

FIRE RESISTIVE GYPSUM SYSTEMS

FCIA Webinar
Nestor Sanchez, USG

7-19-16

MAIN GOAL

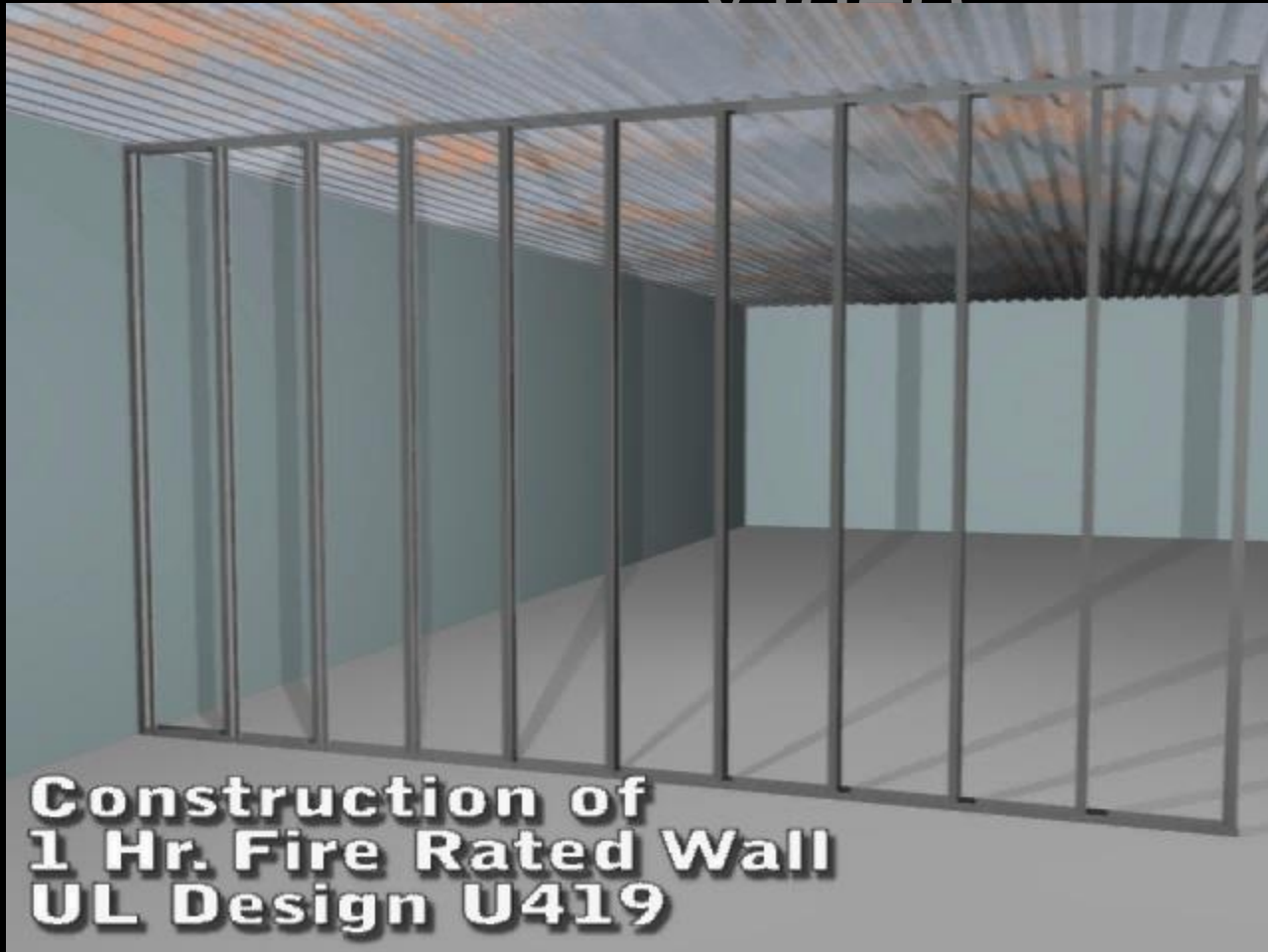
- Optional Construction Details
 - To deal with retrofits and repairs
- Repair of Fire Rated Gypsum Walls

MAIN OBJECTIVES

- Fire Resistive Properties of Gypsum
- Basic Gypsum Systems
- Types of Rated Board
- System Details

CONSTRUCTION DETAILS

Video



**Construction of
1 Hr. Fire Rated Wall
UL Design U419**

Click to start animation

Click to start animation

Video

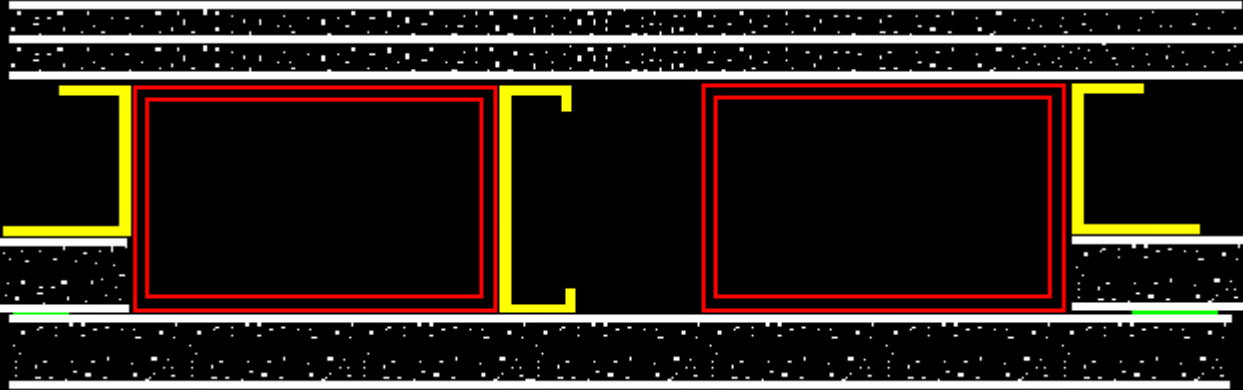


**Construction of
2 Hr. Fire Rated Wall
UL Design U419**

Click to start animation

Click to start animation

COLUMN BY PASS DETAIL



Upgrading Existing Fire Resistive Walls

1 Hour Base Wall (U419, U465)



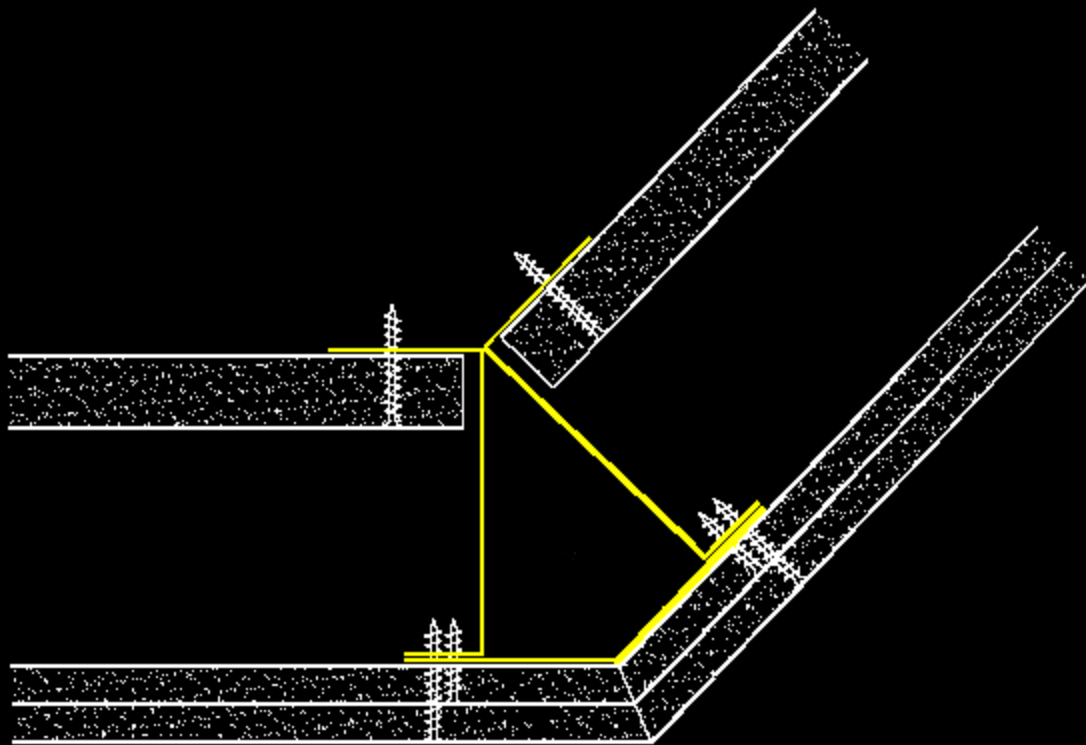
2 layers 5/8" Type X

First Layer 1-5/8" S Screws at
12" o.c.

Face Layer 2-3/8" S Screws

U408

OUTSIDE CORNER

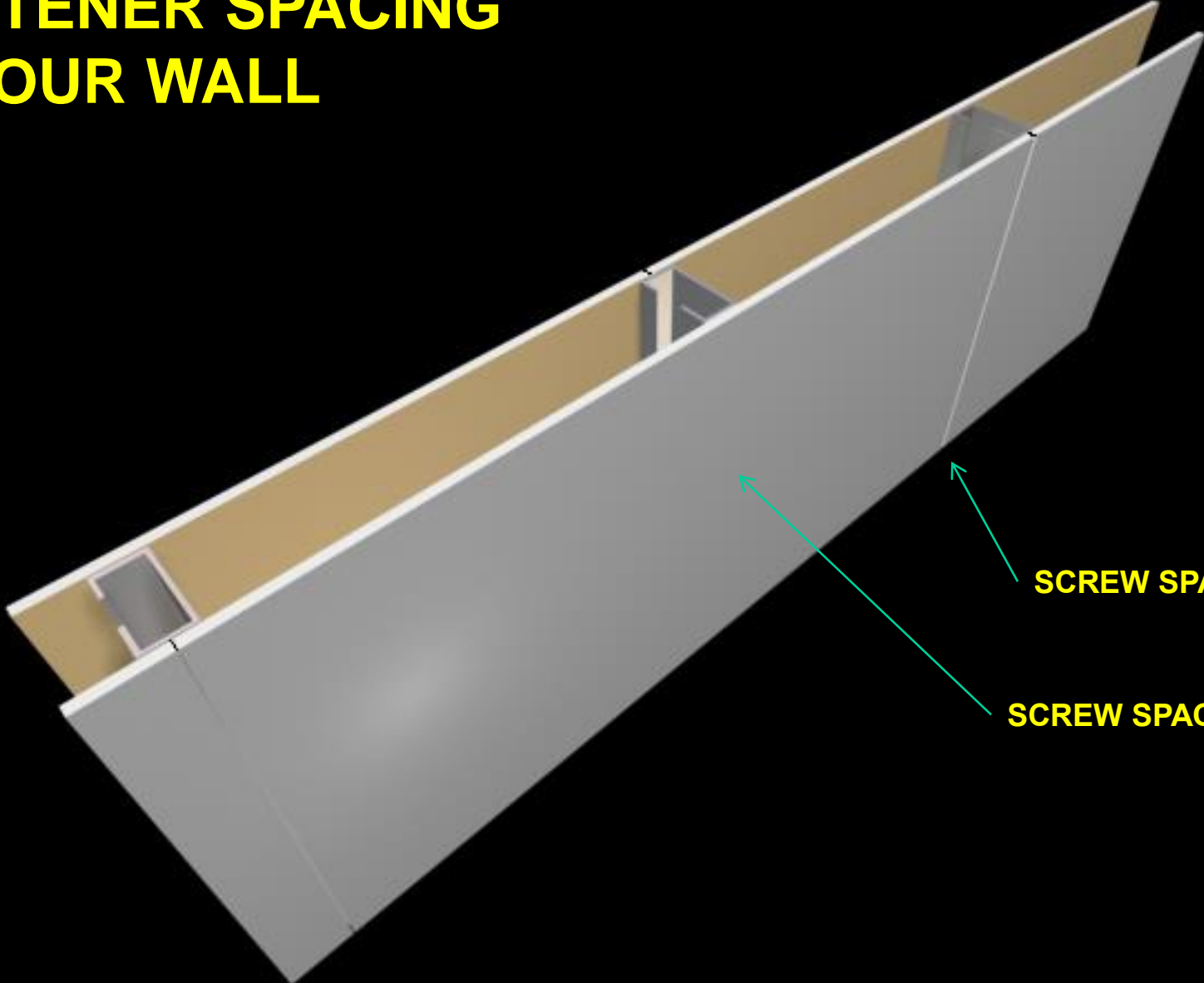


Shaft wall

20 Gage Plate

Insulation in gap

FASTENER SPACING 1 HOUR WALL

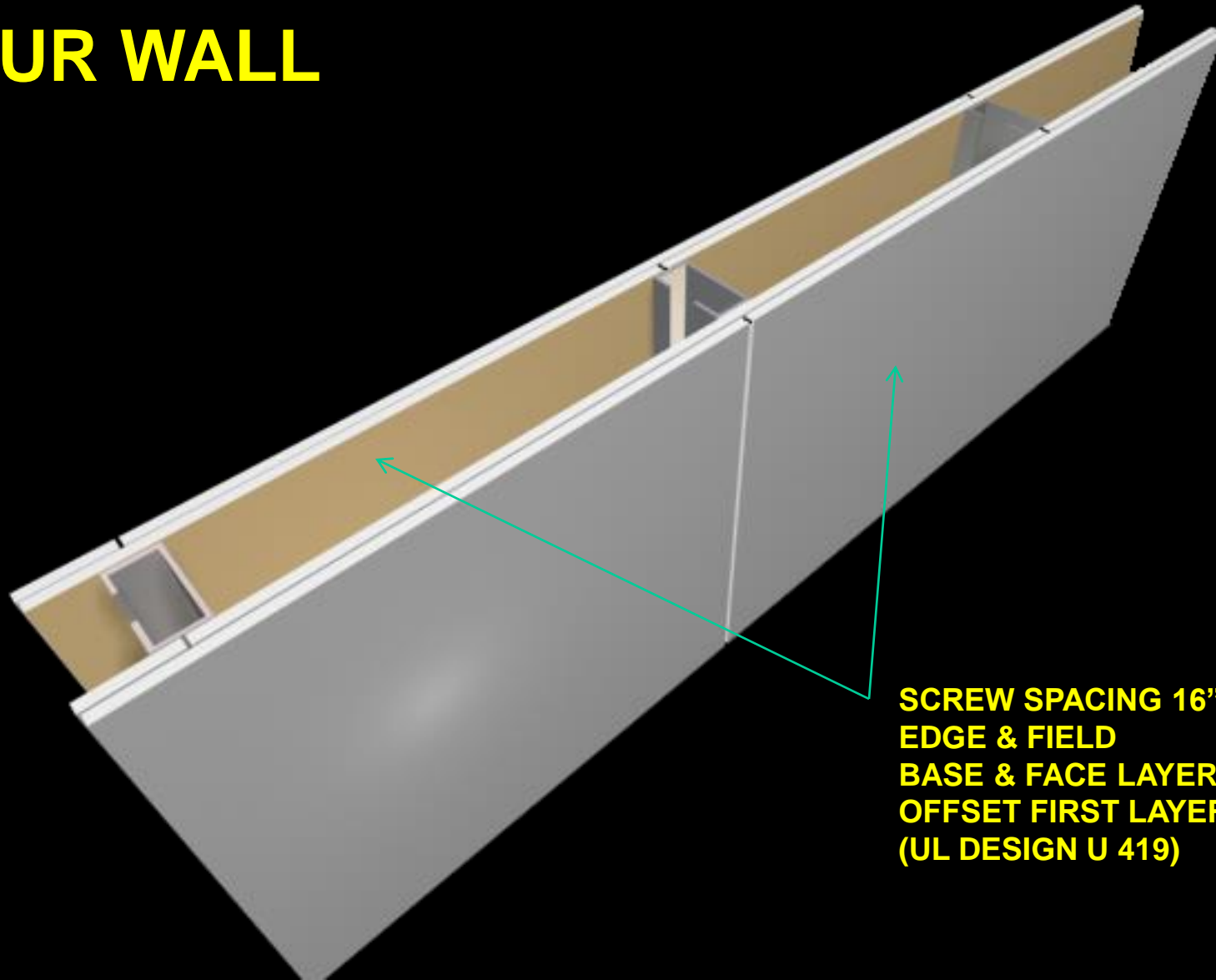


SCREW SPACING 8" oc

SCREW SPACING 12" oc

STUDS 24" O.C.

FASTENER SPACING 2 HOUR WALL



**SCREW SPACING 16" OC
EDGE & FIELD
BASE & FACE LAYER
OFFSET FIRST LAYER BY 8".
(UL DESIGN U 419)**

STUDS 24" O.C.

ALLOWABLE GAPS IN ADJACENT GYPSUM PANELS

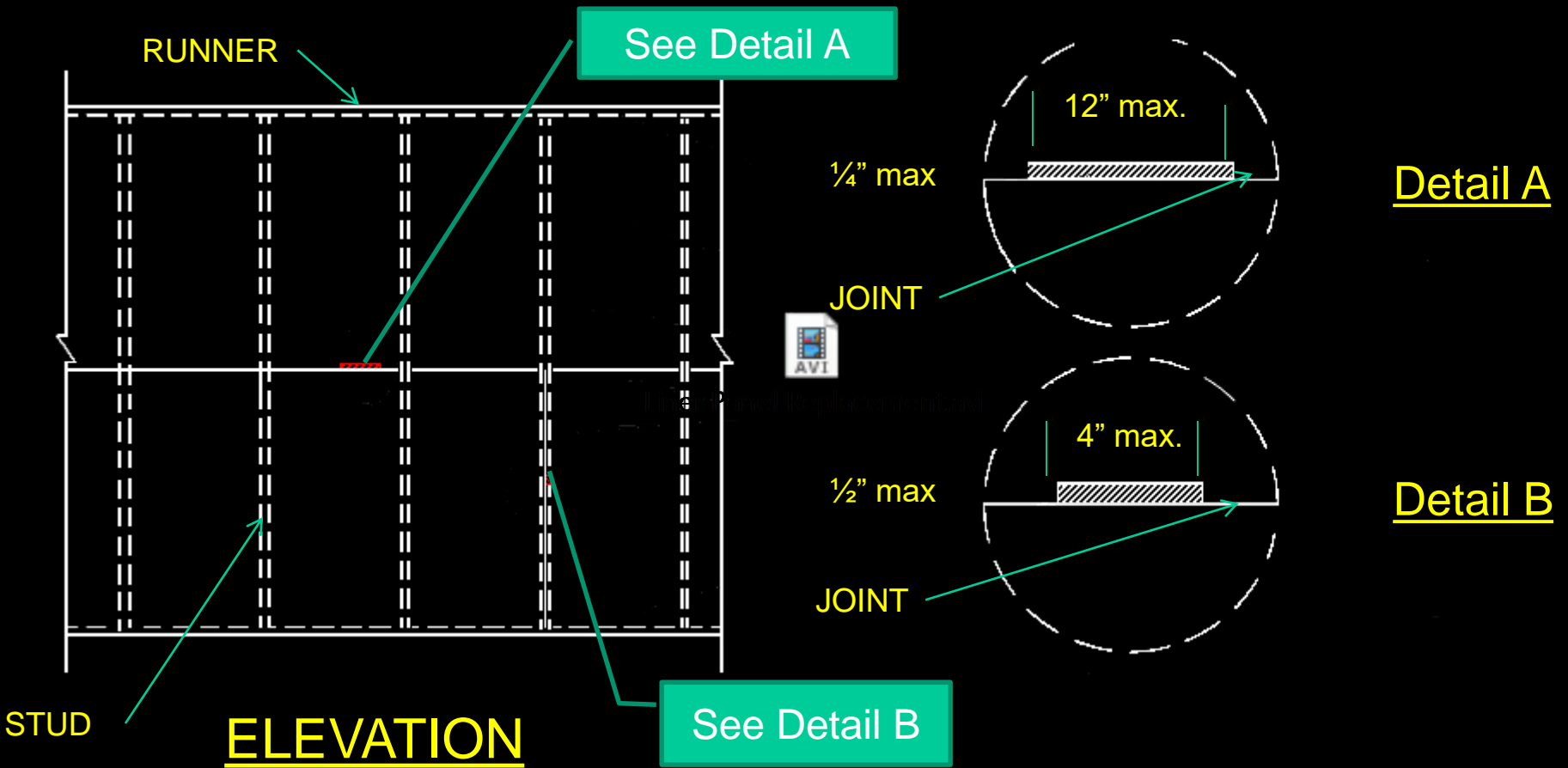
4.6.7 When gaps occur at gypsum panel product joints, they shall be not greater than 1/4 in. (6 mm) and shall be prefilled with joint compound as specified in Sections 4.6.7.1 and 4.6.7.2.

4.6.7.1 Gaps not greater than 1/8 in. (3 mm) shall be prefilled with either ready-mix or setting-type joint compound.

4.6.7.2 Gaps greater than 1/8 in. (3 mm) shall be prefilled with setting-type joint compound.

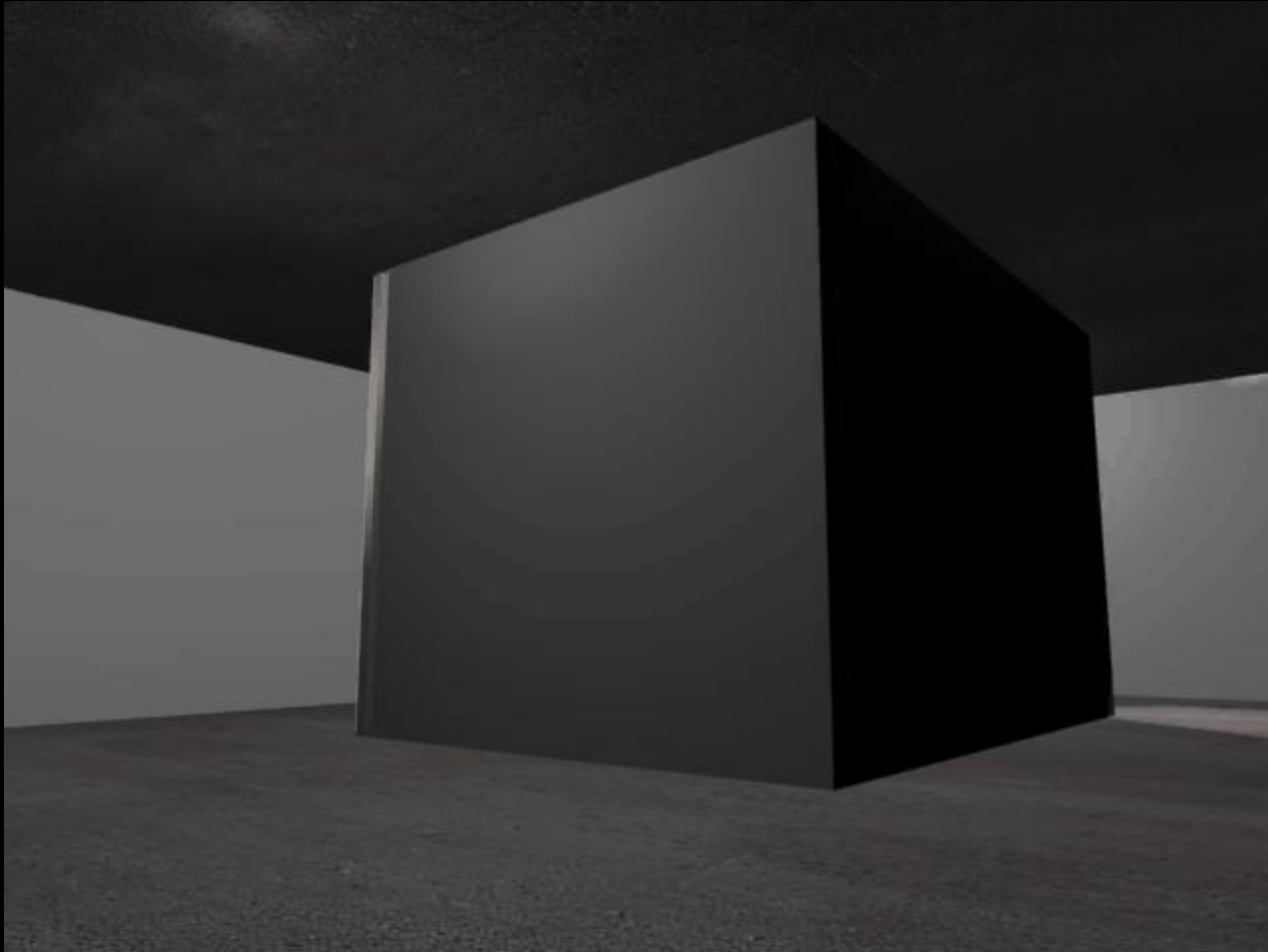
Taken from GA 216-2007

EDGE GAPS EXCEEDING 1/8"



NOTE! Pre-fill gaps with SHEETROCK Brand FIRECODE Compound

Liner Panel Replacement



Click to [start](#) animation



**Underwriters
Laboratories Inc.**

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tel: 1 547 272 3800

February 3, 2004

Mr. Jerry Lewis
USG Corporation
700 N. Highway 45
Libertyville, IL 60048

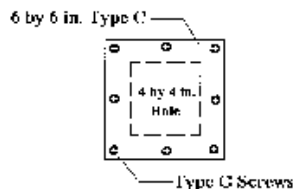
Our Ref: File R1319, Project 04NK4459

Subject: **LAC-USC Medical Center Replacement Project, Los Angeles, CA**

Dear Mr. Lewis:

This is to confirm our conversation with Mr. Nestor Sanchez on January 28, 2004, relative to the repair of holes in the liner panels of 1- to 3 hr fire rated shaftwalls constructed in accordance with Design No. U415. Specifically, 4 in. by 4 in. or smaller holes accidentally made, or 4 in. diameter holes or smaller made for pipes or tubes which were never installed or were removed.

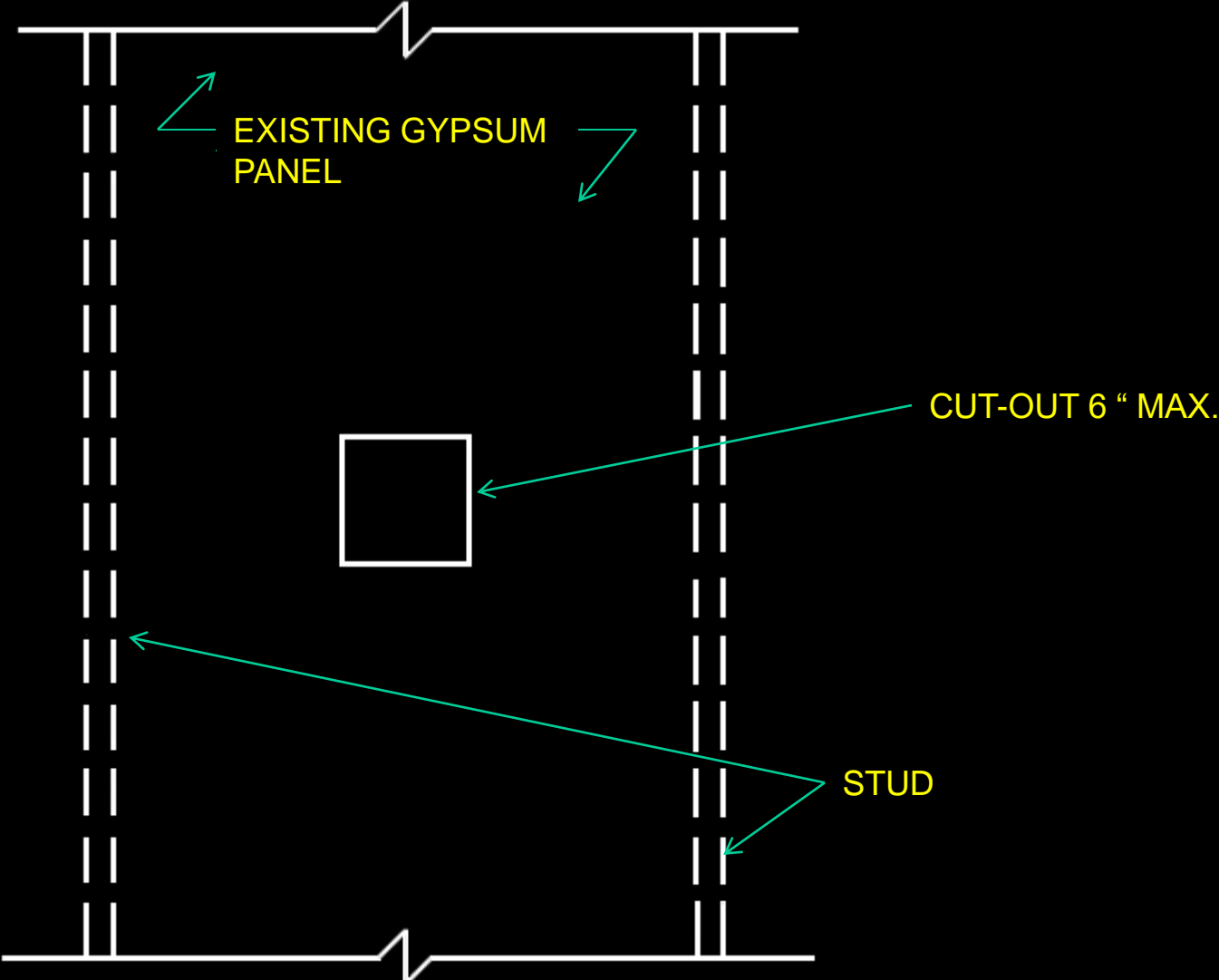
It is our judgment that holes of that size can be repaired using a 6 in. by 6 in. piece of USG's UL Classified SHEETROCK® Brand Gypsum Liner Panels, centered over the hole, laminated with joint compound to the existing liner panel, attached to the existing liner panel with 1-1/2 in. long Type C steel screws (one at each corner and one centered between the corner screws – screws a minimum of 3/8 in. from the edges of the piece being applied) as shown below.



An independent organization working for a safer world with integrity, precision and knowledge.

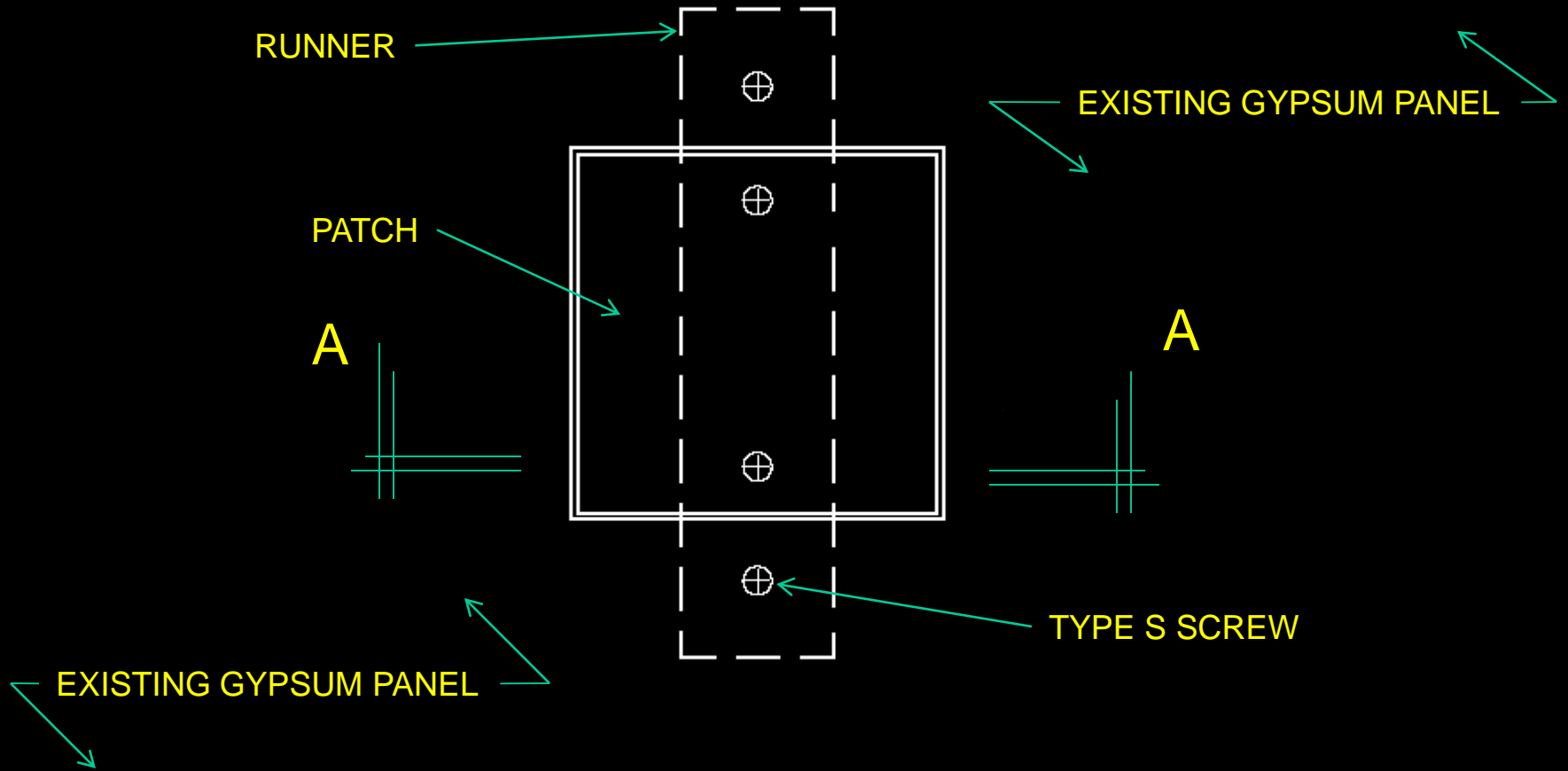


FLUSH PATCH - SMALL

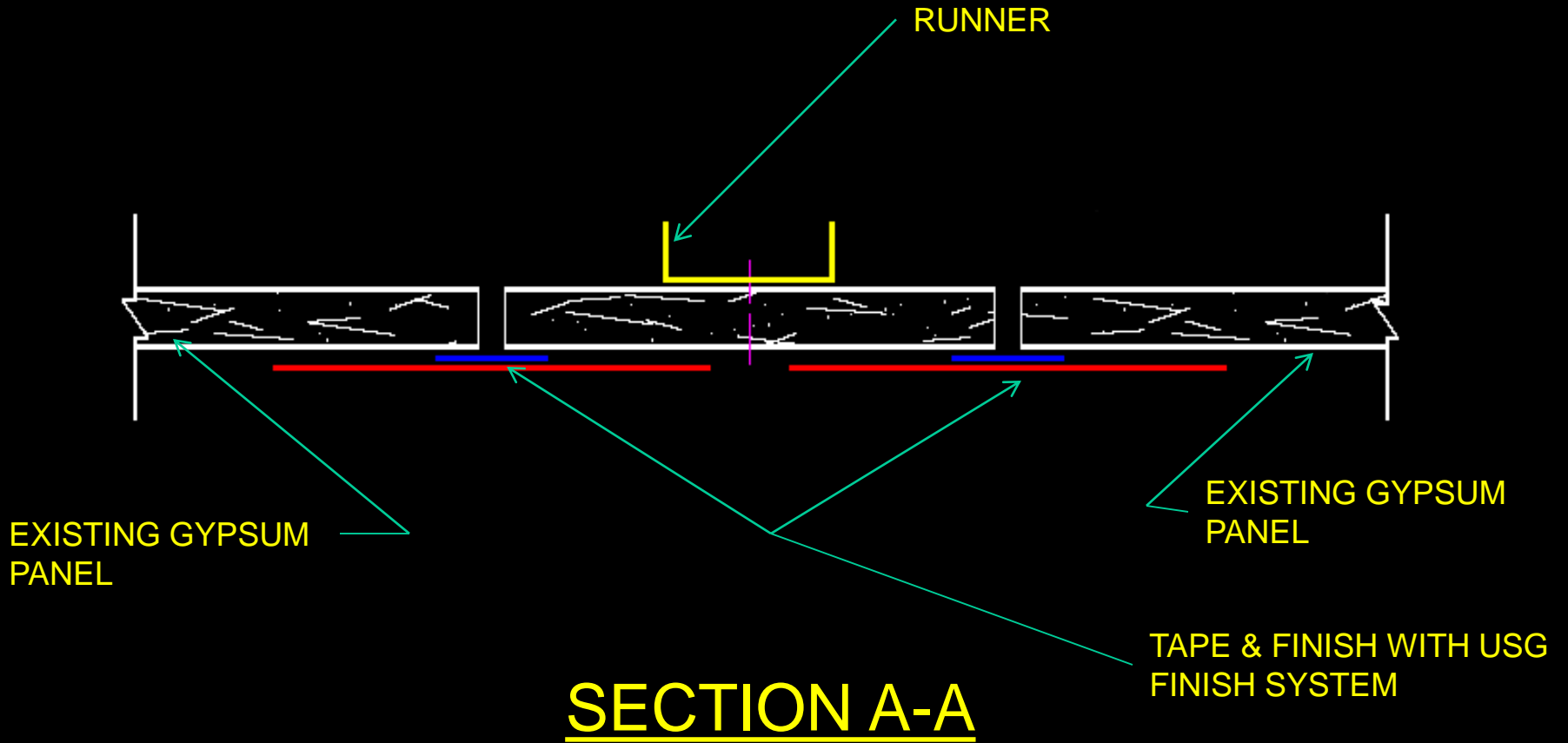


ELEVATION

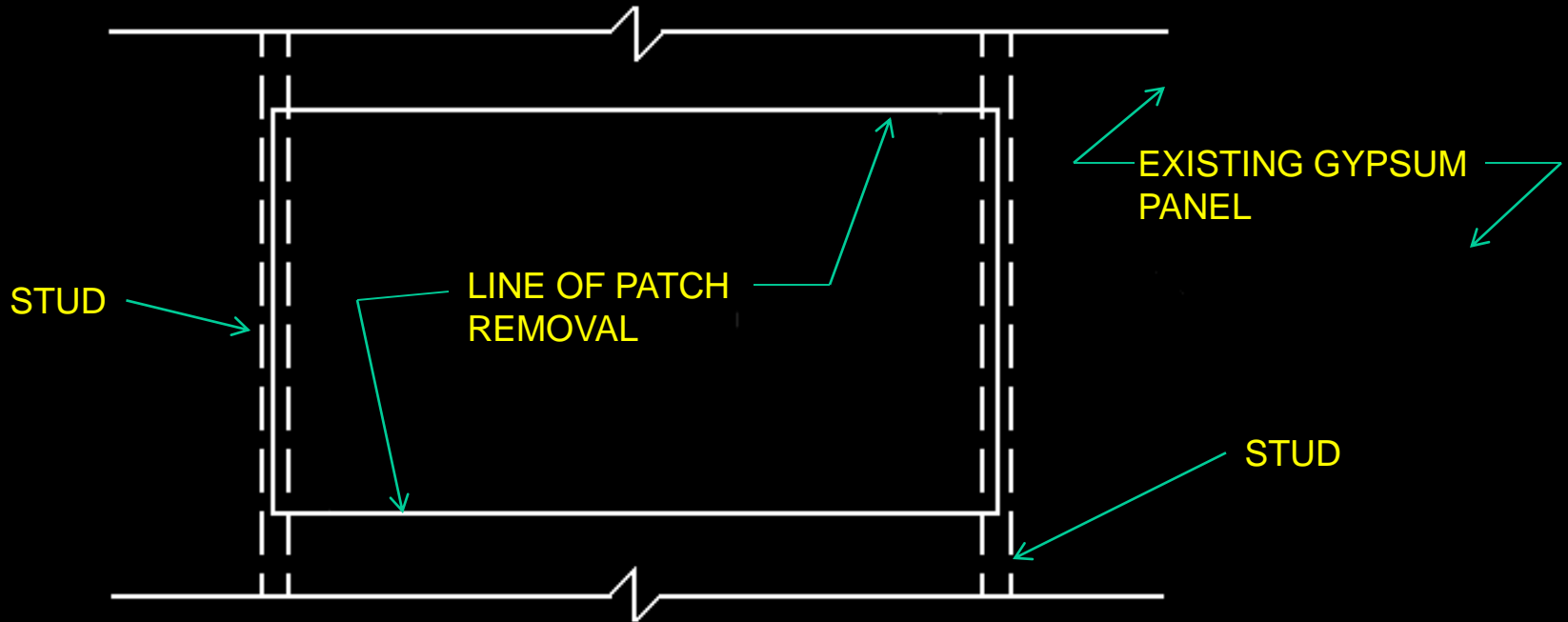
FLUSH PATCH - SMALL



INSTALLATION DETAILS

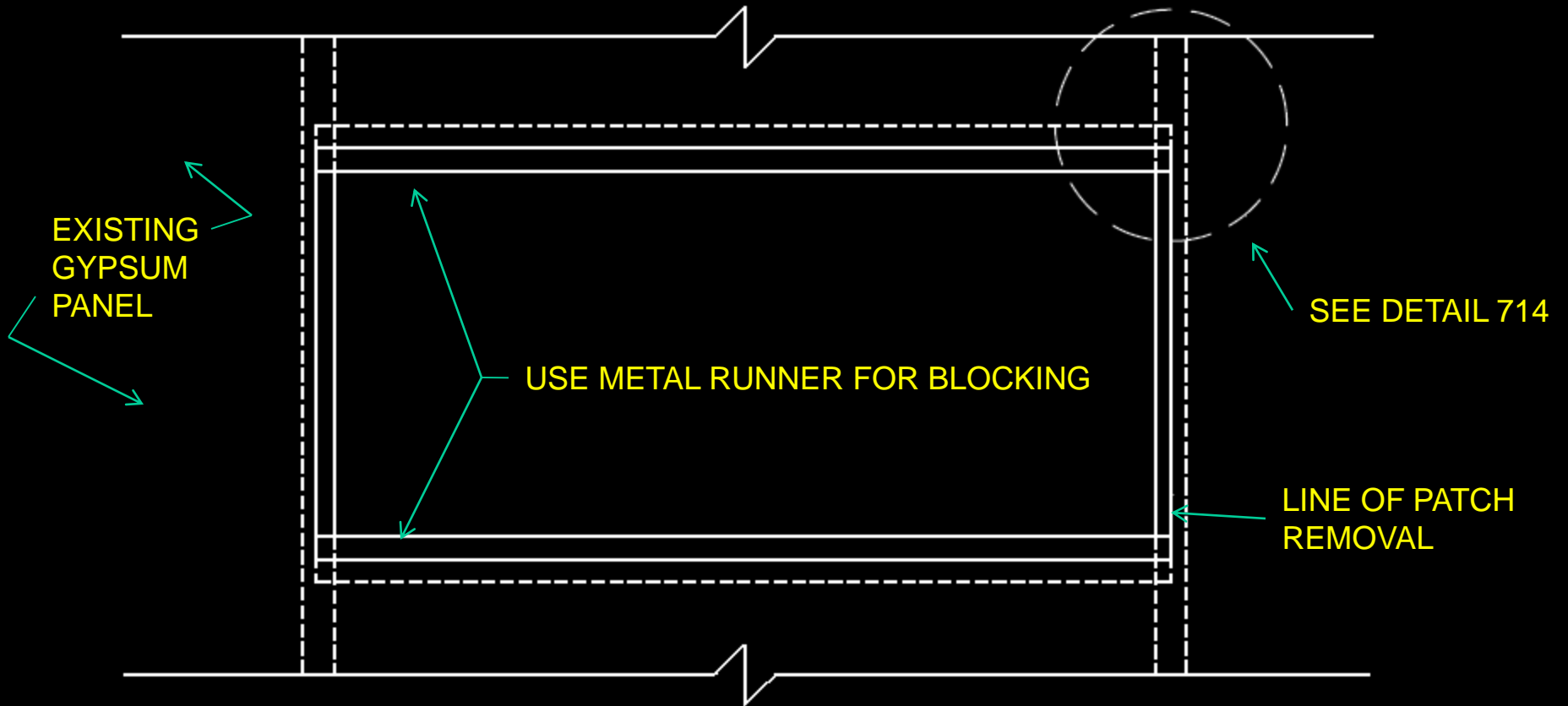


FLUSH PATCH - LARGE



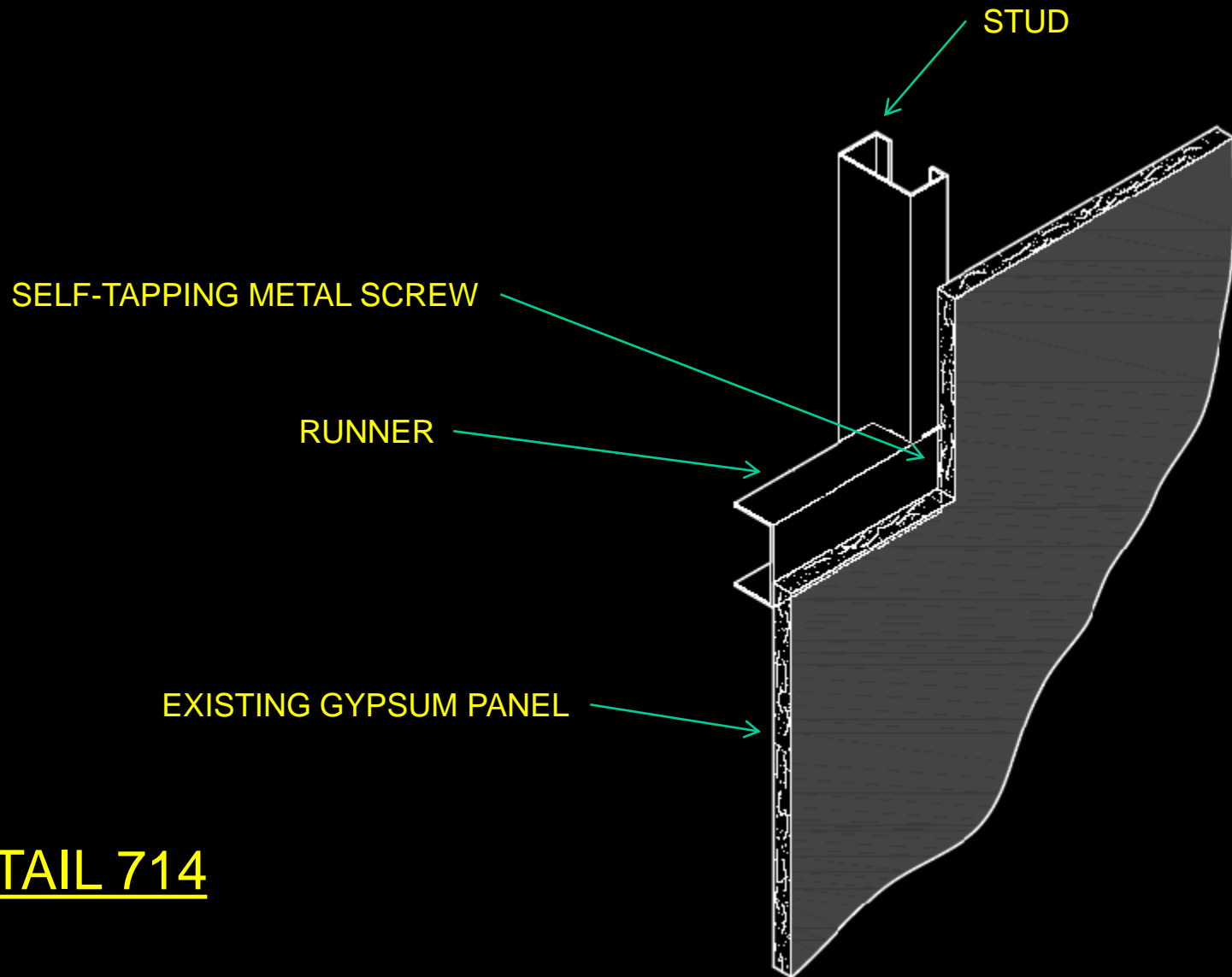
PARTIAL ELEVATION - 1

FLUSH PATCH - LARGE



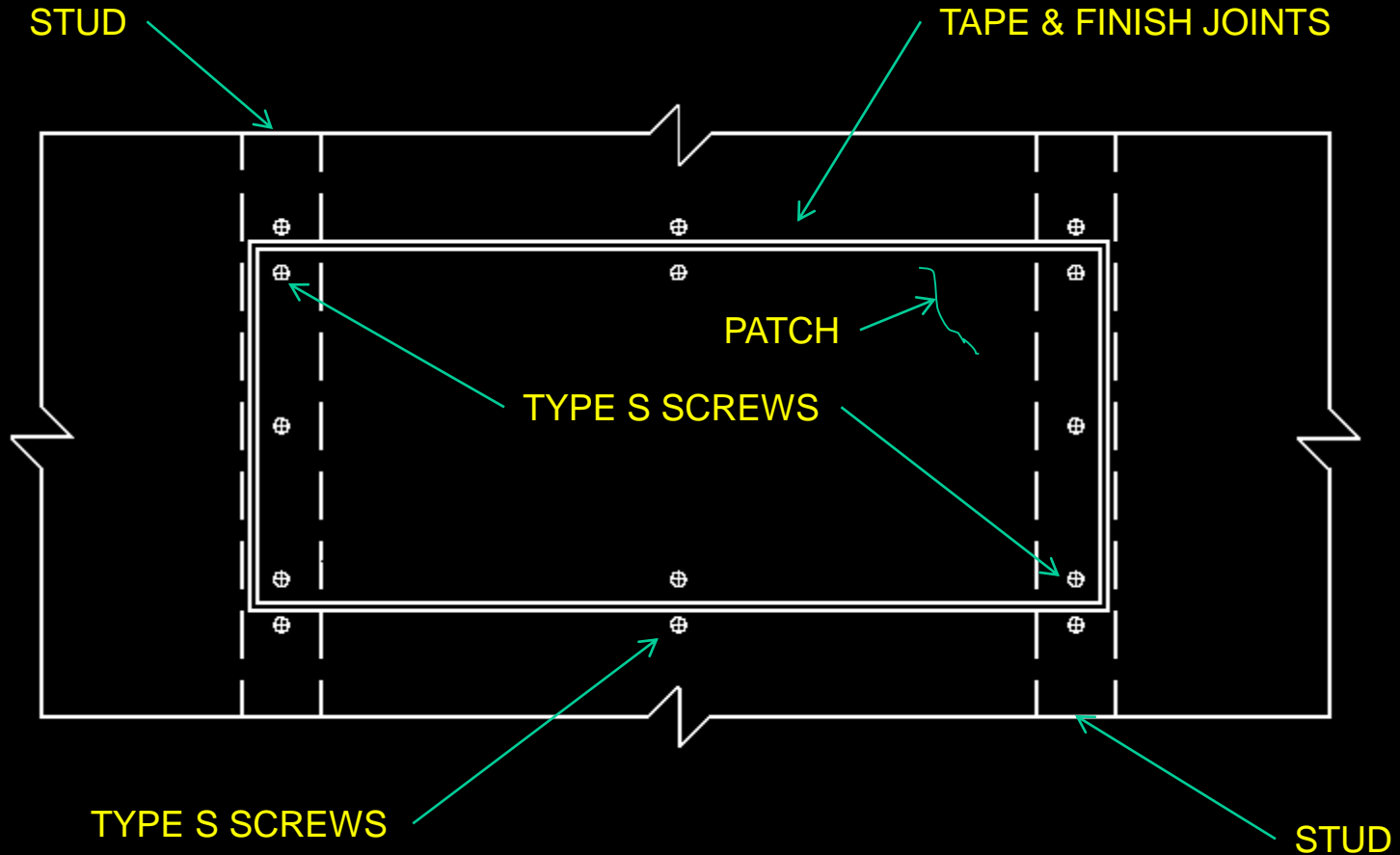
PARTIAL ELEVATION - 2

FLUSH PATCH - LARGE



DETAIL 714

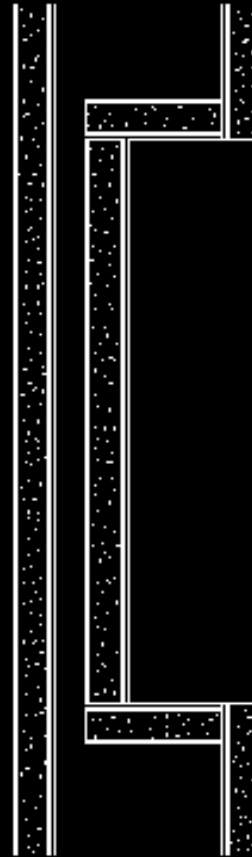
FLUSH PATCH - LARGE



PARTIAL ELEVATION - 3

MEDICINE CABINET

- Five sided enclosure



PARTITION ADJACENT TO BEAM

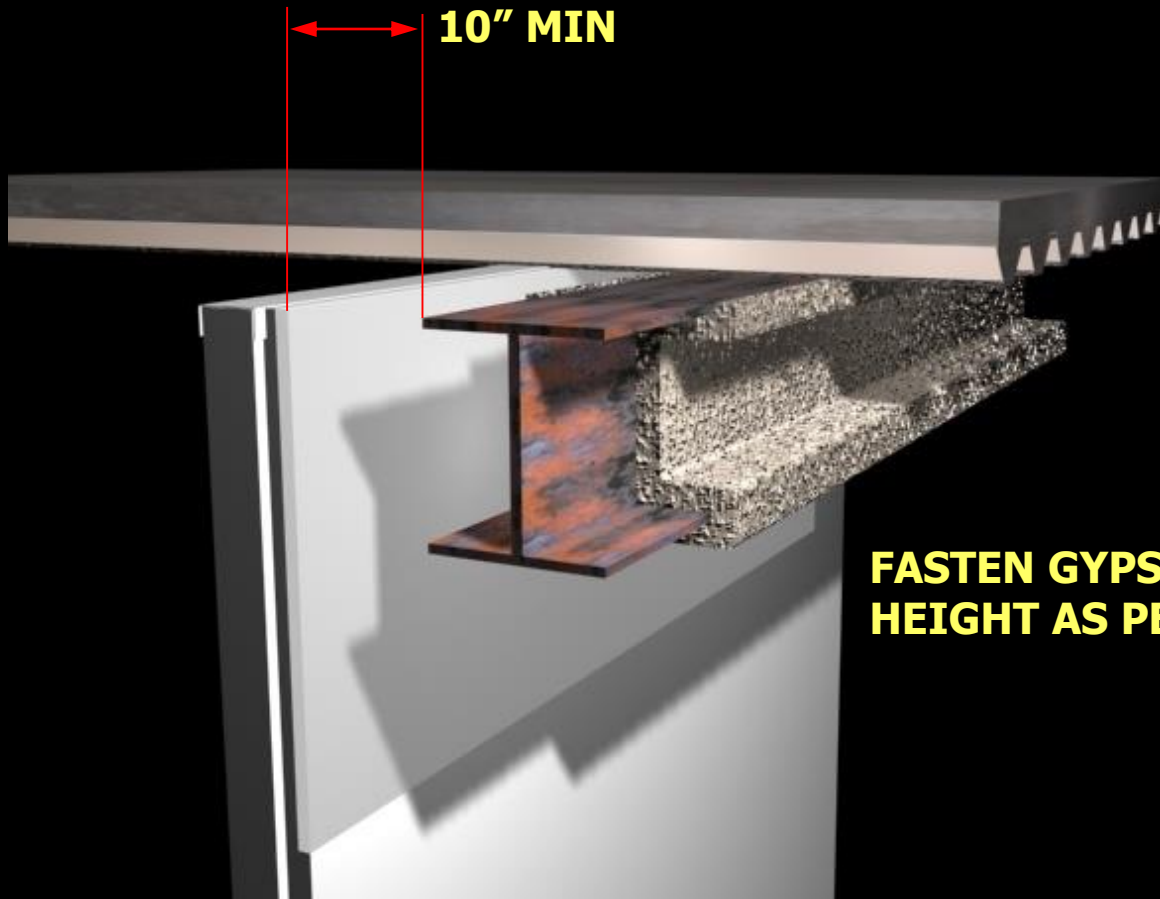


Click to [start](#) animation

What to do?

- Follow a UL or Intertek classified Head-of-wall Joint System
 - Tested per ASTM E1966 (UL2079)

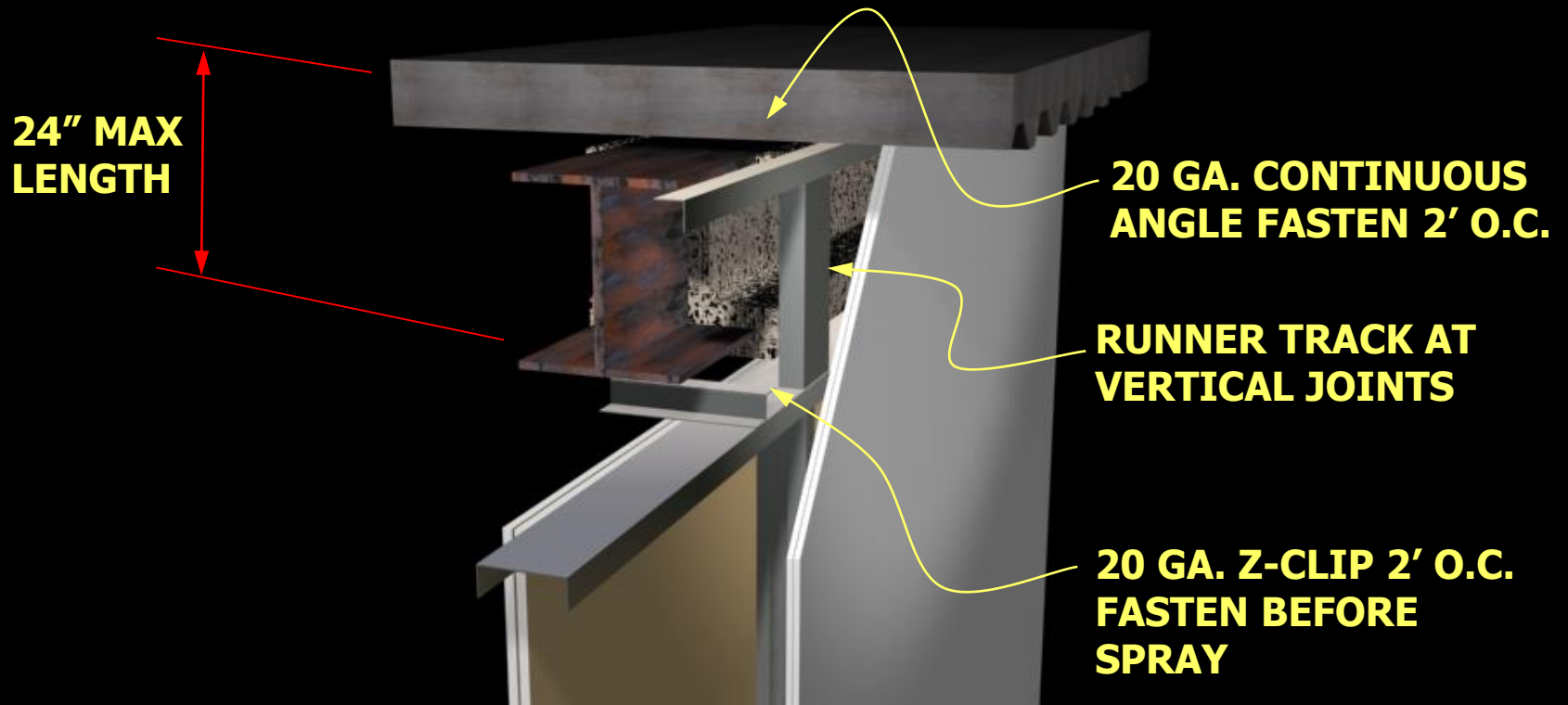
PARTITION ADJACENT TO BEAM



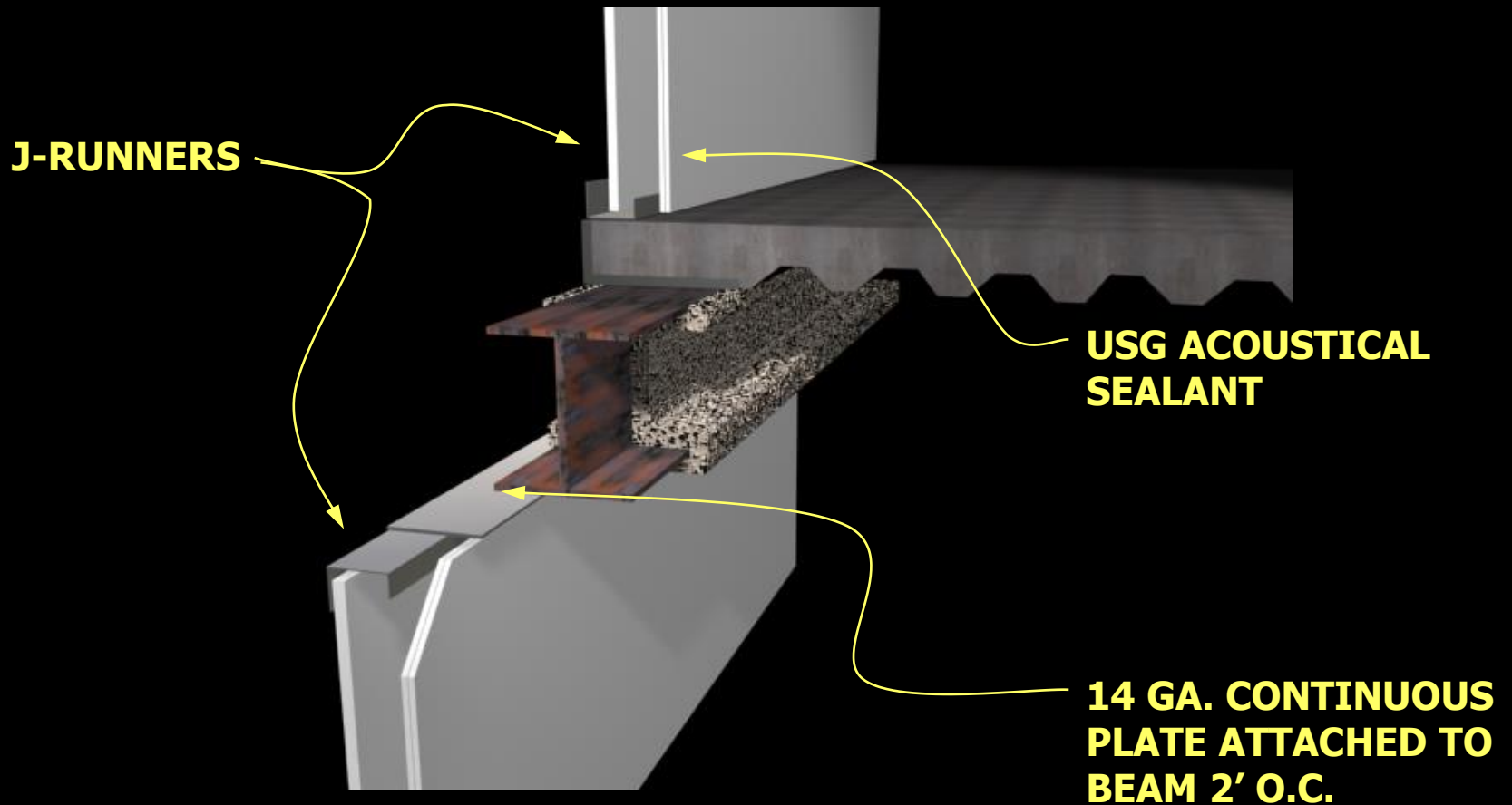
FASTEN GYPSUM BOARD FULL HEIGHT AS PER FIRE TEST

Click to [start animation](#)

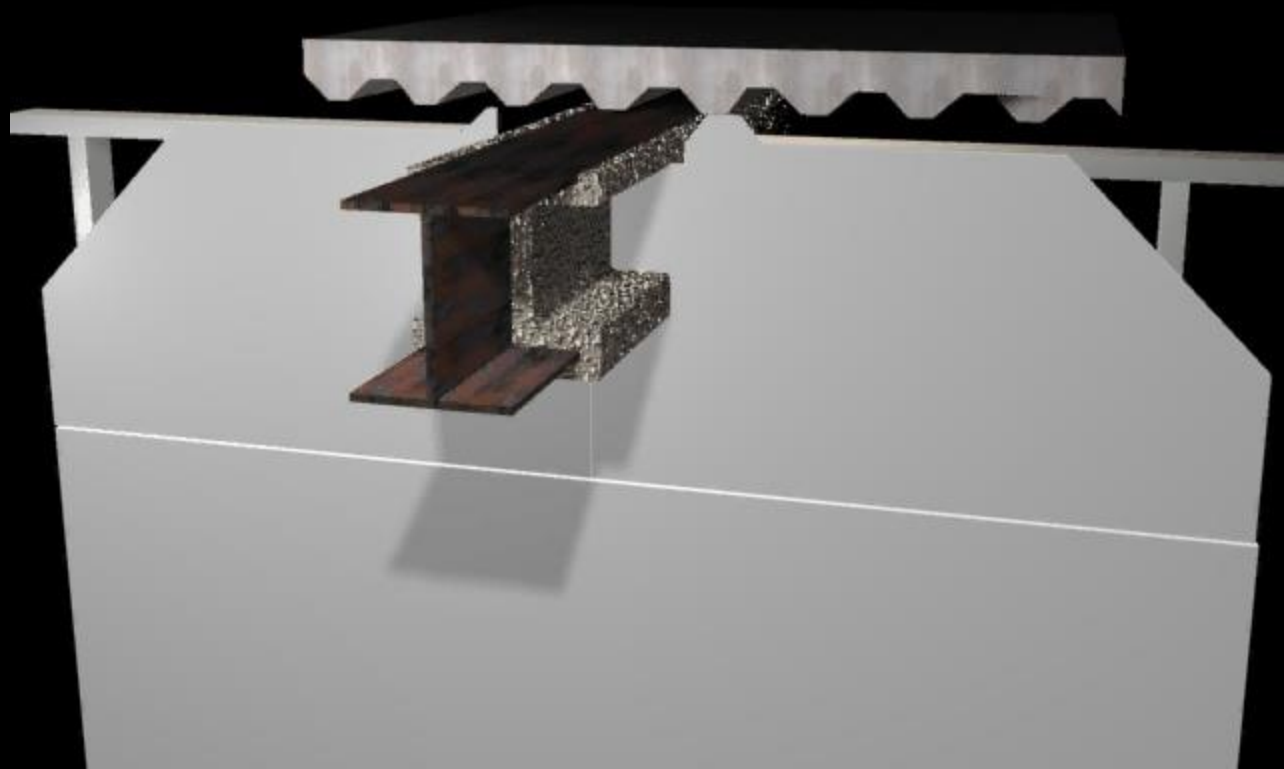
DETAIL – PARTITION UNDER BEAM



DETAIL – SHAFT WALL OFFSET



FireProofed Beams Through Fire Rated Walls



[Click to start animation](#)

What to do?

- Follow a UL or Intertek classified head-of-wall joint system
 - Tested per ASTM E1966 (UL 2079)

REFERENCE MATERIALS

- UL Fire Resistance Directory
- GA 225-08 Repair of Fire Rated Gypsum Board Systems, Gypsum Association
- Repairing Gypsum Fire Resistive Assemblies, Life Safety Digest
- Building Materials and Structures, Report BMS 92; National Bureau of Standards, 10/7/1942
- Fire Ratings of Archaic Materials & Assemblies; NIBS, February 2000

SUMMARY

- Newer Construction Options
- Repair Options

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