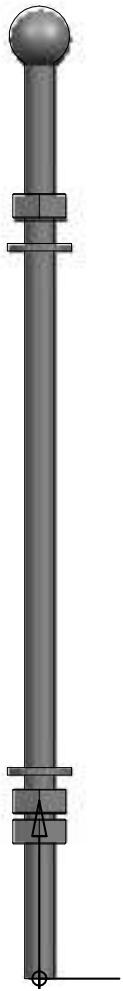


FIG # 8e

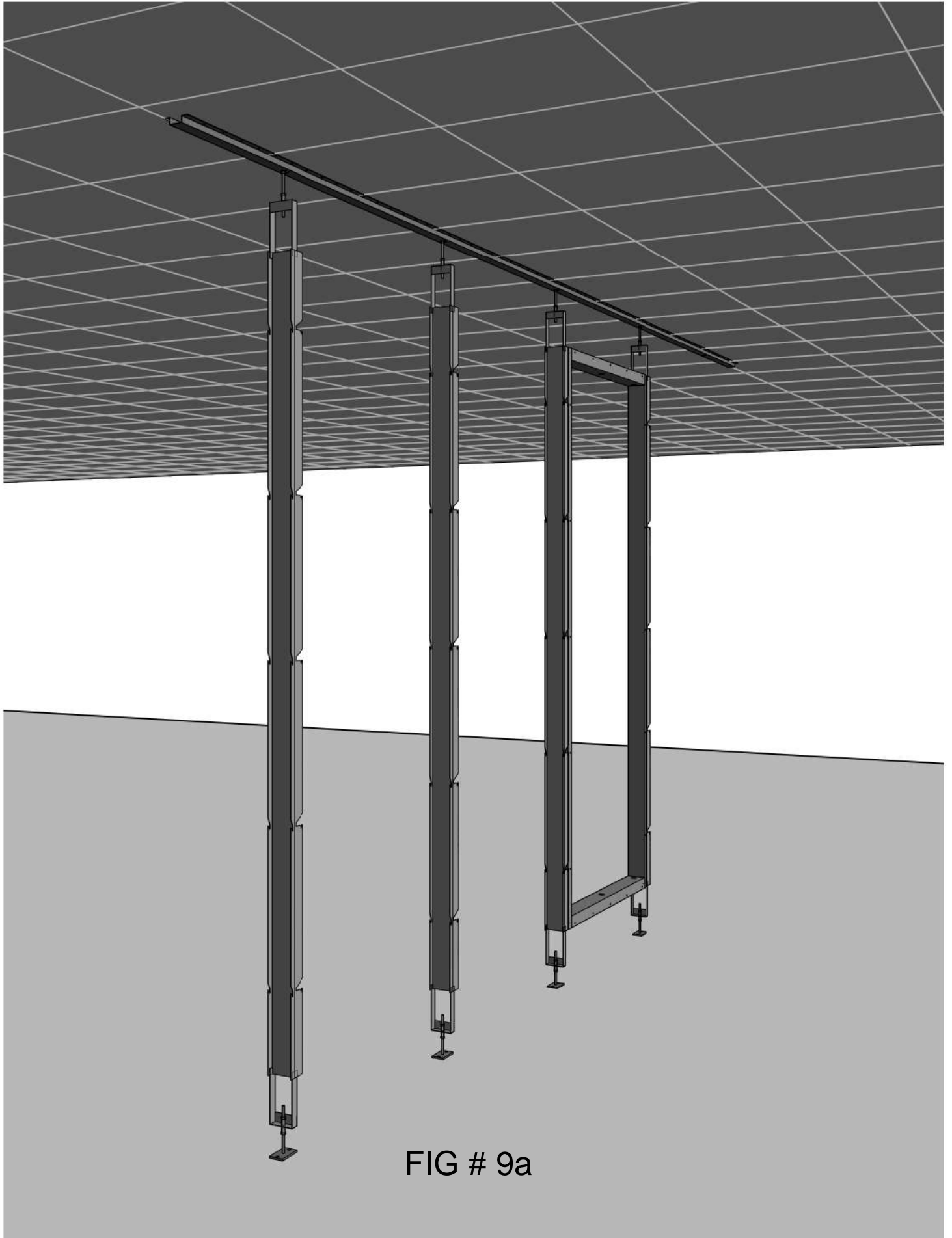
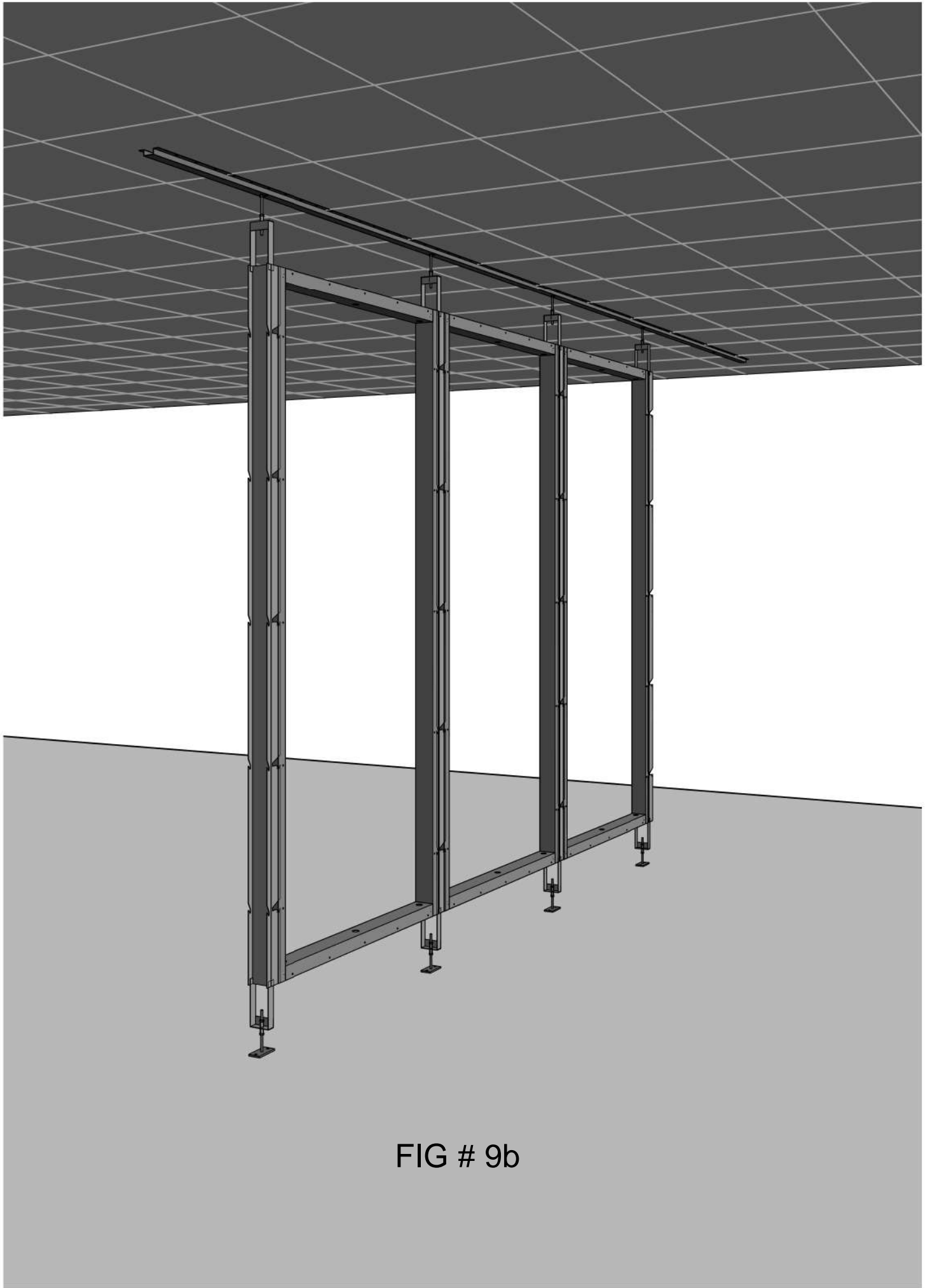


FIG # 9a



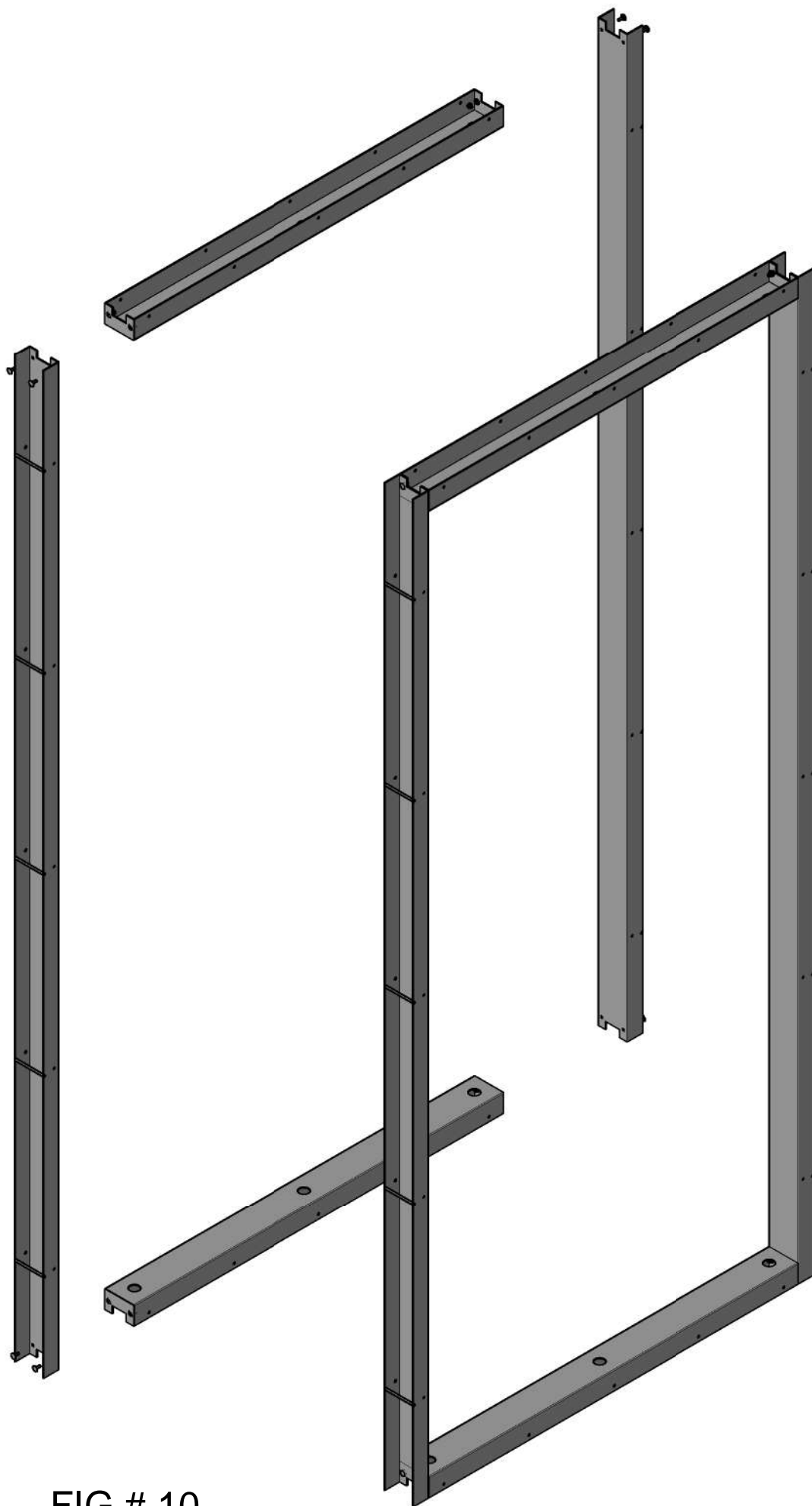
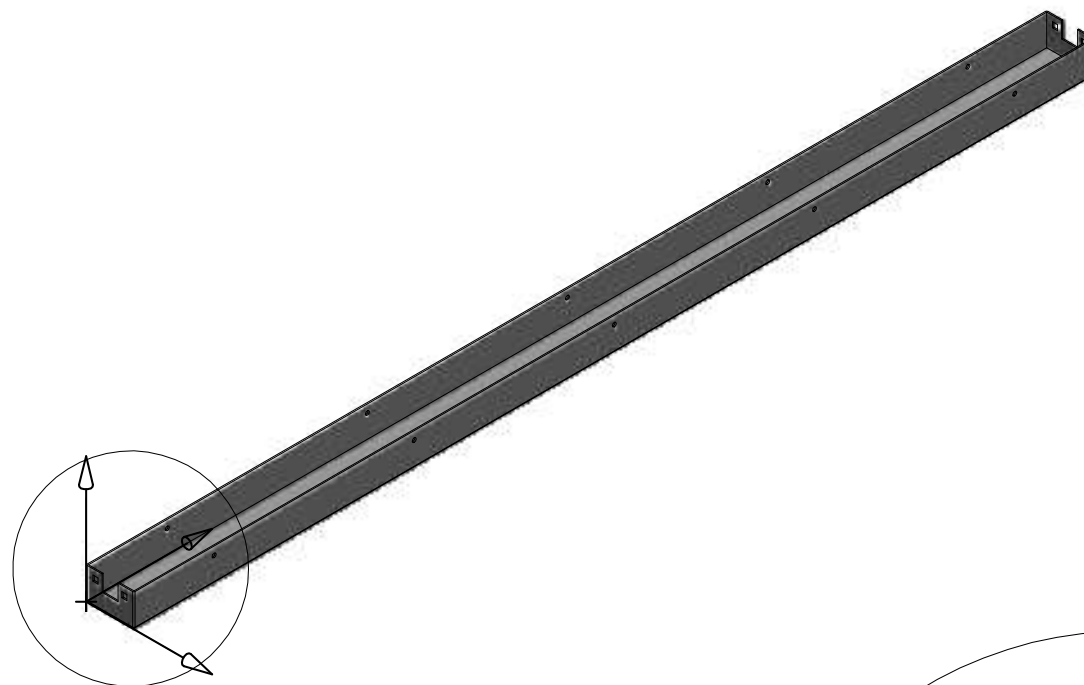
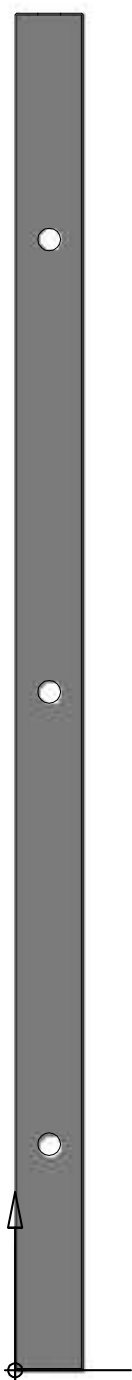


FIG # 10



11a.1

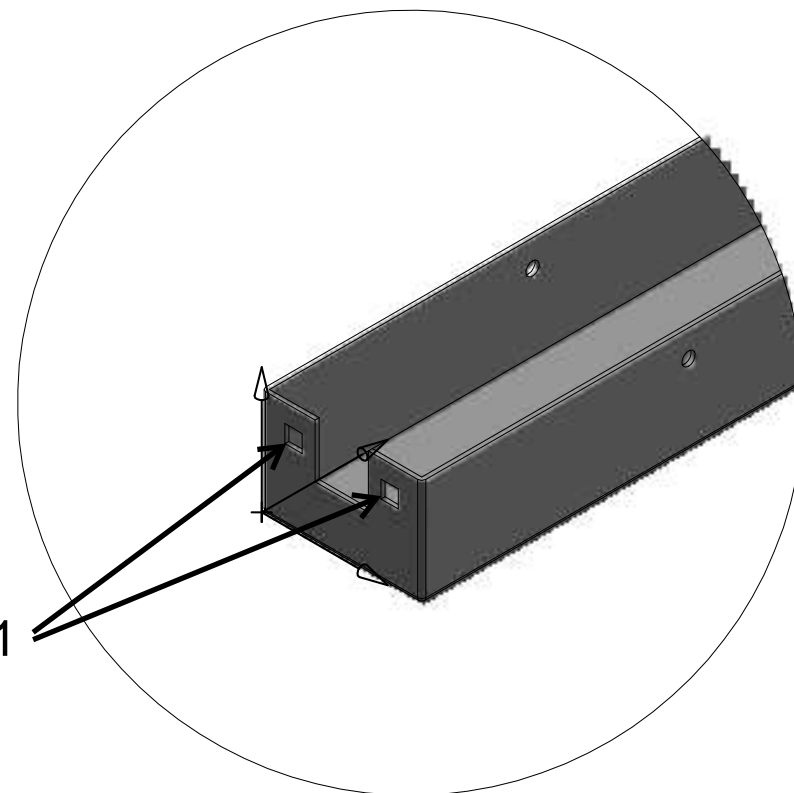


FIG # 11a

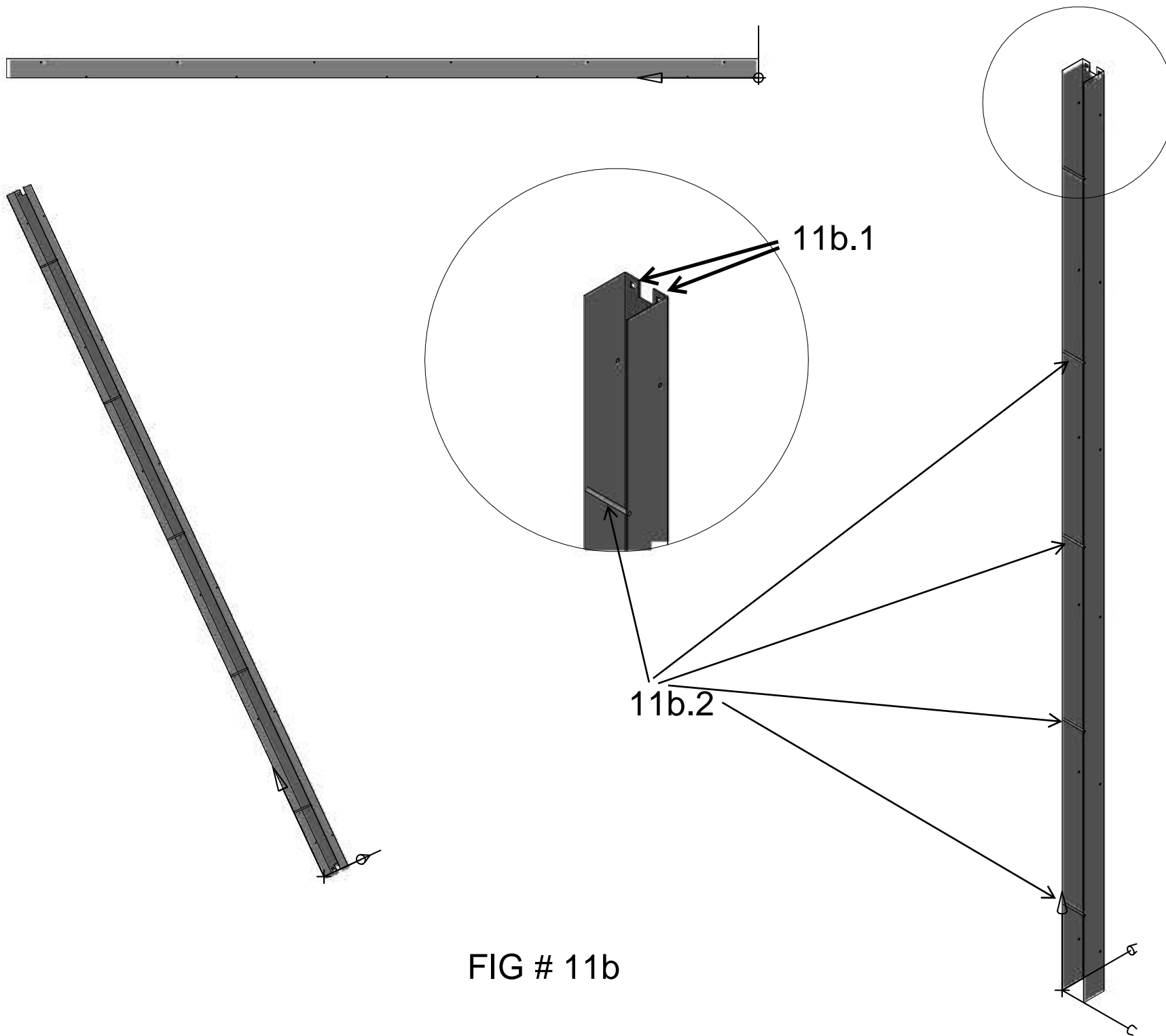
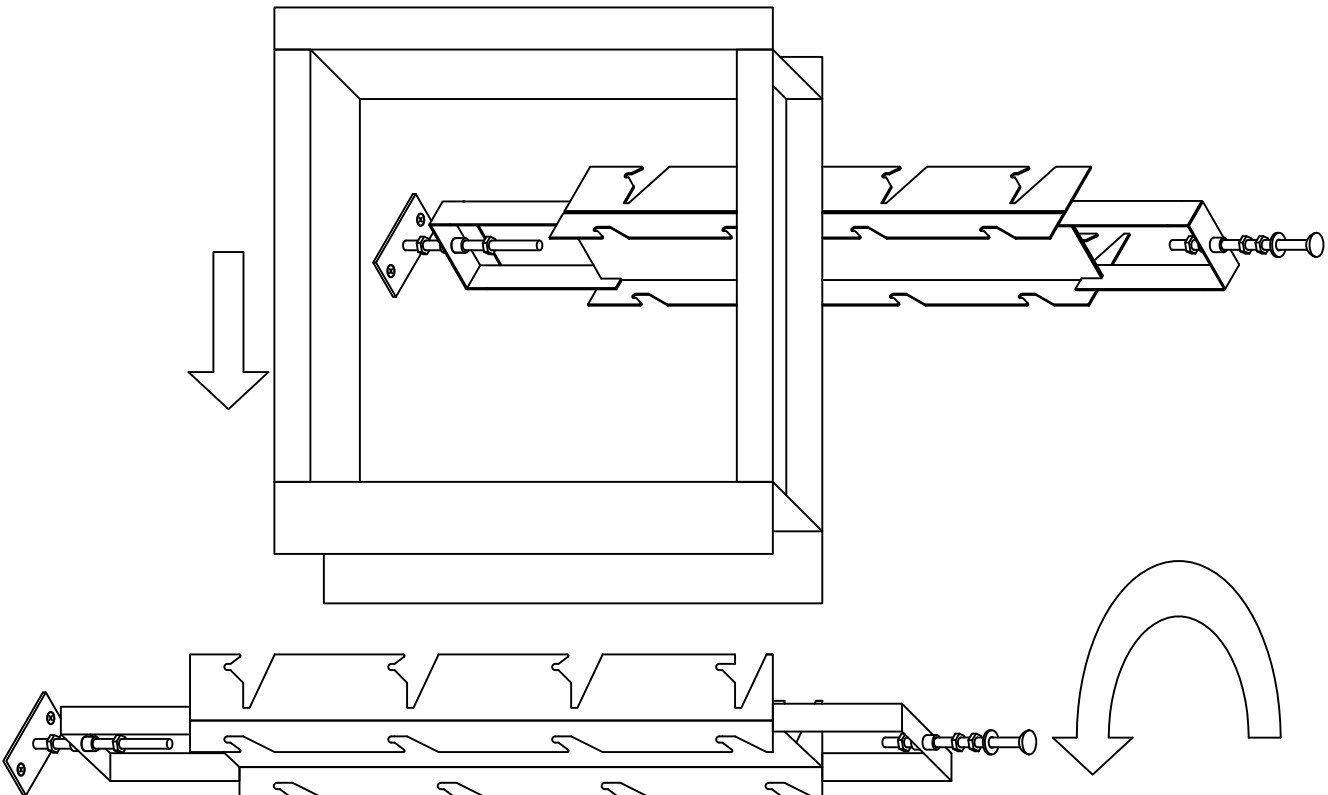
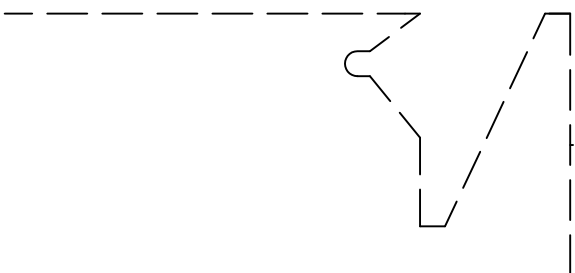
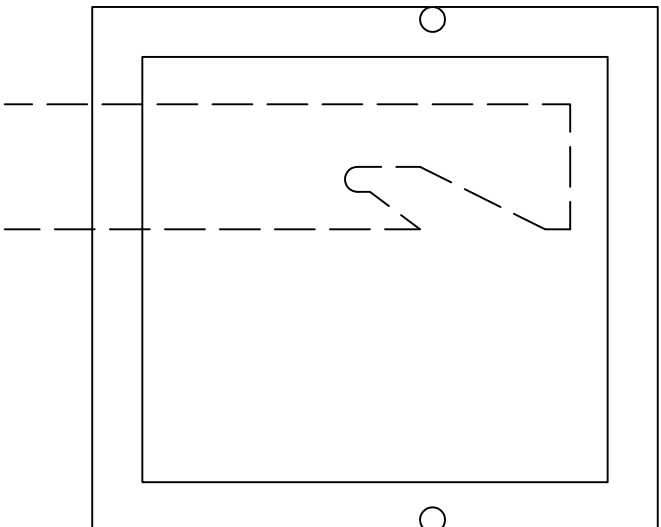


FIG # 11b

FIG # 12a



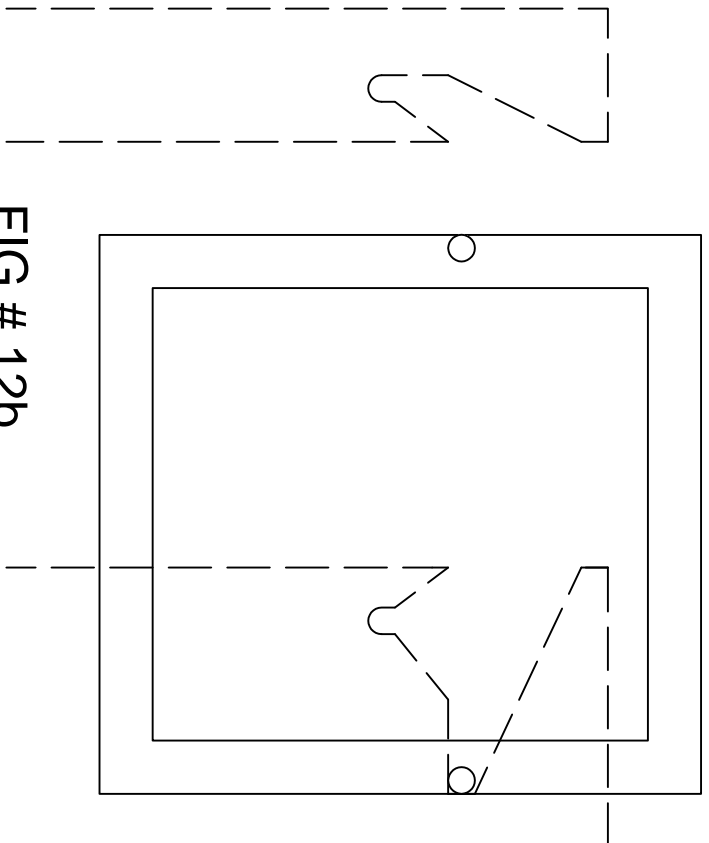
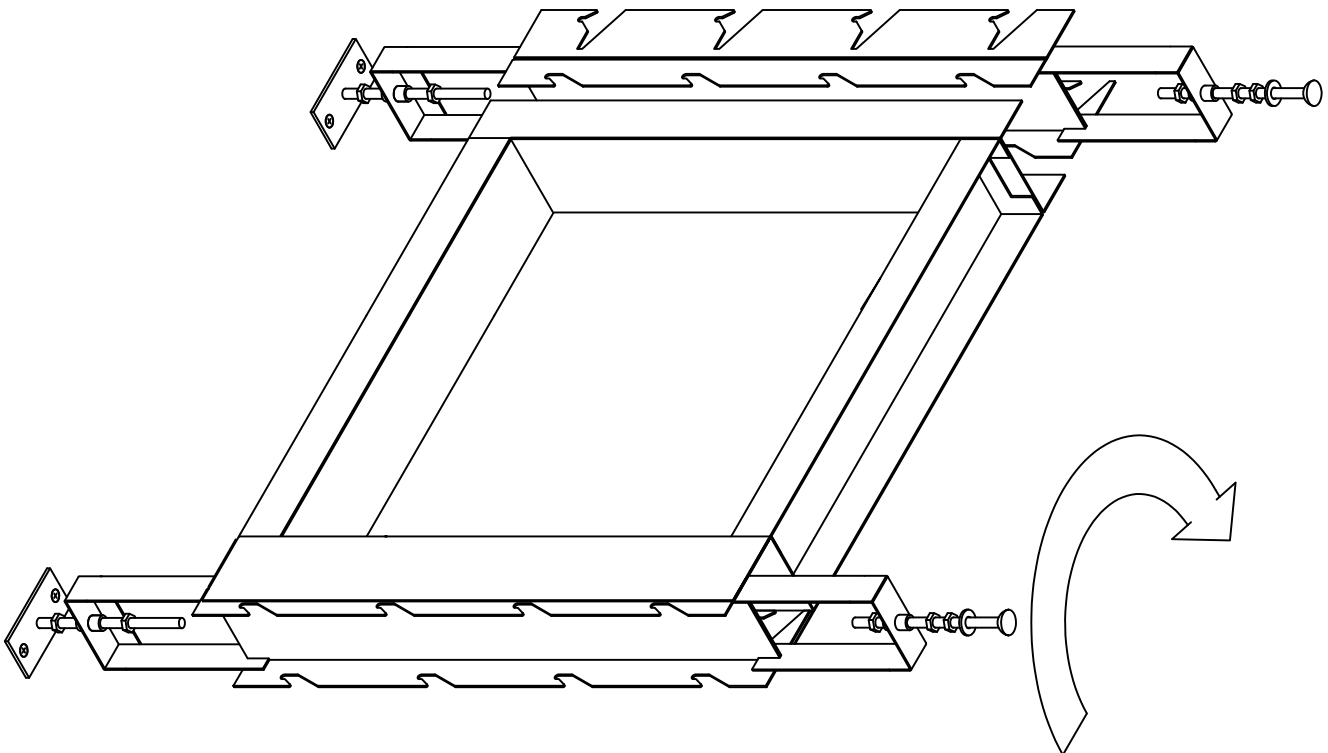


FIG # 12b

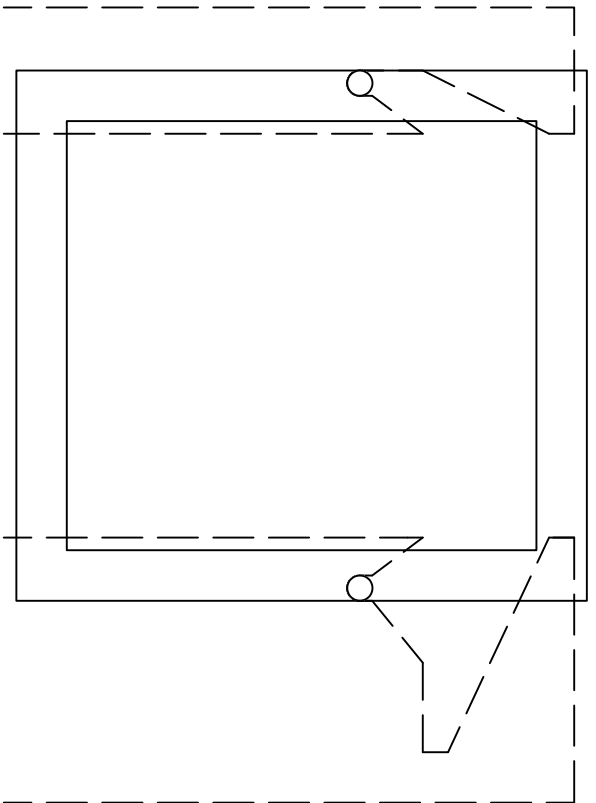
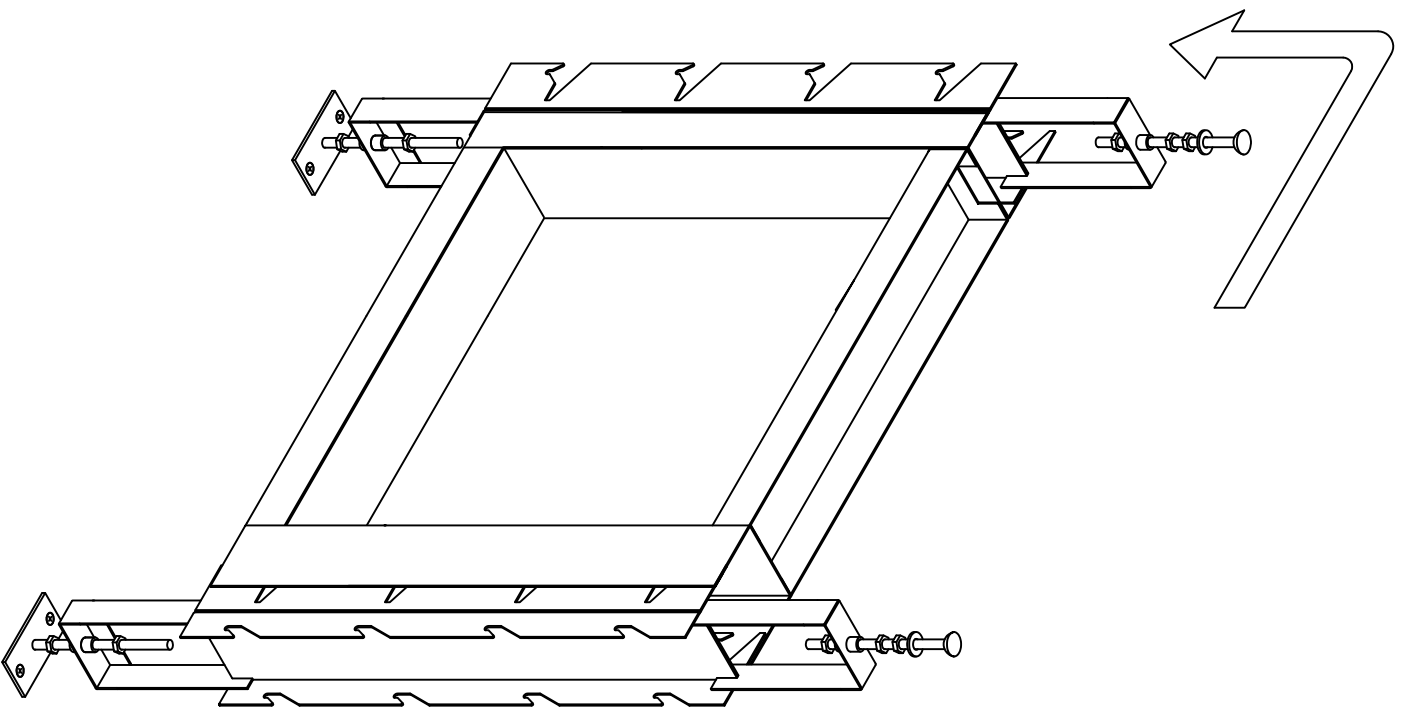


FIG # 12c

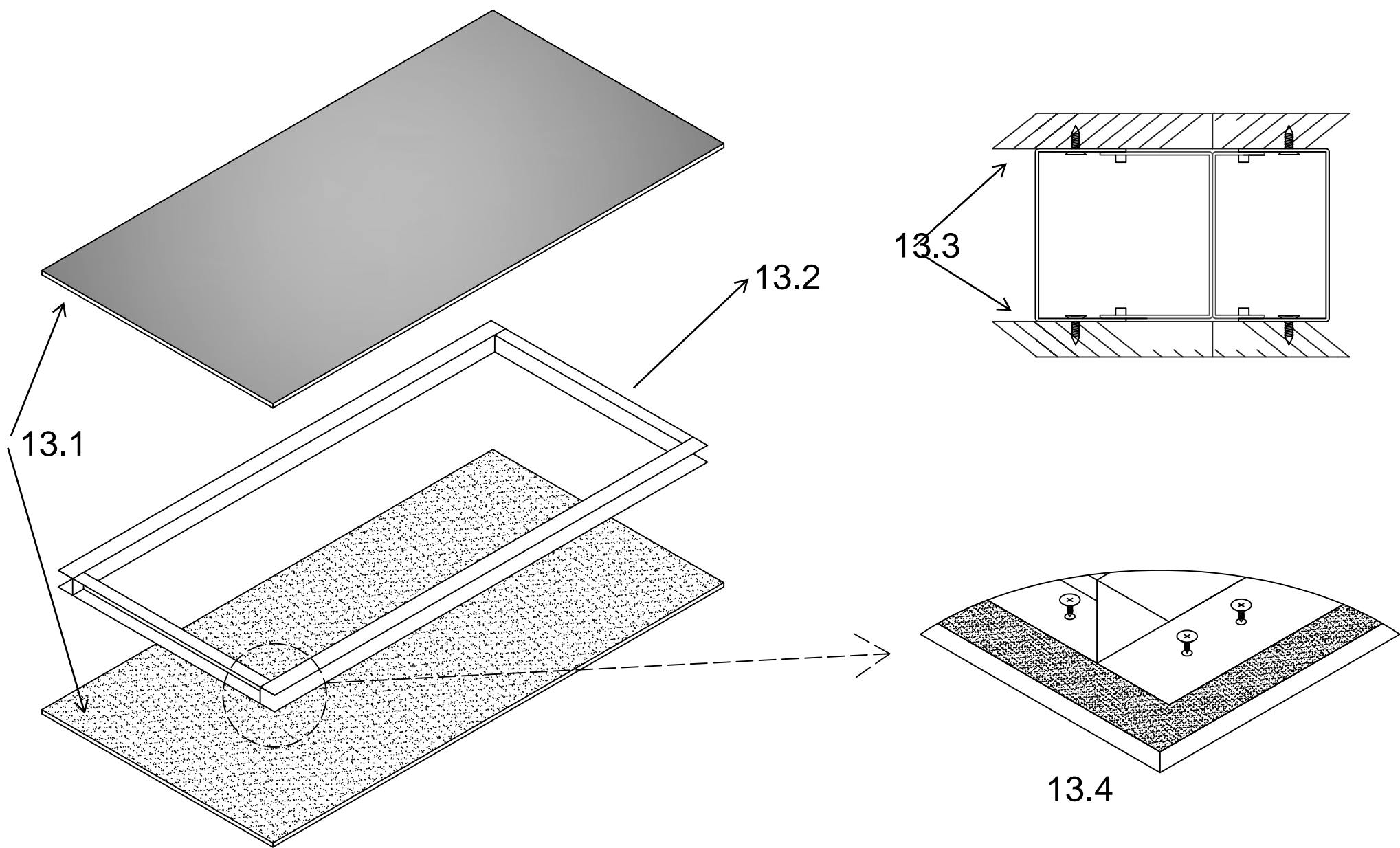


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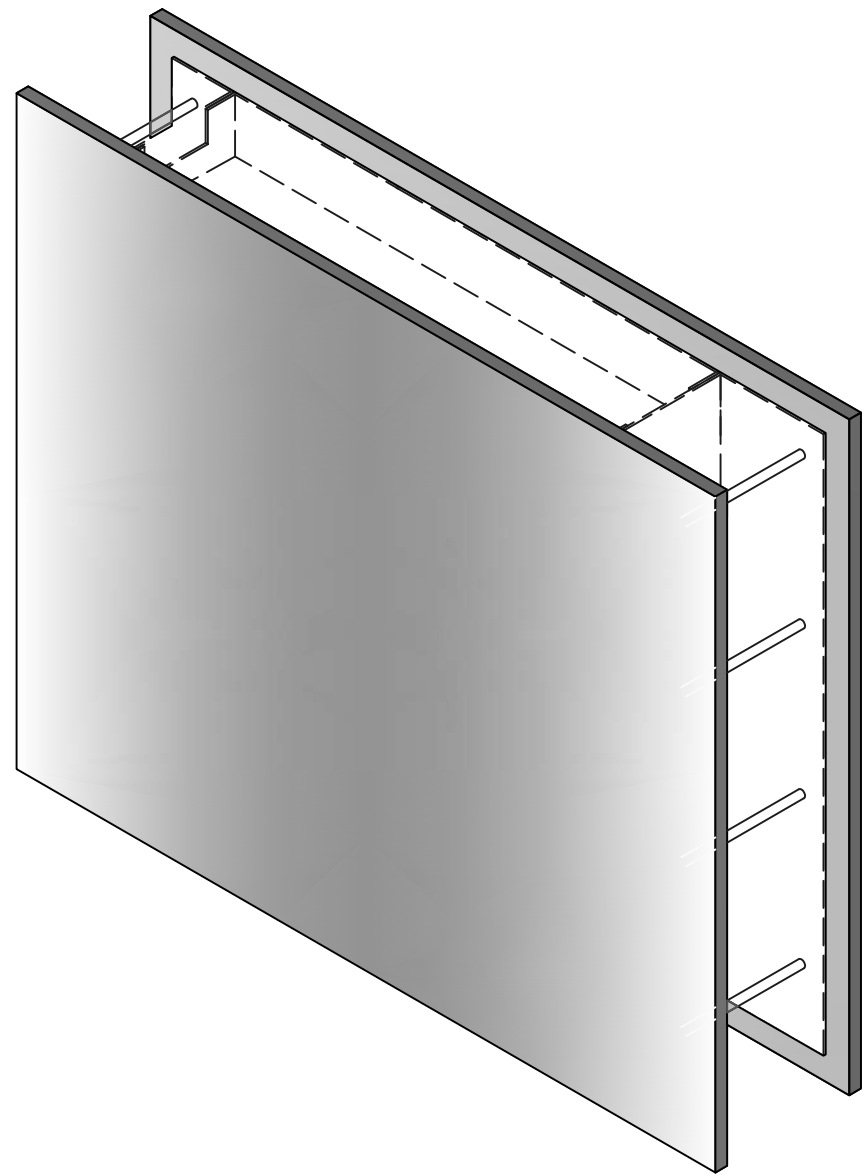
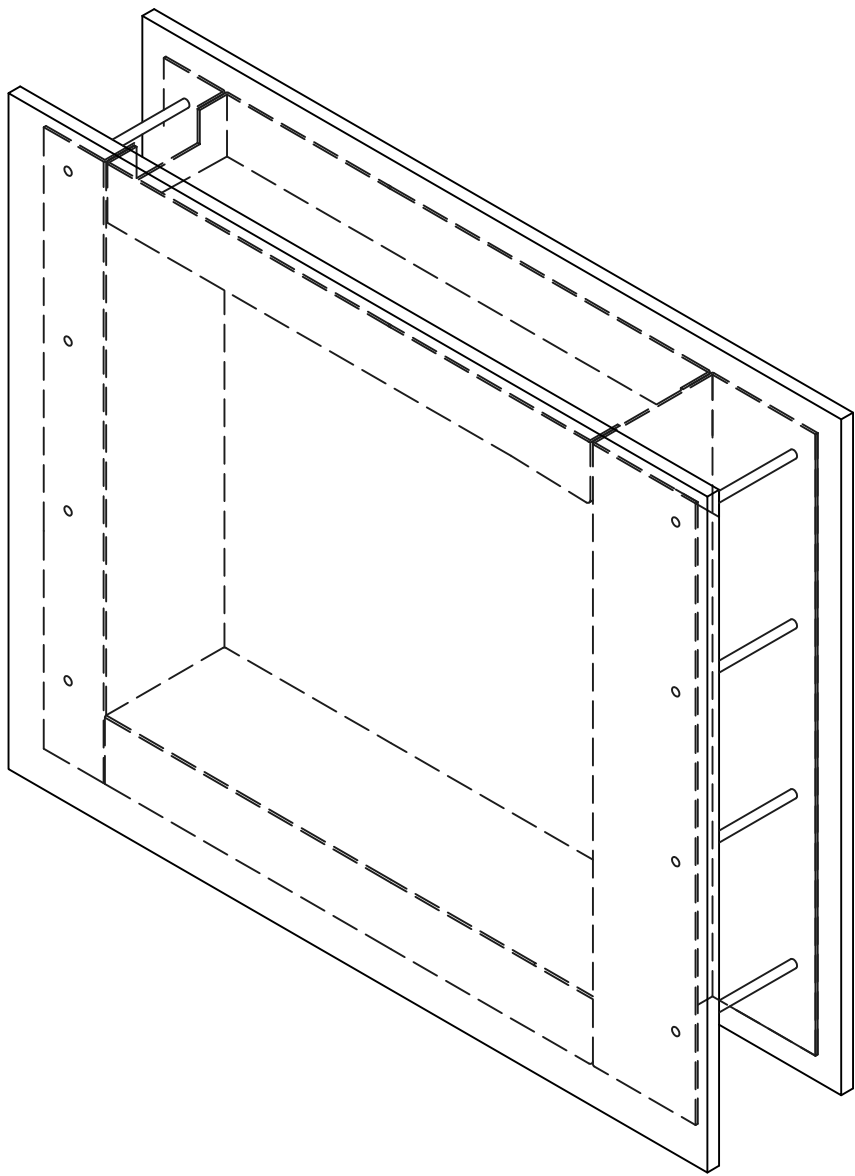


FIG # 14

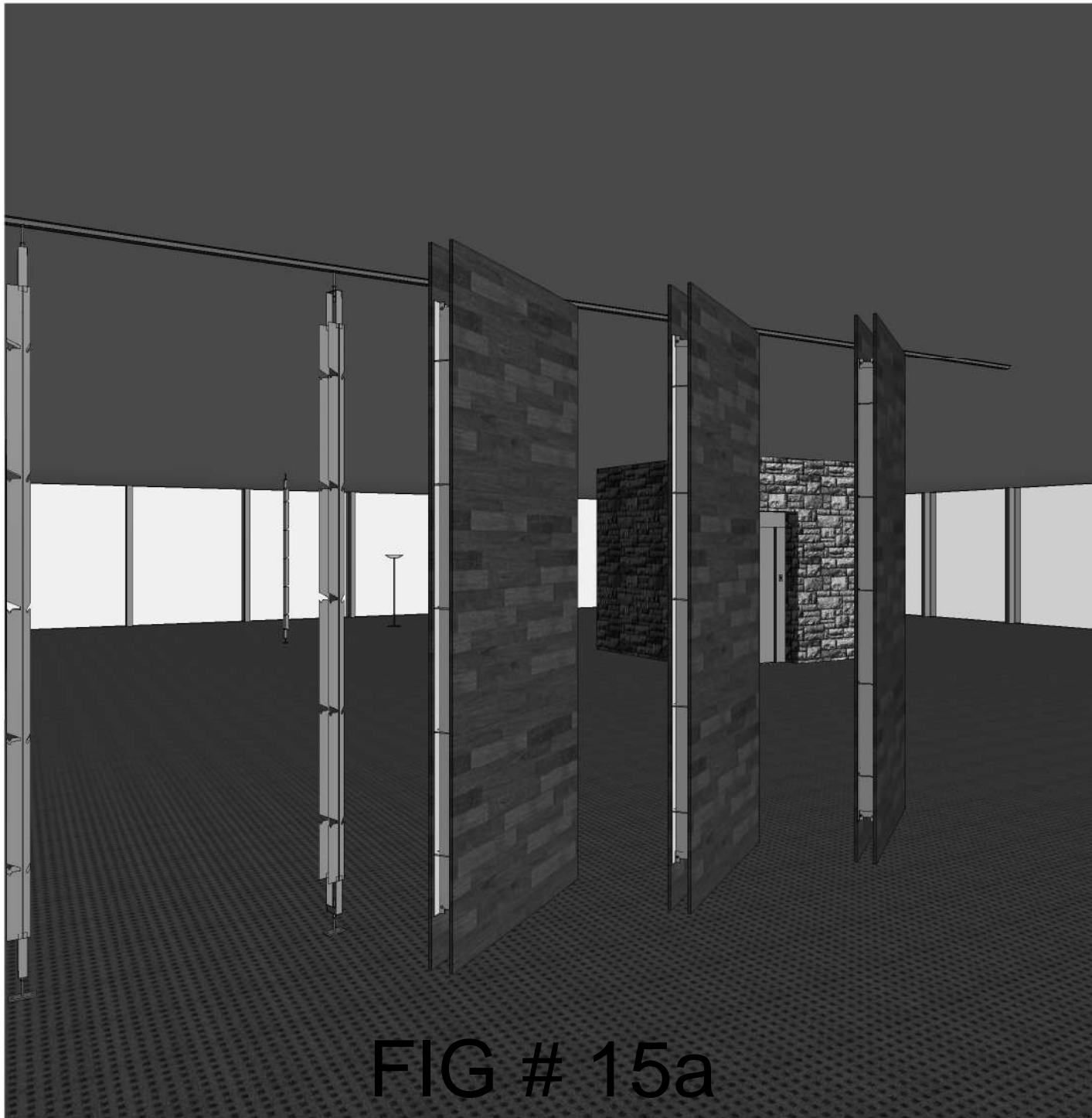


FIG # 15a

