



Date: August 16, 2023
To: Jimmy Anderson
Jimmy Neil Anderson Architect
1 Anderson Trail
Clifton, TN 38425
RE: Approval of Plans
FHS-CTE Classroom, Frank Hughes School
506 Main Street
Clifton, TN 38425
TFM # 03387-C
Project # 2023-07-03-01
County: Wayne

Dear Mr. Anderson,

The construction documents submitted to our office for the above referenced project have been reviewed for compliance with the minimum standards for fire prevention, fire protection, and building construction safety of the *Rules of Tennessee Department of Commerce and Insurance, Division of Fire Prevention, Chapter 0780-02-02, Codes and Standards*.

This is a public building. Therefore, it is subject to Tenn. Code Ann. § 68-102-201, et seq., the Tennessee Public Building Accessibility Act. It has been reviewed for compliance with the 2010 ADA Standards for Accessible Design. It has not been reviewed for compliance with the Americans with Disabilities Act.

No approval of plans, or failure to review, plans, and specifications by the Division shall relieve the owner, developer, contractor, or designing architect or engineer of their respective responsibilities for compliance with applicable codes respecting fire prevention, fire protection, and building construction. Rule 0780-02-03-.05.

Approved plans are available electronically at <https://apps.tn.gov/tnsfmo/>. They must be printed with all markups and stamps and placed at the project site prior to construction. They shall be available to the State Fire Marshal's Office inspector and retained until a CO has been issued by the Division. Failure to have the plans at the site and available to the inspector may be grounds for a Stop Work Order to be issued. Rule 0780-02-03-.05.

All subsequent construction document revisions that impact the approved plan's fire prevention, fire protection, or building construction safety must be submitted to this office for review and approval. Rule 0780-02-03-.02.

New buildings shall have approved radio coverage for emergency responders within the building

based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. Emergency responder radio coverage must be verified in the field prior to the issuance of a CO. The test should be performed by the local fire department after interior and exterior walls and the roof are constructed.

The project's contractor must contact the Tennessee State Fire Marshal's Office inspector prior to construction to ensure that the proper inspections are performed.

Engineered wood truss drawings and/or engineered steel joist drawings must be submitted for approval to the architect or engineer of record prior to installation. Engineer's approval should be verified by one of the following:

- signed and dated Shop Drawing Review Stamp, or
- signed and dated letter stating acceptance

A CO will be issued after work is completed and all inspections are performed and satisfied. The building must have a CO before it may be occupied. Rule 0780-02-03-.10.

Sincerely,
M. Reza Kheshti

M. Reza Kheshti, Plans Examiner II
Codes Enforcement Section

cc: DSFM (e-mail), DSFM Supervisor (e-mail), Owner (e-mail), File, Fire Official (e-mail)
Attachment: Requirements for inspections of construction

Approval: E Occupancy, One Story, Type Construction V-B, Non-Sprinkled, Unprotected, Renovation

TFM: 03387-C PN: 2023-07-03-01 Field Set

GBE Engineering

Listening, Innovating and Solving

PO Box 750

Goodlettsville, TN 37072

Phone 615.626.5339 Fax 615.239.8867

July 23, 2023

Mr. Reza Kheshti

Department of Commerce and Insurance

Fire Protection Division

TN State Fire Marshall's Office

Codes Enforcement and Plans Review Section

Davey Crockett Tower- 9th Floor

500 James Robertson parkway

Nashville, TN 37243-0565

**Re: Structural Evaluation
Dollar General Store Renovation
506 Main Street, Clifton, TN 38425
TFM Number 03387-C**

Dear Mr. Kheshti:

This letter serves as documentation for my site visit to the Old Dollar General Store at the subject address. The visit was conducted on July 19, 2023 for the purpose of assessing the structural certification of the building shell there. My evaluation consists of an exterior and interior visual inspection of the structure with background information and proposed renovation drawings provided by Jimmy Neil Anderson, Project Architect. No on-site testing or samples were taken for analysis to identify any environmental hazards.

The following is a record of my inspection and comments concerning the current condition of the building from a structural perspective.

EXISTING CONSTRUCTION

The subject building shell is of commercial construction built in 1991. The structure is a 6,790 square foot one-story pre-engineered building with metal cladding, on a concrete slab foundation. In general, the building is in sound structural condition.

TFM: 03387-C PN: 2023-07-03-01 Field Set

Structural Evaluation
Old Dollar General Building
506 Main Street
Clifton, TN 38425
July 23, 2023

PHOTO DOCUMENTATION

Photo documentation was conducted during the inspection to provide visual evidence of the condition of the structure and any types of structural deficiencies that exist in the building at the time of inspection. They are attached to this report and are described below.

Figures 1 through 4 depict the exterior elevations of the building. The metal cladding seems to be in good condition with no visible evidence of leakage. No structural repairs are recommended at this time on the building exterior.

Figures 5 and 6 are photographs of the finished interior of the building with gypsum board walls, acoustical tile ceiling and finished concrete floor all appear to be in good condition.

Figures 7 and 8 are photographs of the rear storeroom unfinished space with no visible structural deficiencies noted.

Figures 9 and 10 are photographs of the wall and ceiling spaces with no structural deficiencies noted.

Figure 11 is a photograph of the building bracing and frame connection with no structural deficiencies noted.

STRUCTURAL EVALUATION

In my professional opinion, the existing building shell is deemed to be structurally adequate for the building codes at the time of construction. The proposed remodeling of the interior is structurally independent of the shell and, therefore, will not change the loading requirements under the International Building Code currently in force with the State of Tennessee.

CONCLUSIONS

The existing structure is currently in good condition structurally and with the proper maintenance should provide an exceptional structure for its proposed use. Please note that this report is limited to visual inspection and represents a professional opinion of the structural condition of the existing building at the time of inspection. It is not within the scope of this report to make a determination concerning the final condition of the structure after renovations are complete.

Sincerely,



Greg Edrington, TN PE 19152
GBE Engineering





Interior Lighting Compliance Certificate

Project Information

Energy Code: 2012 IECC
 Project Title: FHS CTE Classrooms
 Project Type: New Construction

Construction Site:
 Clifton, TN 38425

Owner/Agent:

Designer/Contractor:
 Kevin Tully
 DW Collier Engineering, Inc.
 720 Broadway
 South Fulton, TN 38257
 731-479-2115
 kevin@dwcei.com

Additional Efficiency Package(s)

Unspecified

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-Workshop	3500	1.40	4900
2-School/university	3400	1.20	4080
Total Allowed Watts =			8980

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Workshop				
LED 1: A: CPX: LED Panel 54W:	1	42	51	2125
LED 2: B: CLX: LED Linear 33W:	1	18	38	688
LED 3: B4: CLX: LED Linear 22W:	1	2	28	55
2-School/university				
Total Proposed Watts =				2868

Interior Lighting PASSES: Design 68% better than code

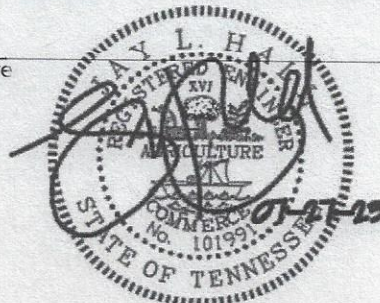
Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2012 IECC requirements in COMcheck Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Kevin B. Tully, Designer

Name - Title

Signature



07/27/2023

Date

Project Title: FHS CTE Classrooms

Report date: 07/27/23

Data filename: S:\DRAWINGS\2023\23-081 Wayne Co. Schools Ag Shop and Classroom Renovation - Clifton, TN\Lighting - Visual\Wayne CTE ELEC.cck

Page 1 of 7

TFM: 03387-C PN: 2023-07-03-01 Field Set



COMcheck Software Version 4.1.5.1

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2012 IECC
 Project Title: FHS CTE Classrooms
 Project Type: New Construction
 Exterior Lighting Zone: 4 (High activity metropolitan commercial district)

Construction Site:
 Clifton, TN 38425

Owner/Agent:

Designer/Contractor:
 Kevin Tully
 DW Collier Engineering, Inc.
 720 Broadway
 South Fulton, TN 38257
 731-479-2115
 kevin@dwcei.com

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Porch (Entry canopy)	383 ft2	0.4	Yes	153
Other door (not main entry)	6 ft of door	20	Yes	120

Total Tradable Watts (a) = 273

Total Allowed Watts = 273

Total Allowed Supplemental Watts (b) = 1300

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.

(b) A supplemental allowance equal to 1300 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
<u>Porch (Entry canopy 383 ft2): Tradable Wattage</u> LED 5: C: VAPOR TIGHT STRIP: LED Other Fixture Unit 60W:	1	3	62	186
<u>Other door (not main entry) (6 ft of door width): Tradable Wattage</u> LED 6 copy 1: D: WALL PACK: LED A Lamp 25W:	1	2	29	58
Total Tradable Proposed Watts =				244

Exterior Lighting PASSES: Design 84% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2012 IECC requirements in COMcheck Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

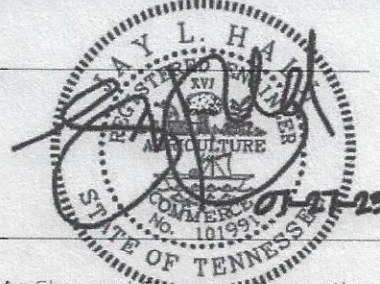
Kevin B. Tully, Designer

Name - Title

Signature

07/27/2023

Date



Project Title: FHS CTE Classrooms

Report date: 07/27/23

Data filename: S:\DRAWINGS\2023\23-081 Wayne Co. Schools Ag Shop and Classroom Renovation - Clifton, TN\Lighting - Visual\Wayne CTE ELEC.cck

Page 2 of 7

TFM: 03387-C PN: 2023-07-03-01 Field Set



COMcheck Software Version 4.1.5.5

Mechanical Compliance Certificate

Project Information

Energy Code: 2012 IECC
 Project Title: FHS CTE Classrooms
 Location: Clifton, Tennessee
 Climate Zone: 4a
 Project Type: Alteration

Construction Site:
 Clifton, TN 38425

Owner/Agent:

Designer/Contractor:
 Alan Crittendon
 DW Collier Engineering, Inc.
 720 Broadway
 South Fulton, TN 38257
 731-479-2115
 alan@dwcei.com

Mechanical Systems List

Quantity System Type & Description

- 3 HVAC System 1 (Single Zone):
 Heating: 1 each - Central Furnace, Gas, Capacity = 80 kBtu/h
 Proposed Efficiency = 95.00% Et, Required Efficiency: 80.00 % Et (or 78% AFUE)
 Cooling: 1 each - Split System, Capacity = 60 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: Low Capacity Residential
 Proposed Efficiency = 14.00 SEER, Required Efficiency: 13.00 SEER
 Fan System: None
- 1 Water Heater 1:
 Electric Storage Water Heater, Capacity: 19 gallons
 No minimum efficiency requirement applies

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2012 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Alan Crittendon, PE

Name - Title

Signature

07/25/23

Date

Project Title: FHS CTE Classrooms

Report date: 07/25/23

Data filename: E:\server\drawings\2023\23-081 Wayne Co. Schools Ag Shop and Classroom Renovation - Cliftc Page 1 of 9
 TN\Design\Wayne CTE.cck

TFM: 03387-C PN: 2023-07-03-01 Field Set

THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.
 No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.
 TENNESSEE STATE FIRE MARSHAL'S OFFICE

Wayne County Board of Education

P.O. BOX 658

WAYNESBORO, TENNESSEE 38485

MARLON DAVIS

Superintendent

ANDY YARBROUGH

Chairman

29 June 2023

Mr. Reza Kheshti
Department of Commerce and Insurance
Fire Protection Division
TN State Fire Marshall's Office
Codes Enforcement and Plans Review Section
Davy Crockett Tower-9th Floor
500 James Robertson Parkway
Nashville, TN 37243-0565

RE: Wayne County Board of Education
FHS-CTE (Dollar General Building) Renovation TFM# 03387-C
506 Main Street
Clifton, TN 38425

Dear Mr. Kheshti:

The intent of this letter is to document the actual number of students using this classroom building versus the IBC calculated Occupant Load as it affects the restroom fixture count.

We would have no more than 50 students in the building at one time. Most of the day there would be a maximum of 25 students in the building at any given time of the day.

To further illustrate this, the total class sizes in Frank Hughes School are a total of 96 students in the high school:

Seniors - 26
Juniors - 17
Sophomores - 25
Freshmen - 28

Thank you sincerely,



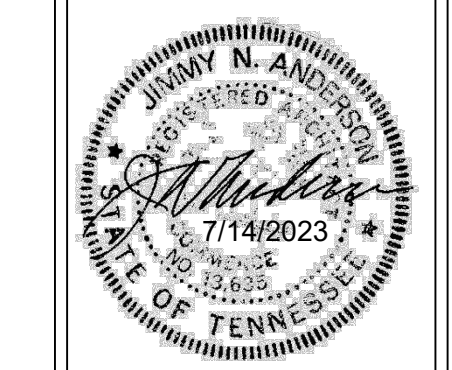
Marlon Davis, Director of Schools
Wayne County Board of Education

Cc. Jimmy N. Anderson, Architect

TFM: 03387-C PN: 2023-07-03-01 Field Set

JIMMY NEIL ANDERSON ARCHITECT
 1 ANDERSON TRAIL
 CLIFTON, TN 38425
 (731) 394-6565
 JIMAS55@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.

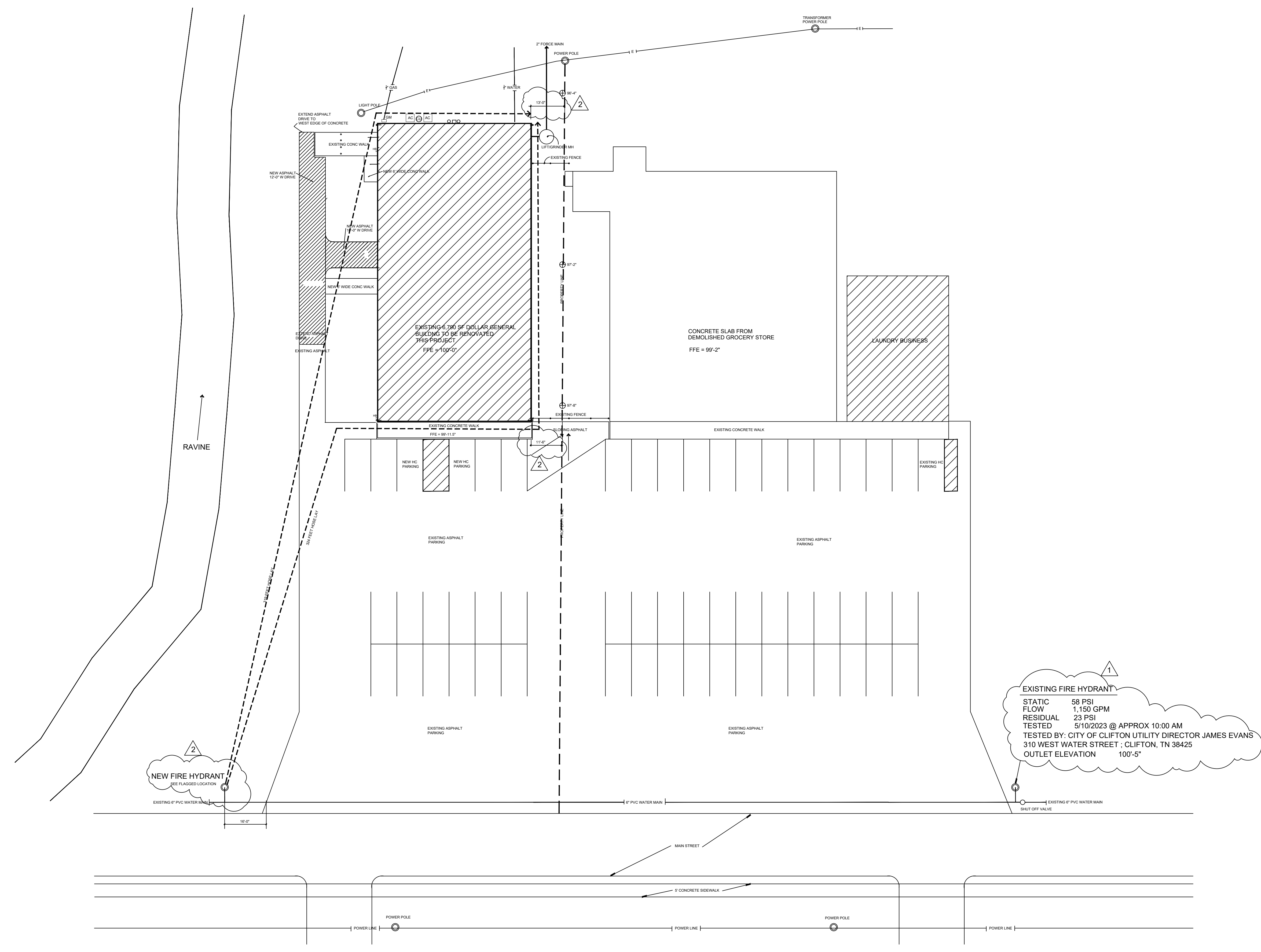


REVISED
 1 7/14/2023
 2 8/9/2023

Wayne County Board of Education
 FHS-CTE Classrooms
 Frank Hughes School - Clifton, TN
 TFM # 03387-C
 PROJ# 2023-07-03-01

AS

TFM: 03387-C PN: 2023-07-03-01 Field Set



EXISTING FIRE HYDRANT
 STATIC 58 PSI
 FLOW 1,150 GPM
 RESIDUAL 23 PSI
 TESTED 5/10/2023 @ APPROX 10:00 AM
 TESTED BY: CITY OF CLIFTON UTILITY DIRECTOR JAMES EVANS
 310 WEST WATER STREET ; CLIFTON, TN 38425
 OUTLET ELEVATION 100'-5"

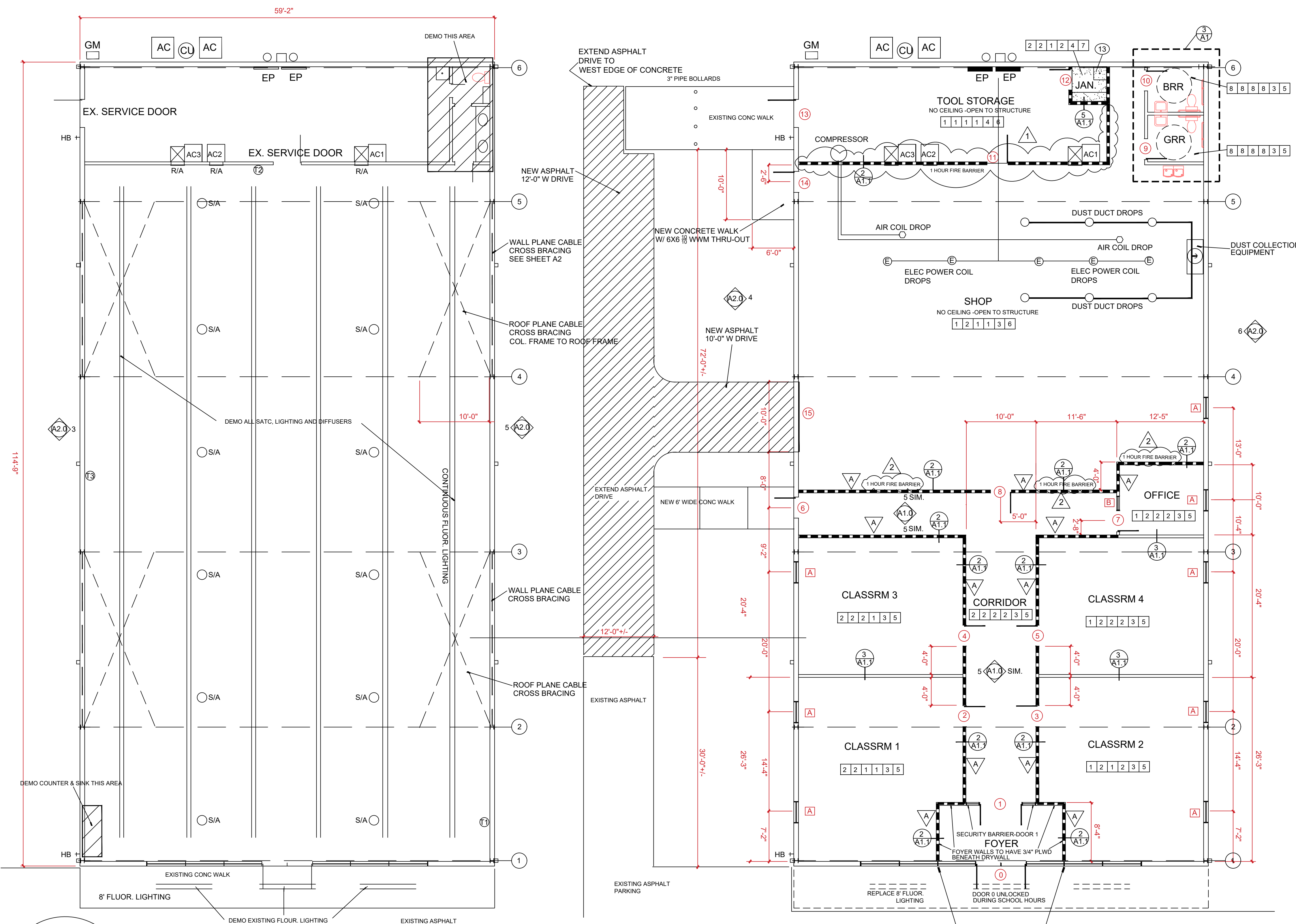
NEW FIRE HYDRANT
 SEE FLAGGED LOCATION

AREA SITE PLAN
 1"=20'-0"

THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.

TENNESSEE STATE FIRE MARSHAL'S OFFICE

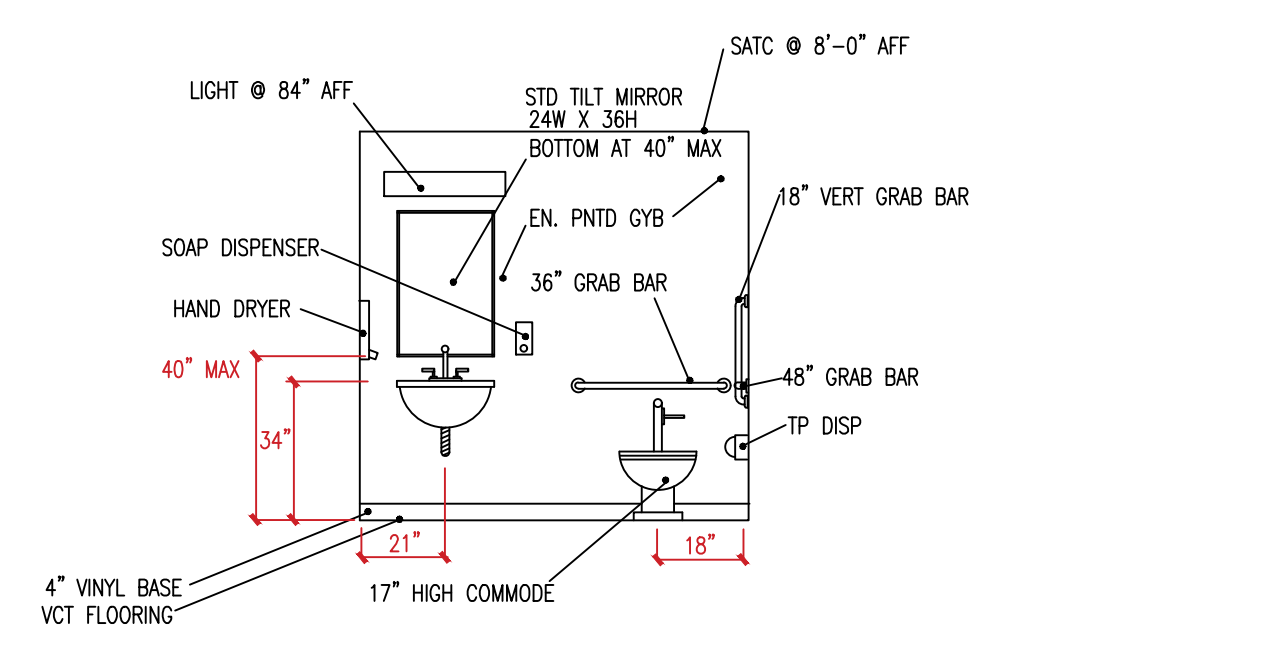


3 RESTROOMS ENLARGED PLAN
1/4" = 1'-0"

RESTROOM ACCESSORIES

(B PREFIX BY BOBRICK, BASIS OF DESIGN)
EQUAL QUALITY SUBSTITUTIONS ALLOWED BY DOCUMENTATION

- | | | |
|----|---|--|
| 1 | 34" HIGH WALL HUNG SINK
W/ INSULATED WRAP PLUMBING | KOHLER GREENWICH #K-2032
WITH KOHLER JULY FAUCET K-98146-4 (SN) |
| 2 | TILT MIRROR-24" X 36" | BOBRICK B-293 2436 |
| 3 | 17" HIGH COMMODE | AMERICAN STD MADERA #2854.016 W/ SEAT |
| 4 | AIR DRYER-AIR OUTLET @ 44" AFF | GLOBAL INDUSTRIAL 120V WR641164 |
| 5 | WASTE REC | BY OWNER |
| 6 | TP DISP-MNTD @ 24" AFF | B-2740 |
| 7 | SN DISPOSAL-MNTD @ 24" AFF | BY OWNER |
| 8 | 48" GRAB BAR-MNTD @ 34" AFF | B-5806.99 X 48 |
| 9 | 36" GRAB BAR-MNTD @ 34" AFF | B-5806.99 X 36 |
| 10 | 18" VERTICAL GRAB BAR | B-5806.99 X 18 |
| 11 | COAT HOOK-MNTD @ 48" AFF | B-6707 |
| 12 | SOAP DISPENSERS | BOBRICK B-822 |
| 13 | 30" X 30" JAN SINK | RE-LOCATE AND RE-USE EXISTING |
| 14 | HC ACCESS DOUBLE DF | ELKAY EZSTLBC MOD #WR190442 |



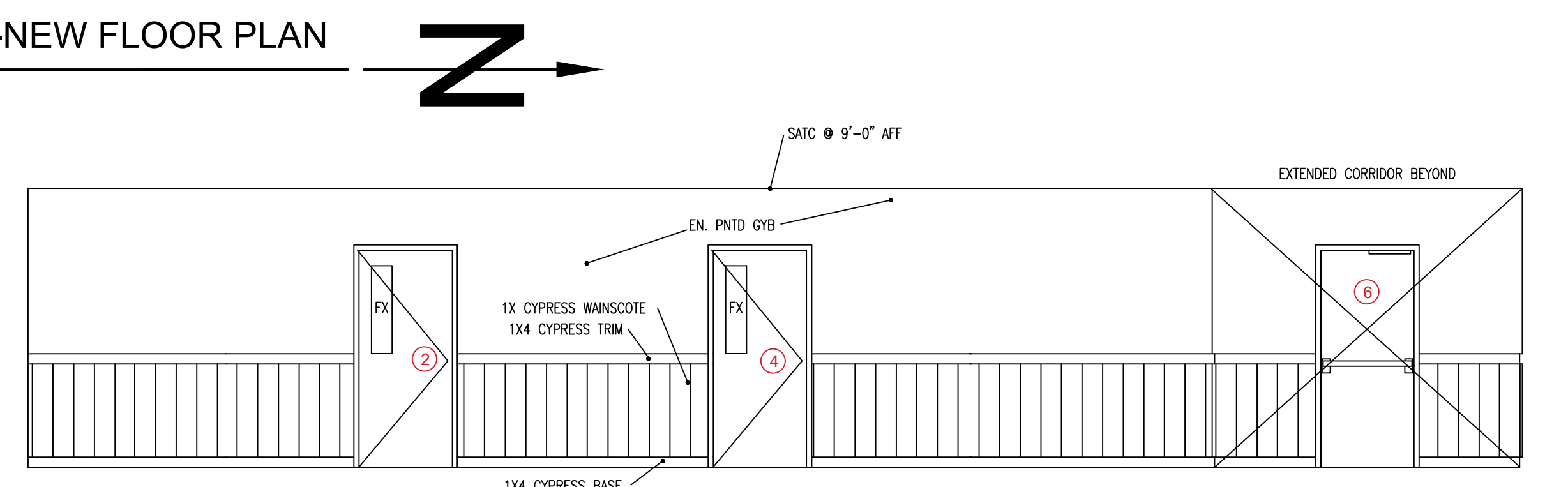
4 GIRL'S RESTROOM-BOY'S OPPOSITE
1/4" = 1'-0"

- 1 HR FIRE BARRIER**
3 5/8" 22 GA METAL STUDS @ 16" O/C.
(1) 5/8" TYPE X DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.
- NON-RATED**
3 5/8" 22 GA METAL STUDS @ 16" O/C.
(1) 5/8" N/R DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.

1 FHS-CTE BUILDING-EXISTING
1/8" = 1'-0"

2 FHS-CTE BUILDING-NEW FLOOR PLAN
1/8" = 1'-0"

- FINISHES**
N E S W F C
WALLS CEILING FLOOR
- NO APPLICATION
 - REFINISH / REPAIR EXISTING DRYWALL-SEMI-GLOSS ENAMEL PAINTED
 - NEW DRYWALL-SEMI-GLOSS ENAMEL PAINTED
 - CLEAN EXISTING CONCRETE
 - SUSPENDED 2X4 FLAT PANEL ACOUSTIC TILE CEILING
 - EXPOSED TO STRUCTURE ABOVE-NO CEILING
 - 1 HOUR RATED DRYWALL CEILING
 - DRYWALL-TAPED & COVERED WITH FRP
 - ALL WALLS EXC. TOOL STOR. AND CORRIDOR HAVE 4" VINYL BASE
 - TOOL STOR. HAS NO BASE AND CORRIDOR HAS CYPRESS BASE



5 CORRIDOR ELEVATION-BOTH SIDES
1/4" = 1'-0" TYPICAL IN CORRIDORS ONLY

JIMMY NEIL ANDERSON ARCHITECT
1 ANDERSON TRAIL
CLIFTON, TN 38425
(731) 394-6565
JIM6565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.

JIMMY N. ANDERSON
REGISTERED ARCHITECT
71412023
STATE OF TENNESSEE

REVISED
1 7/14/2023
2 8/9/2023

Wayne County Board of Education
TFM # 03387-C
FHS-CTE Classrooms PROJ# 2023-07-03-01
Frank Hughes School - Clifton, TN

A1.0

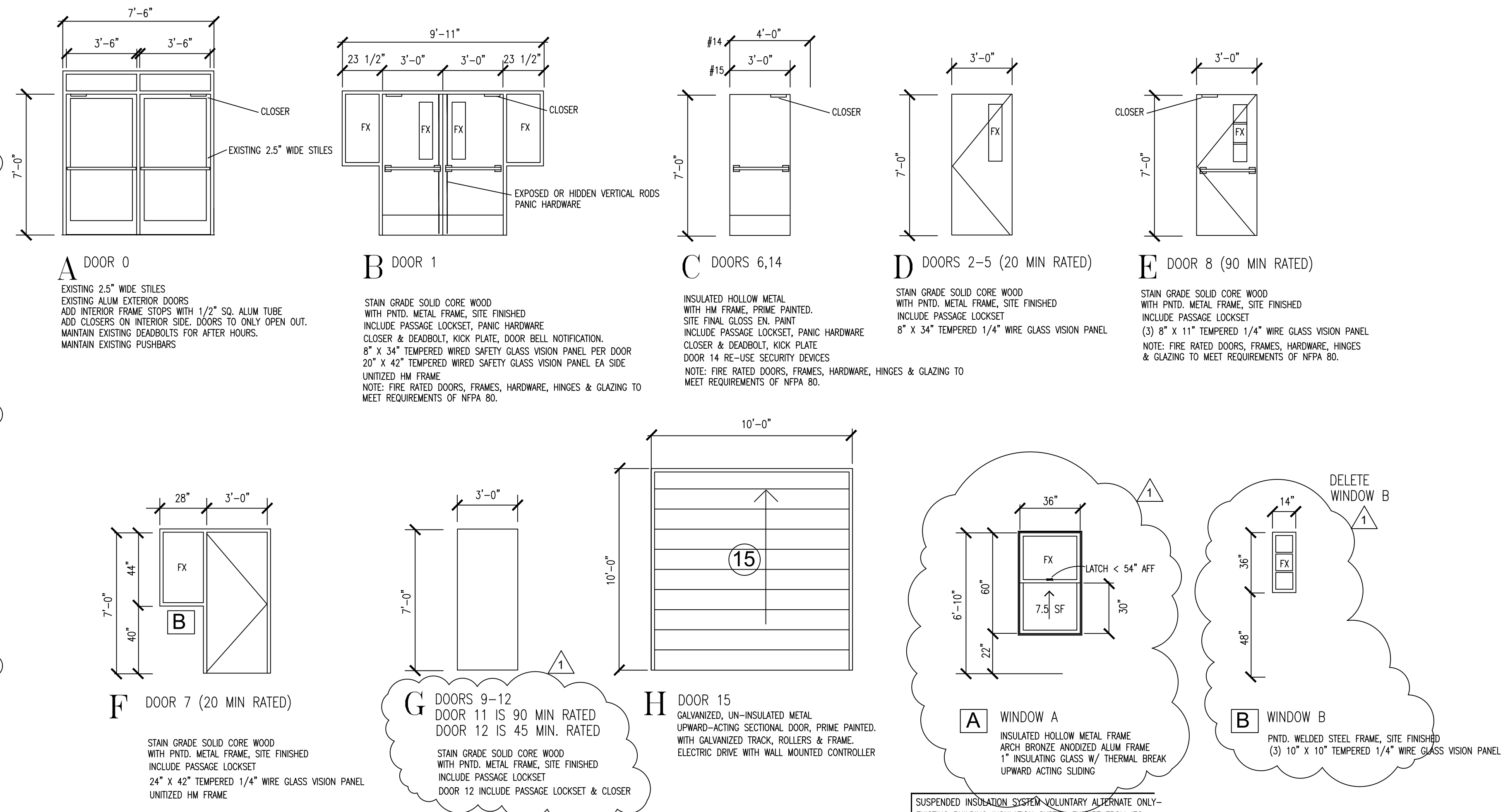
THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON PARTITIONS JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION IS ISSUED BY THE OFFICE.

No alterations, deletions, additions or modifications of any kind without the written approval of the architect.

TENNESSEE STATE FIRE MARSHAL'S OFFICE

TFM: 03387-C PN: 2023-07-03-01 Field Set

DOOR & WINDOW TYPES

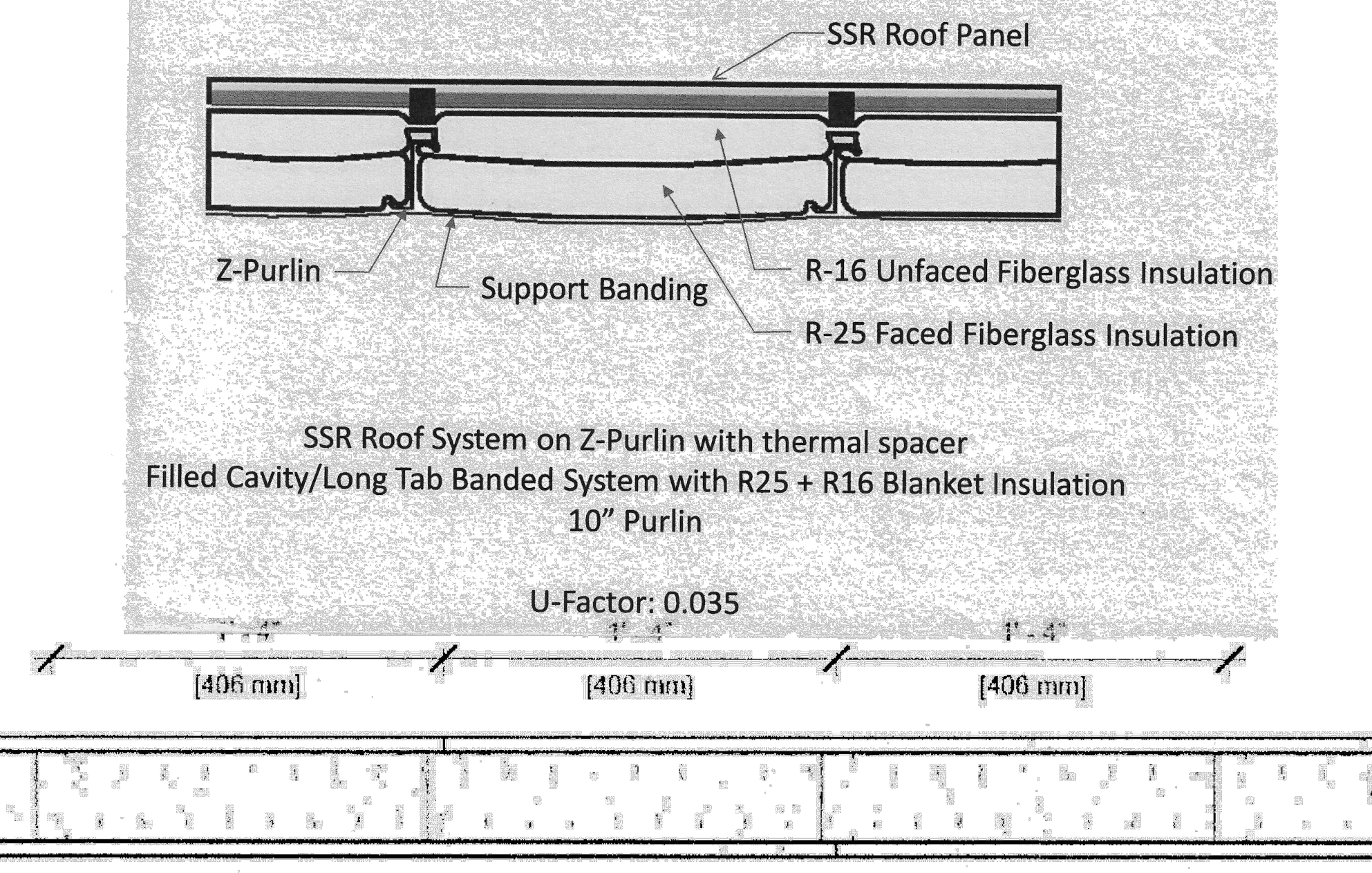


DOOR HARDWARE

NOTE: SUBMIT HARDWARE SCHEDULE PER SUPPLIER SUB-CONTRACT

HC ACCESS LEVER LATCH	SCHLAGE SATURN MODEL AL53PD-SAT (SATIN NICKEL)
CLOSER	HAGER GRADE 1 H.D. MODEL 5200 (AL) OR LCN 4030 SERIES MODEL 4031 (AL)
DEADBOLT	SCHLAGE SINGLE CYLINDER MODEL B660P (SATIN NICKEL)
KICK PLATES	8X34 (SATIN STAINLESS)-ON ALL CLOSER EQUIPPED DOORS IN DIRECTION OF TRAVEL
KEYING	KEYED SEPERATE, ALIKE OR MASTER KEYED
PANIC HARDWARE	STANLEY QED 116-36" (AL)
DOOR BELL NOTIFICATION	BY TENANT SECURITY SUB-CONTRACT

U-Facts™ Assembly Snapshot

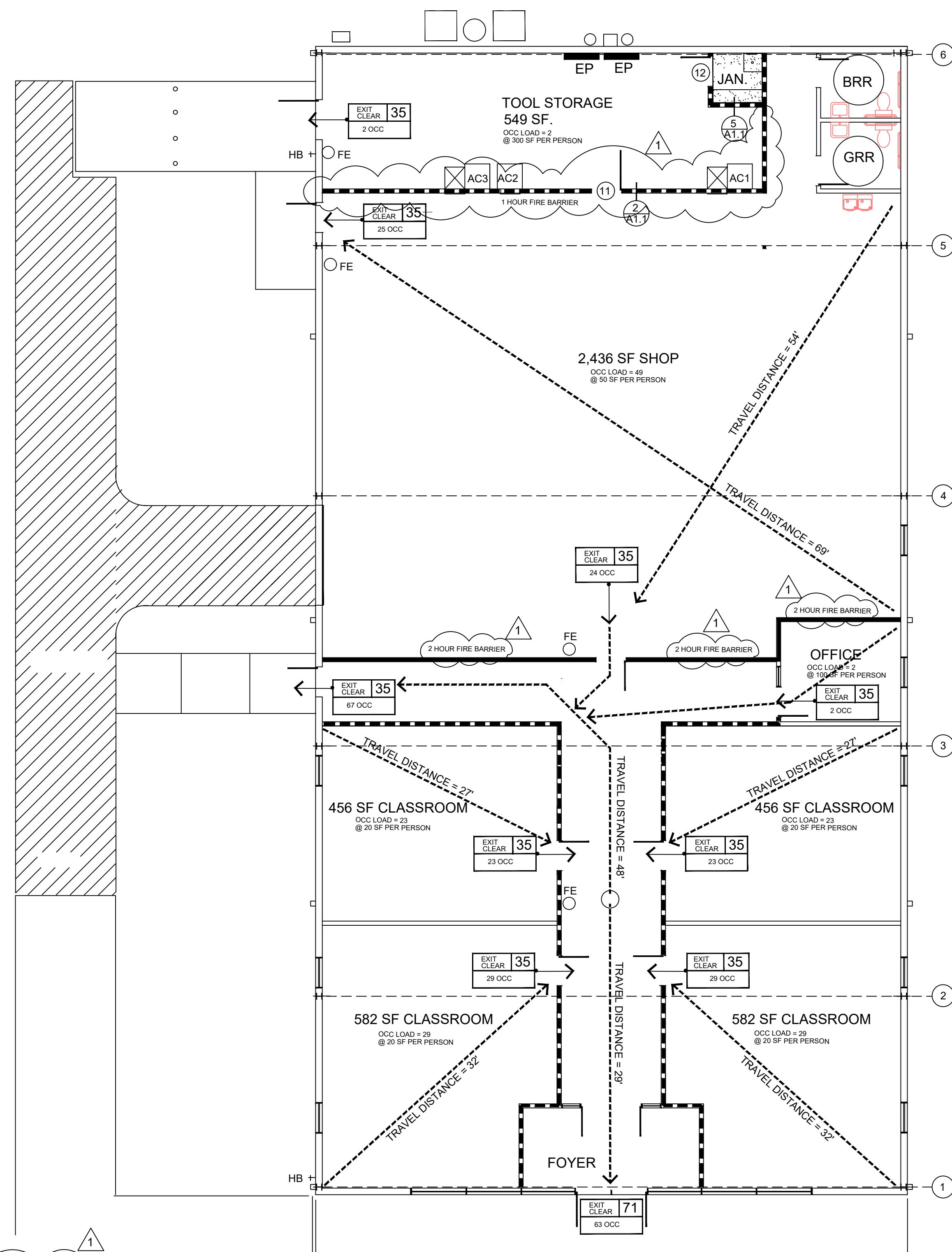


UL U419

Interior Partitions - Steel Stud (Non-Load-Bearing)

Fire Rating	System Thickness	STC
1 hours	47/8 in.	48

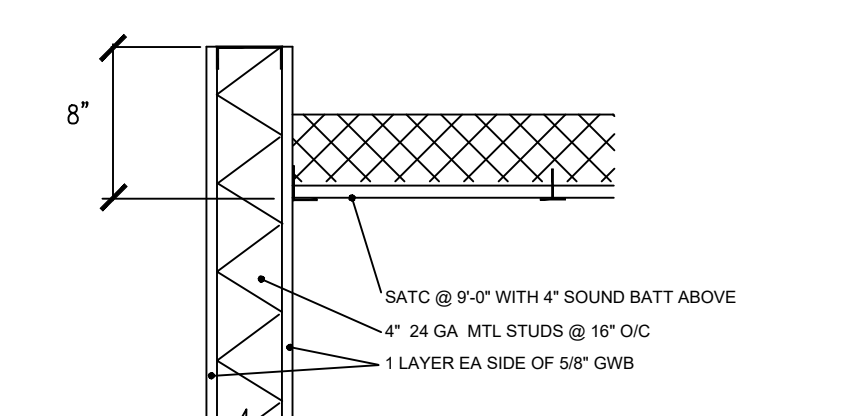
- ① **Gypsum Board:** 5/8" Thick Gypsum Board (UL Type SCX)
- ② **Steel Studs:** 3-5/8" Steel Studs, EQ20 (0.020"), Spaced 24" O.C.
- ③ **Insulation:** 3-1/2" Thick Glass Fiber Batt Insulation
- ④ **Gypsum Board:** 5/8" Thick Gypsum Board (UL Type SCX)



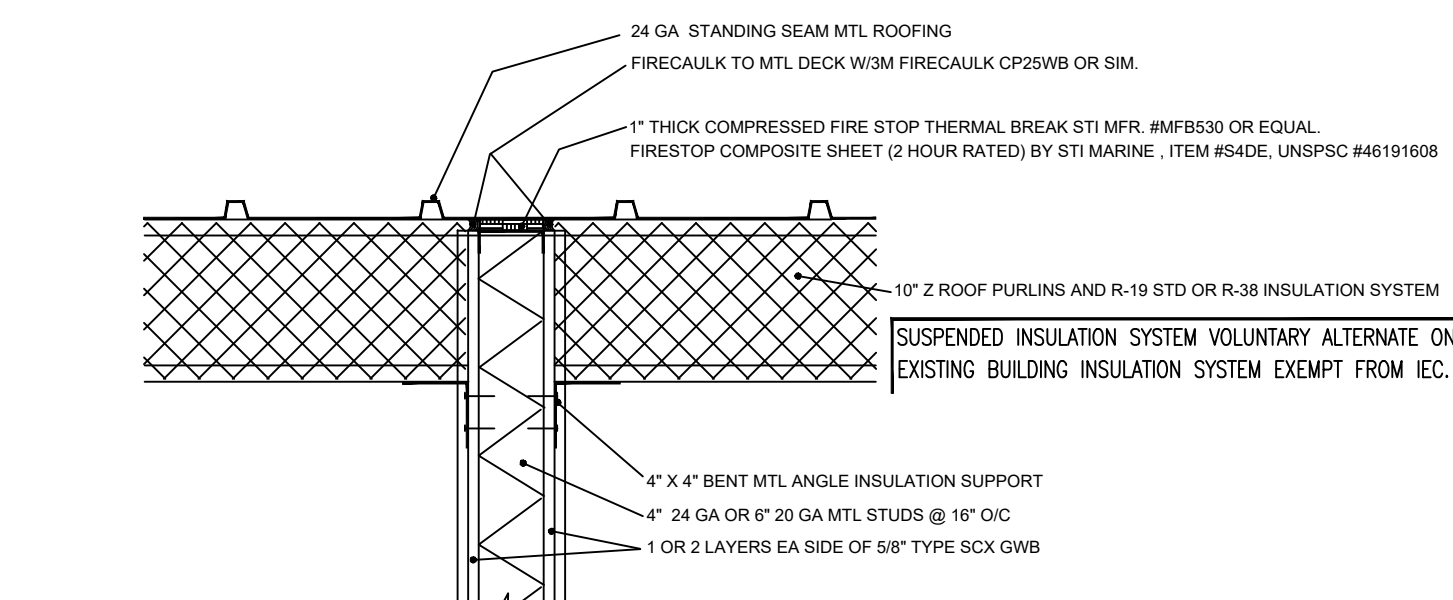
1 FHS-CTE BUILDING LIFE SAFETY PLAN
 1/8" = 1'-0" TOTAL OCCUPANT LOAD = 157

- 2 HOUR RATED FIRE BARRIER**
 4" 20 GA METAL STUDS @ 16" O/C
 (2) 5/8" TYPE X DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.
- 1 HOUR RATED FIRE BARRIER**
 4" 24 GA METAL STUDS @ 16" O/C,
 (1) 5/8" TYPE X DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.
- NON-RATED**
 4" 24 GA METAL STUDS @ 16" O/C,
 (1) 5/8" N/R DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.
- EXISTING PARTITIONS**
- 1 HOUR RATED DRYWALL CEILING**

A NON-RATED OR RATED 4" MTL STUD SMOKE PARTITION



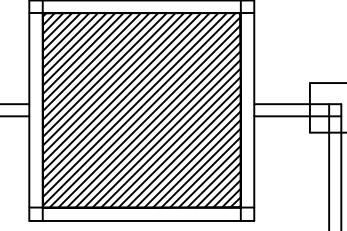
3 HEAD OF N/R PARTITION
 1" = 1'-0" NON-RATED



5 1 HR RATED WALL HEAD/CLG
 1" = 1'-0" 1 HR RATED

2 HEAD OF PARTITION DETAIL (UL-U419) SIM
 1" = 1'-0" 1 HR OR 2 HR


THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THE OFFICE.
 No alterations, deletions, additions or modifications are allowed to this approved set without written permission of this office.



JIMMY NEIL ANDERSON ARCHITECT

1 ANDERSON TRAIL
CLIFTON, TN 38425
(731) 394-6565
JIM6565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.



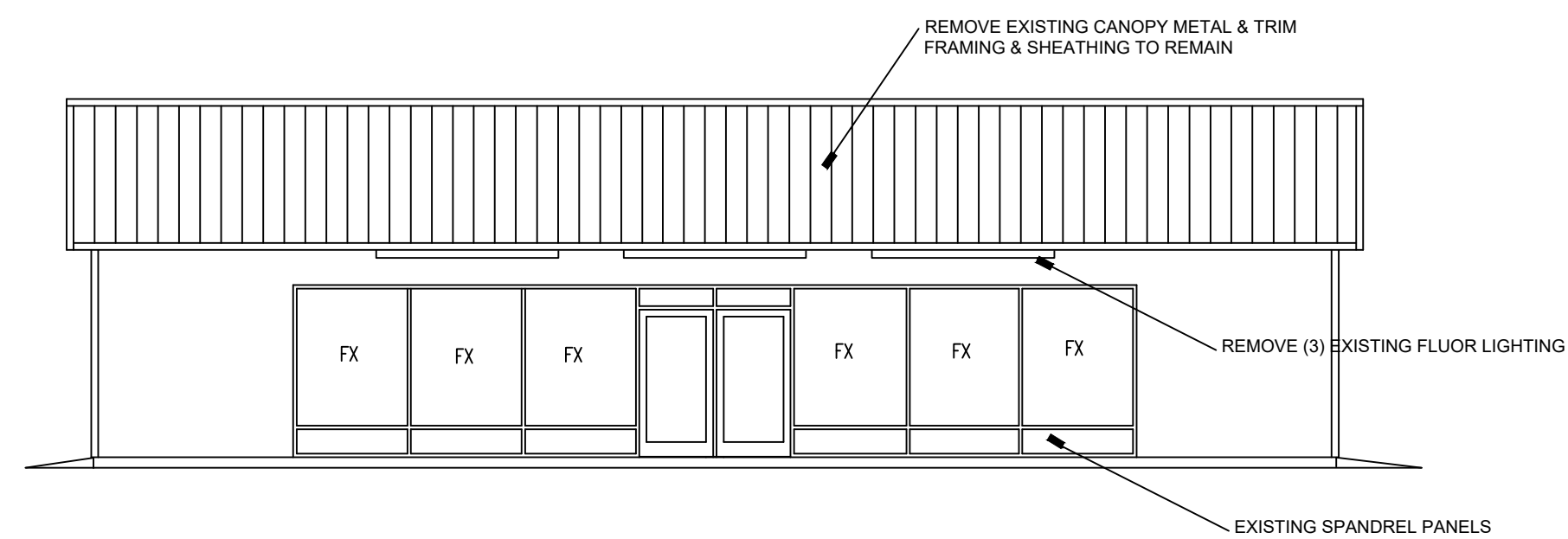
REVISION
 7/14/2023

Wayne County Board of Education
FHS-CTE Classrooms
Frank Hughes School - Clifton, TN

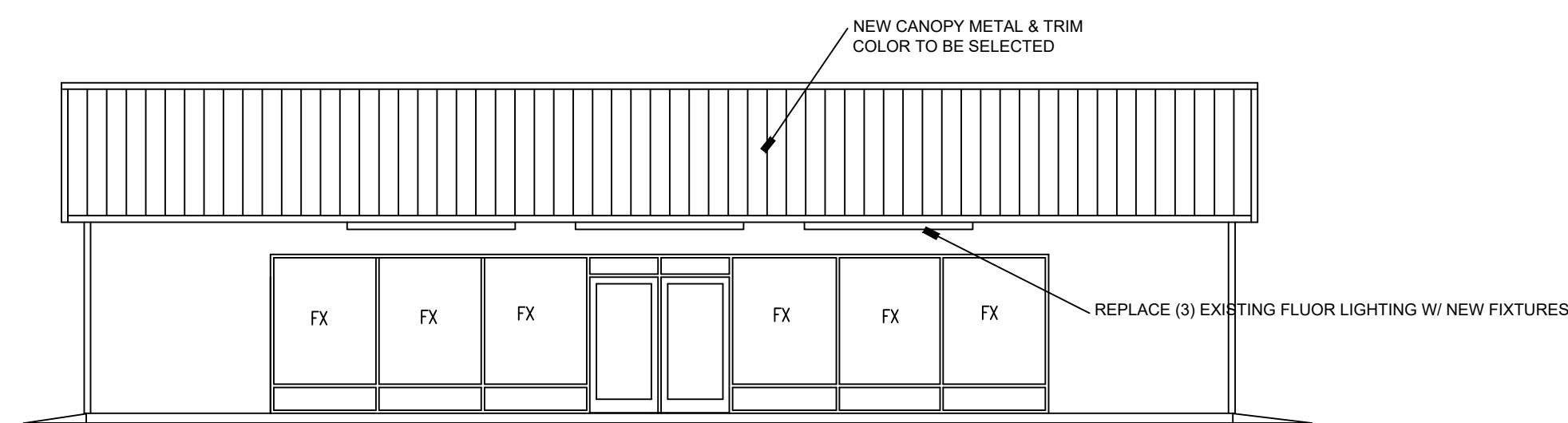
TFM # 03387-C
 PROJ# 2023-07-03-01

A1.1

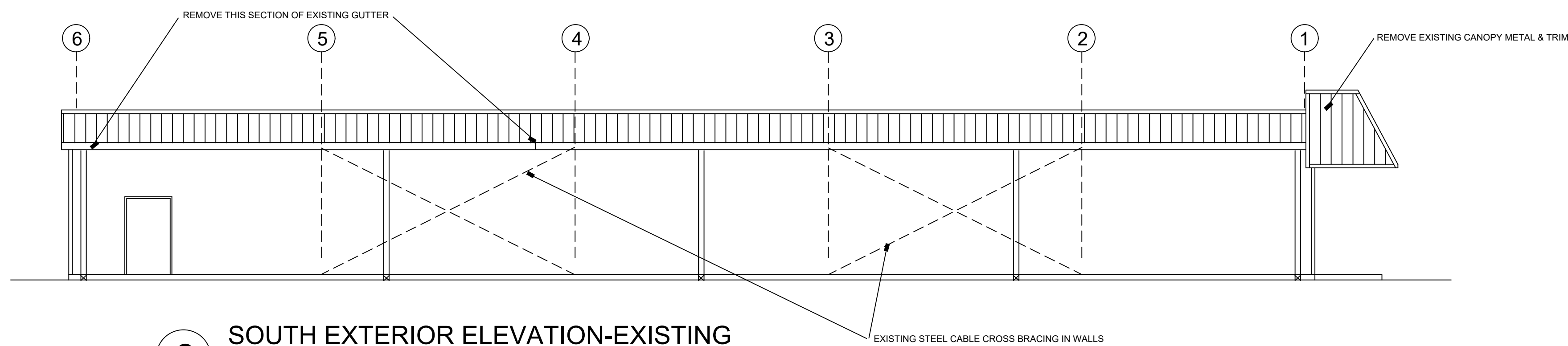
TFM: 03387-C PN: 2023-07-03-01 Field Set



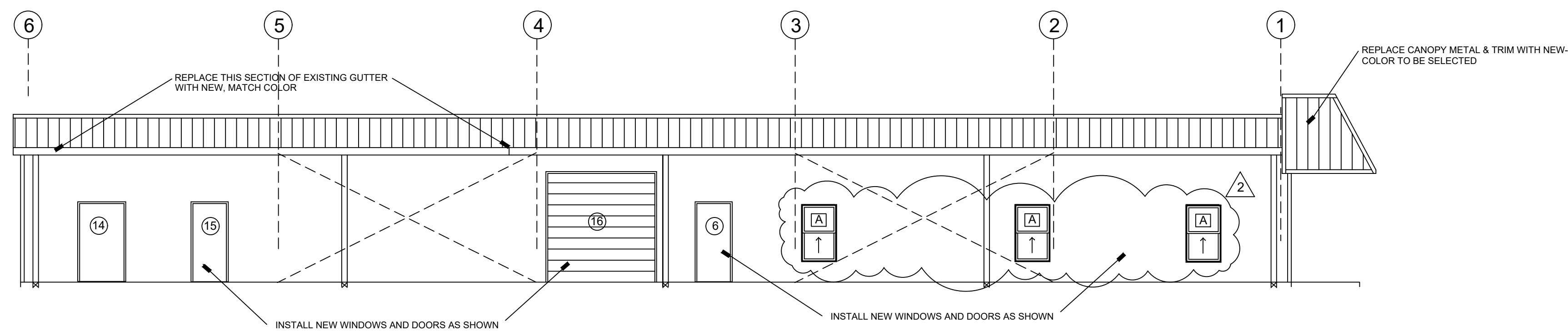
1 EAST EXTERIOR ELEVATION EXISTING
1/8" = 1'-0"



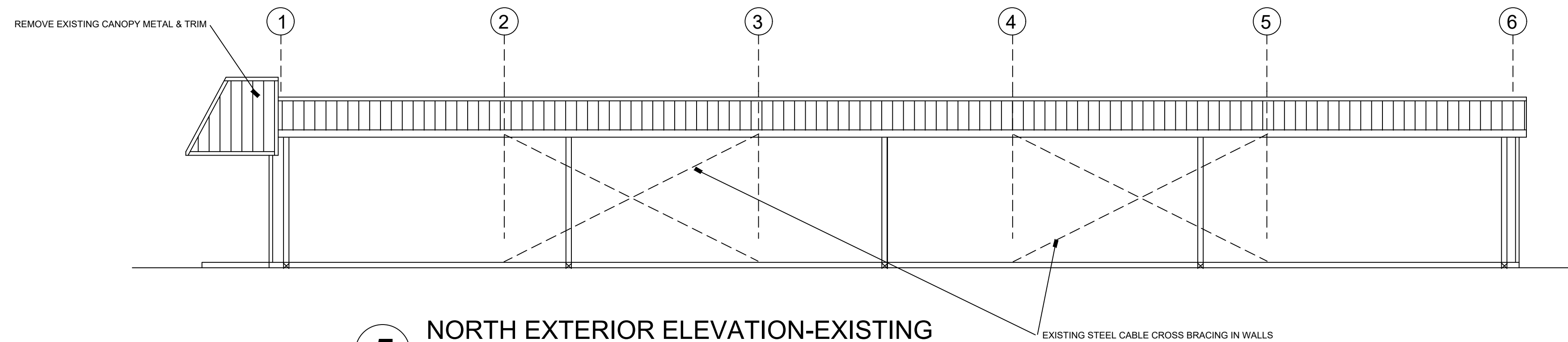
2 EAST EXTERIOR ELEVATION NEW
1/8" = 1'-0"



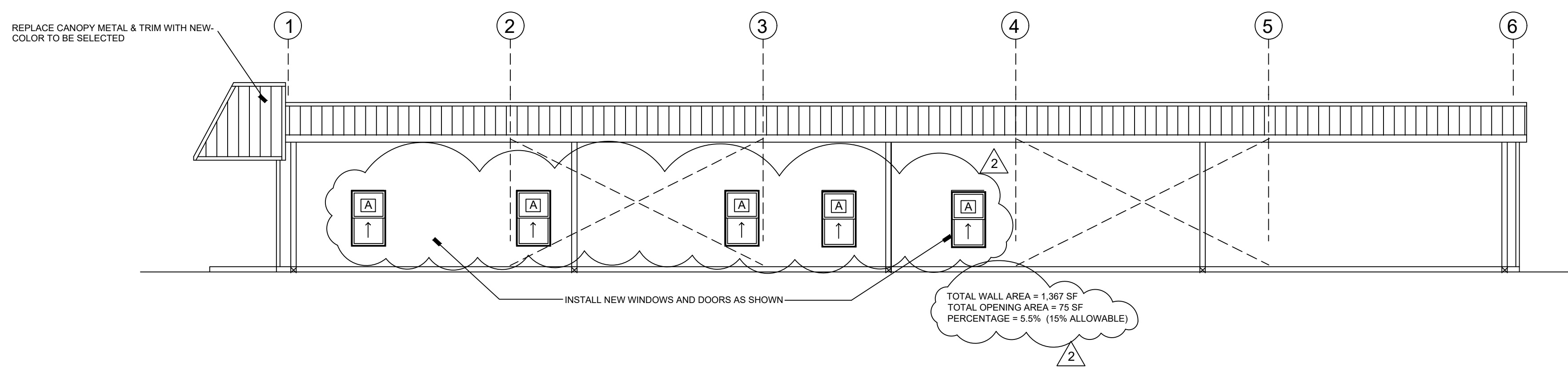
3 SOUTH EXTERIOR ELEVATION-EXISTING
1/8" = 1'-0"



4 SOUTH EXTERIOR ELEVATION-NEW
1/8" = 1'-0"



5 NORTH EXTERIOR ELEVATION-EXISTING
1/8" = 1'-0"

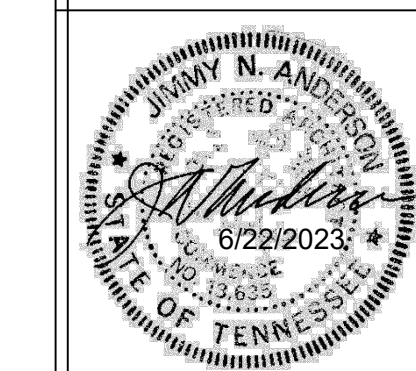


6 NORTH EXTERIOR ELEVATION-NEW
1/8" = 1'-0"

1
DELETED STATEMENT OF STRUCTURAL ADEQUACY
SEE STRUCTURAL ENGINEER LETTER

JIMMY NEIL ANDERSON ARCHITECT
1 ANDERSON TRAIL
CLIFTON, TN 38425
(731) 394-5565
JIM6565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.



REVISED
1 7/14/2023
2 8/9/2023

Wayne County Board of Education
FHS-CTE Classrooms
Frank Hughes School- Clifton, TN
TFM # 03387-C
PROJ# 2023-07-03-01

A2.0

TFM: 03387-C PN: 2023-07-03-01 Field Set

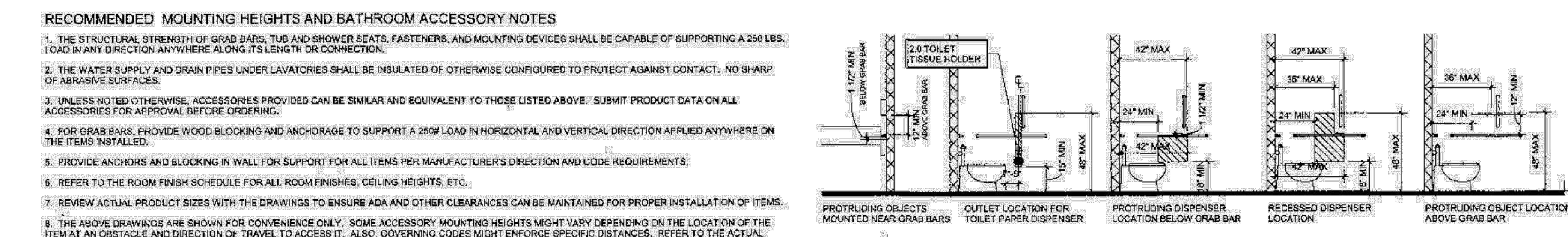
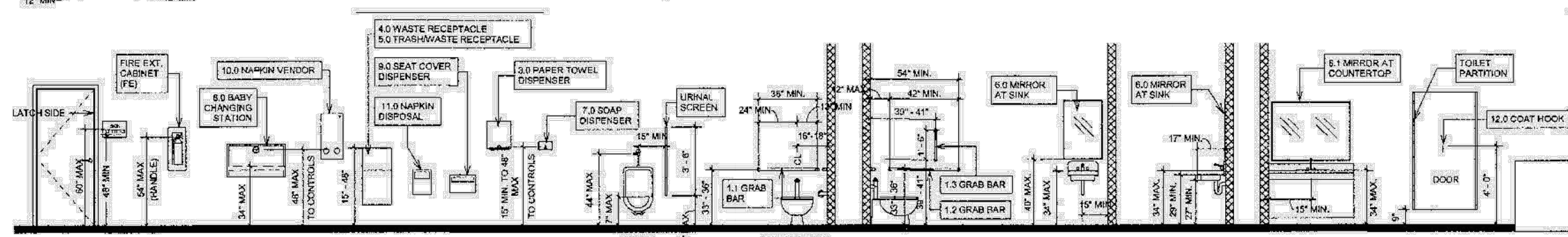
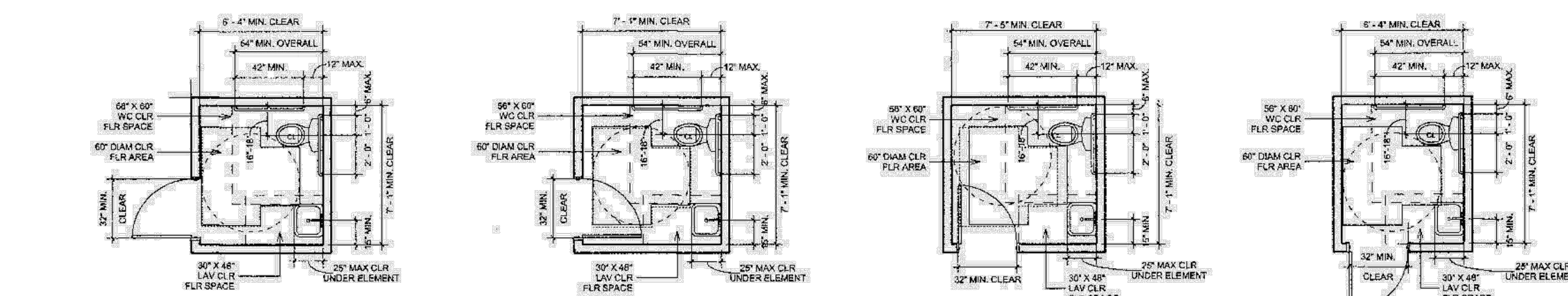
THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.

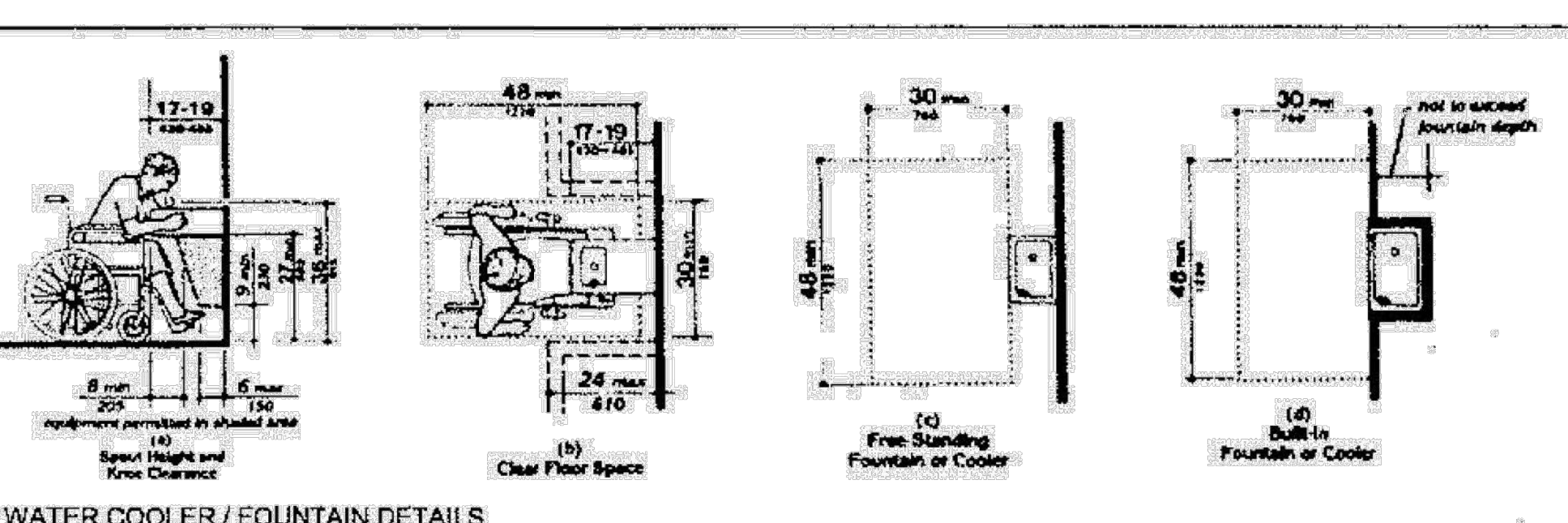
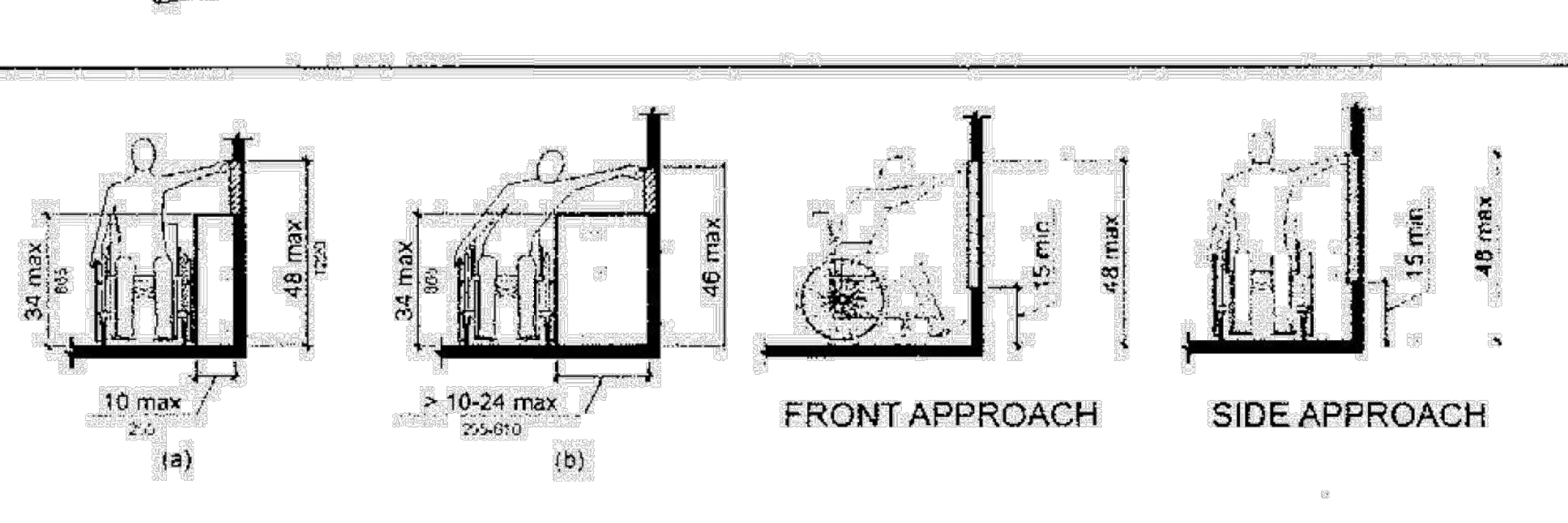
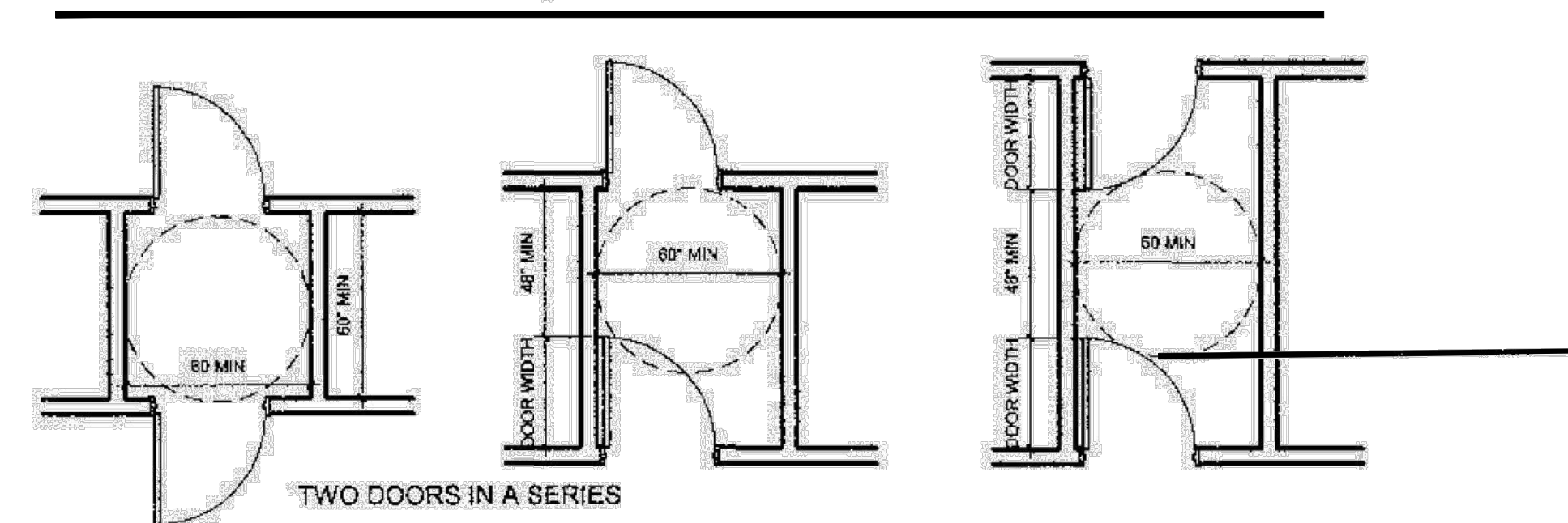
TENNESSEE STATE FIRE MARSHAL'S OFFICE

ADA STANDARDS

- THESE DRAWINGS REFLECT INFORMATION CONTAINED WITHIN THE FEDERAL AMERICANS WITH DISABILITIES ACT, PUBLIC LAW 101-336, 28 CFR PART 36. COMPLIANCE WITH ALL ASPECTS OF THIS LAW IS THE RESPONSIBILITY OF THE OWNER. MEETING LOCAL CODE REQUIREMENTS DOES NOT ASSUME COMPLIANCE.
- ACCESSIBLE ROUTES SHALL CONSIST OF WALKING SURFACES WITH A SLOPE OF NOT STEEPER THAN 1:20 AND THE GROSS SLOPE SHALL NOT BE STEEPER THAN 1:48.
- CHANGES IN LEVEL OF FLOOR SURFACES SHALL BE AS FOLLOWS: MAX 1/2" IN THE VERTICAL DIRECTION, CHANGES GREATER THAN 1/2" AND NOT MORE THAN 3/4" MAXIMUM IN HEIGHT SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2; VERTICAL CHANGES GREATER THAN 1/2" SHALL BE CONSIDERED A RAMP.
- THE FLOOR ON BOTH SIDES OF ANY DOOR SHALL BE SUBSTANTIALLY LEVEL EXCEPT FOR EXTERIOR LANDINGS WHICH MAY HAVE A SLOPE OF 0.25 UNITS VERTICAL IN 12 UNITS HORIZONTAL (2-PERCENT SLOPE) PLUS 0.5 INCHES DUE TO FINISH MATERIAL.
- DOOR HARDWARE SHALL HAVE A SHAPE THAT IS EASY TO GRASP WITH ONE HAND. OPERABLE PARTS OF SUCH HARDWARE SHALL BE 34 INCHES MINIMUM AND 48 INCHES MAXIMUM ABOVE THE FLOOR. DOOR OPENING FORCE FOR DOORS OTHER THAN FIRE DOORS SHALL HAVE AN 5.0 POUND MAXIMUM FORCE FOR INTERIOR HINGED DOORS, SLIDING DOORS AND FOLDING DOORS. PULL HARDWARE UNLATCHING FORCE SHALL NOT EXCEED 5 POUNDS IN THE DIRECTION OF TRAVEL.
- THE LOWER 10" OF THE DOOR IS TO BE A SMOOTH, PLAIN SURFACE (NO RECESS OR TRAP UNLESS AT AUTOMATIC SLIDING DOORS).
- COMMUNICATION ELEMENTS AND FEATURES (SIGNAGE) SHALL COMPLY WITH CHAPTER 7 OF ACCESSIBLE AND USABLE BUILDING AND FACILITIES (ICC A117.1 - 2009).
- IF ACCESSIBLE AUDIBLE AND VISIBLE ALARMS AND NOTIFICATION APPLIANCES ARE INSTALLED, THEY SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72. BE POWERED BY A COMMERCIAL LIGHT AND POWER SOURCE, BE PERMANENTLY CONNECTED TO THE WIRING OF THE PREMISES ELECTRICAL SYSTEM, AND BE PERMANENTLY INSTALLED.
- DOORWAYS LEADING TO SANITARY FACILITIES SHALL BE IDENTIFIED AND MARKED PER LOCAL CODE. THE DOORWAYS SHALL BE PROVIDED WITH SIGNS AND RAISED LETTERS AND BE ACCOMPANIED BY BRAILLE. SIGNS SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH OUTSIDE OF THE DOOR. MOUNTING HEIGHT SHALL BE 60" ABOVE FINISHED FLOOR TO THE CENTERLINE OF THE SIGN. MOUNTING LOCATION SHALL BE DETERMINED SO THAT A PERSON MAY APPROACH WITHIN 3' OF THE SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE SWING OF A DOOR.
- THE TOP GRIPPING SURFACE OF HANDRAILS SHALL BE 34" INCHES MINIMUM AND 38 INCHES MAXIMUM VERTICALLY ABOVE STAIR NOSING, RAMP SURFACES AND WALKING SURFACES. THEY SHALL BE AT A CONSISTENT HEIGHT ABOVE THESE SURFACES. THE CIRCULAR CROSS SECTION OF THE HANDRAIL SHALL BE 1 1/2" MINIMUM AND 2" MAXIMUM. NONCIRCULAR HANDRAILS SHALL HAVE A PERIMETER DIMENSION OF 4 INCHES MAXIMUM AND 6 1/4 INCHES MAXIMUM, AND A CROSS SECTION DIMENSION OF 2 1/4 INCHES.
- THE FLUSH CONTROLS SHALL BE HAND OPERATED OR AUTOMATIC. HAND OPERATED FLUSH CONTROLS SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET. THE WATER CLOSET FLUSH VALVE SHALL BE MOUNTED NOT MORE THAN 44" MAX. ABOVE THE FLOOR. THE FORCE REQUIRED TO ACTIVATE THE FLUSH VALVE SHALL BE 5 LBS. MAX.
- WHERE URINALS ARE PROVIDED, THEY SHALL BE OF THE STALL TYPE (FLOOR LEVEL) OR SHALL BE OF THE WALL HUNG TYPE WITH THE RIM AT 17 INCHES MAXIMUM ABOVE THE FLOOR. WALL HUNG URINALS SHALL BE 13 1/2 INCHES MINIMUM IN DEPTH MEASURED FROM THE OUTER FACE OF THE URINAL RIM TO THE WALL.
- ADA ACCESSIBLE COAT HOOKS PROVIDED WITHIN TOILET COMPARTMENTS SHALL BE 48 INCHES MAXIMUM ABOVE THE FLOOR. SHELVES SHALL BE 40 INCHES MINIMUM AND 48 INCHES MAXIMUM ABOVE THE FLOOR. PROVIDE CLEAR FLOOR AREAS FOR EITHER FORWARD APPROACH OR SIDE APPROACH.
- OBJECTS WITH LEADING EDGES MORE THAN 27 INCHES AND NOT MORE THAN 60 INCHES ABOVE THE FLOOR SHALL PROTRUDE 4 INCHES MAXIMUM HORIZONTALLY INTO THE CIRCULATION PATH. HANDRAILS CAN PROTRUDE 4 1/4 INCHES MAXIMUM.
- MOUNT SIGNAGE AT DOORS ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR WITH THE CENTERLINE OF THE SIGN AT 60" ABOVE THE FLOOR AND SITUATED SUCH THAT A PERSON CAN APPROACH WITHIN 3 INCHES OF THE SIGN WITHOUT ENCOUNTERING AN OBSTRUCTION OR STANDING WITH A DOOR SWING.
- EXTERIOR DOORS IF AIR PRESSURES REQUIRE STRONGER CLOSERS MAY BE AS GREAT AS 8.5 POUNDS. INTERIOR DOORS MAY BE NO MORE THAN 5 POUNDS.
- WALLS OF TOILETS WITHIN 2 FEET OF URINALS OR WATER CLOSETS SHALL HAVE A SMOOTH, HARD, NONABSORBENT SURFACE (EPOXY PAINT) TO A HEIGHT OF 4'-0" ABOVE FINISHED FLOOR, IN MATERIALS EXCEPT FOR STRUCTURE THAT IS NOT ADVERSELY AFFECTED BY MOISTURE.
- FAUCETS, TOILETS, AND RESTROOM ACCESSORY OPERABLE PARTS (SUCH AS PUSH BUTTONS, VALVES, KNOBS, AND LEVERS) SHALL BE OPERABLE WITH ONE HAND, WITHOUT TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST, AND DO NOT EXCEED FIVE (5) POUNDS OF FORCE.

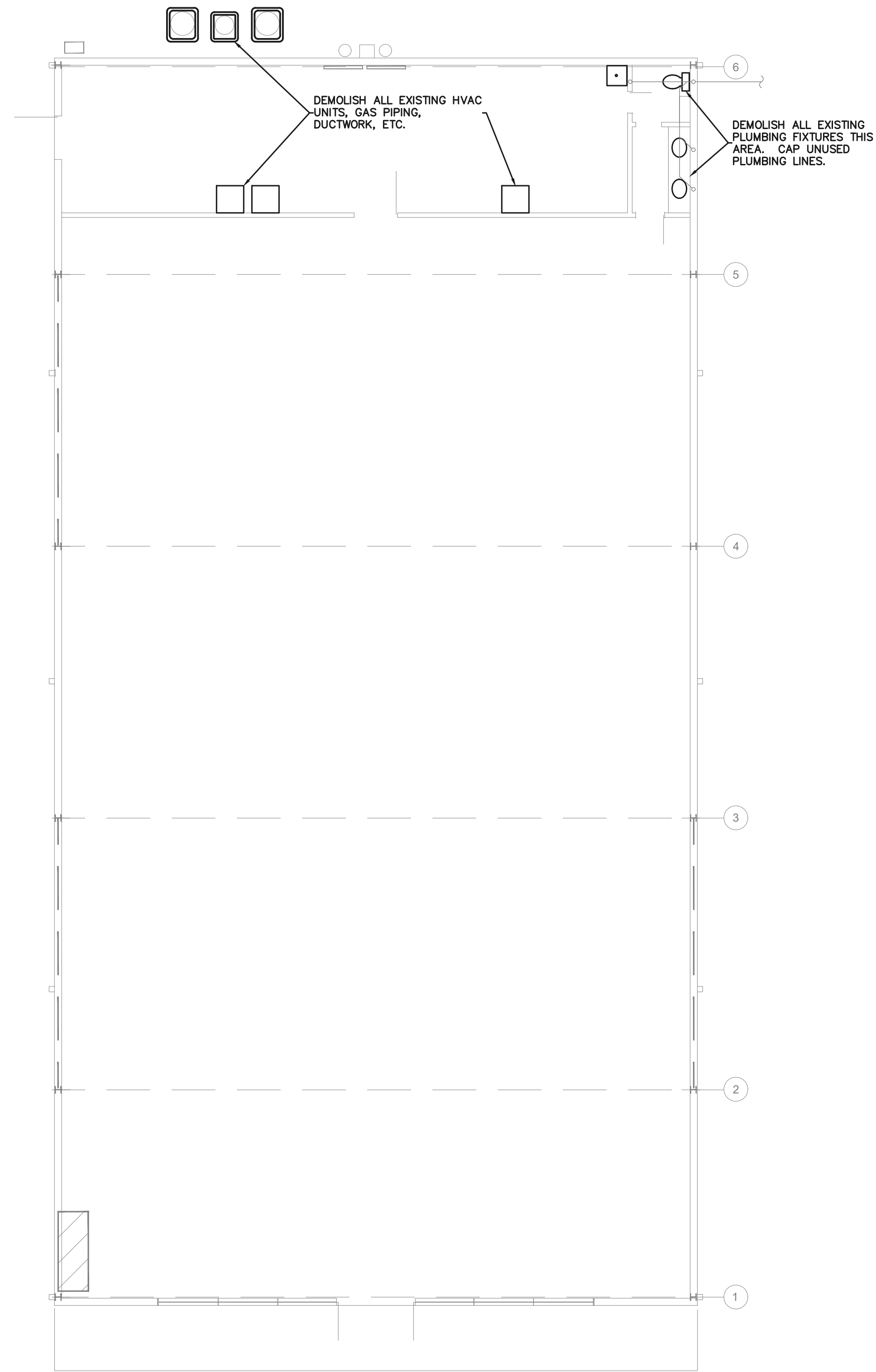


GENERAL DOOR SWING AND TRAVEL DIRECTION LAYOUTS

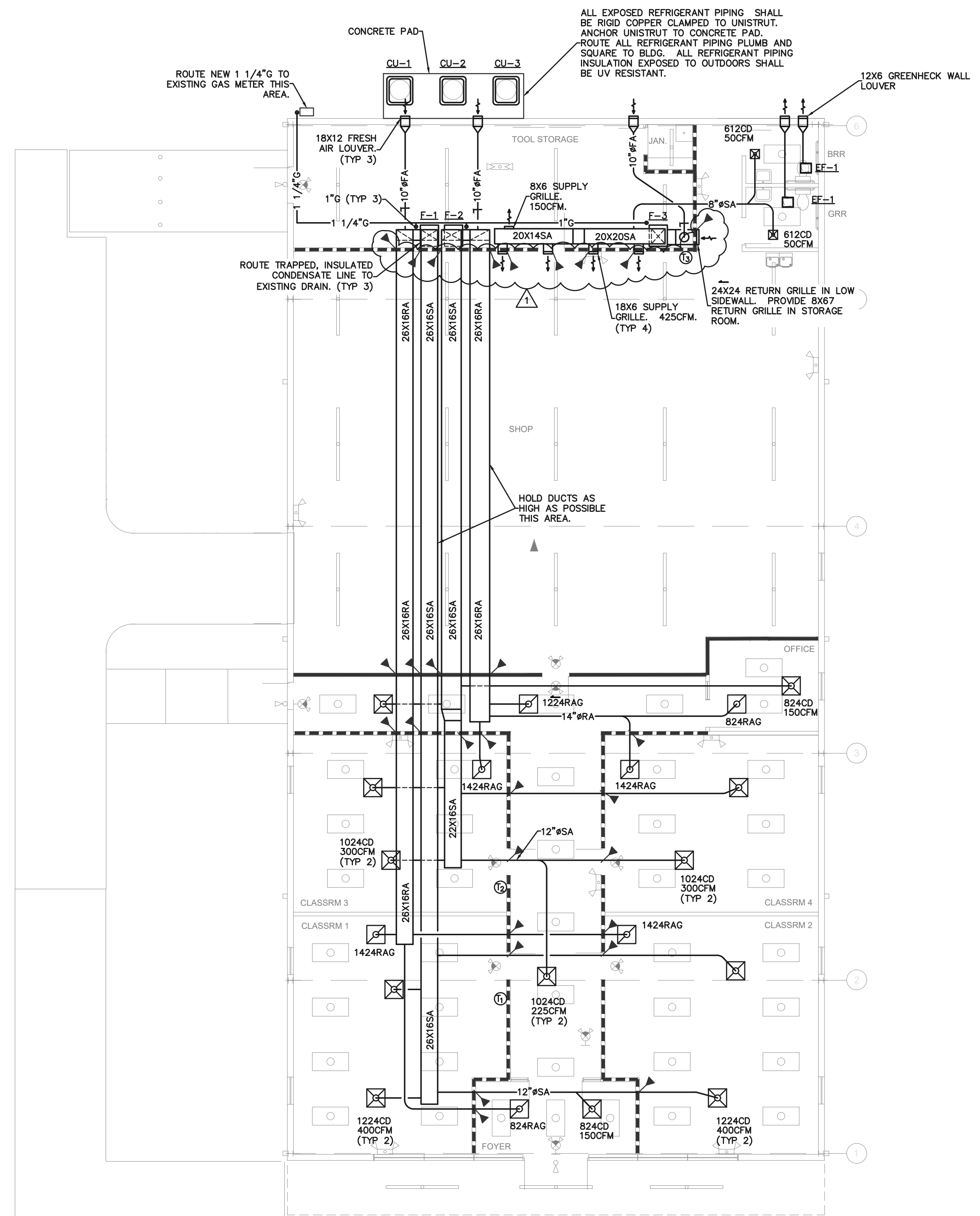


RESTROOM FIXTURES AND ACCESSORIES MOUNTING HEIGHTS

ABV: Above	CAB: Cabinet	EW: Each Way	GWB: Gypsum Wall Board	LB: Pound	RE: Reinforced	TB: Towel Bar
ACOUS: Acoustical	CALC: Calculation	E East	HWD: Hardware	LAM: Laminate(d)	REQD: Required	T: Tread
ADDL: Additional	CD: Cabinet Door	EL: Elevation	HDR: Header	LAV: Lavatory	RA: Return Air	TS: Tubular Steel
ADH: Adhesive	CG: Corner Guard	ELEV: Elevation	HTG: Heating	LH: Left Hand	OP: Opaque	TYP: Typical
ADJ: Adjustable	CIP: Cast-in-Place (Concrete)	EQ: Equal	HVAC: Heating, Ventilation-Air Conditioning	L: Length	OPG: Opening	UL: Underwriters Laboratory
AF: Above Finish Floor	CONTR: Contract (or)	EQP: Equipment	HT: Height	LOA: Length Overall	OSB: Orientated Strand Board	UNF: Unfinished
AGG: Aggregate	COORD: Coordinate	EXC: Excavate	HC: Hollow Core	LT: Light	OD: Outside Diameter	UNO: Unless Noted Otherwise
AHJ: Authority Having Jurisdiction (Building Department)	CRPT: Carpet	EXH: Exhaust	HOR: Horizontal	LL: Live Load	R: Riser	VB: Vapor Barrier
A/C: Air Conditioning	CLK: Caulking	EXIST: Existing	HB: Hose Bib	LVL: Laminated Veneer Lumber	RD: Rod	VAR: Varnish
ALT: Alternate	CAS: Casement	EXT: Exterior	FOC: Face of Concrete	LVR: Louver	R&S: Rod and Shelf	VER: Vertical
ALUM: Aluminum	CAT: Catch Basin	IN: Inch	FOF: Face of Finish	MFR: Manufacturer	RF: Roofing	VIF: Verify in field
ANC: Anchor, Anchorage	CLG: Ceiling	INCL: Include	FOM: Face of Masonry	MO: Masonry Opening	RM: Room	VRN: Veneer
ANOD: Anodized	CT: Ceramic Tile	INS: Insulate	FOS: Face of Studs	MAX: Maximum	RO: Rough Opening	VERT: Vertical
APX: Approximate	CR: Circle	INT: Interior	FDW: Face of Wall	MAS: Masonry	SCH: Schedule	VIN: Vinyl Sheet
APT: Apartment	CLR: Clear	INV: Invert	FDB: Fiberboard	MECH: Mechanical	SCN: Screen	WL: Wall
ARCH: Architect (architectural)	COL: Column	FE: Finished Floor Elevation	FCB: Fiber Cement Board	MC: Medicine Cabinet	SGD: Sliding Glass Door	WC: Water Closet
ASPH: Asphalt	CONC: Concrete	FA: Fire Alarm	FGI: Fiberglass	MDF: Medium Density Fiberboard	SHT: Sheathing	WH: Water Heater
AUTO: Automatic	CONSTR: CONSTRUCTION	FE: Fire Extinguisher	CONC: Concrete	MDO: Medium Density Overlay	SHT: Sheet	WP: Water Proofing
AVE: Avenue	CONJ: Control Joint	FEL: Fire Extinguisher	CMTU: Concrete Masonry Unit	MIR: Mirror	SH: Shelf, Shelving	WR: Weather Resistant Barrier
AVR: Average	CORR: Corrugated	FLS: Flashing	CONST: CONSTRUCTION	MMB: Membrane	SIM: Similar	WRB: Weather Resistant Barrier
AWN: Awning	CUFF: Cubic Foot	FLR: Floor	AVE: Avenue	MTL: Metal	SKL: Skylight	WWE: Welded Wire Fabric
BSMT: Basement	CUYD: Cubic Yard	FLU: Fluorescent	AVR: Average	MTL: Metal	S: South	WWM: Welded Wire Mesh
BM: Beam	DP: Dampproofing	FT: Foot, Feet	AWN: Awning	ND: North	SLB: Slab	W: West
BVL: Beveled	DTL: Detail	FTG: Footing	BD: Board	NIC: Not in Contract	SLD: Slider(s)	WIN: Window
BITU: Bituminous	DIAM: Diameter	FND: Foundation	BOT: Bottom	NIS: Not to Scale	SPEC: Specification	W/O: Without
BLK: Block	DIM: Dimension	FPL: Fireplace	BLDG: Building	NO: # Number	SQ: Square	W/ With
BLG: Blocking	DISH: Dishwasher	FLR: Floor	BUR: Built Up Roofing	NOM: Nominal	SQ: Square	WD: Wood
BLW: Below	DIV: Division	FLO: Fluorescent	B/O: by Others	N: North	STO: Standard	X: Operable Window Section
BLVD: Boulevard	DR: Door	FLU: Fluorescent	BO: Bottom Of	NIC: Not in Contract	STV: Stove	
BTW: Between	DR: Door	FTG: Footing		NTS: Not To Scale	STL: Steel	
BD: Board	DR: Door	FLS: Flashing		REG: Register	STR: Structural	
BOT: Bottom	DR: Door	FLR: Floor		TEL: Telephone	STY: Stove	
BLDG: Building	DR: Door	FLU: Fluorescent		TEMP: Tempered	TK: Tight Knot	
BUR: Built Up Roofing	DR: Door	FTG: Footing		T&G: Tongue and Groove	T/O: Top of	
B/O: by Others	DR: Door	FLS: Flashing				
BO: Bottom Of	DR: Door	FLR: Floor				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR: Door	FTG: Footing				
	DR: Door	FND: Foundation				
	DR: Door	FPL: Fireplace				
	DR: Door	FLR: Floor				
	DR: Door	FLO: Fluorescent				
	DR: Door	FLU: Fluorescent				
	DR					



1 MECHANICAL DEMOLITION PLAN
1/8" = 1'-0"



2 HVAC PLAN
1/8" = 1'-0"

JIMMY NEIL ANDERSON ARCHITECT

1 ANDERSON TRAIL
CLIFTON, TN 38425
(731) 394-6565
JIM6565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.



REVISED
REV 1 07-25-23
TSEM REVIEW COMMENTS

Wayne County Board of Education
FHS-CTE Classrooms TFM # 03387-C
Frank Hughes School - Clifton, TN

M1.0



DWCEI PROJECT NO. 23-081

THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.

TENNESSEE STATE FIRE MARSHAL'S OFFICE

TFM: 03387-C PN: 2023-07-03-01 Field Set

MECHANICAL NOTES:

- ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH ALL LOCAL AND STATE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THE PARTICULAR CLASS OF THE CONTRACT. THE DRAWINGS AND SPECIFICATIONS ARE IN CONFLICT WITH THE ABOVE, HE SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING SO THAT ANY NECESSARY CHANGES CAN BE PROVIDED FOR IN HIS CONTRACT. IF THE CONTRACTOR PERFORMS ANY WORK WITHOUT NOTICE AS REQUIRED, HE SHALL BEAR ALL COSTS OF CORRECTIVE ACTION.
- THE CONTRACTOR SHALL INCLUDE IN HIS QUOTATION ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, ROYALTIES, AND OTHER SIMILAR COSTS IN CONNECTION WITH THE WORK. OBTAIN PERMITS, AND REQUEST INSPECTIONS FROM AUTHORITY HAVING JURISDICTION.
- INSTALL WORK IN LOCATIONS SHOWN ON DRAWINGS, UNLESS PREVENTED BY PROJECT CONDITIONS. FOR PURPOSES OF CLEARNESS AND LEGIBILITY, DRAWINGS ARE ESSENTIALLY DIAGRAMATIC, AND ALTHOUGH SIZE AND LOCATION OF EQUIPMENT ARE DRAWN TO SCALE WHENEVER POSSIBLE, THE CONTRACTOR SHALL REVIEW THE STRUCTURAL, ELECTRICAL, ARCHITECTURAL, FIRE PROTECTIONS, ETC. DRAWINGS AND DETERMINE AREAS OF INTERFERENCE. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF INTERFERENCE'S PRIOR TO FABRICATION OF DUCTWORK OR PIPING.
- THE DRAWINGS INDICATE REQUIRED SIZE AND POINTS OF TERMINATION OF PIPES AND DUCTS, AND SUGGEST PROPER ROUTES OF PIPE TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS AND PRESERVE CLEARANCES. HOWEVER, IT IS NOT INTENDED THAT DRAWINGS INDICATE ALL NECESSARY OFFSETS, AND IT SHALL BE THE WORK OF THIS SECTION TO INSTALL PIPING AND DUCTS IN SUCH A MANNER AS TO CONFORM TO STRUCTURE, AVOID ALL OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR WITHOUT FURTHER INSTRUCTION OR COST TO THE OWNER. VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. EXISTING LAYOUT, IF SHOWN, WAS DETERMINED FROM SITE OBSERVATIONS AND AS BUILT DRAWINGS. CONTRACTOR SHALL NOTIFY ENGINEER SHOULD EXISTING CONDITIONS DIFFER FROM THESE DRAWINGS.
- CONTRACTOR SHALL GUARANTEE ALL WORK PERFORMED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF CERTIFICATE OF SUBSTANTIAL COMPLETION.
- THE MECHANICAL CONTRACTOR SHALL PREPARE SUBMITTALS ON ALL EQUIPMENT AND MATERIALS APPLICABLE TO THIS PROJECT AND SUBMIT TO ENGINEER FOR REVIEW PRIOR TO PROCUREMENT, FABRICATION OR ANY CONSTRUCTION. SUBMITTALS MAY BE MAILED VIA APPROPRIATE CHANNELS OR SUBMITTED IN PDF FORM VIA EMAIL. PARTIAL SUBMITTALS WILL NOT BE REVIEWED. SUBMITTALS SHALL BE PROJECT SPECIFIC INDICATING THE INTENDED MODEL NUMBERS, MATERIALS, AND EQUIPMENT TAGS.
- SHOULD A PRODUCT SUBSTITUTION BE PROVIDED:
 - THE PROPOSED SUBSTITUTION SHALL BE FULLY INVESTIGATED AND DETERMINED TO BE EQUAL OR SUPERIOR IN ALL RESPECTS TO THE SPECIFIED PRODUCT.
 - THE PROPOSED SUBSTITUTION SHALL HAVE THE SAME WARRANTY FURNISHED FOR THE PROPOSED SUBSTITUTION AS FOR THE SPECIFIED PRODUCT.
 - THE PROPOSED SUBSTITUTION SHALL HAVE THE SAME MAINTENANCE SERVICE AND AVAILABILITY OF SPARE PARTS.
 - THE PROPOSED SUBSTITUTION SHALL NOT AFFECT DIMENSIONS AND/OR FUNCTIONAL REQUIRED CLEARANCES PER THE MANUFACTURER OR THE LATEST APPLICABLE CODES.
 - THE PROPOSED SUBSTITUTION SHALL HAVE NO ADVERSE EFFECT ON OTHER TRADES AND SHALL NOT AFFECT AND/OR DELAY THE PROGRESS SCHEDULE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO PAY FOR ANY CHANGES TO BUILDING DESIGN, INCLUDING ARCHITECTURAL/ENGINEERING DESIGN, DETAILING AND CONSTRUCTION COST CAUSED BY THE SUBSTITUTION AND TAKE SOLE RESPONSIBILITY FOR SUBSTITUTIONS THAT ARE DEEMED "VALUE ENGINEERING" AND DETERMINED NOT EQUAL OR SUPERIOR TO THE PRODUCT SPECIFIED.
- MOTORS FOR ALL MECHANICAL EQUIPMENT SHALL BE FURNISHED BY SUPPLIERS OF SUCH EQUIPMENT AND SHALL BE THE TYPE THAT HAS CHARACTERISTICS SUITABLE FOR CONTINUOUS OPERATING CONDITIONS.
- TRANSPORT AND HANDLE PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- STORE AND PROTECT PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, WITH SEALS AND LABELS INTACT AND LEGIBLE.
- ALL MECHANICAL EQUIPMENT, AS APPLICABLE, SHALL HAVE U.L. LISTING OR EQUIVALENT. VERIFY THAT EACH PIECE OF EQUIPMENT OR SYSTEM HAS BEEN CHECKED FOR PROPER LUBRICATION, DRIVE ROTATION, BELT TENSION, CONTROL SEQUENCE, OR FOR OTHER CONDITIONS WHICH MAY CAUSE DAMAGE.
- DEMONSTRATE OPERATION AND MAINTENANCE OF PRODUCTS TO OWNER'S PERSONNEL ONE WEEK PRIOR TO DATE OF FINAL INSPECTION.
- EXECUTE FINAL CLEANING PRIOR TO FINAL PROJECT ASSESSMENT.
- SEISMICALLY RESTRAIN HVAC EQUIPMENT, GAS PIPING AND HYDRONIC PIPING AS REQUIRED BY LOCAL CODE. PROVIDE SUPPORT AND EQUIPMENT REQUIRED TO CONTROL EXPANSION AND CONTRACTION OF PIPING. PROVIDE LOOPS, PIPE OFFSETS, AND SWING JOINTS, OR EXPANSION JOINTS WHERE REQUIRED.
- ENTIRE HVAC SYSTEM AND HYDRONIC SYSTEM (AS APPLICABLE) SHALL BE BALANCED BY AN INDEPENDENT CERTIFIED TEST & BALANCE CONTRACTOR. ALL AIR FLOW RATES SHALL BE WITHIN 5% OF SPECIFIED FLOW RATE. PROVIDE CERTIFIED TEST & BALANCE REPORT AT END OF PROJECT.
- DISPOSE OF CONDENSATE IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS. PROVIDE TRAP IN CONDENSATE DRAIN LINE AT EACH COIL OR 90+ FURNACE IN ACCORDANCE WITH PUBLISHED MANUFACTURER'S INSTRUCTIONS. EACH TRAP SHALL BE PROVIDED WITH A TEE TO ALLOW FOR CLEANING. CONDENSATE PIPING SHALL BE SCH 40 PVC UNLESS NOTED OTHERWISE OR PROHIBITED BY CODES. INSULATE CONDENSATE DRAIN PIPING, SLOPE TO DRAIN, AND TERMINATE IN ACCORDANCE WITH CODE OR AS SHOWN ON THESE DRAWINGS.
- PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
- ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE FOURTH EDITION "SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE", AND AS INDICATED. PROVIDE RADIUS ELBOW OR TURNING VANES IN ALL 90° ELBOWS. PROVIDE DUCT MATERIAL, GAGES, REINFORCING, AND SEALING FOR OPERATING PRESSURES INDICATED. DUCTWORK SHALL BE FABRICATED FROM ASTM A525 AND ASTM A527 GALVANIZED STEEL, LOCK-FORMING QUALITY, HEAVY GAO ZINC COATING OF IN CONFORMANCE WITH ASTM A90. ALL DUCTS SHALL BE GALVANIZED STEEL UNLESS OTHERWISE NOTED ON DRAWINGS. DUCTBOARD WILL NOT BE ACCEPTED.
- PROVIDE TEMPORARY PROTECTION FOR EQUIPMENT DURING CONSTRUCTION TO PREVENT DAMAGE TO EQUIPMENT AND COILS. PROVIDE TEMPORARY FILTERS AT EACH RETURN AIR INLET DURING CONSTRUCTION. PROVIDE AND INSTALL A NEW, CLEAN SET OF FILTERS FOR EACH SYSTEM AT PROJECT COMPLETION.
- FLEXIBLE DUCTWORK SHALL BE EQUIVALENT TO THERMAFLEX WITH R-6.0 MINIMUM, R-8.0 IF IN ATTIC SPACE, FIBERGLASS INSULATION AND VAPOR BARRIER. FLEXIBLE DUCTWORK SHALL BE U.L. LISTED AND APPROVED.
- SEAL ALL LONGITUDINAL AND TRANSVERSE SEAMS BEFORE APPLYING INSULATION. SEALANT SHALL BE NON-HARDENING, WATER RESISTANT, FIRE RESISTIVE, COMPATIBLE WITH MATING MATERIALS, LIQUID USED ALONE OR WITH TAPE, OR HEAVY MASTIC.
- CLEARANCES: MAINTAIN MINIMUM 30"x30" WORKING CLEARANCE ON THE CONTROL SIDE OF ALL MECHANICAL EQUIPMENT. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.
- PROVIDE CANVAS, FLAME RETARDANT DUCT CONNECTORS AT ALL CONNECTIONS OF FANS TO DUCTWORK.
- ALL LOW VOLTAGE CONTROL WIRING SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. CONTROL WIRING SHALL BE PROVIDED IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES. CONTROL WIRING CONCEALED IN WALLS, LOCATED OUTDOORS, OR INSTALLED IN RETURN AIR PLENUM SHALL BE INSTALLED IN CONDUIT. CONDUIT TO BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR.
- ROUTE REFRIGERANT LINES FROM OUTDOOR UNITS TO COOLING COIL. SIZE PER MANUFACTURER'S RECOMMENDATIONS AND PROVIDE ADDITIONAL CHARGE AS REQUIRED. REFRIGERANT SUCTION PIPES LESS THAN 1 1/2" IN SIZE TO RECEIVE 1/2" ARMAFLEX INSULATION AND ALL LIQUID LINES INSTALLED IN NON-COITIONED SPACES SHALL RECEIVE 1" INSULATION. ALL EXPOSED REFRIGERANT PIPING INSTALLED OUTDOORS SHALL BE RIGID COPPER. ROUTE ALL REFRIGERANT PIPING PLUMB AND SQUARE WITH THE BUILDING AS POSSIBLE. EXTERIOR PIPING SHALL BE INSTALLED ON UNISTRUT AND SECURED WITH UNISTRUT CLAMPS. UNISTRUT TO BE ANCHORED TO CONCRETE PAD.
- ROUND DUCT BRANCH SIZE SHALL BE SAME AS NECK SIZE SPECIFIED FOR DIFFUSER, UNLESS OTHERWISE NOTED ON DRAWINGS.
- ALL EXTERIOR WALL LOUVERS USED FOR MECHANICAL EXHAUST, MECHANICAL FRESH AIR INTAKE, OR MECHANICAL COMBUSTION AIR SHALL BE EXTRUDED ALUMINUM, WITH 1/4" INSECT SCREEN. COORDINATE COLOR WITH ARCHITECT.
- VERIFY FLOOR PLAN AND WALL/FLOOR/CEILING RATINGS WITH ARCHITECTURAL PLANS. PROVIDE RATED PENETRATIONS AT EACH INSTANCE WHERE MECHANICAL INSTALLATION PENETRATES A RATED ASSEMBLY. PENETRATIONS SHALL BE PER DETAILS ON THE DRAWINGS OR SOME OTHER U.L. LISTED DESIGN.
- NATURAL GAS PIPING, IF SHOWN ON THESE DRAWINGS, SHALL BE SCH. 40 BLACK STEEL ABOVE GROUND WITH EITHER WELDED OR THREADED FITTINGS. PAINT PIPING LOCATED OUTDOORS. ALL NATURAL GAS PIPING PERMANENTLY CONCEALED IN WALLS, CHASES, ETC. SHALL HAVE WELDED CONNECTIONS. IF APPROVED BY THE LOCAL GAS UTILITY, PIPE BELOW GRADE MAY BE DRISCOPIPE 6500, OR APPROVED POLYETHYLENE TYPE, INSTALLED TO CONFORM TO MANUFACTURER'S RECOMMENDATIONS AND LOCAL UTILITY REQUIREMENTS. PROVIDE YELLOW COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR INSTALLED ADJACENT TO UNDERGROUND NONMETALLIC PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NONMETALLIC PIPING. THE TRACER WIRE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL. ALL NEW OR MODIFIED NATURAL GAS SYSTEMS SHALL BE TESTED AND PURGED PER IFGC CHAPTER 4 SECTION 406.
- UNLESS OTHERWISE NOTED ON DRAWINGS, AIR DISTRIBUTION SHALL BE AS FOLLOWS OR EQUAL:
 - CEILING SUPPLY, LAY-IN CEILINGS - NAILOR 6500 SERIES, TYPE L FRAME, FULLY LOUVERED FACE, NO FILLER PANEL, FLUSH WITH CEILING, LESS DAMPER.
 - SIDEWALL OR DRYWALL CEILING SUPPLY - NAILOR 61D SERIES, DOUBLE DEFLECTION, WITH DAMPER AND PLASTER RING (AS APPLICABLE).
 - CEILING RETURN AND EXHAUST, LAY-IN CEILINGS - NAILOR 4360 SERIES, FLUSH FACE, TYPE L FRAME.
 - SIDEWALL OR DRYWALL CEILING RETURN - NAILOR 51FH-HD WITH PLASTER RING.
 - LINEAR BAR SUPPLY GRILLES - NAILOR 49-240, LESS DAMPER, WITH PLASTER RING.
 - INSTALL AIR DISTRIBUTION SYMMETRICALLY WHERE POSSIBLE. ALL AIR DISTRIBUTION MOUNTING FRAMES SHALL MATCH CEILING TYPE. VERIFY CEILING AND COLORS WITH ARCHITECTURAL DRAWINGS. ALL AIR DISTRIBUTION SHALL HAVE POWDER COAT FINISH. GRILLES INSTALLED IN SIDEWALL OF DUCT SHALL MATCH DUCT FINISH AND COLOR. PROVIDE PREINSULATED SUPPLY GRILLE. WHERE ADAPTERS ARE USED, PAINT TO MATCH GRILLE.
- DUCT PENETRATIONS THROUGH RATED WALLS DO NOT REQUIRE FIRE DAMPERS PROVIDED THE FOLLOWING MINIMUM REQUIREMENTS ARE MET:
 - FIRE PARTITIONS:
 - THE DUCT DOES NOT EXCEED 100 SQ. INCHES.
 - THE DUCT IS OF 0.0217 INCH MINIMUM STEEL.
 - THE DUCT SHALL NOT HAVE OPENINGS THAT COMMUNICATE THE CORRIDOR WITH ADJACENT SPACES OR ROOMS.
 - THE DUCT IS INSTALLED ABOVE A CEILING.
 - THE DUCT SHALL NOT TERMINATE AT A WALL REGISTER IN THE FIRE RESISTANCE RATED WALL.
 - A MIN. 12" LONG BY 0.06" THICK STEEL SLEEVE SHALL BE CENTERED IN EACH DUCT OPENING. THE SLEEVE SHALL BE SECURED TO BOTH SIDES OF THE WALL AND ALL FOUR SIDES OF THE SLEEVE WITH MIN. 1 1/2" X 1 1/2" X 0.06" STEEL RETAINING ANGLES. SECURE RETAINING ANGLES TO THE SLEEVE AND WALL WITH NO 10 SCREWS. FILL ANNULAR SPACE BETWEEN THE WALL AND SLEEVE WITH MINERAL WOOL.
 - FIRE BARRIERS:
 - WALL IS RATED 1 HR OR LESS
 - WALLS ARE IN AREAS OTHER THAN GROUP H
 - BUILDING IS EQUIPPED THROUGHOUT WITH AUTOMATIC FIRE PROTECTION SYSTEM
 - THE DUCT IS OF 26GA (0.0217 INCH) STEEL MINIMUM.
 - DUCT IS CONTINUOUS FROM THE AIR HANDLER TO THE AIR OUTLET.
- UNLESS SHOWN OTHERWISE ON DRAWINGS, FRESH AIR DUCTWORK SHALL BE ROUND GALVANIZED DUCT WITH FOIL-BACKED INSULATION, R-6 MINIMUM. EXHAUST DUCTS DO NOT REQUIRE INSULATION. PROVIDE ACCESSIBLE BALANCING DAMPER. SIZE DUCT AS FOLLOWS: 1-100 CFM - 6", 101-200 CFM - 8", 201-400 CFM - 10". SEE NOTE 27 FOR INTAKE LOUVER REQUIREMENTS. EACH FRESH AIR INTAKE DUCT SHALL BE PROVIDED WITH AN ACCESSIBLE BALANCING DAMPER.
- CONDENSATE DRAINS, ELECTRICAL CONDUIT AND NATURAL GAS PIPING SHALL NOT BE ROUTED IN THE ROOF CURB OR UNIT HOUSING. CONDENSATE PIPING, ELECTRICAL CONDUIT AND NATURAL GAS PIPING SHALL PENETRATE THE ROOF, AS APPLICABLE, ADJACENT TO THE ROOF CURB AND CONNECT TO THE UNIT EXTERNALLY. PROVIDE AND INSTALL HARDWIRED THERMOSTATS FOR EACH SYSTEM. VERIFY EXACT LOCATION WITH OWNER EQUIPMENT PRIOR TO ROUGH-IN. THERMOSTAT INSTALLATION SHALL BE IN ACCORDANCE WITH ALL LOCAL CODES. THERMOSTATS SHALL BE INSTALLED AT 48°F. THERMOSTATS SHALL BE 7-DAY PROGRAMMABLE STYLE. MERCURY OPERATED THERMOSTATS ARE NOT ACCEPTABLE.
- ALL BARE SHEETMETAL SURFACES VISIBLE BEHIND ANY SIDEWALL HVAC GRILLE SHALL BE PAINTED FLAT BLACK.
- CONTRACTOR SHALL IDENTIFY ALL SCHEDULED EQUIPMENT AND ASSOCIATED THERMOSTATS. IDENTIFICATION SHALL BE ENGRAVED TAG PERMANENTLY ADHERED TO EQUIPMENT. THERMOSTATS MAY BE IDENTIFIED WITH PERMANENT INK ON INSIDE OF REMOVABLE COVER.
- THIS CONTRACTOR SHALL EXAMINE THE ENTIRE DRAWING PACKAGE AND INCLUDE ALL NECESSARY MATERIAL AND LABOR TO PROVIDE A COMPLETE AND OPERABLE SYSTEM AS INDICATED IN THE ENTIRE DRAWING SET FOR HIS RESPECT SYSTEMS.
- ALL RECTANGULAR OR SQUARE ELBOWS OR TEES SHALL BE INSTALLED WITH TURNING VANES AS PER SMACNA GUIDELINES.
- ALL HYDRONIC PIPING SHALL BE TYPE L COPPER OR SCH 40 STEEL. 2" PIPE AND SMALLER MAY BE THREADED. ALL NEW CHILLED WATER PIPING (UP TO 8") SHALL HAVE 1" INSULATION. (KRAFT BACK FIBERGLASS). NEW HOT WATER PIPING UP TO 1 1/4" SHALL HAVE 1 1/2" INSULATION (KRAFT BACK FIBERGLASS), 1 1/2" AND ABOVE SHALL HAVE 2" (KRAFT BACK FIBERGLASS).
- PROVIDE FLEXIBLE CONNECTIONS FOR ALL EQUIPMENT CONNECTIONS TO HYDRONIC SYSTEM.
- COORDINATE POWER REQUIREMENTS FOR ALL EQUIPMENT WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
- SHOULD AHU BE USED DURING CONSTRUCTION, CONTRACTOR SHALL PROVIDE AIR FILTERS AND REPLACE EVERY TWO WEEKS AND PRIOR TO FINAL ACCEPTANCE OF THE BUILDING.
- PIPE AND PIPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED AND BACKFILLED WITH #57 WASHED SAND.

FAN SCHEDULE		
TAG	EF-1	
AREA SERVED	RR	
QUANTITY	2	
USE	EXHAUST	
MANUFACTURER	GREENHECK	
MODEL NUMBER	SP-A90	
CFM	75	
STATIC PRESSURE	0.25"	
TYPE	CEILING	
ELECTRICAL	115/1/60	
POWER	25 WATTS	
SONES	0.4	
INTERLOCK	---	
WEIGHT	---	
NOTES:	ALL	

NOTES:

- BACKDRAFT DAMPER
- SPEED CONTROLLER PROVIDED BY DIVISION 23, MOUNTED AND WIRED BY DIVISION 26.
- INTEGRAL SERVICE DISCONNECT
- DIRECT DRIVE
- INSECT SCREEN
- ON WITH LIGHTS
- PROVIDE STATIONARY DRAINABLE LOUVER. COORDINATE EXACT SIZE WITH FAN MANUFACTURER.

CONDENSING UNIT SCHEDULE:			
TAG	CU-1	CU-2	CU-3
AIR SYSTEM	F-1	F-2	F-3
MANUFACTURER	TRANE	TRANE	TRANE
MODEL NUMBER	4TR4060	4TR4060	4TR4060
NOMINAL TONS	5	5	5
COND'R ENTERING AIR TEMP.	98"	98"	98"
ELECTRICAL	240/1/60	240/1/60	240/1/60
MOPC	27	27	27
MOCF	45	45	45
WEIGHT (LB)	---	---	---
NOTES:	ALL	ALL	ALL

NOTES:

- INSTALL ON LEVEL PAD
- HIGH AND LOW PRESSURE SWITCHES
- CRANKCASE HEATER
- LOW AMBIENT CONTROL
- 5-YEAR COMPRESSOR WARRANTY
- SIGHT GLASS AND LIQUID LINE DRIER
- INSTALL PER MANUFACTURER'S RECOMMENDATIONS FOR CLEARANCES
- SIZE REFRIGERANT LINE IN EXCESS OF 50' (HORIZONTAL) OR 20' (VERTICAL) AS PER MANUFACTURER'S RECOMMENDATION
- ALL REFRIGERANT PIPING INSTALLED OUTDOORS SHALL BE RIGID COPPER CLAMPED TO UNISTRUT. ANCHOR UNISTRUT TO CONCRETE PAD. ROUTE PIPING PLUMB AND SQUARE TO BLDG.
- PROVIDE EQUIPMENT FROM MANUFACTURER AS SPECIFIED OR EQUAL. EQUIVALENT MANUFACTURERS ARE TRANE, CARRIER, JOHNSON CONTROLS, DAIKIN, AMERICAN STANDARD.

FURNACE SCHEDULE:			
TAG	F-1	F-2	F-3
AREA SERVED	FRONT CLASS	BACK CLASS	SHOP
MANUFACTURER	TRANE	TRANE	TRANE
MODEL NUMBER	S9X1C080	S9X1C080	S9X1C080
CFM	1,750	1,750	1,950
OUTSIDE AIR CFM	380	300	300
TOTAL COOLING (MBH)	54	54	54
SENSIBLE COOLING (MBH)	41	41	41
ENTERING AIR (DB/WB)	80/67	80/67	80/67
HEAT INPUT (MBH)	80	80	80
HEAT OUTPUT (MBH)	77	77	77
ELECTRICAL	115/1/60	115/1/60	115/1/60
MCA	14.1	14.1	14.1
MOCF	15	15	15
WEIGHT (LB)	---	---	---
NOTES:	ALL	ALL	ALL

NOTES:

- HIGH EFFICIENCY FURNACE
- HONEYWELL VISION PRO 8000 MODEL TH8321WF1001 PROGRAMMABLE W-FI THERMOSTAT.
- 2" PLEATED RETURN AIR FILTER SIZED FOR CFM INDICATED THIS SCHEDULE.
- FACTORY CONCENTRIC VENT KIT

2 HOUR RATED 3 3/8" 20 GA METAL STUDS @ 16" O/C
(2) 5/8" TYPE X DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.

1 HOUR RATED 3 3/8" 22 GA METAL STUDS @ 16" O/C,
(1) 5/8" TYPE X DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.

NON-RATED 3 3/8" 22 GA METAL STUDS @ 16" O/C,
(1) 5/8" N/R DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.

EXISTING PARTITIONS

1 HOUR RATED DRYWALL CEILING

PARTITION TYPES

LEGEND

	SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	EXHAUST/TRANSFER AIR GRILLE
	THERMOSTAT
	TURNING VANE
	1 1/2 HR. FIRE DAMPER
SA	SUPPLY AIR
RA	RETURN AIR
FA	FRESH AIR/OUTSIDE AIR
EA	EXHAUST AIR

NECK SIZE: LAY-IN CEILING SIZE (24"x24")
 (8)(24)(RAG) (XXXCFM) RAG - RETURN AIR GRILLE
 (2) - CEILING DIFFUSER
 EAG - EXHAUST AIR GRILLE
 SWG - SIDEWALL GRILLE
 SAG - TRANSFER AIR GRILLE

NOTE: AIR FLOW RATING: ROUND BRANCH RUNOUT SIZE SAME SIZE AS DIFFUSER NECK UNLESS OTHERWISE SPECIFIED ON DRAWING.

GREENHECK FD-150 Static Rated Fire Damper 1 1/2 Hour Fire Resistance Rating

Application
 Model FD-150 is a static rated fire damper approved for use in floors, walls, and partitions with fire resistance ratings less than 3 hours. This model carries a 1 1/2 hour UL fire damper label. UL 555 classifies static rated fire dampers for use in HVAC systems that are automatically shut down in the event of fire.

Ratings
 UL 555 Fire Resistance Rating
 Fire Rating: 1 1/2 hours

Construction

	Standard	Optional
Frame Material	Galvanized steel*	-
Frame Depth	3 1/2 in. (90mm)	-
Blade Material	Galvanized steel*	-
Closure Spring	Stainless steel	-
Fusable Link	165°F (74°C)	212°F (100°C)
Mounting	Vertical	Horizontal

* In gauges required by UL listing R13317

Construction Details:
 Vertical Mount: 2 1/8" in. Frame, W, H
 Horizontal Mount: 1 1/2" in. Blade, 1 1/2" in. Fusable Link (replaceable), 1 1/2" in. Stainless Steel Closure Spring

See complete marking on product.
 UL 555 Classification R13317

Model FD-150 meets the requirements for fire dampers established by:
 National Fire Protection Association NFPA Standards 90, 90.1, 90.3
 International Building Code (IBC)
 California State Fire Marshal (CSFM) Listing #3225-981-0105 for use in walls

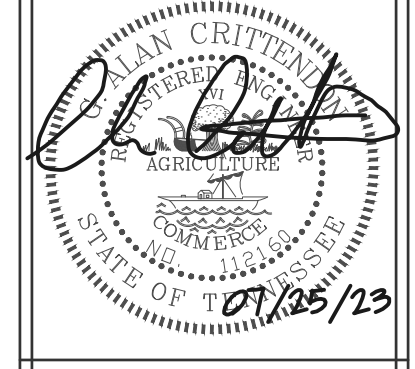
May 2022

- GENERAL NOTES:
- DUCT SIZES INDICATED ARE ACTUAL SHEET METAL DIMENSIONS. ALLOWANCES HAVE BEEN MADE FOR THICKNESS OF INSULATION. ALL RECTANGULAR DUCTS TO BE LINED WITH 1 1/2" THICK, FIBERGLASS INSULATION EQUAL TO CERTAINEED TOUGHGARD TYPE 150, R-8 MINIMUM. LINED DUCTWORK INSTALLED IN UNCONDITIONED ATTICS SHALL RECEIVE 2" LINER, R-8 MINIMUM.
 - WRAP ALL ROUND DUCTS WITH FOIL BACKED FIBERGLASS INSULATION EQUAL TO CERTAINEED SOFT TOUCH DUCT WRAP, TYPE 75, R-8 MINIMUM. ROUND DUCTS INSTALLED IN UNCONDITIONED ATTICS TO RECEIVE R-8 MINIMUM. SECURE EXTERNAL INSULATION TO ROUND DUCTWORK WITH TAPE AND STAPLES.
 - EXHAUST DUCTS (NON GREASE) DO NOT REQUIRE INSULATION.
 - PROVIDE TEMPORARY FILTERS FOR EXISTING HVAC SYSTEMS AFFECTED DURING CONSTRUCTION ACTIVITIES. PROVIDE CLEAN SET OF FILTERS FOR EXISTING SYSTEMS AT END OF PROJECT.
 - COORDINATE ALL NEW ROOF PENETRATIONS WITH ROOFING CONTRACTOR. ENSURE ALL NEW PENETRATIONS ARE PROPERLY CUT AND FLASHED WEATHERTIGHT. ENSURE ANY EXISTING WARRANTY IS MAINTAINED.
 - VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. HVAC LAYOUT DETERMINED FROM SITE OBSERVATIONS AND AS BUILT DRAWINGS. CONTRACTOR SHALL NOTIFY ENGINEER SHOULD EXISTING CONDITIONS DIFFER FROM THESE DRAWINGS.

JIMMY NEIL ANDERSON
 ARCHITECT

1 ANDERSON TRAIL
 CLIFTON, TN 38425
 (731) 394-6565
 JIM6565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.



REVISED
 REV 1 07-25-23
 TSM REVIEW COMMENTS

Wayne County Board of Education
 FHS-CTE Classrooms TFM # 03387-C
 Frank Hughes School - Clifton, TN

M2.0

THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

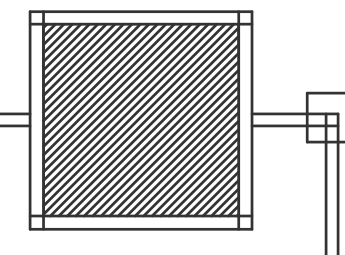
No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.

TENNESSEE STATE FIRE MARSHAL'S OFFICE

COLLIER DW COLLIER ENGINEERING, INC.
 735 BRADSHAW STREET
 SUITE 108
 SOUTH BEND, IN 46708
 PH: (219) 479-2115
 WWW.COLLIERENG.COM

DWCEI PROJECT NO. 23-081

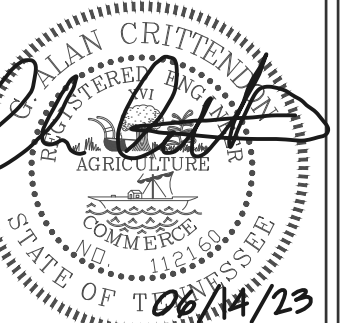
TFM: 03387-C PN: 2023-07-03-01 Field Set



**JIMMY
NEIL
ANDERSON**
ARCHITECT

1 ANDERSON TRAIL
CLIFTON, TN 38425
(731) 394-6565
JIM6565@HOTMAIL.COM

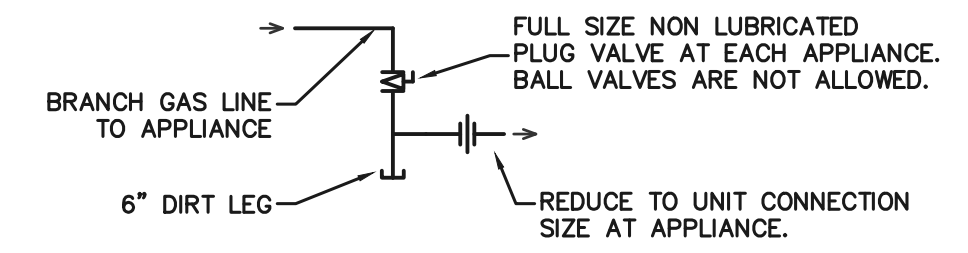
THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.



REVISED

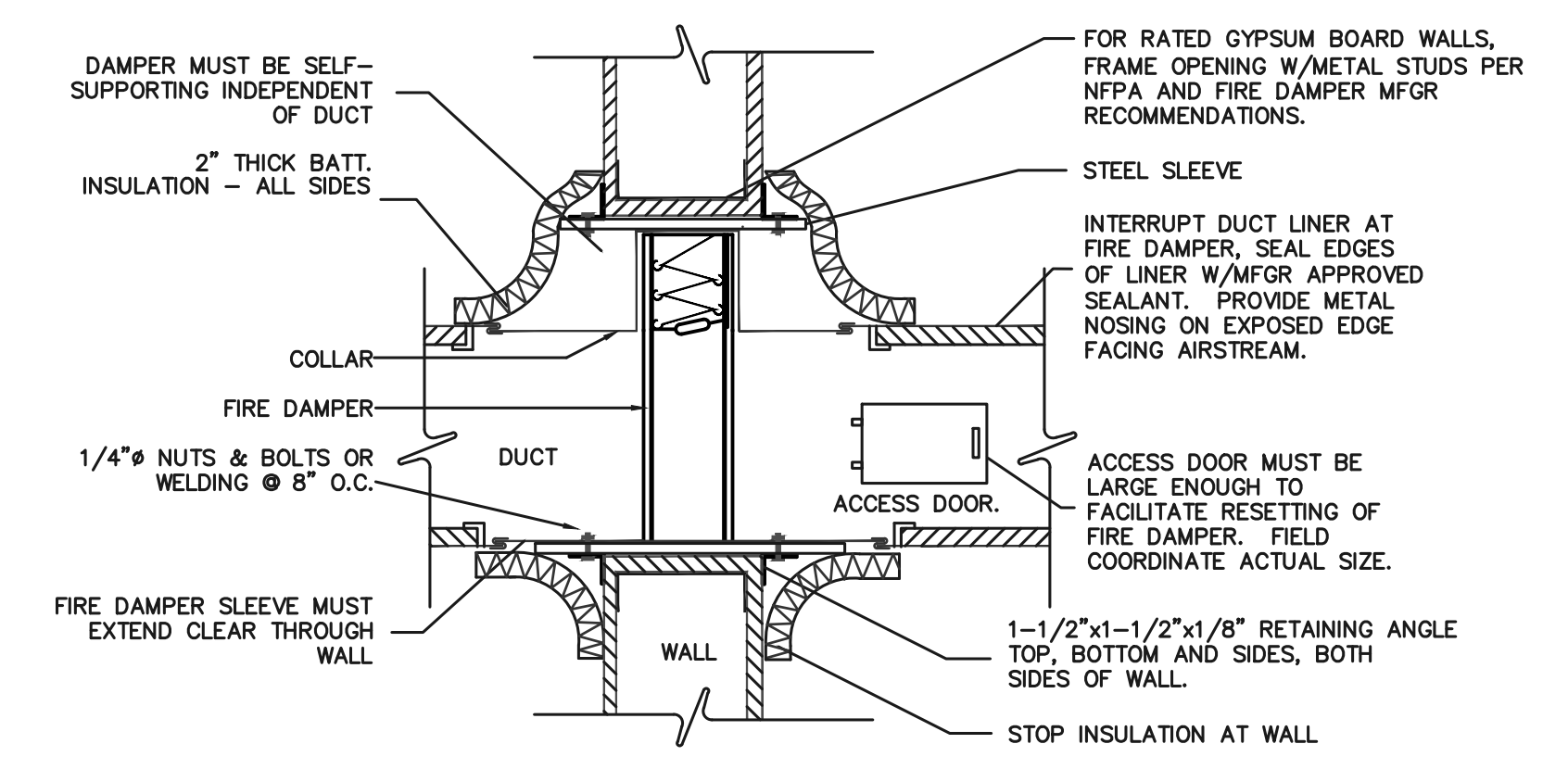
Wayne County Board of Education
FHS-CTE Classrooms TFM # 03387-C
Frank Hughes School - Clifton, TN

M2.1

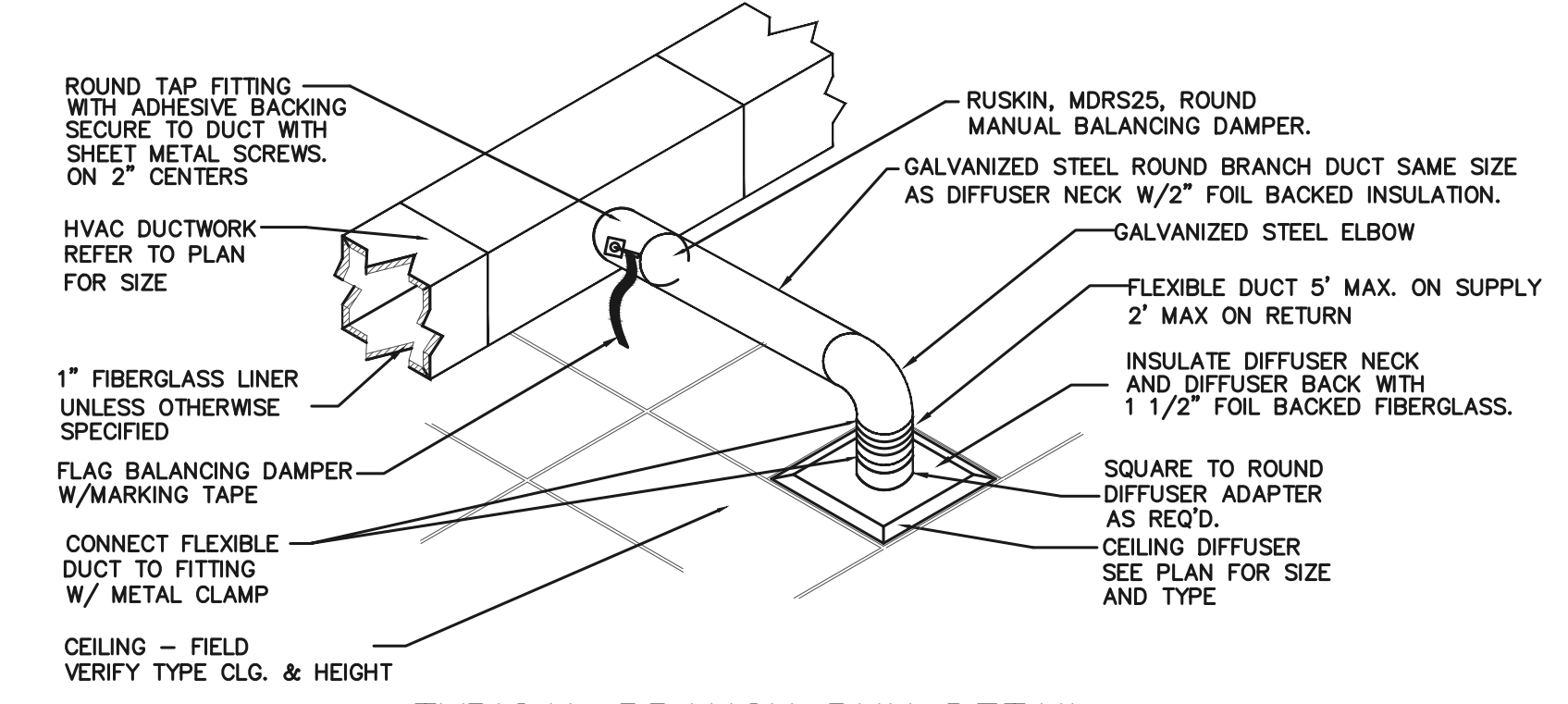


TYPICAL LOW PRESSURE NATURAL GAS PIPING AT APPLIANCE
NOT TO SCALE

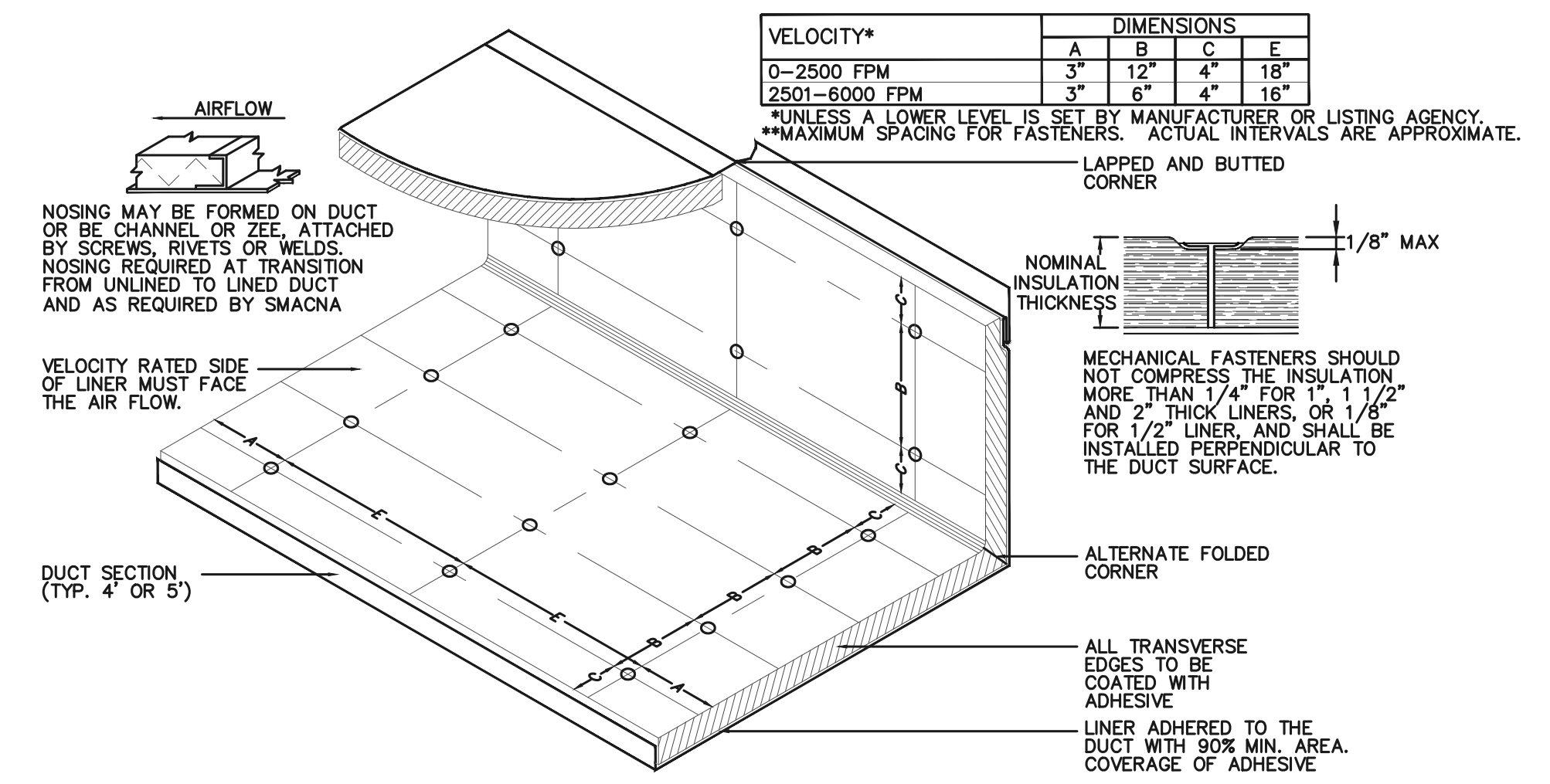
- GENERAL GAS PIPING NOTES:
- 1) BALL VALVES ARE NOT ACCEPTABLE. ALL VALVES TO BE NON-LUBRICATED PLUG VALVES RATED FOR GAS SERVICE.
 - 2) PIPING, VALVES, UNION, ETC. SHALL REMAIN FULL-SIZE AND SHALL NOT REDUCE TO UNIT CONNECTION SIZE UNTIL WITHIN 6" OF APPLIANCE.
 - 3) ANCHOR GAS PIPING TO APPLIANCE PAD OR BUILDING STRUCTURE WITHIN 36" OF TERMINATION. DIRT LEG AND SHUTOFF VALVE SHALL BE EXPOSED ON ROOF. GAS PIPING SHALL NOT BE INSTALLED IN ROOF CURB OF ANY GAS-FIRED, ROOF-MOUNTED MECHANICAL EQUIPMENT.
 - 4) DIRT LEGS SHALL BE INSTALLED AS SHOWN IN DETAIL, FORMED BY A 6" CAPPED NIPPLE IN THE RUN OF A TEE.
 - 5) PAINT ALL EXPOSED GAS PIPING YELLOW OR GRAY OR SOME OTHER APPROVED COLOR AS DIRECTED BY ARCHITECT OR ENGINEER. WHERE GAS PIPING CAN BE EASILY SEEN AT GRADE, VERIFY COLOR WITH ARCHITECT OR ENGINEER. LABEL ALL GAS PIPING.
 - 6) SYSTEMS INSPECTED AND FOUND TO NOT COMPLY WITH THESE REQUIREMENTS WILL REQUIRE CORRECTION AT NO ADDITIONAL COST TO THE OWNER.



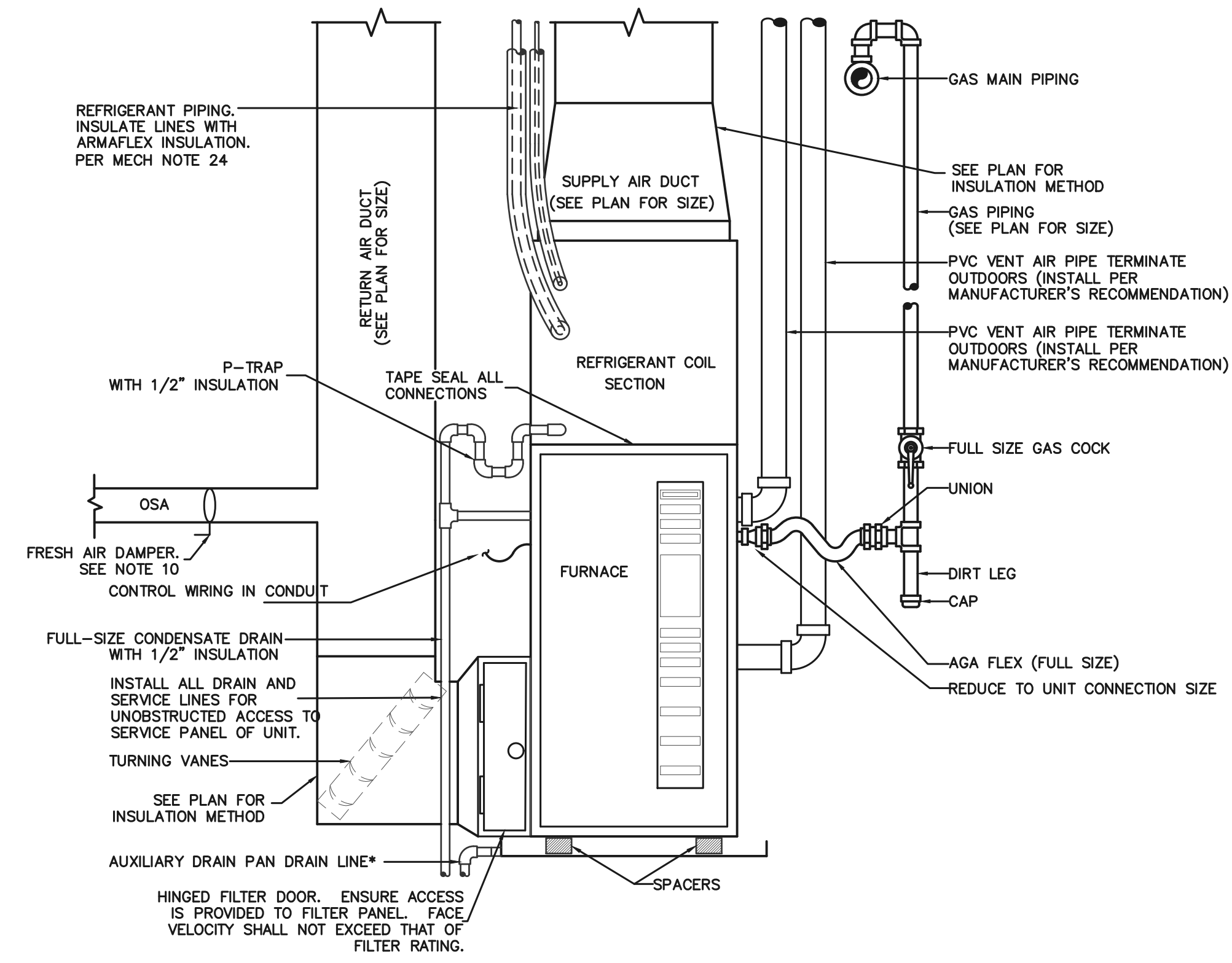
TYPICAL FIRE DAMPER DETAIL
NOT TO SCALE



TYPICAL BRANCH RUN DETAIL
NOT TO SCALE



DUCT LINER INSTALLATION DETAIL
NOT TO SCALE



FURNACE INSTALLATION DETAIL
NOT TO SCALE

GENERAL INSTALLATION NOTES:

1. INSTALL ALL DRAIN AND SERVICE LINES AND HANGERS FOR UNOBSTRUCTED ACCESS TO SERVICE PANEL OF UNIT.
2. INSTALL UNIT SUCH THAT SERVICE SIDE OF UNIT IS NOT BLOCKED BY STRUCTURE, WALLS, OTHER TRADES, ETC. AS TO PREVENT SERVICE OF UNIT.
3. INSTALL AND ORIENT FILTER SUCH THAT FILTER ELEMENT CAN BE REMOVED AND REPLACED.
4. FURNACE SHALL BE INSTALLED LEVEL.
5. LABEL FURNACE WITH MINIMUM 3" TALL LETTERS THE UNIT NUMBER AS SHOWN ON THE PLAN. LABEL CONDENSING UNIT OR HEAT PUMP WITH CORRESPONDING IDENTIFICATION.
6. PROVIDE RAIL/BLOCKING BETWEEN AIR HANDLER AND PAN TO ALLOW FOR ADEQUATE CONDENSATE TRAP. DRAW THRU CONFIGURATIONS MAY REQUIRE ADDITIONAL HEIGHT.
7. SEISMICALLY RESTRAIN AS PER IBC 301.15, IBC 1613 AND ASCE 7-10 13.1.3. TWO AXIS LATERAL SEISMIC SNUBBER EQUAL TO KINETICS MODEL HS-2 ON 1/4"x2"x2" ANGLE IRON. PROVIDE CERTIFIED CALCULATIONS AND SHOP DRAWINGS AS A SUBMITTAL SEAL WATER TIGHT AT AUXILIARY DRAIN PAN.
8. PROVIDE FULL RETURN PLENUM FOR UNITS REQUIRING BOTTOM RETURN. RETURN DUCT SHALL CONNECT TO PLENUM.
9. PROVIDE AUXILIARY DRAIN PAN. AUXILIARY DRAIN PAN SHALL HAVE A MINIMUM DEPTH OF 1 1/2" AND SHALL BE NOT LESS THAN 3" LARGER THAN UNIT DIMENSIONS IN WIDTH AND LENGTH, AND SHALL BE CONSTRUCTED OF NOT LESS THAN 0.0276" GALVANIZED SHEET STEEL. PROVIDE A FLOAT SWITCH OR A SEPARATE DRAIN LINE OF NOT LESS THAN 3/4" TERMINATE AT A CONSPICUOUS POINT TO SERVE AS AN ALARM THAT THE REGULAR DRAIN IS RESTRICTED.
10. FOR BUILDINGS UNDER THREE STORIES, PROVIDE GRAVITY BACKDRAFT DAMPER. FOR BLDGS THREE STORIES AND GREATER PROVIDE MOTORIZED BACKDRAFT DAMPER INTERLOCKED WITH FAN.



DW COLLIER
ENGINEERING, INC.
735 BRANCHVIEW STREET
SUITE 102
SOUTH DIXIE, TN 38057
PH: (931) 479-2115
WWW.COLLIERENG.COM

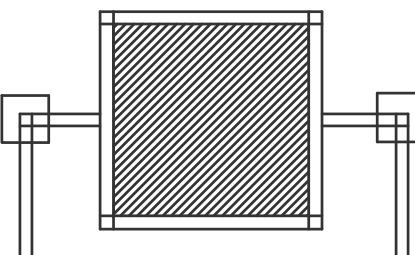
DWCEI PROJECT NO. 23-081

THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.

TENNESSEE STATE FIRE MARSHAL'S OFFICE

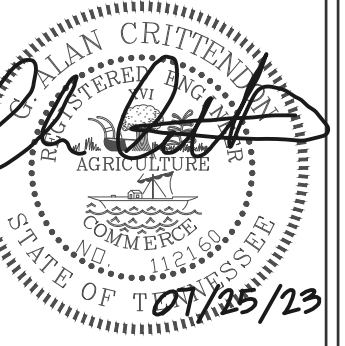
TFM: 03387-C PN: 2023-07-03-01 Field Set



**JIMMY
NEIL
ANDERSON
ARCHITECT**

1 ANDERSON TRAIL
CLIFTON, TN 38425
(731) 394-6565
JIM6565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.

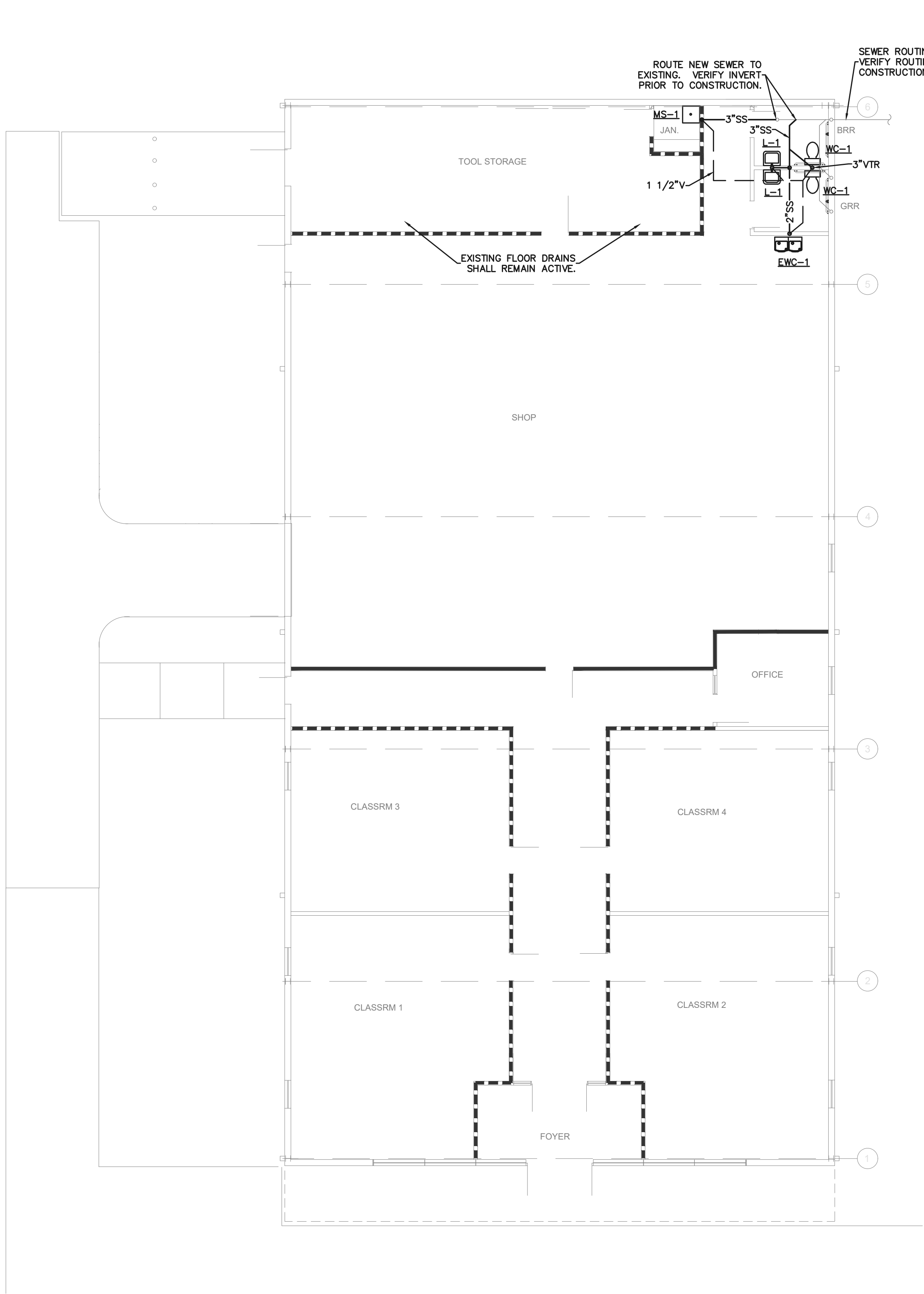


REVISED
REV 1 07-25-23
TSEM REVIEW COMMENTS

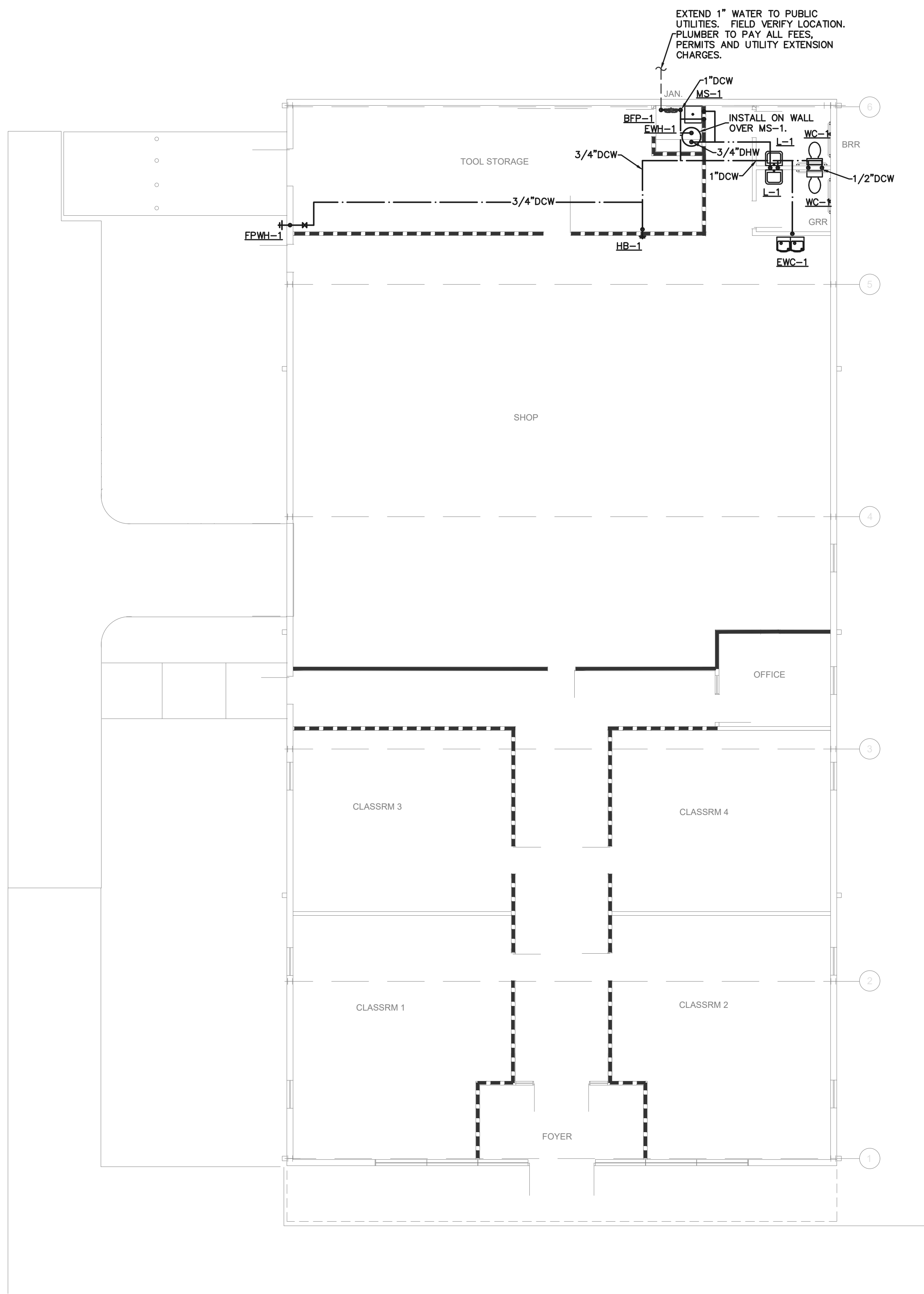
Wayne County Board of Education
FHS-CTE Classrooms TFM # 03387-C
Frank Hughes School- Clifton, TN

P1.0

TFM: 03387-C PN: 2023-07-03-01 Field Set



1 SEWER PLAN
1/8" = 1'-0"



2 WATER PLAN
1/8" = 1'-0"

THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.

TENNESSEE STATE FIRE MARSHAL'S OFFICE



DWCEI PROJECT NO. 23-081

GENERAL PLUMBING NOTES:

- ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH ALL LOCAL OR STATE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THE PARTICULAR CLASS OF WORK. IF TO THE KNOWLEDGE OF THE CONTRACTOR, THE DRAWINGS AND SPECIFICATIONS ARE IN CONFLICT WITH THE ABOVE, HE SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING SO THAT ANY NECESSARY CHANGES CAN BE PROVIDED FOR IN HIS CONTRACT. IF THE CONTRACTOR PERFORMS ANY WORK WITHOUT NOTICE AS REQUIRED, HE SHALL BEAR ALL COSTS OF CORRECTIVE ACTION.
- THE CONTRACTOR SHALL INCLUDE IN HIS QUOTATION ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, ROYALTIES, AND OTHER SIMILAR COSTS IN CONNECTION WITH THE WORK. OBTAIN PERMITS, AND REQUEST INSPECTIONS FROM AUTHORITY HAVING JURISDICTION.
- INSTALL WORK IN LOCATIONS SHOWN ON DRAWINGS, UNLESS PREVENTED BY PROJECT CONDITIONS. FOR PURPOSES OF CLEARANCE AND LEGIBILITY, DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC, AND ALTHOUGH SIZE AND LOCATION OF EQUIPMENT ARE DRAWN TO SCALE WHENEVER POSSIBLE, THE CONTRACTOR SHALL MAKE USE OF ALL DATA IN ALL OF THE CONTRACT DOCUMENTS AND SHALL VERIFY THIS INFORMATION AT THE SITE. VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. EXISTING LAYOUT, IF SHOWN, DETERMINED FROM SITE OBSERVATIONS AND AS BUILT DRAWINGS. CONTRACTOR SHALL NOTIFY ENGINEER SHOULD EXISTING CONDITIONS DIFFER FROM THESE DRAWINGS.
- THE DRAWINGS INDICATE REQUIRED SIZE AND POINTS OF TERMINATION OF PIPES AND DUCTS, AND SUGGEST PROPER ROUTES OF PIPE TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS AND PRESERVE CLEARANCES FROM ELECTRICAL PANELS. PLUMBING LINES SHALL NOT BE RUN DIRECTLY OVER ELECTRICAL PANELS. HOWEVER, IT IS NOT INTENDED THAT DRAWINGS INDICATE ALL NECESSARY OFFSETS, AND IT SHALL BE THE WORK OF THIS SECTION TO INSTALL PIPING AND DUCTS IN SUCH A MANNER AS TO CONFORM TO STRUCTURE, AVOID ALL OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR WITHOUT FURTHER INSTRUCTION OR COST TO THE OWNER.
- CONTRACTOR SHALL GUARANTEE ALL WORK PERFORMED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF CERTIFICATE OF SUBSTANTIAL COMPLETION.
- THE PLUMBING CONTRACTOR SHALL PREPARE SUBMITTALS ON ALL EQUIPMENT AND MATERIALS APPLICABLE TO THIS PROJECT AND SUBMIT TO ENGINEER FOR REVIEW PRIOR TO PROCUREMENT, FABRICATION OR ANY CONSTRUCTION. SUBMITTALS MAY BE MAILED VIA APPROPRIATE CHANNELS OR SUBMITTED IN PDF FORM VIA EMAIL. PARTIAL SUBMITTALS WILL NOT BE REVIEWED. SUBMITTALS SHALL BE PROJECT SPECIFIC INDICATING THE INTENDED MODEL NUMBERS, MATERIALS, AND EQUIPMENT TAGS.
- SHOULD A PRODUCT SUBSTITUTION BE PROVIDED:
 - THE PROPOSED SUBSTITUTION SHALL BE FULLY INVESTIGATED AND DETERMINED TO BE EQUAL OR SUPERIOR IN ALL RESPECTS TO THE SPECIFIED PRODUCT.
 - THE PROPOSED SUBSTITUTION SHALL HAVE THE SAME WARRANTY FURNISHED FOR THE PROPOSED SUBSTITUTION AS FOR THE SPECIFIED PRODUCT.
 - THE PROPOSED SUBSTITUTION SHALL HAVE THE SAME MAINTENANCE SERVICE AND AVAILABILITY OF SPARE PARTS.
 - THE PROPOSED SUBSTITUTION SHALL NOT AFFECT DIMENSIONS AND/OR FUNCTIONAL REQUIRED CLEARANCES PER THE MANUFACTURER OR THE LATEST APPLICABLE CODES.
 - THE PROPOSED SUBSTITUTION SHALL HAVE NO ADVERSE EFFECT ON OTHER TRADES AND SHALL NOT AFFECT AND/OR DELAY THE PROGRESS SCHEDULE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO PAY FOR ANY CHANGES TO BUILDING DESIGN, INCLUDING ARCHITECTURAL/ENGINEERING DESIGN, DETAILING AND CONSTRUCTION COST CAUSED BY THE SUBSTITUTION AND TAKE SOLE RESPONSIBILITY FOR SUBSTITUTIONS THAT ARE DEEMED "VALUE ENGINEERING" AND DETERMINED NOT EQUAL OR SUPERIOR TO THE PRODUCT SPECIFIED.
- TRANSPORT AND HANDLE PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- STORE AND PROTECT PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, WITH SEALS AND LABELS INTACT AND LEGIBLE.
- ALL WATER HEATERS, PUMPS, ETC. SHALL HAVE U.L. LISTING OR EQUIVALENT. VERIFY THAT EACH PIECE OF EQUIPMENT OR SYSTEM HAS BEEN CHECKED FOR PROPER LUBRICATION, DRIVE ROTATION, BELT TENSION, CONTROL SEQUENCE, OR FOR OTHER CONDITIONS WHICH MAY CAUSE DAMAGE.
- DEMONSTRATE OPERATION AND MAINTENANCE OF PRODUCTS TO OWNER'S PERSONNEL ONE WEEK PRIOR TO DATE OF FINAL INSPECTION.
- EXECUTE FINAL CLEANING PRIOR TO FINAL PROJECT ASSESSMENT.
- SEISMICALLY RESTRAIN SUSPENDED PLUMBING EQUIPMENT, GAS PIPING AND HYDRONIC PIPING AS REQUIRED BY LOCAL CODE. PROVIDE SUPPORT AND EQUIPMENT REQUIRED TO CONTROL EXPANSION AND CONTRACTION OF PIPING. PROVIDE LOOPS, PIPE OFFSETS, AND SWING JOINTS, OR EXPANSION JOINTS WHERE REQUIRED.
- SANITARY DRAIN/VENT PIPING LOCATED IN RETURN PLENUM SHALL BE SERVICE WEIGHT CAST IRON (ASTM A74). ALL OTHER SANITARY DRAIN/VENT PIPING MAY BE SCHEDULE 40 PVC (ASTM 2665) OR SERVICE WEIGHT CAST IRON (ASTM A74). CONFORM TO LOCAL CODE REQUIREMENTS.
- DOMESTIC WATER PIPING ON PUBLIC WATER SYSTEMS SHALL BE TYPE "L" COPPER (ASTM B88) WITH SOLDER CONNECTIONS. UNDERGROUND WATER PIPING SHALL BE TYPE "K" COPPER OR SCHEDULE 40 PVC (ASTM D1785), AS LOCAL CODES ALLOW. ANY PIPING ON A DOMESTIC WELL SHALL BE SCH 40 PVC/CPVC OR TYPE "A" PE-X. INSULATE DOMESTIC WATER LINES WITH 1/2" THICK FIBERGLASS INSULATION. HOT WATER LINES AND ALL RECIRCULATING LOOPS UP TO 1 1/2" SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION. HOT WATER LINES 2" AND LARGER SHALL HAVE 2" THICK FIBERGLASS INSULATION.
- BEFORE COMMENCING WORK ON SANITARY SEWER, CHECK INVERTS AND ENSURE THAT THESE CAN BE PROPERLY CONNECTED WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING.
- PROVIDE NEW WATER SERVICE COMPLETE WITH REDUCED PRESSURE BACKFLOW PREVENTER. WHERE WATER PRESSURES EXCEED 80PSI, PROVIDE PRESSURE REDUCING VALVE WITH STRAINER UPSTREAM OF BACKFLOW PREVENTER.
- PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
- PROVIDE ACCESSIBLE STOPS IN PIPING CONNECTIONS TO ALL PLUMBING FIXTURES.
- ASSURE EXTERIOR WALL CHASES ARE INSULATED TO PREVENT FREEZING. WATER LINES SHALL NOT BE INSTALLED IN AREAS SUBJECT TO FREEZING TEMPERATURES.
- VERIFY MILLWORK DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO ORDERING SINKS AND LAVATORIES. PROVIDE INSULATING ADA PLUMBING JACKETS UNDER EACH ADA FIXTURE WITH EXPOSED DRAIN AND WATER PIPING.
- PROVIDE PIPE LABELS FOR ALL PIPING SYSTEMS.
- PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS AND ENSURE THAT FLOOR SLOPES TO DRAIN AT FLOOR DRAIN.
- PROVIDE AND INSTALL WADE SHOCKSTOPS FOR DOMESTIC WATER PIPING SYSTEM. TWO REQUIRED PER BATHROOM UNIT. ONE DCW AND ONE DHW. PROVIDE SHUTOFF VALVE FOR SERVICING SHOCKSTOP.
- VERIFY FLOOR PLAN AND WALL/FLOOR/CEILING RATINGS WITH ARCHITECTURAL PLANS. PROVIDE RATED PENETRATIONS AT EACH INSTANCE WHERE PLUMBING INSTALLATION PENETRATES A RATED ASSEMBLY. PENETRATIONS SHALL BE PER DETAILS ON THE DRAWINGS OR SOME OTHER U.L. LISTED DESIGN.
- THIS CONTRACTOR SHALL EXAMINE THE ENTIRE DRAWING PACKAGE AND INCLUDE ALL NECESSARY MATERIAL AND LABOR TO PROVIDE A COMPLETE AND OPERABLE SYSTEM AS INDICATED IN THE ENTIRE DRAWING SET FOR HIS RESPECTIVE SYSTEMS.
- THE PLUMBER SHALL PROVIDE A COMPLETE AND OPERABLE PLUMBING SYSTEM INCLUDING BUT NOT LIMITED TO ALL FIXTURES, BUILDING WATER PIPING AND INSULATION, SITE WATER PIPING, BUILDING WASTE AND VENT PIPING, SITE SEWER, PUBLIC SYSTEM TAP FEES, EXTENSION CHARGES, CLEANING OF WATER SYSTEM, IDENTIFICATION OF ALL PIPING, ETC.
- THE DRAINAGE SYSTEM(S) AND THE VENT SYSTEM(S) SHALL BE TESTED, IN ITS ENTIRETY, FOR 15 MINUTES, WITH A 10 FOOT HEAD OF WATER. THE SYSTEM SHALL PROVE TIGHT AT ALL POINTS. TESTING SHALL BE THUS OR AS PER OTHER METHOD APPROVED BY THE ENGINEER OR LOCAL INSPECTOR. TEST SHALL OCCUR BEFORE ANY BACKFILLING ON UNDERGROUND PORTIONS.
- THE WATER SUPPLY SYSTEM SHALL BE TESTED, IN ITS ENTIRETY, BY FILLING WITH WATER AND PRESSURING TO OPERATING PRESSURE. SYSTEMS OTHER THAN PLASTIC MAY BE PNEUMATICALLY TESTED AT 50 PSI FOR 15 MINUTES IN LIEU OF WATER TEST. ALL TESTS SHALL PROVE THE SYSTEM TIGHT.
- COMPRESSED AIR PIPING SHALL BE SCH 40 STEEL WITH THREADED MI FITTINGS. COMPRESSED AIR SYSTEM SHALL BE PNEUMATICALLY TESTED FOR 15 MIN AT 100PSI AND PROVED LEAK TIGHT.
- IF SHOWN THESE DRAWINGS, DISPOSE OF CONDENSATE IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS. PROVIDE TRAP IN CONDENSATE DRAIN LINE AT EACH COIL OR 90+ FURNACE IN ACCORDANCE WITH PUBLISHED MANUFACTURER'S INSTRUCTIONS. EACH TRAP SHALL BE PROVIDED WITH A TEE TO ALLOW FOR CLEANING. CONDENSATE PIPING SHALL BE SCH 40 PVC UNLESS NOTED OTHERWISE OR PROHIBITED BY CODES. INSULATE CONDENSATE DRAIN PIPING, SLOPE TO DRAIN, AND TERMINATE IN ACCORDANCE WITH CODE OR AS SHOWN ON THESE DRAWINGS.
- ROOF DRAIN PIPING, IF SHOWN ON THESE DRAWINGS, SHALL BE SCH. 40 PVC. SUPPORT ROOF DRAIN PIPING WITH ALL THREAD ROD AND CLEVIS HANGERS. INSULATE ROOF DRAIN BODIES AND HORIZONTAL ROOF DRAIN PIPING WITH 1/2" THICK FIBERGLASS INSULATION. OVERFLOW PIPING DOES NOT REQUIRE INSULATION. OVERFLOW SYSTEM SHALL DISCHARGE ABOVE GRADE, TO INDICATE THAT PRIMARY SYSTEM IS NOT FUNCTIONING.
- PROVIDE 3/8" DCW CONNECTION TO ICE MAKER IF NECESSARY.
- NATURAL GAS PIPING, IF SHOWN ON THESE DRAWINGS, SHALL BE SCH. 40 BLACK STEEL ABOVE GROUND WITH EITHER THREADED OR WELDED FITTINGS. PAINT PIPING LOCATED OUTDOORS. ALL NATURAL GAS PIPING PERMANENTLY CONCEALED IN WALLS, CHASES, ETC. SHALL HAVE WELDED CONNECTIONS. IF APPROVED BY THE LOCAL GAS UTILITY, PIPE BELOW GRADE MAY BE DRISOPPE 6500, OR APPROVED POLYETHYLENE TYPE. INSTALLED TO CONFORM TO MANUFACTURER'S RECOMMENDATIONS AND LOCAL UTILITY REQUIREMENTS. PROVIDE YELLOW COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR INSTALLED ADJACENT TO UNDERGROUND NONMETALLIC PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NONMETALLIC PIPING. THE TRACER WIRE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL. ALL NEW OR MODIFIED NATURAL GAS SYSTEMS SHALL BE TESTED AND PURGED PER IFGC CHAPTER 4 SECTION 406.
- ANY PIPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED AND BACKFILLED WITH #57 LESTON.

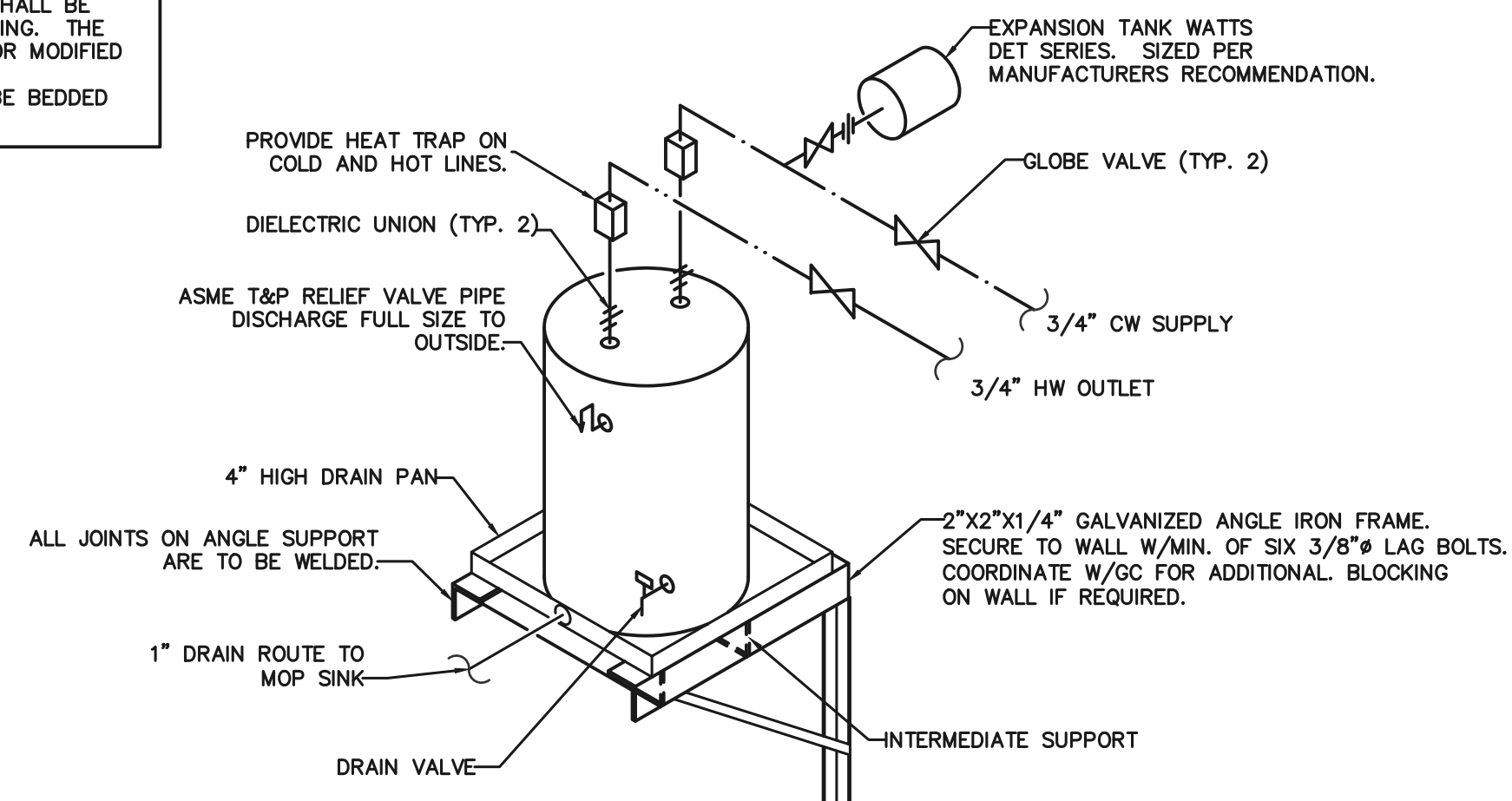
PLUMBING SCHEDULE:

TAG	RUN OUT SIZE			DESCRIPTION
	SEWER	DCW	DHW	
WC-1	4"	1/2"	---	AMERICAN STANDARD, CADET PRO, 215FC004.020, 17" TO 19" SEAT HEIGHT ADA, ELONGATED BOWL, 1.6 GPF, WITH CHURCH, 295C, SEAT, AND SUPPLY & STOP.
L-1	1 1/2"	1/2"	1/2"	AMERICAN STANDARD, 0958008EC, WALL-HUNG LAVATORY, ADA, WITH AMERICAN STANDARD, MONTEREY, 6540.170, WIDESPREAD FAUCET WITH 0.5GPM AERATOR. PROVIDE MIXING VALVE WITH 110F MAX DELIVERY. BRASS CRAFT, DEARBORN, #507, P-TRAP, 15SA, STRAINER, AND #2165 SUPPLIES & STOPS. PROVIDE ZURN Z1231 WALL CARRIER WITH CONCEALED SUPPORT ARMS. PROVIDE WITH PORCELAIN SHROUD.
MS-1	3"	1/2"	1/2"	FIAT, MSBID2424, 24x24 MOP SINK. FIAT, 830-AA, FAUCET WITH FIAT, A32-AA, HOSE AND BRACKET. PROVIDE STAINLESS BACKSPASH.
EWC-1	1 1/2"	1/2"	---	ELKAY, EZSLBLG, HI-LO, WATER COOLER, ADA. BRASS CRAFT, DEARBORN, #507, P-TRAP, AND #2165 SUPPLIES & STOPS.
BFP-1	---	1"	---	WATTS, SERIES LF919, REDUCED PRESSURE BACKFLOW PREVENTOR ASSEMBLY WITH STRAINER AND AIR GAP.
HB-1	---	3/4"	---	ZURN 1341 INTERIOR HOSE BIBB.

ELECTRIC WATER HEATER SCHEDULE:

TAG	LOCATION	QTY	U/E
EH-1	JAN	1	
MANUFACTURER	STATE		
MODEL NUMBER	ES9 20 SOMS		
TYPE	ELECTRIC		
STORAGE (GAL)	19		
ELEMENTS	2500W		
ELECTRICAL	120/1/60		
NOTES	ALL		

- MINIMUM WATER TEMPERATURE 125°F
- MOUNT ON WALL ABOVE MS-1.
- AUXILIARY DRAIN PAN.



- NOTE:**
- SEE FLOOR PLAN FOR CONTINUATION AND PIPE SIZES.
 - FOR HEATER SELECTION SEE SCHEDULE AND SPECIFICATIONS.

WALL MOUNTED ELECTRIC WATER HEATER DETAIL

NOT TO SCALE

System No. W-L-1146
September 03, 2004

F Ratings — 1 and 2 Hr (See Item 1)
T Rating — 0 Hr

SECTION A-A

- Wall Assembly** — The 1 or 2 hr fire rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs** — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3-1/2 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is centered in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing in all four sides.
 - Gypsum Board*** — The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. in. for steel stud walls. Max diam of opening is 14-1/2 for wood stud walls. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
- Through-Penetrant** — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (point contact) to max 2 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
 - Steel Pipe — Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - Iron Pipe — Nom 24 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
 - Conduit — Nom 6 in. diam (or smaller) steel conduit or nom 4 in diam (or smaller) steel electrical metallic tubing
 - Copper Tubing — Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing
 - Copper Pipe — Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
- Fill, Void or Cavity Materials*** — Caulk or Sealant — Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. Min 1/2 in. diam bead of caulk applied to the penetrant/wallboard interface at the point contact location on both sides of wall.

3M COMPANY — CP25WB+ or FB—3000 WT

2 HOUR RATED

3 3/8" 20 GA METAL STUDS @ 16" O/C
(2) 3/8" TYPE X DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.

1 HOUR RATED

3 3/8" 22 GA METAL STUDS @ 16" O/C,
(1) 3/8" TYPE X DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.

NON-RATED

3 3/8" 22 GA METAL STUDS @ 16" O/C,
(1) 3/8" N/R DRYWALL EA. SIDE & 3" SOUND BATTS, TYP.

1 HOUR RATED DRYWALL CEILING

PARTITION TYPES

GENERAL NOTES:

- ALL WATER CLOSETS SHALL RECEIVE A 2" VENT. ALL OTHERS SHALL RECEIVE 1 1/2" VENT UNLESS OTHERWISE NOTED. COORDINATE VENT THROUGH ROOF (VTR) LOCATIONS WITH ROOFTOP EQUIPMENT AND FRESH AIR INTAKES. MAINTAIN 10' MINIMUM CLEARANCE FROM FRESH AIR INTAKES.
- ALL WATER CLOSETS SHALL RECEIVE A 4"SS CONNECTION. ALL FLOOR DRAINS SHALL RECEIVE A 3"SS CONNECTION. ALL OTHERS SHALL BE 2"SS UNLESS OTHERWISE NOTED.
- ALL FPWM AND URINALS SHALL RECEIVE 3/4"DCW. ALL OTHER FIXTURES SHALL RECEIVE 1/2" UNLESS OTHERWISE SPECIFIED. VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. PLUMBING LAYOUT DETERMINED FROM SITE OBSERVATIONS AND AS BUILT DRAWINGS. CONTRACTOR SHALL NOTIFY ENGINEER SHOULD EXISTING CONDITIONS DIFFER FROM THESE DRAWINGS.
- SAWCUT SLAB FOR ALL NEW SEWER.

LEGEND

- SS — SANITARY SEWER
- V — VENT, VTR (VENT THRU ROOF)
- CD — CONDENSATE
- DCW — DOMESTIC COLD WATER
- DHW — DOMESTIC HOT WATER
- G — NATURAL GAS

COLLIER
DW COLLIER ENGINEERING, INC.
705 BRIDGEMAN STREET
SUITE 108
SOUTH FOLEY, TN 38057
PH: (231) 479-2115
WWW.COLLIERENG.COM

DWCEI PROJECT NO. 23-081

JIMMY NEIL ANDERSON ARCHITECT
1 ANDERSON TRAIL
CLIFTON, TN 38425
(731) 394-8565
JIMAE565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.

REVISED
REV 1 07-25-23
TSM REVIEW COMMENTS

Wayne County Board of Education
FHS-CTE Classroom TFM # 03387-C
Frank Hughes School — Clifton, TN

P2.0

THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.

TENNESSEE STATE FIRE MARSHAL'S OFFICE

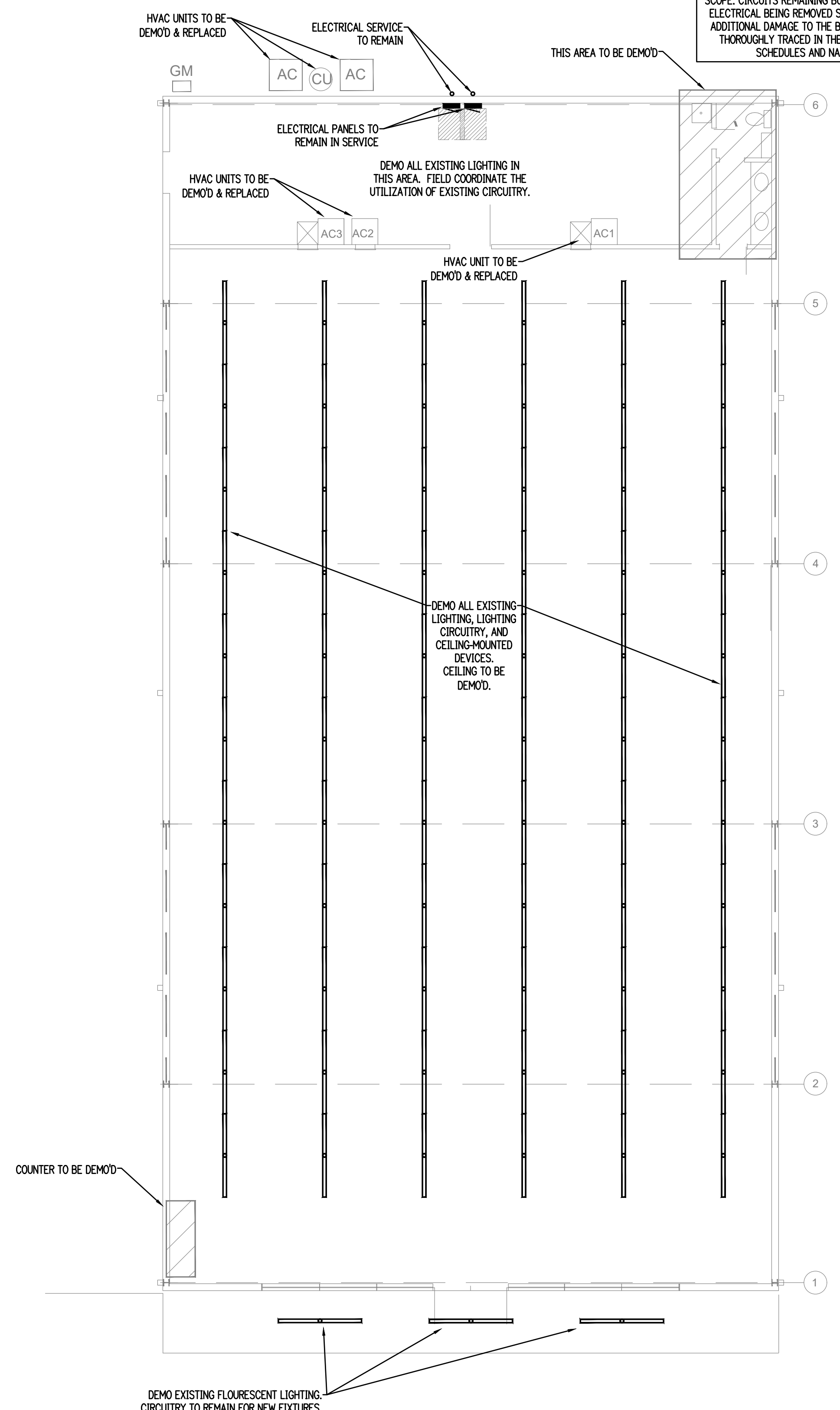
TFM: 03387-C PN: 2023-07-03-01 Field Set

NOTE: PROVIDE ELECTRICAL POWER AND CONTROLS DEMOLITION TO SUPPORT ALL DEMOLITION. SEE ASSOCIATED ARCHITECTURAL, STRUCTURAL AND MECHANICAL PLANS AND SPECS TO DETERMINE COMPLETE SCOPE. CIRCUITS REMAINING BUT DISRUPTED BY DEMOLITION SHALL BE REPAIRED TO KEEP OPERATIONAL. ELECTRICAL BEING REMOVED SHALL BE REMOVED TO THE FULLEST EXTENT POSSIBLE AS NOT TO CAUSE ADDITIONAL DAMAGE TO THE BUILDING. ALL REMAINING ELECTRICAL PANELS, FEEDERS ETC... SHALL BE THOROUGHLY TRACED IN THE FIELD TO DETERMINE ACTUAL LOADS. PROVIDE NEW ACCURATE PANEL SCHEDULES AND NAMEPLATE LEGENDS BASED ON COMPLETE FIELD VERIFICATION.

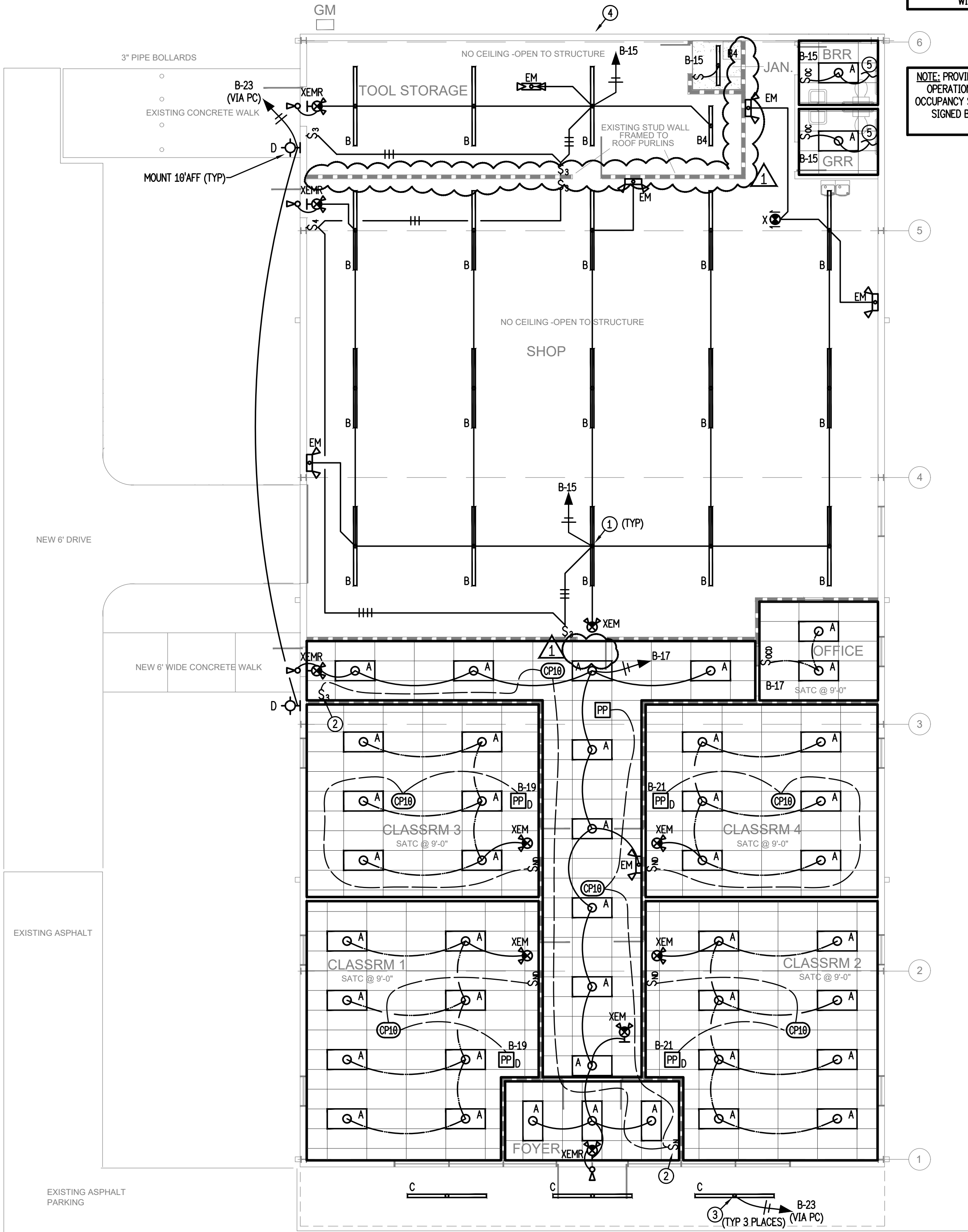
NOTE: THE OCCUPANCY SENSOR LAYOUT ON THESE PLANS IS AN APPROXIMATION TO SHOW MINIMUM DESIGN INTENT. THE CONTRACTOR SHALL COORDINATE WITH THE EQUIPMENT SUPPLIER TO ENSURE THAT THE OCCUPANCY SENSOR TYPE, QUANTITIES AND LOCATIONS INSTALLED WILL PROPERLY CONTROL LIGHTS IN ALL AREAS.

NOTE: CARRY UNSWITCHED HOT LEGS AS REQUIRED FOR EXIT AND EMERGENCY LIGHTS.

NOTE: PROVIDE THOROUGH ON SITE FACTORY TRAINING TO OWNER IN OPERATION, PROGRAMMING, SETUP AND MAINTENANCE OF EACH OCCUPANCY SENSOR DEVICE. PROVIDE DOCUMENTATION OF TRAINING SIGNED BY OWNER, TO ARCHITECT/ENGINEER PRIOR TO FINAL INSPECTION.



1 ELECTRICAL DEMO PLAN
1/8" = 1'-0"



2 LIGHTING PLAN
1/8" = 1'-0"

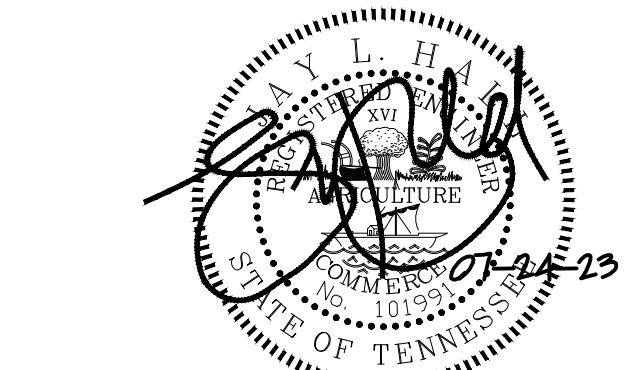
JIMMY NEIL ANDERSON ARCHITECT
1 ANDERSON TRAIL
CLIFTON, TN 38425
(731) 384-5565
JIM6565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.

REVISED	DATE	DESCRIPTION
1	7/24/23	TSMO COMMENTS

Wayne County Board of Education
FHS-CTE
Frank Hughes School- Clifton, TN

E1.0



COLLIER ENGINEERING, INC.
100 BROADWAY STREET
SUITE 100
SOUTH PLAZA, TN 38207
PH: (731) 676-2118
WWW.COLLIERENG.COM

DWCEI PROJECT NO. 23-081

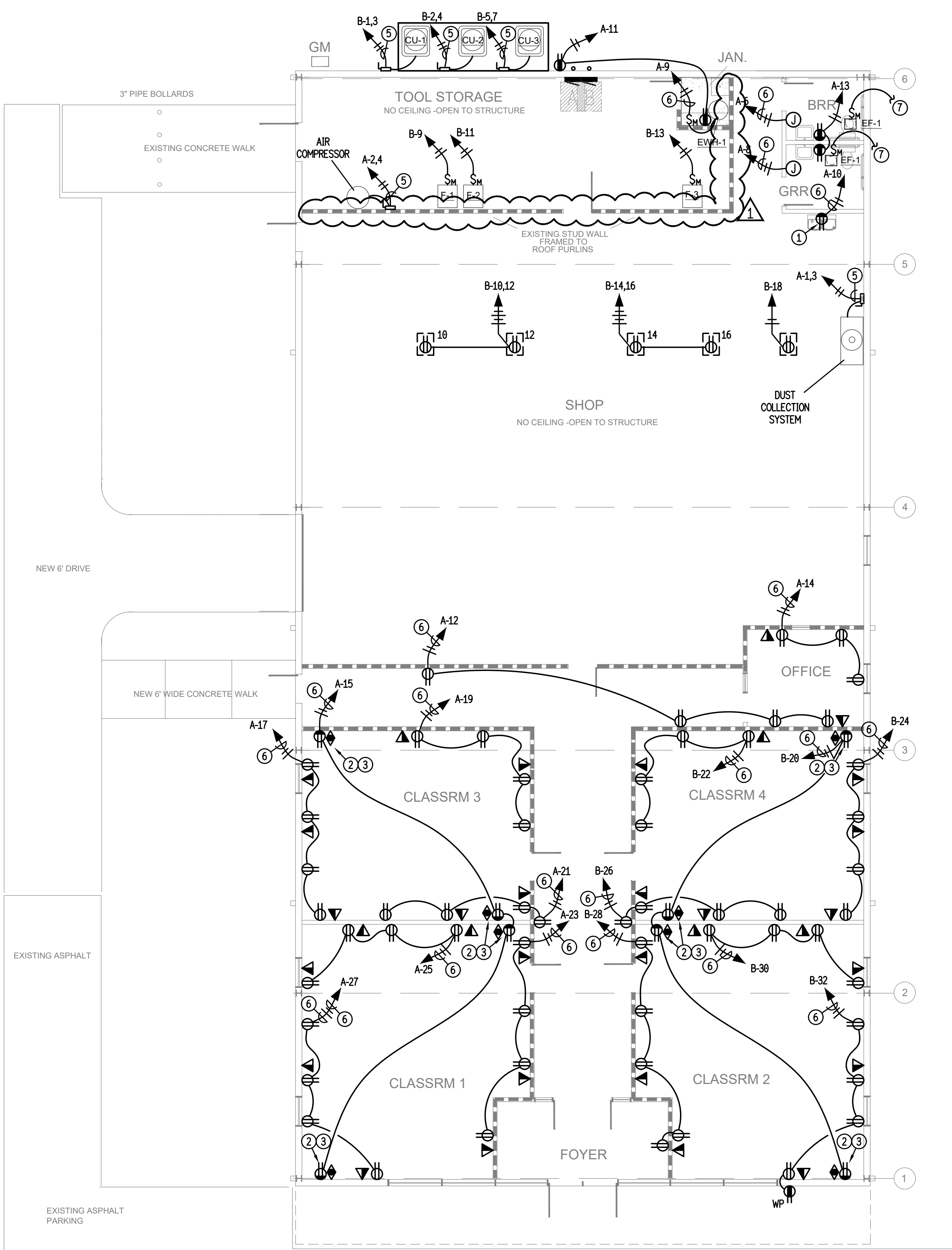
THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.

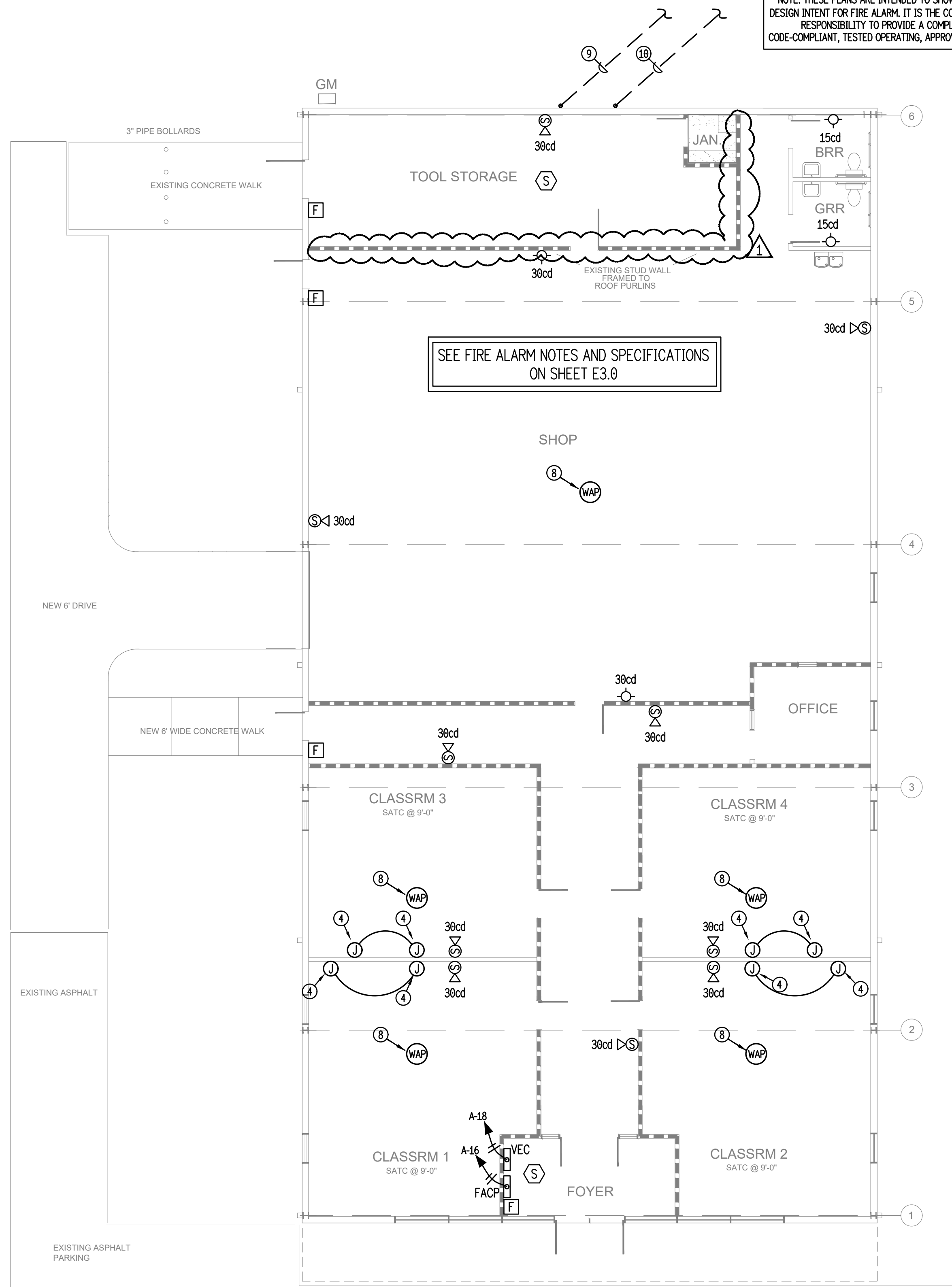
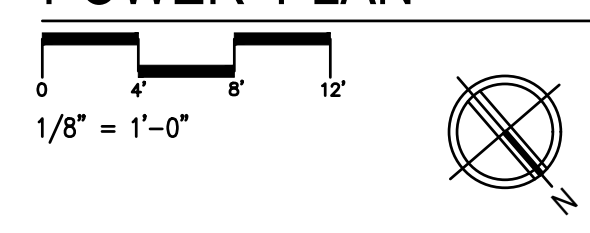
TENNESSEE STATE FIRE MARSHAL'S OFFICE

TFM: 03387-C PN: 2023-07-03-01 Field Set

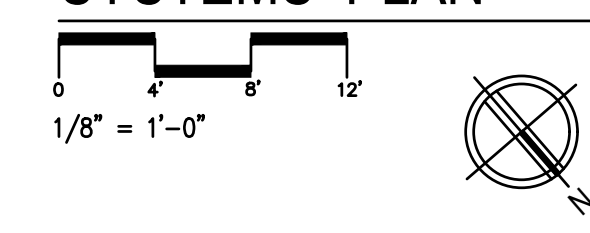
NOTE: THESE PLANS ARE INTENDED TO SHOW MINIMUM DESIGN INTENT FOR FIRE ALARM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A COMPLETE, CODE-COMPLIANT, TESTED OPERATING, APPROVED SYSTEM.



1 POWER PLAN



2 SYSTEMS PLAN



- KEYED POWER & SYSTEMS NOTES:**
- COORDINATE WITH DIVISION 22 WHEN LOCATING RECEPTACLE FOR ELECTRIC DRINKING FOUNTAIN TO ENSURE THAT THE RECEPTACLE IS COMPLETELY CONCEALED BY THE DRINKING FOUNTAIN. GFCI PROTECTION IS PROVIDED VIA GFCI TYPE BREAKER IN PANEL.
 - MOUNT HIGH ON WALL FOR TV. COORDINATE EXACT HEIGHT AND REQUIREMENTS WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.
 - COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.
 - FURNISH AND INSTALL PROVISION FOR SMART BOARD. COORDINATE DETAILS WITH SMART BOARD SUPPLIER PRIOR TO BID.
 - SEE DISCONNECT SCHEDULE, SHEET E3.0, FOR RATINGS AND CIRCUIT REQUIREMENTS.
 - USE #10 WIRE HOME RUN.
 - CONNECT EXHAUST FAN TO SWITCHED LIGHTING CIRCUIT. SEE SHEET E1.0 FOR CONTINUATION.
 - WIRELESS ACCESS POINT. PROVIDE NECESSARY CABLING TO TIE INTO OWNER-PROVIDED WIRELESS ROUTER. COORDINATE ALL DETAILS WITH OWNER PRIOR TO BID.
 - PROVIDE A 2" C TO TELCO CONNECTION POINT NEAR THE PROPERTY LINE. COORDINATE ALL REQUIREMENTS WITH TELCO PRIOR TO BID.
 - PROVIDE A 2" C TO INTERNET SERVICE POINT NEAR THE PROPERTY LINE. COORDINATE ALL REQUIREMENTS WITH ISP PRIOR TO BID.

SEE FIRE ALARM NOTES AND SPECIFICATIONS ON SHEET E3.0

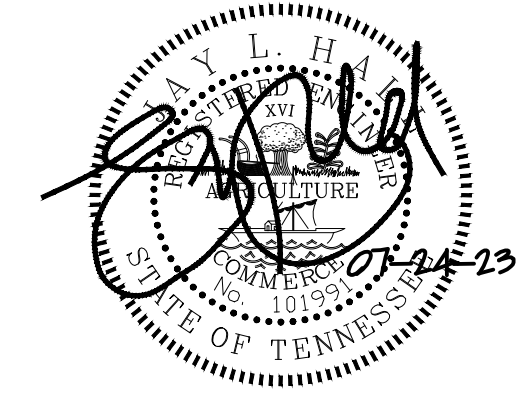
JIMMY NEIL ANDERSON ARCHITECT
 1 ANDERSON TRAIL
 CLIFTON, TN 38425
 (731) 384-5565
 JIM6565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.

REVISED	
1	7/24/23 TSFMO COMMENTS

Wayne County Board of Education
 FHS-CTE
 Frank Hughes School- Clifton, TN

E2.0



COLLIER ENGINEERING, INC.
 DW COLLIER
 ENGINEERING, INC.
 700 BROADWAY STREET
 SUITE 100
 SOUTH PLATEAU, TN 38427
 PH: (731) 676-2118
 WWW.COLLIERENG.COM

DWCEI PROJECT NO. 23-081

THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.

TENNESSEE STATE FIRE MARSHAL'S OFFICE

TFM: 03387-C PN: 2023-07-03-01 Field Set

F.A. SYSTEM NOTES:

- ALL EXISTING & REMAINING FIRE ALARM EQUIPMENT SHALL BE CONNECTED TO THE NEW FIRE ALARM SYSTEM. PROVIDE ALL SYSTEM UPGRADES REQUIRED FOR A COMPLETE OPERATING SYSTEM. ALL EQUIPMENT SHALL BE LISTED FOR USE WITH THE NEW SYSTEM.
- INITIATING DEVICE CIRCUITS SHALL BE CLASS B, STYLE B.
- NOTIFICATION APPLIANCE CIRCUITS SHALL BE CLASS B, STYLE Y.
- SIGNALING LINE CIRCUITS SHALL BE CLASS B, STYLE 3.
- THE FIRE ALARM CONTRACTOR MUST BE CERTIFIED IN ACCORDANCE WITH THE TENNESSEE ALARM CONTRACTORS LICENSING ACT OF 1991, TCA TITLE 62, AND CHAPTER 32.
- FIRE ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH N.F.P.A., I.B.C., AND LOCAL ORDINANCES.
- INSTALL MANUAL PULL STATION AT 48" A.F.F.
- FIRE ALARM CONTROL PANEL SHALL HAVE UL LISTED BATTERY BACKUP.
- EQUIPMENT SHALL BE A.D.A. COMPLIANT AS APPLICABLE.
- SYSTEMS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS PERTAINING TO SYSTEMS BEING INSTALLED.
- ALL DEVICES SHALL BE MONITORED BY FIRE ALARM CONTROL PANEL.
- ALL COMPONENTS SHALL BE UL OR FM LISTED.
- FIRE ALARM CONTROL PANEL SHALL BE CONNECTED TO 24 HOUR CENTRAL MONITORING STATION.
- A FIRE ALARM ZONE INDICATOR PANEL MUST BE LOCATED AT GRADE LEVEL AT THE NORMAL POINT OF FIRE DEPARTMENT ACCESS OR AT A CONSTANTLY ATTENDED BUILDING SECURITY CONTROL CENTER. VERIFY LOCATION WITH LOCAL FIRE DEPARTMENT. [SBC 905.1.3]
- IN AREAS THAT HAVE CONTROLLING EQUIPMENT, NOT CONTINUOUSLY OCCUPIED, AUTOMATIC SMOKE DETECTION MUST BE PROVIDED AT EACH CONTROL UNIT(S) (I.E., FIRE ALARM CONTROL PANEL, ETC.). HEAT DETECTION IS PERMITTED IF AMBIENT CONDITIONS PROHIBIT INSTALLATION OF SMOKE DETECTION. [2002 NFPA 72 4.4.5]
- ALL DETECTION DEVICES USED TO CAUSE THE OPERATION OF HVAC SYSTEMS SMOKE DAMPERS, FIRE DAMPERS, FAN CONTROL, SMOKE DOORS, AND FIRE DOORS SHALL BE MONITORED FOR INTEGRITY IN ACCORDANCE WITH 2003 NFPA 72 4.4.7 AND 6.15.5.2
- DIGITAL ALARM COMMUNICATION SYSTEMS (DACT & DACR) WHERE APPLICABLE SHALL BE INSTALLED AS PER THE FOLLOWING:

A. DIGITAL ALARM COMMUNICATOR TRANSMITTER (DACT) SHALL BE CONNECTED TO THE PUBLIC SWITCHED TELEPHONE NETWORK UPSTREAM OF ANY PRIVATE TELEPHONE SYSTEM AT THE PROTECTED PREMISES. [NFPA 72 8.5.3.2.1.3]

- DACT SHALL BE CONFIGURED SO THAT IT SHALL SEIZE THE TELEPHONE LINE, DISCONNECT AN OUTGOING OR INCOMING TELEPHONE CALL, AND PREVENT USE OF THE TELEPHONE LINE OR OTHER TELEPHONE CALLS UNTIL SIGNAL TRANSMISSION HAS BEEN COMPLETED.
- DACT SHALL HAVE THE MEANS TO SATISFACTORILY OBTAIN A DIAL TONE, DIAL THE NUMBER(S) OF THE DACR, OBTAIN VERIFICATION THAT THE DACR IS ABLE TO RECEIVE SIGNALS, TRANSMIT THE SIGNAL, AND RECEIVE ACKNOWLEDGMENT THAT THE DACR HAS ACCEPTED THAT SIGNAL WITHIN 90 SECONDS PER ATTEMPT.
- DACT SHALL HAVE MEANS TO RESET AND RETRY IF THE FIRST ATTEMPT TO COMPLETE A SIGNAL TRANSMISSION SEQUENCE IS UNSUCCESSFUL. A FAILURE TO COMPLETE CONNECTION SHALL NOT PREVENT SUBSEQUENT ATTEMPTS TO TRANSMIT AN ALARM WHERE SUCH ALARM IS GENERATED FROM ANY OTHER INITIATING DEVICE CIRCUIT OR SIGNALING LINE CIRCUIT, OR BOTH. ADDITIONAL ATTEMPTS SHALL BE MADE UNTIL THE SIGNAL TRANSMISSION SEQUENCE HAS BEEN COMPLETED, UP TO A MINIMUM OF 5 AND A MAXIMUM OF 10 ATTEMPTS.
- IF THE MAXIMUM NUMBER OF ATTEMPTS TO COMPLETE THE SEQUENCE IS REACHED, AN INDICATION OF THE FAILURE SHALL BE MADE AT THE PREMISES.
- A SECOND MEANS OF SIGNAL TRANSMISSION SHALL BE PROVIDED. [NFPA 72 8.5.3.2.1.4]

B. THE DIGITAL ALARM COMMUNICATOR RECEIVER (DACR) SHALL BE LOCATED AT THE SUPERVISING OR SUBSIDIARY STATION AND SHALL BE CONNECTED TO A MINIMUM OF TWO SEPARATE INCOMING TELEPHONE LINES (NUMBERS). THE LINES (NUMBERS) SHALL HAVE THE FOLLOWING CHARACTERISTICS [NFPA 72 8.5.3.2.2]:

- IF THE LINES ARE IN A SINGLE HUNT GROUP, THEY SHALL BE INDIVIDUALLY ACCESSIBLE; OTHERWISE, SEPARATE HUNT GROUPS SHALL BE REQUIRED. [NFPA 72 8.5.3.2.2.1(i)]
- THE LINES SHALL BE USED FOR NO OTHER PURPOSE THAN RECEIVING SIGNALS FROM A DACT.
- THE LINES (NUMBERS) SHALL BE UNLISTED.

C. THE FAILURE OF ANY TELEPHONE LINE CONNECTED TO A DACR DUE TO LOSS OF LINE VOLTAGE SHALL BE ANNUNCIATED VISUALLY AND AUDIBLY IN THE SUPERVISING STATION.

- THE FIRE ALARM CONTROL PANEL CIRCUIT DISCONNECTING MEANS SHALL HAVE A RED MARKING, SHALL BE ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL, AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT". THE LOCATION OF THE CIRCUIT DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT. [NFPA 72 4.4.1.4.2.2 AND 4.4.1.4.2.3]

19. FIRE ALARM CONDUCTORS SHALL BE UL LISTED FIRE ALARM CABLE.

- SYSTEM CONDUCTORS CONCEALED IN WALLS SHALL BE RUN IN METALLIC TUBING. SYSTEM CONDUCTORS CONCEALED IN THE ROOF STRUCTURE SPACE AND ABOVE CEILING SHALL BE SECURED WITH GAT FASTENERS AND BRIDLE RINGS. ANY CONDUCTOR TAPS OR SPLICES SHALL BE MADE IN METAL JUNCTION BOXES. ALL EXPOSED WIRING SHALL BE INSTALLED IN EMT.
- ALL VISIBLE/AUDIBLE APPLIANCES SHALL BE LOCATED AND MOUNTED PER NFPA 72. (NFPA 72 7.4.6, NFPA 72 5.4)

A. IF CEILING HEIGHTS ALLOW, WALL-MOUNTED AUDIBLE APPLIANCES SHALL HAVE THEIR TOPS ABOVE THE FINISHED FLOORS AT HEIGHTS OF NOT LESS THAN 90 INCHES AND BELOW THE FINISHED CEILING NOT LESS THAN 6 INCHES. CEILING-MOUNTED OR RECESSED APPLIANCES SHALL BE PERMITTED. (NFPA 72 7.4.6.1, 7.4.6.2)

B. WALL-MOUNTED VISIBLE APPLIANCES SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80 INCHES AND NOT GREATER THAN 96 INCHES ABOVE THE FINISHED FLOOR. (NFPA 72 7.5.4)

C. IF COMBINATION AUDIBLE/VISIBLE APPLIANCES ARE INSTALLED, THE LOCATION OF THE INSTALLED APPLIANCE SHALL BE DETERMINED BY THE REQUIREMENTS OF NFPA 72. (AUDIBLE NFPA 72 7.4, VISIBLE NFPA 72 7.5)

D. SPACING OF VISIBLE APPLIANCES SHALL BE IN ACCORDANCE WITH FIGURE 7.5.4.1.1 AND EITHER TABLE 7.5.4.1.1(a) OR TABLE 7.5.4.1.1(b). MORE THAN TWO VISIBLE NOTIFICATION APPLIANCES IN THE SAME ROOM OR ADJACENT SPACE WITHIN THE FIELD OF VIEW MUST FLASH IN SYNCHRONIZATION. (NFPA 72 7.5.4.1.1, 7.5.4.1.2(b))

23. MORE THAN TWO VISIBLE NOTIFICATION APPLIANCES IN THE SAME ROOM OR ADJACENT SPACE WITHIN FIELD OF VIEW MUST FLASH IN SYNCHRONIZATION.

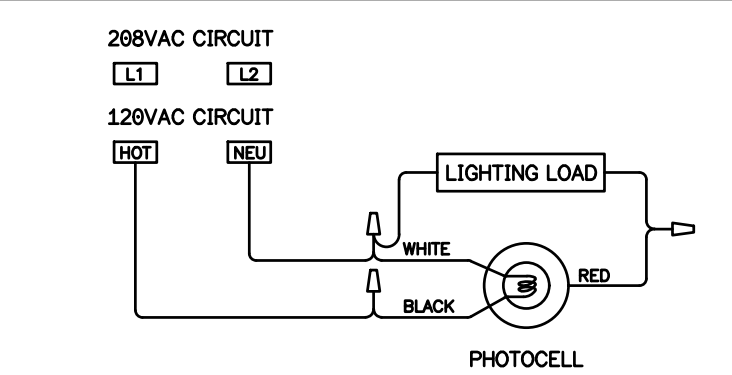
24. ALL REQUIRED DOCUMENTATION REGARDING THE DESIGN OF FIRE DETECTION, ALARM AND COMMUNICATIONS SYSTEMS AND THE PROCEDURES FOR MAINTENANCE, INSPECTION AND TESTING OF FIRE DETECTION, ALARM AND COMMUNICATIONS SYSTEMS SHALL BE MAINTAINED AT AN APPROVED, SECURED LOCATION FOR THE LIFE OF THE SYSTEM.

DISCONNECT SCHEDULE				
UNIT	BREAKER	DISCONNECT	CIRCUIT SIZE	NOTES
CU-1	45/2	66/2/WP/NF	3/4" C. 308, #10G	
CU-2	45/2	66/2/WP/NF	3/4" C. 308, #10G	
CU-3	45/2	66/2/WP/NF	3/4" C. 308, #10G	
AIR COMPRESSOR	35/2	66/2/WP/NF	3/4" C. 308, #10G	
DUST COLLECTION	48/2	NOTE	3/4" C. 308, #10G	2P, NEMA 1, SIZE 1 COMBINATION MAGNETIC MOTOR STARTER/DISCONNECT WITH PUSH TO START AND STOP MOMENTARY PUSH BUTTONS AND RUN INDICATION LIGHT.

FIRE ALARM LEGEND	
SYMBOL	DESCRIPTION
	FIRE ALARM SYSTEM CONTROL PANEL W/ DIAL-OUT. NOTIFIER FIRE WARDEN #NFW-100X WITH BUILT-IN MODEM(DACT) WITH PROPERLY SIZED BATTERY BACKUP.
	FIRE ALARM SYSTEM STROBE LIGHT. NOTIFIER # SRL.
	FIRE ALARM SYSTEM SMOKE DETECTOR. NOTIFIER # NP-100.
	FIRE ALARM SYSTEM MANUAL PULL STATION. NOTIFIER # NOT-BG12LX.
	FIRE ALARM SYSTEM VOICE EVACUATION SPEAKER/STROBE. NOTIFIER # SPSRL.
	FIRE ALARM SYSTEM VOICE EVACUATION CONTROL PANEL. NOTIFIER #NFC-50/100 WITH #NFC-80A-25V OPTION TO EXPAND TO TOTAL OF 50 WATTS. PROVIDE WITH PROPERLY SIZED BATTERY BACKUP.

SPECIFICATION:
FURNISH AND INSTALL A NEW PHOTOELECTRIC SWITCH FOR CONTROL OF EXTERIOR LIGHTING. UNIT SHALL BE SUITABLE FOR MOUNTING TO 1/2" CONDUIT AND BE PROVIDED WITH INTEGRAL GASKETING FOR EXTERIOR USE. UNIT SHALL BE MOUNTED TO FASCIA SUCH THAT NO AREA LIGHTING WILL PREVENT UNIT FROM OPERATING PROPERLY AT NIGHT. UNIT SHALL BE UL LISTED FOR USE WITH LED LIGHTING UP TO 6000V. UNIT SHALL FALL IN THE "ON" POSITION AND SHALL OPERATE IN TEMPERATURE RANGE OF (-40°F TO +140°F).

120V = EQUAL TO TORK #2101 (ACCESSORY MOUNTING BRACKET #73866)
208V = EQUAL TO TORK #2104 (ACCESSORY MOUNTING BRACKET #73866)



[PCLCS-4] SEE PLAN VIEW FOR LOCATIONS
PHOTOCELL DETAIL AND SPECIFICATION

OCCUPANCY SENSOR SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	EXTENDED RANGE DUAL TECHNOLOGY CEILING MOUNTED OCCUPANCY SENSOR. nLIGHT #nCMT PDT 10.
	PASSIVE INFRARED WALL SWITCH OCCUPANCY SENSOR. nLIGHT #nWSX LV. SET FOR MANUAL ON/AUTO OFF.
	PASSIVE INFRARED WALL SWITCH OCCUPANCY SENSOR W/DIMMING. nLIGHT #nWSX LV DX. SET FOR MANUAL ON/AUTO OFF.
	POWER PACK. nLIGHT #nPP16.
	DIMMING POWER PACK. nLIGHT #nPP16 D.

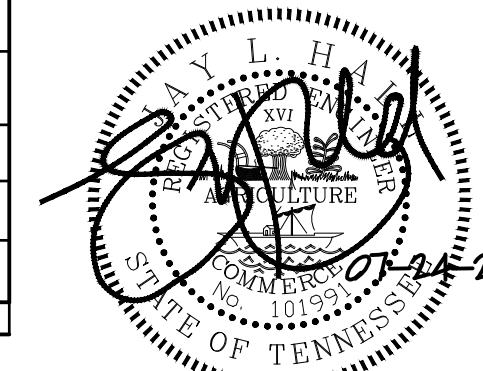
VOLTAGE/PHASE/WIRES		120/240/1PH/3W		A/C		VERIFY W/ UTILITY COMPANY		PANEL DESIGNATION		PANEL STYLE		PANEL SIZE		42 CIRCUITS			
PANEL BUS SIZE		200 AMPS		MANUFACTURER		FIELD VERIFY		A		NEW		NOTES:					
MAIN TYPE		<input type="checkbox"/> MAIN LUG ONLY <input checked="" type="checkbox"/> 208A M/B <input type="checkbox"/> ISOLATED GROUND BUS		ENCLOSURE TYPE		<input checked="" type="checkbox"/> NEMA 1 <input type="checkbox"/> NEMA 3R <input type="checkbox"/> SE RATED		MOUNTING		<input type="checkbox"/> SURFACE <input type="checkbox"/> FLUSH <input type="checkbox"/> INTEGRAL_K TVSS		FEED TROUGH LUGS					
CKT #	C/B TRIP	LOAD	DESCRIPTION	LOAD IN KW		DESCRIPTION	LOAD	C/B TRIP	CKT #								
				PH A	PH B												
1	40	2.7	DUST COLLECTION	4.5	4.5	AIR COMPRESSOR	1.8	35	2								
3		2.7					1.8		4								
5	20		SPARE	1.2		HAND DRYER	1.2	30	6								
7						HAND DRYER	1.2	30	8								
9	30	2.5	ELECTRIC WATER HEATER EWH-1	3.5		WATER COOLER (GFCI BREAKER)	1.0	20	19								
11	20	0.4	RECEPTS: EXTERIOR JANITOR	0.9	1.1	RECEPTS: OFFICE, CORRIDOR	0.7	20	12								
13	20	0.4	RECEPTS: RESTROOMS			RECEPTS: OFFICE	0.5	20	14								
15	20	0.7	RECEPTS: CLASSROOM 1 & 3 TV'S			FIRE ALARM CONTROL PANEL (RED LOCKING BREAKER)	0.4	20	15								
17	20	0.7	RECEPTS: CLASSROOM 3	1.2	1.1	FIRE ALARM VOICE EVACUATION PANEL (RED LOCKING BREAKER)	0.5	20	18								
19	20	0.7	RECEPTS: CLASSROOM 3			SPARE		20	20								
21	20	0.7	RECEPTS: CLASSROOM 3, CORRIDOR	0.7		SPARE		20	22								
23	20	0.7	RECEPTS: CLASSROOM 1	0.7	0.7	SPARE		20	24								
25	20	0.7	RECEPTS: CLASSROOM 1	0.7		SPARE		20	26								
27	20	0.7	RECEPTS: CLASSROOM 1		0.7	SPARE		20	28								
29	20		SPARE	###	###	SPARE		20	30								
31	20		SPARE	###	###	SPARE		20	32								
33				###	###				34								
35				###	###				36								
37				###	###				38								
39				###	###				40								
41				###	###				42								
				PHASE TOTALS	12.7	10.0											
				PANEL TOTALS	22.7												
						95 AMPS @ 240V / 1 PHASE CONNECTED											

FIELD COORDINATE ANY EXISTING CIRCUITS THAT ARE TO REMAIN. ANY FIELD ALTERATIONS TO CIRCUIT NUMBERS MUST BE NOTED IN AS-BUILT DRAWINGS AND SUBMITTED TO ENGINEER UPON PROJECT COMPLETION.

VOLTAGE/PHASE/WIRES		120/240/1PH/3W		A/C		VERIFY W/ UTILITY COMPANY		PANEL DESIGNATION		PANEL STYLE		PANEL SIZE		42 CIRCUITS			
PANEL BUS SIZE		200 AMPS		MANUFACTURER		FIELD VERIFY		B		NEW		NOTES:					
MAIN TYPE		<input type="checkbox"/> MAIN LUG ONLY <input checked="" type="checkbox"/> 208A M/B <input type="checkbox"/> ISOLATED GROUND BUS		ENCLOSURE TYPE		<input checked="" type="checkbox"/> NEMA 1 <input type="checkbox"/> NEMA 3R <input type="checkbox"/> SE RATED		MOUNTING		<input type="checkbox"/> SURFACE <input type="checkbox"/> FLUSH <input type="checkbox"/> INTEGRAL_K TVSS		FEED TROUGH LUGS					
CKT #	C/B TRIP	LOAD	DESCRIPTION	LOAD IN KW		DESCRIPTION	LOAD	C/B TRIP	CKT #								
				PH A	PH B												
1	45	2.9	CONDENSING UNIT CU-1 (HACR)	5.8		CONDENSING UNIT CU-2 (HACR)	2.9	45	2								
3		2.9			5.8		2.9		4								
5	45	2.9	CONDENSING UNIT CU-3 (HACR)	2.9	2.9	SPARE		20	6								
7									8								
9	15	1.7	FURNACE F-1 (HACR)	1.9		RECEPTS: SHOP CORD REEL	0.2	20	10								
11	15	1.7	FURNACE F-2 (HACR)	1.9	1.9	RECEPTS: SHOP CORD REEL	0.2	20	12								
13	15	1.7	FURNACE F-3 (HACR)	1.9		RECEPTS: SHOP CORD REEL	0.2	20	14								
15	20	1.1	LIGHTS: SHOP, TOOL STORAGE, RESTROOMS		1.3	RECEPTS: SHOP CORD REEL	0.2	20	16								
17	20	0.7	LIGHTS: CORRIDOR, FOYER	0.9		RECEPTS: SHOP CORD REEL	0.2	20	18								
19	20	0.7	LIGHTS: CLASSROOMS 1 & 3		1.4	RECEPTS: CLASSROOMS 2 & 4 TV'S	0.7	20	20								
21	20	0.7	LIGHTS: CLASSROOMS 2 & 4	1.4		RECEPTS: CLASSROOM 4	0.7	20	22								
23	20	0.4	LIGHTS: EXTERIOR (VIA PC)		1.1	RECEPTS: CLASSROOM 4	0.7	20	24								
25	20		SPARE	0.7		RECEPTS: CLASSROOM 4, CORRIDOR	0.7	20	26								
27	20		SPARE	0.7	0.9	RECEPTS: CLASSROOM 2, FOYER	0.7	20	28								
29	20		SPARE	0.7		RECEPTS: CLASSROOM 2	0.7	20	30								
31	20		SPARE	0.7	0.9	RECEPTS: CLASSROOM 2, EXTERIOR	0.9	20	32								
33				###	###				34								
35				###	###				36								
37				###	###				38								
39				###	###				40								
41				###	###				42								
				PHASE TOTALS	16.2	16.2											
				PANEL TOTALS	32.4												
						135 AMPS @ 240V / 1 PHASE CONNECTED											

LIGHTING SCHEDULE						
TAG	SYMBOL	DESCRIPTION	MANUFACTURER	MODEL NO.	LAMPS	NOTES
A		2x4 - LED SWITCHABLE (HIGH) LUMEN FLAT PANEL (50.6W) (3500K)	LITHONIA	CPX 2X4 AL88 S/W7 M2	N/A	SWITCHABLE LUMEN OUTPUT & COLOR TEMPERATURE.
B		8' LED STRIP (38.2W) (3500K)	LITHONIA	CLX L96 6008LM SEF *** ** MVOLT 35K 80CRI WH	N/A	MTD. AT 10'-0" A.F.F. TO BOTTOM
B4		4' LED STRIP (27.6W) (3500K)	LITHONIA	CLX L48 4088LM SEF *** ** MVOLT 35K 80CRI WH	N/A	MTD. AT 10'-0" A.F.F. TO BOTTOM
C		8' VAPOR TIGHT, WET LOCATION RATED SWITCHABLE LUMEN/TEMP LED FIXTURE (62W) (4000K)	LITHONIA	CSVT L96 AL04 MVOLT S/W3 80CRI	N/A	PROVIDE ALL ACCESSORIES NECESSARY FOR MOUNTING.
D		LED WALLPACK, WIDE DISTRIBUTION (25W) (4000K)	LITHONIA	WST KED 02 40K VW MVOLT	N/A	
EM		EMERGENCY LIGHT WITH AUTOMATIC EMERGENCY BATTERY BACKUP	LITHONIA	ELM6L UVOLT LTP	INCLUDED	
X		LED EXIT LIGHT WITH AUTOMATIC EMERGENCY BATTERY BACKUP	LITHONIA	LQM S W 3 R 120/277 EL N SD	INCLUDED	
XEM		COMBINATION EXIT/EMERGENCY LIGHT WITH AUTOMATIC EMERGENCY BATTERY BACKUP	LITHONIA	LHQM LED R HO SD	INCLUDED	
XEMR		COMBINATION EXIT/EMERGENCY LIGHT WITH AUTOMATIC EMERGENCY BATTERY BACKUP AND REMOTE OUTDOOR HEAD	LITHONIA	LHQM LED R HO SD WITH REMOTE HEAD ELA 1 QWP L0309 SD	INCLUDED	

NOTE: EQUAL FIXTURES BY EATON OR HUBBELL WILL BE ACCEPTABLE.



DWCEI PROJECT NO. 23-0081

JIMMY NEIL ANDERSON ARCHITECT
1 ANDERSON TRAIL CLIFTON, TN 38425 (731) 394-6565 JIM6565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.

REVISED
1 7/24/23
TSFMO COMMENTS

Wayne County Board of Education
FHS - CTE
Frank Hughes School - Clifton, TN

E3.0

THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

No alterations, deletions, additions or modifications of any kind are allowed to this approved set without written permission of this office.

TENNESSEE STATE FIRE MARSHAL'S OFFICE

TFM: 03387-C PN: 2023-07-03-01 Field Set

ELECTRICAL GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE N.E.C. AND ALL APPLICABLE STATE AND LOCAL CODES.
2. ALL MATERIAL SHALL BEAR THE PROPER U.L. LABEL.
3. ALL WIRING SHALL BE IN CONDUIT OR OTHER N.E.C. APPROVED RACEWAYS.
4. G.F.I. TYPE RECEPTACLES SHALL BE SELF-CONTAINED UNITS WITH CLASS "A" SENSITIVITY.
5. WHERE SINGLE POLE BRANCH CIRCUIT CONDUITS HAVE BEEN INCREASED ABOVE THE SIZE OF THE CIRCUIT BREAKER TO COMPENSATE FOR VOLTAGE DROP, THE INCREASED SIZE SHALL EXTEND THROUGHOUT THE ENTIRE CIRCUIT, EXCEPT WHERE IT IS NECESSARY TO REDUCE THE SIZE FOR CONNECTION TO SWITCH AND RECEPTACLE TERMINALS, ETC. EQUIPMENT GROUNDING CONDUCTORS SHALL ALSO BE ADJUSTED PROPORTIONATELY PER N.E.C. 250.122 (B).
6. EXERCISE EXTREME CAUTION TO ENSURE THAT THERMAL INSULATION IS NOT INSTALLED CLOSE ENOUGH TO RECESSED LIGHTING FIXTURES TO PREVENT PROPER VENTILATION AND COOLING OF THE UNITS. FIXTURES SHALL COMPLY WITH ARTICLE 410 OF THE N.E.C. ALL RECESSED INCANDESCENT FIXTURES SHALL HAVE THERMAL CUT-OFF PROTECTION.
7. UNLESS OTHERWISE NOTED OR DIRECTED, ALL CONDUIT SHALL BE CONCEALED BELOW FLOORS, IN WALLS, OR ABOVE CEILING. PRIOR AUTHORIZATION MUST BE ACQUIRED FROM THE ARCHITECT OR ENGINEER BEFORE USING ANY TYPE OF SURFACE MOUNTED RACEWAYS IN FINISHED AREAS.
8. ELECTRICAL CONTRACTOR SHALL VERIFY SERVICE AND VOLTAGE REQUIREMENTS FOR ALL EQUIPMENT TO BE CONNECTED (BOTH NEW AND EXISTING) PRIOR TO MAKING CONNECTIONS.
9. MINIMUM SIZE RACEWAY FOR TELEPHONE TYPE OUTLETS SHALL BE 3/4" CONDUIT. PROVIDE 1 CONDUIT RUN TO ACCESSIBLE CEILING FROM EACH OUTLET UNLESS OTHERWISE NOTED. PROVIDE AND LEAVE IN PLACE A SUITABLE NYLON PULL CORD TO FACILITATE THE INSTALLATION OF THE TELEPHONE CABLES. PROVIDE FACTORY BENDS FOR TELEPHONE CONDUIT RUNS. DO NOT INSTALL MORE THAN TWO 90 DEGREE BENDS WITHOUT INSTALLING A PULL BOX. FOR CONDUIT RUNS LONGER THAN 100'-0", INSTALL A PULL BOX. THIS CONTRACTOR SHALL FURNISH AND INSTALL AN EMPTY CONDUIT SYSTEM AND OUTLET BOXES FOR THE TELEPHONE SYSTEM, AS RECOMMENDED AND SPECIFIED BY THE SERVING TELEPHONE COMPANY, DESCRIBED IN THESE SPECIFICATIONS AND INDICATED ON THE DRAWINGS.
10. SURFACE MOUNTED LIGHTING FIXTURES INSTALLED IN AREAS THAT DO NOT HAVE AN ACCESSIBLE CEILING SPACE ABOVE THEM SHALL BE INSTALLED IN COMPLIANCE WITH ARTICLE 410 OF THE N.E.C.
11. COORDINATE ALL CEILING MOUNTED EQUIPMENT, (i.e. LIGHTING FIXTURES, SPEAKERS, GRILLES, ETC.) WITH ALL OTHER EQUIPMENT & TRADES PRIOR TO A DURING INSTALLATION TO AVOID CONFLICTS. SHOULD IT BECOME NECESSARY TO REPOSITION SMOKE DETECTORS, EXERCISE CAUTION NOT TO EXCEED THE 30' AND 15' SPACINGS AS REQUIRED BY THE LIFE SAFETY CODE.
12. WHERE BRANCH CIRCUITS WITH DIFFERENT SIZE CONDUCTORS OCCUPY THE SAME RACEWAY AND UTILIZE A COMMON NEUTRAL, THE NEUTRAL SHALL BE EQUAL IN SIZE TO THE LARGER OF THE CONDUCTORS.
13. FIRE AND SMOKE STOP AROUND ALL CONDUIT, EQUIPMENT, ETC. WHICH PENETRATES FLOORS, WALLS, AND CEILINGS.
14. COMPLY WITH ALL CODES AND REGULATIONS, ETC. REGARDING PENETRATION OF THE CEILING FOR THIS TYPE OF CONSTRUCTION.
15. ELECTRICAL CONTRACTOR SHALL COORDINATE THE POSITIONING OF ALL UNDERCABINET LIGHTING FIXTURES WITH THE CASEWORK, AND WITH THE ARCHITECTURAL DRAWINGS.
16. WHERE LIGHTING SWITCHES, RECEPTACLES, & FIRE ALARM DEVICES ARE TO BE SURFACE MOUNTED IN FINISHED AREAS, USE OUTLET BOXES EQUAL TO "WIREMOLD". ALL SURFACE MOUNTED RACEWAY IN FINISHED AREAS SHALL BE WIREMOLD TYPE. NO EXPOSED CONDUIT WILL BE ALLOWED IN FINISHED AREAS.
17. ALL LIGHTING AND RECEPTACLE CIRCUITS SHALL HAVE A SEPARATE GROUND WIRE CONTINUOUS THROUGHOUT THE CIRCUIT. THE CONDUIT SHALL NOT BE CONSIDERED ADEQUATE.
18. JUNCTION BOXES SHALL NOT BE MOUNTED BACK TO BACK.
19. WHERE DEVICE BACKBOXES ARE LOCATED IN A RATED WALL, THESE BOXES SHALL BE RATED FOR SUCH USE. JUNCTION OR BACKBOXES MOUNTED IN RATED WALLS SHALL NOT BE LOCATED IN A COMMON CAVITY BETWEEN STUDS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
20. ALL ELECTRICAL WORK SHALL BE ACCOMPLISHED BY ELECTRICIANS LICENSED BY THE STATE IN WHICH THE PROJECT IS LOCATED.
21. RECEPTACLES AND COMPUTER OUTLETS SHOWN AT CASEWORK LOCATIONS SHALL BE MOUNTED AT 16" TO BOTTOM A.F.F. WHERE A DEDICATED KNEE SPACE IS PROVIDED. CENTER DEVICES IN KNEE SPACE. WHERE NO KNEE SPACE IS PROVIDED, RECEPTACLES SHALL BE MOUNTED ABOVE COUNTER AT 6" TO BOTTOM, U.O.N. REFER TO ARCHITECTURAL CASEWORK ELEVATIONS.
22. SMOKE DETECTORS SHALL NOT BE LOCATED WITHIN THREE (3) FEET OF SUPPLY/RETURN AIR GRILLES OR CEILING FANS.
23. CONTRACTOR SHALL MAINTAIN ACCURATE "AS-BUILT" DRAWINGS DURING CONSTRUCTION. THESE DRAWINGS SHALL BE SUBMITTED TO THE GENERAL CONTRACTOR UPON COMPLETION OF THE PROJECT.
24. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS, EQUIPMENT AND COMPONENTS AND THEIR RELATED ELECTRICAL CONNECTIONS. DEVICE AND PATHWAY LOCATION/ROUTING IS ONLY REPRESENTATIVE OF A GENERAL LOCATION UNLESS OTHERWISE INDICATED BY DIMENSIONS. SYMBOLS ARE USED EXTENSIVELY WHICH MAY NOT EXACTLY REPRESENT ACTUAL SIZES.
25. THESE DRAWINGS DO NOT SHOW ALL OFFSETS, TRANSITIONS AND/OR DEVICES NECESSARY FOR A COMPLETE AND FUNCTIONAL SYSTEM AS REQUIRED BY THE CONTRACT DOCUMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PLACE THESE DEVICES AND PATHWAYS SUCH THAT THEY OFFER FULL FUNCTIONALITY WITHOUT HINDERANCE FROM CASEWORK, FURNITURE, WINDOWS AND DOORS, HVAC, PLUMBING, ELECTRICAL, AND OTHER BUILDING SYSTEMS.
26. NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE LOCATED WITHIN THE DEDICATED SPACE ABOVE ELECTRICAL EQUIPMENT.
27. THIS CONTRACTOR SHALL FURNISH A WRITTEN CERTIFICATE GUARANTEEING MATERIALS, EQUIPMENT AND LABOR FURNISHED TO BE FREE OF DEFECTS FOR A PERIOD OF 1 YEAR FROM AND AFTER THE DATE OF THE FINAL CLOSE-OUT INSPECTION, AND FURTHER AGREES THAT IF DEFECTS APPEAR WITHIN STIPULATED WARRANTY PERIOD, SAME SHALL BE REPLACED OR MADE GOOD WITHOUT CHARGE. TURN OVER TO OWNER ALL OPERATION INSTRUCTIONS AND WARRANTIES FURNISHED WITH EQUIPMENT.
28. EXTERIOR UTILITIES SHALL INCLUDE ALL CONDUIT AND APPURTENANCES OUTSIDE OF THE BUILDING OR AS SHOWN ON THE PLANS. UNLESS OTHERWISE NOTED, UTILITIES SHALL INCLUDE COMPLETE TIE-IN WITH UTILITY LINES AT NO EXTRA COST TO THE OWNER.
29. IN THE EVENT THAT ELECTRICAL SERVICE TO ANY OTHER FACILITY MUST BE INTERRUPTED, THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE OWNER STATING THE AREA(S) OF THE EXISTING FACILITIES WHICH WILL BE AFFECTED, THE TIME AND DATE THE INTERRUPTION IS TO COMMENCE, AND THE DURATION OF THE INTERRUPTION. ANY INTERRUPTION WITHOUT PRIOR WRITTEN APPROVAL WILL NOT BE PERMITTED. THE CONTRACTOR SHALL REQUEST SUCH APPROVAL FROM THE OWNER, IN WRITING, AT LEAST 72 HOURS IN ADVANCE OF THE DESIRED TIME OF THE INTERRUPTION. THE CONTRACTOR SHALL ABIDE BY THE OWNER'S DECISIONS IN ALL INSTANCES.
30. ALL ELECTRICAL EQUIPMENT SHALL BE EQUIPPED WITH BLACK LAMINATED PHENOLIC PLASTIC NAMEPLATES WITH WHITE CORE WITH LETTERING ETCHED THROUGH THE OUTER COVERING. 1/4" HIGH LETTERING SHALL ADEQUATELY DESCRIBE THE FUNCTION OR USE OF THE EQUIPMENT INVOLVED.
31. ALL EQUIPMENT SHALL BE RATED TO WITHSTAND AVAILABLE FAULT CURRENTS SHOWN ON DRAWINGS AS REQUIRED BY NFPA 70 (NATIONAL ELECTRICAL CODE). ALL DISTRIBUTION EQUIPMENT SHALL BE EITHER FULLY PROTECTED OR PROTECTED AS PART OF A LISTED SERIES RATING. EQUIPMENT SHALL ALSO HAVE SERVICE ENTRANCE DUTY RATING WHERE REQUIRED.

ELECTRICAL SPECIFICATIONS

CONDUIT	
A.	ALL CONDUIT USED IN CONCRETE, EARTH, OR DAMP LOCATIONS SHALL BE GALVANIZED RIGID, INTERMEDIATE METAL CONDUIT (IMC), OR RIGID PVC.
B.	EMT (THINWALL) CONDUIT SHALL BE EMPLOYED FOR APPLICATIONS OTHER THAN THOSE LISTED ABOVE FOR RIGID CONDUIT. PVC SHALL BE AN ACCEPTABLE SUBSTITUTE FOR RIGID CONDUIT FOR UNDERSLAB APPLICATIONS ONLY. EMT SHALL BE USED FOR ALL BRANCH CIRCUIT WIRING UNLESS OTHERWISE NOTED.
C.	ALUMINUM CONDUIT SHALL NOT BE PERMITTED FOR ANY APPLICATIONS.
D.	WHERE CONDUITS CROSS BUILDING EXISTING JOINTS, USE SUITABLE SLIDING OR OFFSETTING FITTINGS. UNLESS SPECIFICALLY APPROVED FOR BONDING, USE A SUITABLE BONDING JUMPER. THE MINIMUM SIZE OF CONDUIT SHALL BE 1/2" UNLESS OTHERWISE NOTED ON THE DRAWINGS.
E.	THE MINIMUM SIZE OF CONDUIT SHALL BE 1/2" UNLESS OTHERWISE NOTED ON THE DRAWINGS.
F.	FLEXIBLE STEEL CONDUIT SHALL BE USED TO CONNECT ALL MOTORS AND OTHER MOVING ELECTRICAL EQUIPMENT. LIQUID-TIGHT FLEXIBLE STEEL CONDUIT, TYPE U.A. AS MANUFACTURED BY ANACONDA OR APPROVED EQUAL, SHALL BE USED IN DAMP LOCATIONS WHERE FLEXIBLE CONDUIT IS REQUIRED.
G.	PENETRATIONS OF FOUR-HOUR RATED WALLS, PARTITIONS, CEILINGS, AND/OR FLOORS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.
WIRE	
A.	ALL WIRING SHALL BE COPPER, CODE GRADE, TYPE THW OR THHN/THWN EQUIVALENT, RATED 600V.
B.	ALL WIRING SHALL BE INSTALLED IN CONDUIT OR OTHER N.E.C. APPROVED RACEWAY.
C.	ALL SPLICES SHALL BE PRESSURE TYPED AND SHALL BE MADE IN ACCESSIBLE JUNCTION OR SPLICE BOXES, WIRING, FLUORESCENT FIXTURES, ETC., SHALL BE OF THE PROPER TEMPERATURE RATING PER THE N.E.C.
D.	CONDUCTORS NO. 8 AND LARGER SHALL BE STRANDED.
WIRING DEVICES	
A.	WIRING DEVICES SHALL BE SPECIFICATION GRADE LISTED BELOW, OR APPROVED EQUAL: MANUFACTURER NO. SINGLE POLE SWITCH HUBBELL 1221-1 DOUBLE POLE SWITCH HUBBELL 1222-1 3-WAY SWITCH HUBBELL 1223-1 4-WAY SWITCH HUBBELL 1224-1 DUPLEX RECEPTACLE HUBBELL 5362-1 DUPLEX RECEPTACLE, GFCI TYPE LEVITON 5386-1 DUPLEX RECEPTACLE, TVSS TYPE LEVITON 5388-1 DUPLEX RECEPTACLE, SAFETY TYPE HUBBELL 50-62H
B.	DEVICE PLATES SHALL BE SMOOTH IVORY PLASTIC AND SHALL BE DESIGNED FOR USE WITH THE DEVICE INTENDED. OUTDOOR RECEPTACLES SHALL BE INSTALLED IN A WEATHERPROOF BOX EQUAL TO THAT MANUFACTURED BY "ATYMAC" OR "CARLON".
C.	OUTLET BOXES SHALL BE PROVIDED FOR ALL DEVICES. MOUNTING HEIGHTS SHALL CONFORM TO ADA REQUIREMENTS.
DISCONNECT SWITCHES	
A.	ALL DISCONNECT SWITCHES SHALL BE GENERAL-DUTY TYPE, QUICK-MAKE, QUICK-BREAK OR AS SHOWN ON THE DRAWINGS. DISCONNECTS FOR MOTOR CIRCUITS SHALL BE MOTOR RATED.
B.	DISCONNECT SWITCHES SHALL BE FURNISHED IN NEMA 1 ENCLOSURES; EXCEPT NEMA 3R OR NEMA 12 SHALL BE USED IN DAMP LOCATIONS.
C.	DISCONNECT SWITCHES SHALL HAVE A COVER INTERLOCK, WITH DEFEAT DEVICE, TO PREVENT UNAUTHORIZED PERSONNEL FROM OPENING THE DOOR WHEN THE SWITCH IS ON.
D.	ALL DISCONNECT SWITCHES SHALL BE SQUARE "D", EQUAL UNITS, AS MANUFACTURED BY G. E., CUTLER-HAMMER, ITE OR WESTINGHOUSE WILL BE CONSIDERED.
E.	PROVIDE FUSIBLE SWITCHES AND FUSES WHERE REQUIRED BY THE MANUFACTURER OF THE EQUIPMENT SERVED.
PANELBOARDS	
A.	PANELBOARDS SHALL BE EQUIPPED WITH THE TYPE, SIZE AND NUMBER OF CIRCUIT BREAKERS ARRANGED AND NUMBERED AS SHOWN ON THE DRAWINGS. PANELBOARDS SHALL BE ENCLOSED IN A STEEL CABINET COMPLETE WITH A DOOR, DOOR LOCK, CIRCUIT IDENTIFICATION DIRECTORY HOLDER, NEUTRAL BAR AND LUGS FOR ALL CABLE CONNECTIONS. WHERE "SPACE" IS INDICATED, SPACE SHALL BE BUSSED FOR FUTURE BREAKERS. BUS SHALL BE COPPER. WHERE PANELBOARDS ARE INDICATED TO BE FLUSH MOUNTED, FOR EACH TWO SPARES AND/OR SPACES, STUB ONE 3/4" CONDUIT INTO ACCESSIBLE CEILING SPACE. PANELBOARDS SHALL BE U.L. APPROVED.
B.	PANELBOARDS SHALL HAVE LOCKING TYPE DOORS AND ALL LOCKS SHALL BE KEYPED ALIKE. PANELS SHALL HAVE AN INDEX OF CIRCUITRY WHICH SHALL BE TYPED, IN BY THE CONTRACTOR TO INDICATE WHAT EACH CIRCUIT FEEDS. MINOR REARRANGEMENT OF CIRCUITRY TO OBTAIN A BALANCED LOAD SHALL BE PERMITTED.
C.	ALL PANELBOARDS SHALL BE AS MANUFACTURED BY SQUARE "D" COMPANY. EQUAL UNITS AS MANUFACTURED BY SIEMENS OR CUTLER-HAMMER WILL BE CONSIDERED.
FITTINGS	
A.	THINWALL CONDUIT (EMT) FITTINGS SHALL BE ALL STEEL, RAIN-TIGHT, AND SET-SCREW TYPE UP TO AND INCLUDING 2" CONDUIT. SET-SCREW TYPE SHALL BE USED ON SIZES LARGER THAN 2".
B.	RIGID CONDUIT FITTINGS SHALL BE METALLIC HEAVY DUTY TYPE.
C.	FLEXIBLE CONDUIT FITTINGS SHALL BE ALL STEEL.
D.	DIE-CAST AND INDENTER TYPE FITTINGS SHALL NOT BE ACCEPTABLE.
E.	FURNISH TYPE AS MANUFACTURED BY T & B, STEEL CITY, APPLETON, RAGO OR APPROVED EQUAL.
CODES, ORDINANCES, INSPECTIONS AND PERMITS	
A.	CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES; OBTAIN ALL PERMITS, AND PAY ALL GOVERNMENTAL TAXES, FEES AND OTHER COSTS IN CONNECTION WITH HIS WORK; FILE ALL NECESSARY PLANS; PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION; OBTAIN REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK AND DELIVER SAME TO THE ARCHITECT-ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT OF WORK.
B.	CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ALL LABOR, MATERIALS, SERVICES, STATE AND FEDERAL GOVERNMENTS, WHETHER OR NOT SHOWN ON THE DRAWINGS AND/OR IN THESE SPECIFICATIONS.
MOTOR STARTERS	
A.	MANUAL STARTERS SHALL BE PROVIDED FOR SINGLE PHASE, FRACTIONAL HORSEPOWER MOTORS 1/2 HORSEPOWER AND SMALLER OR AS NOTED ON THE DRAWINGS. STARTERS AND CONTROL EQUIPMENT FOR MOTORS LARGER THAN 1/2 HORSEPOWER AND FOR ALL POLYPHASE MOTORS SHALL BE FURNISHED UNDER DIVISION 23.

LIGHTING	
A.	THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL LUMINAIRES, LIGHTING EQUIPMENT AND COMPONENTS SHOWN ON THE PLANS, LISTED IN THE FIXTURE SCHEDULE AND SPECIFIED HEREIN. HE SHALL FURNISH ALL LABOR AND MATERIALS TO INSTALL SPECIFIED EQUIPMENT IN THE MANNER INDICATED.
B.	ALL LUMINAIRES AND LIGHTING EQUIPMENT SHALL BE DELIVERED TO THE PROJECT SITE COMPLETE WITH SUSPENSION ACCESSORIES, CANOPIES, HOOKS, CASINGS, SOCKETS, HOLDERS, REFLECTORS, BALLASTS, DIFFUSING MATERIAL, LOUVERS, PLASTER FRAMES, RECESSING BOXES, ETC., ALL WIRED AND ASSEMBLED AS INDICATED. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ACCESSORIES AND ACCESSORY WIRING AS SPECIFIED HEREIN.
C.	FIXTURES SHALL BE U.L. OR ETL LISTED. FIXTURE SUBMITTALS SHALL INCLUDE ESTIMATED USEFUL LIFE CALCULATED BASED ON IES LM-79. MINIMUM VALUE SHALL BE 50,000 HOURS.
D.	FIXTURE SUBMITTALS SHALL INCLUDE RATED EFFICACY (LM/W) VALUES FOR THE COLOR TEMPERATURE, LUMEN OUTPUT AND DISTRIBUTION TYPE SPECIFIED.
E.	ELECTRONIC FILES OF PHOTOMETRIC DATA IN IESNA LM-63 FORMAT SHALL BE AVAILABLE UPON REQUEST FOR ALL FIXTURES AT THE COLOR TEMPERATURE, LUMEN OUTPUT AND DISTRIBUTION TYPE SPECIFIED.
F.	ALL FIXTURES SHALL INCLUDE INTEGRAL SURGE PROTECTION EQUAL TO OR EXCEEDING THE SPECIFIED FIXTURES.
G.	ALL FIXTURES SHALL HAVE A FIVE YEAR WARRANTY. THIS SHALL INCLUDE DRIVERS, ARRAYS AND INTERNAL CONTROLS.
H.	ALL RECESSED FIXTURES SHALL BE 100 PERCENT SERVICEABLE FROM BELOW.
I.	PROVIDE A SAMPLE OF EACH FIXTURE PROPOSED FOR SUBSTITUTION UPON REQUEST. ONLY FIXTURES MANUFACTURED BY A COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCT WITH A MINIMUM OF FIVE YEARS DOCUMENTED EXPERIENCE WILL BE CONSIDERED. ACCEPTABLE MANUFACTURERS ARE ACUTY, HUBBELL OR EATON. ALTERNATE FIXTURES TO THOSE SPECIFIED MUST BE SUBMITTED TO THE ARCHITECT/ENGINEER A MINIMUM OF 10 DAYS PRIOR TO BID FOR APPROVAL. ALTERNATE FIXTURES WILL BE EVALUATED BASED ON APPEARANCE, LM/W, DISTRIBUTION, PERFORMANCE, CONSTRUCTION QUALITY AND MANUFACTURER'S RECORD.
J.	THIS CONTRACTOR SHALL TAKE SPECIAL NOTE OF THE VOLTAGE AT WHICH FIXTURES ARE TO BE OPERATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE HIS COUNT BY TYPE AS WELL AS VOLTAGE PRIOR TO ORDERING. EXTRA WILL NOT BE ALLOWED FOR ANY ERRORS BY THIS CONTRACTOR. ALL FIXTURES SHALL BE SQUARE AND LEVEL IN RELATION TO SURROUNDING MATERIALS AND SPACE.
K.	THIS CONTRACTOR SHALL COORDINATE WITH THE CEILING CONTRACTOR BEFORE ORDERING FIXTURES TO ENSURE THAT THE FIXTURES ORDERED HAVE THE PROPER MOUNTING FEATURES TO BE COMPATIBLE WITH THE CEILING TYPES.
L.	ALL FIXTURES SHALL BE PROTECTED FROM GENERAL CONSTRUCTION AND SHALL BE THOROUGHLY CLEANED PRIOR TO FINAL INSPECTION.
DEMOLITION	
A.	CONTRACTOR SHALL BE RESPONSIBLE FOR ELECTRICAL DEMOLITION. ELECTRICAL EQUIPMENT, (LIGHT FIXTURES, RECEPTACLES, SWITCHES, HVAC EQUIPMENT, ETC.) MADE OBSOLETE BY DEMOLITION AND NOT DESIGNATED AS BEING REUSED, SHALL BE DISCONNECTED AND REMOVED. WIRING, NO LONGER REQUIRED, SHALL BE DISCONNECTED AND REMOVED.
B.	ELECTRICAL EQUIPMENT, NOT DESIGNATED AND/OR SHOWN TO BE REMOVED OR OTHERWISE NOTED, SHALL REMAIN IN PLACE AND REMAIN ACTIVE. DO NOT LEAVE ABANDONED WIRING IN CONDUITS. PROVIDE BLANK COVERS ON ALL OUTLET BOXES, JUNCTION BOXES, ETC., WHICH CANNOT BE REMOVED.
C.	EXISTING CONDUITS NO LONGER REQUIRED MAY BE ABANDONED AND LEFT IN PLACE PROVIDED THE WIRING IS REMOVED AND THE PLACEMENT OF THE CONDUIT IS SUCH THAT IT DOES NOT CONFLICT WITH NEW CONSTRUCTION.
D.	WHERE THE DEMOLITION OF ELECTRICAL EQUIPMENT INTERRUPTS POWER TO OTHER DOWNSTREAM ELECTRICAL EQUIPMENT, THAT ARE EXISTING TO REMAIN, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT DOWNSTREAM DEVICES REMAIN ACTIVE AND ARE PROPERLY RECONNECTED.
E.	EQUIPMENT REMOVED AND NOT REUSED SHALL BE THE PROPERTY OF THE OWNER. ANY EXCEPTION TO THE ABOVE SHALL BE SO NOTED ON THE DRAWINGS.
SUBMITTALS	
A.	SUBMIT MANUFACTURER'S CATALOG SHEETS AND/OR SHOP DRAWINGS COVERING ALL PHASES OF WORK INCLUDING THIS CONTRACT.
B.	SUBMITTALS SHALL BE ARRANGED IN SETS AND BOUND. MATERIAL SHALL BE ORGANIZED INTO INDEXED SECTIONS CORRESPONDING TO SPECIFICATION SECTIONS. NO LOOSE SHEETS WILL BE ACCEPTABLE. ALL DATA SHALL BE SUBMITTED AT ONE TIME. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED FOR REVIEW.
C.	ALL SUBMITTALS SHALL BEAR WRITTEN CERTIFICATION TO THE EFFECT THAT THE CONTRACTOR HAS EXAMINED THEM AND FOUND THEM TO BE IN ACCORDANCE WITH SPECIFICATIONS AND TO BE DIMENSIONALLY CORRECT WITH REFERENCE TO AVAILABLE SPACE AND TO RELATED TRADES. EACH SUBMITTAL SHALL BE SIGNED AND DATED BY THE DIVISION 16 CONTRACTOR.
D.	IF SUBMITTALS ARE TRANSMITTED IN PDF FORMAT, THEY SHALL BE SUBMITTED AS A SINGLE PDF CONTAINING ALL ELECTRICAL SECTIONS. IF THE SUBMITTAL EXCEEDS ONE HUNDRED SHEETS, A SINGLE HARD COPY SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW AND RECORDS. THIS HARD COPY WILL REMAIN WITH THE ENGINEER.
E.	SUBMITTALS ARE REQUIRED EVEN WHEN EQUIPMENT BEING FURNISHED IS EXACTLY AS SPECIFIED.
TESTING	
A.	THIS CONTRACTOR SHALL PERFORM MEGGER TESTING OF EACH CONDUCTOR MAKING UP THE SERVICE LATERAL AND SUB-PANEL FEEDERS. THE TESTS SHALL BE PERFORMED WITH AN APPLIED POTENTIAL OF 1000 VOLTS DC FOR 1 MINUTE. THESE TESTS SHALL BE PERFORMED WITH THE CONDUCTORS DISCONNECTED AT EACH END. THE MINIMUM INSULATION RESISTANCE VALUES SHALL NOT BE LESS THAN TWO MEGOHMS.
B.	THIS CONTRACTOR SHALL PERFORM MEGGER TESTING OF ALL CIRCUITS TO DETERMINE THE EXISTENCE OF GROUNDS AND SHORT CIRCUITS. THE TESTS SHALL BE PERFORMED WITH AN APPLIED POTENTIAL OF 1000 VOLTS DC FOR 1 MINUTE. THESE TESTS SHALL BE PERFORMED WITH ALL CONDUCTORS CONNECTED AND ALL SWITCHES IN THE CLOSED POSITION. THE MINIMUM INSULATION RESISTANCE VALUES SHALL NOT BE LESS THAN TWO MEGAOHMS.
C.	THIS CONTRACTOR SHALL RECORD THE ABOVE TEST READINGS AND FURNISH AS PART OF THE CLOSE-OUT DOCUMENTS.
OVER-CURRENT PROTECTION DEVICE	
A.	CIRCUIT BREAKERS SHALL BE MOLDED-CASE, QUICK-MAKE AND QUICK-BREAK THERMAL-MAGNETIC TYPE. THEY SHALL HAVE A TRIP INDICATION INDEPENDENT OF THE "ON" OR "OFF" POSITIONS. BREAKERS SHALL HAVE A MINIMUM INTERRUPTING CAPACITY AS REQUIRED FOR THE AVAILABLE FAULT CURRENT AS SHOWN ON THE DRAWINGS OR BE PROTECTED AS PART OF A SERIES RATING. WHEN A VALUE IS NOT INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL UTILITY COMPANY TO DETERMINE THE AVAILABLE FAULT CURRENT.
B.	FUSES SHALL BE THE TYPE AS INDICATED ON THE DRAWINGS AND AS MANUFACTURED BY BUSSMANN.

ELECTRICAL SYMBOL SCHEDULE	
SYMBOL	DESCRIPTION
	CONCEALED CONDUIT: 3 HOTS, 1 NEUTRAL, AND 1 GREEN GROUND (CONDUIT SHALL NOT BE USED FOR GROUND) USE #12 THIN IN 1/2" CONDUIT U.N.O. EXPOSED CONDUIT: 3 HOTS, 1 NEUTRAL, AND 1 GREEN GROUND (CONDUIT SHALL NOT BE USED FOR GROUND) USE #12 THIN IN 1/2" CONDUIT U.N.O.
	CONCEALED CONDUIT: 3 HOTS, 3 NEUTRALS, AND 1 GREEN GROUND (CONDUIT SHALL NOT BE USED FOR GROUND). SEPARATE DEDICATED NEUTRALS. USE #12 THIN IN 1/2" CONDUIT U.N.O.
	RACEWAY WITH CONDUCTORS RUN CONCEALED IN FLOOR SLAB OR IN EARTH.
	SWITCHED 120VAC LIGHTING WITH 0-10V DIMMING SIGNAL. USE SEPARATE CONDUITS OR A SHIELDED CABLE - CLASS 1 WIRING.
	CAT 5e OR 6 CABLE USED FOR DIGITAL LIGHT CONTROLS EXPOSED ABOVE ACCESSIBLE CEILING OR IN CONDUIT ELSEWHERE.
	MOTOR CONNECTION (NUMBER IN CENTER INDICATES HORSEPOWER)
	DUPLEX 28A 125V RECEPTACLE. INSTALL @ 1'-6" A.F.F., U.N.O.
	FOURPLEX 28A 125V RECEPTACLE. INSTALL @ 1'-6" A.F.F., U.N.O.
	DUPLEX 28A 125V RECEPTACLE. INSTALL FLOOR MOUNTED FLUSH. ROUND PVC BOX WITH BRASS COVER PLATE. PLATE SHALL BE SUITABLE FOR USE WITH FLOOR TYPE USED.
	FOURPLEX 28A 125V RECEPTACLE. INSTALL FLOOR MOUNTED FLUSH. ROUND PVC BOX WITH BRASS COVER PLATE. PLATE SHALL BE SUITABLE FOR USE WITH FLOOR TYPE USED.
	DUPLEX 28A 125V RECEPTACLE. MOUNTED @ SPECIAL HEIGHT. SEE ARCHITECTURAL.
	DUPLEX 28A 125V GFI RECEPTACLE. INSTALL @ 1'-6" A.F.F., U.N.O. (WEATHER RESISTANT WHEN INSTALLED IN WET OR DAMP LOCATIONS)
	DUPLEX 28A 125V GFI RECEPTACLE. MOUNTED @ SPECIAL HEIGHT. SEE ARCHITECTURAL. (WEATHER RESISTANT WHEN INSTALLED IN WET OR DAMP LOCATIONS)
	SPECIAL PURPOSE RECEPTACLE. NEMA CONFIGURATION TO MATCH EQUIPMENT.
	DUPLEX 28A 125V RECEPTACLE. HOSPITAL GRADE, GFI, INSTALL @ 1'-6" A.F.F., U.N.O.
	EXISTING RECEPTACLE
	DUPLEX 28A 125V TAMPER RESISTANT RECEPTACLE. INSTALL @ 1'-6" A.F.F., U.N.O. (HUBBELL #HBL5G63H1 OR EQUAL)
	COMBINATION RECEPTACLE/USB 28A 125V. (LEVITON USB2-20TR OR EQUAL)
	SIMPLEX 28A 125V RECEPTACLE. INSTALL @ 1'-6" A.F.F., U.N.O.
	SIMPLEX 28A 125V RECESSED CLOCK OUTLET
	DUPLEX 28A 125V RECEPTACLE INSTALL ON OR ABOVE CEILING.
	RECESSED COMBINATION POWER/DATA FLOOR BOX WITH 2: DUPLEX RECEPTABLES AND SOUND/DATA. WALKER # RFBA OR EQUAL.
	WELDING RECEPTACLE. NEMA CONFIGURATION TO MATCH EQUIPMENT.
	DISTRIBUTION PANEL
	MANUAL MOTOR STARTER.
	MANUAL MOTOR STARTER AND DISCONNECT SWITCH.
	SAFETY DISCONNECT SWITCH. NF (NON-FUSED)
	JUNCTION OR PULLBOX. SIZE AS NOTED.
	DRY TYPE TRANSFORMER 1PHASE OR 3PHASE. SIZE AS REQUIRED ON THE PLANS.
	PHOTO ELECTRIC CELL LIGHTING CONTROL MOUNTED ON ROOF.
	LIGHTING CONTACTOR
	TIMECLOCK
	MOTOR RATED SWITCH RATED FOR CONNECTED LOAD.
	TELEPHONE OUTLET BOX WITH 3/4" & STRING TO ACCESSIBLE CEILING SPACE OR ROUTED AS NOTED. 4X4 .80X WITH SINGLE GANG PLASTER RING.
	TELEPHONE OUTLET BOX WITH 3/4" & STRING TO ACCESSIBLE CEILING SPACE OR ROUTED AS NOTED. 4X4 .80X WITH SINGLE GANG PLASTER RING. MOUNTED @ SPECIAL HEIGHT. SEE ARCHITECTURAL.
	DATA OUTLET BOX WITH 3/4" & STRING TO ACCESSIBLE CEILING SPACE OR ROUTED AS NOTED. 4X4 .80X W/ SINGLE GANG PLASTER RING.
	DATA OUTLET BOX WITH 3/4" & STRING TO ACCESSIBLE CEILING SPACE OR ROUTED AS NOTED. 4X4 .80X W/ SINGLE GANG PLASTER RING. MOUNTED @ SPECIAL HEIGHT. SEE ARCHITECTURAL.
	COMBINATION DATA/TELEPHONE OUTLET BOX WITH 3/4" TO ACCESSIBLE CEILING SPACE OR ROUTED AS NOTED. 4X4 .80X WITH SINGLE GANG PLASTER RING.
	COMBINATION DATA/TELEPHONE OUTLET BOX WITH 3/4" TO ACCESSIBLE CEILING SPACE OR ROUTED AS NOTED. 4X4 .80X WITH SINGLE GANG PLASTER RING. MOUNTED @ SPECIAL HEIGHT. SEE ARCHITECTURAL.
	CABLE TV OUTLET BOX WITH 1 1/4" & STRING TO ACCESSIBLE CEILING SPACE OR ROUTED AS NOTED. 4X4 .80X WITH SINGLE GANG PLASTER RING.
	CABLE TV OUTLET BOX WITH 1 1/4" & STRING TO ACCESSIBLE CEILING SPACE OR ROUTED AS NOTED. 4X4 .80X WITH SINGLE GANG PLASTER RING. MOUNTED @ SPECIAL HEIGHT. SEE ARCHITECTURAL.
	COMBINATION DATA/TELEPHONE OUTLET BOX WITH 3/4" & STRING TO ACCESSIBLE CEILING SPACE OR ROUTED AS NOTED. FLOOR MOUNTED FLUSH. ROUND PVC BOX WITH BRASS COVER PLATE. PLATE SHALL BE SUITABLE FOR USE WITH FLOOR TYPE USED.
	BUZZER PUSHBUTTON.
	BELL TRANSFORMER.
	BUZZER.
	2'x4' LIGHT FIXTURE.
	2'x4' LIGHT FIXTURE WITH AUTOMATIC BATTERY BACK-UP.
	2'x2' LIGHT FIXTURE.

ELECTRICAL SYMBOL SCHEDULE	
SYMBOL	DESCRIPTION
	2'x2' LIGHT FIXTURE WITH AUTOMATIC BATTERY BACK-UP.
	4' WRAP AROUND LIGHT FIXTURE.
	4' WRAP AROUND LIGHT FIXTURE WITH AUTOMATIC BATTERY BACK-UP.
	4' WRAP AROUND LIGHT FIXTURE WITH AUTOMATIC BATTERY BACK-UP.
	2' LIGHT FIXTURE.
	2' LIGHT FIXTURE WITH AUTOMATIC BATTERY BACK-UP.
	4' LIGHT FIXTURE.
	4' LIGHT FIXTURE WITH AUTOMATIC BATTERY BACK-UP.
	8' LIGHT FIXTURE.
	8' LIGHT FIXTURE WITH AUTOMATIC BATTERY BACK-UP.
	RECESSED LIGHT FIXTURE.
	RECESSED LIGHT FIXTURE WITH AUTOMATIC BATTERY BACK-UP.
	SURFACE MOUNTED LIGHT FIXTURE.
	SURFACE MOUNTED LIGHT FIXTURE WITH AUTOMATIC BATTERY BACK-UP.
	SURFACE/PENDANT MOUNTED LIGHT FIXTURE WITH QUARTZ RESTRIKE.
	PENDANT MOUNTED LIGHT FIXTURE.
	WALL MOUNTED LIGHT FIXTURE.
	WALL MOUNTED LIGHT FIXTURE WITH AUTOMATIC BATTERY BACK-UP.
	DIMMING SWITCH. RATED FOR CONNECTED LOAD.
	KEYED SWITCH. RATED FOR CONNECTED LOAD.
	EXHAUST FAN SWITCH. RATED FOR CONNECTED LOAD.
	SPST 28A 125V OR 277V WALL SWITCH. INSTALL @ 4'-0" A.F.F.
	DPST 28A 125V OR 277V WALL SWITCH. INSTALL @ 4'-0" A.F.F.
	28A 125V OR 277V 3 WAY WALL SWITCH. INSTALL @ 4'-0" A.F.F.
	28A 125V OR 277V 4 WAY WALL SWITCH. INSTALL @ 4'-0" A.F.F.
	EXIT LIGHT WITH AUTOMATIC BATTERY BACK-UP. TOP MOUNT - TWO SIDES.
	EXIT LIGHT WITH AUTOMATIC BATTERY BACK-UP. BACK MOUNT - ONE SIDE.
	EXIT LIGHT WITH AUTOMATIC BATTERY BACK-UP. END MOUNT - TWO SIDES.
	EXIT LIGHT WITH AUTOMATIC BATTERY BACK-UP. END MOUNT - ONE SIDE.
	COMBINATION EXIT/EMERGENCY LIGHT WITH AUTOMATIC BATTERY BACK-UP. TOP MOUNT - ONE SIDE.
	EXIT LIGHT WITH AUTOMATIC BATTERY BACK-UP. TOP MOUNT - ONE SIDE.
	EXIT LIGHT WITH AUTOMATIC BATTERY BACK-UP. TOP MOUNT - WEATHER PROOF.
	EMERGENCY LIGHT WITH AUTOMATIC BATTERY BACK-UP.
	CEILING MOUNT EMERGENCY LIGHT WITH AUTOMATIC BATTERY BACK-UP.
	POLE MOUNTED SITE LIGHT. ONE FIXTURE. PROVIDE CONCRETE BASE & POLE.
	POLE MOUNTED SITE LIGHT. TWO FIXTURES @ 90 DEG. PROVIDE CONCRETE BASE & POLE.
	POLE MOUNTED SITE LIGHT. TWO FIXTURES @ 180 DEG. PROVIDE CONCRETE BASE & POLE.
	POLE MOUNTED SITE LIGHT. THREE FIXTURES @ 90 DEG. PROVIDE CONCRETE BASE & POLE.
	POLE MOUNTED SITE LIGHT. FOUR FIXTURES @ 90 DEG. PROVIDE CONCRETE BASE & POLE.
	POLE MOUNTED SITE LIGHT. ONE FIXTURE. PROVIDE CONCRETE BASE & POLE. WITH SIDE MOUNTED FLOOR LIGHTS
	AIR CONDITIONING UNIT
	ABOVE COUNTER
	ABOVE FINISHED FLOOR
	AMPS INTERRUPTING CAPACITY
	DUST TIGHT
	EXHAUST FAN
	ELECTRIC UNIT HEATER
	ELECTRIC WALL HEATER
	GROUND FAULT CIRCUIT INTERRUPTER (PERSONNEL)
	ISOLATED GROUND
	LIGHTING CONTACTOR
	NIGHT LIGHT (UNSWITCHED)
	PHOTO CELL
	ROOF TOP UNIT
	SUPPLY FAN

System No. W-L-1001

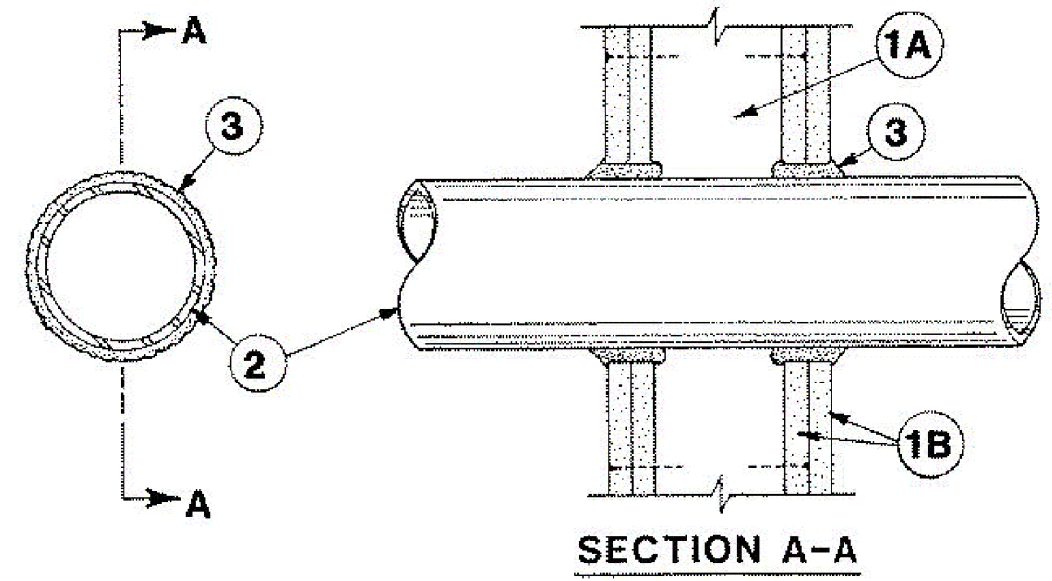
June 15, 2005

F Ratings — 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings — 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient — less than 1 CFM/sq ft

L Rating At 400 F — less than 1 CFM/sq ft



1. Wall Assembly — The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** — Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.
- B. **Gypsum Board*** — Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).
- 2. **Through-Penetrant** — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (0 mm), (point contact) to max 2 in. (51 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
 - A. **Steel Pipe** — Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - B. **Iron Pipe** — Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
 - C. **Conduit** — Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
 - D. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - E. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
 - F. **Through Penetrating Product*** — Flexible Metal Piping. The following types of steel flexible metal gas piping may be used:
 - 1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

- 2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

GASTITE, DIV OF TITFLEX

- 3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG INC

- 3. **Fill, Void or Cavity Material*** — **Caulk or Sealant** — Min 5/8", 1-1/4"-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below.

Max Pipe or Conduit Diam In (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 h.

3M COMPANY — CP 25WB+ or FB-3000 WT.

*Bearing the UL Classification Mark

© Copyright © 2007 Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2007 Underwriters Laboratories Inc.®"

System No. W-L-3001

September 07, 2004

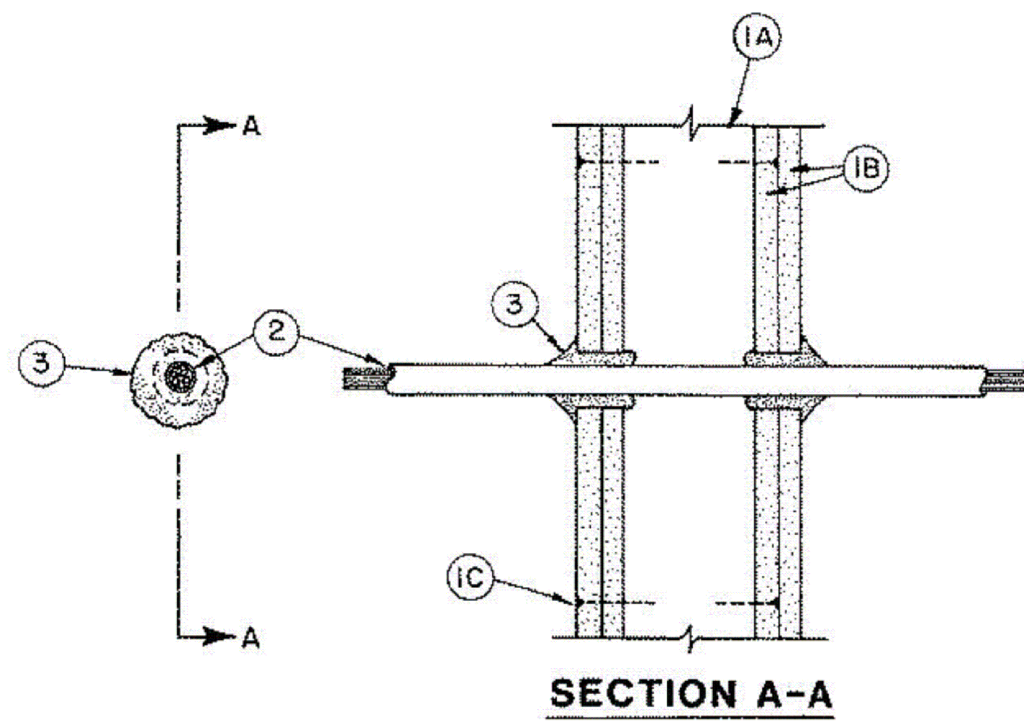
(Formerly System No. 149)

F Ratings — 1 and 2 Hr (See Item 1)

T Ratings — 3/4, 1, 1-1/2 and 2 Hr (See Item 2)

L Rating At Ambient — 15 CFM/sq ft (See Item 3)

L Rating At 400 F — less than 1 CFM/sq ft (See Item 3)



1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.
- B. **Gypsum Board*** — Nom 1/2 or 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers and sheet orientation shall be as specified in the individual Wall or Partition Design. Diam of circular through opening to be 3/8 in. to 5/8 in. larger than outside diam of cable or cable bundle.
- C. **Fasteners** — When wood stud framing is employed gypsum wallboard layers attached to studs with cement coated nails as specified in the individual Wall or Partition Design. When steel channel stud framing is employed, gypsum wallboard attached to studs with Type S self-drilling, self-tapping bugle-head steel screws as specified in the individual Wall or Partition Design.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

- 2. **Cables** — Individual cable or max 1 in. diam cable bundle installed in through opening with an annular space of nom 0 in. (point contact) to max 3/4 in. Cable to be rigidly supported on both sides of wall assembly. The following types and sizes of cables may be used:
 - A. Max 150 pair No. 24 AWG copper conductor telephone cable with polyvinyl chloride (PVC) insulation and jacket materials. **When max 25 pair telephone cable is used, T Rating is 2 hr. When 50 to 150 pair telephone cable is used in 1 hr fire rated wall, T Rating is 3/4 hr. When 50 to 150 pair telephone cable is used in 2 hr fire rated wall, T Rating is 1 hr.**
 - B. Max No. 10 AWG multiple copper conductor Type NM ("Romex") nonmetallic sheathed cable with PVC insulation and jacket materials. **When Type NM cable is used, max T Rating is 1-1/2 hr.**
 - C. Multiple fiber optical communication cable jacketed with PVC and having a max outside diam of 5/8 in. **When fiber optic cable is used, max T Rating is 2 hr.**
 - D. Max 12 AWG multiconductor (max seven conductors) power/control cable with cross-linked polyethylene (XLPE) insulation and XLPE or PVC jacket materials. **When multiconductor power/control cable is used, max T Rating is 2 hr.**
 - E. Max four conductor with ground No. 2 AWG (or smaller) aluminum SER cables with polyvinyl chloride insulation and jacket materials.
- 3. **Fill, Void or Cavity Materials*** — **Caulk, Sealant or Putty** — Caulk or putty fill material installed to completely fill annular space between cable and gypsum wallboard on both sides of wall and with a min 1/4 in. diam bead of caulk or putty applied to perimeter of cable(s) at its egress from each side of the wall.

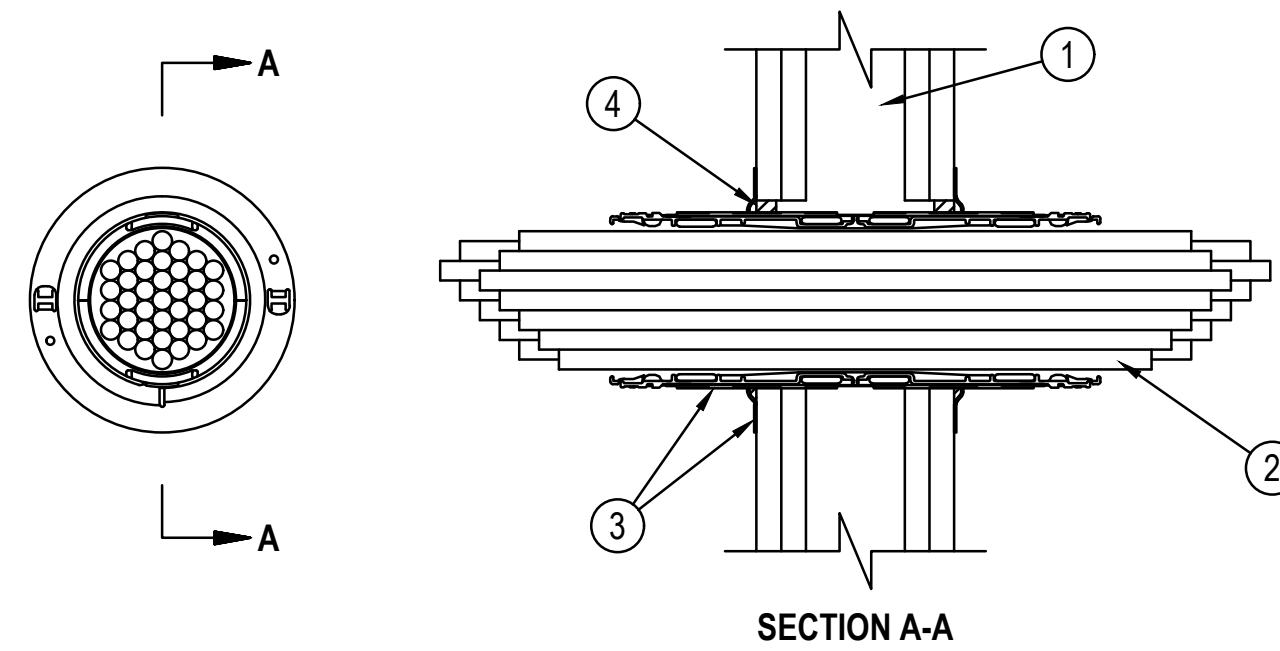
3M COMPANY — MP+ putty, CP 25WB+ caulk or FB-3000 WT sealant. (Note: L Ratings apply only when Type CP 25WB+ caulk or FB-3000 WT sealant is used.)

*Bearing the UL Classification Mark

© Copyright © 2007 Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2007 Underwriters Laboratories Inc.®"



- NOTES:**
1. WALL ASSEMBLY PER ARCHITECTURAL PLANS (FIRE/SMOKE RATED OR UNRATED): WOOD OR STEEL STUDS, GYPSUM BOARD, CONCRETE, OR CONCRETE MASONRY.
 2. COMMUNICATION CABLES — REFER TO MANUFACTURER'S DOCUMENTATION FOR FILL CAPACITIES
 3. FIRE/SMOKE SLEEVE, EQUAL TO HILTI #CP 653 BA. SLEEVE SHALL HAVE TWISTING INNER FABRIC FOR SMOKE SEAL AND HEAT ACTIVATED EXPANSION. UL CERTIFICATE NUMBER 20171019-R15431.
 4. FILL IN VOID CAVITY. IF USING MANUFACTURER'S GASKETED FLANGES, THEN FILL COMPOUND MAY BE STANDARD DRYWALL COMPOUND; OTHERWISE USE A UL LISTED FIRE COMPOUND.

DETAIL - SELF-SEALING SLEEVE DETAIL

NO SCALE

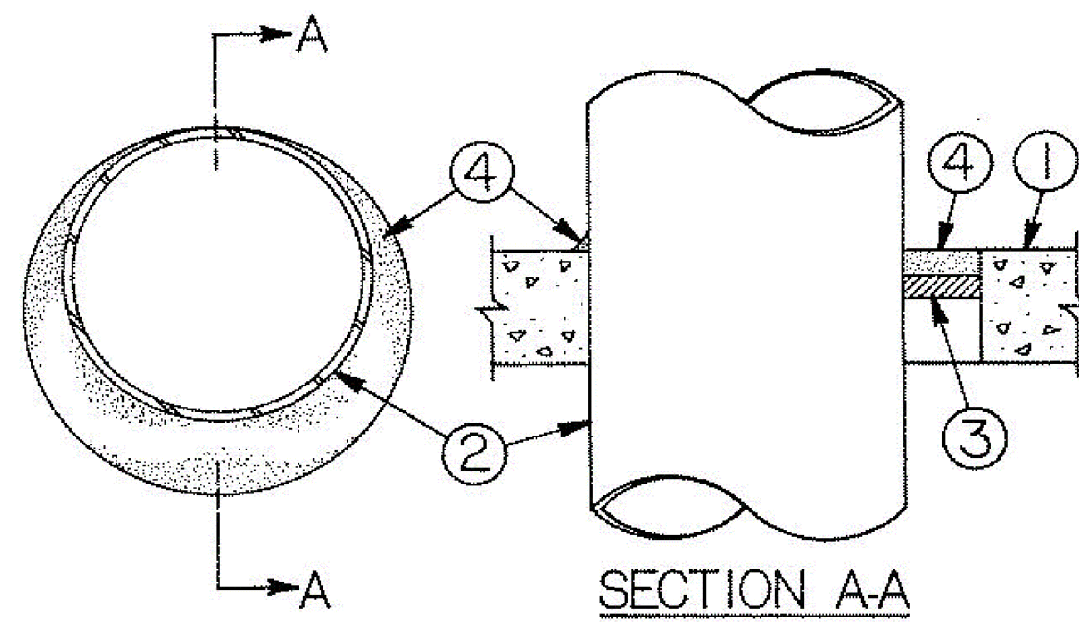
System No. C-AJ-1001

March 05, 2007

F Rating — 3 Hr

T Rating — 0 Hr

W Rating — Class 1 (See Item 4)



1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of circular through opening is 32-1/2 in. (826 mm).

See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.

- 2. **Through** — **Penetrant** — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (0 mm, point contact) to max 1-3/8 in. (35 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
 - A. **Steel Pipe** — Nom 30 in. (762 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe sleeve cast into concrete floor or wall. Sleeve to be flush with or project max 2 in. (51 mm) from top surface of floor or from both surfaces of wall. As an alternate, nom 12 in. (305 mm) diam (or smaller) sleeve fabricated from nom 0.019 in. (0.48 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.
 - B. **Conduit** — Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
 - C. **Conduit** — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
- 3. **Packing Material** — Polyethylene bucker rod or nom 1 in. (25 mm) thickness of tightly-packed ceramic (alumina silica) fiber blanket, mineral wool batt or glass fiber insulation material used as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of solid concrete or concrete block wall as required to accommodate the required thickness of caulk fill material (Item 4). As an alternate when max pipe size is 10 in. (254 mm) diam and when max annular space is 1 in. (25 mm), a min 1 in. (25 mm) thickness of tightly-packed ceramic fiber blanket or mineral wool batt packing material may be recessed min 1/2 in. (13 mm) from bottom surface of floor or from either side of solid concrete wall.
- 4. **Fill, Void or Cavity Materials*** — **Caulk** — Applied to fill the annular space to the min thickness shown in the following table:

Max Pipe Diam In.	Max Annular Space In.	Packing Mat Type (a)	Min Caulk Thkns In.
10 (254)	1 (25)	BR, CF, GF or MW	1/2 (13) (b)
10 (254)	1 (25)	CF or MW	1/2 (13) (c)
30 (762)	2-1/2 (64)	BR, CF, GF or MW	1 (25) (b)

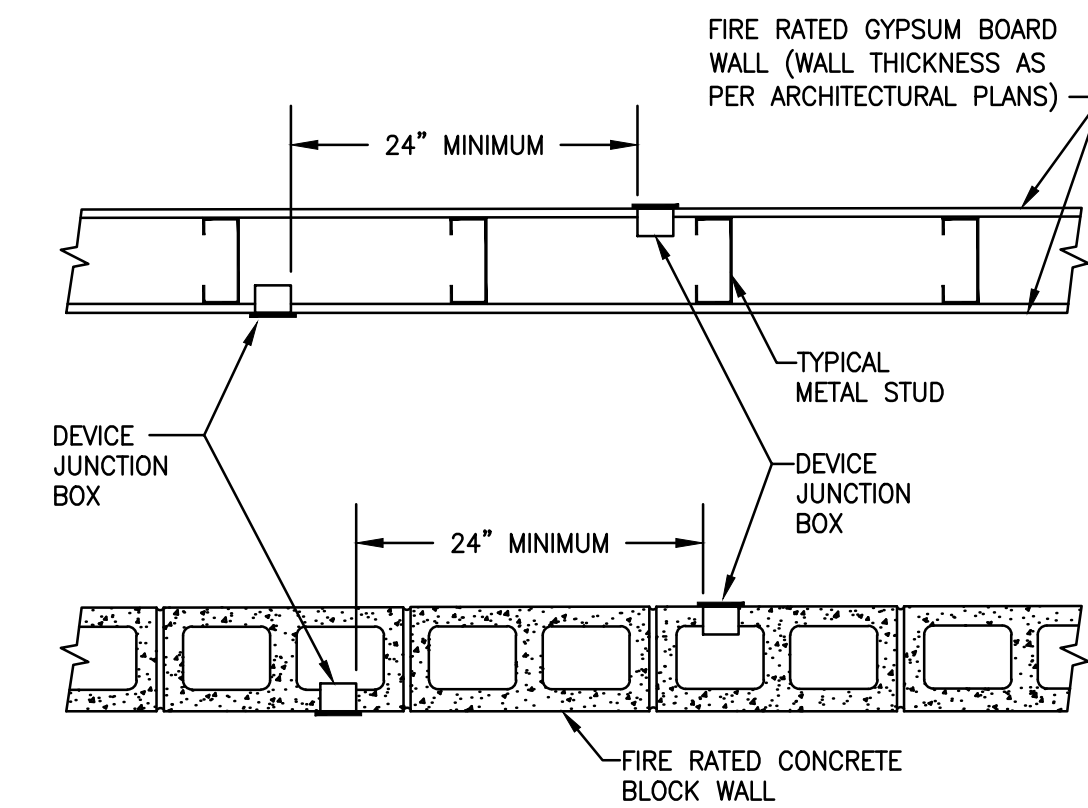
- (a) BR—Polyethylene bucker rod.
- CF—Ceramic fiber blanket.
- GF—Glass fiber insulation.
- MW—Mineral-wool batt.
- (b) Caulk installed flush with top surface of floor or both surfaces of wall
- (c) Caulk installed flush with bottom surface of floor or one surface of solid (non-concrete block) wall
- 3M COMPANY** — Type CP 25WB+ or FB-3000 WT
- (Note - W Rating applies only when FB-3000 WT is used on top surface of floor and when it laps onto concrete for sleeved opening.)

*Bearing the UL Classification Mark

© Copyright © 2007 Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2007 Underwriters Laboratories Inc.®"



NOTES:

- **DEVICE BOXES** INSTALLED ON OPPOSITE SIDES OF A FIRE RATED WALL OR PARTITION SHALL BE SEPARATED BY 24 INCHES OF SPACE AND AT LEAST ONE STUD OR CONCRETE BLOCK.

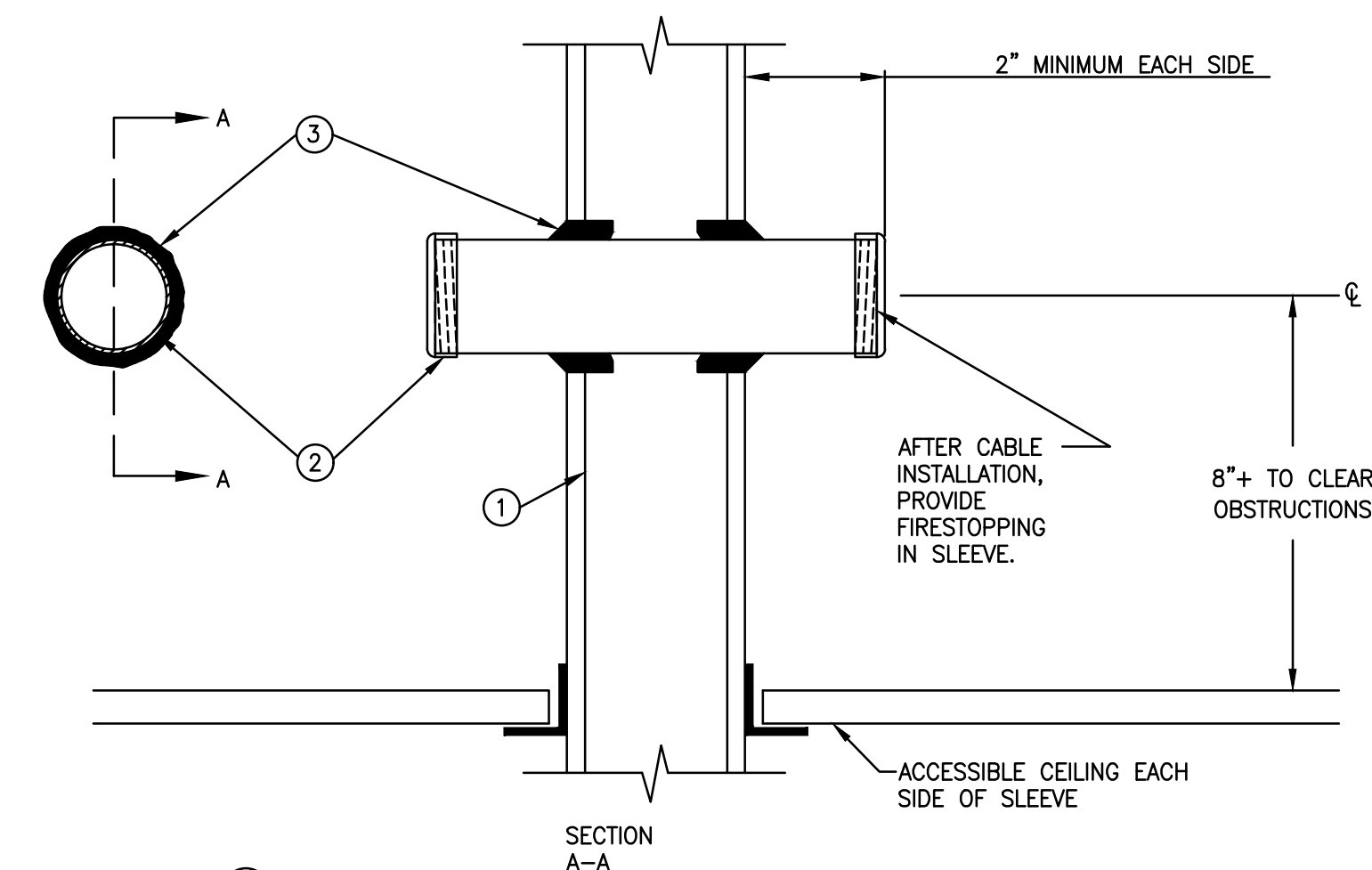
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE U.L. REQUIREMENTS FOR ALL FIRE RATED WALLS AND CEILING PENETRATIONS. ALL REQUIREMENTS FOR SEPARATION BETWEEN PENETRATIONS, AGGREGATE AREA OF PENETRATIONS AND CLEARANCES SHALL BE MAINTAINED.

- WHERE DEVICE BOXES ARE INSTALLED AND CANNOT MEET THE U.L. REQUIREMENTS FOR THE FIRE RATED ASSEMBLY, THE DEVICE BOX SHALL BE PROVIDED WITH A U.L. CLASSIFIED (U.L. CATEGORY CLV) RED MOLDABLE PUTTY PADS APPLIED TO THE BACK OF BOTH DEVICE BOXES TO MAINTAIN THE RATING OF THE ASSEMBLY.

- 3M™ FIRE BARRIER MOLDABLE PUTTY PADS MPP+ OR EQUAL.

DEVICE BOXES INSTALLED IN FIRE RATED WALLS - DETAIL

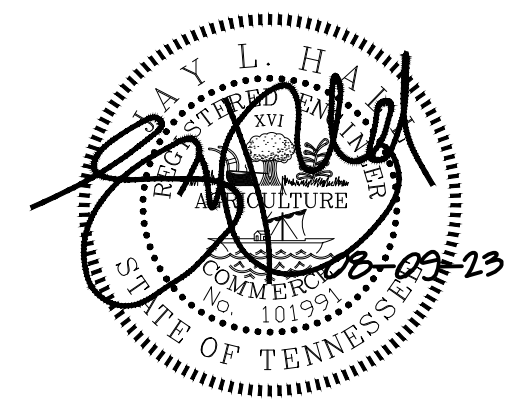
NO SCALE



- NOTES:**
1. WALL ASSEMBLY PER ARCHITECTURAL PLANS (FIRE/SMOKE RATED OR UNRATED): WOOD OR STEEL STUDS, GYPSUM BOARD, CONCRETE, OR CONCRETE MASONRY.
 2. CONDUIT SLEEVE SIZE AS DESIGNATED ON DRAWINGS. MAXIMUM 6" RGS OR 4" EMT, NON-METALLIC CONDUIT SLEEVE SHALL NOT BE ACCEPTABLE. CONDUIT SLEEVE SHALL HAVE INSULATED THROAT WITH THREADED BUSHINGS EACH END. LINE UP CONDUIT SLEEVE WITH BRIDLE RINGS, J-HOOKS OR CABLE TRAY WHERE APPLICABLE.
 3. FIRESTOPPING FILL, VOID OR CAVITY MATERIALS TO ANCHOR SLEEVE AND RESTORE RATING OF WALL PER STATE AND LOCAL CODES AND AUTHORITY HAVING JURISDICTION. HILTI FIRESTOPPING ACRYLIC SEALANT UL CERTIFICATE NUMBER 20160930-R13240.
 4. MANUFACTURER'S = 3M, HILTI, SPECIFIED TECH. INC., OR EQUAL.

DETAIL - CONDUIT SLEEVE DETAIL

NO SCALE



DW COLLIER ENGINEERING, INC. 700 BROADWAY STREET SUITE 100 SOUTH OAKA, TN 38375 PH: (731) 924-2116 WWW.COLLIERENG.COM

DWCEI PROJECT NO. 23-081

JIMMY NEIL ANDERSON ARCHITECT

1 ANDERSON TRAIL CLIFTON, TN 38425 (731) 394-5565 JIMA6565@HOTMAIL.COM

THIS DRAWING AND THE DESIGN SHOWN IS THE PROPERTY OF THE ARCHITECT. THE REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE ARCHITECT'S WRITTEN CONSENT IS PROHIBITED AND ANY INFRINGEMENT IS SUBJECT TO LEGAL ACTION.

REVISED	
1	7/24/23 TSFMO COMMENTS
2	8/9/23 TSFMO COMMENTS

Wayne County Board of Education
FHS-CTE
Frank Hughes School- Clifton, TN

E5.0

THESE PLANS AND SPECIFICATIONS ARE REQUIRED TO BE KEPT ON THE JOB SITE UNTIL A FINAL CERTIFICATE OF OCCUPANCY OR PROJECT COMPLETION FORM IS ISSUED BY THIS OFFICE.

No alterations, deletions, additions or modifications of any kind are allowed to this approved set without the written permission of this office.

TENNESSEE STATE FIRE MARSHAL'S OFFICE

TFM: 03387-C PN: 2023-07-03-01 Field Set