



Construction Testing Sciences
2978 Congressman Ln. Dallas, TX 75220
Phone: 214.703.8911
www.ctsciences.com

February 24, 2022

Mr. Justin Tocci
Workflow Products, LLC
113 Souder Dr.
Hurst, TX 76053

Re: Fire Rating of Existing CMU Wall

Mr. Tocci:
Construction Testing Sciences (CTS) has completed the evaluation of the CMU block obtained from your facility at the above referenced address. The sample consisted of a nominal 12" wide x 16" long x 8" high hollow cell concrete masonry unit (CMU). The sample was extracted from the west wall of the original structure. The purpose of our evaluation was to determine if the existing CMU wall met the requirements of IBC Table 722.3.2 for a 3.0 hours fire rating. This would be based on the equivalent wall thickness and aggregate constituents within the sample. Initially, CTS determined the wall thicknesses and web thicknesses on all sides of the sample. These measurement determinations were performed in accordance with Section 6 of ASTM C 140, Standard Test Methods for Sampling Concrete Masonry Units and Related Units. Upon completion of the measurement determinations, the sample was validated as a standard 8x12x16 CMU specimen. CTS then fractured the sample to evaluate the types of aggregate within the sample. The sample consisted primarily of expanded shale and expanded clay aggregates and a minor portion of calcareous aggregates. Based on this finding, CTS referred to the National Concrete Masonry Association (NCMA) Manual, specifically Technical Section 07-01D, Fire Resistance Ratings of Concrete Masonry Assemblies. Table 2 of this technical section exhibits a nominal 12" wide CMU block having an equivalent wall thickness of 5.1 inches. In accordance with Table 722.3.2 of IBC, the unit must have a minimum equivalent wall thickness of 4.4" for a 3.0 hours fire rating.

Based on the findings of this sample, it therefore meets and exceeds the minimum requirement of IBC for a 3.0 hours fire resistance rating.

The tables referenced within the NCMA Technical Manual and IBC are included for reference. Photos of the sample extraction location and aggregates are also included.

We trust the information provided is acceptable for your use. If you have any questions or require additional information please contact us.

Respectfully submitted,


Jack Gary
General Manager

LIMITATIONS: The test results presented herein were prepared based upon the specific samples provided for testing. We assume no responsibility for variation in quality (composition, appearance, performance, etc.) or any other feature of similar subject matter provided by persons or conditions over which we have no control. Our letters and reports are for the exclusive use of the clients to whom they are addressed and shall not be reproduced except in full without the written approval of Construction Testing Sciences, LLC.

PROJECT LOCATION
113 Souder Dr., Hurst, Texas 76053

OWNER:
Justin Tocci, justin@tocci.org
113 Souder Dr.
Hurst, TX 76053
817-291-0753

ARCHITECT
Lakeside Architect, lakesidearchitect@gmail.com
214-952-7250

SCOPE OF WORK:
The purpose of this plan submittal is to confirm the existence of a three hour wall in this existing building. The existing three-hour wall divides the building into two major areas. A fire rated door shall be installed to provide access through the three-hour wall to the rear area of the building (for a proposed shop use). Accordingly, the owner is applying for an amendment to the existing Certificate of Occupancy to allow a wood working shop (or such use) in the rear area of the building.

OWNER:

INDEX OF DRAWINGS

- A0 Cover & Project Data
- A0.1 Exist. CMU Analysis – Reference Data
- A0.2 Site Plan
- A1 Floor Plan
- A2 Wall Sections – Firewall (existing)
- A2.1 Masonry details



113 SOUDER DR.

HURST, TEXAS 76053

LAKESIDE ARCHITECT DALLAS, TX 214-952-7250

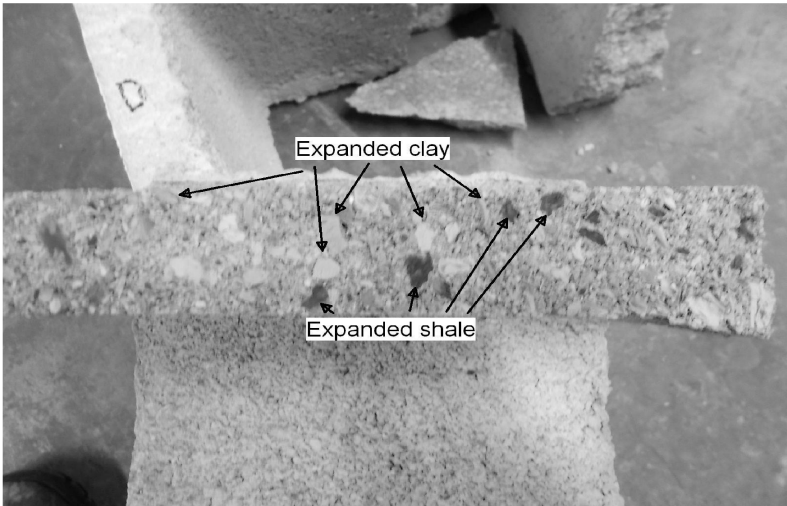
Cover & Project Data		
Project number	01032022	A0
Date	11 April 2022	
Drawn by	DJO	
Checked by	LSA	Scale



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West Wall Removal Location



CMU Block Aggregate Distribution

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CMU ANALYSIS CONCLUSION

Table 2 of this technical data exhibits a nominal 12" wide CMU block having an equivalent wall thickness of 5.1 inches. In accordance with Table 722.3.2 of IBC, the unit must have a minimum equivalent wall thickness of 4.4" for a 3.0 hours fire rating. Based on the findings of this sample, it therefore meets and exceeds the minimum requirement of IBC for a 3.0 hours fire resistance rating.



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Table 2—Equivalent Thicknesses of Concrete Masonry Units, in. (mm)				
Nominal width, in. (mm)	Based on typical hollow units ^A		Based on percent solid (75%) (100%)	
4 (102)	2.7 (69)	[73.8]	2.7 (69)	3.6 (91)
6 (152)	3.1 (79)	[55.0]	4.2 (107)	5.6 (142)
8 (203)	4.0 (102)	[53.0]	5.7 (145)	7.6 (193)
10 (254)	4.5 (113)	[46.3]	7.2 (183)	9.6 (244)
12 (305)	5.1 (129)	[44.0]	8.7 (221)	11.6 (295)
14 (356)	5.5 (139)	[40.2]	10.2 (259)	13.6 (345)
16 (406)	6.0 (152)	[38.4]	11.7 (297)	15.6 (396)
^A Values in brackets [] are percent solid values based on typical two-core concrete masonry units.				

TABLE 722.3.2
MINIMUM EQUIVALENT THICKNESS (Inches) OF BEARING OR NONBEARING CONCRETE MASONRY WALLS^{a,b,c,d}

TYPE OF AGGREGATE	FIRE-RESISTANCE RATING (hours)															
	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	
Pumice or expanded slag	1.5	1.9	2.1	2.5	2.7	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.5	4.7	
Expanded shale, clay or slate	1.8	2.2	2.6	2.9	3.3	3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8	4.9	5.1	
Limestone, cinders or unexpanded slag	1.9	2.3	2.7	3.1	3.4	3.7	4.0	4.3	4.5	4.8	5.0	5.2	5.5	5.7	5.9	
Calcareous or siliceous gravel	2.0	2.4	2.8	3.2	3.6	3.9	4.2	4.5	4.8	5.0	5.3	5.5	5.8	6.0	6.2	

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Exist. CMU Analysis - Reference Data

Number 01032022

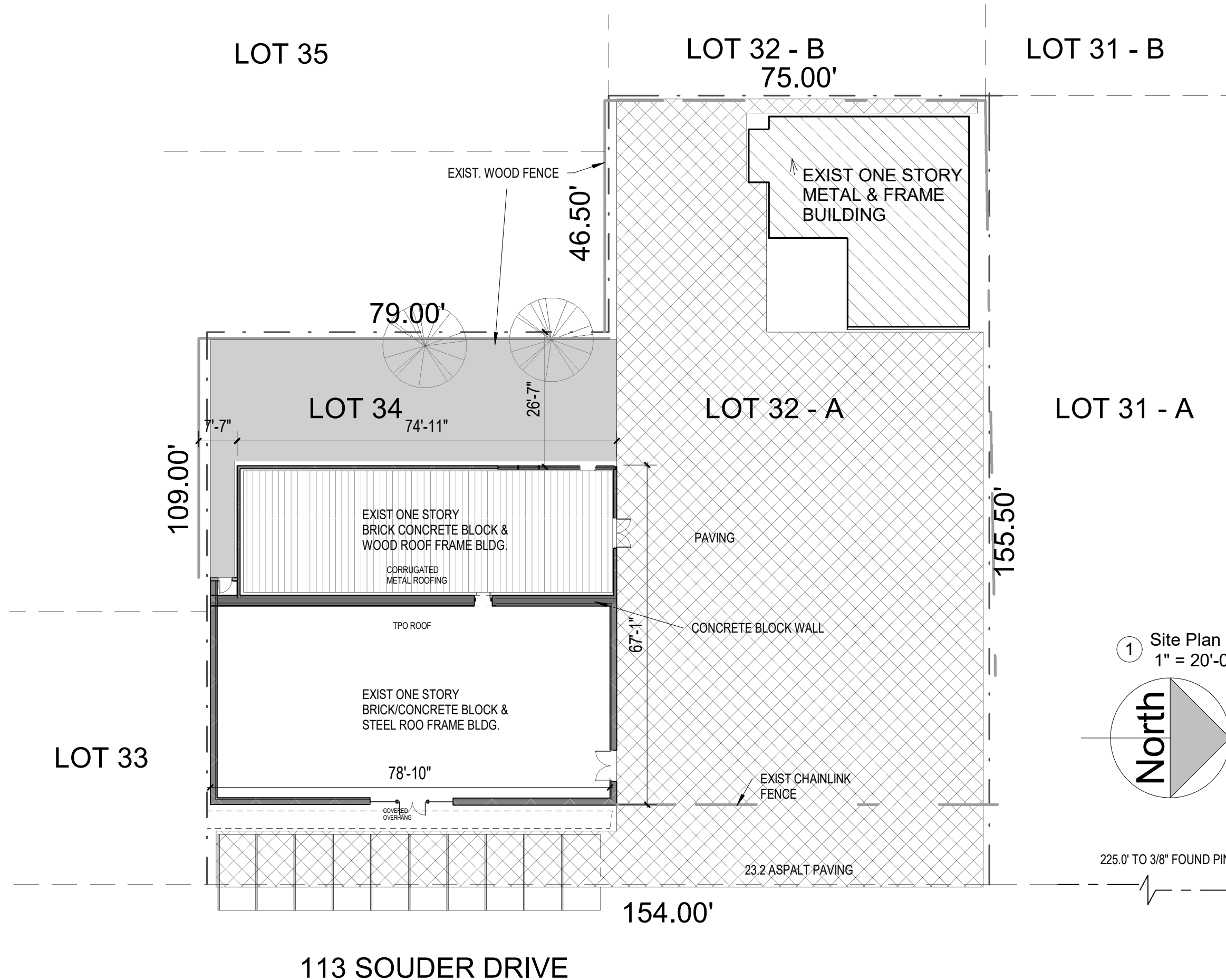
Date 11 April 2022

Drawn by DJO

Checked by LSA

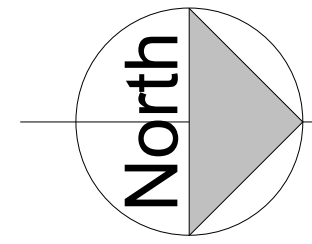
A0.1

Scale



Site Plan			
Project number	01032022		
Date	11 April 2022		
Drawn by	Author		
Checked by	Checker	Scale 1" = 20'-0"	
A0.2			

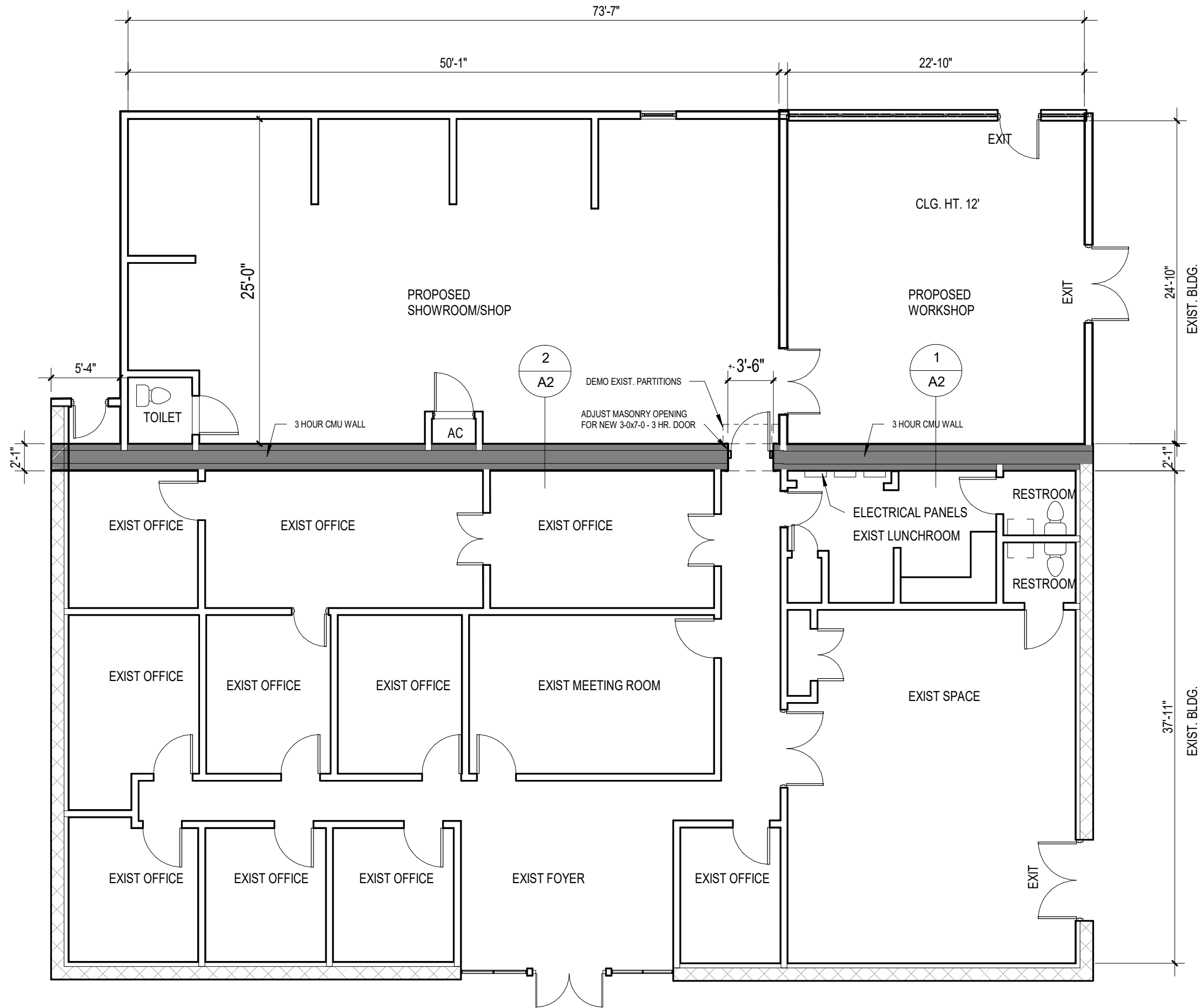
1 Site Plan
1" = 20'-0"



225.0' TO 3/8" FOUND PIN

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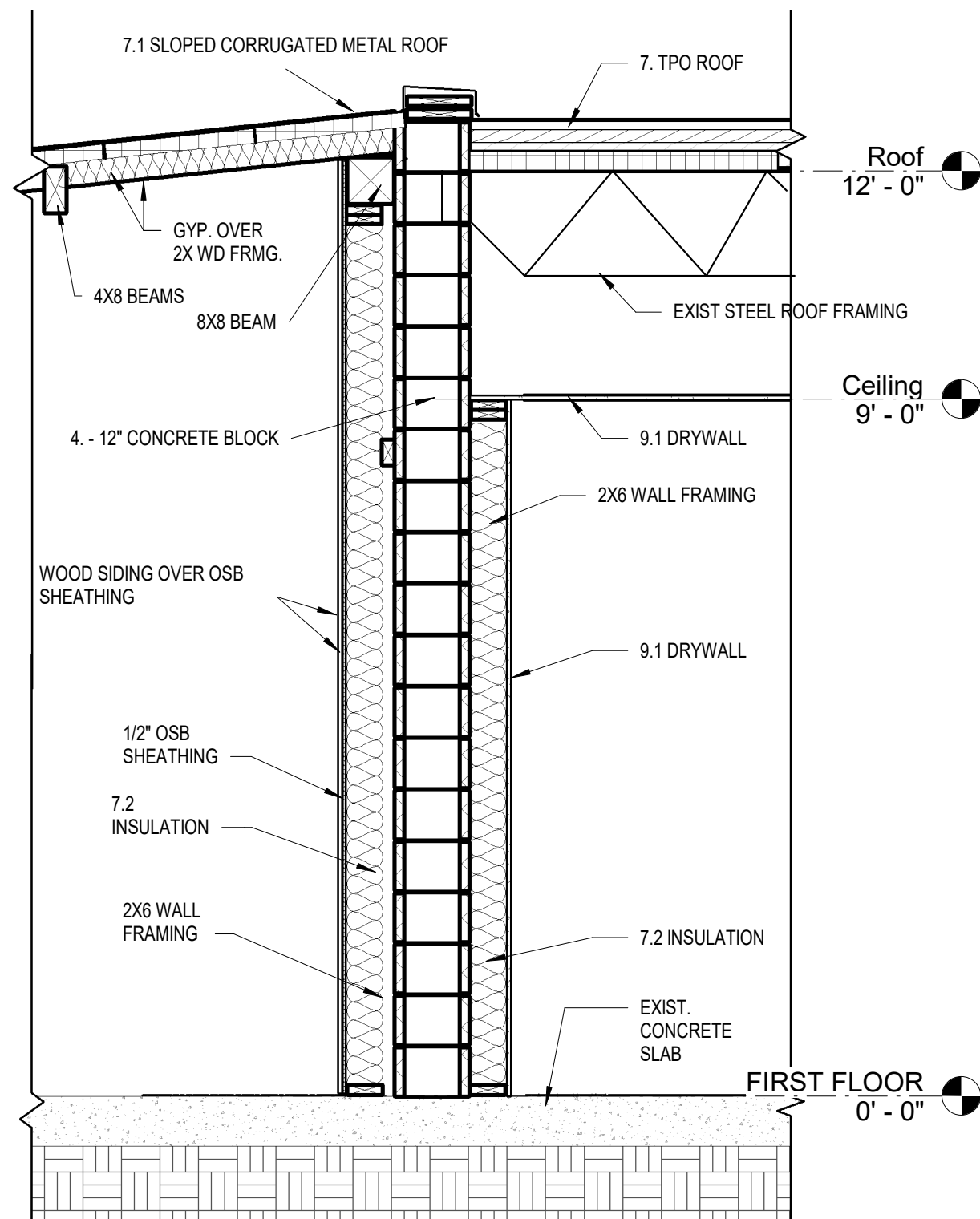
DALLAS, TX 214-952-7250



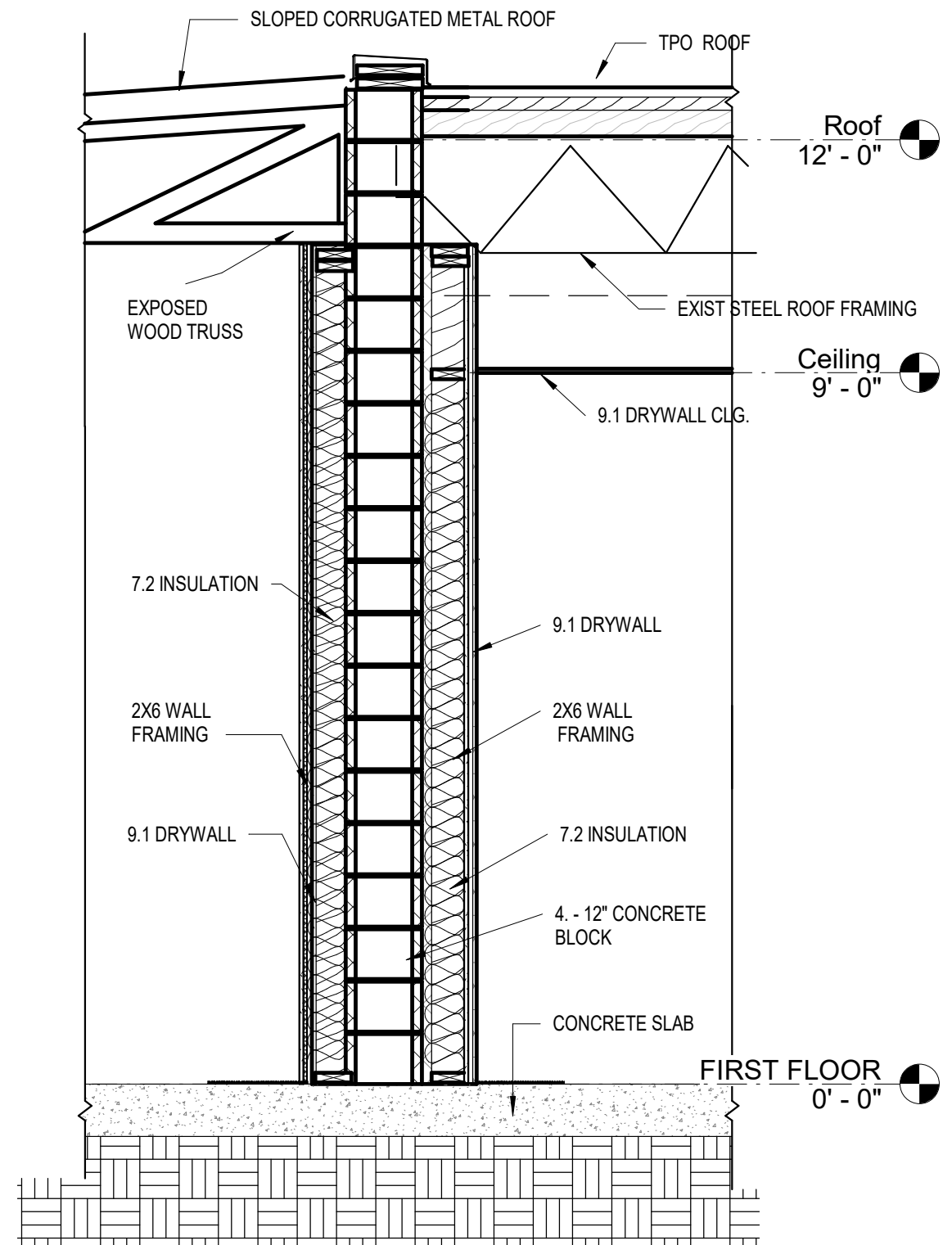
Floor Plan		A1	
		Project number	01032022
		Date	11 April 2022
		Drawn by	DJO
		Checked by	LSA
		Scale 1/8" = 1'-0"	

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① Firewall 1 (EXISTING)
1/2" = 1'-0"



② Firewall 2 (EXISTING)
1/2" = 1'-0"



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WALL SECTIONS - FIREWALL

Project number	01032022
Date	11 April 2022
Drawn by	DJO
Checked by	LSA

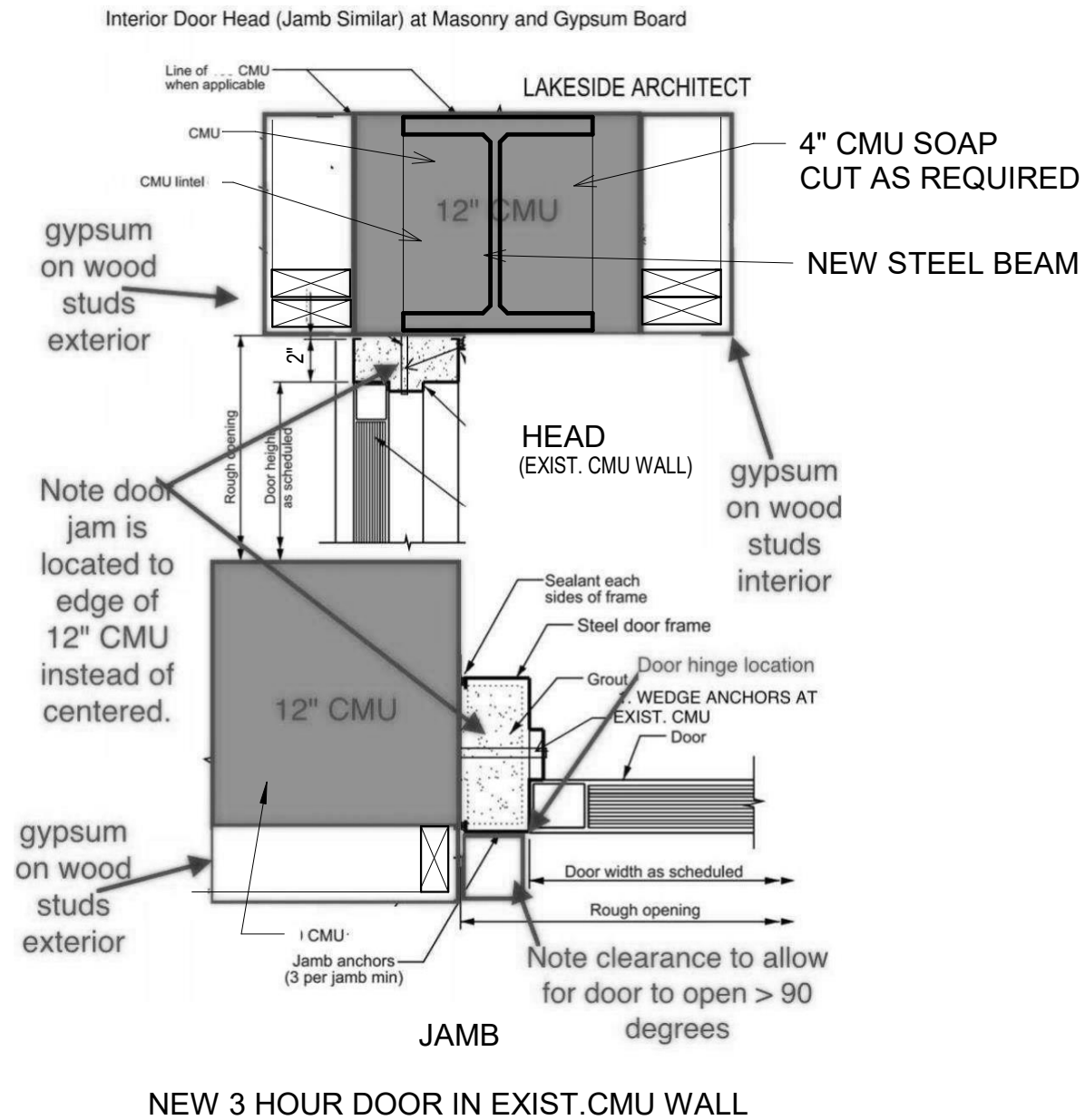
A2

Scale 1/2" = 1'-0"



Masonry Details				A2.1
Project number	01032022			
Date	05-10-22			
Drawn by	Author			
Checked by	Checker			

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① Masonry Details
1 1/2" = 1'-0"