

Addendum #4

East Lake Community Center Renovations

CONTRACT NO. Y-17-005

Bid schedule per this Addendum

Pre-Bid Meeting January 9th, 2020 at 10:00am

Last Day for Questions January 17th, 2020

Bid Opening January 21st, 2020 at 2:00 pm

Attachments

- Geotechnical report, environmental assessment, and wall scanning reports
- Prebid meeting agenda and sign-in sheet
- Construction drawings for the existing gym
- Request for Substitution for Translucent Wall and Roof Assemblies- This substitution has been accepted by the Owner and Architect.
- The following drawings:

Architectural

Sheet T1.1 (Revision 1 dated 01-10-2020)

- Updated Index of Drawings to reflect drawings issued with this Addendum.

Sheet T1.2 (Revision 1 dated 01-10-2020)

- Partition Legend: updated.
- Thermal Energy Synopsis: updated.

Sheet A1.0 – Not Required – Removed from Index of Drawings

Sheet A1.1 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A1.1F (Revision 1 dated 01-10-2020)

- Room Finish Schedule: modified room names and paint colors.
- Finish Legend: Modified AWP and RB requirements.
- 1st Floor Finish Plan 1: updated Floor Finish Legend.

Sheet A1.2 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A2.1 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A3.1 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A3.2 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A3.3 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A3.4 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A4.1 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A4.2 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A5.1 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A5.2 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A5.5 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A6.1 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A6.2 (Revision 1 dated 01-10-2020)

- Gym 102 Looking West 1: modified to indicate finishes and acoustical wall panels.
- Gym 102 Looking North 4: modified to note locations for protective pads.
- Corridor Elevations 5 & 6: Modified to note storefront window types.

Sheet A6.3 (Revision 1 dated 01-10-2020)

- Multi-Purpose Rooms Looking North 1: clarified tall doors for movable partition storage closet.
- Multi-Purpose Rooms looking South 2: Noted overhead coiling door.
- Multi-purpose Rooms Looking West 3: added clarification notes.
- Multi-Purpose Rooms Looking East 4: indicated portable partition.

Sheet A7.1 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Sheet A7.2 (Revision 1 dated 01-10-2020)

- Sections 4 & 5: Updated.
- Partition Support Detail: added as part of this addendum.

Sheet A8.2 (Revision 1 dated 01-10-2020)

- Entire sheet reissued as part of this Addendum.

Structural

Sheet S1.1 (Revision 1 dated 01-09-2020)

- Mechanical revisions to the RTU units in both the corridor and existing building caused the framing to be readjusted in the corridor and the existing joists to be reinforced for the new imposed loads.

Sheet S2.1 (Revision 1 dated 01-09-2020)

- This sheet was left out of the initial set and is being added in its entirety.

Electrical

Sheet E0.01 Symbols and General Notes (Revision 1 dated 01-09-2020)

- Added symbols for Occupancy Sensor Light Switch, Emergency Lighting Power inverter, and modified Paging and AV symbols extensively for clarification with design modifications.

Sheet E0.2 Electrical Site Plan (Revision 1 dated 01-09-2020)

- Sheet was omitted from original submittal and is added in its entirety.

Sheet E2.0 Lighting Plan (Revision 1 dated 01-09-2020)

- Sheet is extensively modified with the addition of circuitry and panel designations and is replaced in its entirety.

Sheet E2.1 Lighting Controls:

- Sheet was omitted from original submittal and is added in its entirety.

Sheet E3.0 Power Plan Floor:

- Sheet is re-issued in its entirety due to being extensively modified from original submittal with the addition of circuitry, panel designations and data outlets.

Sheet E3.1 Power Plan Roof:

- Sheet is re-issued in its entirety due to being extensively modified from original submittal. It is shown on a roof plan and incorporates modifications to mechanical equipment sizes, loads and locations.

Sheet E3.2 Single Line Diagram:

- Sheet is modified to reflect modifications to mechanical equipment load sizes and to reflect receptacle panel load changes.

Sheet E3.3 Panel Schedules:

- Sheet is re-issued in its entirety due to being extensively modified to reflect circuit and load identification for lighting and receptacle panels as well as to reflect mechanical load changes and overall load calculations.

Sheet E5.0 Auxiliary Plan:

- Clarified Symbols for two equipment racks, added symbols for AV input equipment devices. Modified speaker layout in Teen Lounge.

Sheet E5.1 Sound Diagrams:

- Sheet was omitted from original submittal and is added in its entirety.

Sheet E5.2 Sound Rack Details:

- Sheet was omitted from original submittal and is added in its entirety.

Clarifications to existing specifications

Section 024100 Demolition

- Para. 3.01.E: change sentence to:
“E. Remove the following existing items and return to the Owner: Exterior flood lights; interior LED bulbs in old fluorescent fixtures; interior gym lighting fixtures; basketball backboards and supports; scoreboard; exterior bike rack”

Questions Received via Email

1. Will contractor be responsible for payment of tap fees?
 - a. Yes, Contractors should include this cost in their bid.
2. No notations appear on details for sheets A5.1 and A5.2.
 - a. See updated sheets attached.
3. Notes on Sheet S1.1 reference details on S2.2. Sheet S2.2 is not included in the set.
 - a. S1.1 now correctly refers to S2.1. See Sheets attached.

SEE NEXT PAGE

4. Electrical Contractors note the following items missing from document: E3.3- panel board schedule, E2.0- light fixture schedule, E4.0- fire alarm panel location, E3.0- circuitry for receptacles
 - a. E3.3 has been updated with panel schedule, light fixture schedule can be found on E2.1 on the updated sheets, E3.0 has been updated been updated to include FACP location and circuitry for receptacles.
5. Request for Substitution- Solutions in Polycarbonate, LLC submitted their WindowTherm product to be added to the list of accepted manufacturers in Para. 2.01 of Section 084500
 - a. This substitution has been accepted by the Architect, request for substitution is attached

End of Addendum #4



Geotechnical Engineering Report

**East Lake YFD Center
Chattanooga, Tennessee**

July 23, 2019

Terracon Project No. E2195045

Prepared for:

City of Chattanooga
Chattanooga, Tennessee

Prepared by:

Terracon Consultants, Inc.
Chattanooga, Tennessee



July 23, 2019

City of Chattanooga
1250 Market Street
Chattanooga, Tennessee 37402



Attn: Mr. Clay Oliver
P: 423-643-6161
E: moliver@chattanooga.gov

Re: Geotechnical Engineering Report
East Lake YFD Center
3601 Dodds Avenue
Chattanooga, Tennessee
Terracon Project No. E2195045

Dear Mr. Oliver:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Project No. E2195045 dated April 26, 2019 and authorized on June 11, 2019. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, and pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

A handwritten signature in blue ink that reads "RAM" with a horizontal line underneath.

Ramnath M. Ganesh, EIT
Geotechnical Field Engineer

A handwritten signature in black ink that reads "Sarah Schuster" with "for:" written below it.
S. Taylor Taluskie, PE
Geotechnical Department Manager

M. Frank Whitman, PE
Senior Engineer

REPORT TOPICS

INTRODUCTION.....	1
SITE CONDITIONS.....	1
PROJECT DESCRIPTION.....	2
GEOTECHNICAL CHARACTERIZATION.....	3
GEOTECHNICAL OVERVIEW	5
EARTHWORK	7
SHALLOW FOUNDATIONS.....	12
SEISMIC CONSIDERATIONS	15
FLOOR SLABS	16
PAVEMENTS.....	17
GENERAL COMMENTS.....	20
FIGURES	22

Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the **GeoReport** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION AND EXPLORATION PLANS
EXPLORATION RESULTS
SUPPORTING INFORMATION

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report

East Lake YFD Center

3601 Dodds Avenue

Chattanooga, Tennessee

Terracon Project No. E2195045

July 23, 2019

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed East Lake YFD Center to be located after demolishing an existing facility at 3601 Dodds Avenue in Chattanooga, Tennessee. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Pavement design and construction
- Foundation design and construction
- Floor slab design and construction
- Seismic site classification

The geotechnical engineering Scope of Services for this project included the advancement of 9 test borings to depths ranging from approximately 7.5 to 13 feet below existing site grades.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs in the **Exploration Results** section.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located at 3601 Dodds Avenue in Chattanooga, Tennessee. Approximate Latitude/Longitude: 34.9995°N, -85.2830°E (See Site Location)

Item	Description
Existing Improvements	A part of an existing structure of the East Lake Youth and Family Development (YFD) Center is located at the project site. This structure is connected to a basketball gymnasium on its northern end and is flanked by a trailer parked on the driveway to the west and a yard to the east. To the south and southeast, a parking lot with asphalt paving connects the structure to the adjacent E 37 th Street. Baseball fields and open basketball courts are located to the north and west of the project site.
Current Ground Cover	Asphalt paved driveway and a grass yard.
Existing Topography	Based on topographic information from Google Earth Pro, the site is relatively level at an approximate elevation of 685 ft MSL. Minor grade changes to the order of 1-2 ft MSL can be observed east-west along the pavement.
Geology	<p>The project site is located within the Valley and Ridge Physiographic Province, which is comprised of sedimentary sequences that were deposited during the Paleozoic Era. Based on the available geologic information, the site could be underlain by the Ordovician-aged Upper Chickamauga formation which predominantly comprises carbonate-based rocks such as limestone which may include shale strata and chert inclusions.</p> <p>The project site is underlain by a carbonate-based formation that could be susceptible to dissolution along joints and bedding planes, commonly called as karst solutioning. This results in voids and solution channels within the rock strata and a highly irregular bedrock surface. Although we did not encounter any sinkholes or overburden collapse while drilling, any construction in areas underlain by karst topography is subject to risk of future internal soil erosion and ground subsidence that could lead to a decreased structural stability.</p>

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Information Provided	Project information was conveyed via an on-site meeting with Clay Oliver, from the City of Chattanooga, on April 23, 2019. A subsurface exploration plan from Artech was provided during the site meeting.

Item	Description
Project Description	The project involves the demolition of a portion of the existing YFD Center to enlarge the adjoining basketball gymnasium toward the south. The proposed structure will be located on the same footprint as the portion to be demolished on a new foundation.
Proposed Structure	The proposed building is a single-storied slab-on-grade rectangular structure with an area of approximately 3,850 sq. ft. and will be connected to the existing basketball gymnasium.
Building Construction	Steel reinforced concrete
Finished Floor Elevation	Based on a phone conversation with Mark Wynnemer and Brian Locke from Artech, the site will be graded to achieve a finished floor elevation (FFE) matching the existing basketball gymnasium. Based on Google Earth Pro, the ground level adjacent to the basketball gymnasium is at approximate elevation 685 ft MSL.
Maximum Loads	<p>The loading conditions were not provided during the time of this report. The following maximum loads are assumed for the building structure,</p> <ul style="list-style-type: none"> ■ Columns: 100 kips ■ Walls: 3 kips per linear foot (klf) ■ Slabs: 150 pounds per square foot (psf)
Grading/Slopes	A site grading plan was not provided during the time of this report. Terracon anticipates cuts and fill to a maximum of 2 ft. except where the basement area will require backfilling.
Below-Grade Structures	A portion of the existing structure has a basement level which needs to be demolished. No structures below final grade are planned for the proposed building.
Pavements	<p>We are considering the following anticipated traffic loading for our pavement design. We respectfully request the opportunity to review the planned traffic loading before construction.</p> <ul style="list-style-type: none"> ■ Autos/light trucks: 250 vehicles per week ■ Light delivery vehicles: 18 per week ■ Trash collection vehicles: 2 per week ■ Tractor-trailer trucks: 1 vehicle per week <p>The pavement design period is 20 years.</p>

GEOTECHNICAL CHARACTERIZATION

Subsurface Profile

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting, and our understanding of

the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation, foundation, floor slab, and pavement options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** section and the GeoModel can be found in the **Figures** section of this report.

GeoModel Layer	Description
Surface	Topsoil (approx. 6") or Pavement structure (approx. 2" asphalt, 3" aggregate)
Undocumented Fill	Well graded sand or sandy lean clay with foundry sand.
Native Cohesive Soils	Fat and lean clays with variable sand and gravel. Typically soft or medium stiff in consistency.

Foundry sand was encountered during field testing. In our experience, foundry sand is potentially contaminated with heavy metals or other contaminants. If these soils will be disturbed during construction, we recommend that analytical testing be performed on samples of foundry sand and a plan developed to manage the potentially contaminated soil per City of Chattanooga regulations. We respectfully request the opportunity to perform this additional work.

Groundwater conditions

Groundwater was not observed in the borings while drilling and sampling or for the short duration that the borings were allowed to remain open. However, this does not necessarily mean these borings terminated above groundwater, or that the water levels that may be encountered in the past or in future are stable groundwater levels. Due to the low permeability of the soils encountered in the borings, a relatively long period of time may be necessary for the groundwater level to develop and stabilize in a borehole in these materials. Long term observations in piezometers or observation wells sealed from the influence of surface water are often required to define the field groundwater level in materials of this type.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

GEOTECHNICAL OVERVIEW

Field exploration was performed in 9 locations on the site: 5 in the proposed building footprint, B-1 to B-5, and 4 in the proposed parking lot/driveways, P-1 to P-4. Excavations were performed in 4 locations on the site – E-1 to E-4 (distinct from the boring locations) to identify the depth of footings in the existing building. The following table describes the excavation observations and the photographs of test pits are included in the **Attachments** section.

Excavation	Bottom of Footing Measured from Ground Surface (ft)
E-1	3
E-2	3
E-3	3
E-4	3

The proposed building is to be constructed after the demolition of the existing building and the pavement structure. The recommendations made in this report only relate to the geotechnical framework for the new building and pavements.

As noted in our **Exploration Results** and **GeoModel**, the borings typically encountered typically soft or medium stiff fat and lean clay soils with varying sand and gravel contents. Auger refusal was encountered at 12 ft in borings B-1, B-3, and B-5 and at 13 ft in borings B-2 and B-4. All 4 pavement borings were terminated at 7.5 ft without encountering auger refusal. The on-site soils may be susceptible to shrink/swell behavior due to moisture events and cannot perform as adequate subgrade for the proposed foundations, floor slabs, and pavements. Additional site preparation recommendations, including subgrade improvement and fill placement, are provided in the **Earthwork** section.

Undocumented fill was encountered in the upper strata in the borings B-4 and P-3 with foundry sand and P-4 with brick contents in the soil. Particularly, the existence of foundry sand was observed to a depth of 7.5 ft in the boring P-3. Terracon did not observe any evidence to indicate that fill was placed with engineering controls in a controlled manner. Consequently, they pose an elevated risk of settlement in response to foundation loading. Hence, these soils cannot be recommended as suitable bearing medium for the footings or as pavement subgrade. Mitigation efforts should include the complete excavation/removal of all foundry sand soils and must be managed as per City of Chattanooga regulations. This undocumented fill can also be stored separately to be used as backfill only for the basement area after moisture conditioning and compaction.

Owing to the presence of fat clay soils, Terracon recommends an undercut of 30 inches below foundation bearing level in footing areas and 30 inches below soil subgrade beneath proposed floor slabs. Undercut should extend at least 5 ft horizontally beyond the building perimeter. The exposed soils should be subjected to proofrolling with a loaded tandem axle dump truck. Areas of excessive rutting and deflection should be undercut to stiff soil and backfilled as indicated in the **Earthwork** section. After remediation, fill required to reach design subgrade may be placed and compacted. Fill soils should meet the criteria presented in the **Earthwork** section.

The proposed building footings shall bear on at least stiff, low plasticity cohesive engineered fill at least 18 inches below final grade.

In the pavement area, an undercut of at least 15 inches should be excavated and proofrolled. Areas of excessive rutting and/or deflection should be undercut to stiff material and backfilled with low plasticity cohesive engineered fill. Afterwards, the undercut area should be backfilled with at least 8 inches of low plasticity cohesive engineered fill. If proofrolling indicates instability, a woven geotextile may be placed prior to installing granular engineered fill at least 6 inches thick above the low plasticity cohesive engineered fill.

Terracon recommends demolition of all below grade portions in the existing building. Since the existing basement will be demolished, if the basement slab is left in place Terracon recommends breaking the concrete sufficiently to allow water infiltration into the underlying soil. The demolished/excavated basement area may be backfilled with soils from the stockpile of undocumented fill excavated from other areas of the site. Proper moisture conditioning and density compaction of the fill should be followed during fill placement and the fill should be at least 3 ft below the foundation bearing elevation. If possible, the site grading plan should consider the need to incorporate foundry sand in a manner that is environmentally acceptable. Additional site preparation recommendations, excavation and fill recommendations are noted in the **Earthwork** section.

High plasticity soils, some of which may have an elevated potential for swelling, are present on this site. Swell pressures recorded during preparation of thin-wall tubes for consolidation testing, indicated low to moderate swell potential. This report provides recommendations intended to help mitigate the effects of soil shrinkage and expansion. However, even if these procedures are followed, some movement and minor cracking in structures and pavements should be anticipated. Eliminating the risk of movement and distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. Some of these options are discussed in this report such as complete replacement of expansive soils or a structural slab.

Owing to the presence of clayey soils at the site, the effective drainage should be completed early in the construction sequence and maintained after construction to avoid potential issues. If possible, the grading should be performed during the warmer and drier times of the year. If grading

is performed during the winter months, an increased risk for possible undercutting and replacement of unstable subgrade may occur and can persist.

Support of footings, floor slabs, and pavements, on or above existing fill soils, is discussed in this report. However, even with the recommended construction procedures, there is inherent risk for the owner that compressible fill or unsuitable material, within or buried by the fill will, not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill but can be reduced by following the recommendations contained in this report. To take advantage of the cost benefit of not removing the entire amount of undocumented fill, the owner must be willing to accept the risk associated with building over the undocumented fills following the recommended reworking of the material. Should this be the case, development can be supported on a shallow foundation system.

The **Shallow Foundations** section addresses support of the building bearing on engineered fill. The **Floor Slabs** section addresses slab-on-grade support of the building.

A flexible pavement system is recommended for the driveway/parking lot areas. The **Pavements** section addresses the design of pavement systems.

The **General Comments** section provides an understanding of the report limitations.

EARTHWORK

Following demolition of the existing building and removal of asphalt pavement, earthwork is anticipated to include identification and undercutting of soils unsuitable for support of foundations, floor slabs, and pavements. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundations, floor slabs, and pavements.

Site Preparation

Following demolition of the existing building and pavements, and prior to placing fill, existing vegetation and root mat should be removed, as should existing pavements and debris associated with the building including foundation elements, subsurface walls, septic tanks, piping, and other structures. Basement walls should be removed, but the floor slab may be left in place provided it is broken to allow vertical migration of water. A non-woven geotextile should be used to line the basement excavation to limit migration of soil which may be suspended in water.

Based on the results of drilling, near-surface soils are expected to be unstable, requiring undercutting to a depth of at least 30 inches below proposed foundation bearing level, 30 inches below design floor slab level, and at least 15 inches in areas to be paved. The exposed soils

should be proofrolled with an adequately loaded vehicle such as a fully-loaded tandem-axle dump truck. The proofrolling should be performed under the direction of the Geotechnical Engineer. Areas of rut development or excessive deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Mitigation may include overexcavation, processing to remove excess moisture, backfilling with select fill compacted to the project standards, chemical stabilization, or modification with geotextile reinforcement. If mitigation of wet and otherwise unstable soils is required, our office should be notified so that Terracon can monitor and document that mitigation meets the requirements of the project geotechnical engineer.

Existing Fill

As noted in **Geotechnical Characterization**, borings B-3, P-3, and P-4 encountered existing fill in the depths ranging from about 3.5 to 7.5 feet. The fill appears to have been placed in a controlled manner, but we have no records to indicate the degree of control. Support of footings, floor slabs, and pavements, on or above existing fill soils, is discussed in this report. However, even with the recommended construction procedures, there is inherent risk for the owner that compressible fill or unsuitable material, within or buried by the fill will, not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill but can be reduced by following the recommendations contained in this report.

The site has previously been developed, and there is the potential that construction activities could encounter additional unexpected fill soils or buried materials such as construction/demolition debris, abandoned utility lines, septic tanks and lines, burn pits, or topsoil dumps. Where such buried materials are encountered, they should generally be completely removed and replaced with new, clean, controlled fill.

Fill Material Types

Fill required to achieve design grade should be classified as engineered fill. Earthen materials used for engineered fill should meet the following material property requirements:

Soil Type ¹	USCS Classification	Acceptable Parameters (for Engineered Fill)
Low Plasticity Cohesive	CL, CL-ML	Liquid Limit less than 48 ; Plasticity index less than 30 Greater than 60% passing on No. 200 sieve
Granular	SM, SC	Acceptable if meeting USCS classification
Existing Fill	As noted in the boring logs	As noted in Geotechnical Overview and Fill Compaction Requirements

1. Engineered fill should consist of approved materials free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the Geotechnical Engineer for evaluation prior to use on this site.
2. High clay content soils are extremely sensitive to variations in moisture content and can lose strength rapidly with increases in moisture. It should be noted that the moisture content of the silt must be closely controlled in order to achieve the desired degree of compaction. Drying of soils excavated from deeper cut areas of the site should be anticipated prior to use as engineered fill.

Fill Compaction Requirements

Engineered fill should meet the following compaction requirements.

Item	Engineered Fill
Maximum Lift Thickness	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used
Minimum Compaction Requirements ^{1, 2}	98% of the material's standard Proctor maximum dry density (ASTM D 698), with stability present
Moisture Content Range ¹	Cohesive: Within -1% to +2% percent of optimum moisture content as determined by the standard Proctor test at the time of placement and compaction. Granular: -3% to +3% of optimum

1. Maximum density and optimum water content as determined by the standard Proctor test (ASTM D 698).
2. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D 4253 and D 4254).

Utility Trench Backfill

All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. If utility trenches are backfilled with relatively clean granular material, they should be capped with at least 18 inches of cohesive fill in non-pavement areas to reduce the infiltration and conveyance of surface water through the trench backfill.

For low permeability subgrades, utility trenches are a common source of water infiltration and migration. Utility trenches penetrating beneath the building should be effectively sealed to restrict water intrusion and flow through the trenches, which could migrate below the building. The trench should provide an effective trench plug that extends at least 5 feet from the face of the building exterior. The plug material should consist of cementitious flowable fill or low permeability clay. The trench plug material should be placed to surround the utility line. If used, the clay trench plug material should be placed and compacted to comply with the water content and compaction recommendations for engineered fill stated previously in this report.

All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. Utility trenches are a common source of water infiltration and migration. Granular soils are not recommended for use as backfill at this site due to the presence of the expansive fat clay soils. In order to help limit the potential for shrink/swell related movement in the expansive fat clay, we recommend limiting the potential avenues for water infiltration into the subgrade. Utility trench backfill should consist of engineered fill as described in **Fill Material Types**.

Grading and Drainage

All grades must provide effective drainage away from the building during and after construction and should be maintained throughout the life of the structure. Water retained next to the building can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks. The roof should have gutters/drains with downspouts that discharge onto splash blocks at a distance of at least 10 feet from the building.

Exposed ground should be sloped and maintained at a minimum 5% away from the building for at least 10 feet beyond the perimeter of the building. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structure's maintenance program. Where paving or flatwork abuts the structure, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

Earthwork Construction Considerations

The near-surface soils are sensitive to increases in moisture content and have a tendency to lose strength and stability as the moisture content increases or as a result of construction traffic. We suggest earthwork construction take place during generally dryer months of the year. Wet season earthwork has an increased risk that may require additional mitigation measures beyond that which would be expected during the drier summer and fall months.

Shallow excavations for the proposed structure are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of foundations, floor slabs, and pavements. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompact prior to floor slab construction.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, and/or state regulations.

Any excavations adjacent to existing foundations should extend vertically to the bottom of the existing grade beam/footing. Below that depth, the excavation should be sloped no steeper than two vertical to one horizontal (2V:1H). Excavation and backfill along existing foundations should be performed in sections that allow for excavation and backfill full depth of the section to the bottom of the adjacent foundation within a working day. We recommend excavation sections adjacent to existing foundations not extend greater than 50 linear feet along the existing structure. Excavations adjacent to existing foundations should not be allowed to remain open overnight.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Trees or other vegetation whose root systems can remove excessive moisture from the subgrade and foundation soils should not be planted next to critical structures. Trees and shrubbery should be kept away from the exterior edges of the foundation element a distance at least equal to 1.5 times their expected mature height.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of vegetation and topsoil, proofrolling, and mitigation of areas delineated by the proofroll to require mitigation.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of

compacted fill in the building areas and 5,000 square feet in pavement areas. One density and water content test should be performed for every 50 linear feet of compacted utility trench backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. If unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer’s evaluation of subsurface conditions, including assessing variations and associated design changes.

SHALLOW FOUNDATIONS

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Design Parameters – Compressive Loads

Item	Description
Maximum Net Allowable Bearing pressure ^{1, 2}	2,000 psf
Required Bearing Stratum ³	At least stiff low plasticity cohesive new engineered fill Bearing stratum should be verified by Terracon.
Minimum Foundation Dimensions	Columns: 24 inches Continuous: 18 inches
Ultimate Passive Resistance ⁴ (equivalent fluid pressures)	250 pcf
Ultimate Coefficient of Sliding Friction ⁵	0.32
Minimum Embedment below Finished Grade ⁶	24 inches

Item	Description
1.	The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied. Values assume that exterior grades are no steeper than 20% within 10 feet of structure.
2.	Values provided are for maximum loads noted in Project Description .
3.	Unsuitable or soft soils should be over-excavated and replaced per the recommendations presented in the Earthwork .
4.	Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted engineered fill be placed against the vertical footing face.
5.	Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions.
6.	Embedment necessary to minimize the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.

Construction Adjacent to Existing Building

Differential settlement between the additions and the existing building is expected to approach the magnitude of the total settlement of the addition. Expansion joints should be provided between the existing building and the proposed addition to accommodate differential movements between the two structures. Underground piping between the two structures should be designed with flexible couplings and utility knockouts in foundation walls should be oversized, so minor deflections in alignment do not result in breakage or distress. Care should be taken during excavation adjacent to existing foundations, to avoid disturbing existing foundation bearing soils.

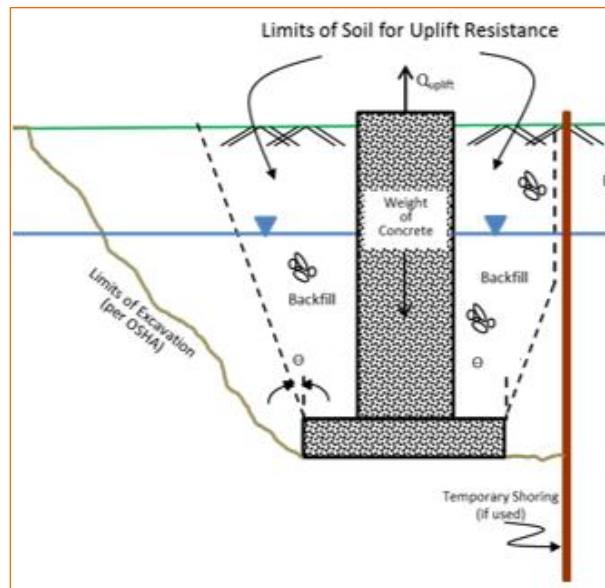
New footings should bear at or near the bearing elevation of immediately adjacent existing foundations. Depending upon their locations and current loads on the existing footings, footings for the new addition could cause settlement of adjacent walls. To reduce this concern and risk, clear distances at least equal to the new footing widths should be maintained between the addition's footings and footings supporting the existing building.

We understand existing foundations may support additional load from the walls of the new additions. Based on our understanding of the **Project Description**, the additional loads should be limited to about 3 klf. It is possible additional loads on the existing foundations could cause other building settlements to occur. The structural capacity of existing foundations should be evaluated by a licensed structural engineer, where increases in loading are planned.

Design Parameters - Uplift Loads

Uplift resistance of spread footings can be developed from the effective weight of the footing and the overlying soils. As illustrated on the subsequent figure, the effective weight of the soil prism defined by diagonal planes extending up from the top of the perimeter of the foundation to the ground surface at an angle, θ , of 20 degrees from the vertical can be included in uplift resistance. The maximum allowable uplift capacity should be taken as a sum of the effective weight of soil

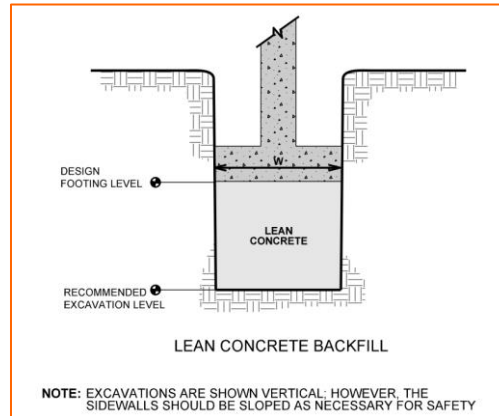
plus the dead weight of the foundation, divided by an appropriate factor of safety. A maximum total unit weight of 100 pcf should be used for the backfill. This unit weight should be reduced to 40 pcf for portions of the backfill or natural soils below the groundwater elevation.



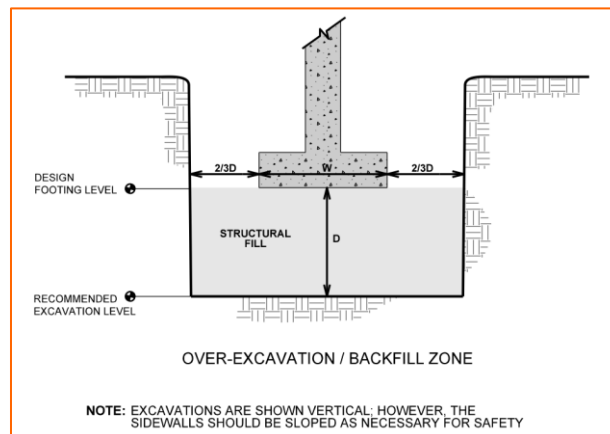
Foundation Construction Considerations

As noted in **Earthwork**, the footing excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

If unsuitable bearing soils are encountered at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. This is illustrated on the sketch below.



Over-excavation for engineered fill placement below footings should be conducted as shown below. The over-excavation should be backfilled up to the footing base elevation, with engineered fill placed, as recommended in the **Earthwork** section.



SEISMIC CONSIDERATIONS

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the soil properties encountered at the site and as described on the exploration logs and results, it is our professional opinion that the **Seismic Site Classification is D**. Subsurface explorations at this site were extended to a maximum depth of 13 feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.

FLOOR SLABS

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations. Specific attention should be given to positive drainage away from the structure and positive drainage of the aggregate base beneath the floor slab.

Floor Slab Design Parameters

Item	Description
Floor Slab Support	Minimum 6 inches of free-draining (less than 5% passing the U.S. No. 200 sieve) crushed aggregate compacted to at least 98% of ASTM D 698 ^{1, 2} At least 30 inches low plasticity cohesive soils with at least 60% passing the U.S. No. 200 sieve material should be present below floor slabs where fat clay soils are present
Estimated Modulus of Subgrade Reaction ¹	100 pounds per square inch per inch (psi/in) for point loads

1. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in **Earthwork**, and the floor slab support as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.
2. Free-draining granular material should have less than 5% fines (material passing the No. 200 sieve). Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.

Floor Slab Construction Considerations

Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged or desiccated prior to construction of floor slabs, the affected material should be removed, and engineered fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should approve the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

PAVEMENTS

General Pavement Comments

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

Support characteristics of subgrade for pavement design do not account for shrink/swell movements of an expansive clay subgrade, such as soils encountered on this project. Thus, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to shrink/swell related movement of the subgrade.

Pavement Subgrade Preparation

Flexible (asphalt concrete) pavements are suggested for the parking lot area. Subgrade preparation shall involve 15 inches of existing soil undercut backfilling with compacted engineered fill placement as noted in the **Geotechnical Overview and Earthwork** sections. The bottom of the undercut should be proofrolled to indicate soft areas which can be undercut and backfilled with cohesive engineered fill. After proofroll test, 8 inches of cohesive engineered fill should be placed over the undercut. A woven geotextile can be placed on the backfill surface if proofrolling indicates soft or unstable regions prior to placing at least 6 inches thick granular engineered fill over the cohesive engineered fill. Crushed chert or dense-graded limestone shall be placed as the pavement base layer followed by the two asphalt layers.

The aggregate base layer shall be compacted to 100 percent of its maximum dry density as determined by ASTM D-698, Standard Proctor Test. The compaction of the coarse aggregates in

the base layer onto the geotextile will lead to the reduction in movement of the underlying cohesive subgrade with changes in moisture. The pavement layers are provided in the **Pavement Section Thicknesses** section.

Pavement Design Parameters

Design of Asphaltic Concrete (AC) pavements are based on the procedures outlined in the National Asphalt Pavement Association (NAPA) Information Series 109 (IS-109). Design of Portland Cement Concrete (PCC) pavements are based upon American Concrete Institute (ACI) 330; Guide for Design and Construction of Concrete Parking Lots.

A subgrade CBR of 3 was used for the AC pavement designs, and a modulus of subgrade reaction of 100 pci was used for the PCC pavement designs. The values were empirically derived based upon our experience with the similar subgrade soils and our understanding of the quality of the subgrade as prescribed by the **Site Preparation** conditions as outlined in **Earthwork**. Traffic loading was assumed to generate the pavement thickness recommendations and is outlined below.

Assumed Traffic Loading for Asphaltic Concrete (AC) Pavements		
Vehicle Types	Maximum vehicles per week (one lane)	Design ESALs (approx.)
Autos, pickup trucks, light trucks in parking lot	250	800
Package delivery trucks, school bus, garbage or dumpster trucks in parking lot	20	15,000
Semi-tractor trailer trucks, more than 3-axle trucks in parking lot	1	2,000

Pavement Section Thicknesses

The following table provides options for AC Sections:

Asphaltic Concrete (AC) Design¹	
Layer	Minimum Thickness (inches)
AC Surface	1.5
Asphalt Base	2.0
Aggregate Base	6.0

1. All materials should meet the current Tennessee Department of Transportation (TDOT) Standard Specifications for Highway and Bridge Construction.
 - Asphaltic Surface - TDOT 411 Grading D Surface, PG 76-22. This mix should be Polymer Modified. See Section 411, 407 and 903.11 for the Asphaltic Concrete Surface (HMA) and Aggregate for Asphaltic Concrete Surface Courses (Hot Mix) specifications respectively.
 - Plant Mix Base/Leveling – TDOT 307 Grading BM2 PG 67-22. See Section 411, 407 and 903.06 for the Aggregate and Plant Mix Base and Leveling Courses (Hot Mix) specifications.

Openings in pavements, such as decorative landscaped areas, are sources for water infiltration into surrounding pavement systems. Water can collect in the islands and migrate into the surrounding subgrade soils thereby degrading support of the pavement. This is especially applicable for islands with raised concrete curbs, irrigated foliage, and low permeability near-surface soils. The civil design for the pavements with these conditions should include features to restrict or collect and discharge excess water from the islands. Examples of features are edge drains connected to the storm water collection system, longitudinal subdrains, or other suitable outlets and impermeable barriers preventing lateral migration of water such as a cutoff wall installed to a depth below the pavement structure.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Preventive maintenance is usually the priority when implementing a pavement maintenance program. Additional engineering observation is

recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install below pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for

Geotechnical Engineering Report

East Lake YFD Center ■ Chattanooga, Tennessee

July 23, 2019 ■ Terracon Project No. E2195045



third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

FIGURES

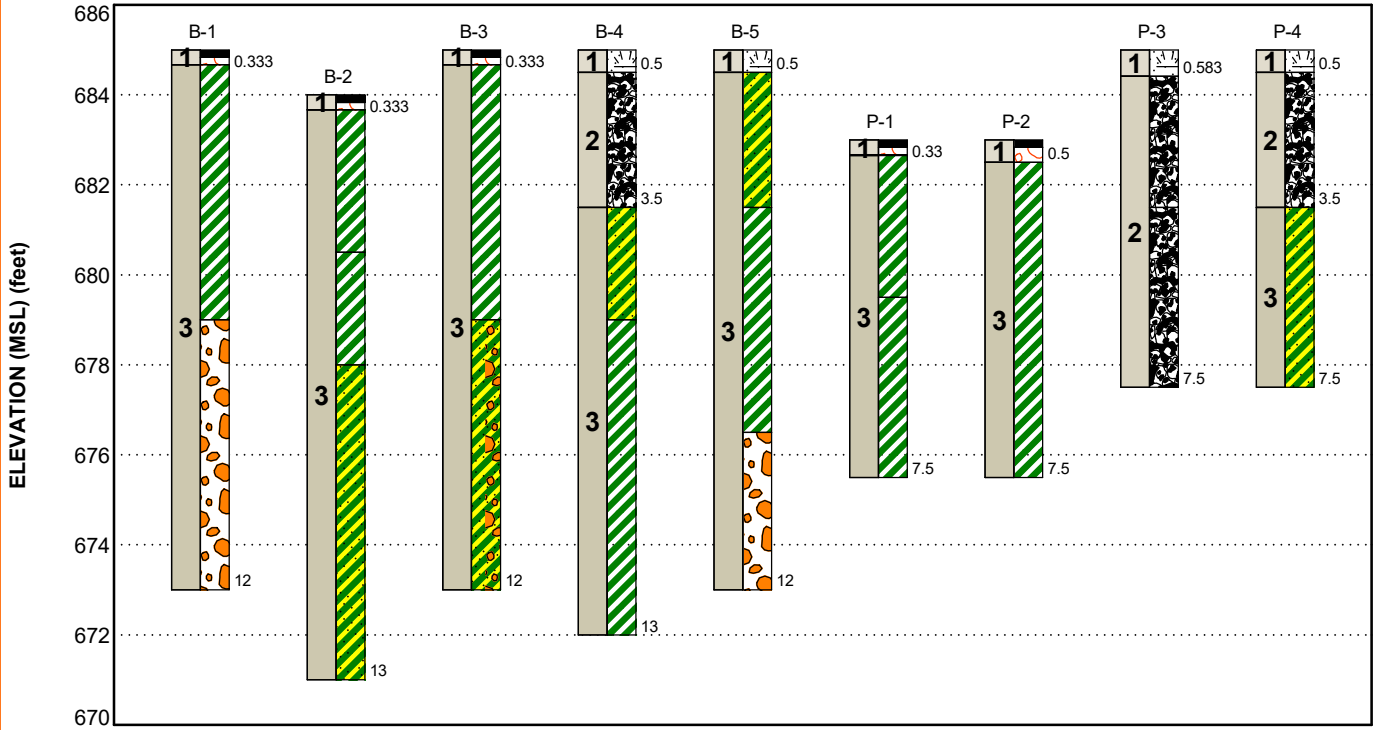
Contents:

GeoModel

Test Pit Photographs

GEOMODEL

East Lake YFD Center ■ Chattanooga, Tennessee
Terracon Project No. E2195045



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Surface	Topsoil (6") or Pavement Structure (2" asphalt, 3" aggregate)
2	Uncontrolled Fill	Well graded sand or sandy lean clay with foundry sand.
3	Native Cohesive Soils	Fat and lean clays with variable sand and gravel. Typically soft or medium stiff in consistency.

LEGEND

- Asphalt
- Aggregate Base Course
- Fat Clay
- Poorly-graded Gravel
- Sandy Fat Clay
- Sandy Fat Clay with Gravel
- Topsoil
- Fill

NOTES:

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Test Pit E-1



Test Pit E-2



Test Pit E-3



Test Pit E-4



ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Number of Borings	Boring Depth (feet)	Planned Location
5	B-1: 12 ft B-2: 13 ft B-3: 12 ft B-4: 13 ft B-5: 12 ft	Proposed Building Area
4	P-1 to P-4: 7.5 ft	Proposed Pavement Area
Number of Test Pits	Boring Depth (feet)	Planned Location
4	E-1 to E-4: 3 ft	Near existing building footings

Boring Layout and Elevations: The subsurface exploration was performed on the boring locations suggested by the client. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ± 10 feet) and approximate elevations were obtained by interpolation from Google Earth Pro. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: We advanced the borings with a truck-mounted rotary drill rig using hollow stem augers. Five samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. A standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. We observed and recorded groundwater levels during drilling and sampling. All borings were backfilled with auger cuttings after their completion. Pavements were patched with cold-mix asphalt, as appropriate.

The sampling depths, SPT N-values penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. The laboratory testing for this project included the following:

- Water content
- Atterberg limits
- Grain size analysis
- Consolidation Test

The laboratory testing program often included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan

Exploration Plan

Note: All attachments are one page unless noted above.

SITE LOCATION

East Lake YFD Center ■ Chattanooga, Tennessee

July 23, 2019 ■ Terracon Project No. E2195045

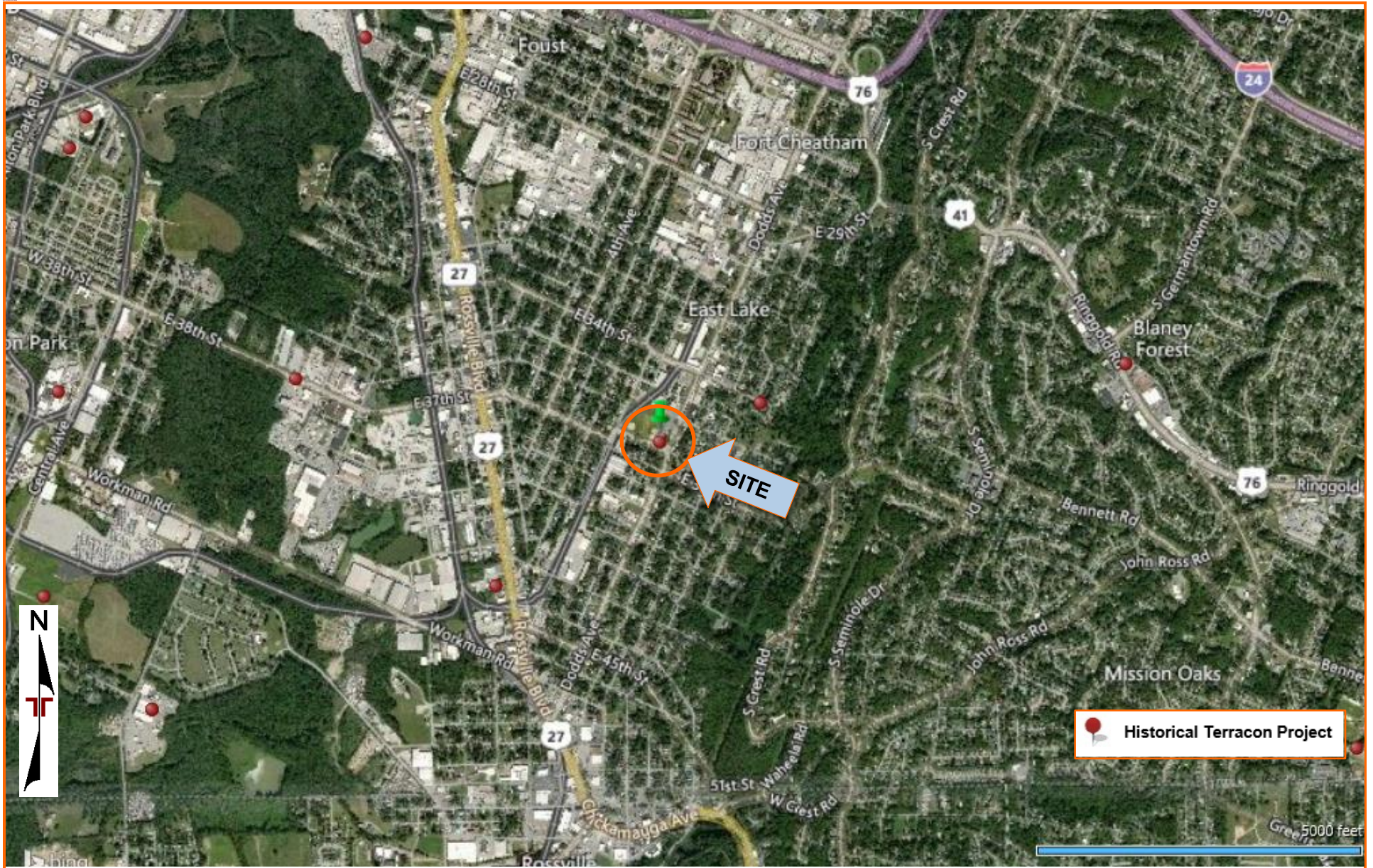


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

East Lake YFD Center ■ Chattanooga, Tennessee

July 23, 2019 ■ Terracon Project No. E2195045

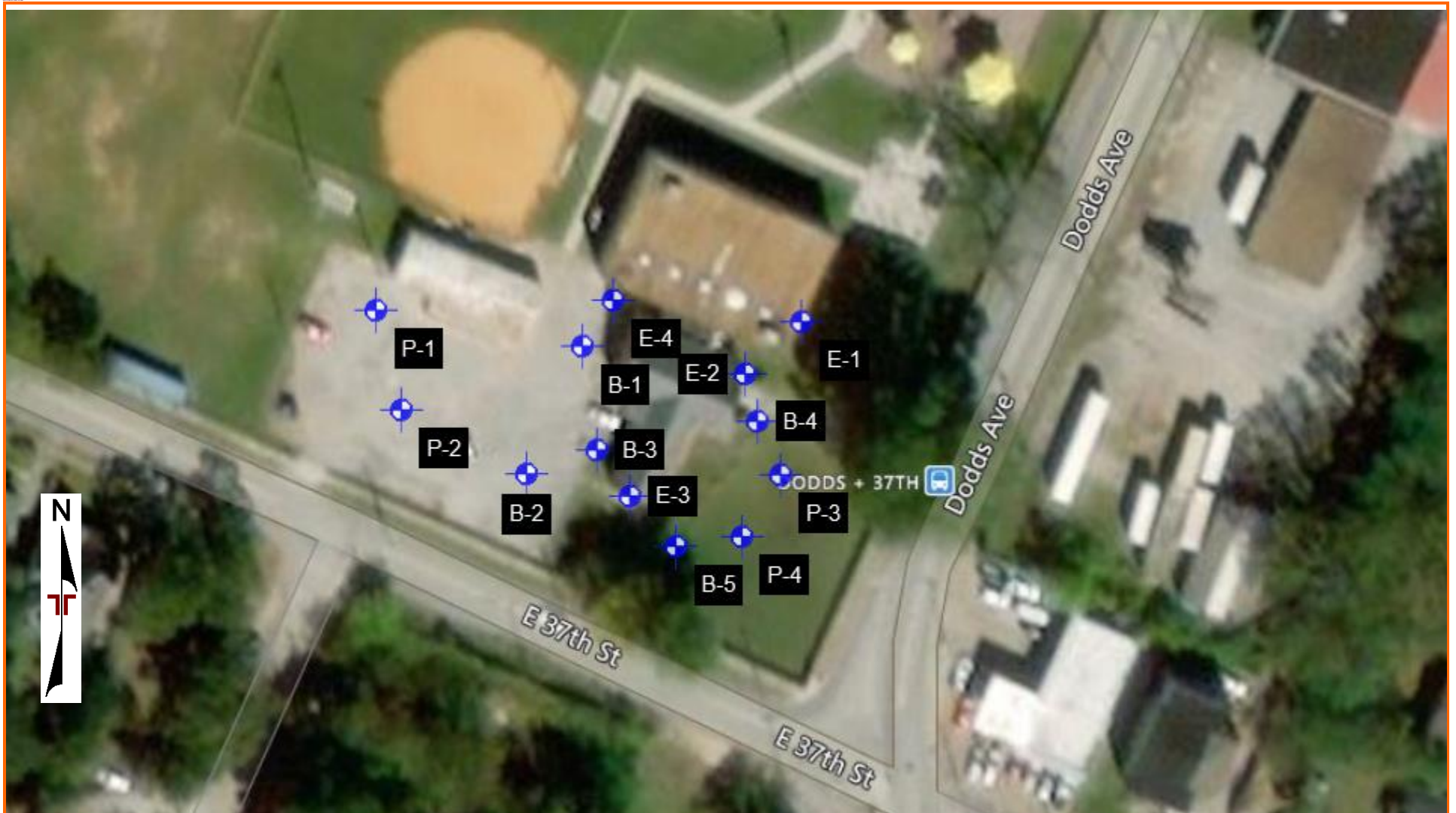


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

East Lake YFD Center ■ Chattanooga, Tennessee

July 23, 2019 ■ Terracon Project No. E2195045



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

Contents:

Boring Logs (B-1 through B-5, P-1 through P-4)

Atterberg Limits

Grain Size Distribution

Consolidation test

Note: All attachments are one page unless noted above.

BORING LOG NO. B-1

PROJECT: East Lake YFD Center

CLIENT: City of Chattanooga TN
Chattanooga, TN

SITE: 3601 Dodds Ave
Chattanooga, Tennessee

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.9996° Longitude: -85.283° Approximate Surface Elev.: 685 (Ft.) +/-	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1	ASPHALT		0.2							
	AGGREGATE BASE COURSE		0.3			2-3-2 N=5		28		
	FAT CLAY (CH)	gray to olive, medium stiff	6.0			2-2-3 N=5		25	74-18-56	95
3	POORLY GRADED GRAVEL (GP)	with shale fragments, with sand and clay, dark gray, dense to very dense	12.0			6-16-30 N=46				
						50/2"				
		Auger Refusal at 12 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Augers

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevations were interpolated from Google Earth Pro

WATER LEVEL OBSERVATIONS

No ground water was observed during drilling



Boring Started: 06-25-2019

Boring Completed: 06-25-2019

Drill Rig: Dietrich D-50 Turbo

Driller: Big Dog Geotech

Project No.: E2195045

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL E2195045 EAST LAKE YFD CEN.GPJ TERRACON_DATATEMPLATE.GDT 7/23/19

BORING LOG NO. B-2

PROJECT: East Lake YFD Center

CLIENT: City of Chattanooga TN
Chattanooga, TN

SITE: 3601 Dodds Ave
Chattanooga, Tennessee

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.9995° Longitude: -85.2831° Approximate Surface Elev.: 684 (Ft.) +/-	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		ELEVATION (Ft.)								
		0.2 ASPHALT 684+/-								
		0.3 AGGREGATE BASE COURSE 683.5+/-				2-2-2 N=4		35	82-22-60	
		FAT CLAY (CH) , gray to olive, medium stiff			X					
		3.5 FAT CLAY (CH) , light brown to gray, medium stiff 680.5+/-	5		X	1-2-3 N=5		30		
		6.0 SANDY FAT CLAY (CH) , with gravel, light brown, stiff to very stiff 678+/-			X	3-5-6 N=11		25		
		13.0 Auger Refusal at 13 Feet 671+/-	10		X	4-6-8 N=14		27		

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Augers

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevations were interpolated from Google Earth Pro

WATER LEVEL OBSERVATIONS

No ground water was observed during drilling



Boring Started: 06-25-2019

Boring Completed: 06-25-2019

Drill Rig: Dietrich D-50 Turbo

Driller: Big Dog Geotech

Project No.: E2195045

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_E2195045 EAST LAKE YFD CEN.GPJ TERRACON_DATATEMPLATE.GDT 7/23/19

BORING LOG NO. B-3

PROJECT: East Lake YFD Center

CLIENT: City of Chattanooga TN
Chattanooga, TN

SITE: 3601 Dodds Ave
Chattanooga, Tennessee

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.9995° Longitude: -85.283° Approximate Surface Elev.: 685 (Ft.) +/-	DEPTH ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
										LL-PL-PI		
1			0.2 685+/-									
			0.3 684.5+/-				2-1-2 N=3		32			
				5			2-1-3 N=4		28	63-20-43	95	
3			6.0 679+/-				6-50/5"		24			
				10			50/0"					
			12.0 673+/-									
Auger Refusal at 12 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Augers

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevations were interpolated from Google Earth Pro

WATER LEVEL OBSERVATIONS

No ground water was observed during drilling



Boring Started: 06-25-2019

Boring Completed: 06-25-2019

Drill Rig: Dietrich D-50 Turbo

Driller: Big Dog Geotech

Project No.: E2195045




THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_E2195045 EAST LAKE YFD CEN.GPJ TERRACON_DATATEMPLATE.GDT 7/23/19

BORING LOG NO. B-4

PROJECT: East Lake YFD Center

CLIENT: City of Chattanooga TN
Chattanooga, TN

SITE: 3601 Dodds Ave
Chattanooga, Tennessee

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.9995° Longitude: -85.2828° Approximate Surface Elev.: 685 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
									LL-PL-PI		
1		TOPSOIL	0.5								
2		FILL - SANDY LEAN CLAY (CL) , with foundry sand, black to light brown	3.5			3-3-4 N=7		21			
3		SANDY LEAN CLAY (CL) , light brown, stiff	6.0			2-4-5 N=9		19	44-18-26		
		LEAN CLAY (CL) , with gravel, light brown, medium stiff to stiff	13.0			2-3-5 N=8		24			
		Auger Refusal at 13 Feet	672+/-			2-3-4 N=7		26			

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Augers

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevations were interpolated from Google Earth Pro

WATER LEVEL OBSERVATIONS

No ground water was observed during drilling



Boring Started: 06-25-2019

Boring Completed: 06-25-2019

Drill Rig: Dietrich D-50 Turbo

Driller: Big Dog Geotech

Project No.: E2195045

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_E2195045 EAST LAKE YFD CEN.GPJ TERRACON_DATATEMPLATE.GDT 7/23/19

BORING LOG NO. B-5

PROJECT: East Lake YFD Center

CLIENT: City of Chattanooga TN
Chattanooga, TN

SITE: 3601 Dodds Ave
Chattanooga, Tennessee

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.9994° Longitude: -85.2829° Approximate Surface Elev.: 685 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
									LL-PL-PI		
1		TOPSOIL	0.5								
		SANDY FAT CLAY (CH) , with gravel, light brown, medium stiff				3-3-4 N=7		19			
		FAT CLAY (CH) , trace gravel, olive to gray, stiff to very stiff	3.5			3-5-5 N=10		19	57-18-39		
		POORLY GRADED GRAVEL (GP) , with sand and clay, light gray, very dense	8.5			4-6-8 N=14		25			
		Auger Refusal at 12 Feet	12.0			50/5"					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Augers

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

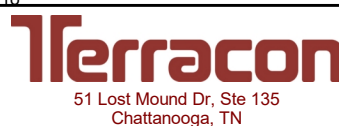
Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevations were interpolated from Google Earth Pro

WATER LEVEL OBSERVATIONS

No ground water was observed during drilling



Boring Started: 06-25-2019

Boring Completed: 06-25-2019

Drill Rig: Dietrich D-50 Turbo

Driller: Big Dog Geotech

Project No.: E2195045

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. E2195045 EAST LAKE YFD GEN.GPJ TERRACON_DATATEMPLATE.GDT 7/23/19

BORING LOG NO. P-1

PROJECT: East Lake YFD Center

CLIENT: City of Chattanooga TN
Chattanooga, TN

SITE: 3601 Dodds Ave
Chattanooga, Tennessee

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.9997° Longitude: -85.2834° Approximate Surface Elev.: 683 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		683 +/-	0.2		X	2-2-3 N=5		24		
		682.5 +/-	0.3		X					
					X					
			3.5		X	2-3-4 N=7		26		
3		679.5 +/-			X					
					X	3-3-4 N=7		26		
		675.5 +/-	7.5		X					
		Boring Terminated at 7.5 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Augers

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevations were interpolated from Google Earth Pro

WATER LEVEL OBSERVATIONS

No ground water was observed during drilling



Boring Started: 06-26-2019

Boring Completed: 06-26-2019

Drill Rig: Dietrich D-50 Turbo

Driller: Big Dog Geotech

Project No.: E2195045




THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_E2195045 EAST LAKE YFD GEN.GPJ TERRACON_DATATEMPLATE.GDT 7/23/19

BORING LOG NO. P-3

PROJECT: East Lake YFD Center

CLIENT: City of Chattanooga TN
Chattanooga, TN

SITE: 3601 Dodds Ave
Chattanooga, Tennessee

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.9994° Longitude: -85.2827° Approximate Surface Elev.: 685 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
1		TOPSOIL	0.6		684.5+/-					
		FILL - SANDY FAT CLAY (CH) , light brown				3-2-5 N=7		10		
2		FILL - SANDY FAT CLAY (CH) , with foundry sand, light brown to black	3.5		681.5+/-	3-4-5 N=9		15		
		Boring Terminated at 7.5 Feet	7.5		677.5+/-	2-4-4 N=8		17		

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Augers

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevations were interpolated from Google Earth Pro

WATER LEVEL OBSERVATIONS

No ground water was observed during drilling



Boring Started: 06-26-2019

Boring Completed: 06-26-2019

Drill Rig: Dietrich D-50 Turbo

Driller: Big Dog Geotech

Project No.: E2195045




THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_E2195045 EAST LAKE YFD GEN.GPJ TERRACON_DATATEMPLATE.GDT 7/23/19

BORING LOG NO. P-4

PROJECT: East Lake YFD Center

CLIENT: City of Chattanooga TN
Chattanooga, TN

SITE: 3601 Dodds Ave
Chattanooga, Tennessee

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 34.9994° Longitude: -85.2828° Approximate Surface Elev.: 685 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
1		TOPSOIL	0.5							
2		FILL - WELL GRADED SAND (SW) , with brick and gravel, red brown	3.5			25-10-3 N=13				
3		SANDY FAT CLAY (CH) , light brown, stiff	7.5			2-3-5 N=8 3-4-5 N=9	18	25		
Boring Terminated at 7.5 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Augers

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevations were interpolated from Google Earth Pro

WATER LEVEL OBSERVATIONS

No ground water was observed during drilling



Boring Started: 06-26-2019

Boring Completed: 06-26-2019

Drill Rig: Dietrich D-50 Turbo

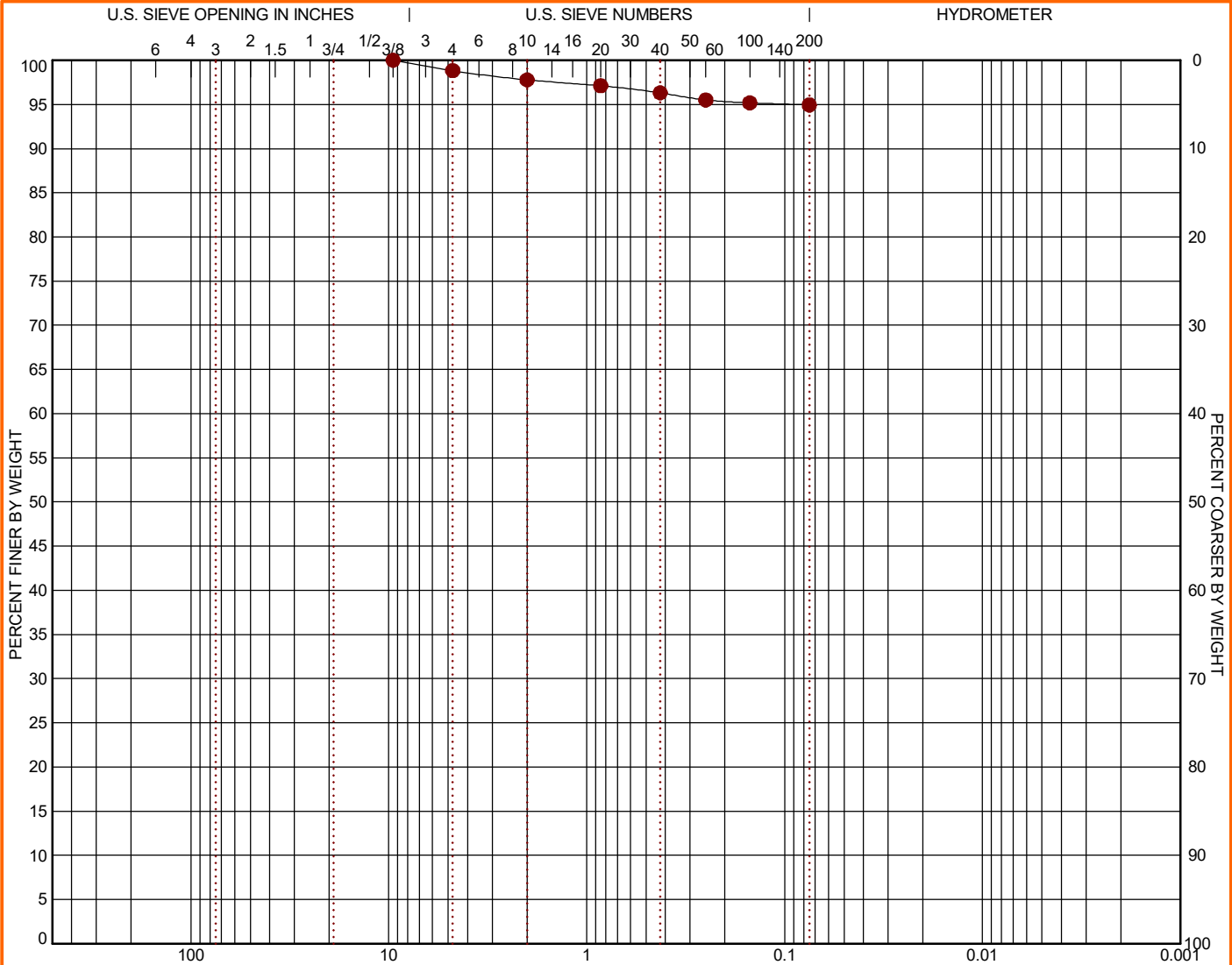
Driller: Big Dog Geotech

Project No.: E2195045

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_E2195045 EAST LAKE YFD GEN.GPJ TERRACON_DATATEMPLATE.GDT 7/23/19

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY			
	coarse	fine	coarse	medium	fine				

BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
● B-1	3.5 - 5	0.0	1.2	3.9		94.9		CH

GRAIN SIZE			
D ₆₀	●		
D ₃₀			
D ₁₀			
COEFFICIENTS			
C _c	●		
C _u			

Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
3/8"	100.0				
#4	98.83				
#10	97.78				
#20	97.11				
#40	96.31				
#60	95.5				
#100	95.18				
#200	94.94				

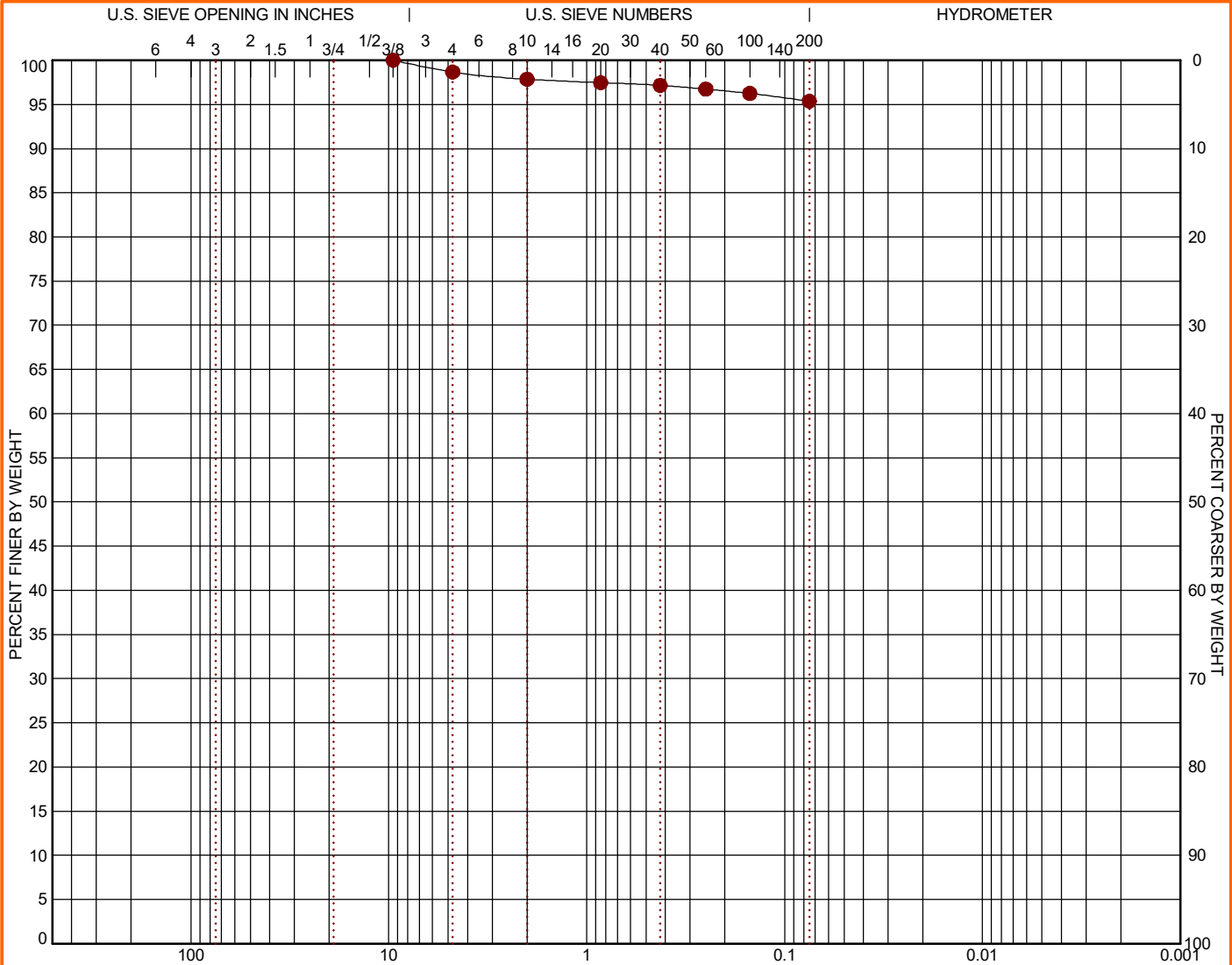
SOIL DESCRIPTION
● FAT CLAY (CH)
REMARKS
●

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 E2195045 EAST LAKE YFD CEN.GPJ TERRACON_DATATEMPLATE.GDT 7/11/19

PROJECT: East Lake YFD Center	<p style="font-size: small;">51 Lost Mound Dr, Ste 135 Chattanooga, TN</p>	PROJECT NUMBER: E2195045
SITE: 3601 Dodds Ave Chattanooga, Tennessee		CLIENT: City of Chattanooga TN Chattanooga, TN

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY			
	coarse	fine	coarse	medium	fine				

BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
● B-3	3.5 - 5	0.0	1.3	3.3		95.4		CH

GRAIN SIZE			
D ₆₀	●		
D ₃₀			
D ₁₀			
COEFFICIENTS			
C _c	●		
C _u			

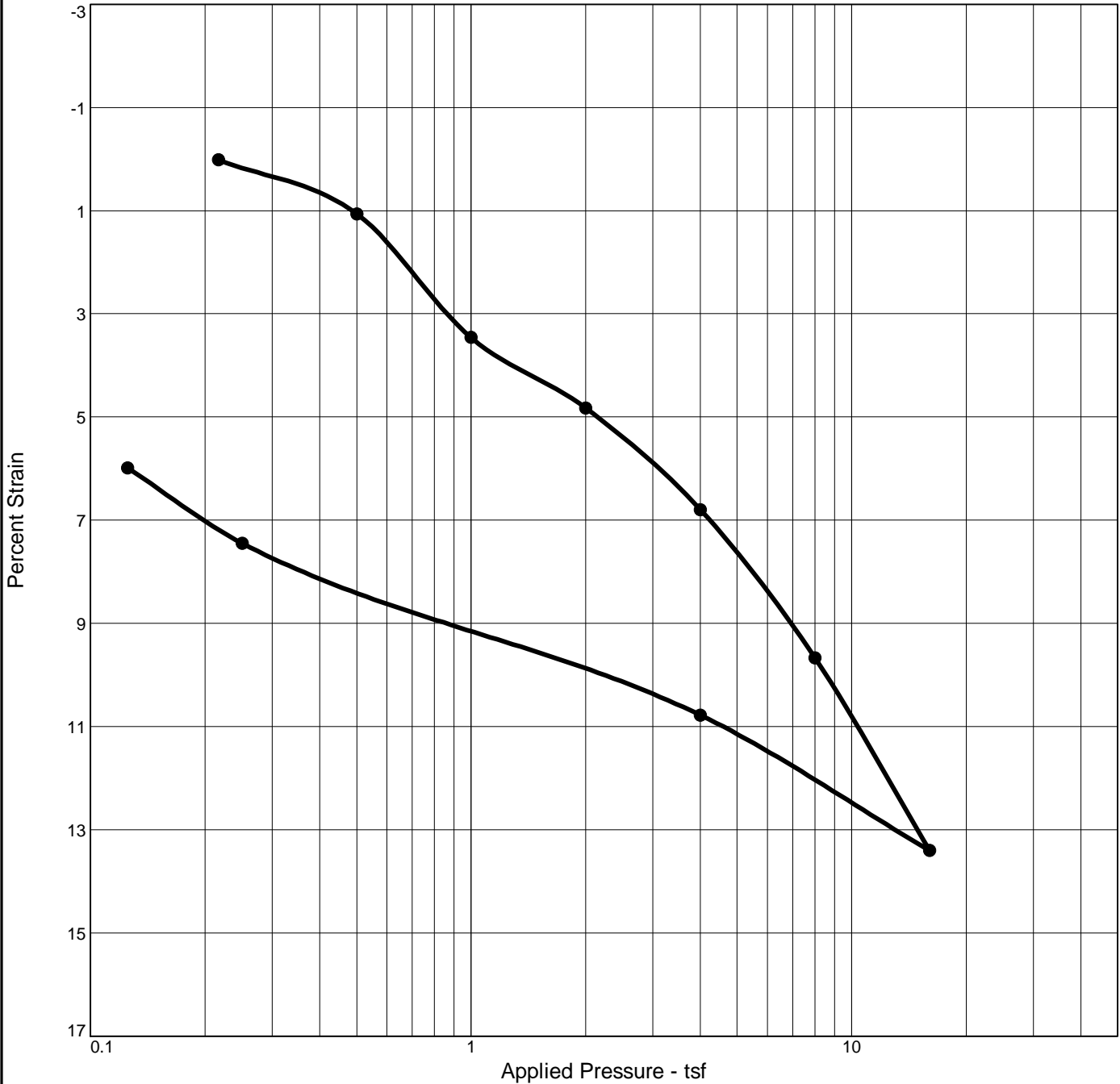
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
● 3/8"	100.0				
#4	98.67				
#10	97.85				
#20	97.46				
#40	97.16				
#60	96.74				
#100	96.24				
#200	95.37				

SOIL DESCRIPTION
● FAT CLAY (CH)
REMARKS
●

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 E2195045 EAST LAKE YFD CEN.GPJ TERRACON_DATATEMPLATE.GDT 7/11/19

PROJECT: East Lake YFD Center SITE: 3601 Dodds Ave Chattanooga, Tennessee	<p style="font-size: 0.8em; color: #800000;">51 Lost Mound Dr, Ste 135 Chattanooga, TN</p>	PROJECT NUMBER: E2195045 CLIENT: City of Chattanooga TN Chattanooga, TN
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CONSOLIDATION TEST REPORT

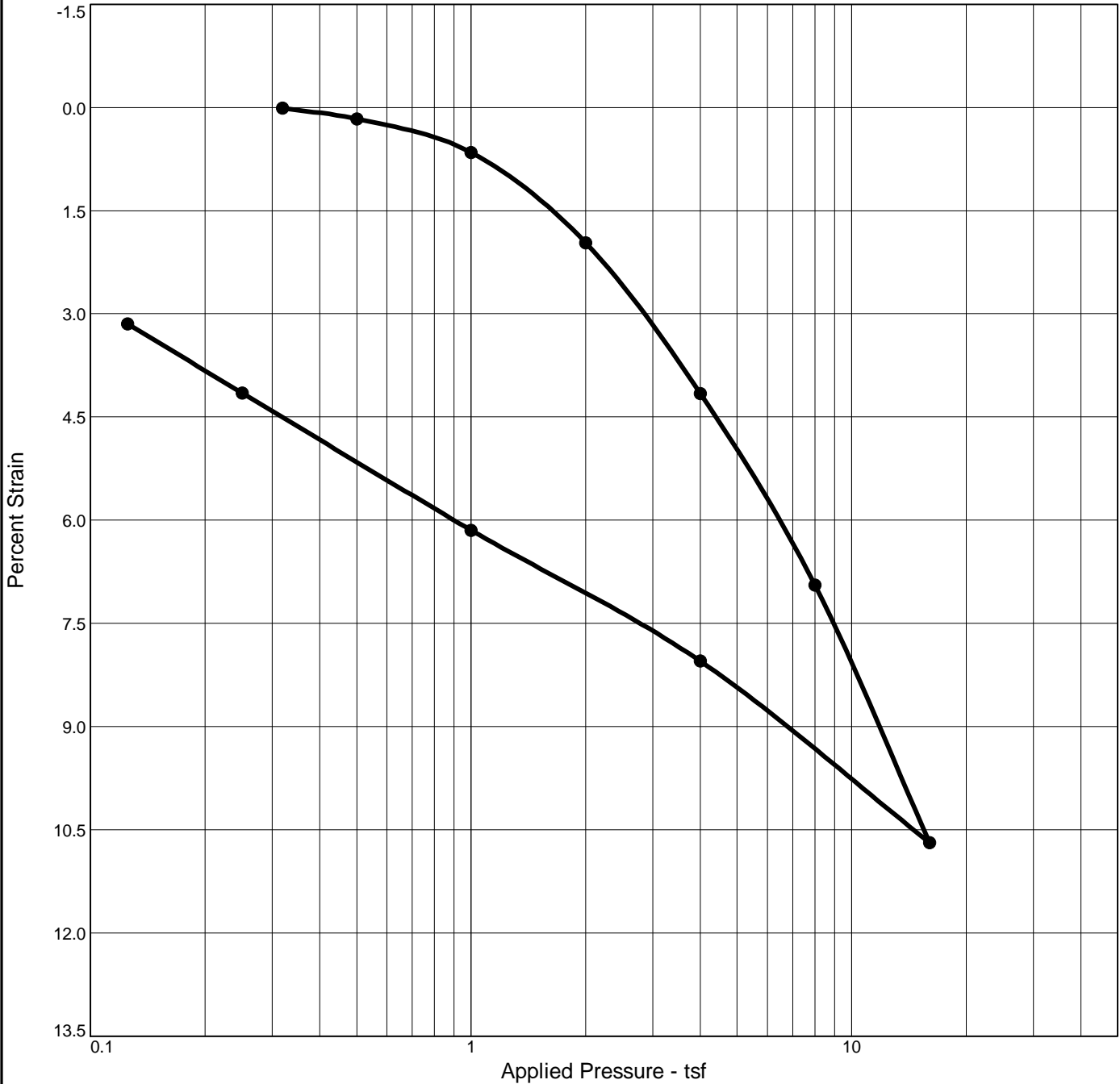


Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _C (tsf)	C _C	C _r	Initial Void Ratio
Saturation	Moisture									
90.4 %	23.1 %	99.7	74	56	2.7	0.25	2.8	0.22	0.05	0.690

MATERIAL DESCRIPTION	USCS	AASHTO
red-brown/gray fat clay (CH)	CH	A-7-6(59)

<p>Project No. E2195045 Client: City of Chattanooga</p> <p>Project: East Lake YFD Center</p> <hr/> <p>Source of Sample: B-1 Depth: 3.5-5.0 ft Sample Number: N/A</p>	<p>Remarks: Swell pressure of 432.99 psf.</p>
<p>Terracon Consultants, Inc.</p> <p>Chattanooga, TN</p>	

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _C (tsf)	C _C	C _r	Initial Void Ratio
Saturation	Moisture									
91.5 %	22.2 %	101.9	63	43	2.7	0.25	3.3	0.21	0.05	0.654

MATERIAL DESCRIPTION	USCS	AASHTO
red-brown/gray fat clay (CH)	CH	A-7-6(45)

Project No. E2195045 Client: City of Chattanooga Project: East Lake YFD Center Source of Sample: B-3 Depth: 3.5-5.0 ft Sample Number: N/A <div style="text-align: center;">Terracon Consultants, Inc.</div> <div style="text-align: center;">Chattanooga, TN</div>	Remarks: Swell pressure of 638.85 psf.
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SUPPORTING INFORMATION

Contents:

General Notes

Unified Soil Classification System


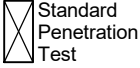



Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

East Lake YFD Center ■ Chattanooga, Tennessee

Terracon Project No. E2195045

SAMPLING	WATER LEVEL	FIELD TESTS
 Shelby Tube  Standard Penetration Test	 Water Initially Encountered  Water Level After a Specified Period of Time  Water Level After a Specified Period of Time Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	(N) Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer (UC) Unconfined Compressive Strength (PID) Photo-Ionization Detector (OVA) Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, (psf)	Standard Penetration or N-Value Blows/Ft.
Very Loose	0 - 3	Very Soft	less than 500	0 - 1
Loose	4 - 9	Soft	500 to 1,000	2 - 4
Medium Dense	10 - 29	Medium Stiff	1,000 to 2,000	4 - 8
Dense	30 - 50	Stiff	2,000 to 4,000	8 - 15
Very Dense	> 50	Very Stiff	4,000 to 8,000	15 - 30
		Hard	> 8,000	> 30

RELATIVE PROPORTIONS OF SAND AND GRAVEL		RELATIVE PROPORTIONS OF FINES	
Descriptive Term(s) of other constituents	Percent of Dry Weight	Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	<15	Trace	<5
With	15-29	With	5-12
Modifier	>30	Modifier	>12

GRAIN SIZE TERMINOLOGY		PLASTICITY DESCRIPTION	
Major Component of Sample	Particle Size	Term	Plasticity Index
Boulders	Over 12 in. (300 mm)	Non-plastic	0
Cobbles	12 in. to 3 in. (300mm to 75mm)	Low	1 - 10
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)	Medium	11 - 30
Sand	#4 to #200 sieve (4.75mm to 0.075mm)	High	> 30
Silt or Clay	Passing #200 sieve (0.075mm)		

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification			
				Group Symbol	Group Name ^B		
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E	GW	Well-graded gravel ^F		
			$Cu < 4$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E	GP	Poorly graded gravel ^F		
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}		
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}		
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	$Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E	SW	Well-graded sand ^I		
			$Cu < 6$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E	SP	Poorly graded sand ^I		
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}		
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}		
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	$PI > 7$ and plots on or above "A"	CL	Lean clay ^{K, L, M}		
			$PI < 4$ or plots below "A" line ^J	ML	Silt ^{K, L, M}		
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay ^{K, L, M, N}	
			Liquid limit - not dried			Organic silt ^{K, L, M, O}	
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}		
			PI plots below "A" line	MH	Elastic Silt ^{K, L, M}		
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay ^{K, L, M, P}	
			Liquid limit - not dried			Organic silt ^{K, L, M, Q}	
		Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

^E $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

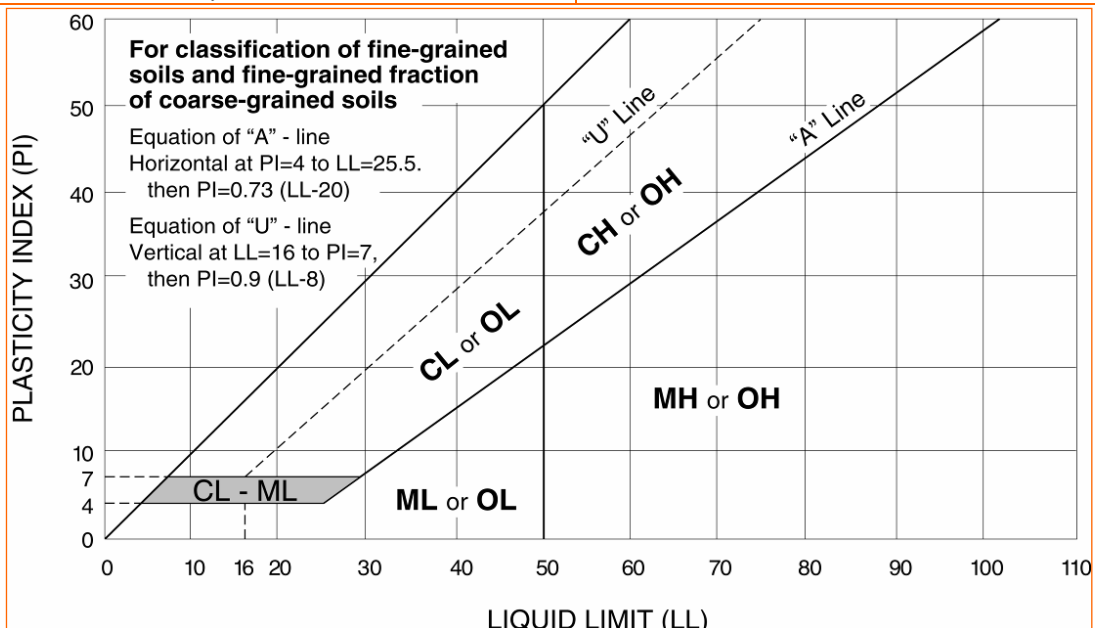
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.



Asbestos Survey Report

East Lake Youth & Family Development Center
Contract No. Y-17-005-101
3601 Dodds Avenue
Chattanooga, Hamilton County, Tennessee

July 19, 2019
Terracon Project No.: E2197064



Prepared for:
City of Chattanooga
Chattanooga, Tennessee

Prepared by:
Terracon Consultants, Inc.
Chattanooga, Tennessee

terracon.com

Terracon

Environmental



Facilities



Geotechnical



Materials

July 19, 2019

City of Chattanooga
Public Works
Development Resource Center
1250 Market Street, Suite 2100
Chattanooga, TN 37402

Attention: Mr. Clay Oliver
Phone: 423-643-6161
Email: moliver@chattanooga.gov

Re: Asbestos Survey Report
East Lake Youth & Family Development Center
Contract No. Y-17-005-101
3601 Dodds Avenue
Chattanooga, Hamilton County, Tennessee
Terracon Project No.: E2197064

Dear Mr. Oliver:

Terracon Consultants, Inc. (Terracon) is pleased to submit this report for the above referenced site to City of Chattanooga. The purpose of this report is to present the results of this Asbestos Survey performed on June 25, 2019. This assessment was performed in accordance with our Task Order Agreement dated May 7, 2019. We understand that this survey was requested due to planned demolition activities of the main original building and the replacement of the roof of the gymnasium building.


Asbestos was identified in the samples collected and analyzed for this project. Please refer to the report for details.

Terracon appreciates the opportunity to provide this service to City of Chattanooga. If you have any questions regarding this report, please contact the undersigned at 423-499-6111.

Sincerely,
Terracon Consultants, Inc.



Steve Akins
Asbestos Inspector
State of Tennessee Accreditation A-I-94332-74273
Expiration Date: March 31, 2020



James Duncan, PE
Authorized Project Reviewer

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
1.0 INTRODUCTION	3
1.1 Reliance	3
2.0 BUILDING DESCRIPTION.....	4
3.0 FIELD ACTIVITIES.....	4
3.1 Visual Assessment	4
3.2 Physical Assessment.....	4
3.3 Sample Collection.....	4
3.4 Sample Analysis.....	5
4.0 REGULATORY OVERVIEW	5
5.0 FINDINGS AND RECOMMENDATIONS.....	6
6.0 LIMITATIONS/GENERAL COMMENTS.....	7

APPENDIX A IDENTIFIED ASBESTOS-CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

APPENDIX B ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

APPENDIX C ASBESTOS ANALYTICAL LABORATORY DATA

APPENDIX D LICENSES AND CERTIFICATIONS

APPENDIX E PHOTO LOG

APPENDIX F SITE DIAGRAM

EXECUTIVE SUMMARY

Terracon Consultants, Inc. (Terracon) conducted this Asbestos Survey for the East Lake Youth & Family Development Center located at 3601 Dodds Avenue in Chattanooga, Hamilton County, Tennessee. The site consists of a total of 11,625 square feet comprised of a gymnasium, a detached trailer, and the main original building. We understand that the City of Chattanooga is proposing to demolish the main original building (assumed construction date prior to 1930), keep the gymnasium building (assumed construction date of 1970s), and keep the detached trailer. The main original building is brick and concrete masonry block construction. The building has a multi-purpose room, office area, restrooms, and storage areas. The flooring consists of vinyl composite tiles. The walls consist of painted brick/CMU. The ceiling consists of drop ceiling tiles. There is a basement under a portion of the building containing a furnace and mechanical systems. The original main building has an attic and asphalt shingled roof. The windows are metal framed and appeared to have been recently replaced. The roof of the gymnasium is also being planned for replacement.

The purpose of this survey was to sample and identify suspect asbestos-containing materials (ACM) and provide information regarding the identity, location, condition and approximate quantities of ACM in the building components prior to main building demolition and the gymnasium roof replacement. The survey was performed on June 25, 2019 by Mr. Steve Akins, a State of Tennessee accredited asbestos inspector, in accordance with our Agreement for Services. The survey was also performed in accordance with the sampling protocols established in United States Environmental Protection Agency (USEPA) 40 Code of Federal Regulations (CFR) Part 763 Subpart E 763, known as the Asbestos Hazard Emergency Response Act (AHERA). Terracon collected one-hundred and eleven (111) bulk samples from thirty-seven (37) homogeneous areas of suspect ACM.

Asbestos was identified in the following materials:

- § HA-26: Flashing Material (10% Chrysotile) with non-ACM Roofing Tars on Roof of Gymnasium – Category I – Non-friable
- § HA-27: Flashing Material (10% Chrysotile) with non-ACM Roofing Material, Tars, Membrane, and Felt on Roof of Gymnasium – Category I – Non-friable
- § HA-29: Flashing Material (10% Chrysotile) with non-ACM Rubber Membrane, Adhesive, and Roofing Membrane on Roof of Breezeway at Gymnasium – Category I – Non-friable
- § HA-30: 12"x12" Floor Tile (3% Chrysotile) and Black Mastic (3% Chrysotile) within non-ACM leveling compound – Category I – Non-friable
- § HA-33: Door caulking (2% Chrysotile) – Gymnasium – Category II – Non-friable
- § HA-34 and HA-35: Asbestos Tape (60% Chrysotile – Basement – Category II – Friable

It should be noted that suspect materials, other than those identified during the June 25, 2019 survey may exist within the buildings. Should suspect materials other than those which were identified during this survey be uncovered prior to or during the renovation process, those materials

Asbestos Survey Report

East Lake YFD Center ■ Chattanooga, Tennessee
3601 Dodds Avenue ■ Terracon Project No. E2197064



should be assumed asbestos-containing until sampling and analysis can confirm or deny their asbestos content.

Terracon recommends that the identified ACM be removed and disposed by a Tennessee-licensed asbestos abatement contractor prior to any activity that will disturb the ACM identified.

Please refer to the following report and attached Appendices for additional details.

ASBESTOS SURVEY REPORT
East Lake Youth & Family Development Center
3601 Dodds Avenue
Chattanooga, Hamilton County, Tennessee
Terracon Project No.: E2197064
July 19, 2019

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted this Asbestos Survey for the East Lake Youth & Family Development Center located at 3601 Dodds Avenue in Chattanooga, Hamilton County, Tennessee. The survey was conducted on June 25, 2019, by Mr. Steve Akins, a State of Tennessee accredited asbestos inspector, in accordance with our Task Order Agreement dated May 7, 2019. Interior and exterior building components (including the roof) were surveyed, and homogeneous areas of suspect ACM were visually identified and documented. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in walls, in voids or in other concealed areas. Suspect ACM samples were collected in general accordance with the sampling protocols outlined in United States Environmental Protection Agency (USEPA) 40 Code of Federal Regulations (CFR) Part 763 Subpart E 763, known as the Asbestos Hazard Emergency Response Act (AHERA). Samples were delivered to an accredited laboratory for analysis by Polarized Light Microscopy (PLM).

The purpose of this survey was to sample and identify suspect ACM and provide information regarding the identity, location, condition and approximate quantities of ACM in the building components prior to building demolition and roof replacement. EPA regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP), prohibits the release of asbestos fibers to the atmosphere during renovation or demolition activities. The asbestos NESHAP requires that potentially regulated ACM (RACM) be identified, classified and quantified prior to planned disturbances or demolition activities.

1.1 Reliance

This report is for the exclusive use of City of Chattanooga for the project being discussed. Reliance by any other party on this report is prohibited without written authorization of Terracon and City of Chattanooga. Reliance on this report by City of Chattanooga and all authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report, and the Agreement for Services. The limitation of liability defined in the Agreement for Services is the aggregate limit of Terracon's liability to the client and all relying parties.

2.0 BUILDING DESCRIPTION

The site consists of a total of 11,625 square feet comprised of a gymnasium, a detached trailer, and the main original building. We understand that the City of Chattanooga is proposing to demolish the main original building (assumed construction date prior to 1930), keep the gymnasium building (assumed construction date of 1970s), and keep the detached trailer. The main original building is brick and concrete masonry block construction. The building has a multi-purpose room, office area, restrooms, and storage areas. The flooring consists of vinyl composite tiles. The walls consist of painted brick/CMU. The ceiling consists of drop ceiling tiles. There is a basement under a portion of the building containing a furnace and mechanical systems. The original main building has an attic and asphalt shingled roof. The windows are metal framed and appeared to have been recently replaced. The roof of the gymnasium is also being planned for replacement. The roof of the gymnasium consists of an asphaltic built up roofing system with impregnated gravel.

3.0 FIELD ACTIVITIES

The survey was conducted by Mr. Steve Akins, a State of Tennessee asbestos accredited building inspector. Copies of Mr. Akins's asbestos inspector certificates are attached as Appendix D. The survey was conducted in general accordance with the sample collection protocols established in USEPA 40 CFR Part 763 Subpart E 763.86, AHERA. A summary of survey activities is provided below.

3.1 Visual Assessment

Survey activities were initiated with visual observation of the specified exterior locations and the interior of the building to identify homogeneous areas of suspect ACM. A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application. Interior and exterior assessment was conducted in visually accessible areas of the building. Photographs are included in Appendix E.

3.2 Physical Assessment

A physical assessment of each homogeneous area (HA) of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the USEPA as a material which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

3.3 Sample Collection

Based on results of the visual observation, bulk samples of suspect ACM were collected in general accordance with USEPA AHERA sampling protocols. Samples of suspect materials were

Asbestos Survey Report

East Lake YFD Center ■ Chattanooga, Tennessee
3601 Dodds Avenue ■ Terracon Project No.: E2197064



collected from randomly selected locations in each homogeneous area. Bulk samples were collected using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

The selection of sample locations and frequency of sampling were based on Terracon's observations and the assumption that like materials in the same area are homogeneous in content.

Terracon collected one-hundred and eleven (111) bulk samples from thirty-seven (37) homogeneous areas of suspect ACM. A summary of suspect ACM samples collected during the survey is included as Appendix B. A summary of the confirmed ACM samples is included as Appendix A.

3.4 Sample Analysis

Bulk samples were submitted under chain of custody to Moody Labs (Moody) of Farmers Branch, TX for analysis by PLM with dispersion staining techniques per USEPA methodology 600/R-93/116. The percentage of asbestos, where applicable, was determined by microscopic visual estimation. Moody is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) Accreditation No. 102056-0.

4.0 REGULATORY OVERVIEW

The asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. It also requires the identification and classification of existing building materials prior to demolition or renovation activity. Under NESHAP, asbestos-containing building materials are classified as either friable, Category I non-friable or Category II non-friable ACM. Friable materials are those that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. Category I non-friable ACM includes packings, gaskets, resilient floor coverings and asphalt roofing products containing greater than 1% asbestos. Category II non-friable ACM are non-friable materials other than Category I materials that contain greater than 1% asbestos.

Friable ACM and Category I and Category II non-friable ACM which is in poor condition and has become friable or which will be subjected to drilling, sanding, grinding, cutting or abrading and which could be crushed or pulverized during anticipated renovation or demolition activities are considered regulated ACM (RACM). RACM must be removed prior to renovation or demolition activities. If the amount of RACM exceeds 260 linear feet of pipe insulation or more than 160 square feet in other building components, the owner or operator must provide the Chattanooga – Hamilton County Air Pollution Control Bureau with written notification of planned removal activities at least 10 working days prior to the commencement of asbestos abatement activities. Removal of ACM should be conducted by an accredited and appropriately licensed asbestos abatement contractor.

The Occupational Safety and Health Administration (OSHA) asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained below 0.1 asbestos fibers per cubic centimeter of air (0.1 f/cc) as an eight-hour time weighted average (TWA) and not exceed 1.0 fibers per cubic centimeter of air (1.0 f/cc) over a 30 minute time period known as an excursion limit (EL). The TWA and EL are known as OSHA's asbestos permissible exposure limits (PELs). The OSHA standard classifies construction and maintenance activities which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

According to USEPA and the Occupational Safety and Health Administration (OSHA) regulations, an ACM is considered any material or product containing more than one percent (>1%) asbestos. Per the USEPA, a material with asbestos content ranging from <1% to 10% by PLM, must be analyzed by point count method or must be presumed asbestos-containing. Materials confirmed to be <1% asbestos by point count analysis are considered by OSHA to be materials of concern. OSHA's concern is that a material, when disturbed, may emit fiber concentrations greater than 1 f/cc for a 30-minute excursion limit and 0.1 f/cc for an 8-hour permissible exposure limit. Therefore, the renovation/demolition contractor is required to comply with OSHA worker protection regulations during any disturbance or removal of these materials. Point count analysis was not conducted on these materials; therefore, the materials must be considered ACM.

5.0 FINDINGS AND RECOMMENDATIONS

Asbestos was identified in the following materials:

- § HA-26: Flashing Material (10% Chrysotile) with non-ACM Roofing Tars on Roof of Gymnasium – Category I – Non-friable
- § HA-27: Flashing Material (10% Chrysotile) with non-ACM Roofing Material, Tars, Membrane, and Felt on Roof of Gymnasium – Category I – Non-friable
- § HA-29: Flashing Material (10% Chrysotile) with non-ACM Rubber Membrane, Adhesive, and Roofing Membrane on Roof of Breezeway at Gymnasium – Category I – Non-friable
- § HA-30: 12"x12" Floor Tile (3% Chrysotile) and Black Mastic (3% Chrysotile) within non-ACM leveling compound – Category I – Non-friable
- § HA-33: Door caulking (2% Chrysotile) – Gymnasium – Category II – Non-friable
- § HA-34 and HA-35: Asbestos Tape (60% Chrysotile) – Basement – Category II – Friable

It should be noted that suspect materials, other than those identified during the June 25, 2019 survey may exist within the buildings. Should suspect materials other than those which were identified during this survey be uncovered prior to or during the renovation process, those materials should be assumed asbestos-containing until sampling and analysis can confirm or deny their asbestos content.

Asbestos Survey Report

East Lake YFD Center ■ Chattanooga, Tennessee
3601 Dodds Avenue ■ Terracon Project No.: E2197064



Terracon recommends that the identified ACM be removed and disposed of by a Tennessee-licensed asbestos abatement contractor prior to the renovation/demolition activities that will disturb the identified ACM.

EPA's NESHAP regulation, which was adopted by Chattanooga – Hamilton County Air Pollution Control Bureau, indicates that the Owner or Operator of the building scheduled for renovation or demolition, that contains potential and confirmed RACM, must remove the materials prior to any renovation or demolition process that will disturb these materials. The following steps should be taken:

1. Notify (written) Chattanooga – Hamilton County Air Pollution Control Bureau officials of any impending renovation/demolition project.
2. Remove the potential and confirmed RACMs from the facility before any activity begins that would break up, dislodge, or similarly disturb the material.

A summary of the classification, condition and approximate quantity of identified ACM is presented in Appendix A. The summary of sample locations is presented in Appendix B. Laboratory analytical reports are included in Appendix C.

6.0 LIMITATIONS/GENERAL COMMENTS

Terracon did not perform sampling which required demolition or destructive activities such as knocking holes in walls, dismantling of equipment or removal of protective coverings. Reasonable efforts to access suspect materials within known areas of restricted access (e.g., crawl spaces) were made; however, it should be noted that suspect materials, other than those identified during the June 25, 2019 survey may exist within the buildings and will require another visit to sample these materials (vapor barrier behind brick, etc.). Should suspect materials other than those which were identified during this survey be uncovered prior to or during the abatement or renovation process, those materials should be assumed asbestos-containing until sampling and analysis can confirm or deny their asbestos content.

This Asbestos Survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the building. The information contained in this report is relevant to the date on which this survey was performed and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by City of Chattanooga for specific application to their project as discussed. This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. Terracon

Asbestos Survey Report

East Lake YFD Center ■ Chattanooga, Tennessee
3601 Dodds Avenue ■ Terracon Project No.: E2197064



does not warrant the work of regulatory agencies, laboratories or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.

APPENDIX A

IDENTIFIED ASBESTOS-CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

APPENDIX A
East Lake Youth & Family Development Center
3601 Dodds Avenue, Chattanooga, Hamilton County, Tennessee
Terracon Project No. E2197064

IDENTIFIED ASBESTOS CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

HA No.	Material Description	Material Location	% and Type Asbestos	NESHAP Classification	Condition	Estimated Quantity*
26	Built Up Roof	Gymnasium	ND – Roofing Tars 10% Chrysotile – Flashing Material	Category I – Non-friable	Good (No Damage)	3,500 square feet
27	Built Up Roof	Gymnasium	ND – Roofing Material ND – Roofing Tar ND – Roofing Membrane 10% Chrysotile – Flashing Material ND – Roofing Felt			
29	Built Up Roof	Gymnasium Breezeway Roof	ND – Rubber Membrane ND – Adhesive ND – Roofing Membrane 10% Chrysotile – Flashing Material ND – Roofing Felt			
30	Floor Tile	Gymnasium	3% Chrysotile – Floor Tile 3% Chrysotile – Black Mastic ND – Leveling Compound	Category I – Non-friable	Good (No Damage)	8,500 square feet
33	Door Caulk	Gymnasium	2% Chrysotile – Caulking	Category II – Non-friable	Good (No Damage)	30 Linear Feet
34 & 35	Duct Work Paper Tape	Basement	60% Chrysotile – Asbestos Tape	Friable	Damaged	50 Linear Feet

ND = None Detected

Category I non-friable ACM includes packings, gaskets, resilient floor coverings and asphalt roofing products containing more than 1% asbestos.

Category II non-friable ACM are any materials other than Category I materials that contain more than 1% asbestos.

Friable materials are defined as materials, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure.

***Estimated quantities** are based on a cursory field evaluation, and actual quantities may vary significantly, especially if asbestos containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey. Quantities should be field verified by the abatement contractor.

APPENDIX B

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

East Lake Youth & Family Development Center
3601 Dodds Avenue, Chattanooga, Hamilton County, Tennessee
Terracon Project No.: E2197064

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

HA	Sample No.	Description	Sample Location
Exterior and Roof – Main Structure			
01	01-MA1-01	Red Brick	Southwest corner
	01-MA1-02	Red Brick	Southeast corner
	01-MA1-03	Red Brick	Northeast corner
02	02-MA3-04	Mortar	Southwest corner
	02-MA3-05	Mortar	Southeast corner
	02-MA3-06	Mortar	Northeast corner
03	03-CA1-07	Window caulk	Southern façade
	03-CA1-08	Window caulk	Western façade
	03-CA1-09	Window caulk	Eastern façade
04	04-SC3-10	Gray paint	Window sills
	04-SC3-11	Gray paint	Window sills
	04-SC3-12	Gray paint	Column at front entrance
05	05-CA2-13	Door caulk	Western facade
	05-CA2-14	Door caulk	Western facade
	05-CA2-15	Door caulk	Eastern facade
06	06-MA6-16	Light gray stucco	Eastern facade
	06-MA6-17	Light gray stucco	Eastern facade
	06-MA6-18	Light gray stucco	Eastern facade
07	07-RF3-19	Composite shingles	Northeast corner
	07-RF3-20	Composite shingles	Southwest corner
	07-RF3-21	Composite shingles	Southeast corner
Interior – Main Structure			
08	08-FT2-22	Cream with blue and red splotches	Office
	08-FT2-23	Cream with blue and red splotches	Main open area/game room
	08-FT2-24	Cream with blue and red splotches	Main open area/game room
09	09-FT2-25	Red	Office
	09-FT2-26	Red	Main open area/game room
	09-FT2-27	Red	Main open area/game room
10	10-FT2-28	Blue	Office
	10-FT2-29	Blue	Main open area/game room
	10-FT2-30	Blue	Main open area/game room
11	11-FT2-31	Light yellow	Office
	11-FT2-32	Light yellow	Main open area/game room
	11-FT2-33	Light yellow	Main open area/game room
12	12-FT2-34	Green	Main open area/game room
	12-FT2-35	Green	Main open area/game room
	12-FT2-36	Green	Main open area/game room
13	13-MG3-37	Blue cove base with mastic	Office
	13-MG3-38	Blue cove base with mastic	Main open area/game room
	13-MG3-39	Blue cove base with mastic	Main open area/game room
14	14-CA1-40	Window caulk	Office
	14-CA1-41	Window caulk	Office
	14-ICA1-42	Window caulk	Main open area/game room
15	15-CA2-43	Door caulk	Office
	15-CA2-44	Door caulk	Main open area/game room
	15-CA2-45	Door caulk	Main open area/game room
16	16-MA1-46	Red with white paint	Office
	16-MA1-47	Red with white paint	Main open area/game room
	16-MA1-48	Red with white paint	Main open area/game room
17	17-MA3-49	Mortar with white and green paint	Office
	17-MA3-50	Mortar with white and green paint	Main open area/game room
	17-MA3-51	Mortar with white and green paint	Main open area/game room
18	18-WB3-52	Gypsum	Office ceiling
	18-WB3-53	Gypsum	Office ceiling
	18-WB3-54	Gypsum	Office ceiling

HA	Sample No.	Description	Sample Location
19	19-HP2-55	Hard plaster	Lobby ceiling
	19-HP2-56	Hard plaster	Lobby ceiling
	19-HP2-57	Hard plaster	Lobby ceiling
20	20-FT2-58	Cream	Weight room
	20-FT2-59	Cream	Weight room
	20-FT2-60	Cream	Weight room
21	21-CT4-61	White with lesions	Weight room
	21-CT4-62	White with lesions	Main open area/game room
	21-CT4-63	White with lesions	Main open area/game room
Exterior and Roof - Gymnasium			
22	22-MA1-64	Red Brick	Northwestern corner
	22-MA1-65	Red Brick	Southwestern corner
	22-MA1-66	Red Brick	Northeastern corner
23	23-MA3-67	Gray mortar	Northwestern corner
	23-MA3-68	Gray mortar	Southwestern corner
	23-MA3-69	Gray mortar	Northeastern corner
24	24-MA6-70	Cream stucco	Northern façade
	24-MA6-71	Cream stucco	Western façade
	24-MA6-72	Cream stucco	Southern facade
25	25-RF8-73	Tar and gravel	Southeastern corner
	25-RF8-74	Tar and gravel	Center
	25-RF8-75	Tar and gravel	Northwestern corner
26	26-RF4-76	Tar and paper	Roof penetrations
	26-RF4-77	Tar and paper	Roof penetrations
	26-RF4-78	Tar and paper	Roof penetrations
27	27-RF8-79	Tar and paper	Parapet wall
	27-RF8-80	Tar and paper	Parapet wall
	27-RF8-81	Tar and paper	Parapet wall
28	28-RF5-82	White sealant	Gym roof
	28-RF5-83	White sealant	Gym roof
	28-RF5-84	White sealant	Gym roof
29	29-RF6-85	Membrane with tar and paper	Breezeway roof
	29-RF6-86	Membrane with tar and paper	Breezeway roof
	29-RF6-87	Membrane with tar and paper	Breezeway roof
Interior - Gymnasium			
30	30-FT2-88	Cream	Northwestern corner
	30-FT2-89	Cream	Southwestern corner
	30-FT2-90	Cream	Eastern side
31	31-CA6-91	Foundation caulk	Southern wall
	31-CA6-92	Foundation caulk	Western wall
	31-CA6-93	Foundation caulk	Eastern wall
32	32-MG3-94	Blue cove base with mastic	Gym
	32-MG3-95	Blue cove base with mastic	Gym
	32-MG3-96	Blue cove base with mastic	Gym
33	33-CA2-97	Door caulk	Gym
	33-CA2-98	Door caulk	Gym
	33-CA2-99	Door caulk	Gym
Interior - Basement			
34	34-PM3-100	Paper tape	Duct work
	34-PM3-101	Paper tape	Duct work
	34-PM3-102	Paper tape	Duct work
35	35-PM3-103	Paper tape	Duct work
	35-PM3-104	Paper tape	Duct work
	35-PM3-105	Paper tape	Duct work
36	36-MI5-106	Silver duct tape	Furnace
	36-MI5-107	Silver duct tape	Furnace
	36-MI5-108	Silver duct tape	Furnace
37	37-SC5-109	Sealant	Furnace
	37-SC5-110	Sealant	Furnace
	37-SC5-111	Sealant	Furnace

APPENDIX C

ASBESTOS LABORATORY ANALYTICAL DATA



PLM Summary Report

2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client :	Terracon - Chattanooga	Lab Job No. :	19B-07990	002
Project :	Eastlake Youth and Family Development Center	Report Date :	07/17/2019	
Project # :	E2197064	Sample Date :	06/25/2019	
Identification :	Asbestos, Bulk Sample Analysis			
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS) EPA Method 600 / R-93 / 116			

On 6/28/2019, one hundred eleven (111) bulk material samples were submitted by Steve Akins of Terracon - Chattanooga for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
01-MA1-01	Brick (Red), Southwest Corner, Exterior and Roof, Main Structure	None Detected - Brick
01-MA1-02	Brick (Red), Southeast Corner, Exterior and Roof, Main Structure	None Detected - Brick
01-MA1-03	Brick (Red), Northeast Corner, Exterior and Roof, Main Structure	None Detected - Brick
02-MA3-04	Mortar, Southwest Corner, Exterior and Roof, Main Structure	None Detected - Mortar
02-MA3-05	Mortar, Southeast Corner, Exterior and Roof, Main Structure	None Detected - Mortar
02-MA3-06	Mortar, Northeast Corner, Exterior and Roof, Main Structure	None Detected - Mortar
03-CA1-07	Window Caulk, Southern Façade, Exterior and Roof, Main Structure	None Detected - Caulking
03-CA1-08	Window Caulk, Western Façade, Exterior and Roof, Main Structure	None Detected - Caulking
03-CA1-09	Window Caulk, Eastern Façade, Exterior and Roof, Main Structure	None Detected - Caulking
04-SC3-10	Paint (Gray), Window Sills, Exterior and Roof, Main Structure	None Detected - Paint
04-SC3-11	Paint (Gray), Window Sills, Exterior and Roof, Main Structure	None Detected - Paint
04-SC3-12	Paint (Gray), Column at Front Entrance, Exterior and Roof, Main Structure	None Detected - Paint
05-CA2-13	Door Caulk, Western Façade, Exterior and Roof, Main Structure	None Detected - Caulking
05-CA2-14	Door Caulk, Western Façade, Exterior and Roof, Main Structure	None Detected - Caulking



PLM Summary Report

2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client :	Terracon - Chattanooga	Lab Job No. :	19B-07990	002
Project :	Eastlake Youth and Family Development Center	Report Date :	07/17/2019	
Project # :	E2197064	Sample Date :	06/25/2019	
Identification :	Asbestos, Bulk Sample Analysis			
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS) EPA Method 600 / R-93 / 116			

On 6/28/2019, one hundred eleven (111) bulk material samples were submitted by Steve Akins of Terracon - Chattanooga for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
05-CA2-15	Door Caulk, Eastern Façade, Exterior and Roof, Main Structure	None Detected - Caulking
06-MA6-16	Stucco (Light Gray), Eastern Façade, Exterior and Roof, Main Structure	None Detected - Stucco
06-MA6-17	Stucco (Light Gray), Eastern Façade, Exterior and Roof, Main Structure	None Detected - Stucco
06-MA6-18	Stucco (Light Gray), Eastern Façade, Exterior and Roof, Main Structure	None Detected - Stucco
07-RF3-19	Composite Shingles, Northeast Corner, Exterior and Roof, Main Structure	None Detected - Roofing Shingle None Detected - Roofing Felt
07-RF3-20	Composite Shingles, Southwest Corner, Exterior and Roof, Main Structure	None Detected - Roofing Shingle None Detected - Roofing Felt
07-RF3-21	Composite Shingles, Southeast Corner, Exterior and Roof, Main Structure	None Detected - Roofing Shingle None Detected - Roofing Felt
08-FT2-22	12" x 12" Floor Tile (Cream with Blue and Red Splotches) and Mastic, Office, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
08-FT2-23	12" x 12" Floor Tile (Cream with Blue and Red Splotches) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
08-FT2-24	12" x 12" Floor Tile (Cream with Blue and Red Splotches) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
09-FT2-25	12" x 12" Floor Tile (Red) and Mastic, Office, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
09-FT2-26	12" x 12" Floor Tile (Red) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
09-FT2-27	12" x 12" Floor Tile (Red) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic



PLM Summary Report

2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client :	Terracon - Chattanooga	Lab Job No. :	19B-07990	002
Project :	Eastlake Youth and Family Development Center	Report Date :	07/17/2019	
Project # :	E2197064	Sample Date :	06/25/2019	
Identification :	Asbestos, Bulk Sample Analysis			
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS) EPA Method 600 / R-93 / 116			

On 6/28/2019, one hundred eleven (111) bulk material samples were submitted by Steve Akins of Terracon - Chattanooga for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
10-FT2-28	12" x 12" Floor Tile (Blue) and Mastic, Office, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
10-FT2-29	12" x 12" Floor Tile (Blue) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
10-FT2-30	12" x 12" Floor Tile (Blue) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
11-FT2-31	12" x 12" Floor Tile (Light Yellow) and Mastic, Office, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
11-FT2-32	12" x 12" Floor Tile (Light Yellow) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
11-FT2-33	12" x 12" Floor Tile (Light Yellow) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
12-FT2-34	12" x 12" Floor Tile (Green) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
12-FT2-35	12" x 12" Floor Tile (Green) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
12-FT2-36	12" x 12" Floor Tile (Green) and Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
13-MG3-37	Cove Base (Blue) with Mastic, Office, Interior, Main Structure	None Detected - Cove Base None Detected - Tan Mastic
13-MG3-38	Cove Base (Blue) with Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Cove Base None Detected - Tan Mastic
13-MG3-39	Cove Base (Blue) with Mastic, Main Open Area / Game Room, Interior, Main Structure	None Detected - Cove Base None Detected - Tan Mastic
14-CA1-40	Window Caulk, Office, Interior, Main Structure	None Detected - Caulking
14-CA1-41	Window Caulk, Office, Interior, Main Structure	None Detected - Caulking
14-CA1-42	Window Caulk, Main Open Area / Game Room, Interior, Main Structure	None Detected - Caulking



PLM Summary Report

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Project :	Eastlake Youth and Family Development Center	Report Date :	07/17/2019	
Project # :	E2197064	Sample Date :	06/25/2019	
Identification :	Asbestos, Bulk Sample Analysis			
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Sample Number	Client Sample Description / Location	Asbestos Content
15-CA2-43	Door Caulk, Office, Interior, Main Structure	None Detected - Caulking
15-CA2-44	Door Caulk, Main Open Area / Game Room, Interior, Main Structure	None Detected - Caulking
15-CA2-45	Door Caulk, Main Open Area / Game Room, Interior, Main Structure	None Detected - Caulking
16-MA1-46	Bricks (Red with White Paint), Office, Interior, Main Structure	None Detected - Brick None Detected - Paint
16-MA1-47	Bricks (Red with White Paint), Main Open Area / Game Room, Interior, Main Structure	None Detected - Brick None Detected - Paint
16-MA1-48	Bricks (Red with White Paint), Main Open Area / Game Room, Interior, Main Structure	None Detected - Brick None Detected - Paint
17-MA3-49	Mortar with Paint (White and Green), Office, Interior, Main Structure	Not Analyzed - No Sample
17-MA3-50	Mortar with Paint (White and Green), Main Open Area / Game Room, Interior, Main Structure	Not Analyzed - No Sample
17-MA3-51	Mortar with Paint (White and Green), Main Open Area / Game Room, Interior, Main Structure	None Detected - Mortar None Detected - Paint
18-WB3-52	Gypsum Wallboard, Office Ceiling, Interior, Main Structure	None Detected - Drywall Material None Detected - Paint
18-WB3-53	Gypsum Wallboard, Office Ceiling, Interior, Main Structure	None Detected - Drywall Material None Detected - Paint
18-WB3-54	Gypsum Wallboard, Office Ceiling, Interior, Main Structure	None Detected - Drywall Material None Detected - Paint
19-HP2-55	Plaster (Hard), Lobby Ceiling, Interior, Main Structure	None Detected - Plaster
19-HP2-56	Plaster (Hard), Lobby Ceiling, Interior, Main Structure	None Detected - Plaster



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Project :	Eastlake Youth and Family Development Center	Report Date : 07/17/2019	
Project # :	E2197064	Sample Date : 06/25/2019	
Identification :	Asbestos, Bulk Sample Analysis		
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS) EPA Method 600 / R-93 / 116		

On 6/28/2019, one hundred eleven (111) bulk material samples were submitted by Steve Akins of Terracon - Chattanooga for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
19-HP2-57	Plaster (Hard), Lobby Ceiling, Interior, Main Structure	None Detected - Plaster
20-FT2-58	12" x 12" Floor Tile (Cream) and Mastic, Weight Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
20-FT2-59	12" x 12" Floor Tile (Cream) and Mastic, Weight Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
20-FT2-60	12" x 12" Floor Tile (Cream) and Mastic, Weight Room, Interior, Main Structure	None Detected - Floor Tile None Detected - Yellow Mastic
21-CT4-61	2' x 4' Ceiling Tile (White with Lesions), Weight Room, Interior, Main Structure	None Detected - Acoustic Tile
21-CT4-62	2' x 4' Ceiling Tile (White with Lesions), Main Open Area / Game Room, Interior, Main Structure	None Detected - Acoustic Tile
21-CT4-63	2' x 4' Ceiling Tile (White with Lesions), Main Open Area / Game Room, Interior, Main Structure	None Detected - Acoustic Tile
22-MA1-64	Brick (Red), Northwestern Corner, Exterior and Roof, Gymnasium	None Detected - Brick
22-MA1-65	Brick (Red), Southwestern Corner, Exterior and Roof, Gymnasium	None Detected - Brick
22-MA1-66	Brick (Red), Northeastern Corner, Exterior and Roof, Gymnasium	None Detected - Brick
23-MA3-67	Mortar (Gray), Northwestern Corner, Exterior and Roof, Gymnasium	None Detected - Mortar
23-MA3-68	Mortar (Gray), Southwestern Corner, Exterior and Roof, Gymnasium	None Detected - Mortar
23-MA3-69	Mortar (Gray), Northeastern Corner, Exterior and Roof, Gymnasium	None Detected - Mortar
24-MA6-70	Stucco (Cream), Northern Façade, Exterior and Roof, Gymnasium	None Detected - Plaster None Detected - Stucco



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Project : Eastlake Youth and Family Development Center	Report Date : 07/17/2019	
Project # : E2197064	Sample Date : 06/25/2019	
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Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS) EPA Method 600 / R-93 / 116		

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Sample Number	Client Sample Description / Location	Asbestos Content
24-MA6-71	Stucco (Cream), Western Façade, Exterior and Roof, Gymnasium	None Detected - Plaster None Detected - Stucco
24-MA6-72	Stucco (Cream), Southern Façade, Exterior and Roof, Gymnasium	None Detected - Plaster None Detected - Stucco
25-RF8-73	Tar and Gravel, Southeastern Corner, Exterior and Roof, Gymnasium	None Detected - Aggregate None Detected - Roofing Tars None Detected - Topo Roofing Felts None Detected - Bottom Roofing Felt None Detected - Underlayment
25-RF8-74	Tar and Gravel, Center, Exterior and Roof, Gymnasium	None Detected - Aggregate None Detected - Roofing Tars None Detected - Topo Roofing Felts None Detected - Bottom Roofing Felt None Detected - Underlayment
25-RF8-75	Tar and Gravel, Northwestern Corner, Exterior and Roof, Gymnasium	None Detected - Aggregate None Detected - Roofing Tars None Detected - Topo Roofing Felts None Detected - Bottom Roofing Felt None Detected - Underlayment
26-RF4-76	Tar and Paper, Roof Penetrations, Exterior and Roof, Gymnasium	None Detected - Roofing Tars 10% Chrysotile - Flashing Material
26-RF4-77	Tar and Paper, Roof Penetrations, Exterior and Roof, Gymnasium	None Detected - Roofing Tars 10% Chrysotile - Flashing Material
26-RF4-78	Tar and Paper, Roof Penetrations, Exterior and Roof, Gymnasium	None Detected - Roofing Tars 10% Chrysotile - Flashing Material
27-RF8-79	Tar and Paper, Parapet Wall, Exterior and Roof, Gymnasium	None Detected - Roofing Material None Detected - Roofing Tar None Detected - Roof Membrane 10% Chrysotile - Flashing Material None Detected - Roofing Felt



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On 6/28/2019, one hundred eleven (111) bulk material samples were submitted by Steve Akins of Terracon - Chattanooga for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
27-RF8-80	Tar and Paper, Parapet Wall, Exterior and Roof, Gymnasium	None Detected - Roofing Material None Detected - Roofing Tar None Detected - Roof Membrane 10% Chrysotile - Flashing Material None Detected - Roofing Felt
27-RF8-81	Tar and Paper, Parapet Wall, Exterior and Roof, Gymnasium	None Detected - Roofing Material None Detected - Roofing Tar None Detected - Roof Membrane 10% Chrysotile - Flashing Material None Detected - Roofing Felt
28-RF5-82	Sealant (White), Gym Roof, Exterior and Roof, Gymnasium	None Detected - Sealant
28-RF5-83	Sealant (White), Gym Roof, Exterior and Roof, Gymnasium	None Detected - Sealant
28-RF5-84	Sealant (White), Gym Roof, Exterior and Roof, Gymnasium	None Detected - Sealant
29-RF6-85	Membrane with Tar and Paper, Breezeway Roof, Exterior and Roof, Gymnasium	None Detected - Rubber Membrane None Detected - Adhesive None Detected - Roof Membrane 10% Chrysotile - Flashing Material None Detected - Roofing Felt
29-RF6-86	Membrane with Tar and Paper, Breezeway Roof, Exterior and Roof, Gymnasium	None Detected - Rubber Membrane None Detected - Adhesive None Detected - Roof Membrane 10% Chrysotile - Flashing Material None Detected - Roofing Felt
29-RF6-87	Membrane with Tar and Paper, Breezeway Roof, Exterior and Roof, Gymnasium	None Detected - Rubber Membrane None Detected - Adhesive None Detected - Roof Membrane 10% Chrysotile - Flashing Material None Detected - Roofing Felt



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Project : Eastlake Youth and Family Development Center	Report Date : 07/17/2019	
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Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS) EPA Method 600 / R-93 / 116		Page 8 of 9

On 6/28/2019, one hundred eleven (111) bulk material samples were submitted by Steve Akins of Terracon - Chattanooga for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
30-FT2-88	12" x 12" Floor Tile (Cream) and Mastic, Northwestern Corner, Interior, Gymnasium	3% Chrysotile - Floor Tile 3% Chrysotile - Black Mastic None Detected - Leveling Compound
30-FT2-89	12" x 12" Floor Tile (Cream) and Mastic, Southwestern Corner, Interior, Gymnasium	3% Chrysotile - Floor Tile 3% Chrysotile - Black Mastic None Detected - Leveling Compound
30-FT2-90	12" x 12" Floor Tile (Cream) and Mastic, Eastern Side, Interior, Gymnasium	3% Chrysotile - Floor Tile 3% Chrysotile - Black Mastic None Detected - Leveling Compound
31-CA6-91	Foundation Caulk, Southern Wall, Interior, Gymnasium	None Detected - Caulking
31-CA6-92	Foundation Caulk, Western Wall, Interior, Gymnasium	None Detected - Caulking
31-CA6-93	Foundation Caulk, Eastern Wall, Interior, Gymnasium	None Detected - Caulking
32-MG3-94	Cove Base (Blue) and Mastic, Gym, Interior, Gymnasium	None Detected - Cove Base None Detected - Tan Mastic None Detected - Brown Mastic
32-MG3-95	Cove Base (Blue) and Mastic, Gym, Interior, Gymnasium	None Detected - Cove Base None Detected - Tan Mastic None Detected - Brown Mastic
32-MG3-96	Cove Base (Blue) and Mastic, Gym, Interior, Gymnasium	None Detected - Cove Base None Detected - Tan Mastic None Detected - Brown Mastic
33-CA2-97	Door Caulk, Gym, Interior, Gymnasium	2% Chrysotile - Caulking
33-CA2-98	Door Caulk, Gym, Interior, Gymnasium	2% Chrysotile - Caulking
33-CA2-99	Door Caulk, Gym, Interior, Gymnasium	2% Chrysotile - Caulking
34-PM3-100	Paper Tape, Duct Work, Interior, Basement	60% Chrysotile - Asbestos Tape
34-PM3-101	Paper Tape, Duct Work, Interior, Basement	60% Chrysotile - Asbestos Tape
34-PM3-102	Paper Tape, Duct Work, Interior, Basement	60% Chrysotile - Asbestos Tape



PLM Summary Report

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Sample Number	Client Sample Description / Location	Asbestos Content
35-PM3-103	Paper Tape, Duct Work, Interior, Basement	60% Chrysotile - Asbestos Tape
35-PM3-104	Paper Tape, Duct Work, Interior, Basement	60% Chrysotile - Asbestos Tape
35-PM3-105	Paper Tape, Duct Work, Interior, Basement	60% Chrysotile - Asbestos Tape
36-MI5-106	Duct Tape (Silver), Furnace, Interior, Basement	None Detected - Duct Tape
36-MI5-107	Duct Tape (Silver), Furnace, Interior, Basement	None Detected - Duct Tape
36-MI5-108	Duct Tape (Silver), Furnace, Interior, Basement	None Detected - Duct Tape
37-SC5-109	Sealant, Furnace, Interior, Basement	None Detected - Sealant None Detected - Rust Scale
37-SC5-110	Sealant, Furnace, Interior, Basement	None Detected - Sealant None Detected - Rust Scale
37-SC5-111	Sealant, Furnace, Interior, Basement	None Detected - Sealant None Detected - Rust Scale

These samples were analyzed by layers. Quantification, unless otherwise noted, is performed by calibrated visual estimate. The test report shall not be reproduced, except in full, without written approval of the laboratory. The results relate only to the items tested. These test results do not imply endorsement by NVLAP or any agency of the U.S. Government. Accredited by the National Voluntary Laboratory Accreditation Program for Bulk Asbestos Fiber Analysis under Lab Code 102056-0.



Analyst(s): Willie Pruitt

Lab Manager : Heather Lopez

Lab Director : Bruce Crabb

Approved Signatory : *Heather Lopez*

Approved Signatory : *Bruce Crabb*

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Moody Labs
 2051 Valley View Lane
 Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report
Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
 TDSHS License No. 30-0084

Client : Terracon - Chattanooga
 Project : Eastlake Youth and Family Development Center
 Project # : E2197064

Lab Job No. : 19B-07990
 Report Date : 07/17/2019

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
01-MA1-01	Brick (Red)	100%	Sintered Clays	100%	07/04	WP
01-MA1-02	Brick (Red)	100%	Sintered Clays	100%	07/04	WP
01-MA1-03	Brick (Red)	100%	Sintered Clays	100%	07/04	WP
02-MA3-04	Mortar (Grey)	100%	Aggregate Cement Binders	65% 35%	07/04	WP
02-MA3-05	Mortar (Grey)	100%	Aggregate Cement Binders	65% 35%	07/04	WP
02-MA3-06	Mortar (Grey)	100%	Aggregate Cement Binders	65% 35%	07/04	WP
03-CA1-07	Caulking (Grey)	100%	Silicone Binders	100%	07/04	WP
03-CA1-08	Caulking (Grey)	100%	Silicone Binders	100%	07/04	WP
03-CA1-09	Caulking (Grey)	100%	Silicone Binders	100%	07/04	WP
04-SC3-10	Paint (Grey)	100%	Pigment / Binders	100%	07/04	WP
04-SC3-11	Paint (Grey)	100%	Pigment / Binders	100%	07/04	WP
04-SC3-12	Paint (Grey)	100%	Pigment / Binders	100%	07/04	WP
05-CA2-13	Caulking (White)	100%	Calcite Binders / Fillers	50% 50%	07/04	WP
05-CA2-14	Caulking (White)	100%	Calcite Binders / Fillers	50% 50%	07/04	WP
05-CA2-15	Caulking (White)	100%	Calcite Binders / Fillers	50% 50%	07/04	WP
06-MA6-16	Stucco (Off-White)	100%	Aggregate Binders / Fillers	65% 35%	07/04	WP
06-MA6-17	Stucco (Off-White)	100%	Aggregate Binders / Fillers	65% 35%	07/04	WP
06-MA6-18	Stucco (Off-White)	100%	Aggregate Binders / Fillers	65% 35%	07/04	WP

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PLM Detail Report
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 Project : Eastlake Youth and Family Development Center
 Project # : E2197064

Lab Job No. : 19B-07990
 Report Date : 07/17/2019

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
07-RF3-19	Sand Layer (Black)	10%	Aggregate	100%	07/04	WP
	Roofing Shingle (Black)	60%	Glass Wool Fibers	25%		
	Roofing Felt (Black)	30%	Calcite / Tar Binders	75%		
07-RF3-20	Sand Layer (Black)	10%	Aggregate	100%	07/04	WP
	Roofing Shingle (Black)	60%	Glass Wool Fibers	25%		
	Roofing Felt (Black)	30%	Calcite / Tar Binders	75%		
07-RF3-21	Sand Layer (Black)	10%	Aggregate	100%	07/04	WP
	Roofing Shingle (Black)	60%	Glass Wool Fibers	25%		
	Roofing Felt (Black)	30%	Calcite / Tar Binders	75%		
08-FT2-22	Floor Tile (Off-White)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
08-FT2-23	Floor Tile (Off-White)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
08-FT2-24	Floor Tile (Off-White)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
09-FT2-25	Floor Tile (Red)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
09-FT2-26	Floor Tile (Red)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
09-FT2-27	Floor Tile (Red)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
10-FT2-28	Floor Tile (Blue)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		

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002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
10-FT2-29	Floor Tile (Blue)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
10-FT2-30	Floor Tile (Blue)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
11-FT2-31	Floor Tile (Yellow)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
11-FT2-32	Floor Tile (Yellow)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
11-FT2-33	Floor Tile (Yellow)	98%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
12-FT2-34	Floor Tile (Green)	99%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	1%	Glue Binders	100%		
12-FT2-35	Floor Tile (Green)	99%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	1%	Glue Binders	100%		
12-FT2-36	Floor Tile (Green)	100%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	<1%	Glue Binders	100%		
13-MG3-37	Cove Base (Blue) Tan Mastic (Tan)	97%	Calcite / Vinyl Binders	100%	07/04	WP
		3%	Calcite	40%		
			Glue Binders	60%		
13-MG3-38	Cove Base (Blue) Tan Mastic (Tan)	97%	Calcite / Vinyl Binders	100%	07/04	WP
		3%	Calcite	40%		
			Glue Binders	60%		
13-MG3-39	Cove Base (Blue) Tan Mastic (Tan)	97%	Calcite / Vinyl Binders	100%	07/04	WP
		3%	Calcite	40%		
			Glue Binders	60%		
14-CA1-40	Caulking (White)	100%	Calcite	50%	07/04	WP
			Binders / Fillers	50%		

Moody Labs
 2051 Valley View Lane
 Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report
Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
 TDSHS License No. 30-0084

Client : Terracon - Chattanooga
 Project : Eastlake Youth and Family Development Center
 Project # : E2197064

Lab Job No. : 19B-07990
 Report Date : 07/17/2019

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
14-CA1-41	Caulking (White)	100%	Calcite	50%	07/04	WP
			Binders / Fillers	50%		
14-CA1-42	Caulking (White)	100%	Calcite	50%	07/04	WP
			Binders / Fillers	50%		
15-CA2-43	Caulking (White)	100%	Calcite	50%	07/04	WP
			Binders / Fillers	50%		
15-CA2-44	Caulking (White)	100%	Calcite	50%	07/04	WP
			Binders / Fillers	50%		
15-CA2-45	Caulking (White)	100%	Calcite	50%	07/04	WP
			Binders / Fillers	50%		
16-MA1-46	Brick (Red)	97%	Sintered Clays	100%	07/04	WP
	Paint (Off-White)	3%	Pigment / Binders	100%		
16-MA1-47	Brick (Red)	97%	Sintered Clays	100%	07/04	WP
	Paint (Off-White)	3%	Pigment / Binders	100%		
16-MA1-48	Brick (Red)	97%	Sintered Clays	100%	07/04	WP
	Paint (Off-White)	3%	Pigment / Binders	100%		
17-MA3-49	Not Analyzed - No Sample Note: Empty Bag	100%			07/04	WP
17-MA3-50	Not Analyzed - No Sample Note: Empty Bag	100%			07/04	WP
17-MA3-51	Mortar (Grey)	95%	Aggregate	65%	07/04	WP
			Cement Binders	35%		
	Paint (Off-White)	5%	Pigment / Binders	100%		
18-WB3-52	Drywall Material (White)	85%	Cellulose Fibers	2%	07/04	WP
			Gypsum / Binders	98%		
	DW Paper Facing (Tan)	12%	Cellulose Fibers	100%		
	Paint (White)	3%	Pigment / Binders	100%		
	No Joint Compound					

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002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
18-WB3-53	Drywall Material (White)	85%	Cellulose Fibers	2%	07/04	WP
			Gypsum / Binders	98%		
	DW Paper Facing (Tan)	12%	Cellulose Fibers	100%		
	Paint (White)	3%	Pigment / Binders	100%		
	No Joint Compound					
18-WB3-54	Drywall Material (White)	85%	Cellulose Fibers	2%	07/04	WP
			Gypsum / Binders	98%		
	DW Paper Facing (Tan)	12%	Cellulose Fibers	100%		
	Paint (White)	3%	Pigment / Binders	100%		
	No Joint Compound					
19-HP2-55	Plaster (Grey)	100%	Aggregate	65%	07/04	WP
			Calcite / Binders	35%		
19-HP2-56	Plaster (Grey)	100%	Aggregate	65%	07/04	WP
			Calcite / Binders	35%		
19-HP2-57	Plaster (Grey)	100%	Aggregate	65%	07/04	WP
			Calcite / Binders	35%		
20-FT2-58	Floor Tile (Tan)	99%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	1%	Glue Binders	100%		
20-FT2-59	Floor Tile (Tan)	99%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	1%	Glue Binders	100%		
20-FT2-60	Floor Tile (Tan)	99%	Calcite / Vinyl Binders	100%	07/04	WP
	Yellow Mastic (Yellow)	1%	Glue Binders	100%		
21-CT4-61	Acoustic Tile (Light Grey)	100%	Cellulose Fibers	50%	07/04	WP
			Mineral Wool Fibers	30%		
			Perlite	20%		
21-CT4-62	Acoustic Tile (Light Grey)	100%	Cellulose Fibers	50%	07/04	WP
			Mineral Wool Fibers	30%		
			Perlite	20%		

Moody Labs
 2051 Valley View Lane
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PLM Detail Report
Supplement to PLM Summary Report

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002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
21-CT4-63	Acoustic Tile (Light Grey)	100%	Cellulose Fibers	50%	07/04	WP
			Mineral Wool Fibers	30%		
			Perlite	20%		
22-MA1-64	Brick (Red)	100%	Sintered Clays	100%	07/04	WP
22-MA1-65	Brick (Red)	100%	Sintered Clays	100%	07/04	WP
22-MA1-66	Brick (Red)	100%	Sintered Clays	100%	07/04	WP
23-MA3-67	Mortar (Grey)	100%	Aggregate	65%	07/04	WP
			Cement Binders	35%		
23-MA3-68	Mortar (Grey)	100%	Aggregate	65%	07/04	WP
			Cement Binders	35%		
23-MA3-69	Mortar (Grey)	100%	Aggregate	65%	07/04	WP
			Cement Binders	35%		
24-MA6-70	Plaster (Grey)	50%	Glass Wool Fibers	5%	07/04	WP
			Aggregate	60%		
			Cement Binders	35%		
	Stucco (Off-White)	50%	Aggregate	65%		
			Binders / Fillers	35%		
24-MA6-71	Plaster (Grey)	50%	Glass Wool Fibers	5%	07/04	WP
			Aggregate	60%		
			Cement Binders	35%		
	Stucco (Off-White)	50%	Aggregate	65%		
			Binders / Fillers	35%		
24-MA6-72	Plaster (Grey)	50%	Glass Wool Fibers	5%	07/04	WP
			Aggregate	60%		
			Cement Binders	35%		
	Stucco (Off-White)	50%	Aggregate	65%		
			Binders / Fillers	35%		

Moody Labs
 2051 Valley View Lane
 Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report
Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
 TDSHS License No. 30-0084

Client : Terracon - Chattanooga
 Project : Eastlake Youth and Family Development Center
 Project # : E2197064

Lab Job No. : 19B-07990
 Report Date : 07/17/2019

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
25-RF8-73	Aggregate (Tan)	5%	Aggregate	100%	07/04	WP
	Roofing Tars (Black)	20%	Tar Binders	100%		
	Topo Roofing Felts (Black)	15%	Glass Wool Fibers	45%		
			Tar Binders	55%		
	Bottom Roofing Felt (Black)	10%	Cellulose Fibers	85%		
Tar Binders			15%			
Underlayment (Tan)	50%	Cellulose Fibers	80%			
		Perlite	20%			
25-RF8-74	Aggregate (Tan)	5%	Aggregate	100%	07/04	WP
	Roofing Tars (Black)	20%	Tar Binders	100%		
	Topo Roofing Felts (Black)	15%	Glass Wool Fibers	45%		
			Tar Binders	55%		
	Bottom Roofing Felt (Black)	10%	Cellulose Fibers	85%		
Tar Binders			15%			
Underlayment (Tan)	50%	Cellulose Fibers	80%			
		Perlite	20%			
25-RF8-75	Aggregate (Tan)	5%	Aggregate	100%	07/04	WP
	Roofing Tars (Black)	20%	Tar Binders	100%		
	Topo Roofing Felts (Black)	15%	Glass Wool Fibers	45%		
			Tar Binders	55%		
	Bottom Roofing Felt (Black)	10%	Cellulose Fibers	85%		
Tar Binders			15%			
Underlayment (Tan)	50%	Cellulose Fibers	80%			
		Perlite	20%			
26-RF4-76	Aggregate (Tan)	5%	Aggregate	100%	07/04	WP
	Roofing Tars (Black)	35%	Tar Binders	100%		
	Flashing Material (Black)	60%	Chrysotile	10%		
Tar Binders			90%			

Moody Labs
 2051 Valley View Lane
 Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report
Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
 TDSHS License No. 30-0084

Client : Terracon - Chattanooga
 Project : Eastlake Youth and Family Development Center
 Project # : E2197064

Lab Job No. : 19B-07990
 Report Date : 07/17/2019

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
26-RF4-77	Aggregate (Tan)	5%	Aggregate	100%	07/04	WP
	Roofing Tars (Black)	35%	Tar Binders	100%		
	Flashing Material (Black)	60%	Chrysotile	10%		
26-RF4-78	Aggregate (Tan)	5%	Aggregate	100%	07/04	WP
			Tar Binders	100%		
	Roofing Tars (Black)	35%	Chrysotile	10%		
	Flashing Material (Black)	60%	Tar Binders	90%		
27-RF8-79	Roofing Material (Black)	40%	Cellulose Fibers	25%	07/04	WP
			Aggregate	20%		
			Tar Binders	55%		
	Roofing Tar (Black)	10%	Tar Binders	100%		
			Roof Membrane (Black)	20%		
	Flashing Material (Black)	25%	Calcite	30%		
			Tar Binders	60%		
			Chrysotile	10%		
	Roofing Felt (Black)	5%	Tar Binders	90%		
Cellulose Fibers			85%			
Tar Binders			15%			
27-RF8-80	Roofing Material (Black)	40%	Cellulose Fibers	25%	07/04	WP
			Aggregate	20%		
			Tar Binders	55%		
	Roofing Tar (Black)	10%	Tar Binders	100%		
			Roof Membrane (Black)	20%		
	Flashing Material (Black)	25%	Calcite	30%		
			Tar Binders	60%		
			Chrysotile	10%		
	Roofing Felt (Black)	5%	Tar Binders	90%		
Cellulose Fibers			85%			
Tar Binders			15%			

Moody Labs
 2051 Valley View Lane
 Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report
Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
 TDSHS License No. 30-0084

Client : Terracon - Chattanooga
 Project : Eastlake Youth and Family Development Center
 Project # : E2197064

Lab Job No. : 19B-07990
 Report Date : 07/17/2019

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst		
27-RF8-81	Roofing Material (Black)	40%	Cellulose Fibers	25%	07/04	WP		
			Aggregate	20%				
			Tar Binders	55%				
	Roofing Tar (Black)	10%	Tar Binders	100%				
			Roof Membrane (Black)	20%			Synthetic Fibers	10%
	Flashing Material (Black)	25%	Calcite				30%	
			Tar Binders	60%				
Chrysotile			10%					
Roofing Felt (Black)	5%	Tar Binders	90%					
		Cellulose Fibers	85%					
28-RF5-82	Sealant (White)	100%	Tar Binders	15%				
			Calcite	40%				
28-RF5-83	Sealant (White)	100%	Binders / Fillers	60%				
			Calcite	40%				
28-RF5-84	Sealant (White)	100%	Binders / Fillers	60%				
			Calcite	40%				
29-RF6-85	Rubber Membrane (Black)	50%	Rubber Binders	100%	07/04	WP		
			Adhesive (Yellow)	2%			Glue Binders	100%
			Sand Layer (Black)	3%			Aggregate	100%
	Roof Membrane (Black)	20%	Synthetic Fibers	10%				
			Calcite	30%				
			Tar Binders	60%				
	Flashing Material (Black)	20%	Chrysotile	10%				
			Tar Binders	90%				
			Roofing Felt (Black)	5%			Glass Wool Fibers	45%
Tar Binders	55%							

Moody Labs
 2051 Valley View Lane
 Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report
Supplement to PLM Summary Report

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Client : Terracon - Chattanooga
 Project : Eastlake Youth and Family Development Center
 Project # : E2197064

Lab Job No. : 19B-07990
 Report Date : 07/17/2019

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
29-RF6-86	Rubber Membrane (Black)	50%	Rubber Binders	100%	07/04	WP
	Adhesive (Yellow)	2%	Glue Binders	100%		
	Sand Layer (Black)	3%	Aggregate	100%		
	Roof Membrane (Black)	20%	Synthetic Fibers	10%		
			Calcite	30%		
			Tar Binders	60%		
	Flashing Material (Black)	20%	Chrysotile	10%		
Roofing Felt (Black)	5%	Glass Wool Fibers	45%			
		Tar Binders	55%			
29-RF6-87	Rubber Membrane (Black)	50%	Rubber Binders	100%	07/04	WP
	Adhesive (Yellow)	2%	Glue Binders	100%		
	Sand Layer (Black)	3%	Aggregate	100%		
	Roof Membrane (Black)	20%	Synthetic Fibers	10%		
			Calcite	30%		
			Tar Binders	60%		
	Flashing Material (Black)	20%	Chrysotile	10%		
Roofing Felt (Black)	5%	Glass Wool Fibers	45%			
		Tar Binders	55%			
30-FT2-88	Floor Tile (Light Tan)	90%	Chrysotile	3%	07/04	WP
			Calcite / Vinyl Binders	97%		
	Black Mastic (Black)	3%	Chrysotile	3%		
			Tar Binders	97%		
Leveling Compound (Off-White)	7%	Calcite / Binders	100%			
30-FT2-89	Floor Tile (Light Tan)	90%	Chrysotile	3%	07/04	WP
			Calcite / Vinyl Binders	97%		
	Black Mastic (Black)	3%	Chrysotile	3%		
			Tar Binders	97%		
Leveling Compound (Off-White)	7%	Calcite / Binders	100%			

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002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
30-FT2-90	Floor Tile (Light Tan)	90%	Chrysotile	3%	07/04	WP
			Calcite / Vinyl Binders	97%		
	Black Mastic (Black)	3%	Chrysotile	3%		
			Tar Binders	97%		
	Leveling Compound (Off-White)	7%	Calcite / Binders	100%		
31-CA6-91	Caulking (Brown)	100%	Calcite	50%	07/04	WP
			Binders / Fillers	50%		
31-CA6-92	Caulking (Brown)	100%	Calcite	50%	07/04	WP
			Binders / Fillers	50%		
31-CA6-93	Caulking (Brown)	100%	Calcite	50%	07/04	WP
			Binders / Fillers	50%		
32-MG3-94	Cove Base (Blue)	95%	Calcite / Vinyl Binders	100%	07/04	WP
	Tan Mastic (Tan)	4%	Calcite	40%		
			Glue Binders	60%		
	Brown Mastic (Brown)	1%	Glue Binders	100%		
32-MG3-95	Cove Base (Blue)	95%	Calcite / Vinyl Binders	100%	07/04	WP
	Tan Mastic (Tan)	4%	Calcite	40%		
			Glue Binders	60%		
	Brown Mastic (Brown)	1%	Glue Binders	100%		
32-MG3-96	Cove Base (Blue)	95%	Calcite / Vinyl Binders	100%	07/04	WP
	Tan Mastic (Tan)	4%	Calcite	40%		
			Glue Binders	60%		
	Brown Mastic (Brown)	1%	Glue Binders	100%		
33-CA2-97	Caulking (Multi-colored)	100%	Chrysotile	2%	07/04	WP
			Binders / Fillers	98%		
33-CA2-98	Caulking (Multi-colored)	100%	Chrysotile	2%	07/04	WP
			Binders / Fillers	98%		
33-CA2-99	Caulking (Multi-colored)	100%	Chrysotile	2%	07/04	WP
			Binders / Fillers	98%		

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 2051 Valley View Lane
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002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
34-PM3-100	Asbestos Tape (Light Grey)	100%	Chrysotile	60%	07/04	WP
			Cellulose Fibers	35%		
			Binders / Fillers	5%		
34-PM3-101	Asbestos Tape (Light Grey)	100%	Chrysotile	60%	07/04	WP
			Cellulose Fibers	35%		
			Binders / Fillers	5%		
34-PM3-102	Asbestos Tape (Light Grey)	100%	Chrysotile	60%	07/04	WP
			Cellulose Fibers	35%		
			Binders / Fillers	5%		
35-PM3-103	Asbestos Tape (Light Grey)	100%	Chrysotile	60%	07/04	WP
			Cellulose Fibers	35%		
			Binders / Fillers	5%		
35-PM3-104	Asbestos Tape (Light Grey)	100%	Chrysotile	60%	07/04	WP
			Cellulose Fibers	35%		
			Binders / Fillers	5%		
35-PM3-105	Asbestos Tape (Light Grey)	100%	Chrysotile	60%	07/04	WP
			Cellulose Fibers	35%		
			Binders / Fillers	5%		
36-MI5-106	Duct Tape (Silver)	100%	Cotton Fibers	25%	07/04	WP
			Vinyl Binders	50%		
			Glue Binders	25%		
36-MI5-107	Duct Tape (Silver)	100%	Cotton Fibers	25%	07/04	WP
			Vinyl Binders	50%		
			Glue Binders	25%		
36-MI5-108	Duct Tape (Silver)	100%	Cotton Fibers	25%	07/04	WP
			Vinyl Binders	50%		
			Glue Binders	25%		

Moody Labs
 2051 Valley View Lane
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PLM Detail Report
Supplement to PLM Summary Report

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Lab Job No. : 19B-07990
 Report Date : 07/17/2019

002

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37-SC5-109	Sealant (Grey)	25%	Calcite	40%	07/04	WP
			Binders / Fillers	60%		
	Rust Scale (Brown)	75%	Rust	100%		
37-SC5-110	Sealant (Grey)	25%	Calcite	40%	07/04	WP
			Binders / Fillers	60%		
	Rust Scale (Brown)	75%	Rust	100%		
37-SC5-111	Sealant (Grey)	25%	Calcite	40%	07/04	WP
			Binders / Fillers	60%		
	Rust Scale (Brown)	75%	Rust	100%		

19B. 01990

**Eastlake Youth and Family Development Center
1301 Dodds Avenue, Chattanooga, Hamilton County, Tennessee
Terracon Project No.: E2197064**

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

HA	Sample No.	Description	Sample Location
Exterior and Roof – Main Structure			
01	01-MA1-01	Red Brick	Southwest corner
	01-MA1-02	Red Brick	Southeast corner
	01-MA1-03	Red Brick	Northeast corner
02	02-MA3-04	Mortar	Southwest corner
	02-MA3-05	Mortar	Southeast corner
	02-MA3-06	Mortar	Northeast corner
03	03-CA1-07	Window caulk	Southern façade
	03-CA1-08	Window caulk	Western façade
	03-CA1-09	Window caulk	Eastern façade
04	04-SC3-10	Gray paint	Window sills
	04-SC3-11	Gray paint	Window sills
	04-SC3-12	Gray paint	Column at front entrance
05	05-CA2-13	Door caulk	Western facade
	05-CA2-14	Door caulk	Western facade
	05-CA2-15	Door caulk	Eastern facade
06	06-MA6-16	Light gray stucco	Eastern facade
	06-MA6-17	Light gray stucco	Eastern facade
	06-MA6-18	Light gray stucco	Eastern facade
07	07-RF3-19	Composite shingles	Northeast corner
	07-RF3-20	Composite shingles	Southwest corner
	07-RF3-21	Composite shingles	Southeast corner
Interior – Main Structure			
08	08-FT2-22	Cream with blue and red splotches	Office
	08-FT2-23	Cream with blue and red splotches	Main open area/game room
	08-FT2-24	Cream with blue and red splotches	Main open area/game room
09	09-FT2-25	Red	Office
	09-FT2-26	Red	Main open area/game room
	09-FT2-27	Red	Main open area/game room
10	10-FT2-28	Blue	Office
	10-FT2-29	Blue	Main open area/game room
	10-FT2-30	Blue	Main open area/game room
11	11-FT2-31	Light yellow	Office
	11-FT2-32	Light yellow	Main open area/game room
	11-FT2-33	Light yellow	Main open area/game room
12	12-FT2-34	Green	Main open area/game room
	12-FT2-35	Green	Main open area/game room
	12-FT2-36	Green	Main open area/game room
13	13-MG3-37	Blue cove base with mastic	Office
	13-MG3-38	Blue cove base with mastic	Main open area/game room
	13-MG3-39	Blue cove base with mastic	Main open area/game room
14	14-CA1-40	Window caulk	Office
	14-CA1-41	Window caulk	Office
	14-ICA1-42	Window caulk	Main open area/game room
15	15-CA2-43	Door caulk	Office
	15-CA2-44	Door caulk	Main open area/game room
	15-CA2-45	Door caulk	Main open area/game room
16	16-MA1-46	Red with white paint	Office
	16-MA1-47	Red with white paint	Main open area/game room
	16-MA1-48	Red with white paint	Main open area/game room
17	17-MA3-49	Mortar with white and green paint	Office
	17-MA3-50	Mortar with white and green paint	Main open area/game room
	17-MA3-51	Mortar with white and green paint	Main open area/game room
18	18-WB3-52	Gypsum	Office ceiling
	18-WB3-53	Gypsum	Office ceiling
	18-WB3-54	Gypsum	Office ceiling

HA	Sample No.	Description	Sample Location
19	19-HP2-55	Hard plaster	Lobby ceiling
	19-HP2-56	Hard plaster	Lobby ceiling
	19-HP2-57	Hard plaster	Lobby ceiling
20	20-FT2-58	Cream	Weight room
	20-FT2-59	Cream	Weight room
	20-FT2-60	Cream	Weight room
21	21-CT4-61	White with lesions	Weight room
	21-CT4-62	White with lesions	Main open area/game room
	21-CT4-63	White with lesions	Main open area/game room
Exterior and Roof - Gymnasium			
22	22-MA1-64	Red Brick	Northwestern corner
	22-MA1-65	Red Brick	Southwestern corner
	22-MA1-66	Red Brick	Northeastern corner
23	23-MA3-67	Gray mortar	Northwestern corner
	23-MA3-68	Gray mortar	Southwestern corner
	23-MA3-69	Gray mortar	Northeastern corner
24	24-MA6-70	Cream stucco	Northern façade
	24-MA6-71	Cream stucco	Western façade
	24-MA6-72	Cream stucco	Southern facade
25	25-RF8-73	Tar and gravel	Southeastern corner
	25-RF8-74	Tar and gravel	Center
	25-RF8-75	Tar and gravel	Northwestern corner
26	26-RF4-76	Tar and paper	Roof penetrations
	26-RF4-77	Tar and paper	Roof penetrations
	26-RF4-78	Tar and paper	Roof penetrations
27	27-RF8-79	Tar and paper	Parapet wall
	27-RF8-80	Tar and paper	Parapet wall
	27-RF8-81	Tar and paper	Parapet wall
28	28-RF5-82	White sealant	Gym roof
	28-RF5-83	White sealant	Gym roof
	28-RF5-84	White sealant	Gym roof
29	29-RF6-85	Membrane with tar and paper	Breezeway roof
	29-RF6-86	Membrane with tar and paper	Breezeway roof
	29-RF6-87	Membrane with tar and paper	Breezeway roof
Interior - Gymnasium			
30	30-FT2-88	Cream	Northwestern corner
	30-FT2-89	Cream	Southwestern corner
	30-FT2-90	Cream	Eastern side
31	31-CA6-91	Foundation caulk	Southern wall
	31-CA6-92	Foundation caulk	Western wall
	31-CA6-93	Foundation caulk	Eastern wall
32	32-MG3-94	Blue cove base with mastic	Gym
	32-MG3-95	Blue cove base with mastic	Gym
	32-MG3-96	Blue cove base with mastic	Gym
33	33-CA2-97	Door caulk	Gym
	33-CA2-98	Door caulk	Gym
	33-CA2-99	Door caulk	Gym
Interior - Basement			
34	34-PM3-100	Paper tape	Duct work
	34-PM3-101	Paper tape	Duct work
	34-PM3-102	Paper tape	Duct work
35	35-PM3-103	Paper tape	Duct work
	35-PM3-104	Paper tape	Duct work
	35-PM3-105	Paper tape	Duct work
36	36-MI5-106	Silver duct tape	Furnace
	36-MI5-107	Silver duct tape	Furnace
	36-MI5-108	Silver duct tape	Furnace
37	37-SC5-109	Sealant	Furnace
	37-SC5-110	Sealant	Furnace
	37-SC5-111	Sealant	Furnace

APPENDIX D

LICENSES AND CERTIFICATIONS



THE STATE OF TENNESSEE

Department of Environment and Conservation Division of Solid Waste Management
Toxic Substances Program

William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 14th Floor Nashville TN 37243

By virtue of the authority vested by the Division of Solid Waste Management, the Company named below is hereby accredited to offer and/or conduct Asbestos activities pursuant to Rule 1200-01-20:

Terracon Consultants, Inc.

5217 Linbar Dr. Suite 309 Nashville TN, 37211

to conduct ASBESTOS ACTIVITIES in schools or public and commercial buildings in Tennessee.
This firm is responsible for compliance with the applicable requirements of Rule 1200-01-20.

Discipline	Type	Accreditation Number	Effective Date	Expiration Date
Accreditation	Re-Accreditation	A-F-592-72058	December 01, 2018	December 31, 2019

Given under the Seal of the State of Tennessee in Nashville.

This 10th Day of January 2019



Division of Solid Waste Management
Toxic Substance Program

CN-1324 (Rev 6/13)

UDA-3020

The Environmental Institute

Steve Akins

Social Security Number - XXX-XX-1133
Terracon - 51 Lost Mound Drive - Chattanooga, Tennessee 37406

*Has completed coursework and satisfactorily passed
an examination that meets all criteria required for
EPA/AHERA/ASHARA (TSCA Title II) Approved Reaccreditation*

Asbestos in Buildings: Inspector Refresher

September 18, 2018

Course Date

17001

Certificate Number

September 18, 2018

Examination Date

September 17, 2019

Expiration Date



Thomas G. Laubenthal
Thomas G. Laubenthal - Principal Instructor

Rachel G. McCain
Rachel G. McCain - Exam Administrator

David W. Hogue
David W. Hogue - Training Manager

(Approved by the ABIH Certification Maintenance Committee for 1/2 CM point - Approval #11-577)

(Florida Provider Registration Number FL49-0001342 - Course #FL49-0002805)

TEI - 1841 West Oak Parkway, Suite F - Marietta, Georgia 30062 - (770) 427-3600 - www.tei-atl.com



STATE OF TENNESSEE
 DEPARTMENT OF ENVIRONMENT AND CONSERVATION
 Division of Solid Waste Management
 Toxic Substances Program
 William R. Snodgrass, TN Tower
 312 Rosa L. Park Ave, 14th Floor
 Nashville, Tennessee 37243 - 1535

Date: April 12, 2019

Subject: Your application has been processed

Thank you for applying for asbestos accreditation with the State of Tennessee. Enclosed are the current applied for approved asbestos credential(s). Please review the enclosed document(s) for accuracy. In the event that we have made an error please contact: Irene Tidwell at (615) 532-0841 or Irene.Tidwell@tn.gov

Sincerely,



Irene Tidwell | Administrative Services Assistant
 Division of Solid Waste Management
 William R. Snodgrass Tennessee Tower
 312 Rosa L. Parks Ave., 14th Floor
 Nashville, TN 37243
 p. 615-532-0841
Irene.Tidwell@tn.gov



Tell us how we're doing! Please take 5-10 minutes to complete [TDEC's Customer Service Survey](#)

NOTE: Our applications have been newly revised. They can be printed from our Website under the heading "Asbestos Accreditation Applications & Forms" The website address is: <https://www.tn.gov/content/tn/environment/program-areas/asbestos-program/sw-asbestos-accreditation-requirements.html>

APPENDIX E
PHOTOGRAPHS

Asbestos Survey Report

East Lake YFD Center ■ Chattanooga, Tennessee
3601 Dodds Avenue ■ Terracon Project No. E2197064



Photo #1 View of the eastern exterior facade of the original main building looking northwest from Dodds Avenue.



Photo #2 View of the original main building looking north.



Photo #3 View of the southern exterior facade of the original main building looking northeast from East 37th Street.



Photo #4 View of the western exterior facade of the original main building looking southeast from the parking lot.



Photo #5 View of the exterior of the breezeway between the original main building and the gymnasium.



Photo #6 View of the gymnasium building looking south from the athletic fields.

Asbestos Survey Report

East Lake YFD Center ■ Chattanooga, Tennessee
3601 Dodds Avenue ■ Terracon Project No. E2197064



Photo #7 View of the roof of the gymnasium building. Note: Flashing material identified as asbestos containing.



Photo #8 View of the roof of the gymnasium building. Flashing material identified as asbestos containing.



Photo #9 View of the roof of the breezeway. Flashing material identified as asbestos containing.



Photo #10 View of the roof of the original main building.



Photo #11 View of ceiling and exposed rafters of the gymnasium building.



Photo #12 View of the drop ceiling tile in the original main building.

Asbestos Survey Report

East Lake YFD Center ■ Chattanooga, Tennessee
3601 Dodds Avenue ■ Terracon Project No. E2197064



Photo #13 View of the ceiling in the original main building.



Photo #14 View of the ceiling in the original main building.



Photo #15 View of walls in the gymnasium.



Photo #16 View of the floor and walls in the original main building.

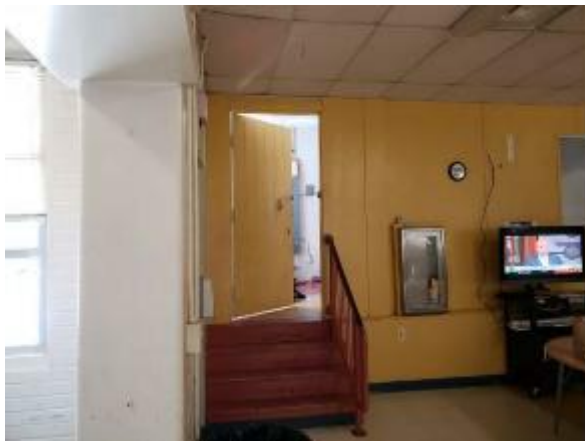


Photo #17 View of the floor and walls in the original main building.



Photo #18 View of floor and walls in the original main building.

Asbestos Survey Report

East Lake YFD Center ■ Chattanooga, Tennessee
3601 Dodds Avenue ■ Terracon Project No. E2197064



Photo #19 View of the floor tile in the original main building.



Photo #20 View of the floor tile in the original main building.



Photo #21 View of the floor tile in the original main building.



Photo #22 View of the asbestos containing floor tile (HA-30) in the gymnasium.



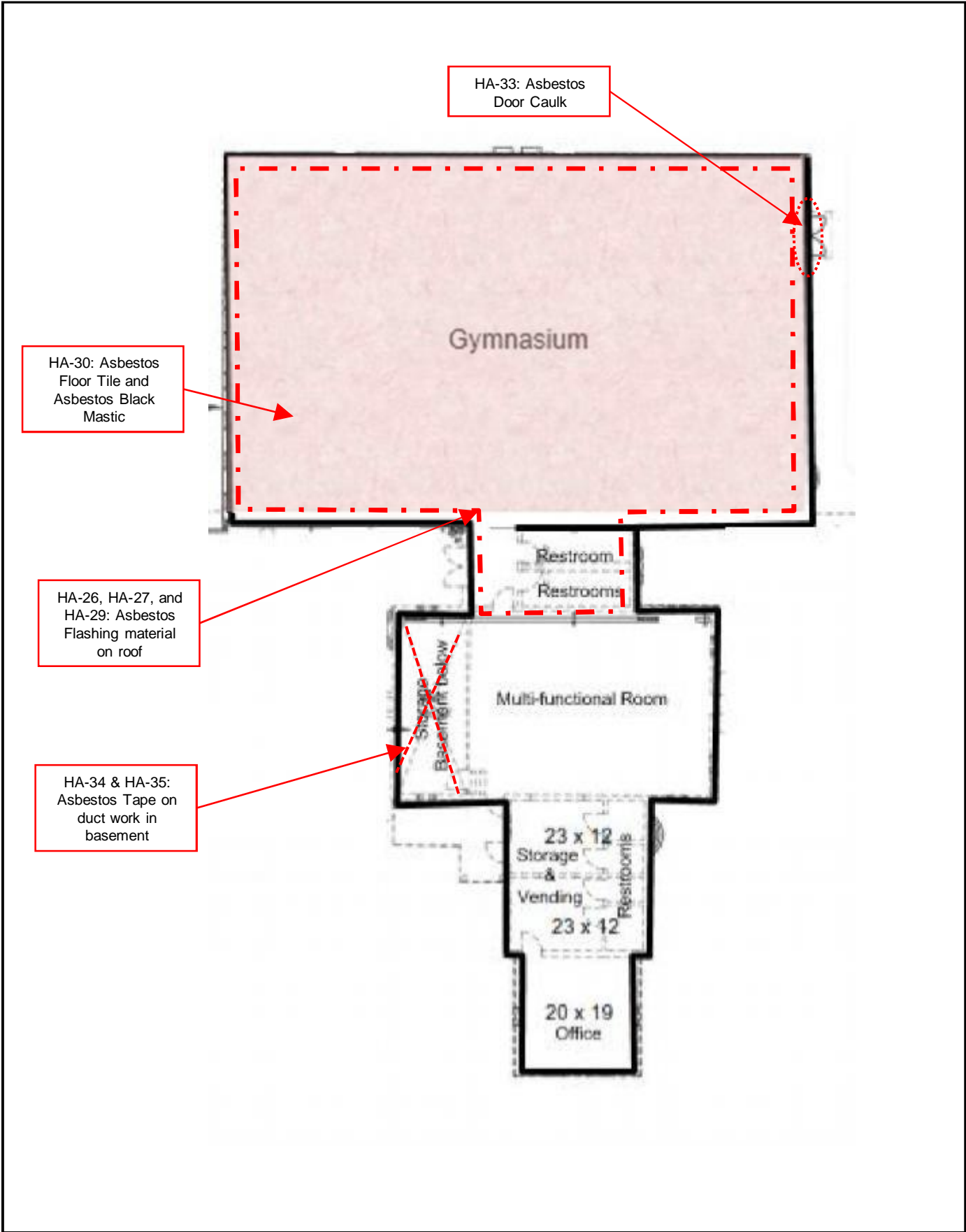
Photo #23 View of the basement.



Photo #24 View of the asbestos containing tape (HA-34 and HA-35) on the duct work in the basement.

APPENDIX F

SITE DIAGRAM



Project Manager: **BWW**
 Drawn By: **BWW**
 Checked By: **TTS**
 Approved By: **TTS**

Project No. **E2197064**
 Scale: **As Shown**
 File Name: **N:\Projects\2019**
 Date: **July, 2019**

Terracon
 Consulting Engineers & Scientists

51 Lost Mound Drive, Suite 135 Chattanooga, TN 37406
 PH. (423) 499-6111 FAX. (423) 499-8099

Site Diagram
Asbestos Survey
 East Lake Youth & Family Development Center
 3601 Dodds Avenue
 Chattanooga, Hamilton County, Tennessee

Exhibit
2

August 29, 2019

City of Chattanooga
1250 Market Street
Chattanooga, Tennessee 37402

Attn: Mr. Clay Oliver
P: 423-643-6161
E: moliver@chattanooga.gov

Re: Geotechnical Engineering Letter Report
East Lake YFD Center – Wall Scanning
3601 Dodds Avenue
Chattanooga, Tennessee
Terracon Project No. E2195045

Dear Mr. Oliver:

We have completed the geotechnical engineering services for the above referenced project. This study was performed in general accordance with Terracon Supplemental Change Order dated August 8, 2019. This letter provides the findings of the wall scanning activities performed using Ground Penetrating Radar (GPR) equipment on the west face of the existing basketball gymnasium in the East Lake YFD Center.

The approximate locations of the rebars and the photographs of the wall are included in **Exhibit A** to this letter. The following sections describe the procedures followed for the scanning and discuss the results in relation to the requirements of this task.

SCANNING PROCEDURES

On August 22 and 23, 2019, the west wall inside the existing basketball gymnasium at the East Lake YFD Center was scanned to identify the positions of the reinforcing steel. Based on the discussions with Brian Locke from Artech, the reinforced concrete wall measured approximately 65' wide and 20' high. The wall was split into two halves: the upper and the lower portions. Based on the drawing provided by Artech, the exterior of the lower portion was lined with masonry and its interior with reinforced concrete. The exterior of the upper portion of the wall was lined with stucco. We were not able to determine what was underneath the stucco, but we assume that it is supported by a wire mesh. The interior of the upper wall was covered with plywood supported on wooden or metal framing.

The building was supported on four reinforced steel columns that form the four corners of the gym. A scissor lift was used, by the certified operator, to reach the upper portions of the entire wall.

Geotechnical Engineering Letter Report

East Lake YFD Center – Wall Scanning ■ Chattanooga, Tennessee

August 29, 2019 ■ Terracon Project No. E2195045

GPR equipment was utilized by a trained technician to locate the rebars inside the concrete wall. The GPR equipment performs its function by reflecting a signal off the steel bar placed within the smooth, relatively impervious concrete wall. With a 1600 MHz GPR antenna, the equipment can provide high-resolution results to a maximum effective depth of 18-24 inches depending on the moisture in the concrete, the amount of reinforcing steel, and other conditions.

At this site, the GPR scanning was able to gauge up to the first 12 inches from the interior of the lower wall. The approximate locations of the rebar, including their orientation along the lower wall, were delineated by the equipment.

We were not able to successfully scan the lower half of the wall from the masonry exterior or the entire upper half of the wall using the GPR equipment. The results included herein pertain only to the scanning performed in the lower half of the wall as scanned from the interior of the gym.

FINDINGS

Steel bars were identifiable in the lower half at 16 locations on the lower half of the wall from the interior. A small region in the lower half where the blue pad was located was unable to be scanned by the GPR.

The 16 steel bars were distributed as 5 steel columns as represented in the following figure. The corners of the wall were taken as reference points to measure the distances between the 5 steel column groups. Column groups are identified in the image as Columns 1 through 5. The corners were marked by steel-reinforced concrete columns which, in our assumption, provide support to the ceiling of the gymnasium. Each rebar was anywhere between 1-2.5" in diameter and a cluster of 2 to 4 rebars was grouped into one column.

Geotechnical Engineering Letter Report

East Lake YFD Center – Wall Scanning ■ Chattanooga, Tennessee

August 29, 2019 ■ Terracon Project No. E2195045

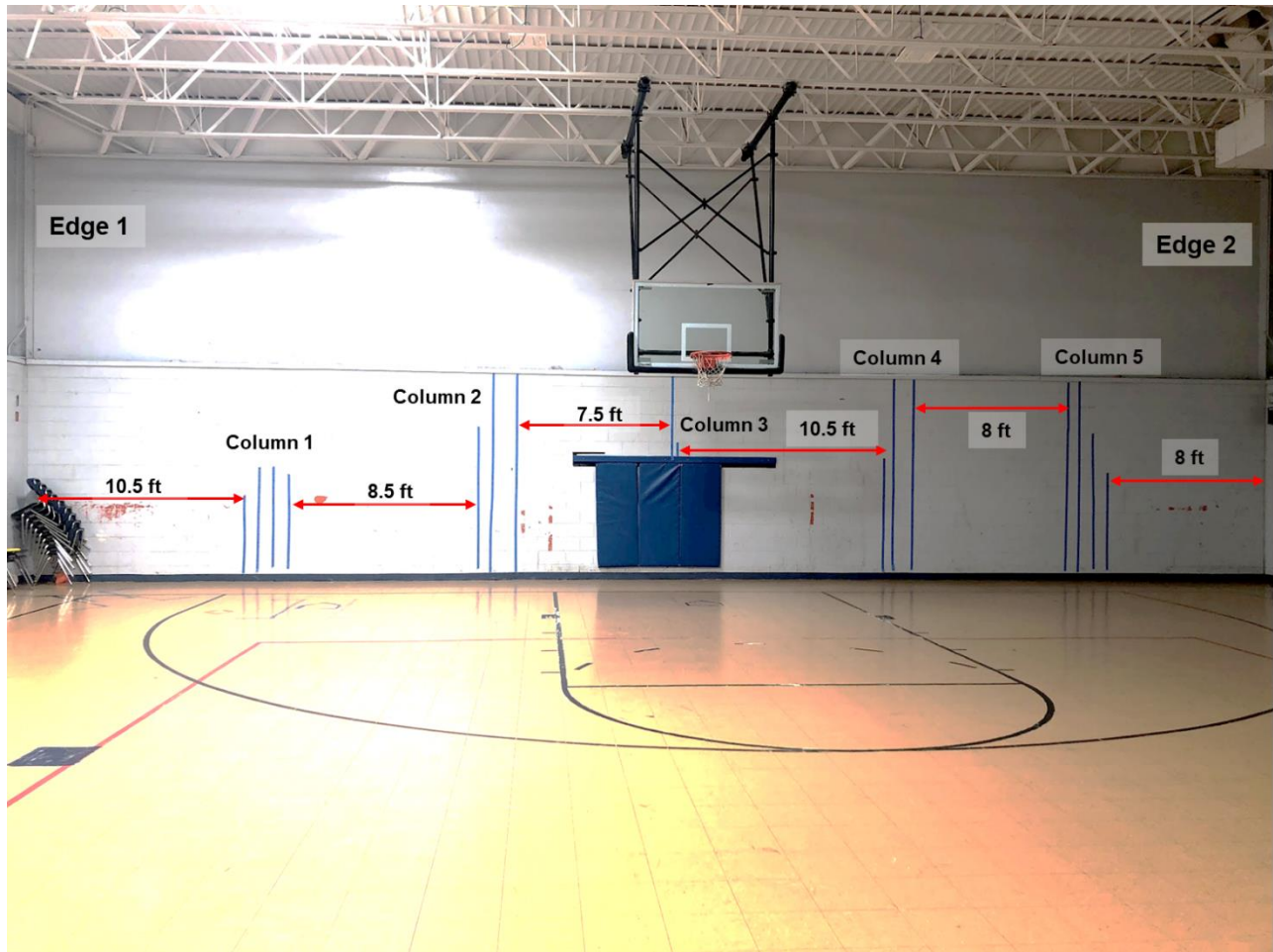


Fig. 1. Steel rebars on the west face of the inside wall marked by blue tape (facing west)

GPR scanning found that the rebar column groups are spaced approximately 7-10 ft along the block wall. The first location starts when you walk into the gym and turn left, starting from the left-hand side – identified in the figure as Edge 1. The distances of each column group are denoted below:

Column Group	Measurement Point	Distance	Minimum no. of rebars and diameter of each rebar
Column 1	Edge 1	10.5 ft	4 rebars - 1" to 2.5" diameter
Column 2	Column 1	8.5 ft	3 rebars - 1.5" to 2.3" diameter
Column 3	Column 2	7.5 ft	2 rebars - 1" to 2" diameter
Column 4	Column 3	10.5 ft	3 rebars - 1.5" to 2.3" diameter
Column 5	Column 4, Edge 2	8 ft	4 rebars - 1" to 2.5" diameter

Geotechnical Engineering Letter Report

East Lake YFD Center – Wall Scanning ■ Chattanooga, Tennessee

August 29, 2019 ■ Terracon Project No. E2195045

Owing to the absence of data for the upper half, Terracon does not recommend cutting windows in the upper half of the wall.

LIMITATIONS

The results presented herein only relate to the existing conditions on the interior of the lower wall. Terracon does not presume the same case may exist on the exterior portion of the lower wall or that the steel bars extend into the upper wall. In order to identify steel bars on the exterior surface of the lower wall, the reinforced concrete surface of the exterior wall should be exposed for the GPR scanning to be effective. Similarly, the fastest way to locate the steel bars (if any) in the upper wall could be achieved by removing the plywood with the wooden/metal planking and checking manually.

The lower portion of the wall was scannable from the inside of the gym using GPR owing to the continuous concrete medium that reflects the radar waves steadily. If the waves hit steel, the ensuing spike in the reflections different from the steady concrete reflections can be interpreted as the potential locations of the rebars. However, the GPR wave reflections from wood or stucco can be highly turbulent and do not tend to be as steady as concrete and hence, distinguishing between the reflections becomes extremely difficult. Therefore, the upper portion of the wall yielded no results for the GPR scanning.

Similarly, the lower half of the wall was not able to be scanned from the outside of the gym owing to the masonry façade. Since GPR requires a smooth and continuous medium with no interruptions along at least 12-18 inches, even a thin strip of air separating the masonry and the reinforced concrete can lead to lost or absorbed reflections by the air gap. The continuous void between the masonry and concrete thereby precluded any reflections from being received by the GPR.

Geotechnical Engineering Letter Report

East Lake YFD Center – Wall Scanning ■ Chattanooga, Tennessee

August 29, 2019 ■ Terracon Project No. E2195045

ACKNOWLEDGEMENT

We appreciate the opportunity to be of continued service to you on this project. If you have any questions concerning this letter report, or if we may be of further service, please contact us.

Sincerely,

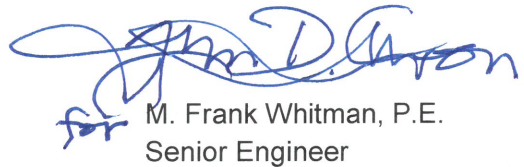
Terracon Consultants, Inc.



Ramnath M. Ganesh, EIT
Field Engineer



S. Taylor Taluskie, P.E.
Department Manager



for M. Frank Whitman, P.E.
Senior Engineer


ATTACHMENTS

Exhibit A: Rebar Locations and Photographs of the wall



Facing West

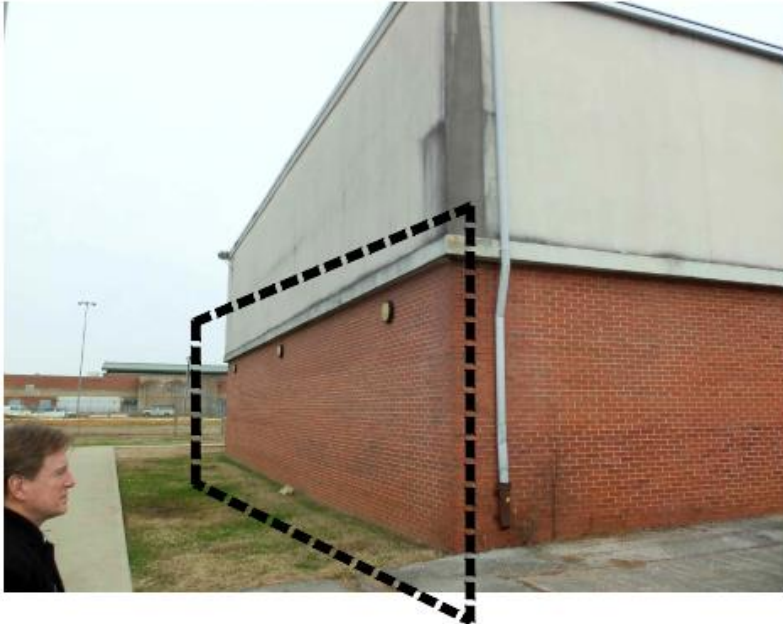
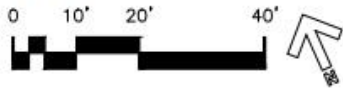
Interior Wall – after scanning
Blue tape indicates steel bars

Project Manager: STT	Project No. E2195045	 <p>51 Lost Mound Dr Chattanooga, Tennessee 37406 PH. (423) 499-6111 FAX. (423) 499-8099</p>	EAST LAKE YFD CENTER – WALL SCANNING	Exhibit
Drawn by: MGR	Scale: As Shown		EAST LAKE YFD CENTER	A
Checked by: STT	File Name: Wall Photographs			
Approved by: MFW	Date: 8/28/2019			

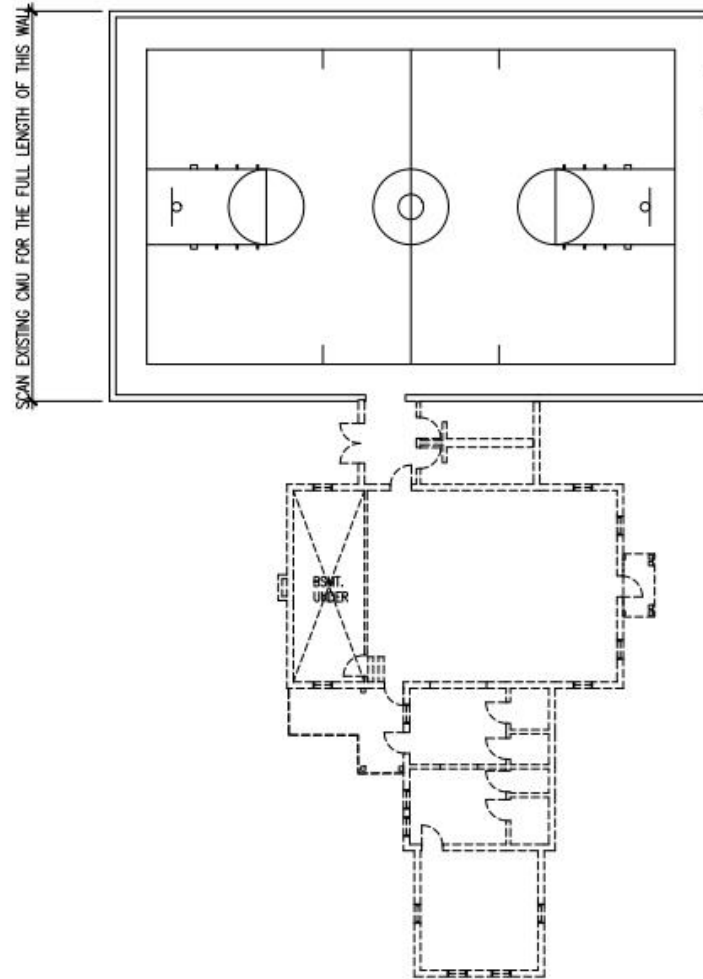
SURFACE PENETRATING RADAR TEST PLAN

SCALE: 1"=20'

2019-07-31



TESTING IS INTENDED TO DETERMINE THE EXTENT OF EXISTING WALL REINFORCING, CONCRETE-FILLED CELL PIERS, ETC., SUCH THAT STRUCTURAL ENGINEERS CAN DESIGN NEW WINDOW OPENINGS.



Facing North
Drawing provided by Artech

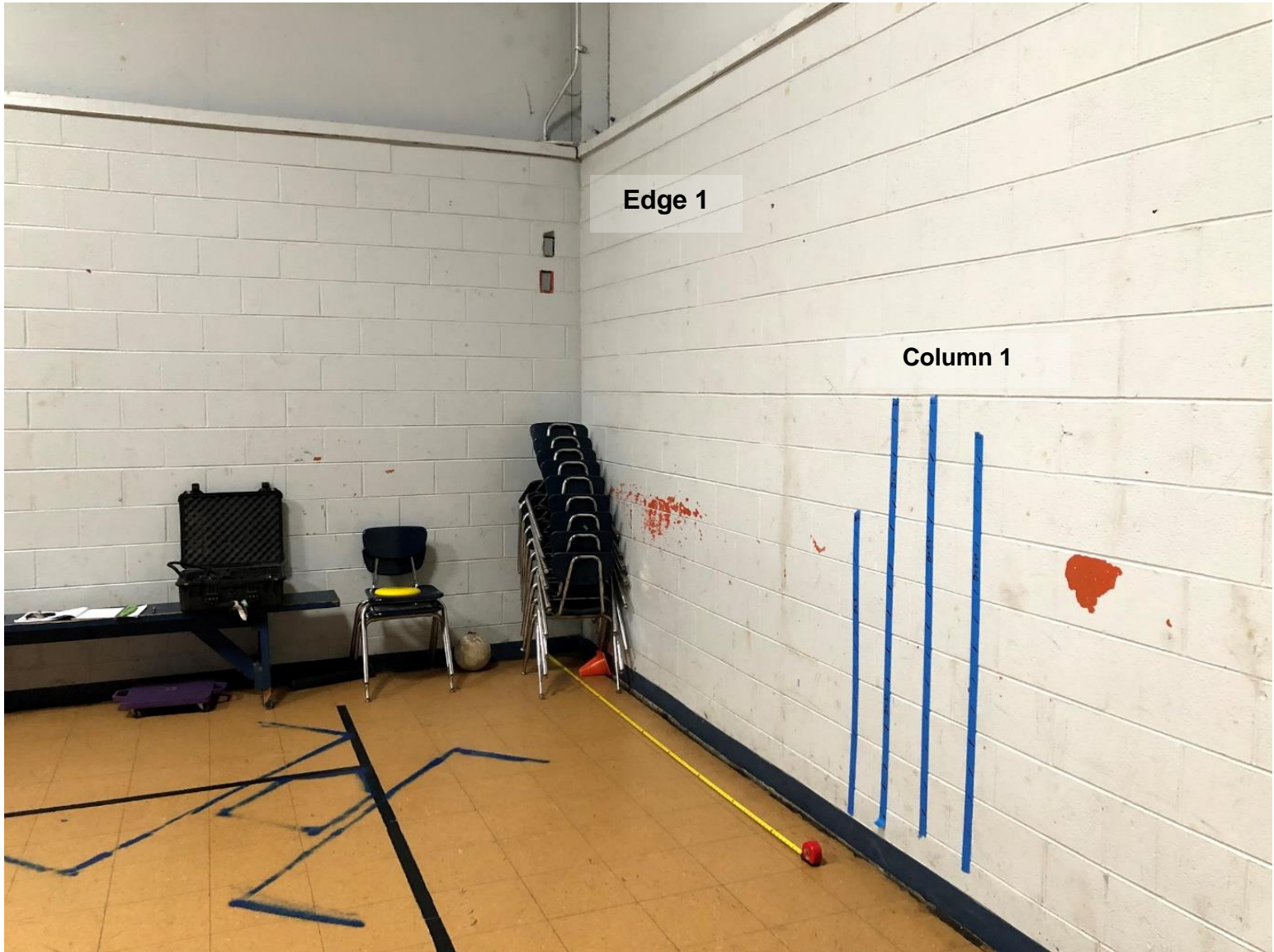
Project Manager:	STT	Project No.	E2195045
Drawn by:	MGR	Scale:	As Shown
Checked by:	STT	File Name:	Wall Photographs
Approved by:	MFW	Date:	8/28/2019

Terracon
Consulting Engineers & Scientists

51 Lost Mound Dr Chattanooga, Tennessee 37406
PH. (423) 499-6111 FAX. (423) 499-8099

EAST LAKE YFD CENTER – WALL SCANNING
EAST LAKE YFD CENTER
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE

Exhibit
A



Edge 1

Column 1

Facing South West

Column 1 = 10.5 ft North
from Edge 1

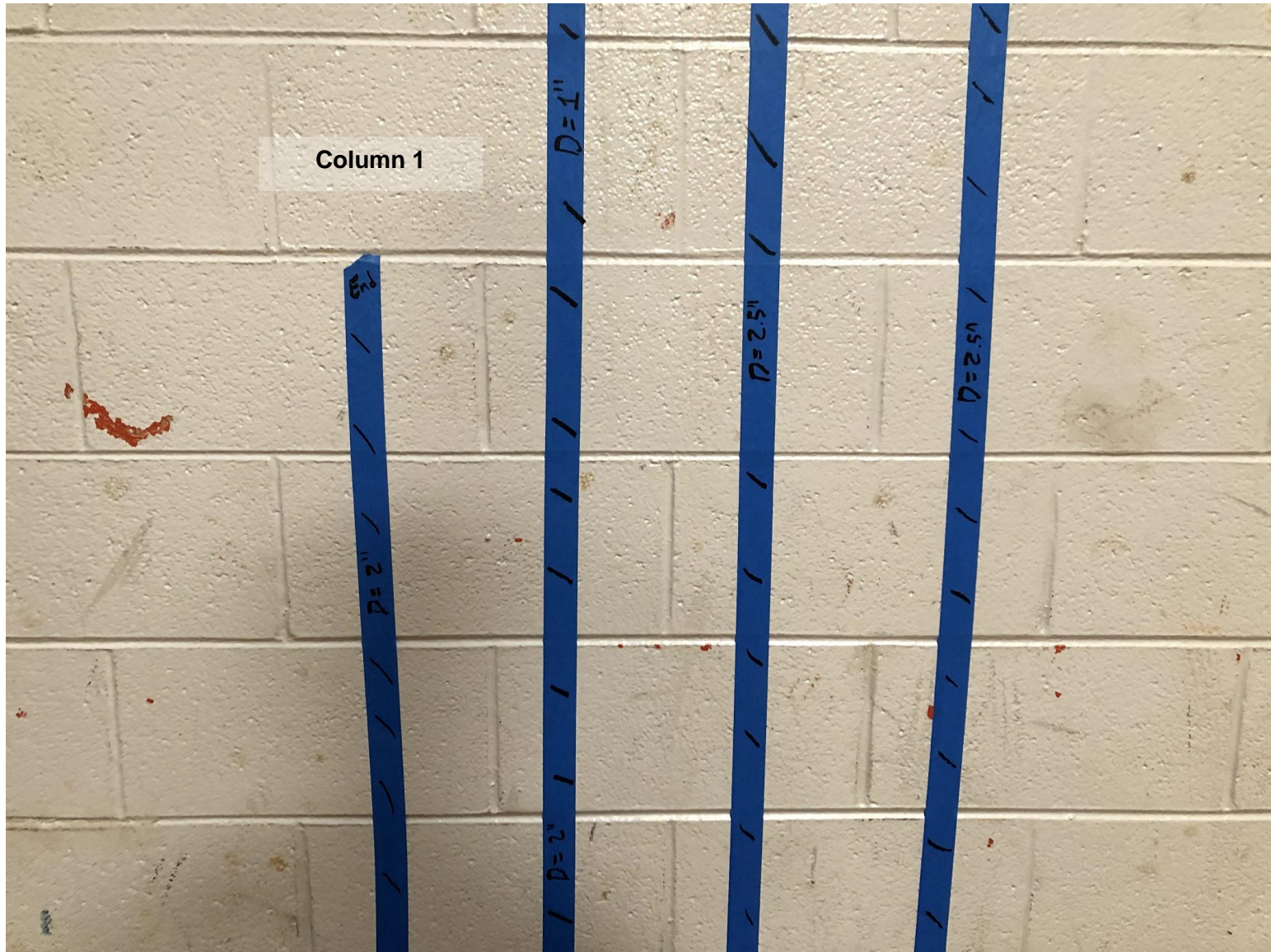
Project Manager:	STT	Project No.	E2195045
Drawn by:	MGR	Scale:	As Shown
Checked by:	STT	File Name:	Rebar images
Approved by:	MFV	Date:	8/28/2019

Terracon
Consulting Engineers & Scientists


51 Lost Mound Dr Chattanooga, Tennessee 37406
PH. (423) 499-6111 FAX. (423) 499-8099

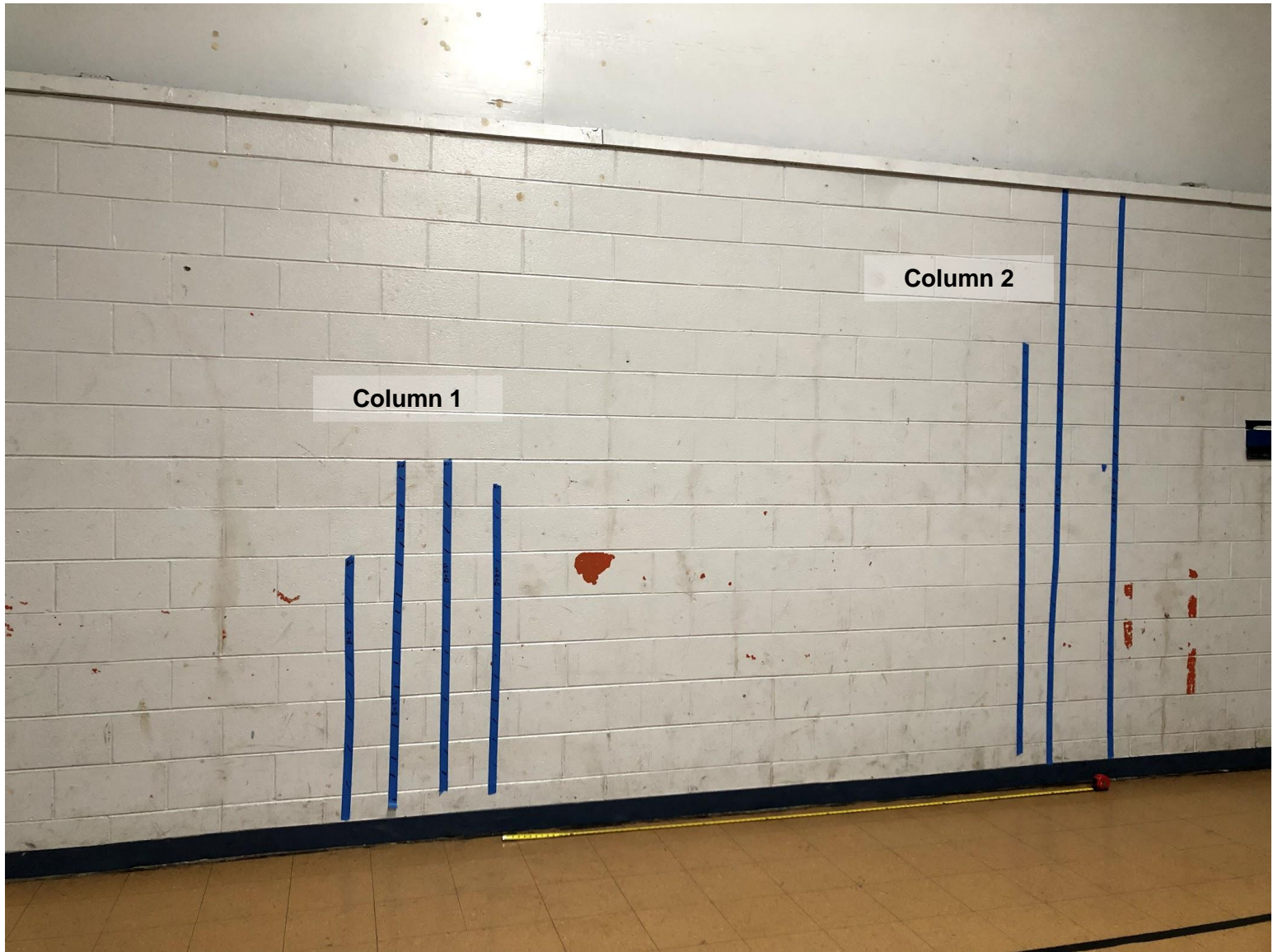
EAST LAKE YFD CENTER – WALL SCANNING
EAST LAKE YFD CENTER
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE

Exhibit
A




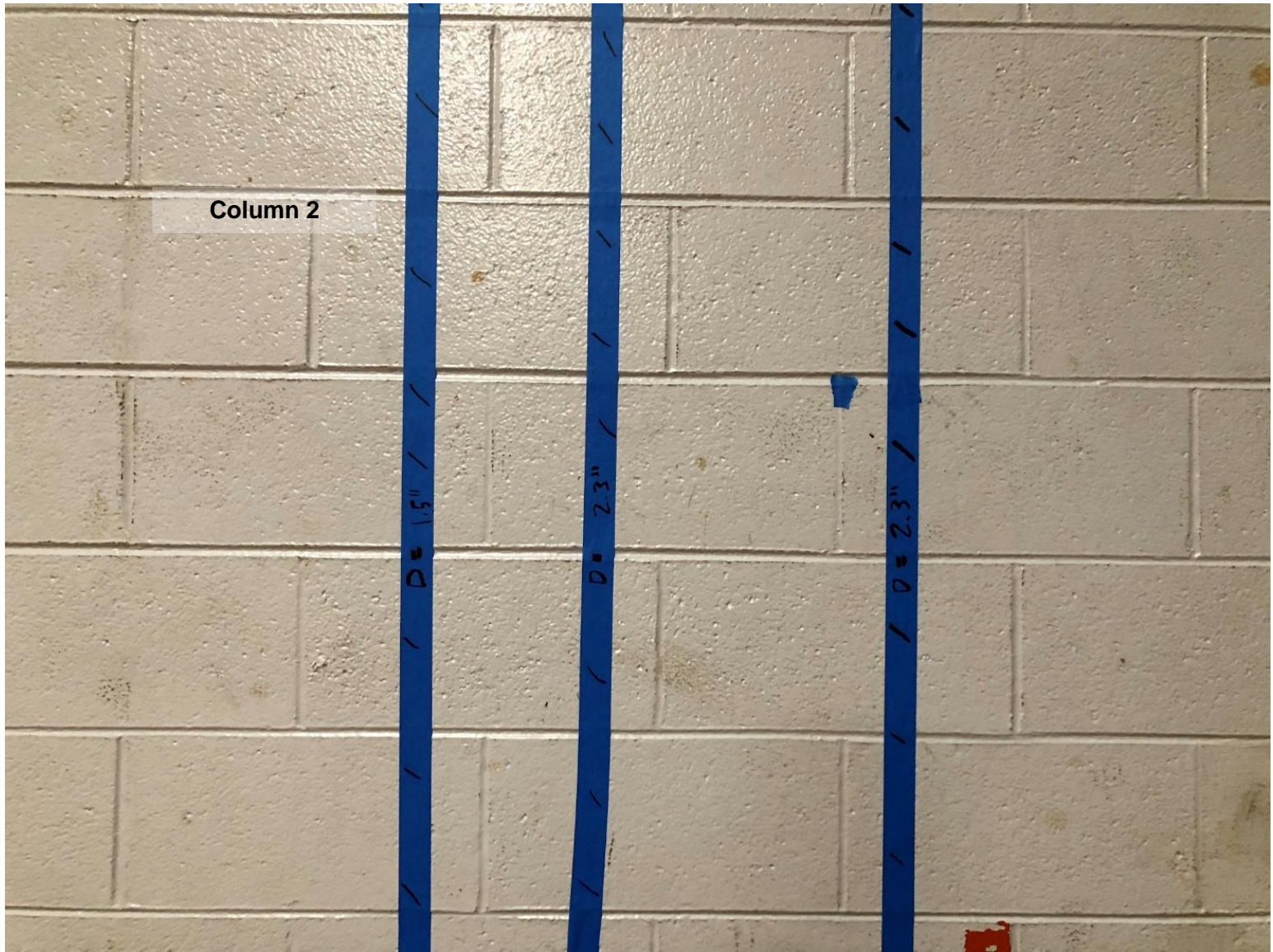
Facing West
Column 1 steel bars

Project Manager: STT	Project No. E2195045	 51 Lost Mound Dr Chattanooga, Tennessee 37406 PH. (423) 499-6111 FAX. (423) 499-8099	EAST LAKE YFD CENTER – WALL SCANNING	Exhibit
Drawn by: MGR	Scale: As Shown		EAST LAKE YFD CENTER CHATTANOOGA, HAMILTON COUNTY, TENNESSEE	A
Checked by: STT	File Name: Rebar images			
Approved by: MFW	Date: 8/28/2019			



Facing West
 Column 2 = 8.5 ft North
 from Column 1

Project Manager: STT	Project No. E2195045	 Terracon Consulting Engineers & Scientists <small>51 Lost Mound Dr Chattanooga, Tennessee 37406</small> <small>PH. (423) 499-6111 FAX. (423) 499-8099</small>	EAST LAKE YFD CENTER – WALL SCANNING	Exhibit
Drawn by: MGR	Scale: As Shown		EAST LAKE YFD CENTER	A
Checked by: STT	File Name: Rebar images		CHATTANOOGA, HAMILTON COUNTY, TENNESSEE	
Approved by: MFW	Date: 8/28/2019			




Column 2

D = 1.5"

D = 2.3"

D = 2.3"

Facing West
Column 2 steel bars

Project Manager: STT	Project No. E2195045	 51 Lost Mound Dr Chattanooga, Tennessee 37406 PH. (423) 499-6111 FAX. (423) 499-8099	EAST LAKE YFD CENTER – WALL SCANNING	Exhibit
Drawn by: MGR	Scale: As Shown		EAST LAKE YFD CENTER	A
Checked by: STT	File Name: Rebar images			
Approved by: MFW	Date: 8/28/2019			



Facing West

Column 3 = 7.5 ft North
from Column 2

Project Manager:	STT	Project No.	E2195045
Drawn by:	MGR	Scale:	As Shown
Checked by:	STT	File Name:	Rebar images
Approved by:	MFW	Date:	8/28/2019

Terracon
Consulting Engineers & Scientists

51 Lost Mound Dr Chattanooga, Tennessee 37406
PH. (423) 499-6111 FAX. (423) 499-8099

EAST LAKE YFD CENTER – WALL SCANNING
EAST LAKE YFD CENTER
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE


Exhibit
A

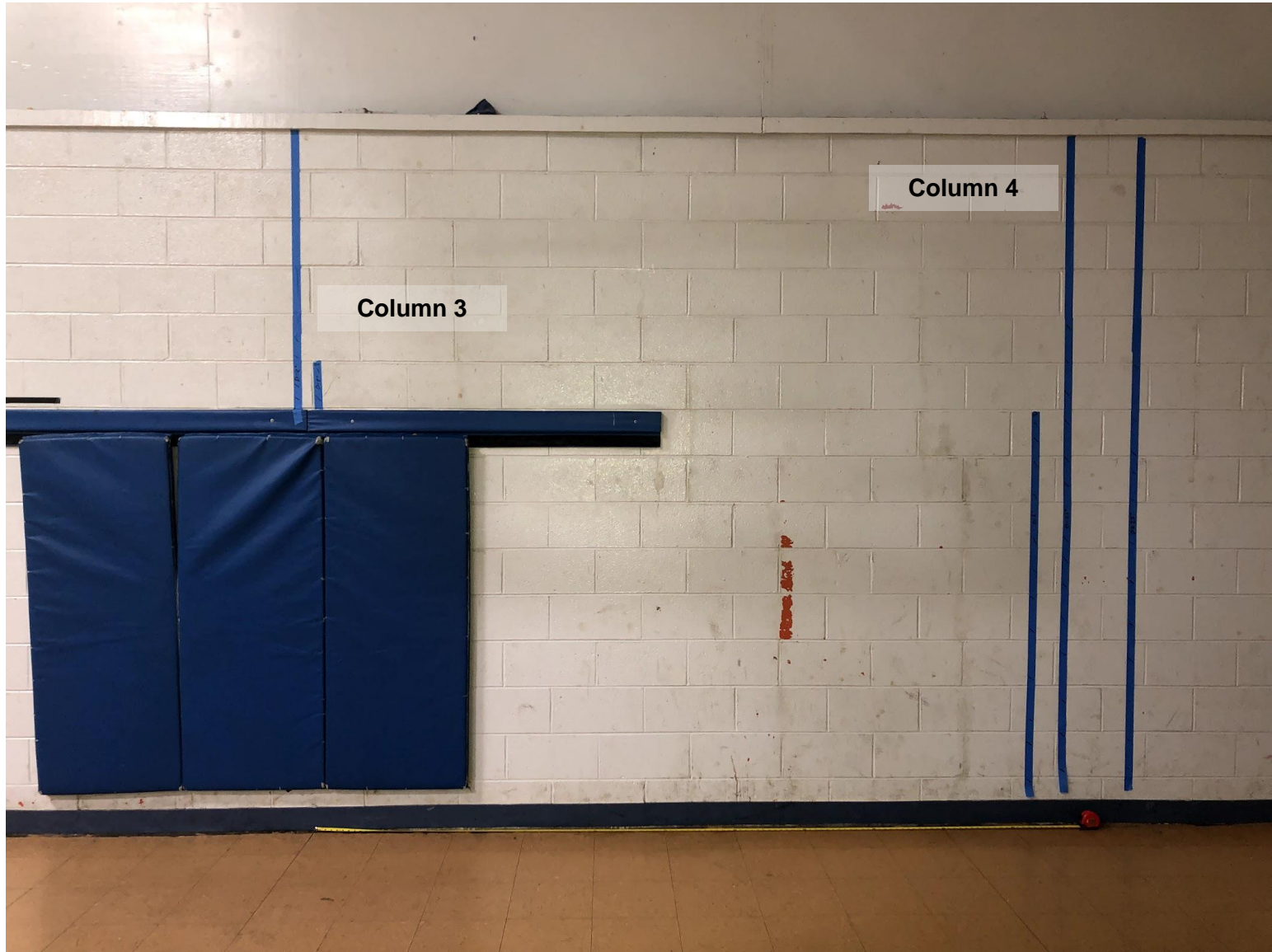


Column 3

D=2"
D=1"


Facing West
Column 3 steel bars

Project Manager: STT	Project No. E2195045	 <p>51 Lost Mound Dr Chattanooga, Tennessee 37406 PH. (423) 499-6111 FAX. (423) 499-8099</p>	EAST LAKE YFD CENTER – WALL SCANNING	Exhibit
Drawn by: MGR	Scale: As Shown		EAST LAKE YFD CENTER	A
Checked by: STT	File Name: Rebar images			
Approved by: MFW	Date: 8/28/2019			

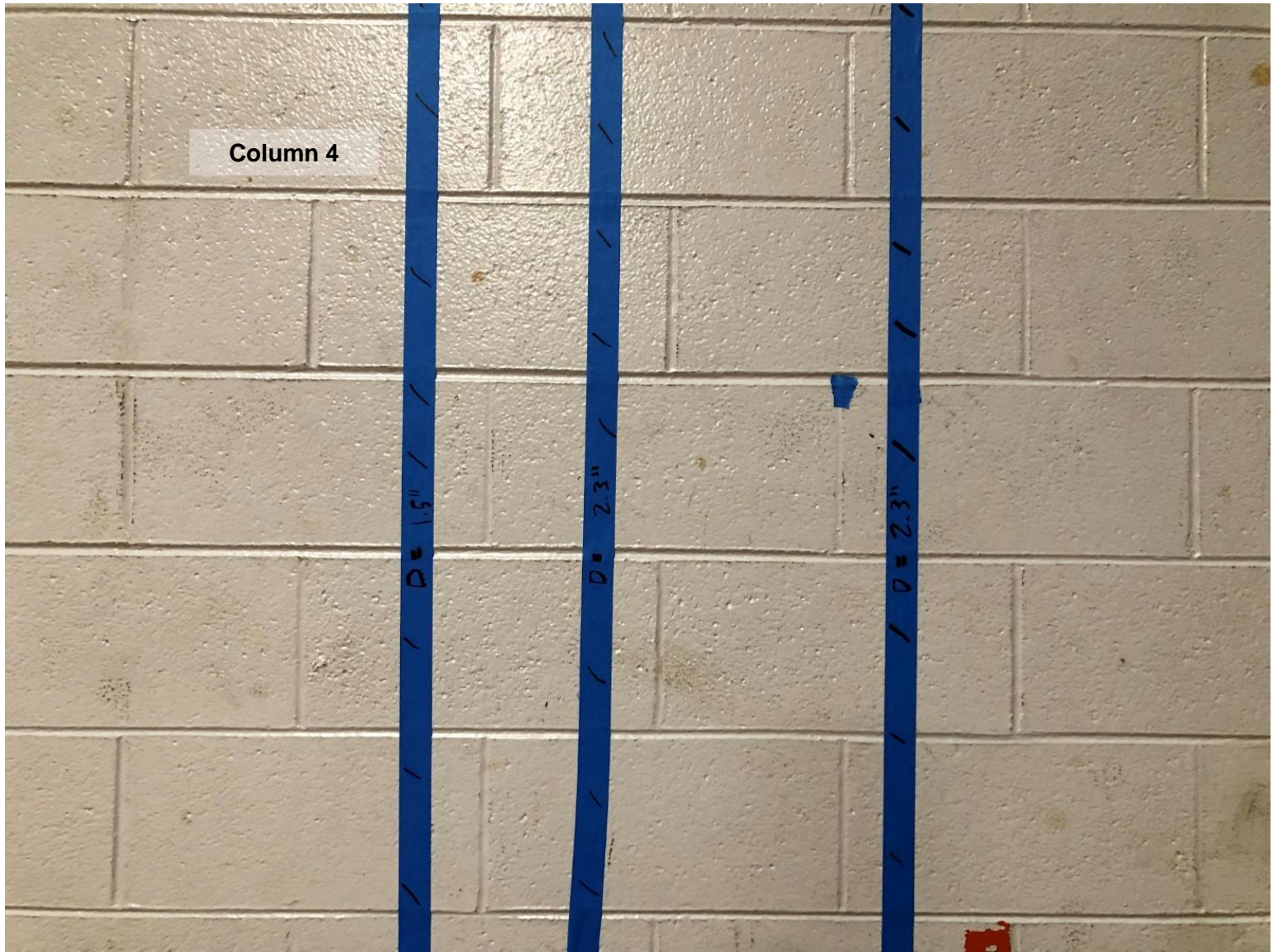


Facing South West

Column 4 = 10.5 ft North
from Column 3

Project Manager: STT	Project No. E2195045	 <p>51 Lost Mound Dr Chattanooga, Tennessee 37406 PH. (423) 499-6111 FAX. (423) 499-8099</p>	EAST LAKE YFD CENTER – WALL SCANNING	Exhibit
Drawn by: MGR	Scale: As Shown		EAST LAKE YFD CENTER	A
Checked by: STT	File Name: Rebar images			
Approved by: MFW	Date: 8/28/2019			

CHATTANOOGA, HAMILTON COUNTY, TENNESSEE




Column 4

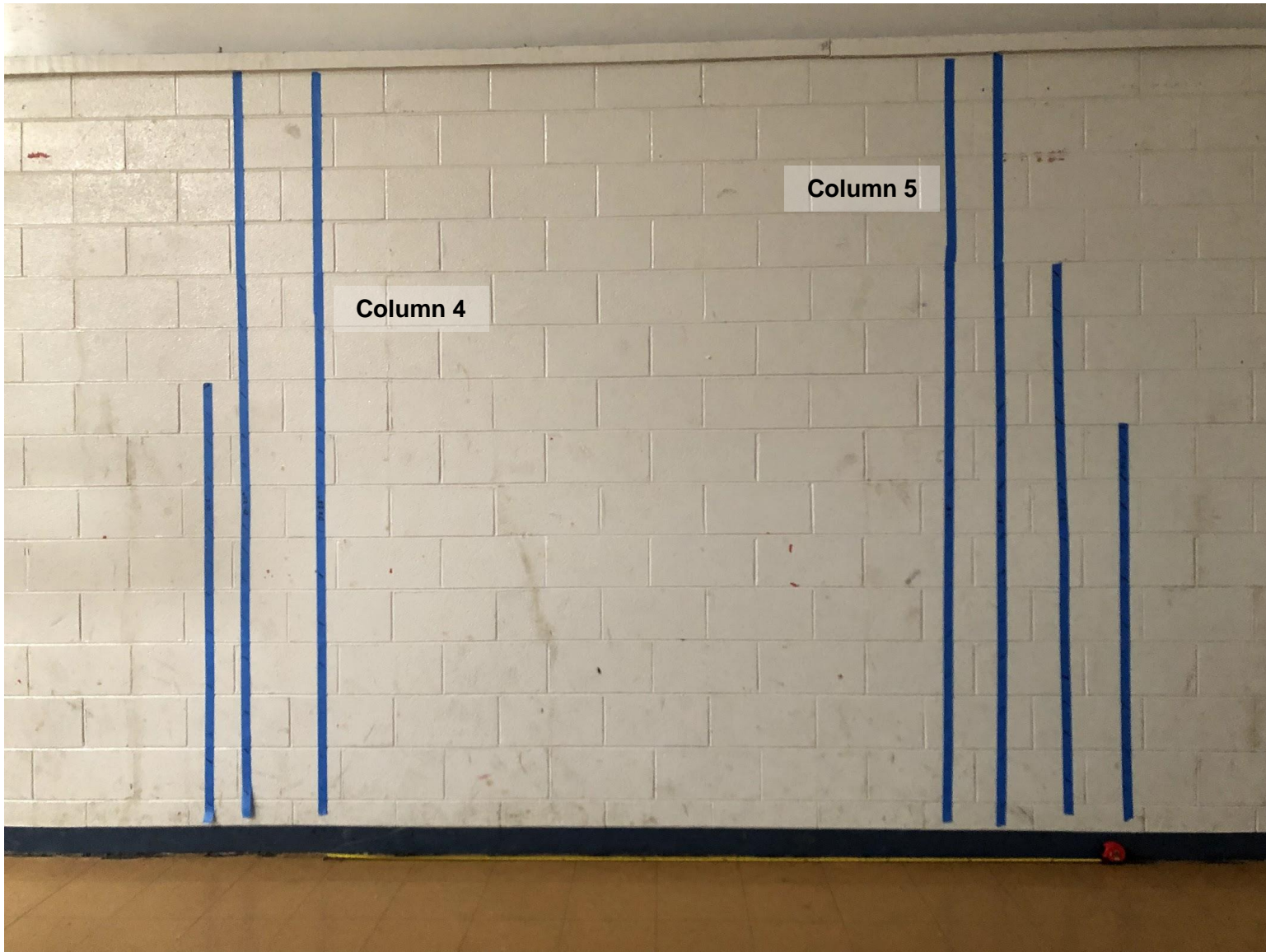
D = 1.5"

D = 2.3"

D = 2.3"

Facing West
Column 4 steel bars

Project Manager: STT	Project No. E2195045	 51 Lost Mound Dr Chattanooga, Tennessee 37406 PH. (423) 499-6111 FAX. (423) 499-8099	EAST LAKE YFD CENTER – WALL SCANNING	Exhibit
Drawn by: MGR	Scale: As Shown		EAST LAKE YFD CENTER	A
Checked by: STT	File Name: Rebar images		CHATTANOOGA, HAMILTON COUNTY, TENNESSEE	
Approved by: MFW	Date: 8/28/2019			



Facing South West
 Column 5 = 8 ft North
 from Column 4

Project Manager:	STT	Project No.	E2195045
Drawn by:	MGR	Scale:	As Shown
Checked by:	STT	File Name:	Rebar images
Approved by:	MFW	Date:	8/28/2019

Terracon
 Consulting Engineers & Scientists

51 Lost Mound Dr Chattanooga, Tennessee 37406
 PH. (423) 499-6111 FAX. (423) 499-8099

EAST LAKE YFD CENTER – WALL SCANNING
EAST LAKE YFD CENTER
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE

Exhibit
A



Edge 2

Column 5

Facing South West
 Column 5 = 8 ft South
 from Edge 2

Project Manager:	STT	Project No.	E2195045
Drawn by:	MGR	Scale:	As Shown
Checked by:	STT	File Name:	Rebar images
Approved by:	MFW	Date:	8/28/2019

Terracon
 Consulting Engineers & Scientists

51 Lost Mound Dr Chattanooga, Tennessee 37406
 PH. (423) 499-6111 FAX. (423) 499-8099

EAST LAKE YFD CENTER – WALL SCANNING

EAST LAKE YFD CENTER

CHATTANOOGA, HAMILTON COUNTY, TENNESSEE


Exhibit

A



Column 5

Facing West
Column 5 steel bars

Project Manager: STT	Project No. E2195045	 <p>51 Lost Mound Dr Chattanooga, Tennessee 37406 PH. (423) 499-6111 FAX. (423) 499-8099</p>	EAST LAKE YFD CENTER – WALL SCANNING	Exhibit
Drawn by: MGR	Scale: As Shown		EAST LAKE YFD CENTER	A
Checked by: STT	File Name: Rebar images			
Approved by: MFW	Date: 8/28/2019			

Y-17-005
East Lake Community Center Renovations
Pre-Bid Meeting Agenda
1/9/2020 @ 10:00 a.m.
On-Site

Owner:	City of Chattanooga
Engineering Project Manager:	Clay Oliver (423.643-6161)
Architect:	Rick Thompson (Artech)
Engineer:	Electrical- Charles Winkler (Khafra) Mechanical, Plumbing, and Fire Protection- Jeff Westbrook (MAA) Structural- Valentino Bates (Khafra) Civil- Joe Hutcherson (MAA)
Inspector:	TBD
Contractor:	TBD
Contractor's Project Manager:	TBD
Superintendent:	TBD
Contract Amount:	TBD

Project Scope:

The scope of this project consists of the following major elements of construction including, but not limited to:

This project consists of the demolition of an existing YFD facility and salvaging the gymnasium attached, repurposing that existing gymnasium into the new YFD facility by subdividing it into offices, bathrooms, large multipurpose rooms, and various smaller rooms. Contractor will be constructing a new prefabricated metal building to serve as the new gymnasium. The project also includes site work including a reconfigured parking area, drop off area, entryway, new site fencing and connections to Dodds Ave.

Contractor will be required to coordinate with the Artist for a Public Art project in the new gymnasium during construction.

Notice to Proceed (NTP):	3/10/20
Work Must Commence:	3/23/20
Completion Date:	12/23/20
Contract Length:	275 days
Liquidated Damages / Incentive	\$500/ day damages, No incentive payment.

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Pre-Bid Meeting Agenda:

Pre-Bid Meeting Agenda and Sign-In Sheet will be included in an Addendum.

Bid Documents:

Refer to Section 00 21 13 Instructions to Bidders.

Purchase Bids from 8:00 a.m. to 4:30 p.m., Monday through Friday, at the City of Chattanooga Purchasing Department, 101 East 11th Street, Suite G13, Chattanooga, TN 37402, phone (423) 757-5184, fax (423) 757-0949.

Cost of Contract Documents is \$100 per set. No part of the purchase will be refunded by any reason.

Bid Bond in the amount of 5% of Bid with Surety licensed to do business in TN and listed in U.S. Treasury Circular 570.

No Bid withdrawn within 120 days of receipt of Bids.

Qualifications:

Refer to Section 00 21 13 Instructions to Bidders, and Section 00 45 13 Statement of Bidder's Qualifications.

Bidder shall maintain permanent place of business.

Must be licensed by State of Tennessee to perform work under contract.

Bidder shall demonstrate adequate construction experience and sufficient equipment resources to properly perform work.

Owner reserves the right to reject any bid if bidder fails to satisfy qualifications.

Bidding Requirements:

Bid Bond in the amount of 5% of Bid with Surety licensed to do business in TN and listed in U.S. Treasury Circular 570.

No Bid withdrawn within 120 calendar days of receipt of Bids.

Section 00 45 77 – Contractor's Identification must be completed, with one copy attached to the bid package, and one copy inside the bid package.

Bidder Questions and Agenda:

Use Section 002114 – Request for Bidder Information. Submit by fax, email or mail to City of Chattanooga Purchasing Department. bidinfo@chattanooga.gov

Questions received less than (10) days prior to the date for opening the Bids may not be answered.

Required to purchase set of plans and specifications to get on the plan holders list.

Only bidders on plan holders list will receive addenda; which must be acknowledged in the Bid Form.

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1/9/2020 @ 10:00 a.m.
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Bid Opening:

Date/Time – January 21st, 2020, 2:00PM

Location – City of Chattanooga Purchasing Department, 101 East 11th Street, suite G13, Chattanooga, TN

Utilities:

Contractor shall coordinate all utility work. Contact utilities in advance of work.

Standard Work Week:

Regular working hours are Monday through Saturday from 7:00 am to 7:00 pm.

Contractor shall notify the owner 24 hours prior to working on Saturday and/or Sunday. The contractor will not be unduly restricted to work on Saturday and Sundays.

Progress Meetings:

Bi-weekly – At a time and place agreed upon by contractor, owner, and design team.

Meetings shall be onsite as weather allows, else in the DRC.

Schedules and Reports:

Contractor shall submit within 5 days a detailed schedule showing the critical path to general construction operations, indicating the sequence of the work, the estimated dates of starting each task, and the estimated time of completion of each task.

Extra Work/Filing Claims:

Any claims for extra work or contract extension must be brought to the City's attention as quickly as possible

Handling Disputes:

Any items of dispute shall immediately be brought to the City's attention.

Project Sign:

One project sign is required

Safety and Supervision:

Contractor's responsibility.

Funding:

100% Local Funds

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Subcontracting:

General Contractor shall submit a list of all subcontractors for approval, including minority status and value of subcontracts.

Erosion Control:

Adhere to the Erosion Control Plans set forth on the plans and/or refer to the Stormwater BMP Manual. City has applied for land disturbing permits. Contractor shall pay permit fees on pick up.

Permits:

Contractor's responsibility. Including all demolition and building permits necessary to obtain a certificate of occupancy.

Field Office:

Contractor will be required to keep an office trailer on site. Contractor may utilize existing trailer on site prior to demolition.

Surveying & Staking of Work:

Contractor shall be responsible for surveying and staking all work.

Items of Note:

Items Discussed:

ATTENDING PRE-BID CONFERENCE

Bid/Proposal Number: 193598

East Lake Community Center Renovations

Opening Date: 01/21/20

Pre-Bid Date: 01/09/20

Name & Company

Email

COC/BONNIE LUNAPOWER DODSON B.MUMPOWER@CHATTANOOGA.GOV

Tony Satterthwaite/Young Electric tony@youngelectric.net

JASON BLACK/PC CONST. jason@pc-const.com

Ben Smith/Adman Electric Bsmith@admanelectric.com

Aaron Bell/Irr Interior Aaronbell1277@fmail.com

Calvin Ball-Tower Construction calvin.ball@towerconstructionco.com

Justin Patrick/NABCO Electric jpatrick@nabcoelectric.com

Wes Boyd/Winesett-Hill wboyd@winesett-hill.com

John Hellingworth jhellingworth@winesett-hill.com

DANIEL KRUSZEWSKI DAN.KRUSZ@TERRACON.COM

SHELTON WALKER

I-ST, LLC swalker@istcompany.com

DEBBIE TAULEY/COE DTAULEY@CHATTANOOGA.GOV

DENNIS MALONE/COE DMALONE@CHATTANOOGA.GOV

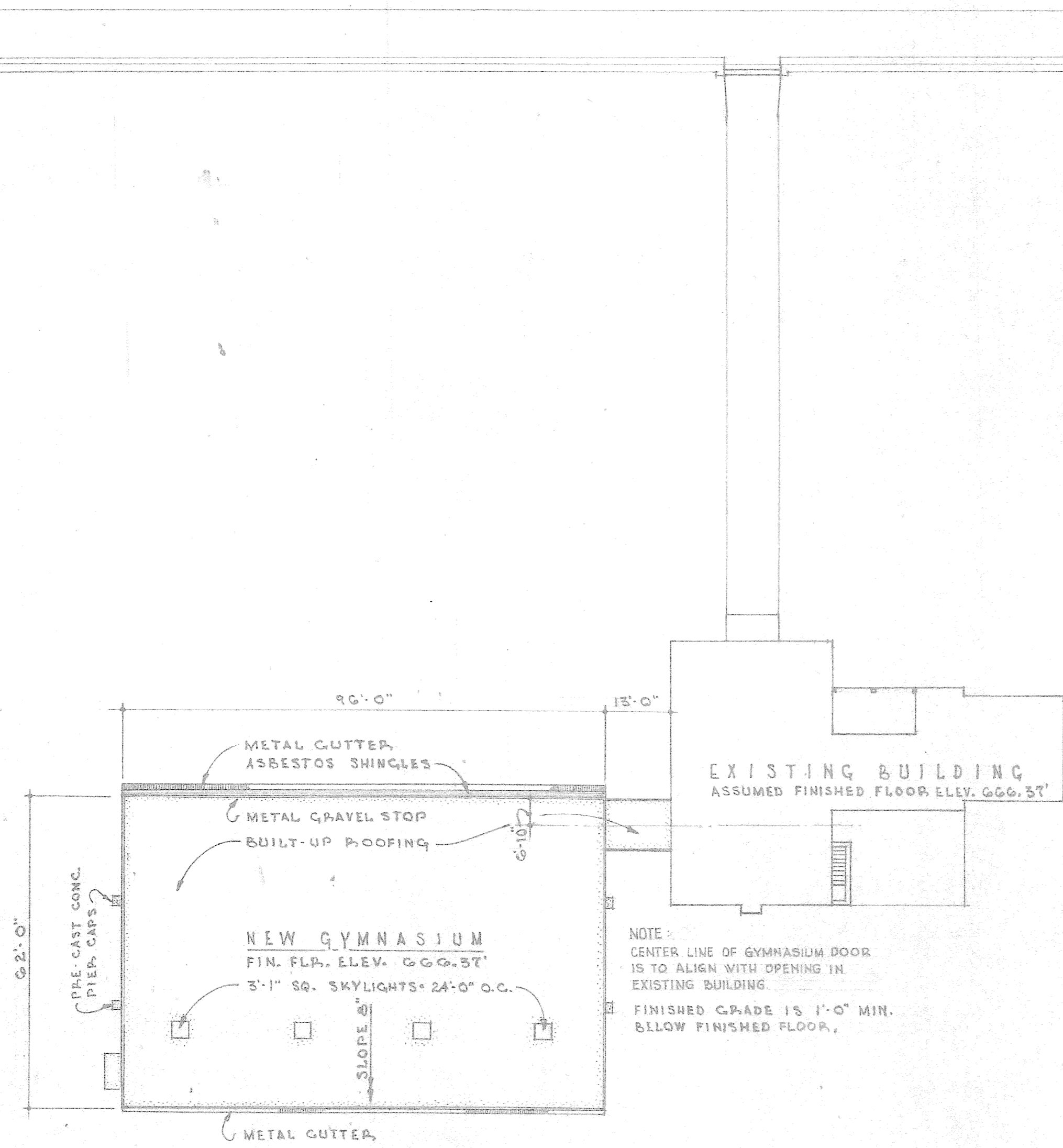
MICHAEL (CLAY) OLIVER/COE MOLIVER@CHATTANOOGA.GOV

RICK THOMPSON/ARTECH

Brian Locke

D O D S O N A V E N U E

D A I S Y



O 24" HICKORY

S I T E P L A N

SCALE: 1" = 20'

L I S T O F D R A W I N G S

- A1 SITE PLAN
- A2 FLOOR PLAN AND FOUNDATION PLAN
- A3 ELEVATIONS
- A4 WALL SECTIONS AND DETAILS
- M1 MECHANICAL AND ELECTRICAL PLANS

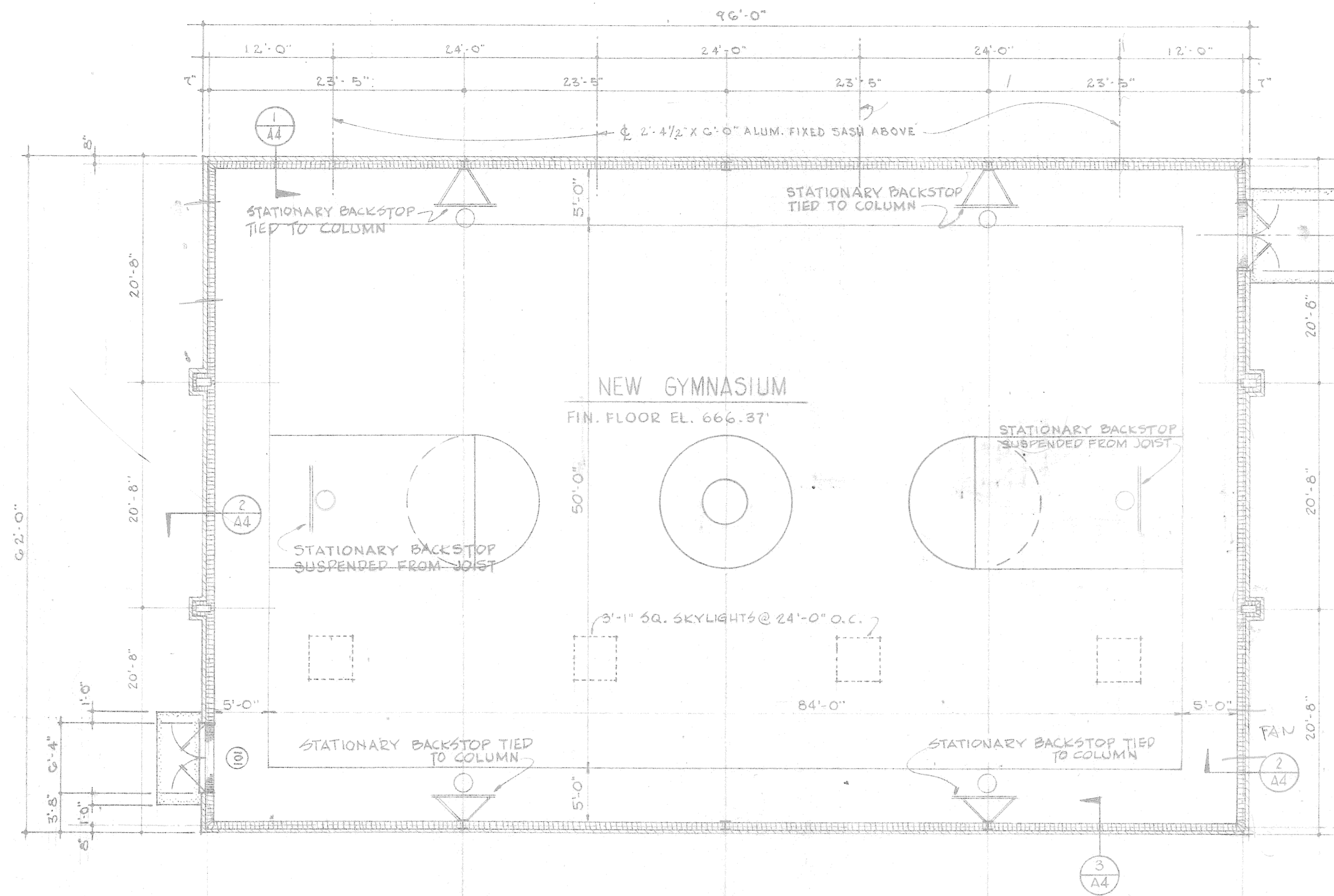
I N D I C A T I O N O F M A T E R I A L S

- EARTH
- GRAVEL
- CONCRETE - CAST-IN-PLACE
- CONCRETE - PRE-CAST
- CONCRETE BLOCK
- BRICK
- GLAZED STRUCTURAL TILE
- WOOD
- METAL
- THERMAL INSULATION
- RESILIENT FLOORING

DOBBS

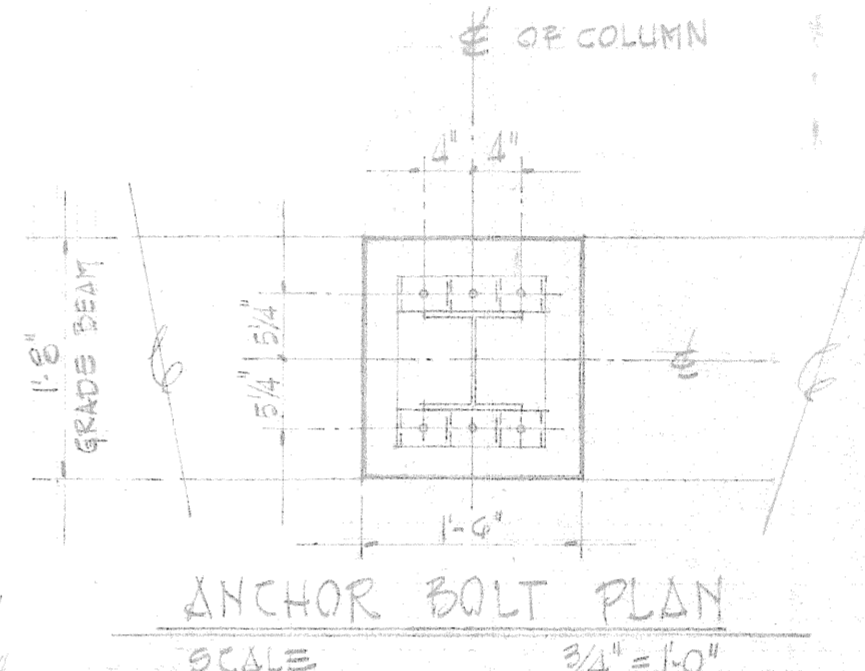
SIMILAR LAYOUT FOR EAST LAKE GYM

JAMES FRANKLIN, ARCHITECTS/PLANNERS, P.A.
 JAMES R. FRANKLIN, ARCHITECT
 MARSHALL A. HILDEBRAND, ARCHITECT
 816 LOOKOUT STREET CHATTANOOGA, TENNESSEE 37403
 2409 DODDSON AVENUE CHATTANOOGA, TENNESSEE
 EAST CHATTANOOGA RECREATION CENTER
 GYMNASIUM
 REVISIONS: 72 10
 DATE: 9 MAR. 72



FLOOR PLAN
SCALE: 1/8" = 1'-0"

NOTE:
REMOVE EXIST. WOOD EASEMENTS, ECT., AND BRICK WALL. PATCH AND REPAIR AS REQ'D. INSTALL NEW METAL DOOR FRAME, PAIR OF METAL DOORS AS REQ'D TO FILL AVAILABLE OPH'G. USE "PANIC" HARDWARE AND ALUMINUM THRESHOLD. DOORS & FRAME PAINTED.



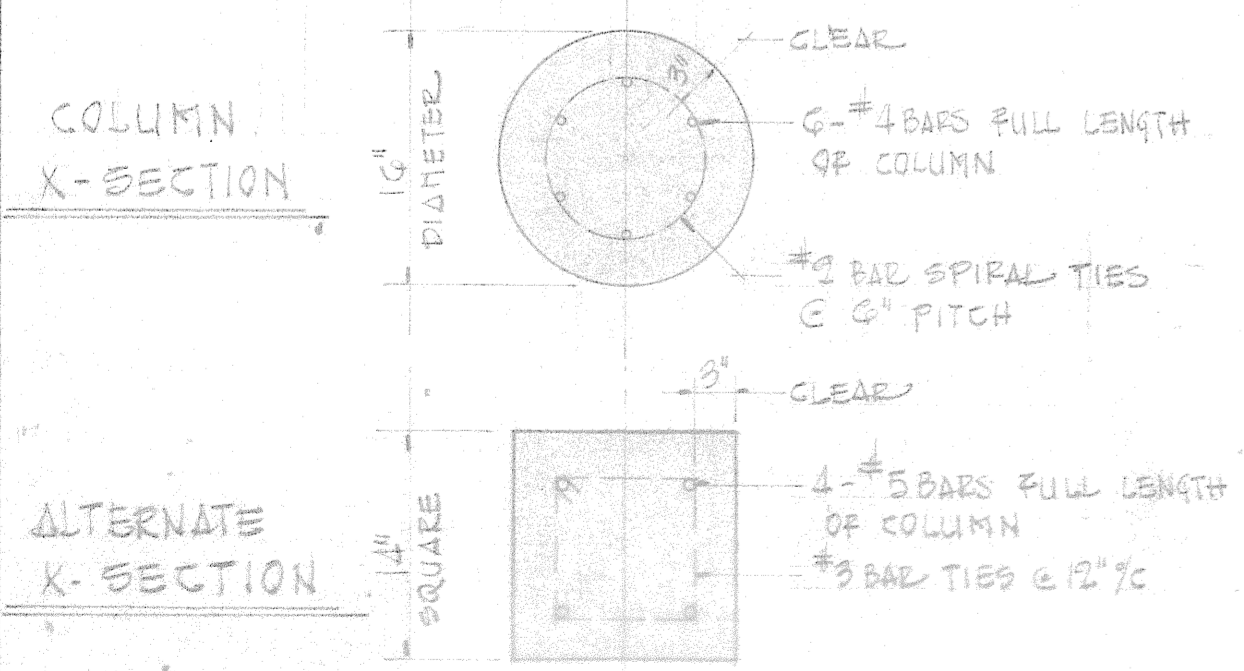
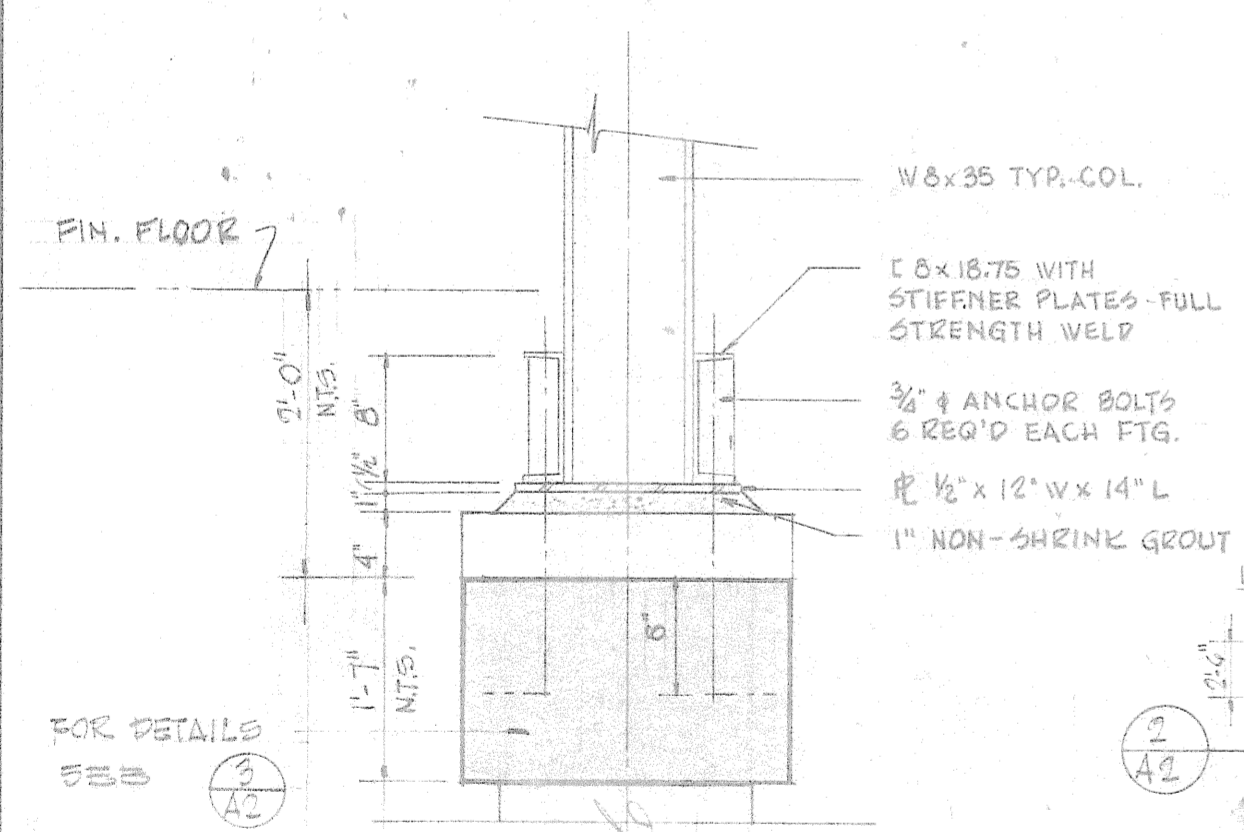
ANCHOR BOLT PLAN
SCALE: 3/4" = 1'-0"

SECTION
SCALE: 3/4" = 1'-0"

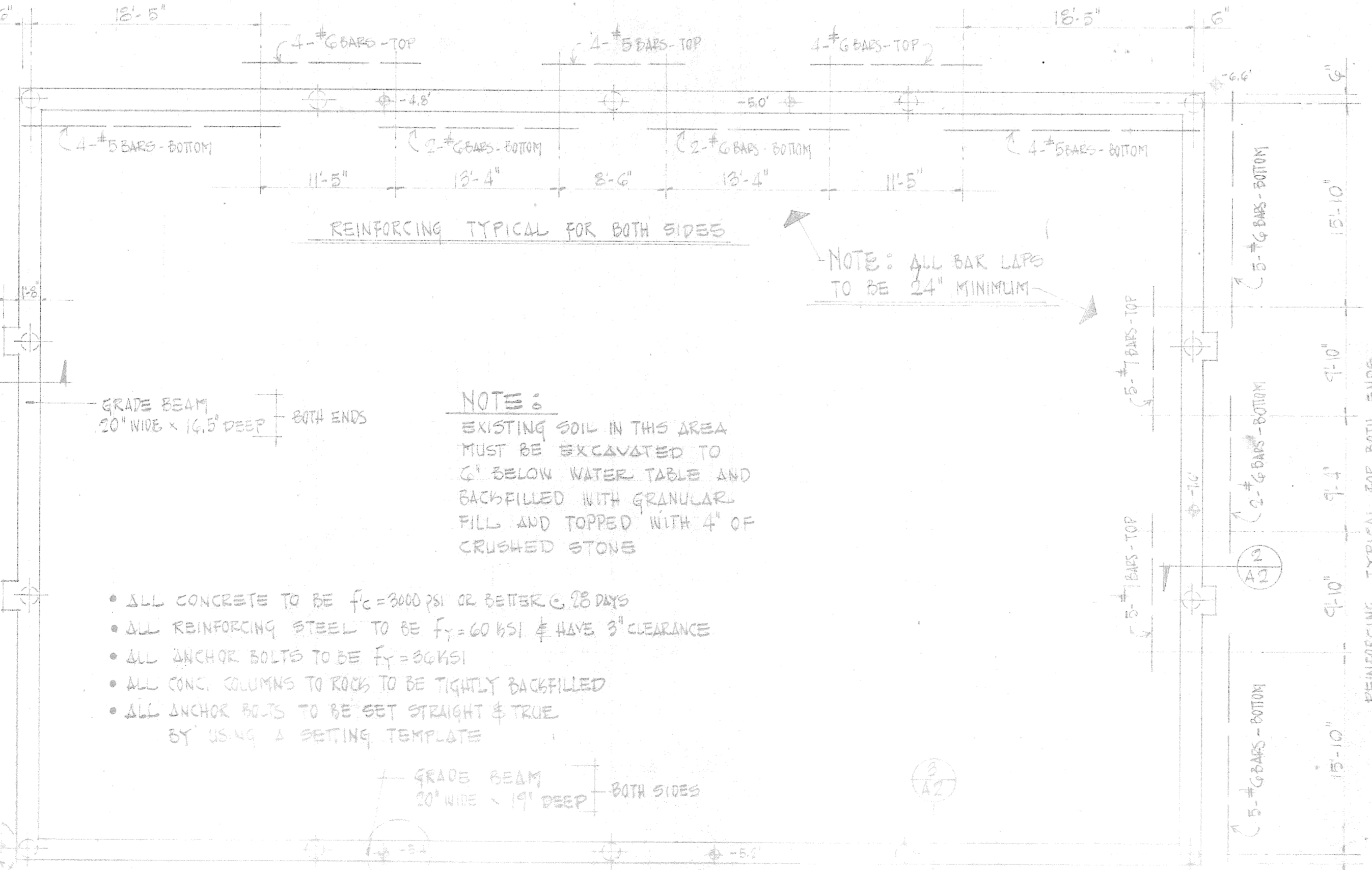
DORSON

INTERIOR FINISH NOTES:

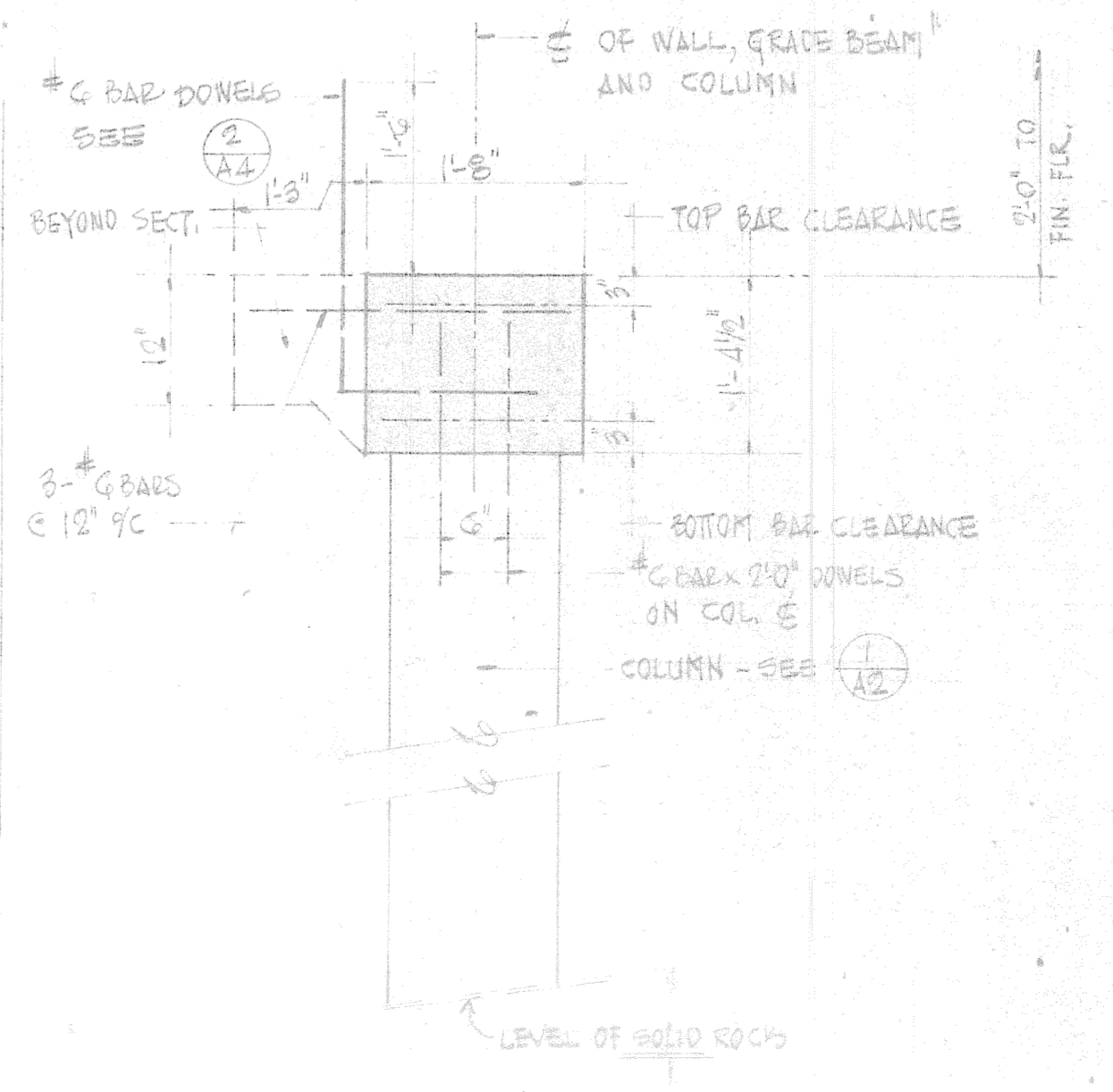
1. VINYL ASBESTOS FLOORING - WOODGRAIN w/ INLAVED GAME LINES
2. GLAZED STRUCTURAL TILE BASE
3. CONCRETE BLOCK WALLS PAINTED
4. PLYWOOD UPPER WALLS PAINTED
5. EXPOSED STEEL ROOF CONSTRUCTION PAINTED
6. WOOD & METAL TRIM PAINTED
7. METAL DOORS PAINTED
8. LARGE GEOMETRIC PAINTED DESIGNS ON WALLS. ALLOW FIVE COLORS. LAYOUT TO BE FURNISHED BY ARCHITECT.



SECTION
SCALE: 1/2" = 1'-0"

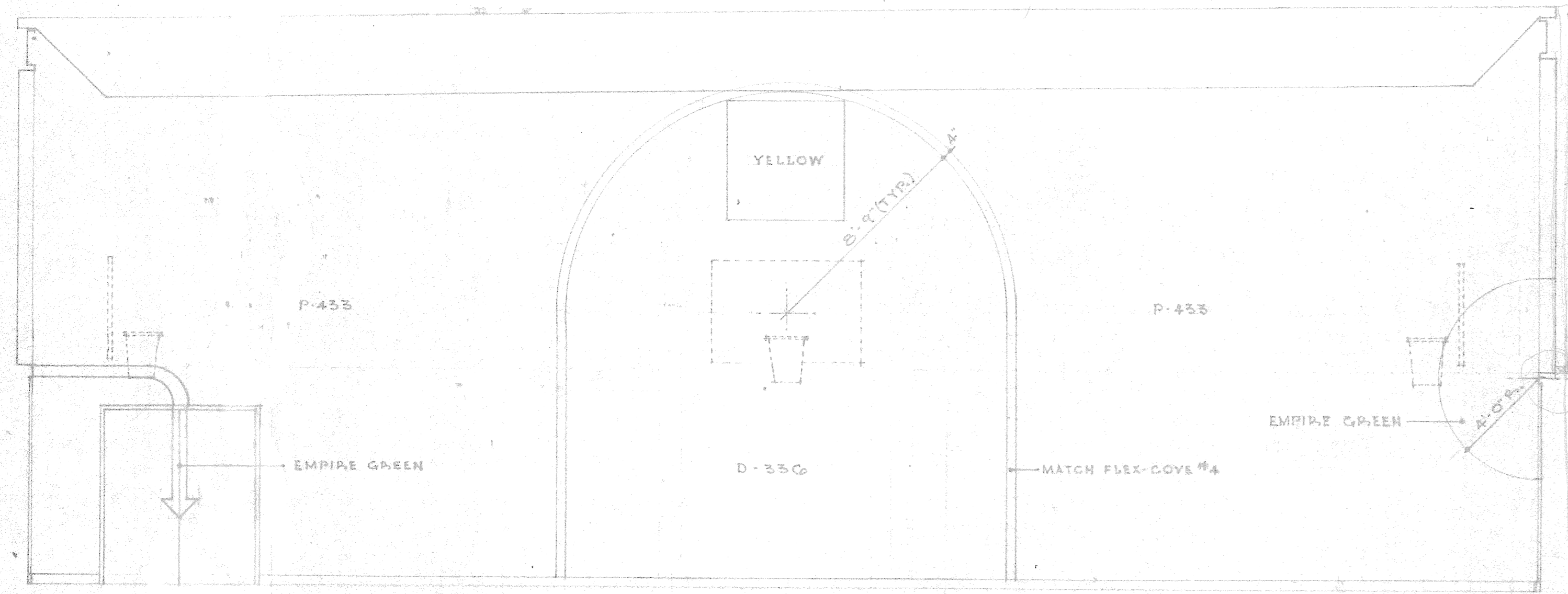


FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

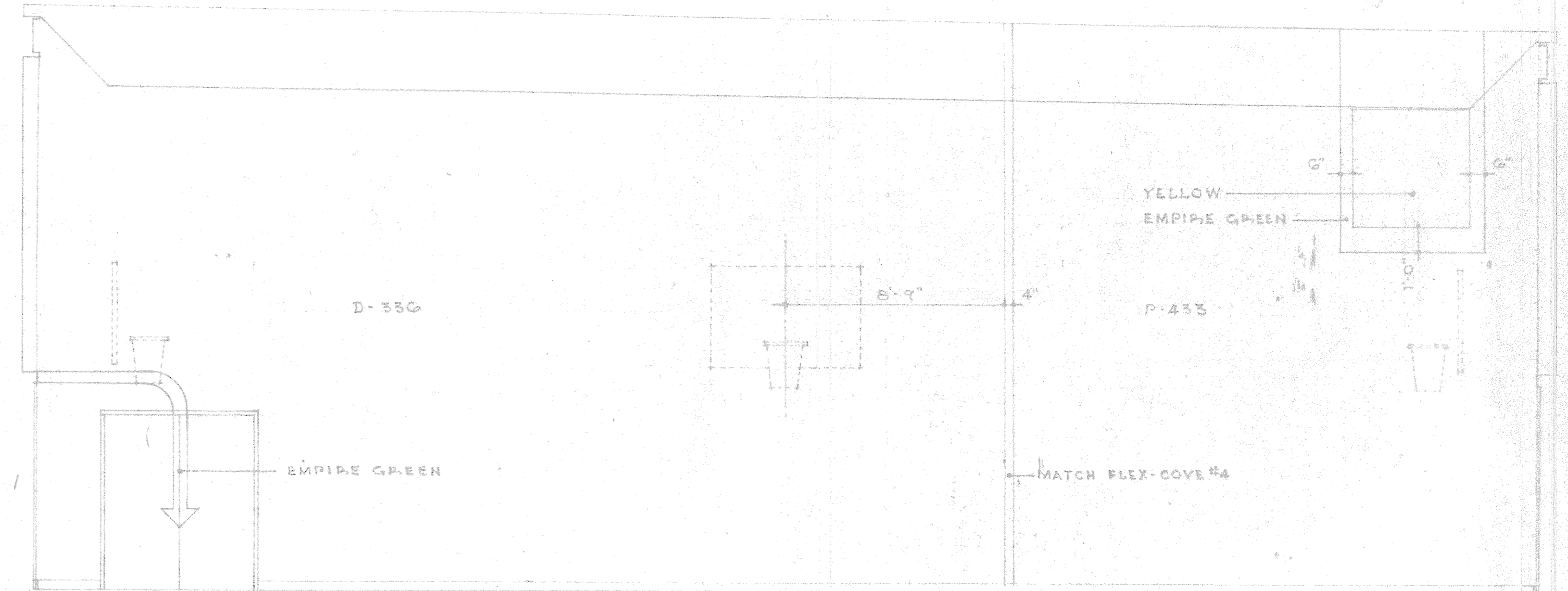


SECTION
SCALE: 3/4" = 1'-0"

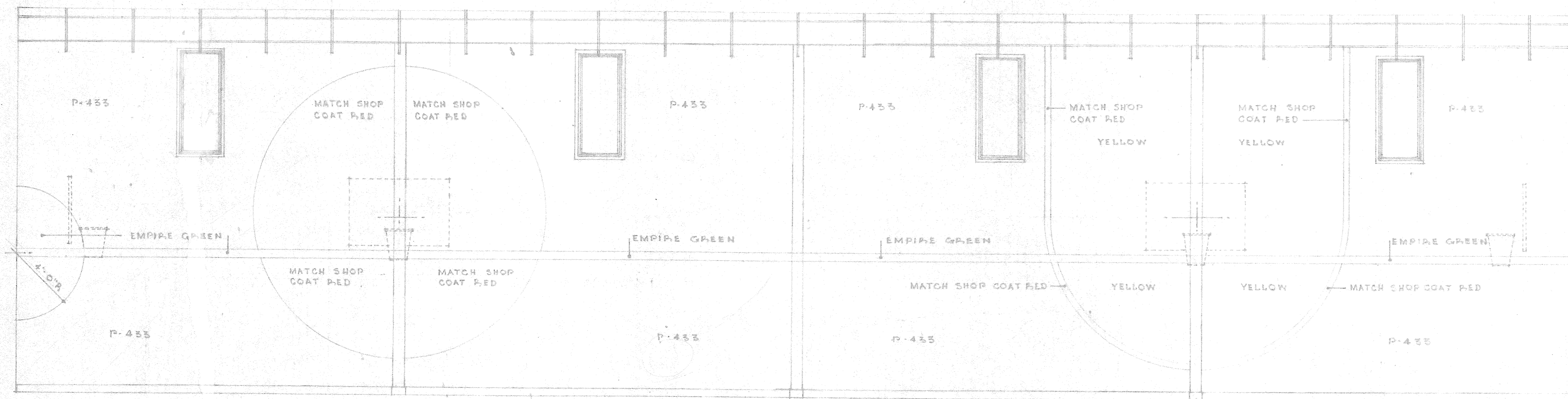
EXHAUST TRAP
 1507592995
 1707592995
 1707592995



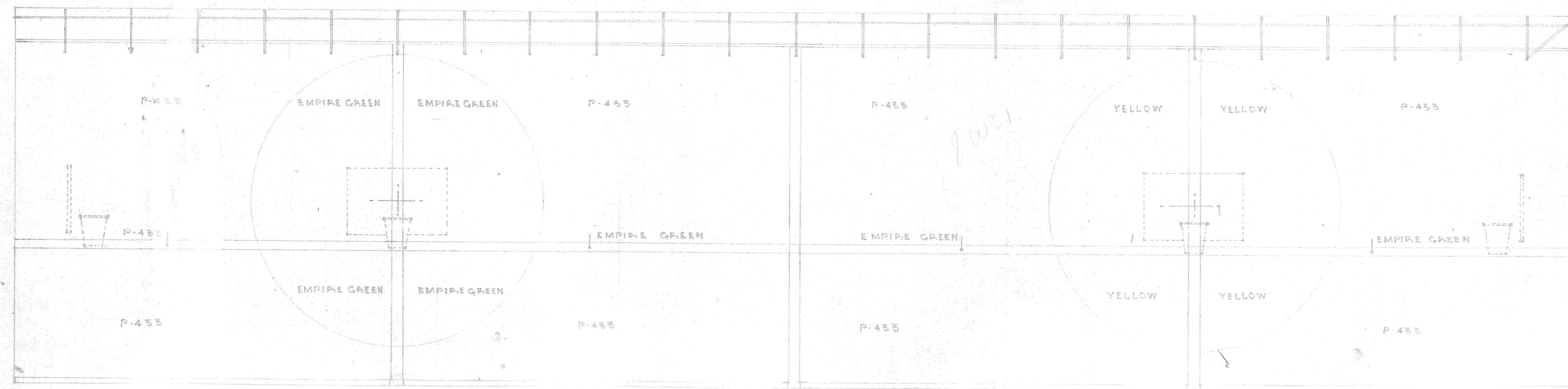
NORTH WALL



SOUTH WALL



EAST WALL



WEST WALL

- COLOR NOTES:**
- RESILIENT FLOOR: CAF 3593 WITH PAINTED COURT LINES.
 - RUBBER BASE: FLEX-COVE #4.
 - CONCRETE BLOCK: PAINT PPG INDUSTRIALING P-433, WITH ACCENT LINES AND GOAL STATIONS AS DETAILED.
 - STEEL COLUMNS AND BEAMS, BAR JOISTS, METAL DECK & WOOD BLOCKING: 2 RED SHOP COAT
 - SKYLIGHT WELLS(2): P-433 - WAXEN WHITE - HIGH GLOSS
 - WINDOW TRIM: 1 MATCH RED SHOP COAT
 - DOOR FRAMES: 1 MATCH FLEX-COVE #4
 - DOORS: 2 YELLOW
 - DIRECTION ARROWS: EMPIRE GREEN
 - VENT FANS: 1 YELLOW
 - PLYWOOD: 2 P-433 WAXEN WHITE

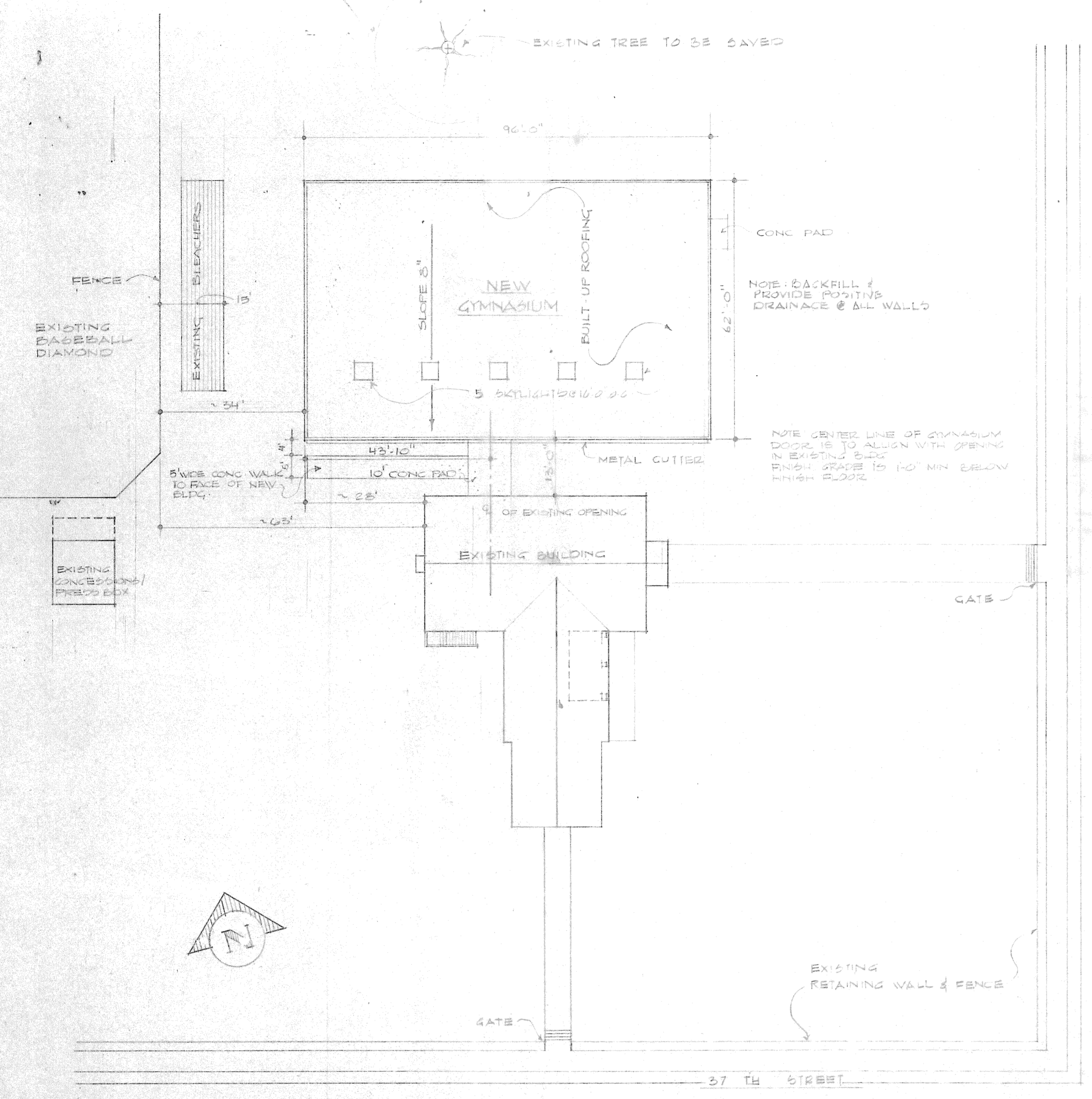


4'-9"

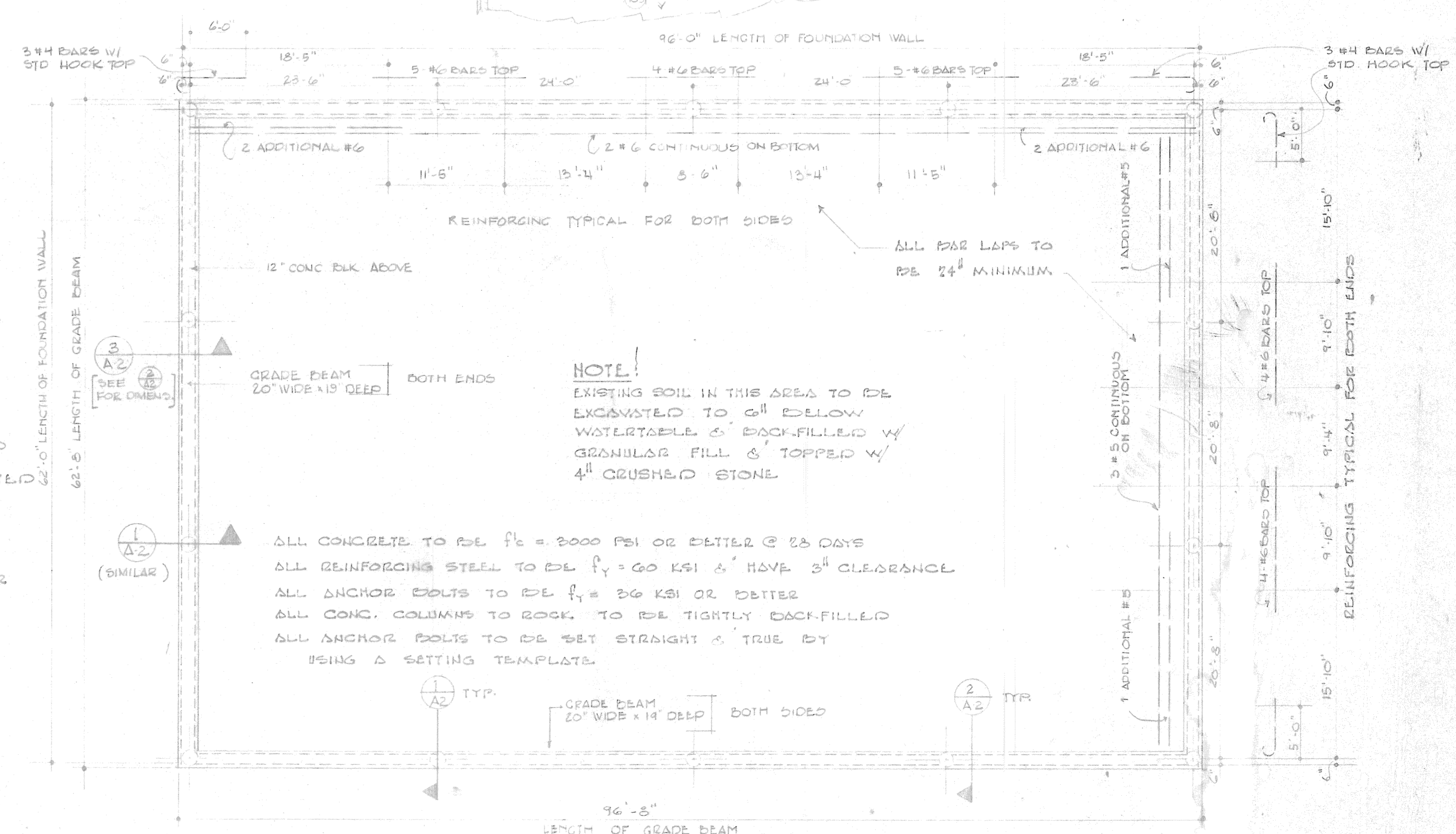
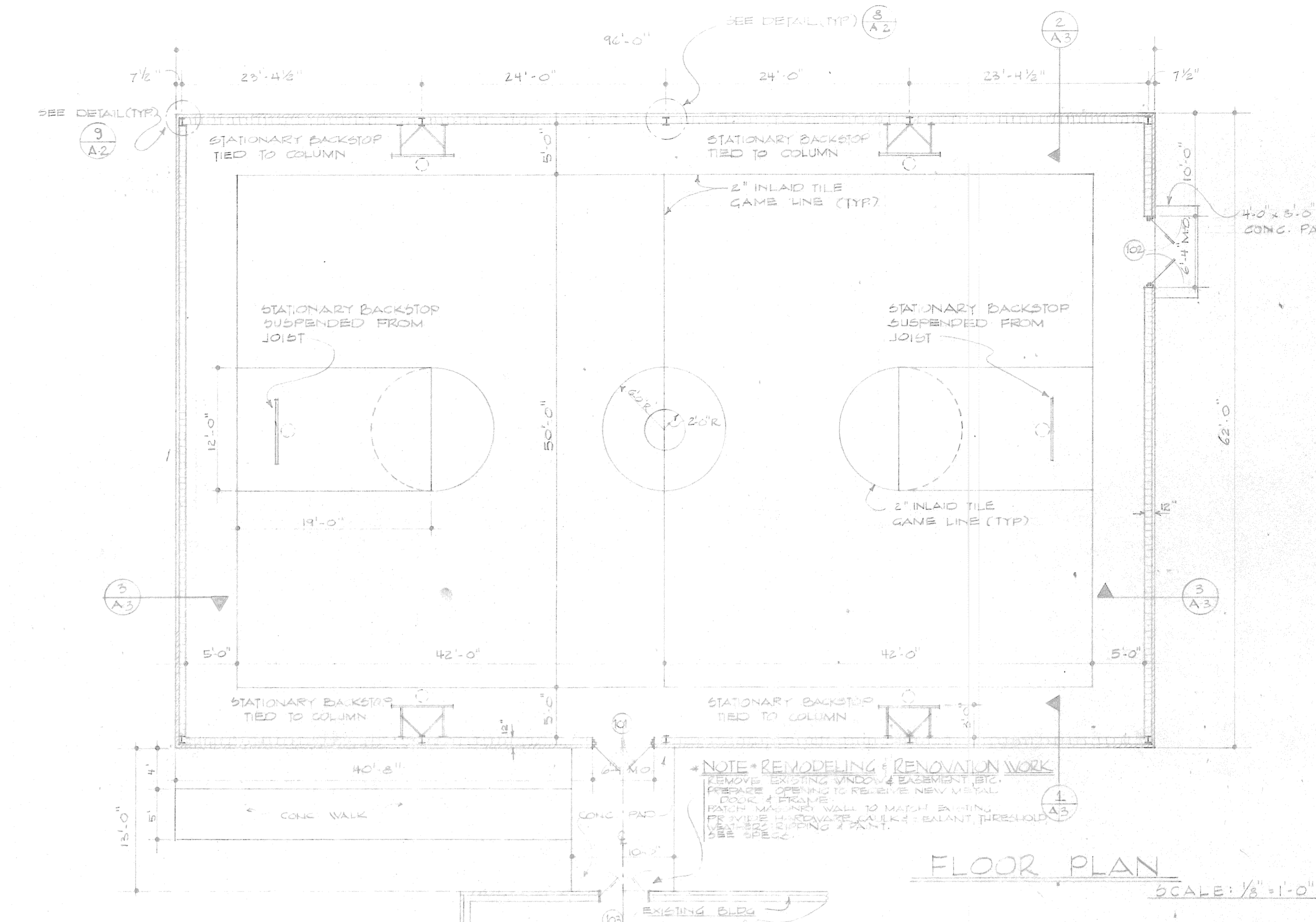
24
6 5/8

24
4 7/8

3



SITE PLAN
SCALE: 1"=20'

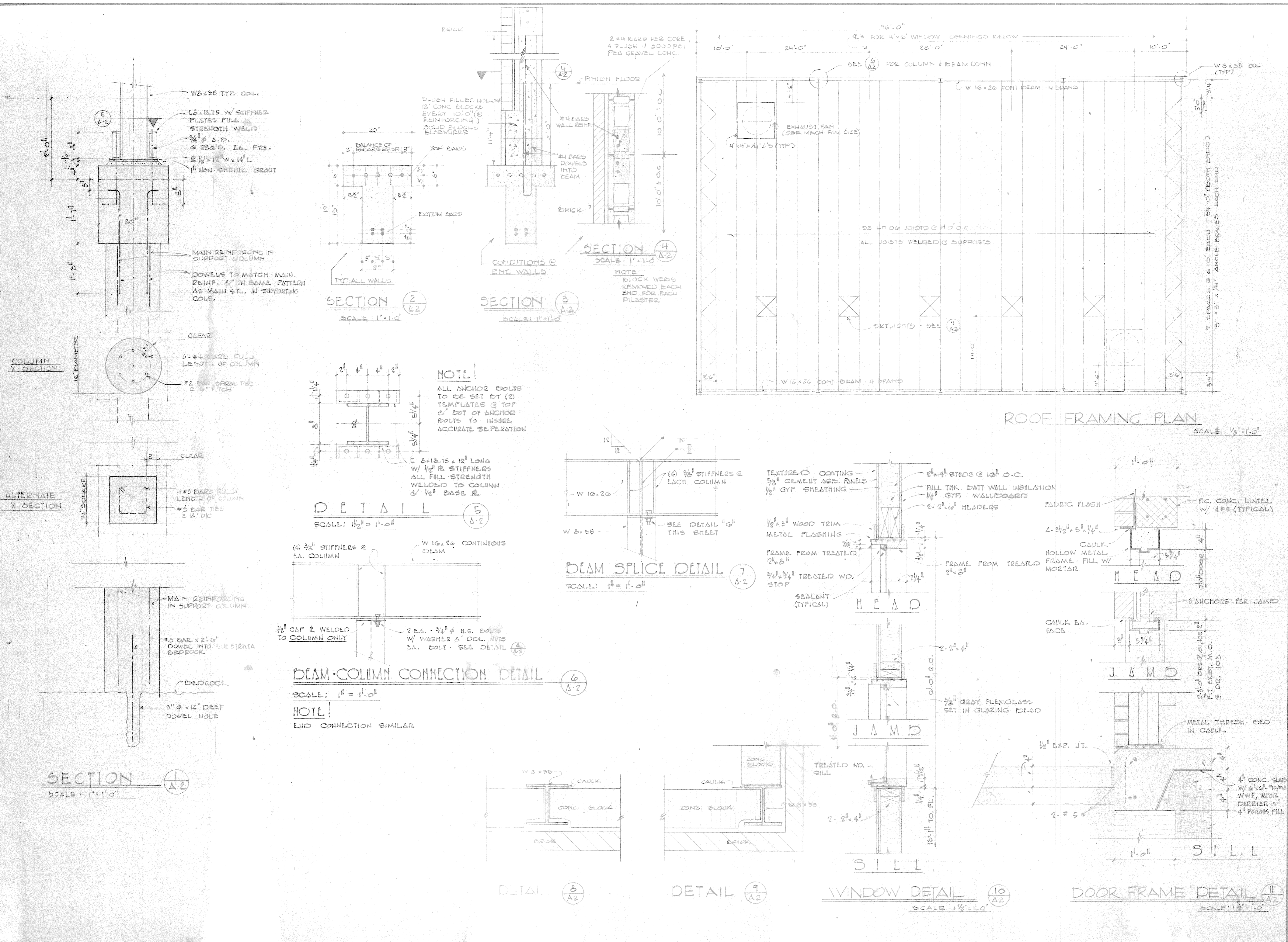


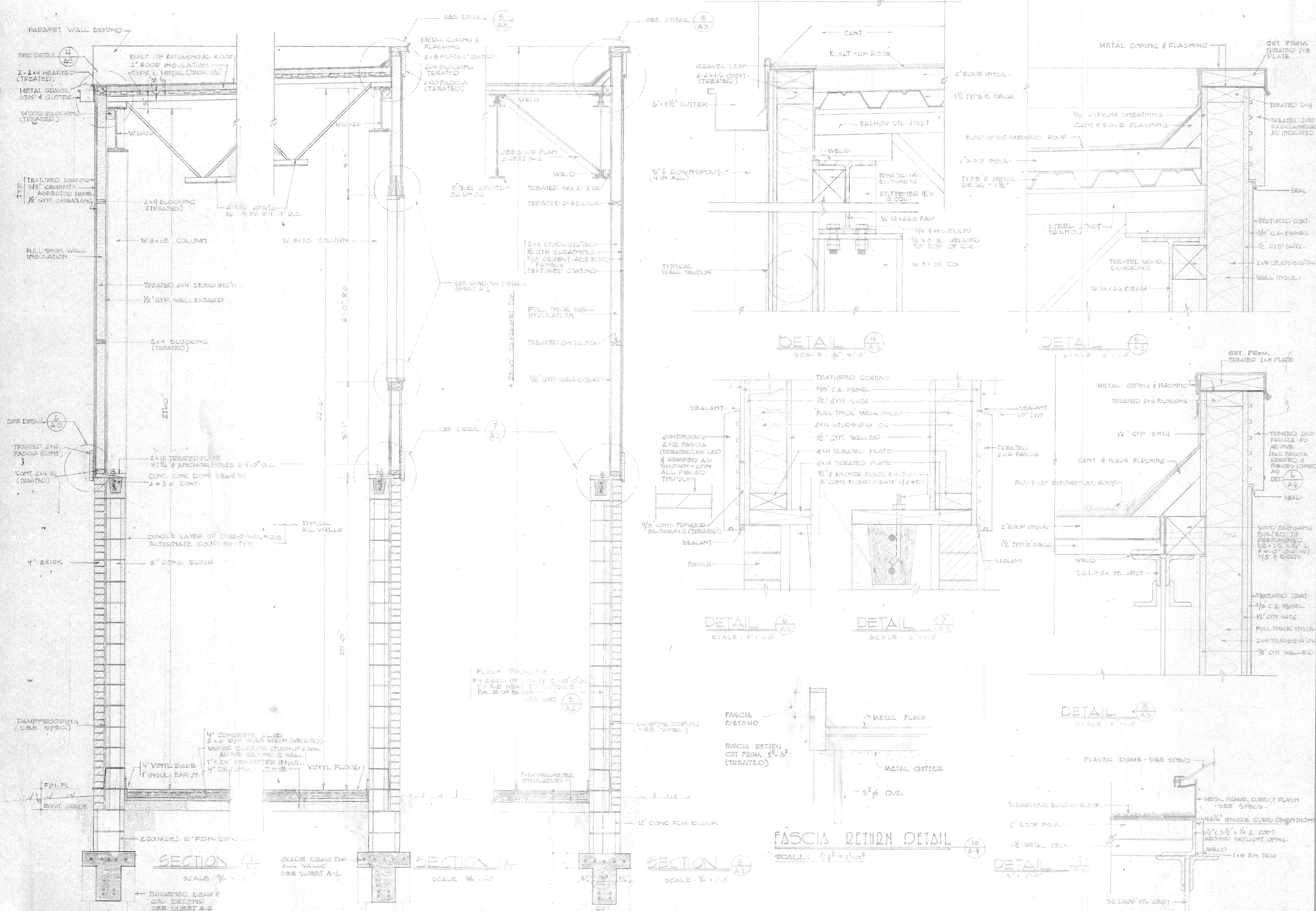
LIST OF DRAWINGS

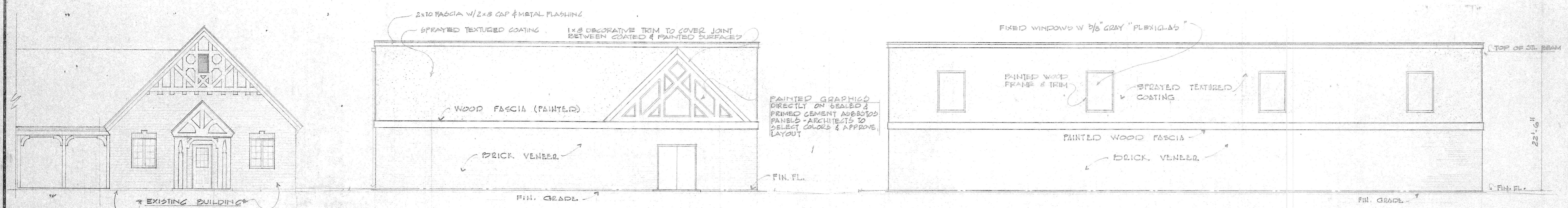
- A-1 SITE PLAN
FLOOR PLAN
FOUNDATION PLAN
- A-2 ROOF FRAMING PLAN
WINDOW & DOOR DETAILS
STRUCTURAL DETAILS
- A-3 WALL SECTIONS
DETAILS
- A-4 EXTERIOR ELEVATIONS
INTERIOR ELEVATIONS
GRAPHICS
- E-1 ELECTRICAL LAYOUT & SCHEDULE
- M-1 MECHANICAL LAYOUT & SCHEDULE

INTERIOR FINISH NOTES

1. VINYL ASBESTOS FLOORING - WOODGRAIN W/ INLAID GAME LINES
2. 4" VINYL BASE
3. CONC. BLOCK WALLS - PAINTED
4. GYPSUM WALLBOARD UPPER WALLS - PAINTED
5. EXPOSED STEEL ROOF CONSTRUCTION - PAINTED
6. WOOD & METAL TRIM - PAINTED
7. METAL DOORS & FRAMES - PAINTED
8. PAINTED GRAPHICS AS NOTED ON INTERIOR ELEVATIONS

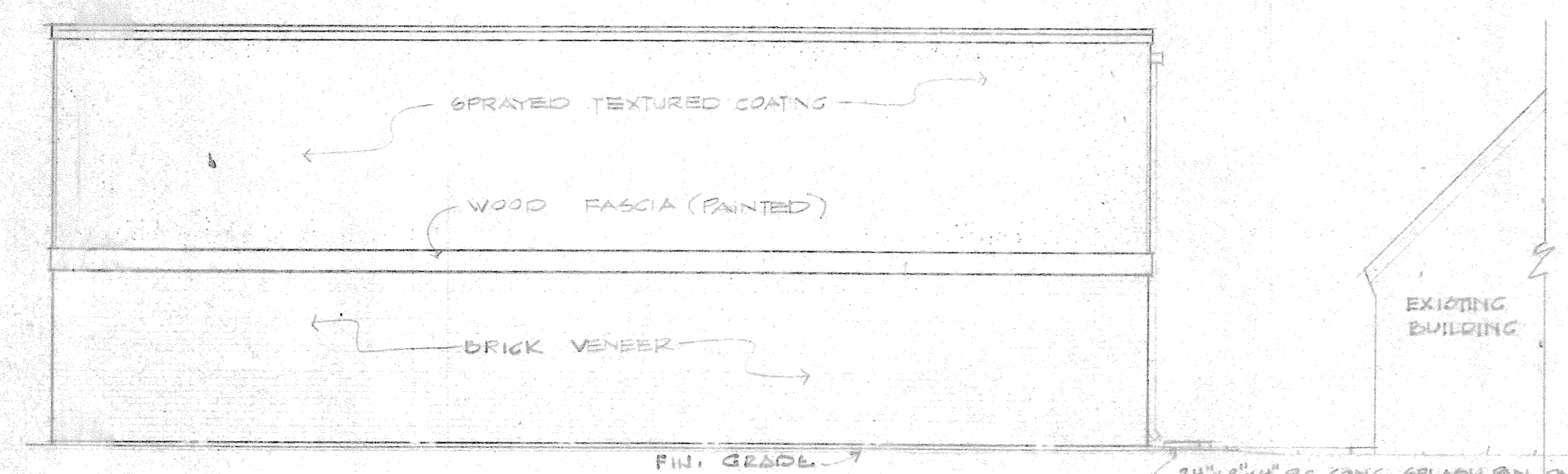




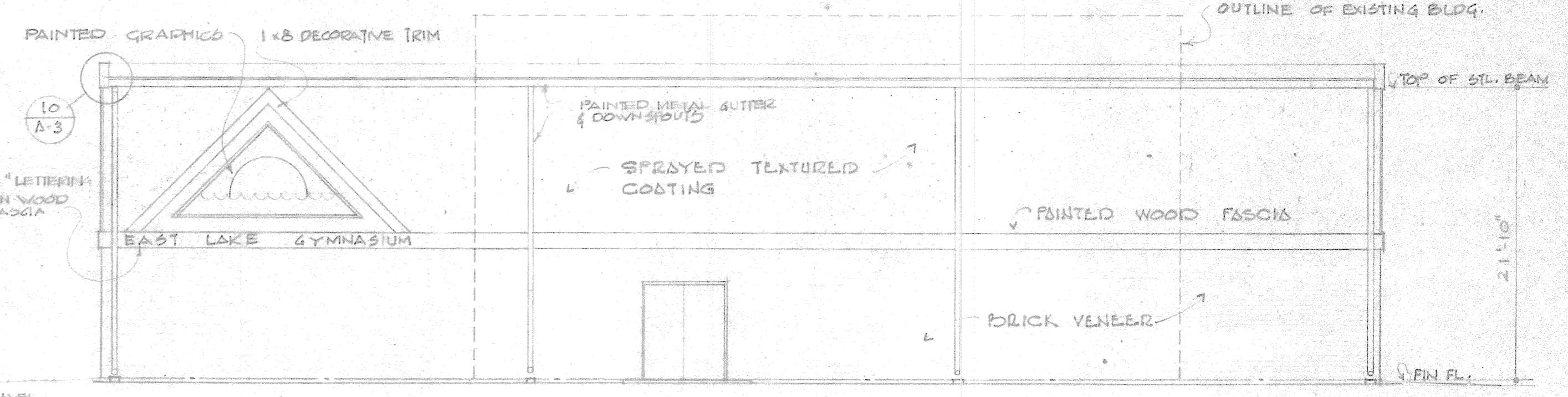


EAST ELEVATION
SCALE: 1/8" = 1'-0"

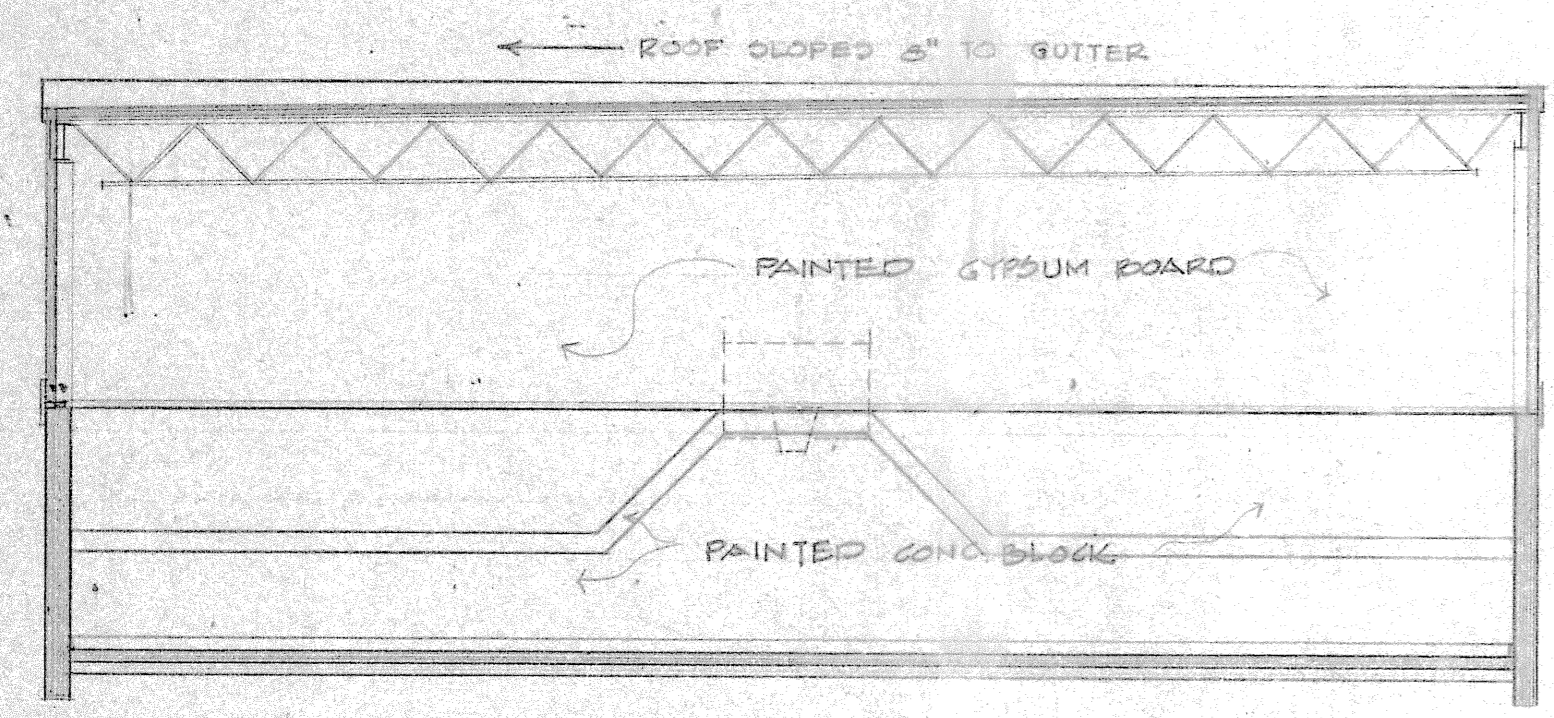
NORTH ELEVATION
SCALE: 1/8" = 1'-0"



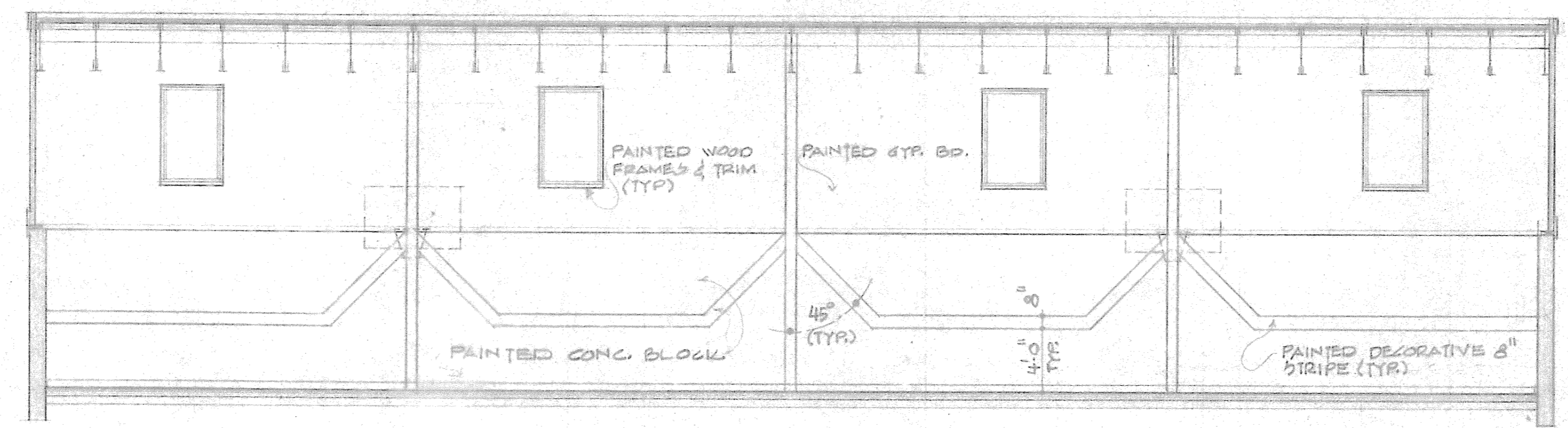
WEST ELEVATION
SCALE: 1/8" = 1'-0"



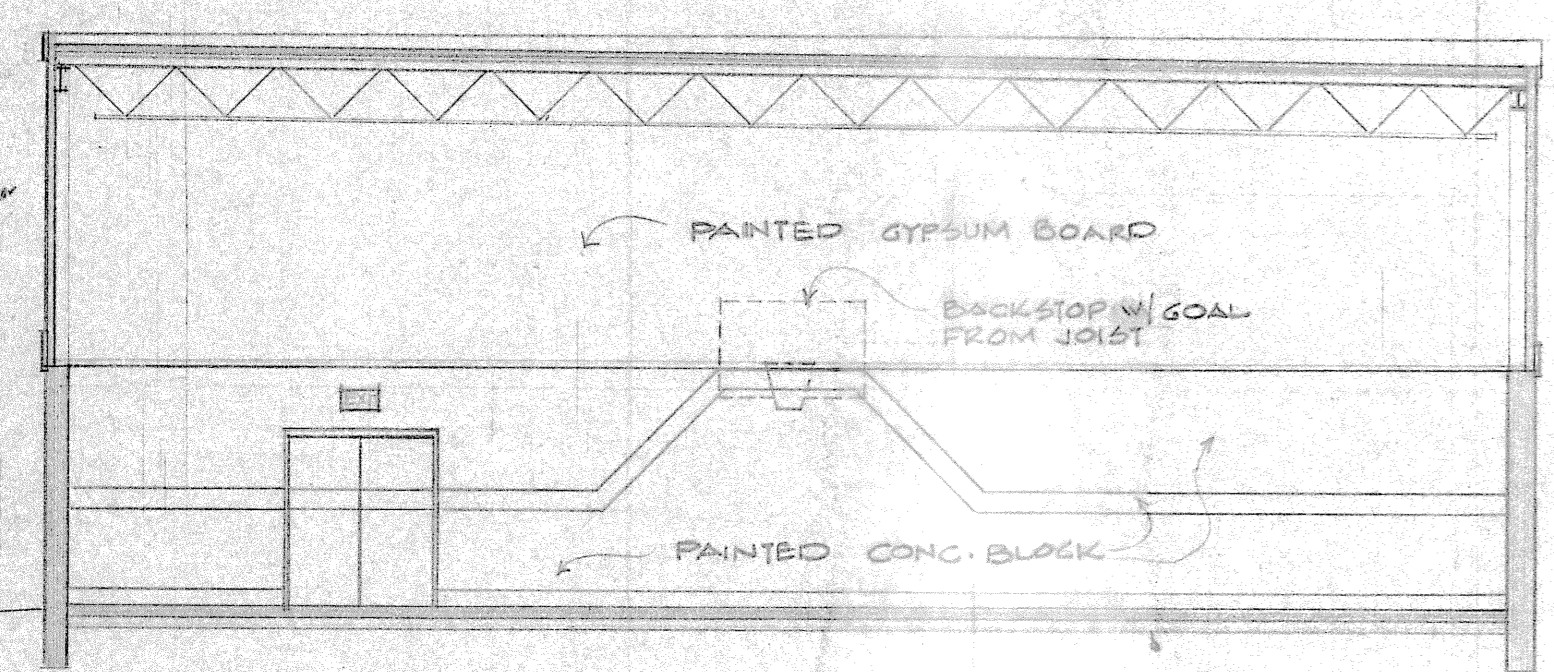
SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



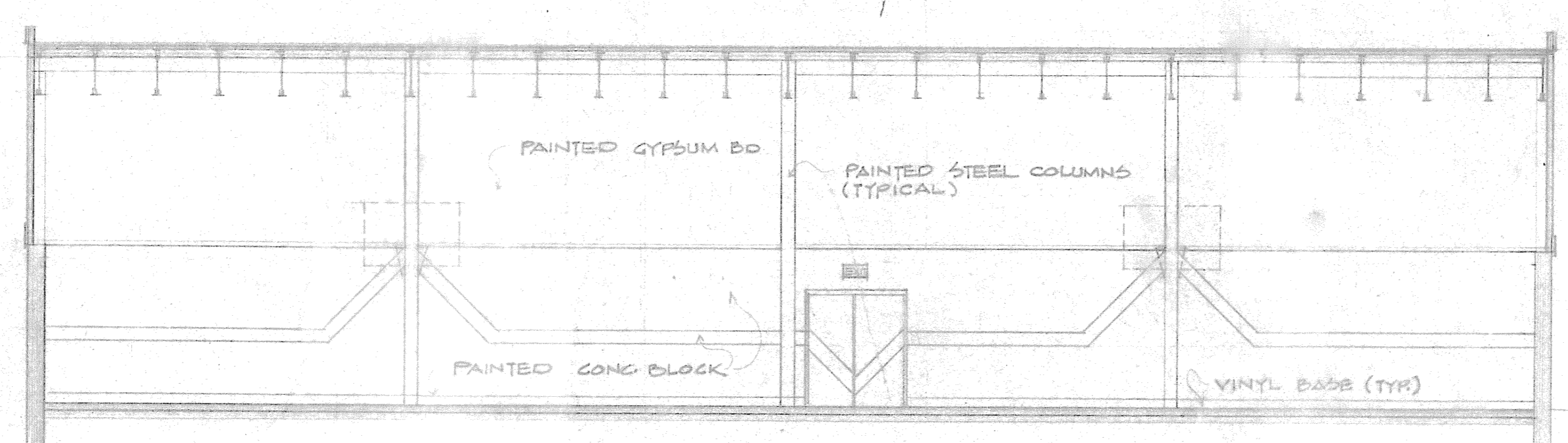
WEST INTERIOR ELEVATION
SCALE: 1/8" = 1'-0"



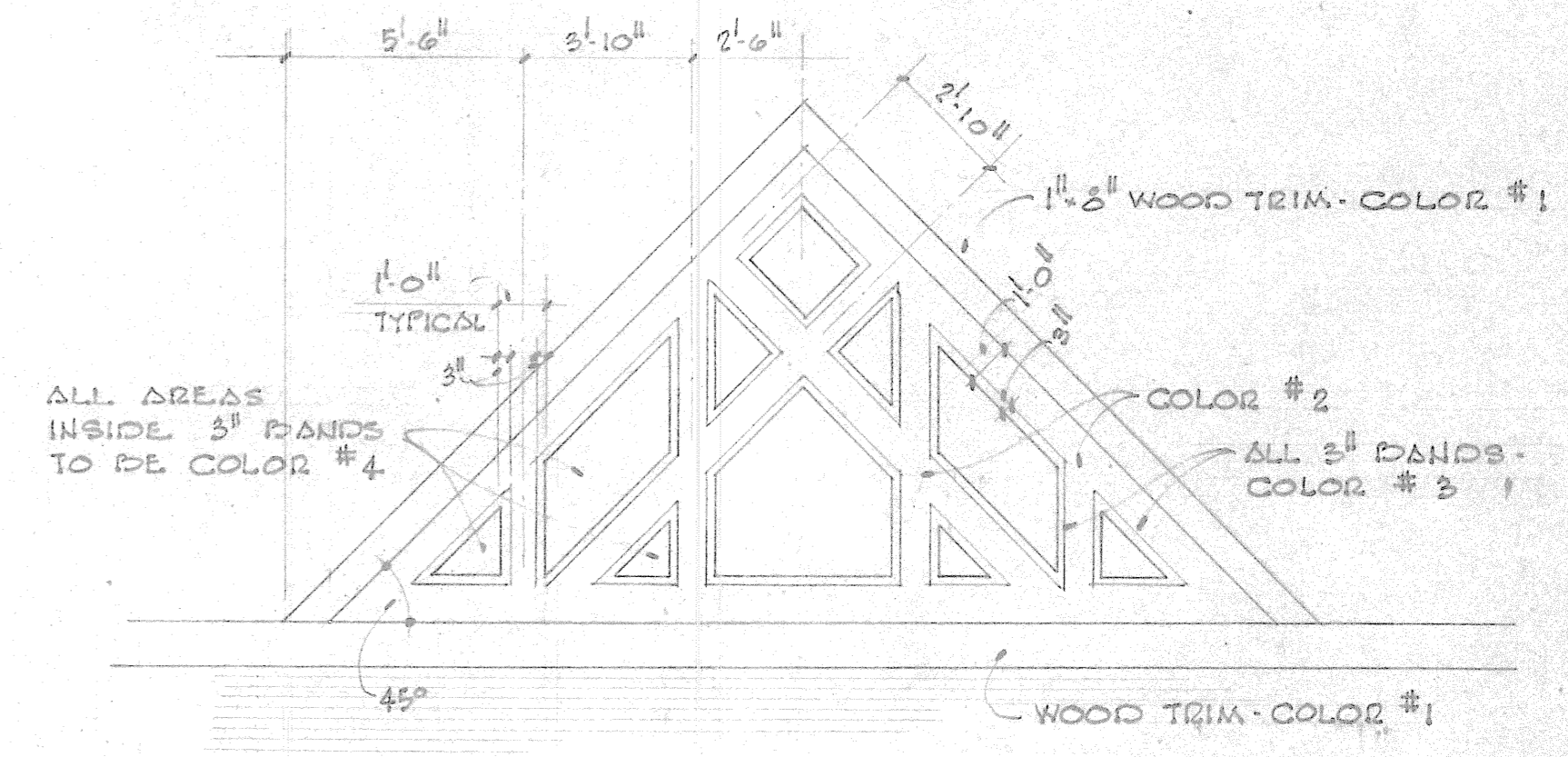
NORTH INTERIOR ELEVATION
SCALE: 1/8" = 1'-0"



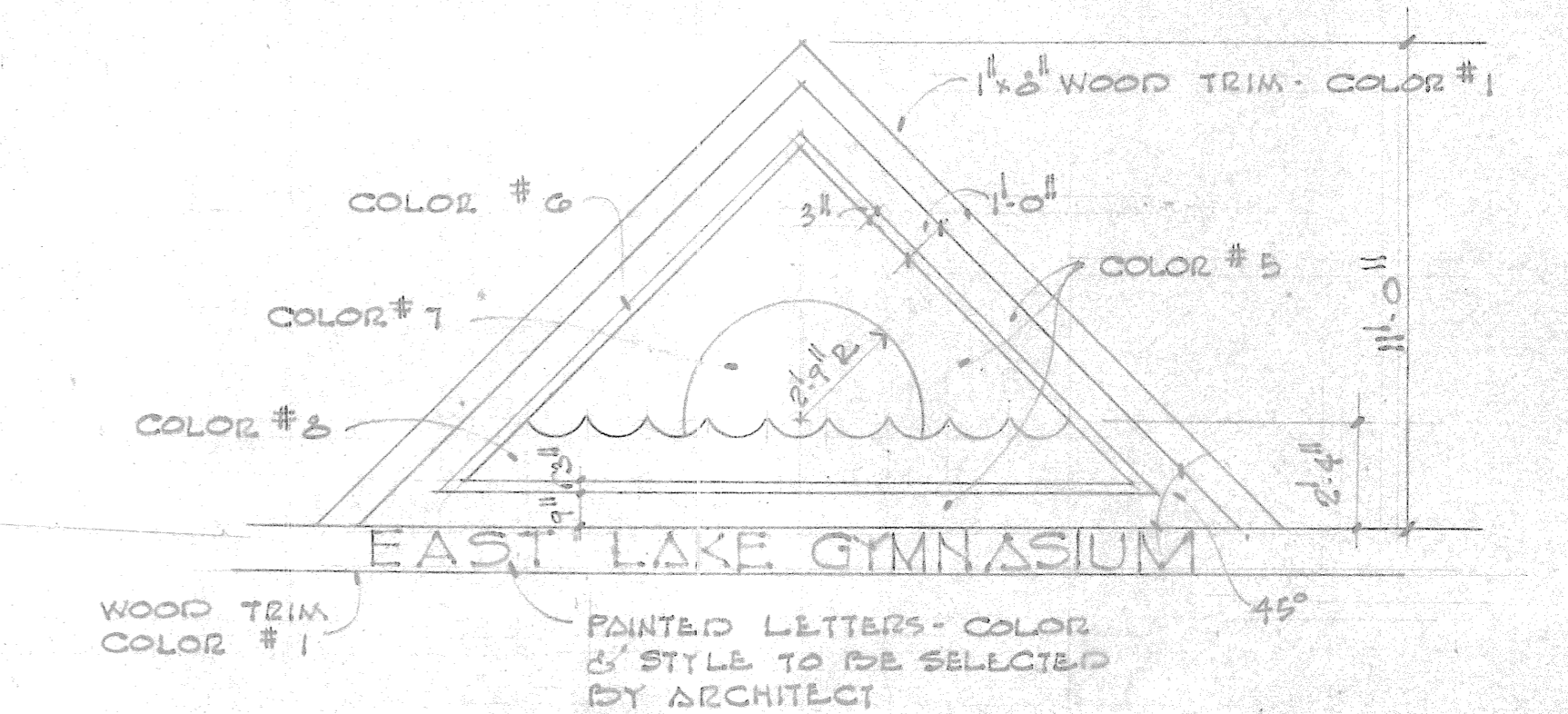
EAST INTERIOR ELEVATION
SCALE: 1/8" = 1'-0"



SOUTH INTERIOR ELEVATION
SCALE: 1/8" = 1'-0"

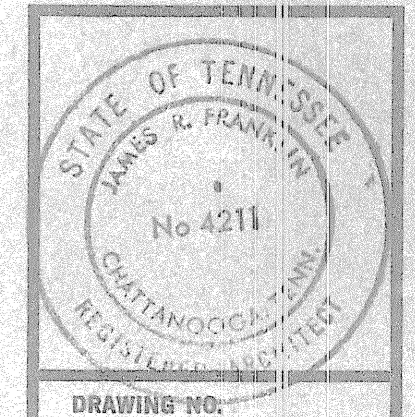


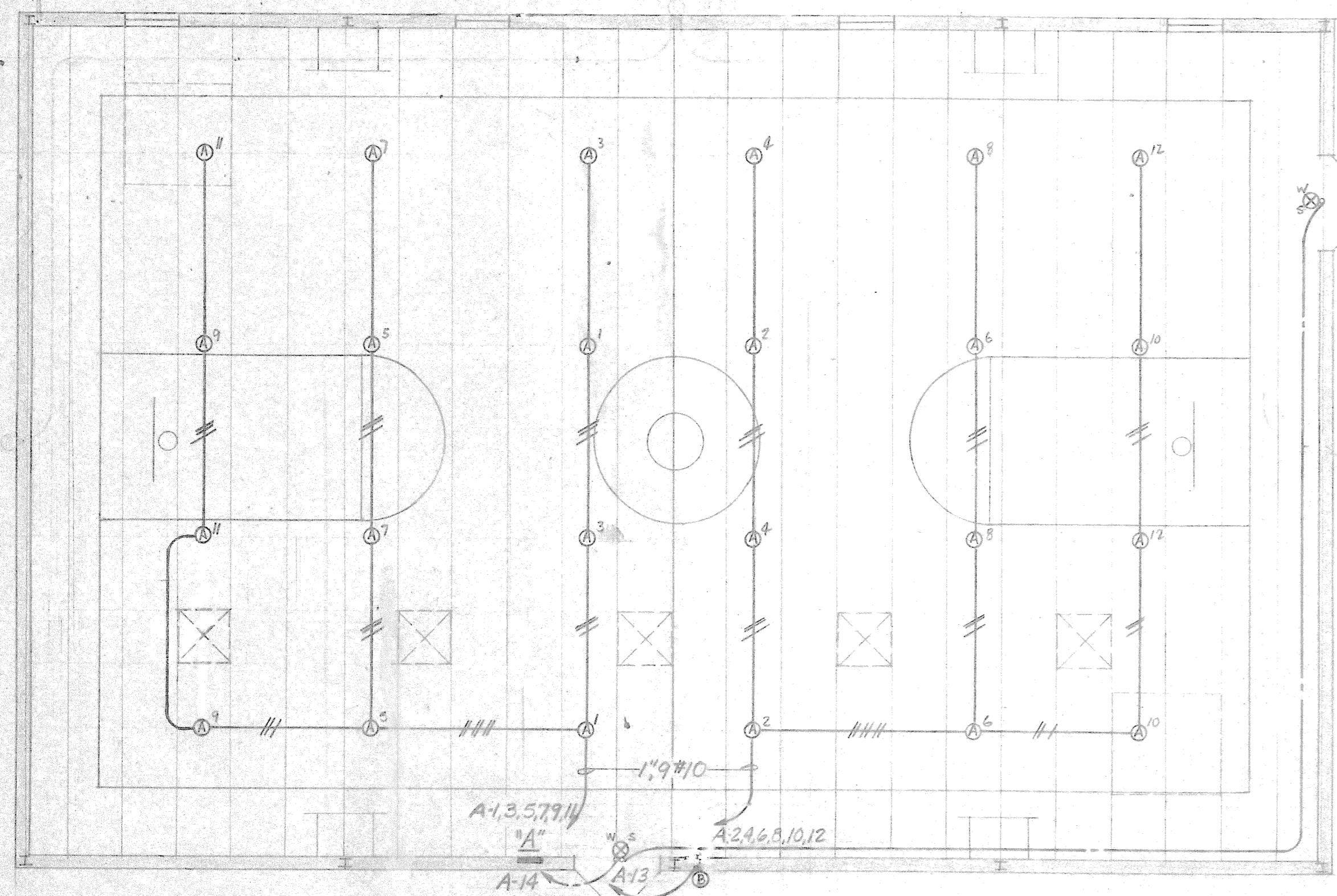
PAINTED GRAPHICS - EAST ELEVATION
SCALE: 1/4" = 1'-0"



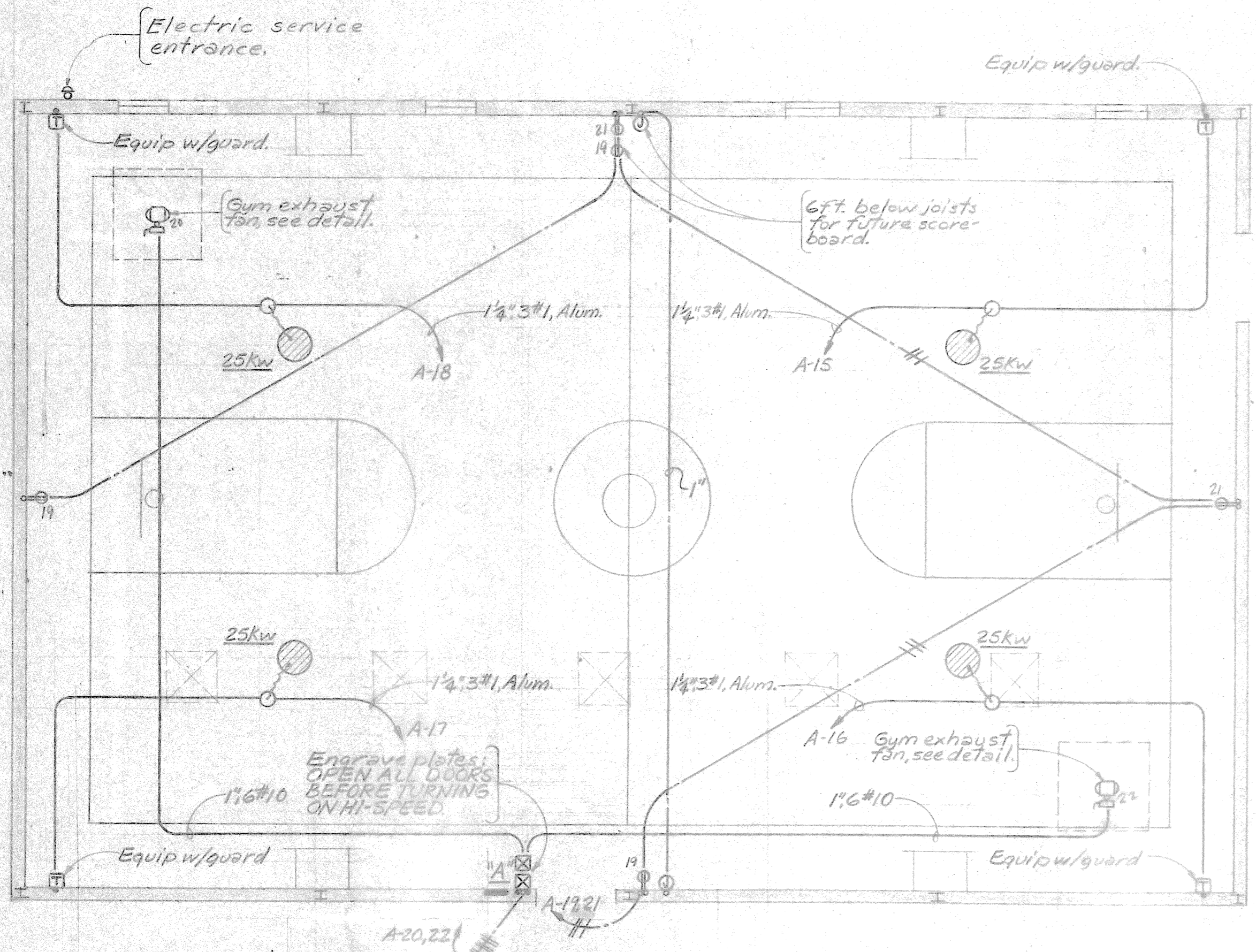
PAINTED GRAPHICS - SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

EAST LAKE GYMNASIUM
 EAST LAKE RECREATION CENTER
 DODDS AVENUE CHATTANOOGA, TENNESSEE
 JAMES FRANKLIN, ARCHITECTS/PLANNERS, P.A.
 610 LOOKOUT STREET CHATTANOOGA, TENNESSEE 37403





FLOOR PLAN - LIGHTING
Scale: 1/8" = 1'-0"



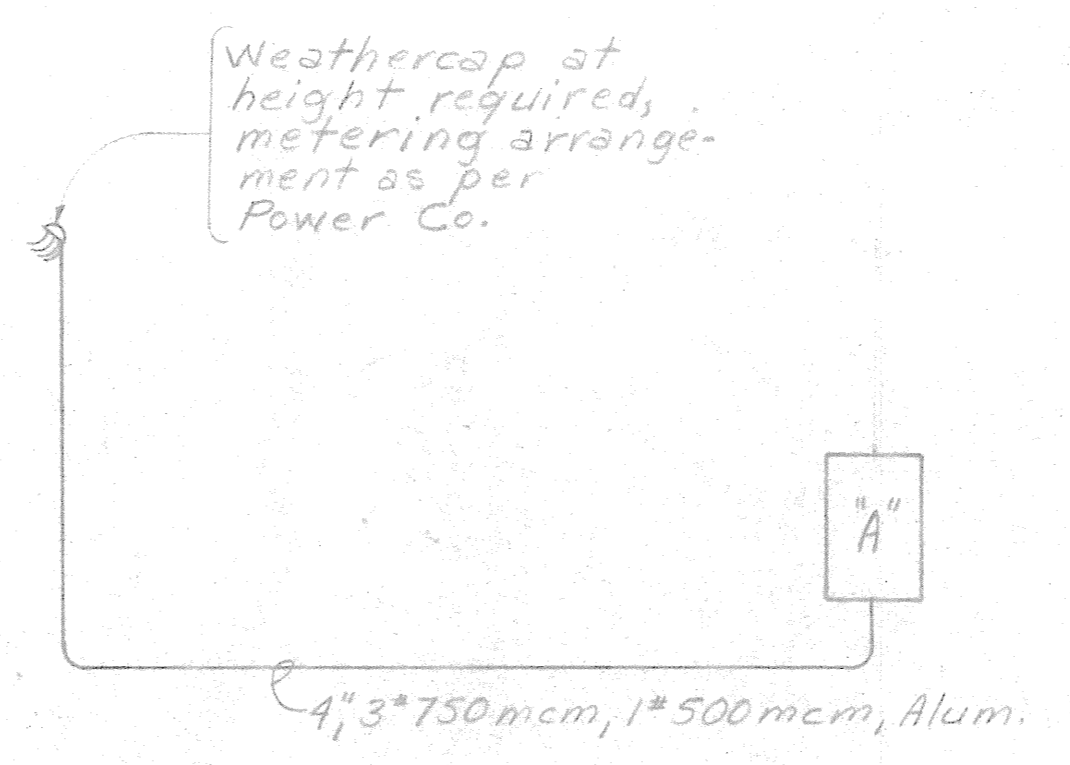
FLOOR PLAN - POWER
Scale: 1/8" = 1'-0"

LIGHTING FIXTURE SCHEDULE									
Designation	Lamps	Quantity	Mounting	Shielding, type, material, finish, mounting	Manufacturer		Remarks		
					Company	Catalog Number			
A	Incandescent	1750	Recessed	RLM dome out of box aligner cover, Equip w/wire guard.	Miller	AE-3044 AE-2170	Bottom of reflector 6" above bottom of joists.		
B	Fluorescent	2100	12" Vandalproof, and verify indestructible plastic.		Kenall	4003			

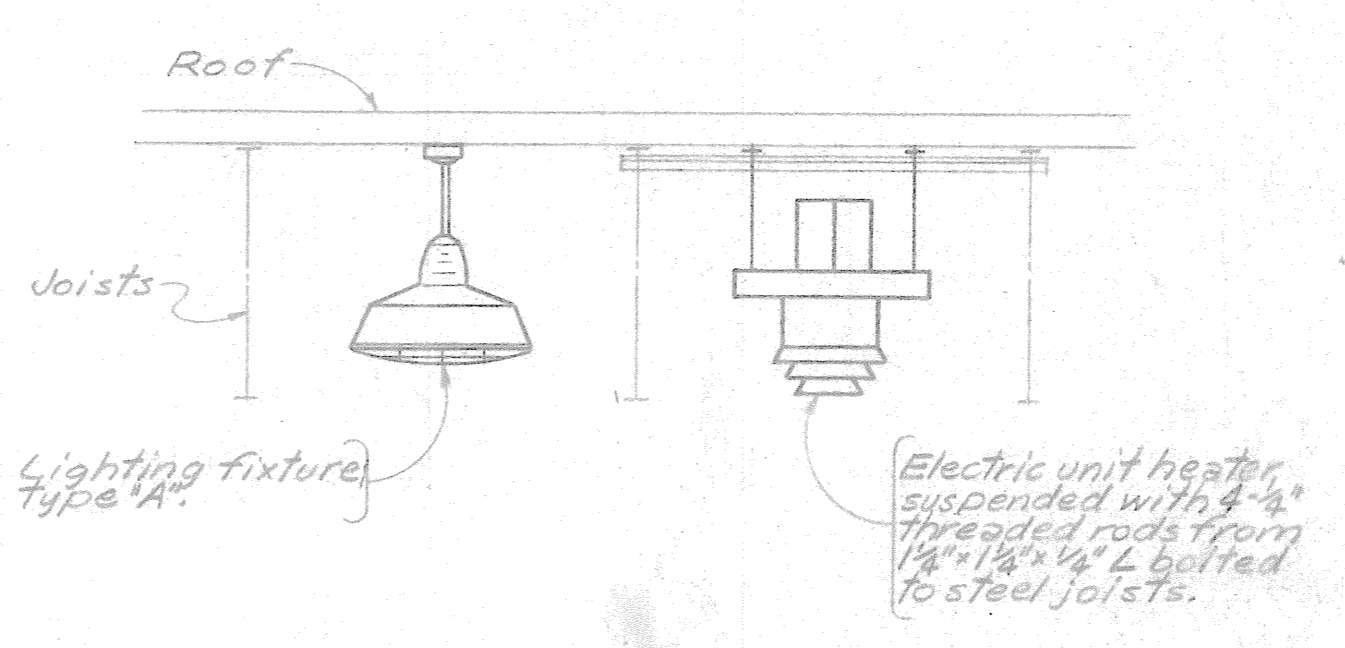
PANELBOARD SCHEDULE									
Panel Designation	Overcurrent Protection	Loads or Circuits Served	Mounting	Depth	Note	Mains			
A	20-20/1 2-30/3 4-100/3 4-20/1	1-14, 19, 21 20, 22 15-18 spaces	F	6" 20"	note #1, dkt. 13 bkr.	400 2 #250 mcm			

120/208 Volts, 3-phase, 4-wire, wye connected.

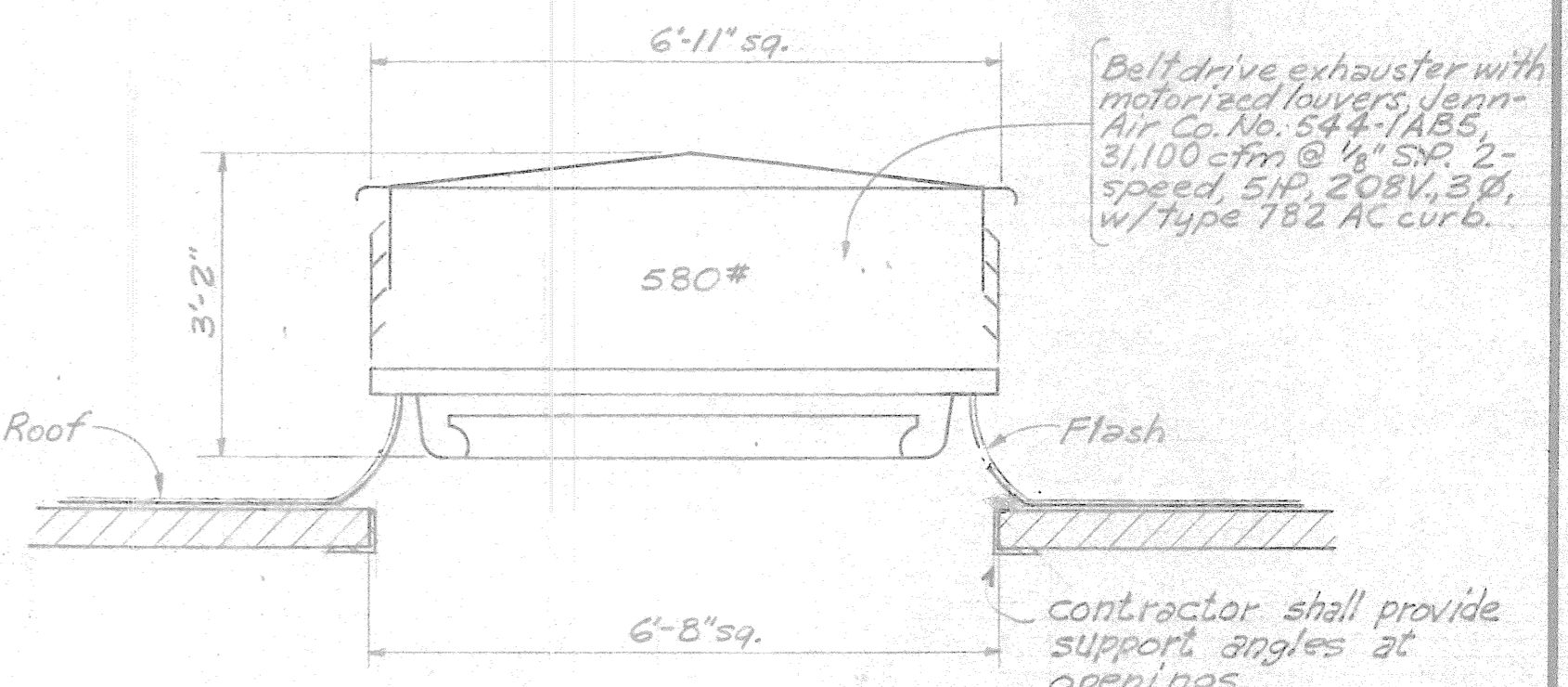
NOTES:
1. Photo-cell to control circuit noted.



FEEDER-RISER DIAGRAM
No Scale



DETAIL - FIXTURE TYPE "A"
AND UNIT HEATER
No Scale

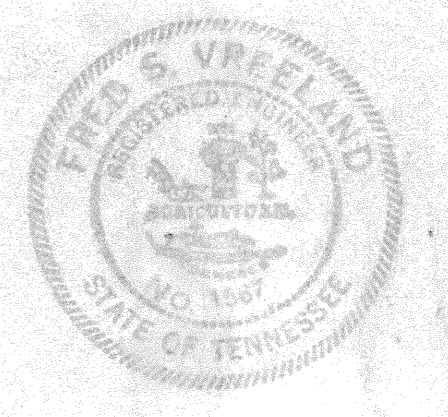


DETAIL - EXHAUST FAN
No Scale

LEGEND

Symbol: Description:

- ⊙_b Incandescent (or H.I.D.) lighting fixture; "A" refers to designation in the lighting fixture schedule; "b" refers to switch control; and "3" refers to circuit number.
- ⊖ Fluorescent lighting fixture; notation same as for incandescent.
- P S₄ W.P. Wall switch; single pole unless noted 3- or 4-way; "p" indicates equipped with pilot light to indicate when switch is "on"; w.p. indicates weatherproof; 48"± above floor except in masonry walls where mounting height shall be adjusted to have edge of box occur at a masonry joint.
- ⊖ Duplex plug receptacle; 120-volt; 20-amperes; 48-inches above floor at work counters and 12"± elsewhere unless noted to a different height; w.p. indicates weatherproof.
- ▬ Panelboard; recessed or surface mounted as indicated on drawings; top 6-feet above floor adjusted to occur at a masonry joint; see schedule for equipment contained.
- ⊖ A-12 Conduit extended to panelboard; Panel "A", circuits no. 1 and no. 2; cross lines indicate the number of No. 12 AWG conductors where more than two; circuits sharing a common neutral shall be connected to different lines or phases within the panelboard regardless of the numbering indicated on the drawings.
- ⊖ Conduit in the floor construction or underground, shown turning up.
- ⊖ Conduit in the wall or ceiling construction shown turning down.
- ⊙ Junction box; size and use required; cover plate shall overlap the box edge by 1/2-inch where recessed in wall with concealed wiring.
- ⊖ Electric motor requiring connection; size, use and location as indicated; verify location and connections required with mechanical trade prior to rough-in. Use flexible conduit within 18" of equipment.
- ⊖ Magnetic motor starter; for equipment indicated; set heavy duty HP rated disconnect switch in locations where the starter is out of sight of the supplying panelboard.
- ⊖ Disconnect switch; heavy duty "HP" rated; "weatherproof" outdoors.
- ⊖ Thermostat; 8'-0" above floor; extend conduit and conductors to equipment and connect; set manual motor starter directly below thermostat where unit heaters are being controlled.
- ⊖ Projection type unit heater mounted at bottom of roof deck, see detail. 208 Volt, 3ϕ.
- ⊖ Exit sign; "W" indicates wall mounted; "S" indicates single face.



VREELAND ASSOCIATES ENGINEERS CHATTANOOGA

Solutions in Polycarbonate



Solutions in Polycarbonate, LLC – 6353 Norwalk Road, Medina, OH 44256 330-572-2860

January 10, 2020

Mr. Rick Thompson
Artech Design Group, Inc.
1410 Cowart Street
Chattanooga, TN 37408

Re: East Lake Youth & Family Center

Dear Mr. Thompson,

I would like to request approval of our Multiwall Polycarbonate Window System for Specification Section 084500 – Translucent Wall & Roof Assemblies on the above referenced project. Our system utilizes 40mm Multiwall Polycarbonate glazing for the panels with a tongue and groove connection. The basis of design, CPI, uses two 10mm panels separated by an aluminum batten.

Our aluminum framing system has a thermal break to improve performance and we use a slipcoat on our gasket to allow the panel to expand and contract easily in the glazing pocket. The WindowTherm Wall System has been fully tested to industry standards and test results can be provided. Our warranty includes a single source warranty for all components.

Included in this substitution request are Product Substitution Form, our specifications, product data sheet, and details of our system. Please feel free to call with any questions you may have about our product.

Sincerely,

Bruce Gold
President



SUBSTITUTION REQUEST

(During the Bidding/Negotiating Stage)

Project: East Lake Youth & Family Center Development Substitution Request Number: _____
Chattanooga, Tennessee
 From: Bruce Gold - Solutions in Polycarbonate, LLC
 To: Artech Design Group, Inc. Date: January 10, 2020
Rick Thompson A/E Project Number: 18-072
 Re: Translucent Windows Contract For: Glass and Glazing
 Specification Title: Translucent Wall & Roof Assemblies Description: Multiwall Polycarbonate Window System
 Section: 084500 Page: 1 Article/Paragraph: 2.01

Proposed Substitution: 40mm Tongue & Groove Multiwall Polycarbonate translucent Panel
 Manufacturer: Solutions in Polycarbonate Address: 6353 Norwalk Road, Medina, OH 44256 Phone: 330-572-2860
 Trade Name: WindowTherm Wall System Model No.: 40mm

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: Bruce Gold
 Signed by: B - B.G.
 Firm: Solutions in Polycarbonate, LLC
 Address: 6353 Norwalk Road
Medina, Ohio 44256
 Telephone: 330-572-2860

A/E's REVIEW AND ACTION

- Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: Owner rep Date: 1/12/20

Supporting Data Attached: Drawings Product Data Samples Tests Reports Specs

084500 TRANSLUCENT WALL AND ROOF ASSEMBLIES -DRAFT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Self supporting aluminum framed vertical glazing system.
- B. Sandwich panels of translucent skins separated with an aluminum grid.

1.02 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, panel configuration, internal drainage details and _____.
- C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, weep drainage network, expansion and contraction joint location and details, and field welding required.
- D. Samples: Submit 1 , 12" by 12" inch in size, illustrating prefinished aluminum surface, specified panel with skins, glazing materials illustrating edge and corner.
- E. Manufacturer's Qualification Statement.
- F. Installer's Qualification Statement.

SEE SPEC SECTION 1.4

1.03 QUALITY ASSURANCE

- A. Perform work in accordance with AAMA CW-DG-1.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section with at least three years of documented experience.

SEE SPEC SECTION 1.5

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Handle work of this section in accordance with AAMA CW-10.
- B. Protect prefinished aluminum surfaces with wrapping; do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.
 - 1. Puncture wrappings at ends for ventilation.

1.05 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F.
- B. Maintain this minimum temperature during and after installation of sealants.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Sandwich Panel - Translucent Wall and Roof Assemblies:
- B. Cellular Plastic Panel - Translucent Wall Assemblies:
 - 1. CPI Daylighting, Inc; UniQuad Wall System: www.cpidaylighting.com/#sle.
 - 2. Substitutions: See Section 016000 - Product Requirements.

SOLUTIONS IN POLYCARBONATE, LLC
6353 NORWALK ROAD
MEDINA, OH 44256

2.02 PERFORMANCE REQUIREMENTS

- A. System Design: Design and size components to withstand dead loads and live loads caused by snow, hail, and positive and negative wind loads acting on plane of panel without damage or permanent set.
 - 1. Design Loads: Calculate in accordance with applicable code.
 - 2. Measure performance in accordance with ASTM E330/E330M, using test load of 1.5 times the design wind pressure and 10 second duration of maximum load.
- B. System Assembly: Accommodate without damage to system, components or deterioration of seals; movement within system; movement between system and perimeter framing components; dynamic loading and release of loads; deflection of structural support framing, tolerance of supporting components, shortening of building concrete structural columns.

SEE SPEC SECTION 2.2

084500 TRANSLUCENT WALL AND ROOF ASSEMBLIES -DRAFT

2.03 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Sheet Aluminum: ASTM B209 (ASTM B209M).
- C. Fasteners: Stainless steel.

2.04 COMPONENTS

- A. Translucent Wall and Roof System: Structurally reinforced translucent panels, with self supporting framing, shop fabricated, factory prefinished, battens, cap strips, related flashings, anchorage and attachment devices.
- B. Panels: Bonded to both sides of structural extruded aluminum grid of pattern as indicated; exposed surfaces of exterior sheet chemically and permanently treated to protect against surface erosion and extreme weather conditions; exposed surface of interior sheets with fire retardant having flame spread index (FSI) of ___ and smoke developed index (SDI) of ___ in accordance with ASTM E84; polyvinyl fluoride film coated. *SIP IS CLASS A + CCI RATED*
 - 1. Facing Sheets: Translucent.
 - 2. white color.
- C. Battens, Cover Strips, Cover Plates, and Integral Flashings: Extruded aluminum, to suit location and application; sized to rigidly retain panels in place.
- D. Weather Seals: To suit application; non-bleeding; non-staining.
- E. Sealant for Within Translucent Assembly: As required by manufacturer.
- F. Sill Flashing Sealant: Elastomeric, silicone or polyurethane, and compatible with flashing material.

2.05 FABRICATION

- A. Fabricate system components with minimum clearances and shim spacing around perimeter of assembly, and ensure proper installation and dynamic movement of perimeter seals.
- B. Accurately fit and secure joints and corners. Make joints flush and hairline.
- C. Prepare components to receive fabricated anchor devices.
- D. Reinforce framing members for external imposed loads.

2.06 FINISHES

- A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify dimensions, tolerances, and method of attachment with other work.
- B. Verify wall openings and adjoining air barrier and vapor retarder materials are ready to receive work of this section.

3.02 INSTALLATION

- A. Install translucent panel system with cells vertical in accordance with manufacturer instructions.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.
- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances and align with adjacent work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Install sill flashings.
- G. Coordinate installation of air stop at edge of construction.

084500 TRANSLUCENT WALL AND ROOF ASSEMBLIES -DRAFT

- H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

3.03 TOLERANCES

- A. Maximum Variation from Plumb: 0.06 inches every 3 ft non-cumulative or 0.5 inches per 100 ft, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.
- C. Sealant Space Between Panel System Members and Adjacent Construction: Maximum of 1/2 inch and minimum of 1/4 inch.

3.04 FIELD QUALITY CONTROL

- A. Provide the services of the manufacturer's field representative to observe installation and make report.
- B. Independent inspection will be provided under provisions of Section 014000 - Quality Requirements.
- C. Replace curtain wall components that have failed field testing and retest until performance is satisfactory.

3.05 CLEANING

- A. Remove protective material from prefinished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths; remove dirt from corners and wipe surfaces clean.

3.06 PROTECTION

- A. Protect finished work from damage until Date of Substantial Completion.

END OF SECTION



WindowTherm® Window Wall System Guide Specification

Ver. 0.81 Dated 2/15/2017

SECTION 08 45 13 – STRUCTURED POLYCARBONATE PANEL ASSEMBLIES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions, along with Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes aluminum framed assemblies glazed with structural polycarbonate panels as follows:
 - 1. Vertically Glazed Assemblies – Windows
 - 2. Vertically Glazed Assemblies – Window Wall Systems

1.3 ACTION SUBMITTALS

- A. Product Data: For glazing, aluminum, finish, and gaskets
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work
- C. Samples: Include aluminum framing and glazing in color as specified

1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports:
 - 1. Panels:
 - a. ASTM E84 – Flame Spread & Smoke Development
 - b. ASTM D635 – Burn Extent
 - c. D1929 – Spontaneous & Self-Ignition Temperature
 - d. NFRC 201 – Center of Panel SHGC
 - 2. System:
 - a. NFRC 101 – System U-Value
 - b. ASTM E283 – Air Infiltration
 - c. ASTM E330 – Structural Loading
 - d. ASTM E331 – Water Infiltration

- B. Warranty: Sample Warranty for project

- C. Maintenance data

1.5 QUALITY ASSURANCE

- A. Installer Qualifications – Authorized factory installer who is trained specifically for the installation of structured polycarbonate panel assemblies is required for this project.

1.6 WARRANTY

- A. Special Warranty: System Manufacturer agrees to repair or replace components of the panel system that fail in materials or workmanship within warranty period.
 - 1. Failures include the following:
 - a. Structural failures due to excessive deflection under established design loads.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - c. Uncontrolled Water infiltration.
 - 2. Warranty period is **FIVE YEARS** from date of installation to be indicated on Warranty.

- B. Polycarbonate Panel Warranty: System Manufacturer's warranty that agrees to replace panels that exhibit signs of defect in the material
 - 1. Defect include the following:
 - a. Yellowing in excess of 8% per ASTM D1003 from original pre-installed panels. The system manufacturer shall provide a 12" x 12" sample of the panel from the same material run as those panels provided for the project and to be catalogued and kept for reference by the building owner. This shall be the only means in which to validate the loss in light transmission and yellowing.
 - b. Delamination – Panel must not fiber bloom or require recoating in order to maintain warranty.
 - c. Hail damage – No damage to the panel shall occur from hail that is 20mm in diameter and a velocity less than 12 M/S.
 - 2. Warranty period is **TEN YEARS** from date of installation to be indicated on Warranty.

- C. Aluminum Finish Warranty: System Manufacturer agrees to repair or replace aluminum components on which finishes fail within the specified warranty period.
 - 1. Failures include, checking, crazing, peeling, chalking, and fading of finishes.
 - a. Mill – One Year from installation against excessive wear and deterioration subject to chemical environmental conditions which could accelerate the deterioration of the aluminum.
 - b. Anodized Finish – Five Years from installation
 - c. Powder Coat – 10 Years from Installation
 - d. 70% Kynar Painted Finish – 20 Years from installation

PART 2 – PRODUCTS

2.1 MANUFACTURERS: Subject to compliance with the requirements of this Specification Section

- A. Basis of Design: WindowTherm® as manufactured by
Solutions in Polycarbonate, LLC
6353 Norwalk Road

Medina, OH 44256
330-572-2860 Phone
330-572-2861 Fax
Info@solutionsinpc.com
www.solutionsinpc.com

WindowTherm® is a registered Trademark of Solutions in Polycarbonate, LLC

- B. Other manufacturers wishing to provide materials for this project must submit an application for prior approval 15 days prior to the originally published bid date for the project and be approved per Addendum. The burden of proof as to the acceptable nature of the product for inclusion on the project is the sole responsibility of the submitting manufacture at the discretion of the architect. It is the manufacturer's responsibility to provide enough information and data with the request in order for the reviewing party to determine the suitability of the submitted product for inclusion on the project.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Structured Polycarbonate Panel Assemblies shall withstand the effects of the following forces without failure due to defective manufacture, fabrication, installation, or other defects in construction:
1. Structural Loads
 2. Thermal Movement
 3. Failure includes the following
 - a. Deflection exceeding specific limits
 - b. Uncontrolled Water leakage
 - c. Thermal stresses transferred to the building structure
 - d. Loosening or weakening of fasteners, attachments, and other components
- B. Structural Loads:
1. Wind Loads – Refer to Structural Notes on Drawings in Structural Section
 - a. Wind Speed – 90 mph
 - b. Importance Factor – 1
 - c. Exposure Category – B
- C. Deflection Limits:
1. Window Structural Framing – Limited to L/120 for structural aluminum framing components
 2. Glazing Components – Limited to L/60 for Tongue & Groove panel
- D. Structural Testing Performance: Based upon ASTM D330
1. When tested at positive and negative wind load design pressures, assemblies do not show evidence of deflection exceeding specified limits.
 2. When tested at 150% of positive and negative design wind load pressures, assemblies, including anchorage, do not show evidence of material failure, structural distress, and permanent deformation of main framing members exceeding 1% of span.
 3. Test Durations: As required to satisfy current ASTM E330 requirements.
 4. System Pressure shall be rated at **45psf** with a 150% safety factor

- E. Water Penetration: Provide panel assemblies that do not evidence signs of water penetration through fixed glazing and framing areas when tested per ASTM E331 at a minimum static air pressure difference of 20% of positive wind load pressure but not less than **6.24psf**.
- F. Air Infiltration: Provide Tongue & Groove panel system that allows for **0.60cfm** per square foot or less when tested in accordance with ASTM E289 at a pressure of 15psf.
- G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to both aluminum framing and polycarbonate panels.
 - 1. Temperature Change Range – 150 degrees Fahrenheit

2.3 ALUMINUM FRAMING SYSTEMS

- A. Components: Multi-piece custom extruded aluminum framing as shown on drawings
- B. Aluminum: Alloy and temper per manufacturer's recommendation in order to meet structural loading as determined by the structural engineer.
- C. Brackets, Clips, and Reinforcements: Components must be manufactured from extruded aluminum. Roll formed sheet metal is not acceptable.
- D. Fasteners: All fasteners to be Stainless Steel.
- E. Flashing: Aluminum sheet not less than 0.040" thick and pre-finished galvanized steel flashing not be less than 26 gauge.
- F. Gaskets: Gaskets to be less than 60 Durometer in hardness, extruded with a compatible material for use with polycarbonate resin, and coated with a low friction treatment on the bearing surface. Butyl tapes are not acceptable.
- G. Framing Sealants: Only neutral cure structural silicone sealants may be used. Urethane, or other type sealants are not acceptable.
- H. Weep Hole: Weep holes must be pre-installed in the aluminum framing per manufacturer's recommendations

2.4 STRUCTURAL POLYCARBONATE PANELS

- A. Description: Translucent extruded polycarbonate sheet with cellular cross section that provides isolated airspaces and that has a co-extruded layer of UV protection
 - 1. Self-Ignition Temperature: 800 degrees Fahrenheit or more per ASTM D1929
 - 2. Spontaneous Ignition Temperature: 950 degrees Fahrenheit or more per ASTM D1929
 - 3. Flame Spread: Not more than 25 per ASTM E84 for Class A rating
 - 4. Smoke Development: Not to exceed 450 per ASTM E84 for Class A rating
 - 5. Burn Extent: Not to exceed 25mm per D635 for CC1 rating

- B. Panel Thickness: 40mm
- C. Panel Color: Opal
- D. Light Transmission: 42%

2.5 ALUMINUM FINISHES (choose one)

- A. Mill
- B. Anodized: AAMA 611, AA-M12C22a31, Class II 0.010mm or thicker finish in (Clear, Bronze, Black, Champaign)
- C. Powder Coat: Per AAMA 2604 in (choose color)
- D. 70% Kynar 2-Coat Painted finish: (choose color)

2.6 SEALANT

- A. Type: One-component, neutral-cure, RTV (room temperature vulcanizing) silicone rubber sealant for structural and non-structural glazing, structural attachment of panel systems, and above-grade weather sealing joints with most common construction materials; Dow Corning® Contractors Weatherproofing Sealant, as manufactured by Dow Corning Corporation.
- B. Compliance: Sealant shall meet or exceed requirements of these standards.
 - 1. ASTM C920, Type S, Grade NS, Class 50, Use NT, G, A, and O.
 - 2. ASTM C1184, Type S, Use G, A, and O.
 - 3. GSA CID A-A-272A - Sealing Compound: Silicone Rubber Base
 - 4. GSA CID A-A-1556 -Sealing Compound Elastomeric Type, Single Component
- C. Color: To match Aluminum Framing Finish
- D. Volatile organic compound (VOC) content: 28 grams/liter.
- E. Urethane sealants are not acceptable for use on polycarbonate glazing and will void the warranty.

2.7 GASKET

- A. Gaskets: Gaskets to be less than 60 Durometer in hardness, extruded with a compatible material for use with polycarbonate resin, and coating with a low friction treatment on the bearing surface. No butyl tapes are allowed.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. General
 - 1. Manufacturer to supply written installation instructions for compliance by installing contractor.

2. Damaged components must be replaced and not installed on project.
 3. Joints to utilize splice guides to insure alignment between components is straight and within tolerance.
 4. All aluminum joints to be sealed with neutral cure structural silicone sealants.
- B. Metal Protection: Where aluminum components will contact dissimilar materials, protect against galvanic reaction by painting substrate surface with two coats of primer or a primer and finish coat.
- C. Flashing:
1. For metal buildings, the sill, jamb and head flashing must be installed by others prior to installation prevent the infiltration of water at the window-to-building seam openings.
 2. For other building types, sill flashing (optional) must be installed in sill base extrusion prior to installation to prevent the infiltration of water.
- D. Alignment: Install components plumb and true in alignment with established lines and elevations.
- E. Erection Tolerances: Install panel assemblies to comply with the following maximum tolerances:
1. Alignment Limit offset from true alignment to 1/8" where surfaces abut in line, edge-to-edge, and at corners.
 2. Location and Plane: Limit variation from true location and plane to 1/8' in 10'0" feet but not greater than 1/2" over the entire length.

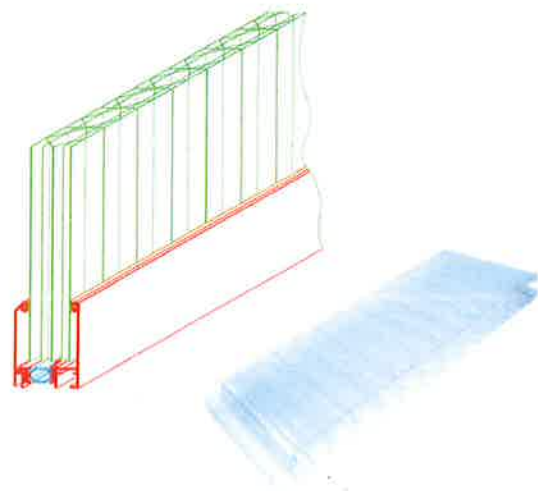
END OF SECTION 08 45 13

6353 Norwalk Road
Medina, OH 44256

Phone: 330-572-2860
Web: www.solutionsinpc.com

**WindowTherm® Wall System
Translucent Vertical Wall Panel System**

Designed for application flexibility



What is an WindowTherm Wall System...

- Thermally broken frame design using the latest in extruded Polyamide technology
- Ability to accept tongue & groove multiwall polycarbonate glazing thickness with primary glazing 40mm in thickness, with 20mm & 60mm thicknesses available.
- Vertical panel heights in windows up to 39' tall long to minimize horizontal breaks
- Excellent diffused light transmission for interior daylighting and the reduction of lighting costs
- Superior insulating performance of glazing panel combined with the frame's thermal break design to further reduce building operating costs through reductions in heating and cooling costs
- WindowTherm Wall panel systems offers great performance values of SHGC to reduce building heat gain
- Translucent glazing offers softer daylighting for working environments and avoids many safety issues related to glare of sunlight

What is its value...

- Designed for longer unbroken window spans, thus reducing framing and the installation costs, increasing uniform natural daylighting to interior areas.
- Design not only allows for wide unbroken spans, also allows for alternate application designs for height and width, especially those applications that need to match other existing windows or to achieve a special look for the building structure.
- Data from the window designs can be placed into a variety of energy modeling tools to determine real energy savings in dollars.
- With addition of diffuse natural daylighting projected deeper into the building and the use of sensors integrated into the lighting system, the WindowTherm wall system can produce additional dollar savings in electricity expense.

WindowTherm Wall System Product Specifications:

System designs & widths	Window system configurations	Vertical applications with the ability to make outside and inside 90° or variable degree corners.
System heights	Window system height design range	2' to 39' feet tall. (Taller than 39' applications achieved with horizontal joint)
System models	Model	WindowTherm 40
	Framing	1.43 lbs./lf
Weights	Glazing panel	40mm panel = 0.82 lbs./sf
	System Weight (WindowTherm 40 System vs. framed insulated glass Unit)	2.25 lbs./sf vs. 7.5 lbs./sf
Solar performance	U-value (Thermal Conductivity)	.24 System U-Value (System)
	VT (Visible Transmittance)	Clear 49% Opalescent 38% (Glazing)
Framing finish options	Anodized, Painted or Mill Finishes	Consult factory for various finish options and colors
Glazing material & options:	Translucent multiwall polycarbonate panels with interlocking tongue & groove connections to adjacent panels.	40mm Tongue & Groove interlocking panels
	Colors:	Color LT%
		Clear 49
		Opalescent 38

**WindowTherm Wall System
Translucent Vertical Wall Panel System**

**Benefits of
WindowTherm
Technology:**

The WindowTherm Wall system is an Innovative adaption of existing materials, glazing and framing systems, to provide a proven source of non-glare natural daylighting and real dollar energy reduction system through a highly insulating multiwall glazing.

The WindowTherm 40 system can be integrated with a current lighting control and sensor technology to further reduce building energy and electric costs.

Testing and Standards Compliance

	Test	Compliance Standard	Glazing Material
Testing	U-Factor	NFRC 100	(Values subject to glazing color selection)
	SHGC	NFRC 200	
	Light Transmittance	ASTM 1003	
	Fire Ignition	ASTM D1929	Flash 779° F Spontaneous 1054° F
	Fire Burn Rate	ASTM D635	CC1
	Interior Flame Spread	ASTM E84	Class A
	Sound Transmission Loss - STC	ASTM E90	23 Db

The above tests were performed and verified by certified independent third parties. If you have questions on a specific test or product, please contact a Solutions In Polycarbonate Representative. Solutions In Polycarbonate, LLC does not assure compliance with any plans or specifications and it remains the responsibility of the customer to confirm compliance of the product with applicable local, state, and national codes and other laws or regulations.

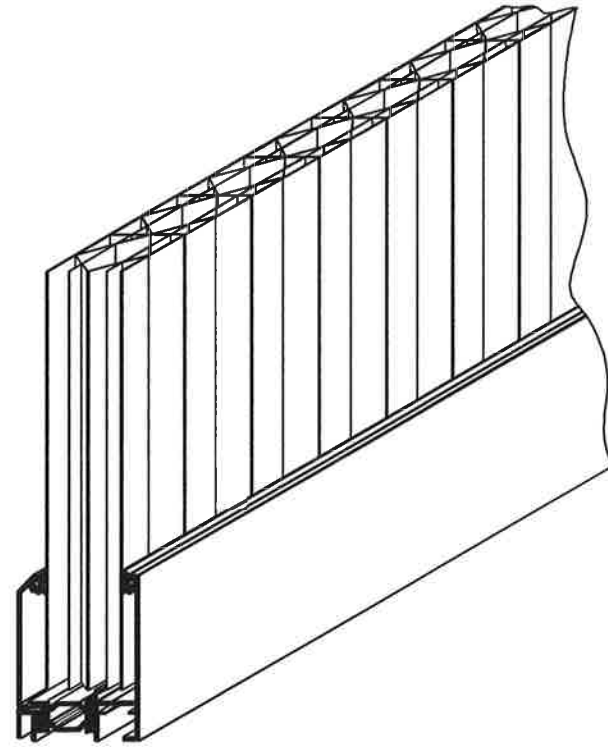
Product configuration possibilities:

System width spans



System height spans





WindowTherm®
40mm Window Wall System

Solutions in Polycarbonate LLC

6553 Norwalk Road
Medina, Ohio 44256

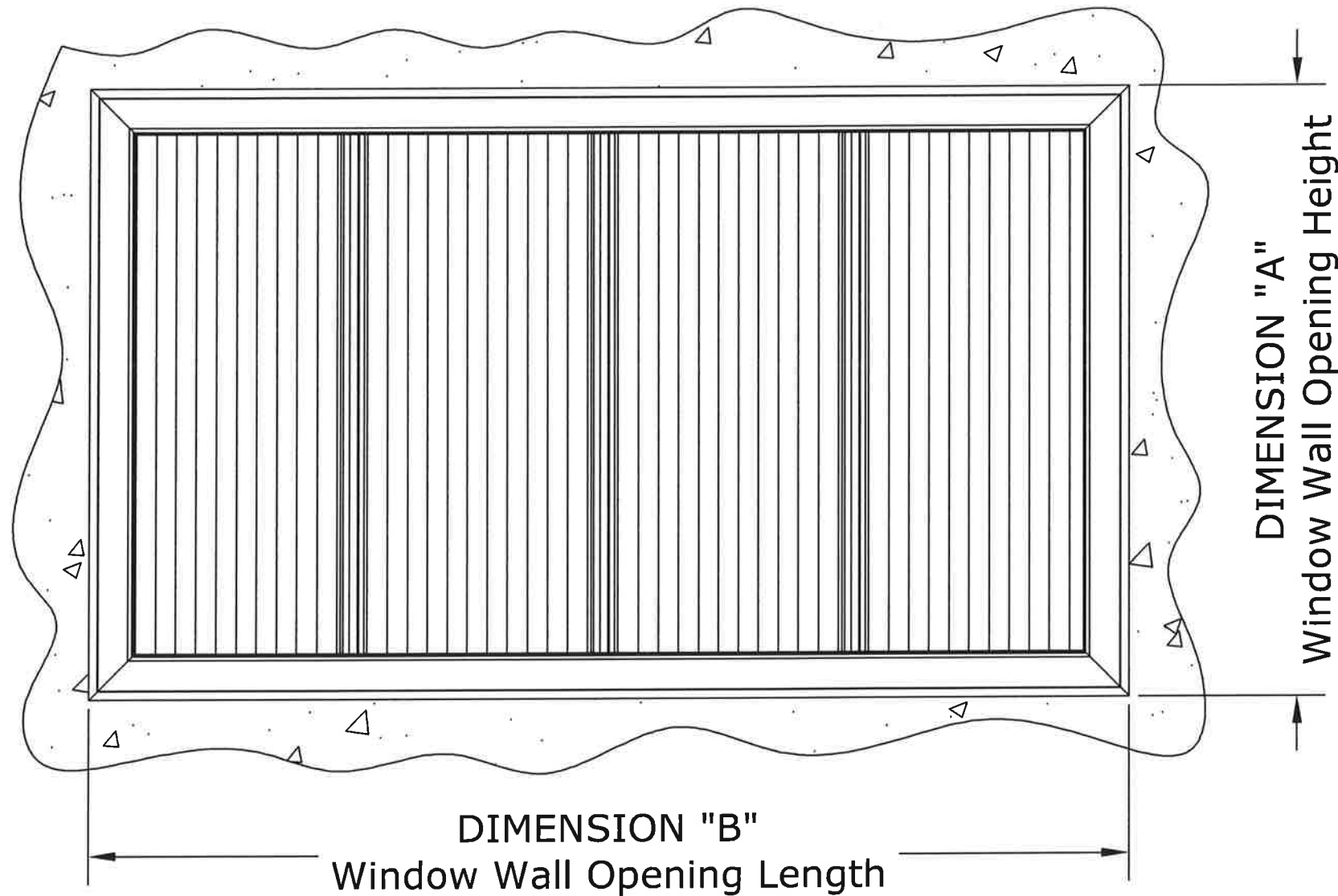
Ph. 330-572-2860 Fax 330-572-2861

Project Name: _____

Project Location: _____

Customer Name: _____

NOTE: THIS IS A REPRODUCTION OF A SOLUTIONS
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FOR AUTHORIZED PROJECT. THIS MUST NOT BE USED
FOR CONSTRUCTION OR FABRICATION UNTIL SIGNED
AS CHECKED AND ISSUED FOR PRODUCTION.



DIMENSION "A"
Window Wall Opening Height

DIMENSION "B"
Window Wall Opening Length

**WindowTherm®
WINDOW WALL SYSTEM**

QUANTITY REQUIRED _____

Opening Dimensions:

DIM "A" _____
DIM "B" _____

- | | |
|--|--------------------------------------|
| Frame Finish: | Unit(s) To Be Anchored to: |
| Mill Finish | <input type="checkbox"/> Steel |
| Anodized | <input type="checkbox"/> Wood |
| <input type="checkbox"/> Clear | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Bronze | <input type="checkbox"/> Other _____ |
| Powder Coat Paint | |
| <input type="checkbox"/> Bone White | |
| <input type="checkbox"/> Quaker Bronze | |
| <input type="checkbox"/> Black | |
| <input type="checkbox"/> Other _____ | |

GENERAL NOTES:

- 1.) EXTRUDED ALUMINUM TO BE 6063-T5 ALLOY MIN.
- 2.) BRAKE-FORMED ALUMINUM TO BE MINIMUM .040"
- 3.) EXTRUDED ALUMINUM COMPONENTS TO HAVE MINIMUM THICKNESS TO MEET REQUIRED LOADNG.
- 4.) WINDOW WALL SYSTEM IS DESIGNED TO MEET A MINIMUM WIND LOAD OF 90 MPH, IMPORTANCE FACTOR - 1, EXPOSURE CATEGORY - B.
- 5.) DEFLECTION LIMITS FOR FRAMING LIMITED TO L/120, GLAZING COMPONENTS L/60.
- 6.) INSTALLATION OF WindowTherm® WINDOW WALL SYSTEM NOT BY SOLUTION IN POLYCARBONATE LLC.
- 7.) ANY CHANGES THAT OCCUR AFTER APPROVAL OF WINDOW OR WALL SYSTEM MAY RESULT IN AN ADDITION TO CONTRACT AND MAY DELAY DELIVERY OF PRODUCTS.
- 8.) WindowTherm® WINDOW WALL SYSTEM TO BE SHIPPED KNOCKED DOWN FOR FIELD ASSEMBLY.
- 9.) OFF LOADING OF FRAMING AND GLAZING MATERIAL IS NOT THE RESPONSIBILITY OF SOLUTIONS IN POLYCARBONATE LLC.
- 10.) ALL SEALANTS TO BE COMPATIBLE WITH THE FRAMING AND GLAZING COMPONENTS.
- 11.) SOLUTIONS IN POLYCARBONATE LLC STRIVES TO CONTINUOUSLY IMPROVE OUR PRODCTS AND MANUFACTURING METHODS. THE COMPANY RESERVES THE RIGHT TO MAKE CHANGES WITHOUT NOTICE WHEN, IN THE OPINION OF THE COMPANY, SUCH CHANGES IMPROVE THE PRODUCT OR IT'S PERFORMANCE.

LEAD TIME:

- 1.) CONTACT SOLUTIONS IN POLYCARBONATE FOR CURRENT LEAD TIMES.
- 2.) ALL LEAD TIMES DO NOT BEGIN UNTIL SOLUTIONS IN POLYCARBONATE LLC RECEIVES ALL REQUIRED APPROVALS, INCLUDING BUT NOT LIMITED TO
 - A.) DIMENSIONAL REQUIREMENTS
 - B.) FINISH COLOR AND TYPE
 - C.) GLAZING COLOR
 - D.) SUBSTRATE MATERIAL

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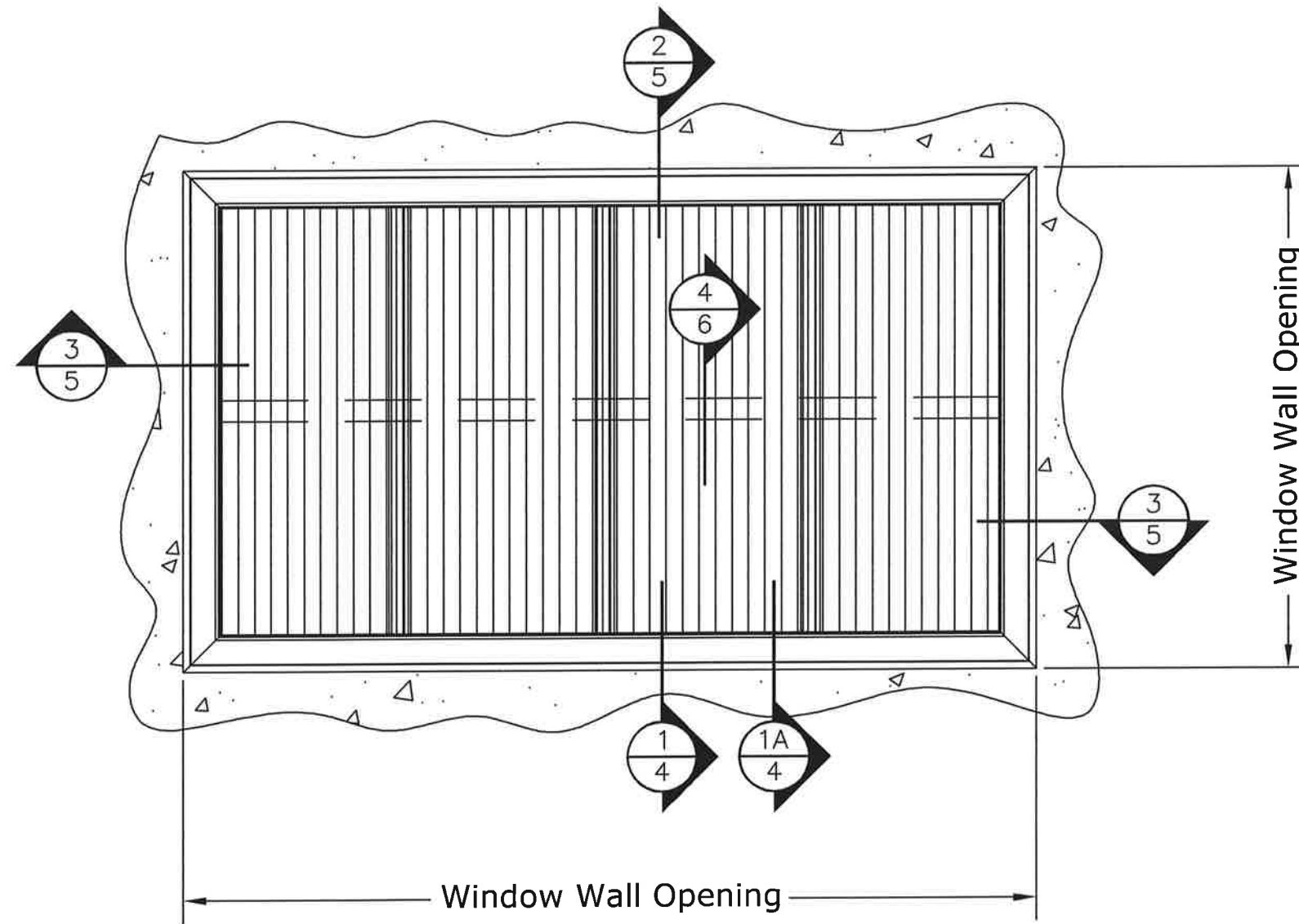
6553 Norwalk Road, Medina, Ohio 44256
Phone 330-572-2860, Fax 330-572-2861

Project Name: ****
Project Location: ****
Customer Name: ****

WindowTherm®
40mm Window Wall System

D-2

Scale: N.T.S



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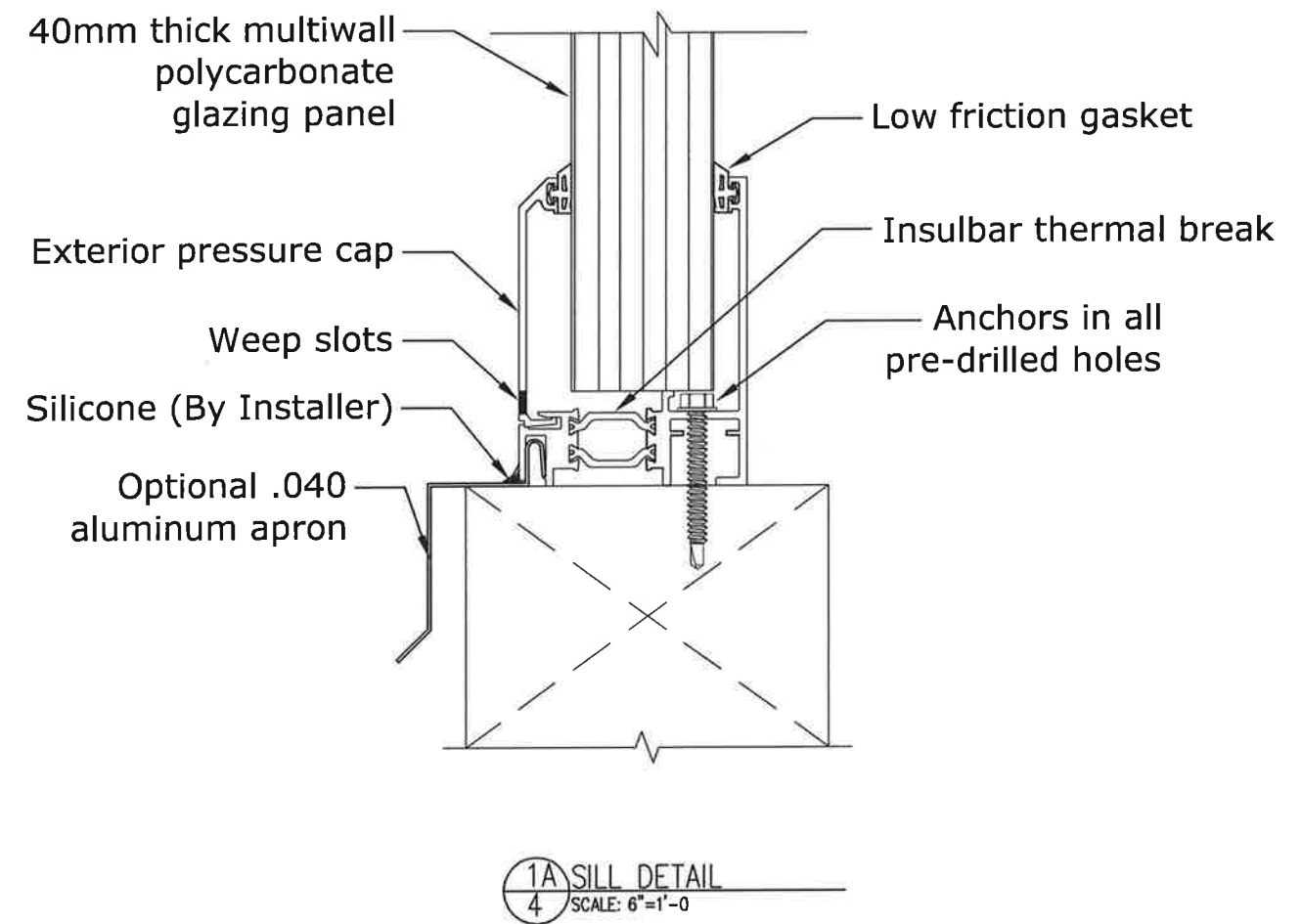
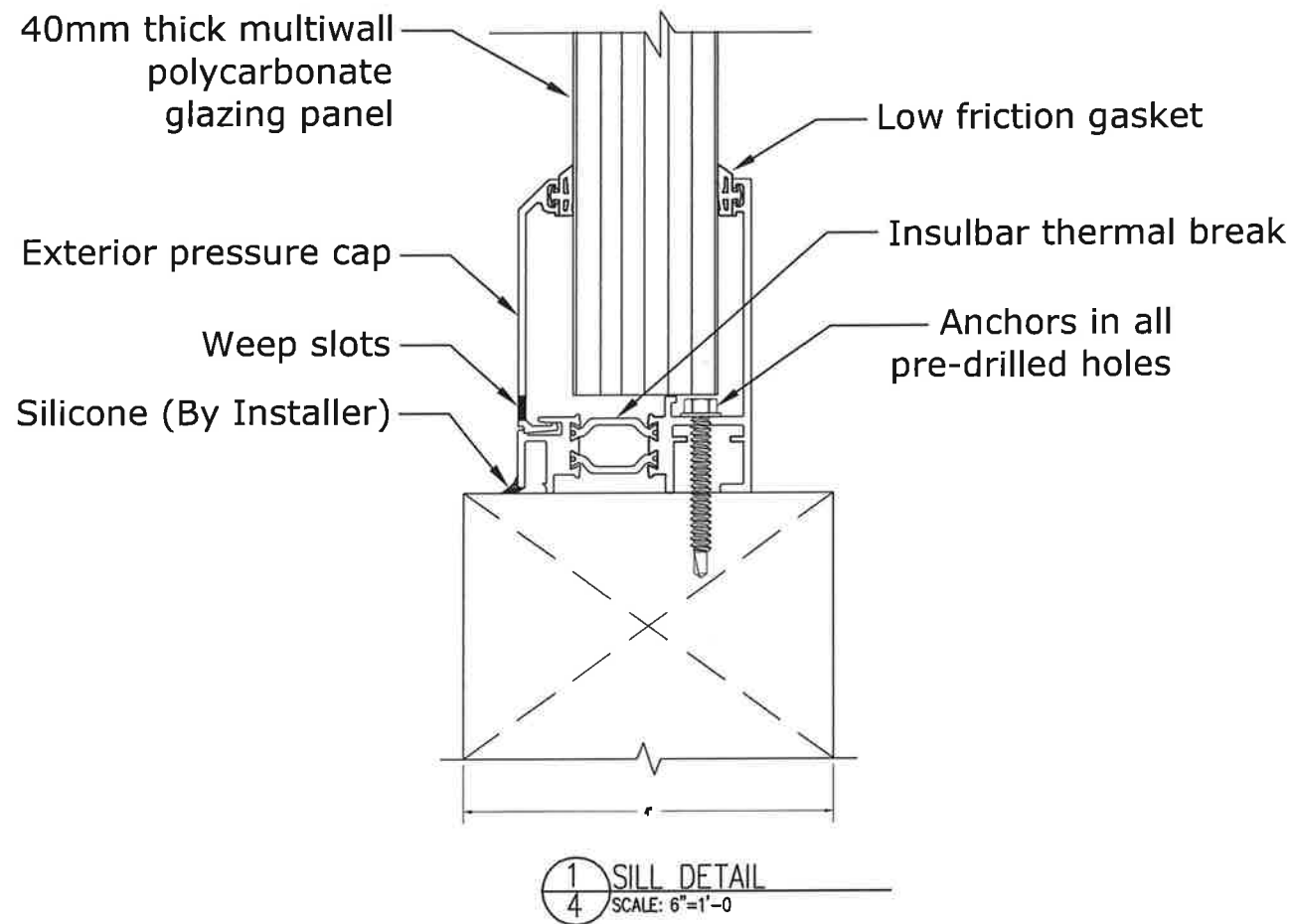
Solutions in Polycarbonate

6553 Norwalk Road, Medina, Ohio 44256
Phone 330-572-2860, Fax 330-572-2861

Project Name: ****
Project Location: ****
Customer Name: ****

WindowTherm®
40mm Window Wall System
Elevation

D-3
Scale: N.T.S



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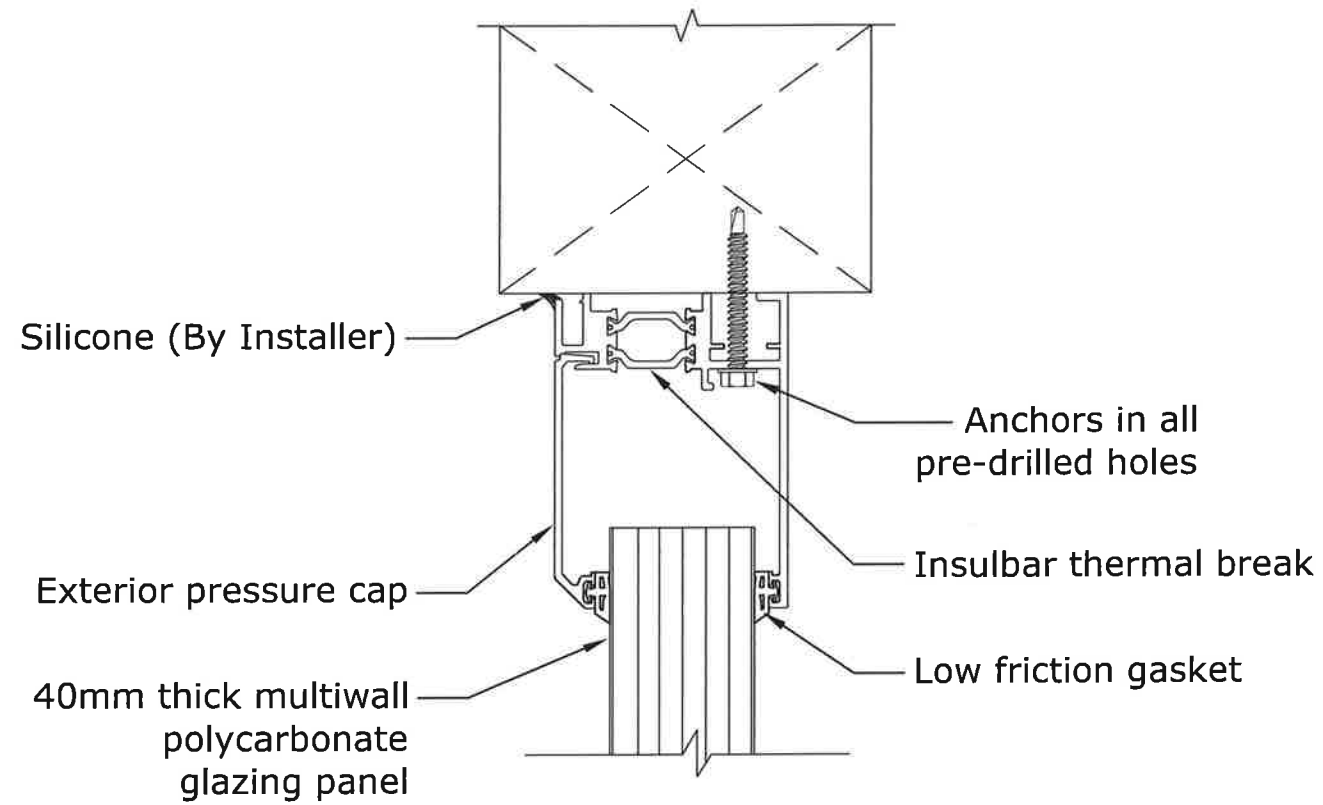
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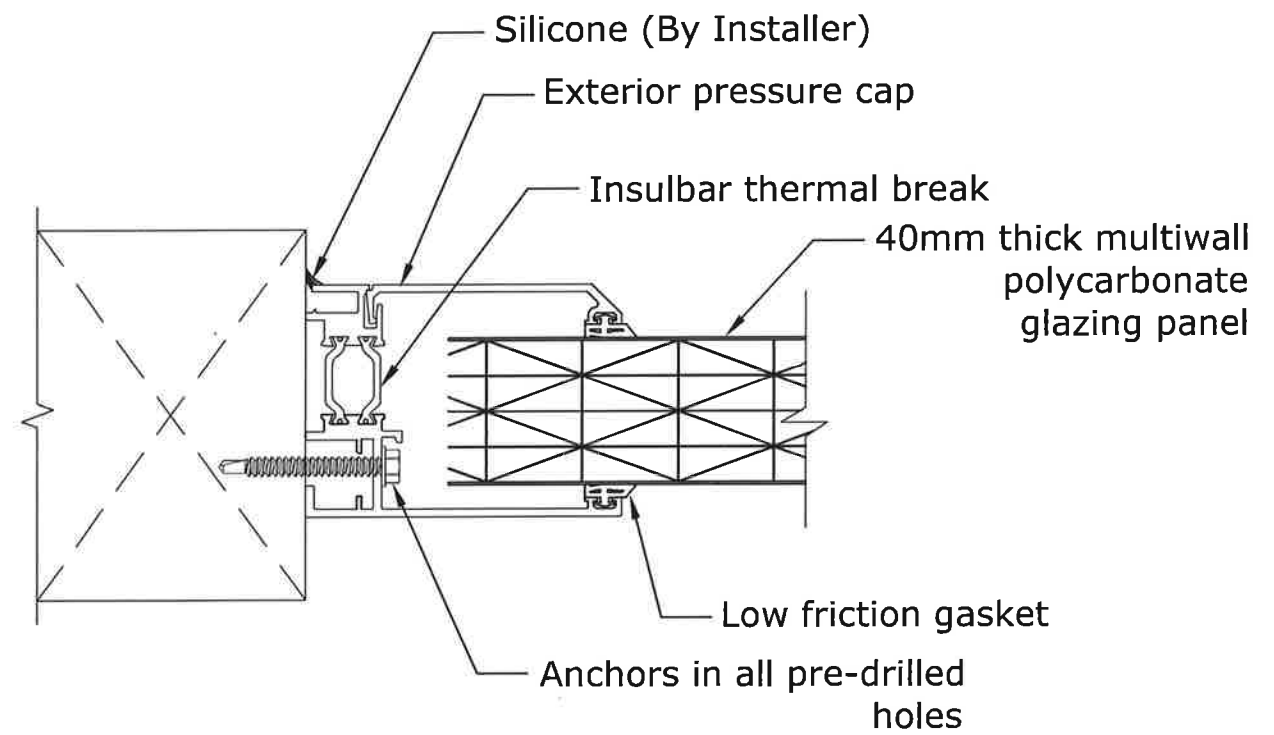
Project Name: ****
Project Location: ****
Customer Name: ****

WindowTherm®
40mm Window Wall System
Sill Detail

D-4
Scale: As Noted



2 HEAD DETAIL
 5 SCALE: 6"=1'-0"



3 JAMB DETAIL
 5 SCALE: 6"=1'-0"

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 FOR CONSTRUCTION OR FABRICATION UNTIL SIGNED
 AS CHECKED AND ISSUED FOR PRODUCTION.

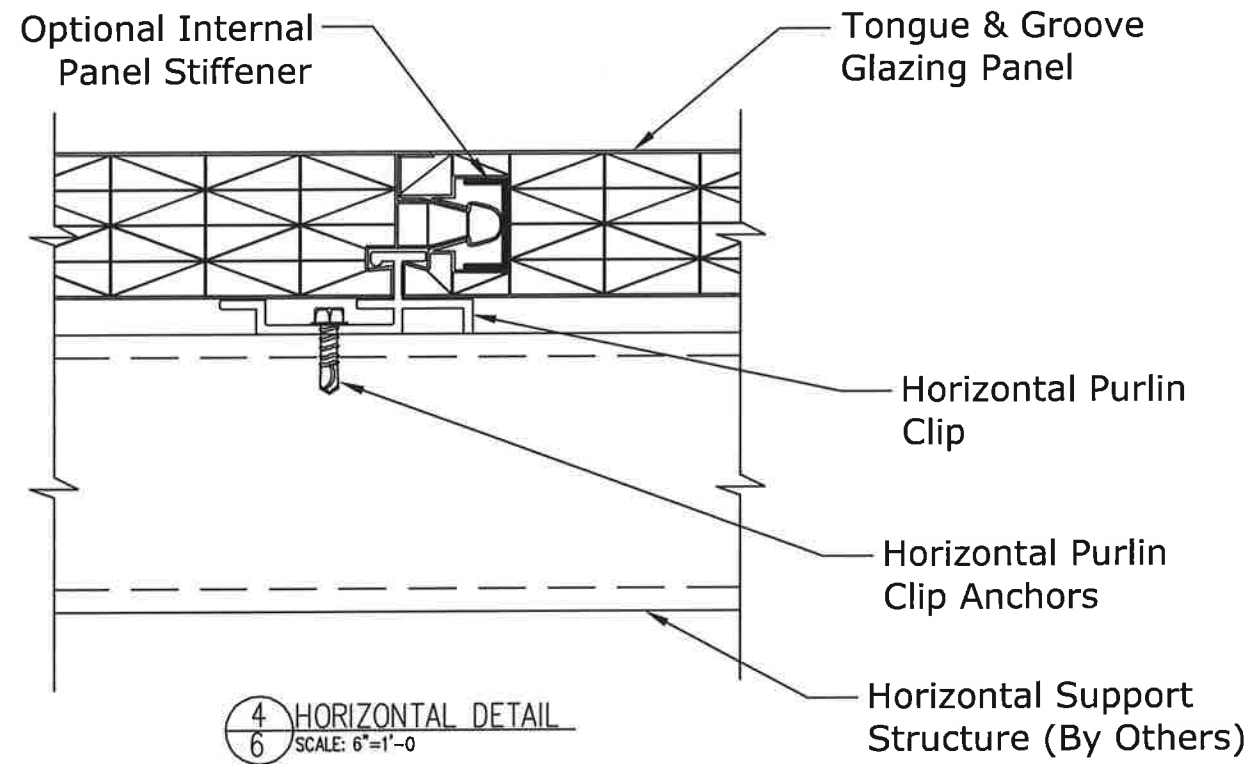
Solutions in Polycarbonate

6553 Norwalk Road, Medina, Ohio 44256
 Phone 330-572-2860, Fax 330-572-2861

Project Name: ****
 Project Location: ****
 Customer Name: ****

WindowTherm®
 40mm Window Wall System
 Head & Jamb Detail

D-5
 Scale: As Noted



NOTE: THIS DETAIL IS REQUIRED WHEN OVERALL HEIGHT EXCEEDS LOADING REQUIREMENTS OF SPAN.

NOTE: THIS IS A REPRODUCTION OF A SOLUTIONS IN POLYCARBONATE DRAWING AND IS SUPPLIED ONLY FOR AUTHORIZED PROJECT. THIS MUST NOT BE USED FOR CONSTRUCTION OR FABRICATION UNTIL SIGNED AS CHECKED AND ISSUED FOR PRODUCTION.

Solutions in Polycarbonate

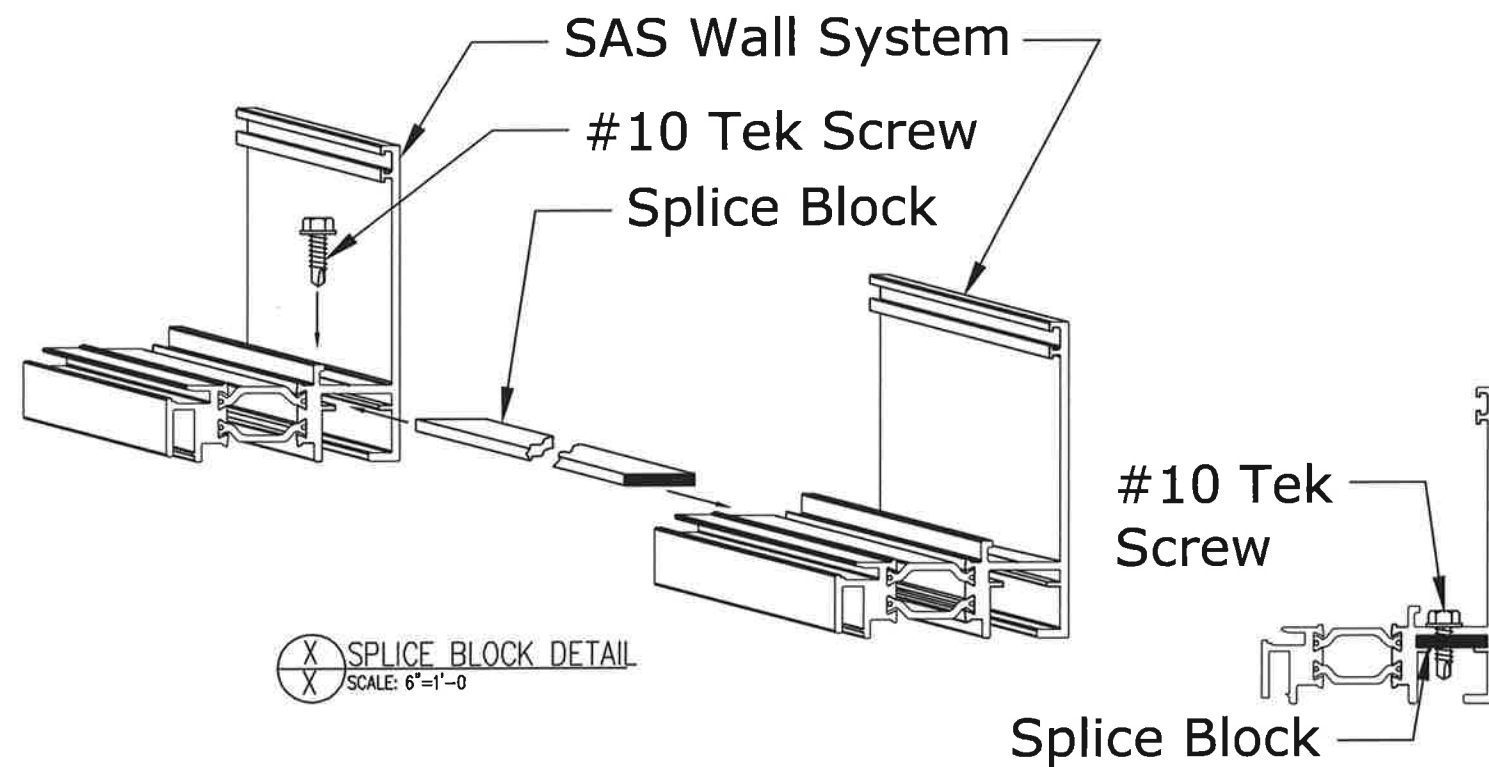
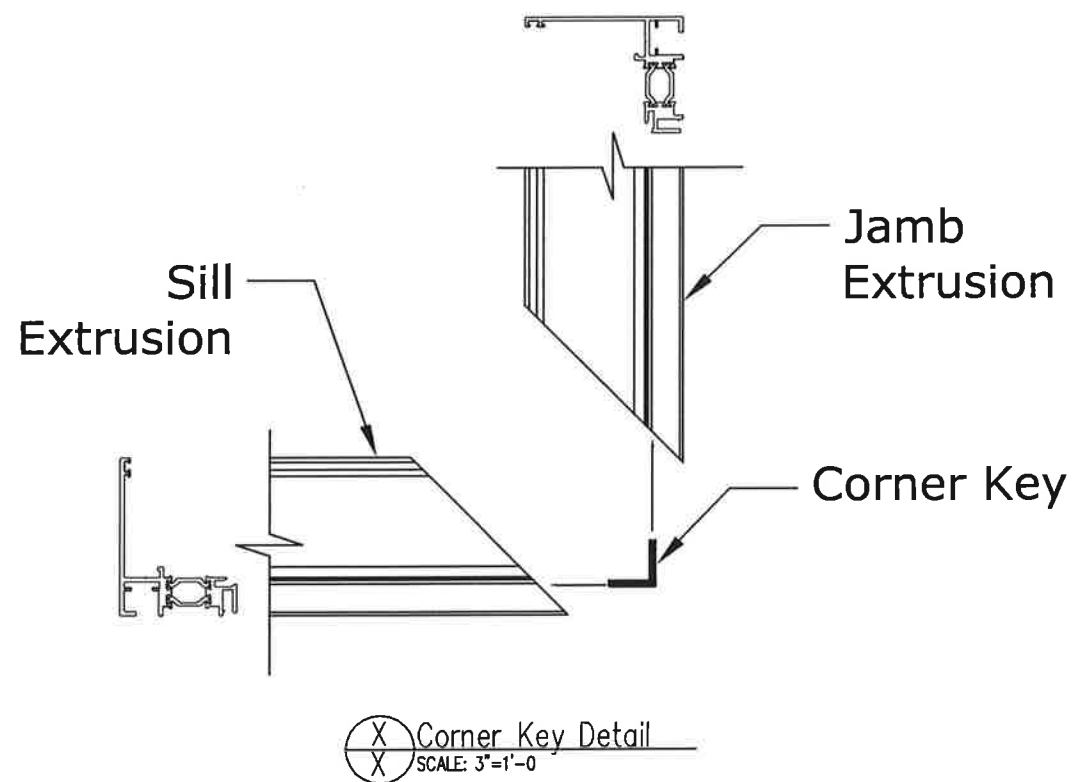
6553 Norwalk Road, Medina, Ohio 44256
Phone 330-572-2860, Fax 330-572-2861

Project Name: ****
Project Location: ****
Customer Name: ****

WindowTherm®
40mm Window Wall System
Horizontal Support Detail

D-6

Scale: As noted



NOTE: THIS IS A REPRODUCTION OF A SOLUTIONS IN POLYCARBONATE DRAWING AND IS SUPPLIED ONLY FOR AUTHORIZED PROJECT. THIS MUST NOT BE USED FOR CONSTRUCTION OR FABRICATION UNTIL SIGNED AS CHECKED AND ISSUED FOR PRODUCTION.

Solutions in Polycarbonate

6553 Norwalk Road, Medina, Ohio 44256
Phone 330-572-2860, Fax 330-572-2861

Project Name: ****
Project Location: ****
Customer Name: ****

WindowTherm®
40mm Window Wall System
Miscellaneous Details

D-7

Scale: As noted

East Lake YFD Center Improvements

3610 Dodds Avenue,
Chattanooga, TN 37402

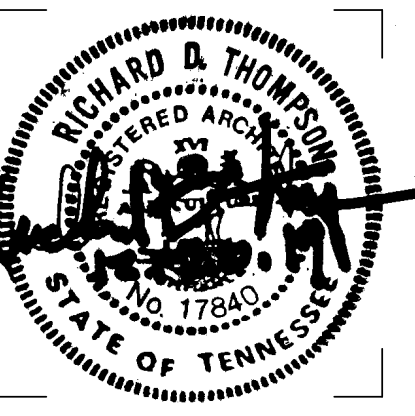


INDEX OF DRAWINGS

Sheet Number	Sheet Name	12-20-19	ADD 1,2, & 3	1-10-20
GENERAL				
T1.1	TITLE SHEET	X	X	
T1.2	BUILDING CODE SUMMARY	X	X	
T1.3	LIFE SAFETY PLAN	X		
T1.4	ADA COMPLIANCE STANDARDS	X		
T1.5	ADA COMPLIANCE STANDARDS	X		
CIVIL				
C0.1	GENERAL NOTES	X		
C1.1	SITE STAKING PLAN	X		
C1.2	SITE GRADING PLAN	X		
C2.1	EROSION CONDITIONS & DEMO PLAN	X		
C2.2	EROSION CONDITIONS & DEMO PLAN	X		
C3.1	SITE GRADING PLAN	X		
C3.2	SITE GRADING PLAN	X		
C4.1	SITE UTILITIES PLAN	X		
C5.0	SEDIMENT & EROSION CONTROL NOTES & DETAILS	X		
C5.1	SEDIMENT & EROSION CONTROL PLAN, PHASE I	X		
C5.2	SEDIMENT & EROSION CONTROL PLAN, PHASE II	X		
C6.1	LANDSCAPE PLAN	X		
C6.2	LANDSCAPE PLAN	X		
C7.0	SITE DETAILS	X		
C8.0	DRAINAGE DETAILS	X		
ARCHITECTURAL				
A1.1	FLOOR PLAN	X	X	
A1.1D	FIRST FLOOR DEMOLITION PLAN	X	X	
A1.1F	FINISH PLAN	X	X	
A1.2	INTERIOR PARTITION HEIGHTS	X	X	
A1.2D	ROOF DEMOLITION PLAN	X	X	
A2.1	EXTERIOR ELEVATIONS	X	X	
A3.1	BUILDING SECTIONS	X	X	
A3.2	EXTERIOR WALL SECTIONS	X	X	
A3.3	EXTERIOR WALL SECTIONS	X	X	
A3.4	EXTERIOR WALL SECTIONS	X	X	
A4.1	ROOF PLAN	X	X	
A4.2	ROOF DETAILS	X	X	
A5.1	ENLARGED PLANS & DETAILS	X	X	
A5.2	ENLARGED PLANS & DETAILS	X	X	
A5.5	SITE AMENITIES	X	X	
A6.1	ENLARGED PLANS	X	X	
A6.2	INTERIOR ELEVATIONS	X	X	
A6.3	INTERIOR ELEVATIONS	X	X	
A6.4	INTERIOR ELEVATIONS	X	X	
A6.5	INTERIOR MILLWORK DETAILS	X	X	
A7.1	REFLECTED CEILING PLAN	X	X	
A7.2	CEILING DETAILS	X	X	
A8.1	DOOR SCHEDULE & DETAILS	X	X	
A8.2	WINDOW SCHEDULE	X	X	
A8.3	DOOR & WINDOW DETAILS	X	X	
ARCHITECTURAL				
A1.0	ARCHITECTURAL SITE PLAN	X		
STRUCTURAL				
S0.0	GENERAL NOTES 1	X		
S0.1	GENERAL NOTES 2	X		
S1.0	FOUNDATION PLAN	X		
S1.1	ROOF FRAMING PLAN	X	X	
S2.0	SECTIONS 1	X		
S2.1	SECTIONS		X	
S3.0	DETAILS 1	X		
S3.1	DETAILS 2	X		
S3.2	DETAILS 3	X		
S3.3	DETAILS 4	X		
FIRE PROTECTION				
FP1.0	FP SITE PLAN & NOTES	X		
FP1.1	FP FIRST FLOOR PLAN	X		
FP1.2	FP UPPER CEILING PLAN	X		
MECHANICAL				
M1.1	MECHANICAL FLOOR PLAN	X		
M3.1	MECHANICAL SECTIONS	X		
M4.1	MECHANICAL ROOF PLAN	X		
M8.1	MECHANICAL SCHEDULES & NOTES	X		
M8.2	MECHANICAL DETAILS	X		
PLUMBING				
P0.1	PLUMBING NOTES & DETAILS	X		
P1.1	FIRST FLOOR SANITARY	X		
P1.2	FIRST FLOOR DOMESTIC	X		
P1.3	ROOF PLAN	X		
ELECTRICAL				
E0.1	ELECTRICAL SYMBOLS	X		
E0.2	ELECTRICAL SITE PLAN	X		
E2.0	LIGHTING PLAN	X		
E2.1	LIGHTING CONTROLS	X		
E3.0	POWER PLAN FLOOR	X		
E3.1	POWER PLAN ROOF	X		
E3.2	SINGLE LINE DIAGRAM	X		
E3.3	PANEL SCHEDULES	X		
E4.0	FIRE ALARM PLAN	X		
E5.0	AUXILIARY PLAN	X		
E5.1	SOUND DIAGRAMS	X		
E5.2	SOUND RACK DETAILS	X		



East Lake YFD Center
Improvements
3610 Dodds Avenue, Chattanooga, TN 37402



ISSUE DATES
INITIAL ISSUE 12-20-19
1 Addendum 4 01/10/2020

JOB NO. 18-072 | D'WN Author | CKD Checker

T1.1
TITLE SHEET



GENERAL NOTES

- WHERE A DETAIL IS SHOWN OR NOTE IS DESCRIBED FOR ONE CONDITION IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS EVEN THOUGH NOT SPECIFICALLY MARKED ON THE DRAWINGS
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATIONS AFFECTING THIS PROJECT PRIOR TO FABRICATION OR INSTALLATION OF NEW WORK. NOTIFY ARCHITECT OF ANY DISCREPANCIES FROM DIMENSIONS SHOWN, NOTED OR REQUIRED. ADJUST DIMENSIONS OF NEW CONSTRUCTION AT DIRECTION OF ARCHITECT TO ALLOW FOR ACTUAL FIELD DIMENSIONS.
- PROVIDE OPENINGS WITH LINTELS OR HEADERS IN WALLS/PARTITIONS AS REQUIRED FOR MECHANICAL, ELECTRICAL AND PLUMBING WORK.
- PROVIDE WOOD BLOCKING AS REQUIRED IN WALLS FOR ALL WALL MOUNTED CASEWORK, SHELVES, EQUIPMENT, ACCESSORIES, AND AS INDICATED FOR INSTALLATION OF EQUIPMENT BY OTHERS.
- WOOD BLOCKING AND/OR NAILERS ARE GENERALLY SHOWN IN A GENERIC FASHION - CONTRACTOR MUST COORDINATE EXACT BLOCKING REQUIREMENTS WITH COMPONENT MANUFACTURER'S SUGGESTIONS OR STANDARDS, AND WITH OTHER TRADES.

SYMBOLS

1 View Name
SCALE: 1/8" = 1'-0"

1 SIM
AX.X

1 SIM
AX.X

1 SIM
AX.X

AX.X XX

XX AX.X

Room Name
XX

XX

XX

1i

+XX'

REVISION SYMBOL

TITLE SYMBOL

SECTION SYMBOL
SECTION #X
SHEET #AX.X

DETAIL SYMBOL
DETAIL #X
SHEET #AX.X

ENLARGED DETAIL SYMBOL
DETAIL #X
SHEET #AX.X

INTERIOR ELEVATION SYMBOL
ELEVATION #XX
SHEET #AX.X

EXTERIOR ELEVATION SYMBOL
ELEVATION #XX
SHEET #AX.X

INTERIOR ROOM SYMBOL
ROOM #XXX

DOOR SYMBOL
DOOR #XXX

STOREFRONT SYMBOL
SEE STOREFRONT SCHEDULE

WALL TYPES SYMBOL
SEE WALL/PARTITION LEGEND

FINISH ELEVATION SYMBOL
ELEVATION NUMBER

REVISION SYMBOL

CONTACT LIST

OWNER:
CITY OF CHATTANOOGA DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
Suite 2100, Development Resource Center
1250 Market Street
Chattanooga, TN 37402
CONTACT: CLAY OLIVER P:(423) 643-6161
EMAIL: moliver@chattanooga.gov

ARCHITECT:
ARTECH DESIGN GROUP
1410 COWART STREET CHATTANOOGA, TN 37408
CONTACT: MARK WYNNEMER P:(423) 664-0617
EMAIL: markw@artech.pro

ENGINEERS:
STRUCTURAL & ELECTRICAL
KHAFFRA
225 Peachtree Street, NE
Suite 1600
Atlanta, GA 30303
CONTACT: DIETRICH BANKHEAD P:(404) 525-2120
EMAIL: dbankhead@khafra.com

CIVIL, MECHANICAL, PLUMBING, FIRE PROTECTION
MARCH ADAMS & ASSOCIATES, INC.
P.O. Box 3689
310 Dodds Avenue
Chattanooga, TN 37404
CONTACT: JEFF WESTBROOK P:(423) 664-1470
EMAIL: jeff.westbrook@marchadams.com

WALL LEGEND

WALL/PARTITION NOTES:

- REFER TO WALL SECTIONS FOR CONSTRUCTION OF EXTERIOR WALLS.
- SPECIAL CONDITIONS AND SPECIAL PARTITIONS ARE INDICATED ON PLANS AND DETAILS.
- WALLS SHOWN WITH MORE THAN ONE INDICATOR SHALL CONTAIN ALL COMPONENTS OF THE WALL TYPES INDICATED.
- ALL INTERIOR STUD SPACING TO BE 16" O.C. UNLESS NOTED OTHERWISE.
- ALL INTERIOR METAL STUD WALLS TO BE 20 GAUGE UNLESS NOTED OTHERWISE.
- PROVIDE SOUND WOOD BLOCKING IN WALLS AT ALL TOILET ACCESSORY, DOOR STOP AND TOILET PARTITION LOCATIONS AS REQUIRED.

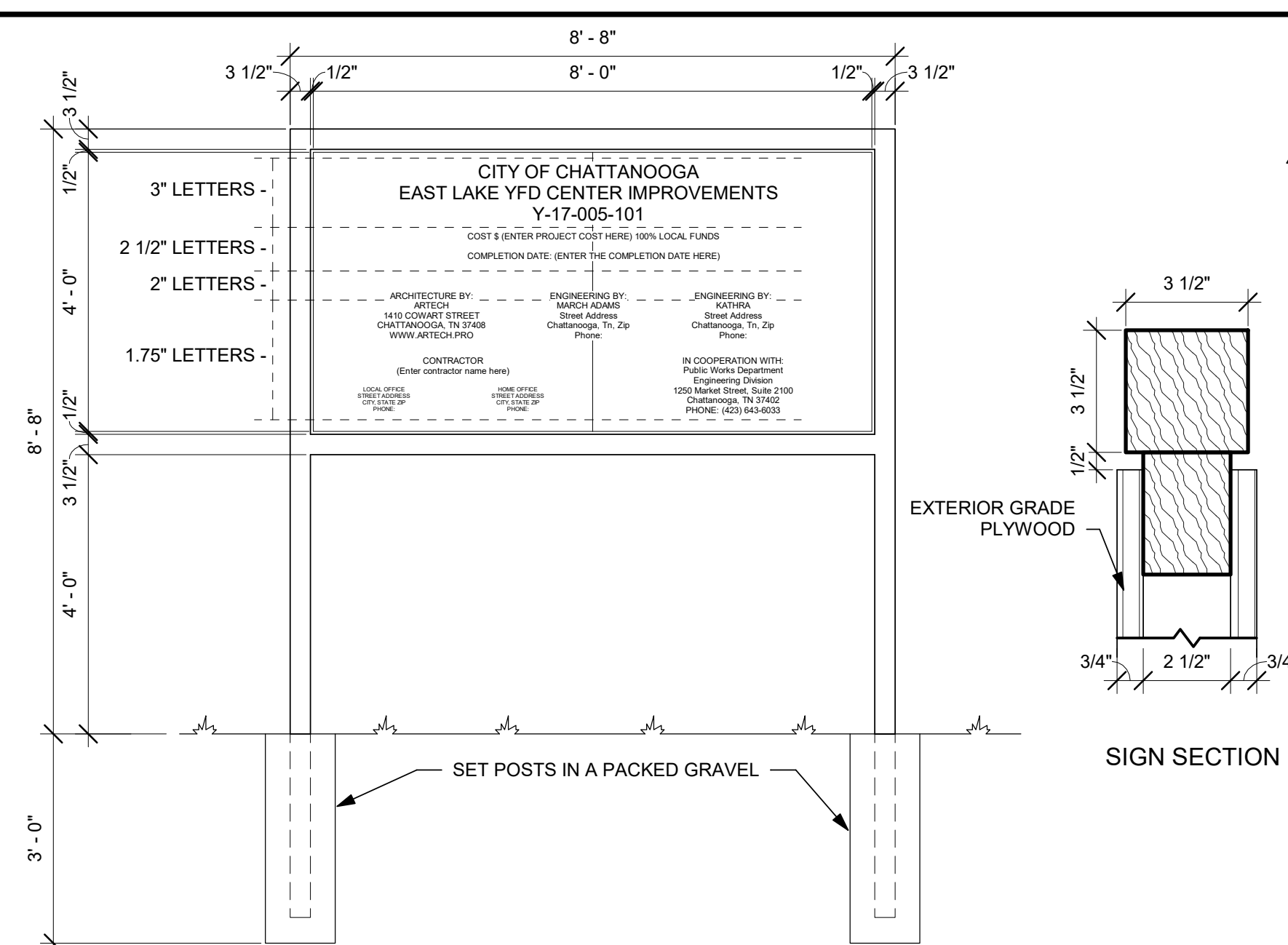
PARTITION LEGEND:

1		3-5/8" METAL STUDS @ 16" O.C. W/ 5/8" GYPSUM WALLBOARD EACH SIDE.
1A		6" METAL STUDS @ 16" O.C. W/ 5/8" GYPSUM WALLBOARD EACH SIDE.
1B		3-5/8" METAL STUDS @ 16" O.C. W/ 5/8" GYPSUM WALLBOARD EACH SIDE. 3-5/8" FIBERGLASS SOUND ATTENUATING BATT'S IN ALL STUD CAVITIES
2		2-1/2" METAL STUD FURRING WITH 5/8" GYPSUM WALLBOARD ONE SIDE.
3		CMU (NOMINAL 8" x 8" x 16") IN RUNNING BOND PATTERN. REFER TO STRUCTURAL DRAWINGS FOR REINFORCEMENT.
4		DOUBLE STUDDED WALL W/ 3-5/8" METAL STUDS @ 16" O.C. & 5/8" GLASS-MAT FACED GYPSUM WALLBOARD ON 2 OUTER FACES. GYPSUM WALLBOARD CROSS BRACE EVERY 48" O.C. LOCATED AT MID-HEIGHT OF PARTITION

CONSTRUCTION ELEMENT LEGEND:

	EXISTING CONSTRUCTION TO REMAIN.
	EXISTING CONSTRUCTION TO BE REMOVED.
	NEW CONSTRUCTION.

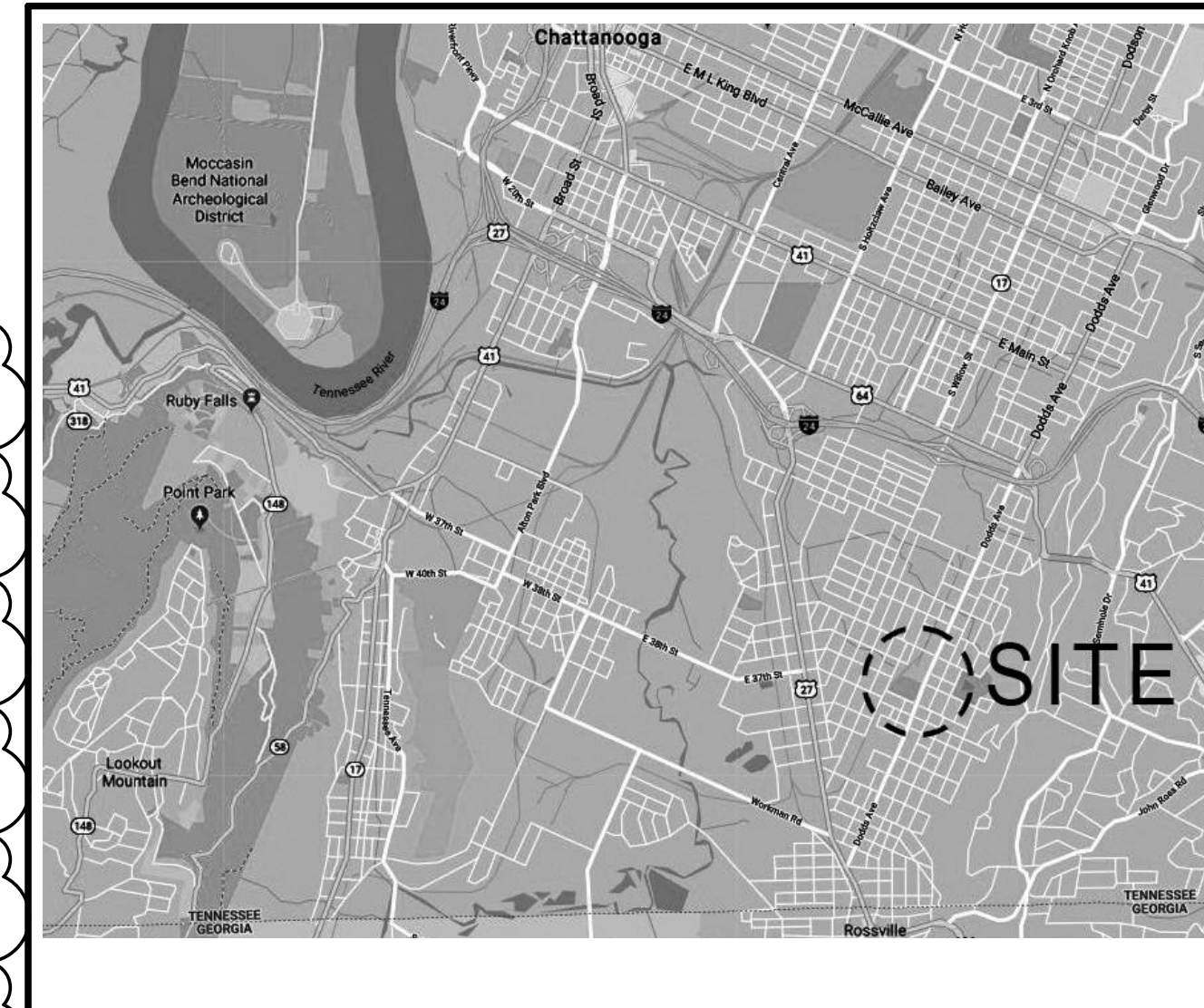
PROJECT SIGN



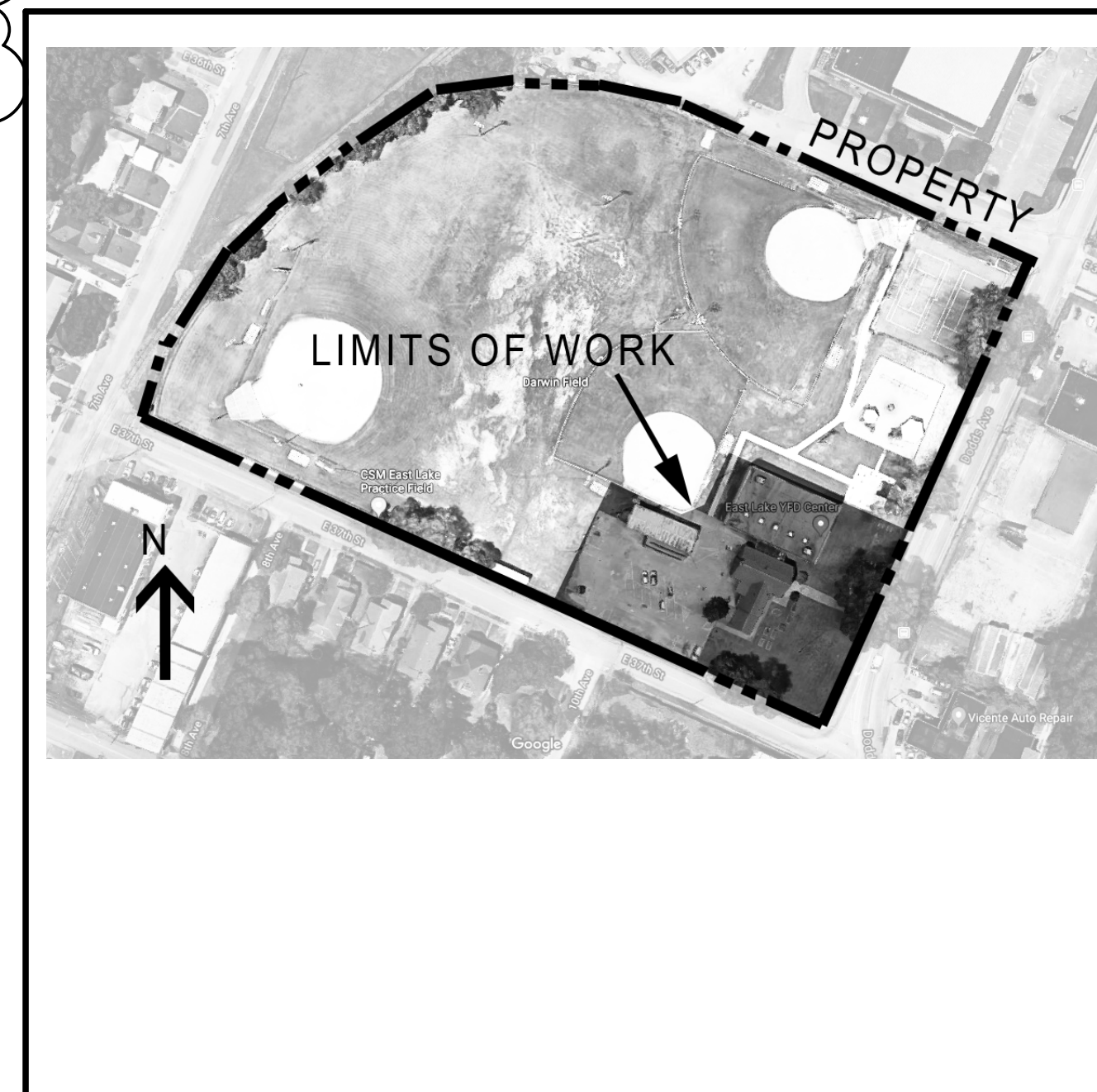
PROJECT SIGN NOTES

- THE CONTRACTOR SHALL ERECT TWO SIGNS AT LOCATIONS DESIGNATED BY THE CITY ENGINEER, AND SHALL BE MAINTAINED IN GOOD CONDITION UNTIL COMPLETION OF THE PROJECT.
- ALL FRAME MATERIALS TO BE EXTERIOR GRADE.
- FRAME, TRIM AND LETTERS SHALL BE DARK BLUE. SIGN BACKGROUND SHALL BE WHITE.
- CONTRACTOR SHALL SUBMIT SIGN LAYOUT FOR APPROVAL PRIOR TO FABRICATION.

VICINITY MAP



KEY PLAN



ENERGY

THERMAL ENERGY SYNOPSIS

CONSTRUCTION ELEMENT	PROVIDED VALUE	ASSEMBLY DESCRIPTION
ROOFS (@ EXISTING BUILDING)	R-25ci	TAPERED RIGID INSULATION ON METAL DECK
ROOFS (METAL BUILDING)	R-19 +R-11LS	STANDARD PEMB INSULATED ROOF SYSTEM W/ R-5 THERMAL BLOCKS & INSULATED LINER SYSTEM
EXTERIOR WALLS, ABOVE GRADE	R-13 + R-3.8 C1 OR R-20	RIGID INSULATION ON CMU W/ UNGROUTED CORES HAVING MAX THERMAL CONDUCTIVITY OF 0.44 Btu/h - ft - F
FLOORS	-	-
SLAB ON GRADE FLOORS	0	-
OPAQUE DOORS (SWINGING)	U-0.61	INSULATED HOLLOW METAL
STOREFRONT	U-0.38/0.40	-
ENTRY DOORS	U-0.77/0.40	-
WINDOWS	U-0.38/0.40	-

THERMAL ENVELOPE NOTES:

- THERMAL ENVELOPE AND ENERGY EFFICIENCY ELEMENTS SHALL MEET THE REQUIREMENTS OF THE INTERNATIONAL ENERGY CONSERVATION CODE (IECC) - 2009
- CLIMATE ZONE FOR THIS PROJECT AS DETERMINED IN IECC CHAPTER 3 IS ZONE 4.
- THE ASSEMBLIES LISTED ABOVE COMPLY WITH THE IECC REQUIREMENTS UNDER ONE OR MORE OF THE FOLLOWING METHODS, AS KEYED BY LETTER. NOT ALL METHODS WILL APPLY TO THIS PROJECT.

- TABLE 502.2(1) BUILDING ENVELOPE REQUIREMENTS - OPAQUE ASSEMBLIES.
- TABLE 502.3 BUILDING ENVELOPE REQUIREMENTS: FENESTRATION (MAXIMUM U VALUE)
- TABLE 502.1.2 BUILDING ENVELOPE REQUIREMENTS OPAQUE ELEMENT, MAX U FACTOR.
- COMPLIANCE USING ASHRAE/IESNA 90.1 PER SECTION 501 OF IECC

LEGEND: NR - NO REQUIREMENT NA - NOT APPLICABLE CI - CONTINUOUS INSULATION

CODE SUMMARY

PROJECT INFORMATION

NAME OF PROJECT:	EAST LAKE YFD CENTER IMPROVEMENTS		
ADDRESS:	3610 DODDS AVENUE, CHATTANOOGA, TN 37402		
PROPOSED USE:	COMMUNITY CENTER		
OWNER/CONTACT PERSON:	CLAY OLIVER	PHONE:	(423) 643-6161
CODE ENFORCEMENT JURISDICTION:	CHATTANOOGA		

APPLICABLE CODES

ARCHITECTURAL:	IBC 2012
ELECTRICAL:	NEC 2017
PLUMBING:	IPC 2012
MECHANICAL:	IMC 2012
LIFE SAFETY:	IBC 2012
GAS:	IFGC 2012
ENERGY:	IECC 2009
ACCESSIBILITY:	ANSI/ICC A117.1 2009

DESIGNER OF RECORD

DESIGNER	NAME	LICENSE #	TELEPHONE #
ARCHITECTURAL:	RICHARD THOMPSON	17840	(423) 265-4313
ELECTRICAL:	CHARLES WINKLER	104601	(404) 525-2120
PLUMBING:	JEFF WESTBROOK	110599	(423) 698-6675
MECHANICAL:	JEFF WESTBROOK	110599	(423) 698-6675
STRUCTURAL:	VALENTINO BATES	00101888	(404) 525-2120
CIVIL:	JOE B. HUTCHERSON	13152	(423) 698-6675

BUILDING DATA

OCCUPANCY TYPE:	ASSEMBLY GROUP A-3		
MIXED OCCUPANCY:	NO	SEPARATION:	NONE
CONSTRUCTION TYPE:	V-B	MIXED CONSTRUCTION:	NO
SPRINKLED:	YES	NFPA-13	
FIRE DISTRICT:	YES		
BUILDING HEIGHT:	28 FEET	NUMBER OF STORIES:	ONE
MEZZANINE:	NO		
HIGH RISE:	NO		
GROSS BUILDING AREA:	16,212 S.F.		
TOTAL GROSS AREA:	16,212 S.F.		
AREA INCREASE:	YES	AREA INCREASE FOR SPRINKLER:	506.3 UNLIMITED AREA WITH 60FT. CLEAR ALL SIDES: 507.0

FIRE RESISTANCE RATINGS

PARTY/FIRE WALLS:	REQUIRED HOURLY	DETAIL # & SHEET #	% WALL OPENING	DESIGN # FOR RATED ASSEMBLIES
	NA	NA	NA	NA
EXTERIOR BEARING WALLS:				
NORTH	NA	NA	NA	NA
EAST	NA	NA	NA	NA
WEST	NA	NA	NA	NA
SOUTH	NA	NA	NA	NA
EXTERIOR NON-BEARING WALLS:				
NORTH	NA	NA	NA	NA
EAST	NA	NA	NA	NA
WEST	NA	NA	NA	NA
SOUTH	NA	NA	NA	NA

INTERIOR WALLS:

BEARING	REQUIRED HOURLY	DETAIL # & SHEET #	% WALL OPENING	DESIGN # FOR RATED ASSEMBLIES
	NA	NA	NA	NA
NON-BEARING				
	NA	NA	NA	NA
CEILING-FLOORS ASSEMBLY:				
BEAMS:	NA	NA	NA	NA
COLUMNS:				
	NA	NA	NA	NA
CEILING-ROOF ASSEMBLY:				
	NA	NA	NA	NA
VERTICAL SHAFTS:				
	NA	NA	NA	NA
CHASES - P.E.M.:				
	NA	NA	NA	NA
MIXED OCCUPANCY SEPARATION:				
	NA	NA	NA	NA
TENANT SEPARATION:				
	NA	NA	NA	NA

LIFE SAFETY SYSTEMS

EMERGENCY LIGHTING AND EXIT SIGNS:	YES
FIRE ALARM AND SMOKE DETECTOR SYSTEMS:	YES
PANIC HARDWARE:	YES

EXIT REQUIREMENTS

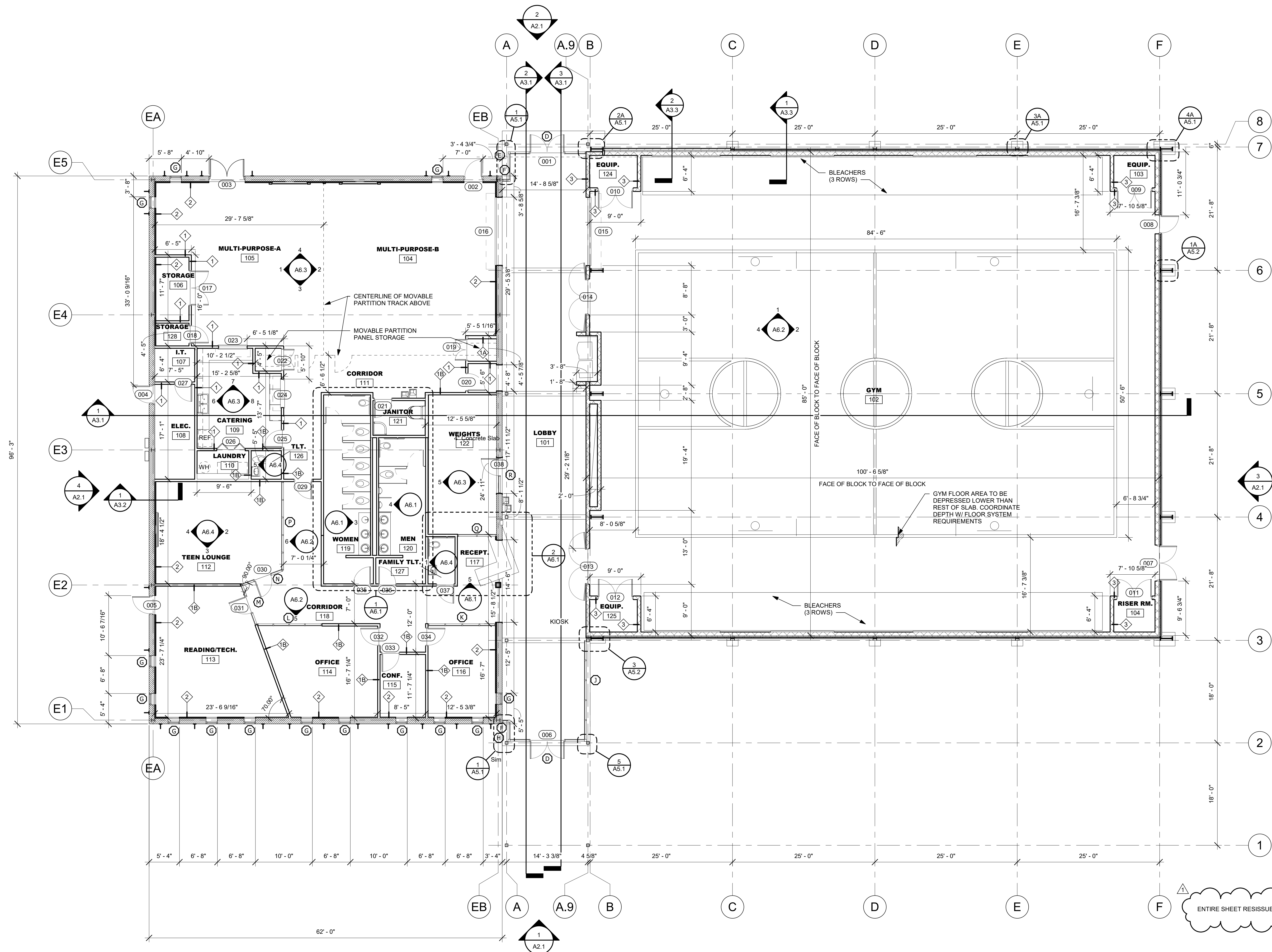
DEAD END LIMIT-MAXIMUM CONDITION:	20 FEET
TRAVEL DISTANCE TO EXIT - MAXIMUM CONDITION:	250 FEET

NOTE: SEE LIFE SAFETY PLAN ON SHEET T1.3

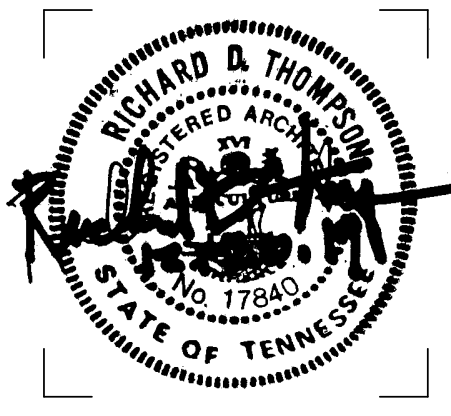
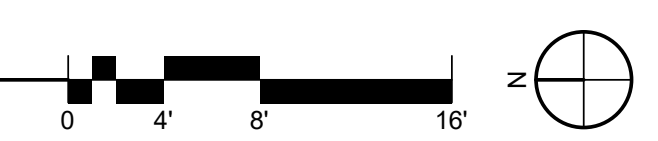
TOTAL FIXTURE SUMMARY

TOTAL OCCUPANT LOAD: 972		
FIXTURES - MALE & FEMALE	REQUIRED	PROVIDED
LAVATORIES	6	8
WATER CLOSETS	12	10 WC + 2 URINALS

**East Lake YFD Center
 Improvements**
 3610 Dodds Avenue, Chattanooga, TN 37402



1 1ST FLOOR PLAN
 SCALE: 1/8" = 1'-0"



ISSUE DATES
 INITIAL ISSUE 12-20-19
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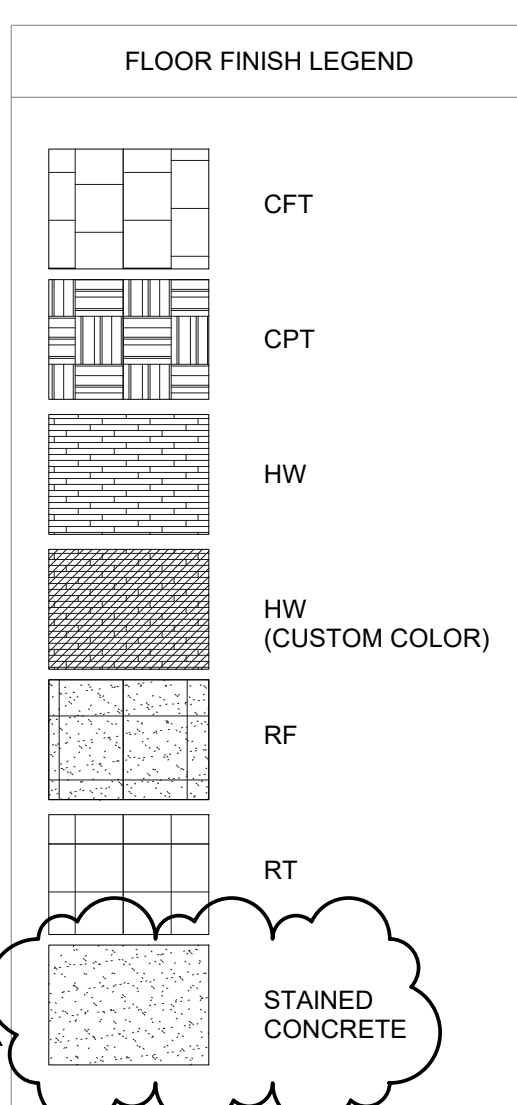
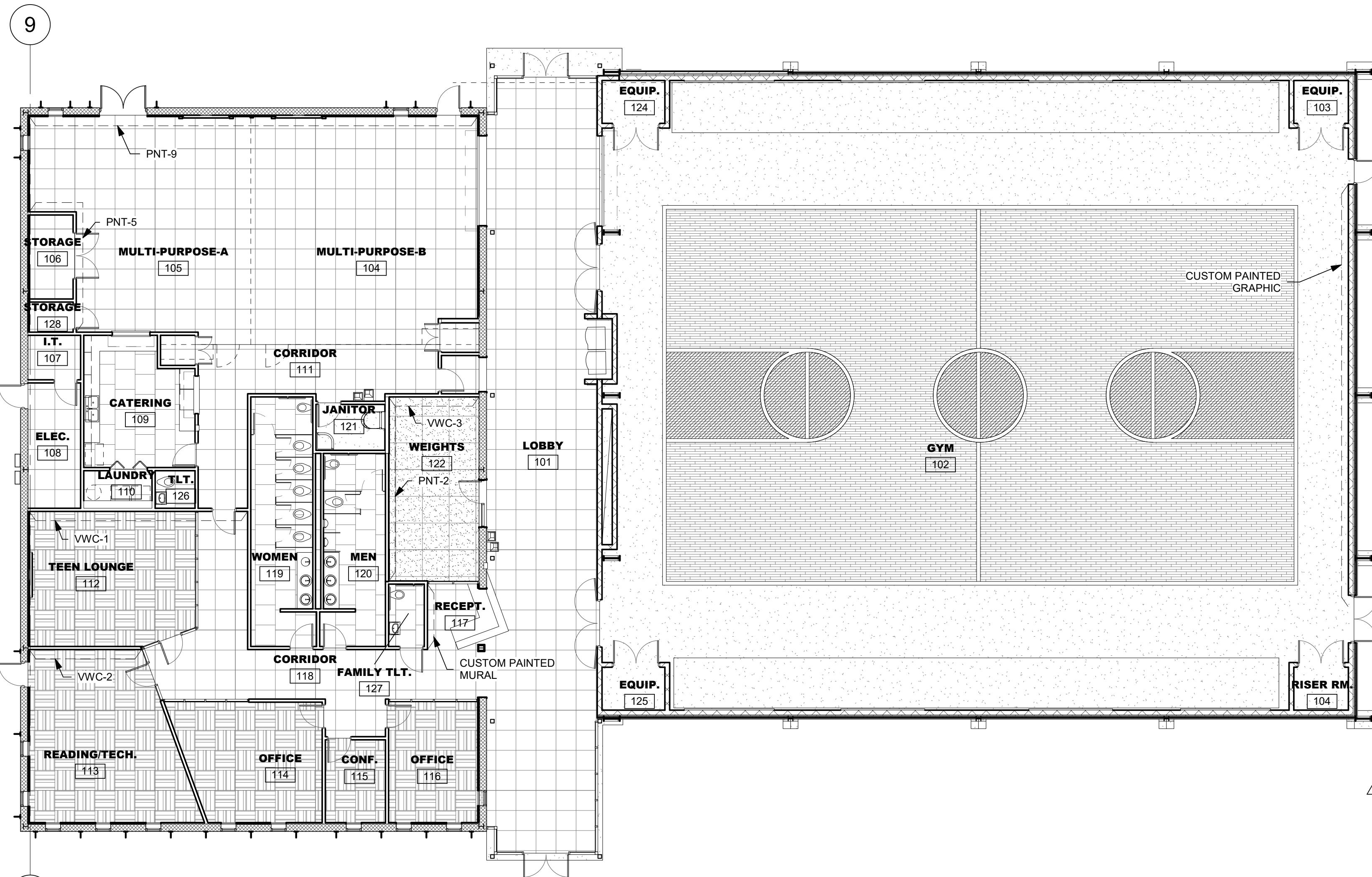
ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOORS		BASE MATERIAL	WALLS	TRIM FINISH	CEILING		CASEWORK		COMMENTS
		MATERIAL	COLOR				TYPE	FINISH	COUNTERS	WALL CABINETS	
101	LOBBY	RT	1-4	RB	1	PNT	1				
102	GYM	HW/ CONCRETE	1, 3	RB	1	PNT/AWP	1, 2, 8/1				WP-1 ON SIDE WALLS; SEE ELEVATIONS FOR PNT 1 & 2 AND AWP 1 LOCATIONS
103	EQUIP.	CONCRETE		RB	1	PNT	1				
104	RISER RM.	CONCRETE		RB	1	PNT	1				
104	MULTI-PURPOSE-B	RT	1-4	RB	1	PNT	1, 3, 9				
105	MULTI-PURPOSE-A	RT	1-4	RB	1	PNT	1, 3, 5, 9				PNT-3 ON BULKHEAD AS ACCENT, PNT-9 ON TV WALL; SEE FINISH PLAN. SEE RCP FOR COORDINATION OF ACP-3/4. PNT-3 ON BULKHEAD AS ACCENT, PNT-5 AS ACCENT, PNT-9 ON TV WALL; SEE FINISH PLAN. SEE RCP FOR COORDINATION OF ACP-4, 4.
106	STORAGE	RT	1	RB	1	PNT	1				
107	I.T.	RT	1	RB	1	PNT	1				
108	ELEC.	RT	1	RB	1	PNT	1				
109	CATERING	CFT	1	RB	1	PNT	1				
110	LAUNDRY	CFT	1	RB	1	PNT	1				
111	CORRIDOR	RT	1-4	RB	1	PNT	1				
112	TEEN LOUNGE	CPT	1	RB	1	PNT/WVC	1-4/1				PNT-2-4 AS ACCENT; SEE ELEVATIONS
113	READING/TECH.	CPT	1	RB	1	PNT/WVC	1, 5/2				
114	OFFICE	CPT	1	RB	1	PNT	7				
115	CONF.	CPT	1	RB	1	PNT	7				
116	OFFICE	CPT	1	RB	1	PNT	7				
117	RECEPT.	RT	1-4	RB	1	PNT	1				
118	CORRIDOR	RT	1-4	RB	1	PNT	1				
119	WOMEN	CFT	1			CWT	1				
120	MEN	CFT	1			CWT	1				
121	JANITOR	CONCRETE		RB	1	PNT	1				
122	WEIGHTS	RF	1	RB	1	PNT/WVC	1, 2/3				PNT-2 ON MIRROR WALL; SEE ELEVATIONS
123	WATER	RT	1	RB	1	PNT	1				
124	EQUIP.	CONCRETE		RB	1	PNT	1				
125	EQUIP.	CONCRETE		RB	1	PNT	1				
126	TLT.	CFT	1			CWT	1				
127	FAMILY TLT.	CFT	1			CWT	1				
128	STORAGE	RT	1	RB	1	PNT	1				

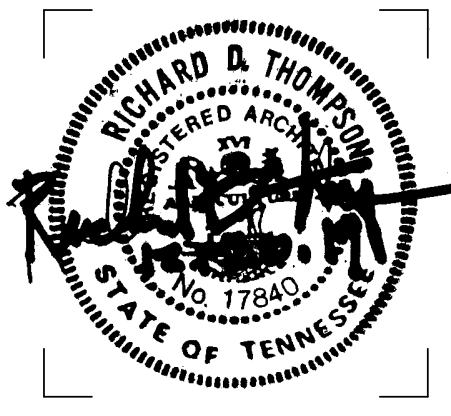
FINISH LEGEND

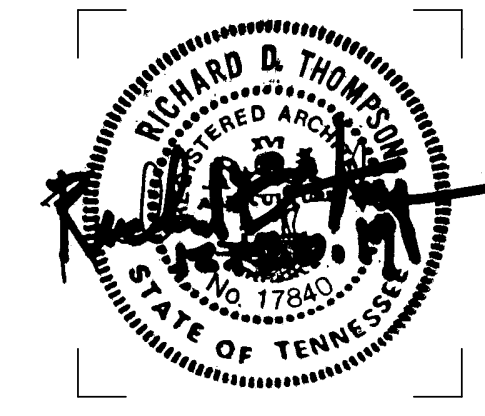
SYMBOL	COLOR	DESCRIPTION	MANUFACTURER	PRODUCT	FINISH	NOTES
FLOOR						
CFT	1	CERAMIC FLOOR TILE	LOUISVILLE TILE	AMERICAN OLEAN - NEOSPECK	DARK GRAY NE05 - MATTE	1/3 OFFSET; CONTACT BETHE MOTLOW FOR INFORMATION: BMOTLOW@LOUISVILLE-TILE.COM
CPT	1	CARPET TILE	EF CONTRACT	KINETIX	SPREE - FLING SPR34	24" X 24"; QUARTER TURN INSTALL.
HW	1	HARDWOOD	CONNOR SPORTS	VIP TM	MAPLE	MANUFACTURER TO PROVIDE REDUCER STRIP FOR HW TO CONCRETE TRANSITION
HW	2 (NOT USED)	HARDWOOD	CONNOR SPORTS	VIP TM	MAPLE	OAK STAIN
HW	3	HARDWOOD	CONNOR SPORTS	VIP TM	MAPLE	CUSTOM COLOR COURT LINE LAYOUT BY MANUFACTURER
RF	1	RUBBER FLOOR	DINOFLEX	SPORT MAT - STANDARD	10 GREEN 5119	
RT	1	RESILIENT TILE	UPOFLOOR	QUARTZ. MOSAIC COLLECTION	61903	610MM X 610MM
RT	2	RESILIENT TILE	UPOFLOOR	QUARTZ. MOSAIC COLLECTION	619304	610MM X 610MM
RT	3	RESILIENT TILE	UPOFLOOR	QUARTZ. MOSAIC COLLECTION	619306	610MM X 610MM
RT	4	RESILIENT TILE	UPOFLOOR	QUARTZ. MOSAIC COLLECTION	619301	610MM X 610MM
BASE						
RB	1	RESILIENT BASE	JOHNSONITE	MW-XX-F	32 PEBBLE WG	4.25" REVEAL
WALL						
AWP	1	ACOUSTIC WALL PANEL	ARMSTRONG	TECTUM DIRECT-ATTACH	TECTUM WHITE	48" X 144"
CWT	1	CERAMIC WALL TILE	LOUISVILLE TILE	ATLAS CONCORDE - CRAFT	WICKER DOVE	CONTACT BETHE MOTLOW FOR INFORMATION: BMOTLOW@LOUISVILLE-TILE.COM
FILM	1 (NOT USED)	FILM	OLEE CREATIVE	TEXTURED SURFACE FILM	CUSTOM GRAPHIC - TBD	OLEE0032937
PNT	1	PAINT	SHERWIN WILLIAMS	SW6252 ICE CUBE		
PNT	2	PAINT	SHERWIN WILLIAMS	SW6718 OVERT GREEN		
PNT	3	PAINT	SHERWIN WILLIAMS	SW6573 JUNE BERRY FLAT		
PNT	4	PAINT	SHERWIN WILLIAMS	SW6959 BLUE CHIP		
PNT	5	PAINT	SHERWIN WILLIAMS	SW6958 DYNAMIC BLUE		
PNT	6	PAINT	SHERWIN WILLIAMS	SW7069 IRON ORE		
PNT	7	PAINT	SHERWIN WILLIAMS	SW7667 ZIRCON		
PNT	8	PAINT	SHERWIN WILLIAMS	SW7609 GEORGIAN REVIVAL BLUE		
PNT	9	PAINT	SHERWIN WILLIAMS	SW7018 DOVETAIL		
WVC	1	WALL COVERING	NATIONAL WALLCOVERING	LEVEL - DESIGN	WORD WALLS (L51706) - SCRIPT SHARPIE	CONTACT AIMEE CHADWICK FOR INFORMATION: AIMEE.CHADWICK@NATIONALSOLUTIONS.COM
WVC	2	WALL COVERING	NATIONAL WALLCOVERING	LEVEL - DESIGN	NEON WORD WALL (L91502G) - STEEL	CONTACT AIMEE CHADWICK FOR INFORMATION: AIMEE.CHADWICK@NATIONALSOLUTIONS.COM
WVC	3	WALL COVERING	NATIONAL WALLCOVERING	LEVEL - DESIGN	WORD PLAY (L72201) - SPLASH TITANIUM	CONTACT AIMEE CHADWICK FOR INFORMATION: AIMEE.CHADWICK@NATIONALSOLUTIONS.COM
MILLWORK						
PLAM	1	PLASTIC LAMINATE	WILSONART		KENSINGTON MAPLE 10778-60	MATTE FINISH
PLAM	2	PLASTIC LAMINATE	PIONITE		MOONLIGHTING PAPEL AV971	SUEDE
PLAM	3	PLASTIC LAMINATE	WILSONART		ALABASTER D431-60	MATTE FINISH
PLAM	4	PLASTIC LAMINATE	WILSONART	DECORATIVE METALS	6277 (419) ALUMASTEEL	ONLY USED AS BASE AT RECEPTION DESK
SS	1	SOLID SURFACE	CORIAN		ASH CONCRETE	
SS	2	SOLID SURFACE	CORIAN		BISQUE	
CEILING						
ACP	1	ACOUSTIC CEILING PANEL	ARMSTRONG	WOODWORKS CANOPIES	MAPLE	CUSTOM SHAPE; CONTACT MANUFACTURER FOR DETAILS
ACP	2 (NOT USED)	ACOUSTIC CEILING PANEL	ARMSTRONG			
ACP	3	ACOUSTIC CEILING PANEL	ARMSTRONG	SOUNDSCAPES-VALLEY	LAGOON (LA)KIWI (KW)	SEE RCP FOR SHAPE/COLOR COORDINATION
ACP	4	ACOUSTIC CEILING PANEL	ARMSTRONG	SOUNDSCAPES-HILL	LAGOON (LA)KIWI (KW)	SEE RCP FOR SHAPE/COLOR COORDINATION
ACT	1	ACOUSTICAL CEILING TILE	ARMSTRONG	CIRRUS - TEGULAR		2' X 2'
GYP BD	1	GYP SUM BOARD				

NOTES:
 1. CWT TO CFT TRANSITION TO BE: SCHLUTER DILEX-AHK; ANODIZED ALUMINUM FINISH.
 2. CPT TO RT TRANSITION TO BE: JOHNSONITE CTA-XX-A; 29 MOONROCK WG
 3. CFT TO RT TRANSITION TO BE: SCHLUTER RENO-U; STAINLESS STEEL BRUSHED



1 1ST FLOOR FINISH PLAN
 SCALE: 3/32" = 1'-0"



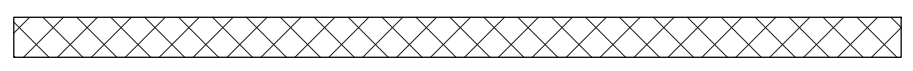


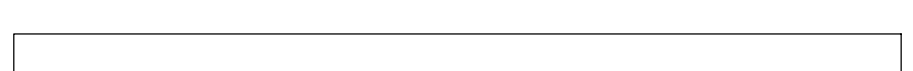



ISSUE DATES
 INITIAL ISSUE 12-20-19
 1 Addendum 4 01/10/2020

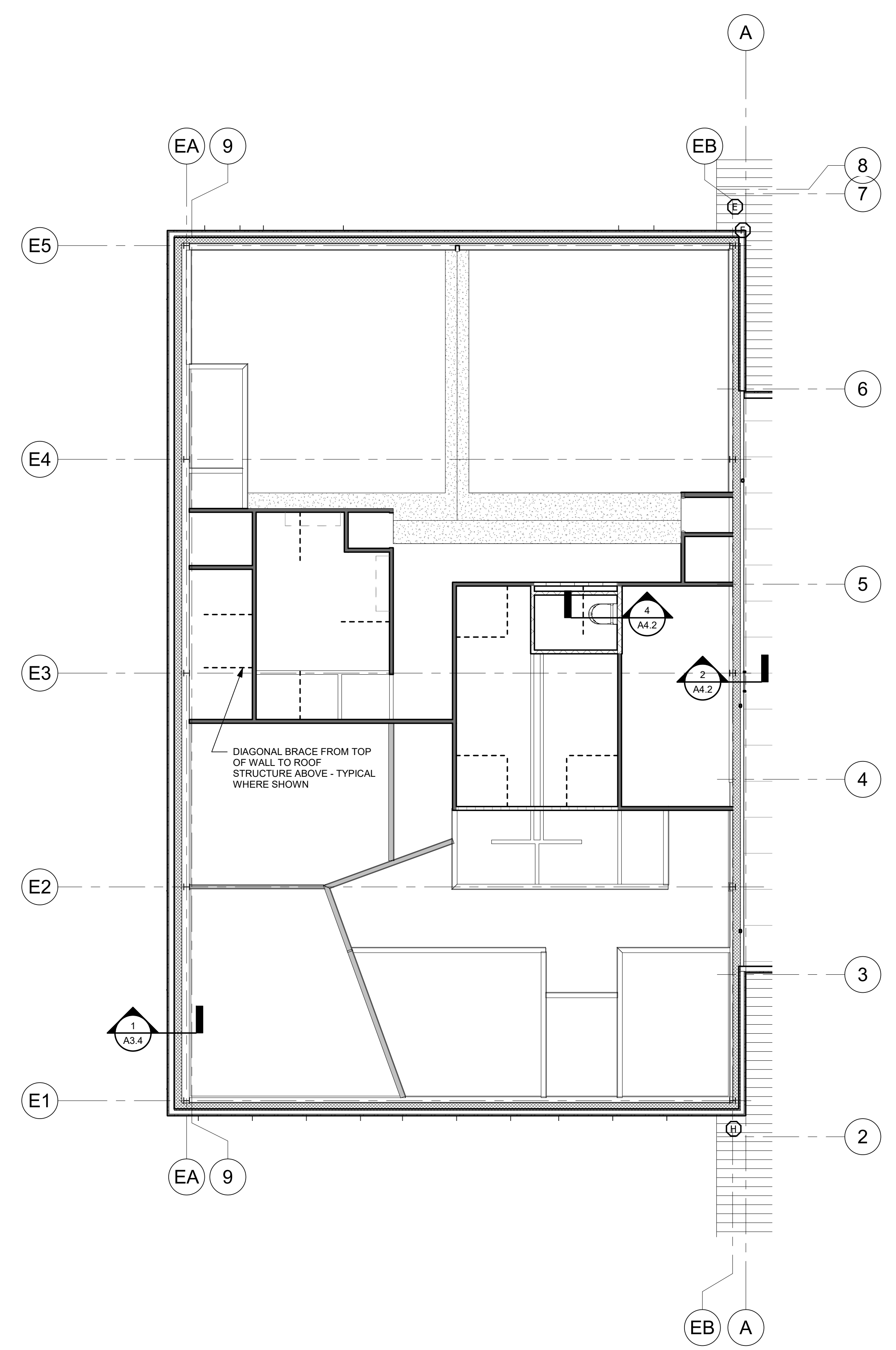
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A1.2
 INTERIOR PARTITION HEIGHTS

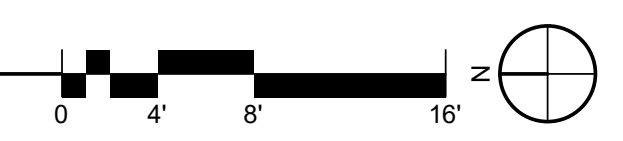
WALL HEIGHT

	WALL HEIGHT TO UNDER SIDE OF DECKING
	20' WALL HEIGHT
	15' WALL HEIGHT
	10' WALL HEIGHT
	20' WALL HEIGHT BOTTOM @ 10' A.F.F.

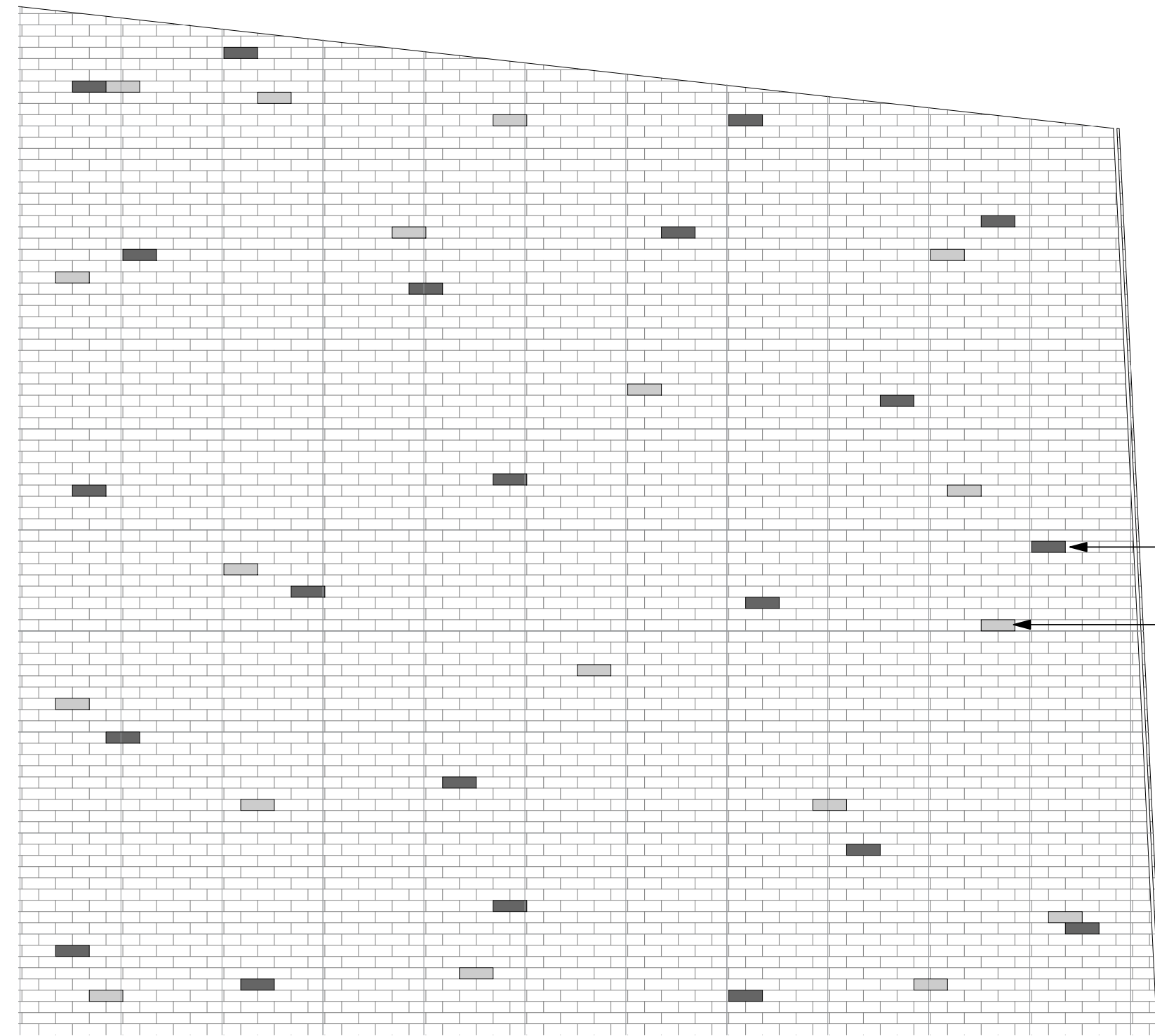
ENTIRE SHEET REISSUED AS PART OF THIS ADDENDUM.



1 INTERIOR PARTITION HEIGHTS
 SCALE: 1/8" = 1'-0"

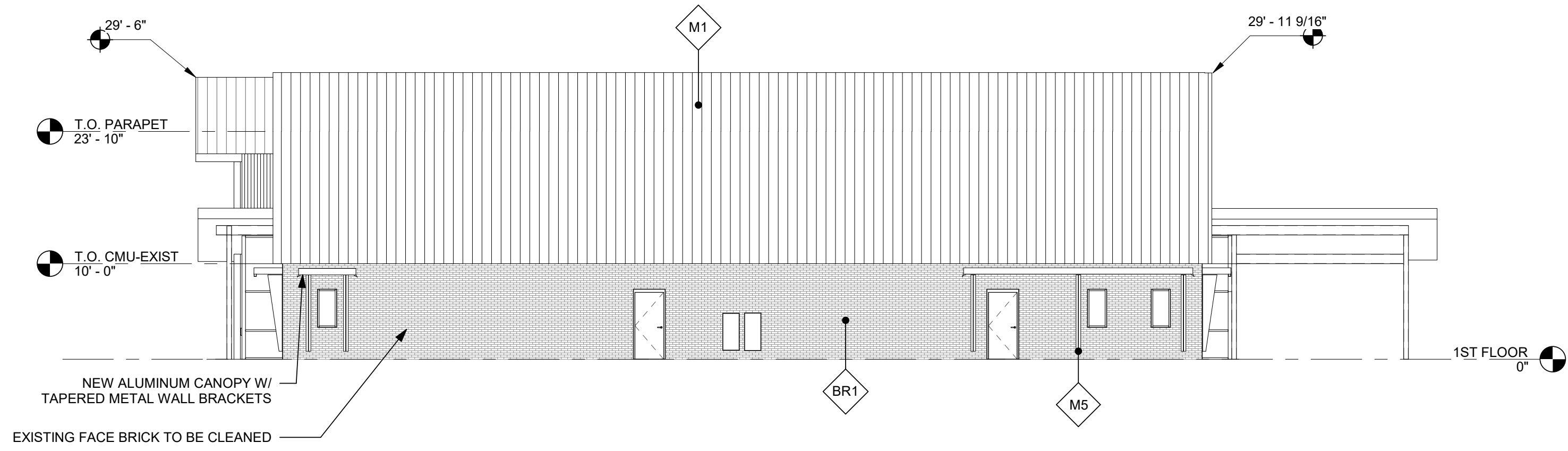


18-072

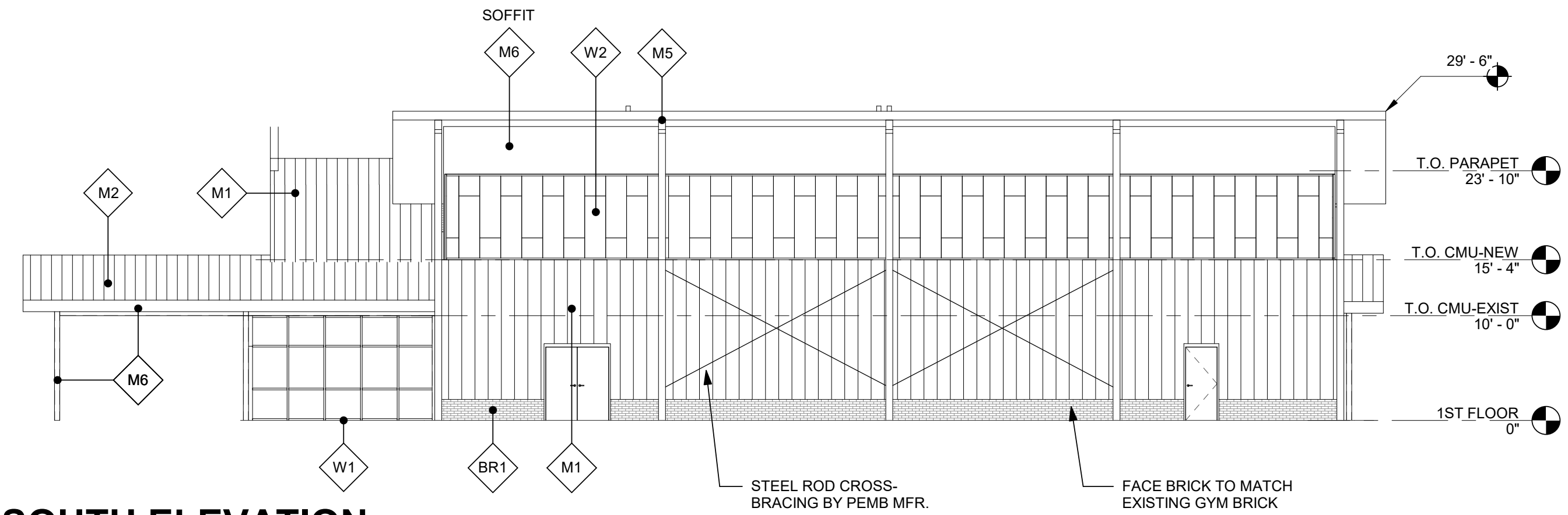


5 EXTERIOR ACCENT WALL DETAIL
SCALE: 3/8" = 1'-0"

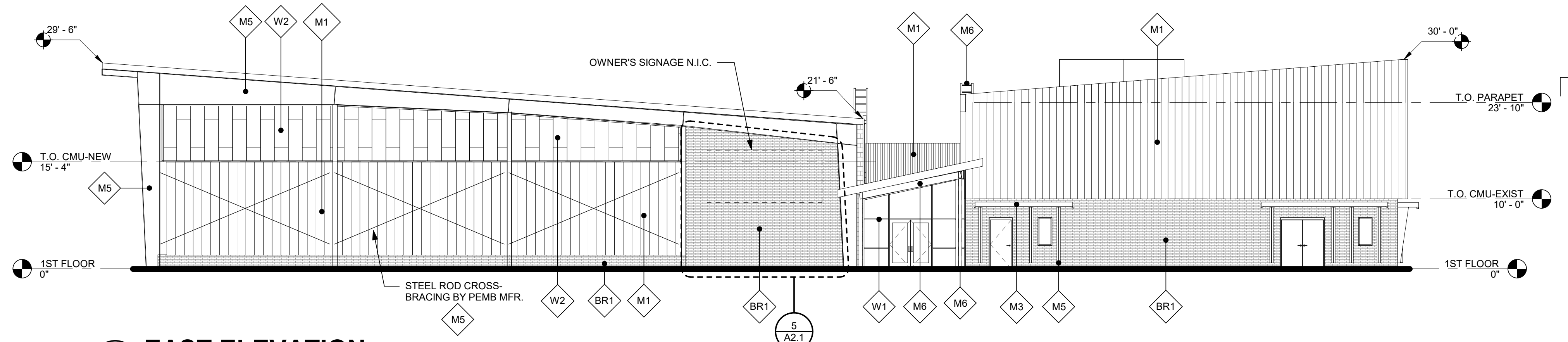
2'x2' GRID OVERLAY SHOWN FOR REFERENCE ONLY TO HELP APPROXIMATE LOCATIONS OF CUSTOM GLAZED BRICKS (BR2 & BR3)



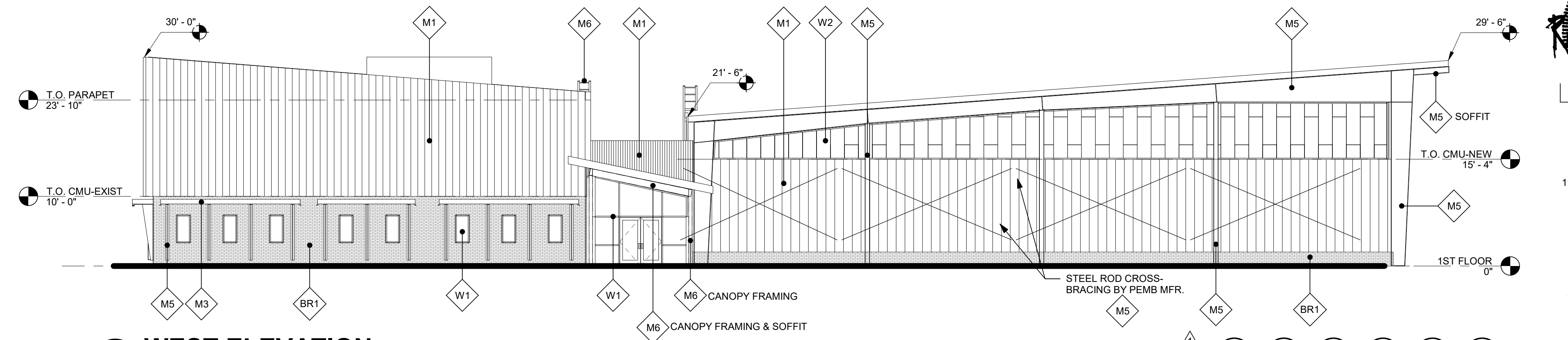
4 NORTH ELEVATION
SCALE: 3/32" = 1'-0"



3 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



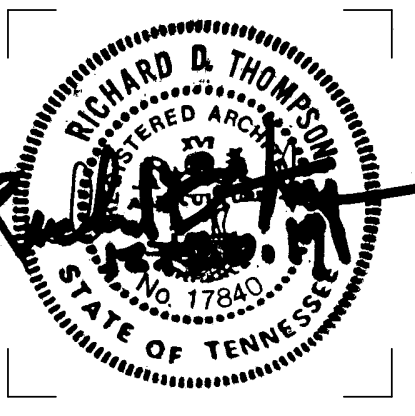
2 EAST ELEVATION
SCALE: 3/32" = 1'-0"



1 WEST ELEVATION
SCALE: 3/32" = 1'-0"

MATERIAL LEGEND

◇	MATERIAL
METAL	
M1	METAL WALL PANEL - STANDING SEAM, COLOR TBD
M2	METAL ROOF PANEL - STANDING SEAM (CONCEALED FASTENER), COLOR TBD
M3	METAL CANOPY - PREFINISHED ALUMINUM CANOPY PER SPECIFICATIONS, COLOR TBD.
M4	METAL MISCELLANEOUS - GUTTERS, DOWNSPOUTS, SOFFIT, COPING; PREFINISHED FROM COLORS AS SPECIFIED
M5	EXPOSED EXTERIOR STRUCTURE (TYPICAL, EXCEPT WHERE NOTED), FINISHED TO MATCH P-1
M6	EXPOSED EXTERIOR STRUCTURE (CENTRAL SPINE), FINISHED TO MATCH P-2
STOREFRONT/WINDOWS	
W1	CLEAR ANODIZED STOREFRONT FRAMING WITH 1" CLEAR INSULATED SAFETY GLAZING
W2	TRANSLUCENT THERMAL GLAZING SYSTEM - COLOR TBD
PAINT	
P1	DARK GRAY GREEN (ALL EXPOSED STEEL UNLESS NOTED OTHERWISE)
P2	OFF-WHITE (ALL STEEL AT CENTRAL SPINE)
MASONRY	
BR1	FIELD COLOR AND MORTAR TO MATCH EXISTING. PROVIDE BR-2 & BR-3 ACCENTS AS INDICATED
BR2	GLAZED ACCENT COLOR - GREEN (TO MATCH BR1 SIZE)
BR3	GLAZED ACCENT COLOR - PURPLE (TO MATCH BR1 SIZE)

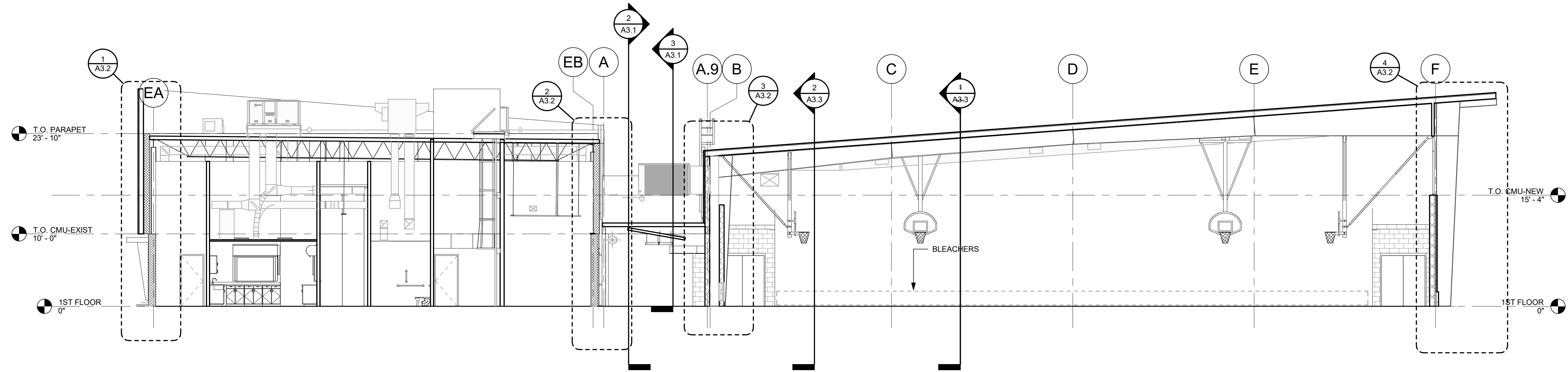


ISSUE DATES
INITIAL ISSUE 12-20-19
1 Addendum 4 01/10/2020

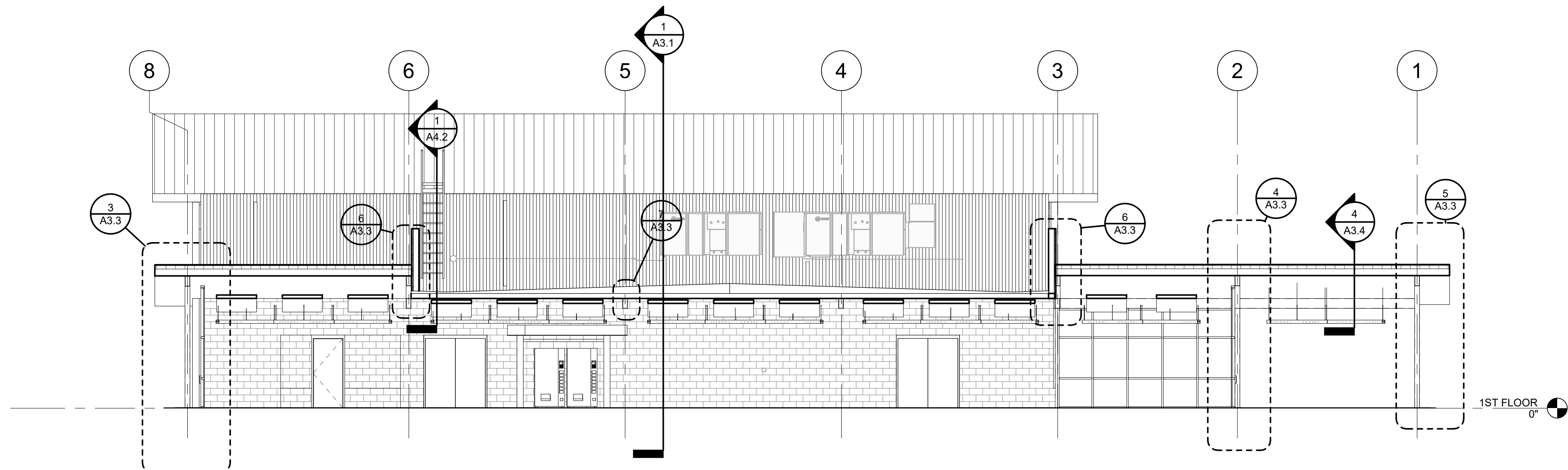
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A2.1
EXTERIOR ELEVATIONS

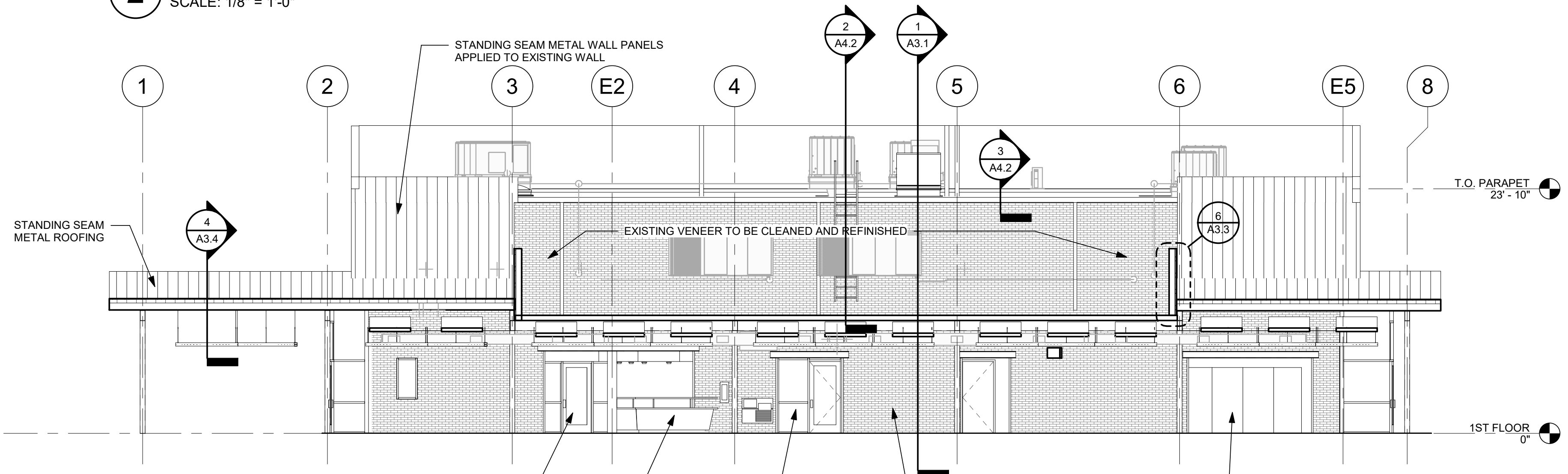
ENTIRE SHEET RESISSUED AS PART OF THIS ADDENDUM.



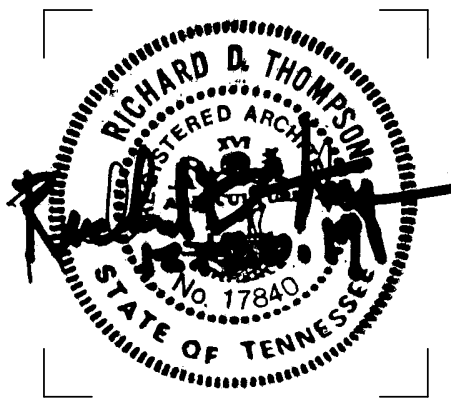
1 BUILDING SECTION
SCALE: 1/8" = 1'-0"



2 BUILDING SECTION
SCALE: 1/8" = 1'-0"



3 BUILDING SECTION
SCALE: 1/8" = 1'-0"



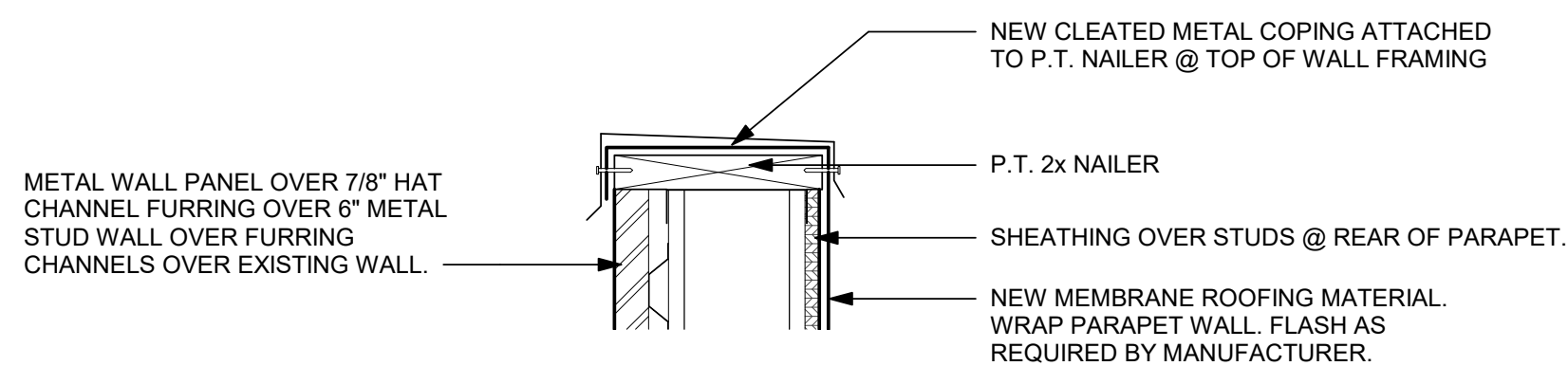
ISSUE DATES

INITIAL ISSUE	12-20-19
1 Addendum 4	01/10/2020

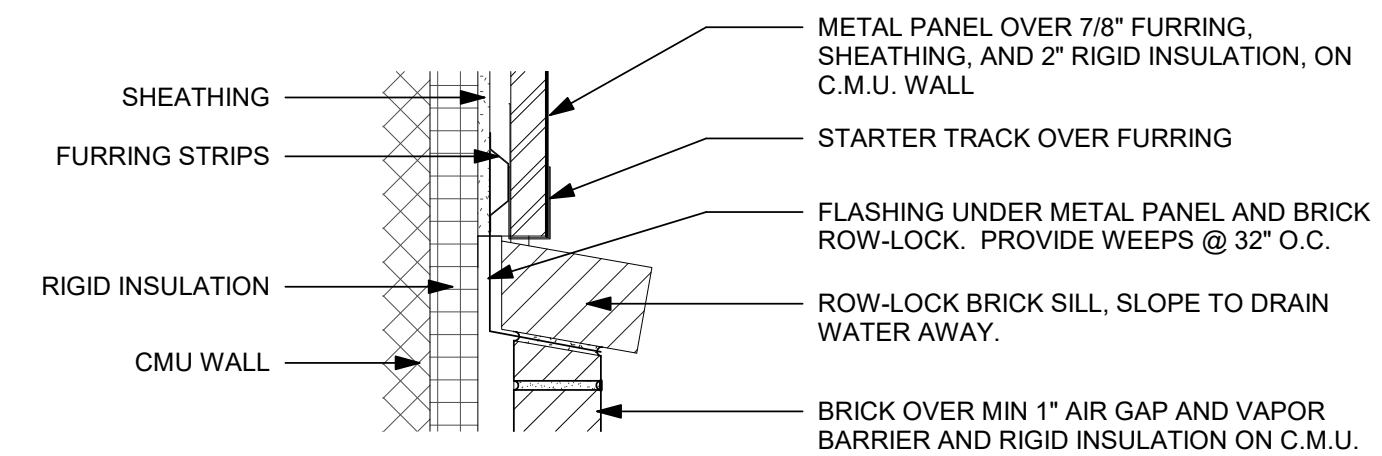
JOB NO.	D'WN	CK'D
18-072	Author	Checker

ENTIRE SHEET RESISSUED AS PART OF THIS ADDENDUM.

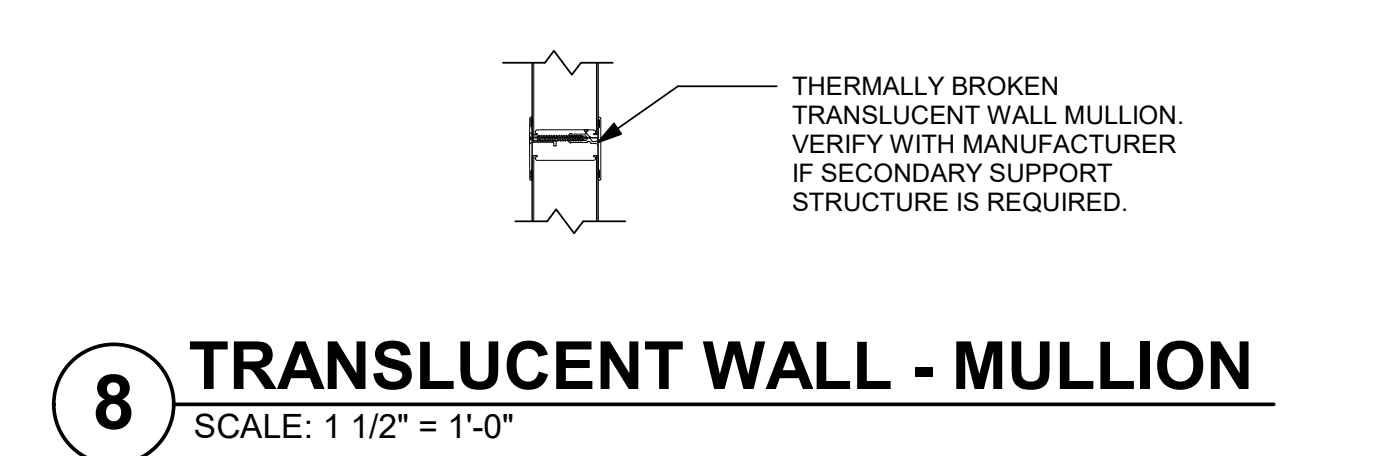
A3.1
BUILDING SECTIONS



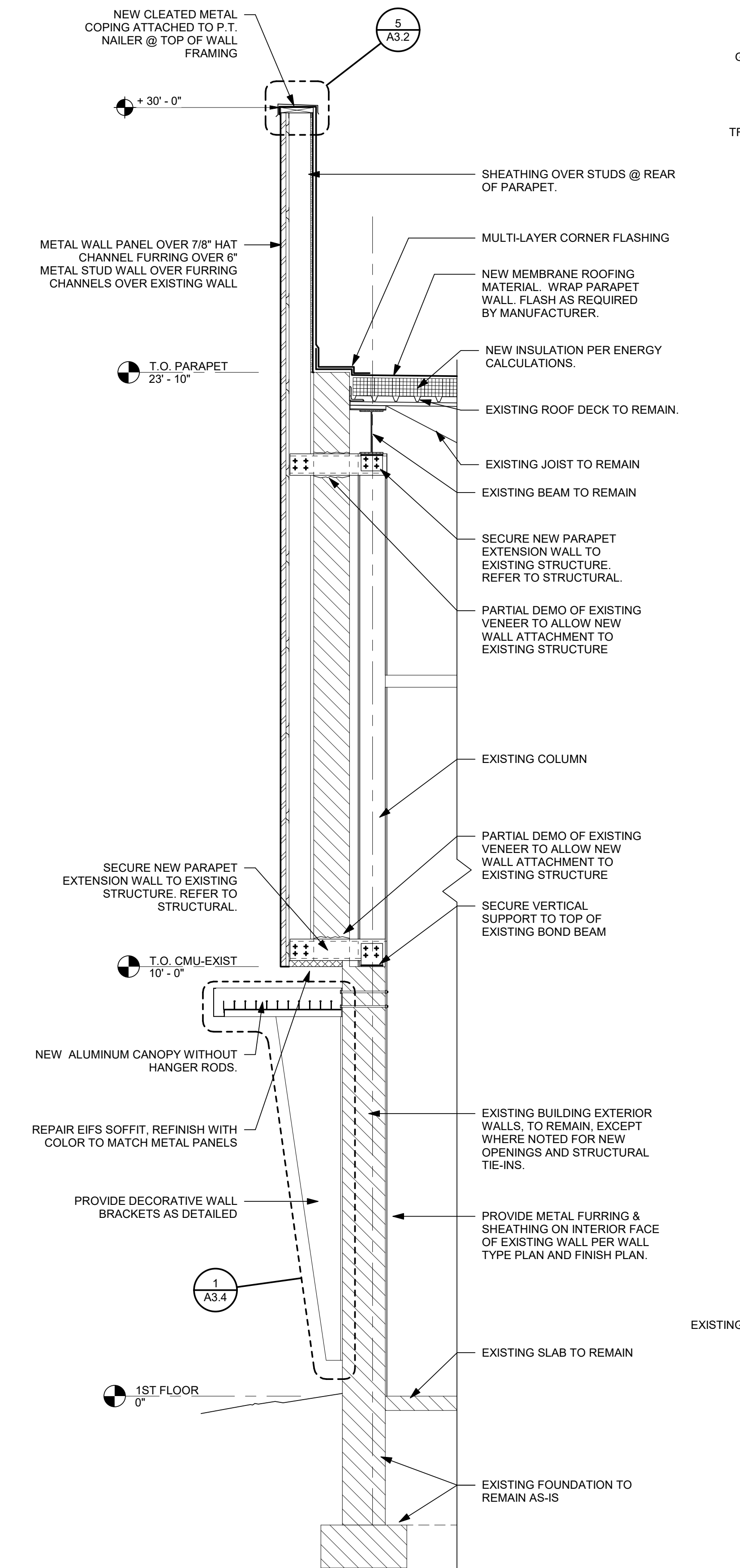
5 COPING DETAIL
SCALE: 1 1/2" = 1'-0"



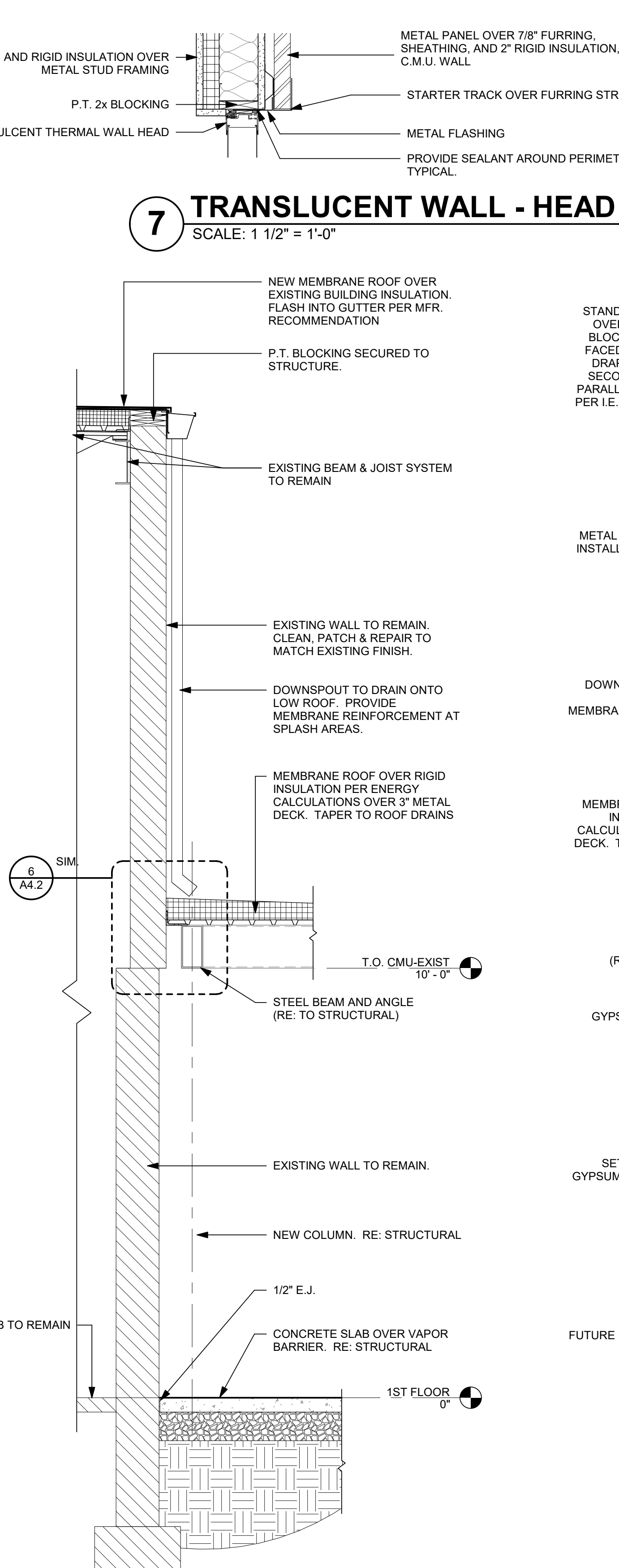
6 BRICK LEDGE
SCALE: 1 1/2" = 1'-0"



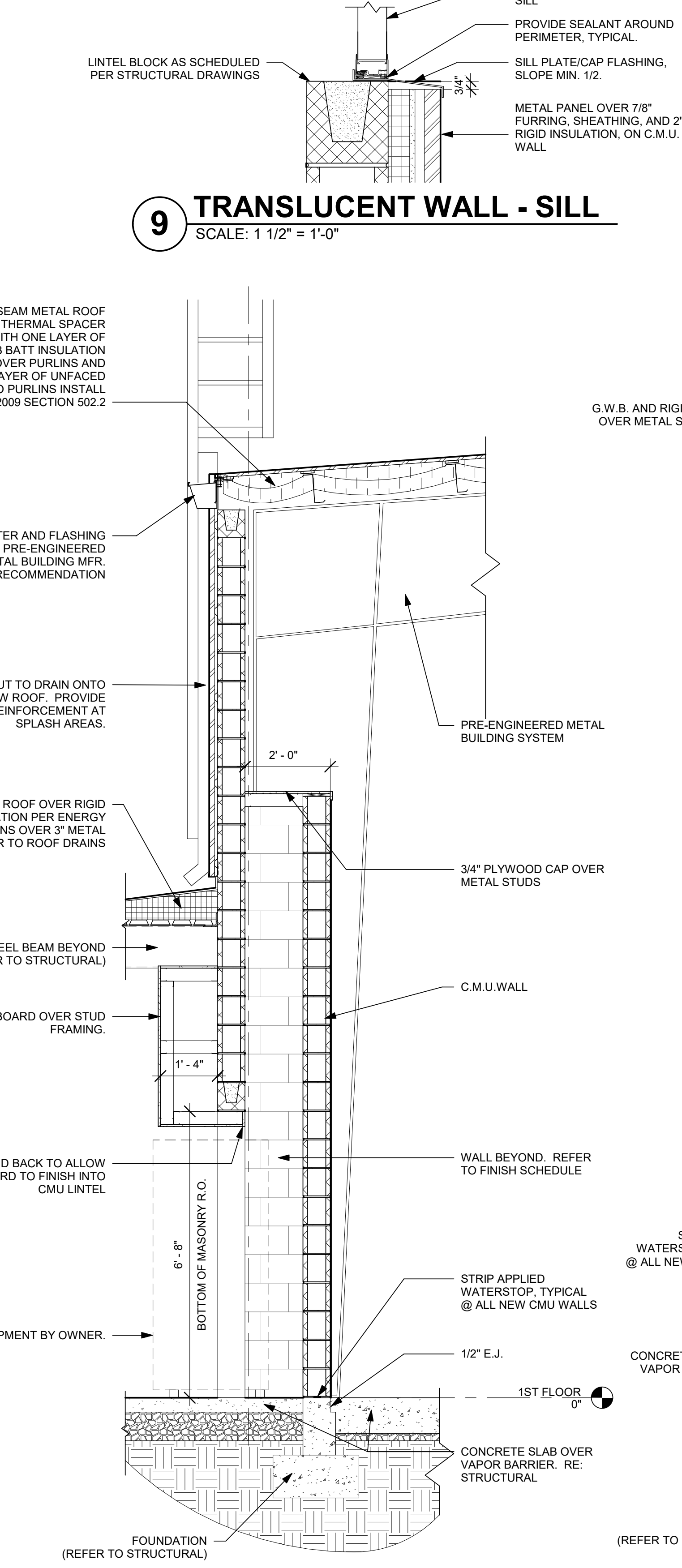
8 TRANSLUCENT WALL - MULLION
SCALE: 1 1/2" = 1'-0"



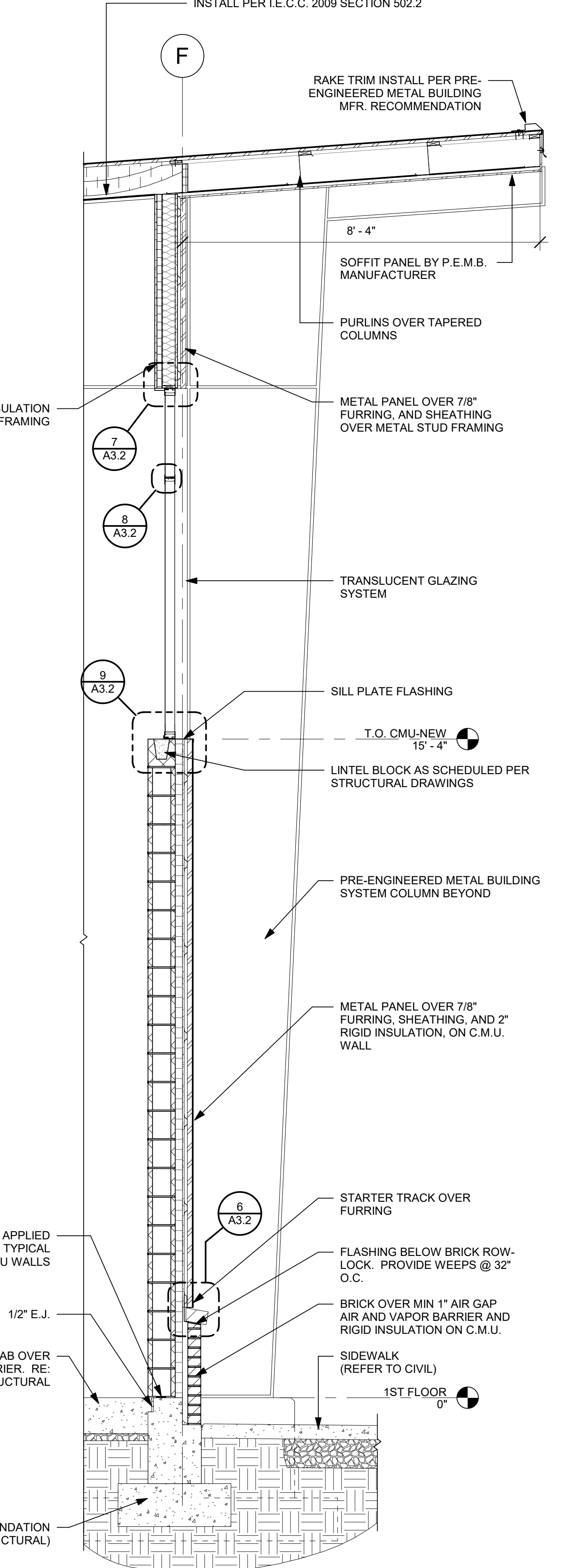
1 WALL SECTION
SCALE: 1/2" = 1'-0"



2 WALL SECTION
SCALE: 1/2" = 1'-0"

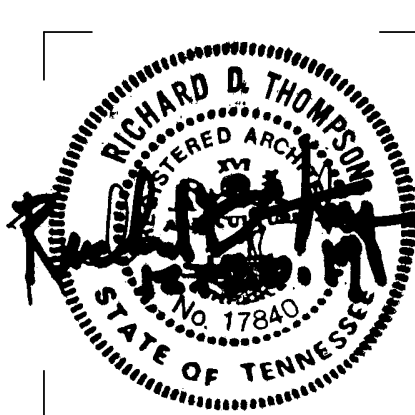


3 WALL SECTION
SCALE: 1/2" = 1'-0"



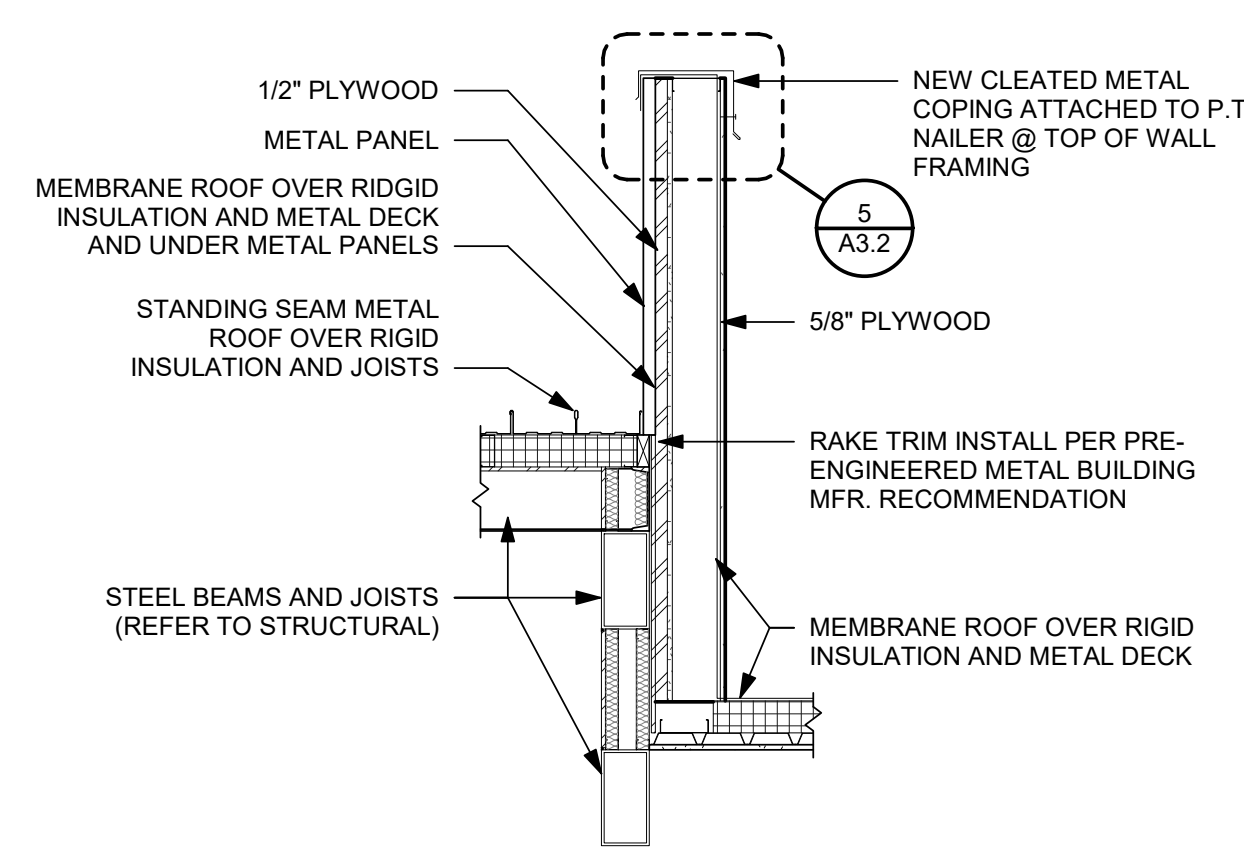
4 WALL SECTION
SCALE: 1/2" = 1'-0"

ENTIRE SHEET REISSUED AS PART OF THIS ADDENDUM.

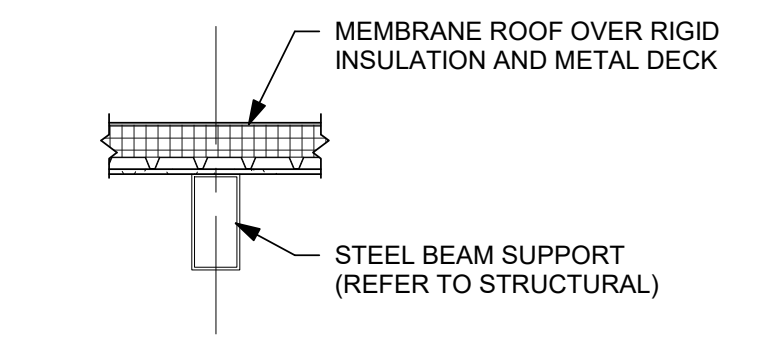


ISSUE DATES
INITIAL ISSUE 12-20-19
1 Addendum 4 01/10/2020

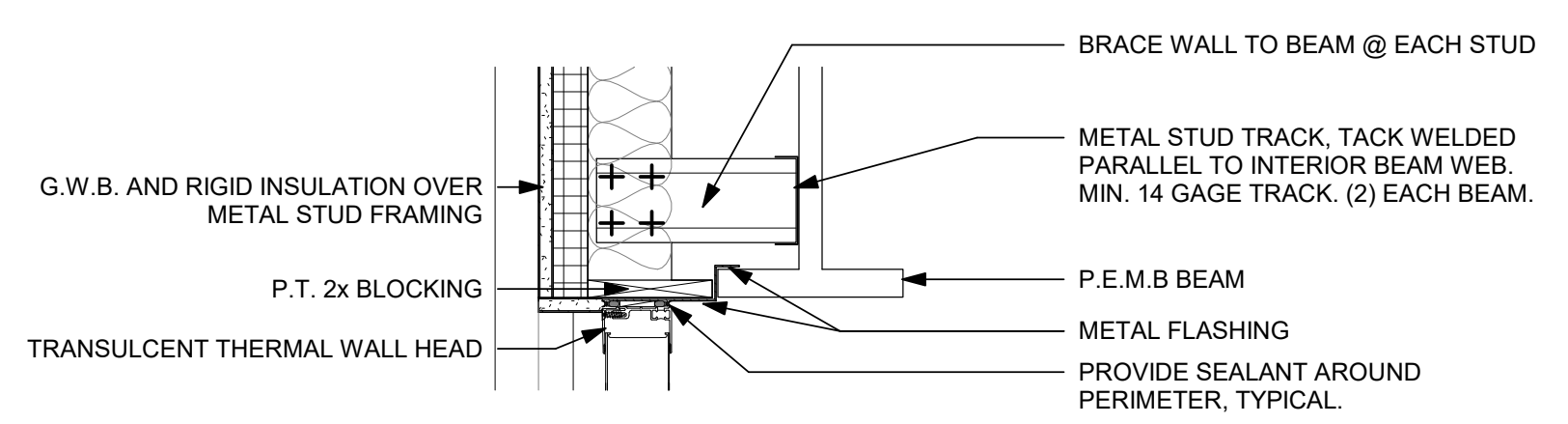
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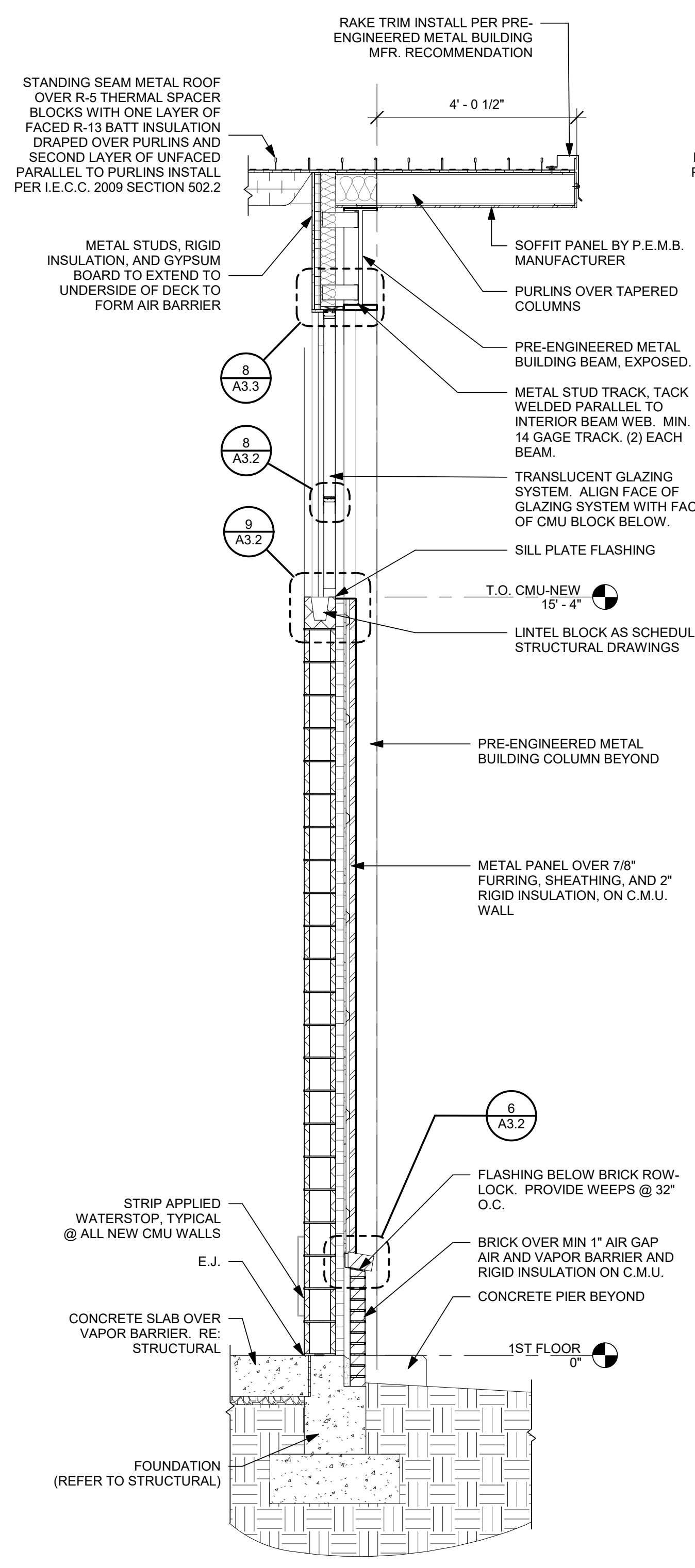
6 WALL SECTION
SCALE: 1/2" = 1'-0"



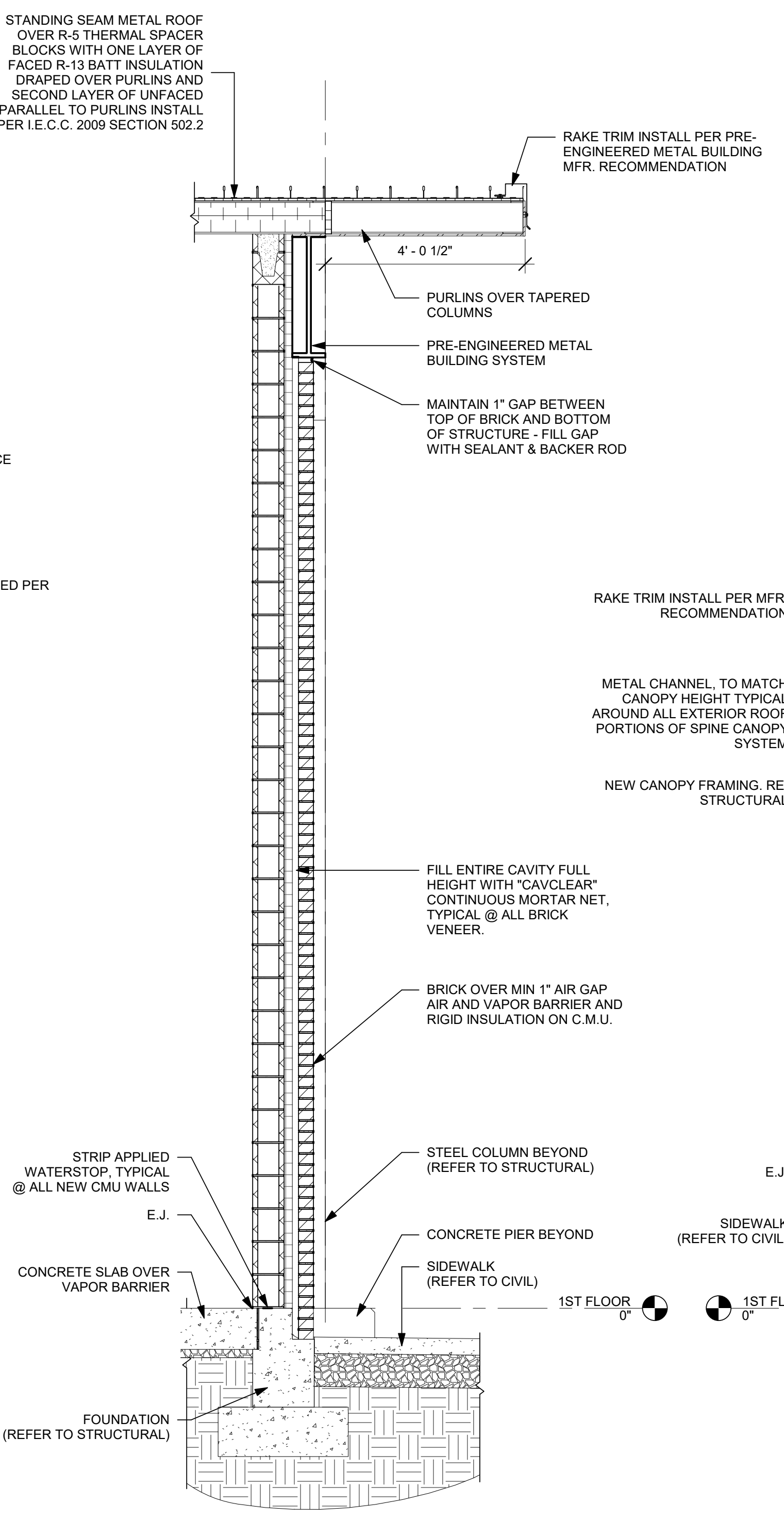
7 WALL SECTION
SCALE: 1/2" = 1'-0"



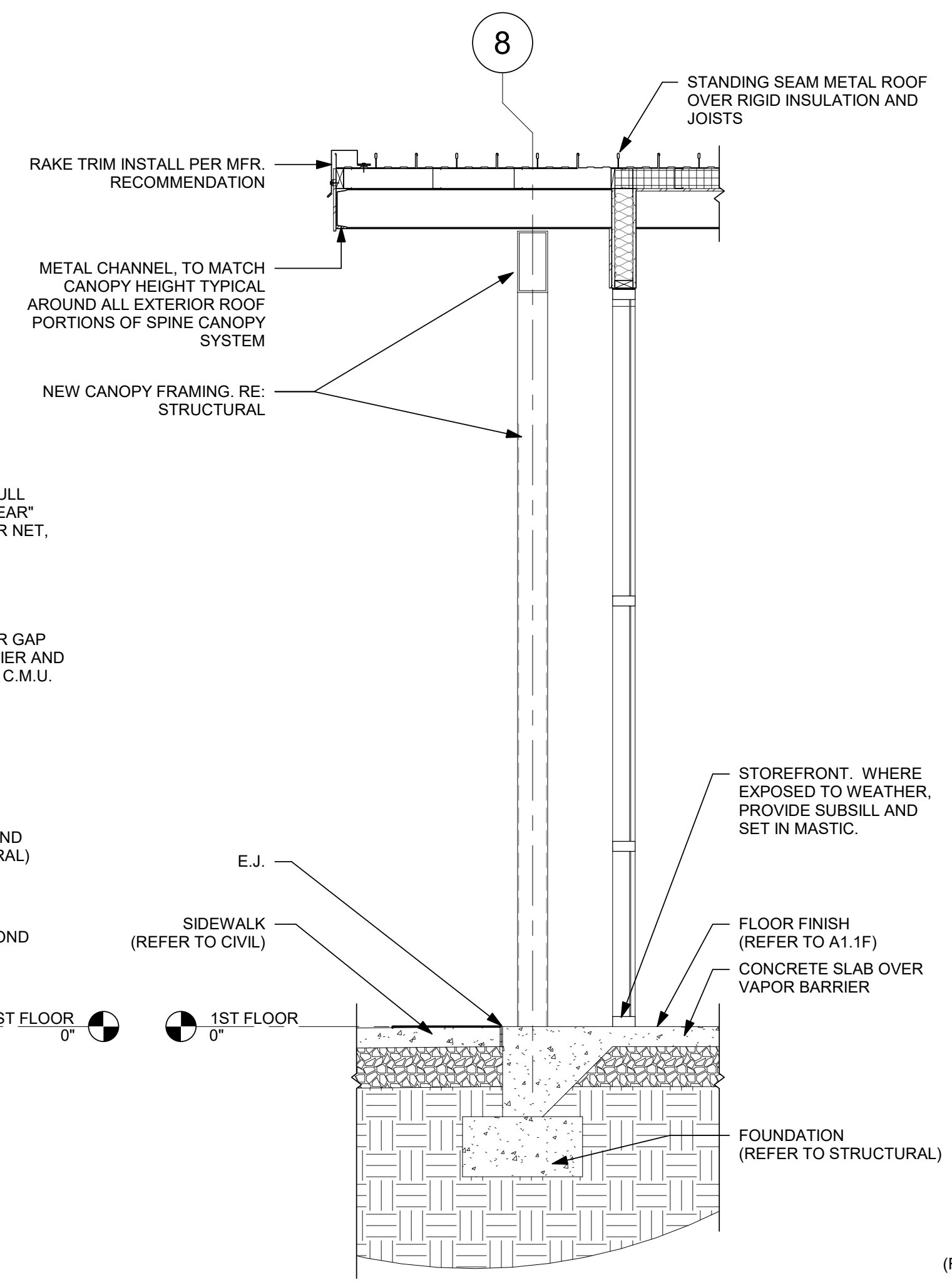
8 TRANSLUCENT WALL - HEAD ALT.
SCALE: 1 1/2" = 1'-0"



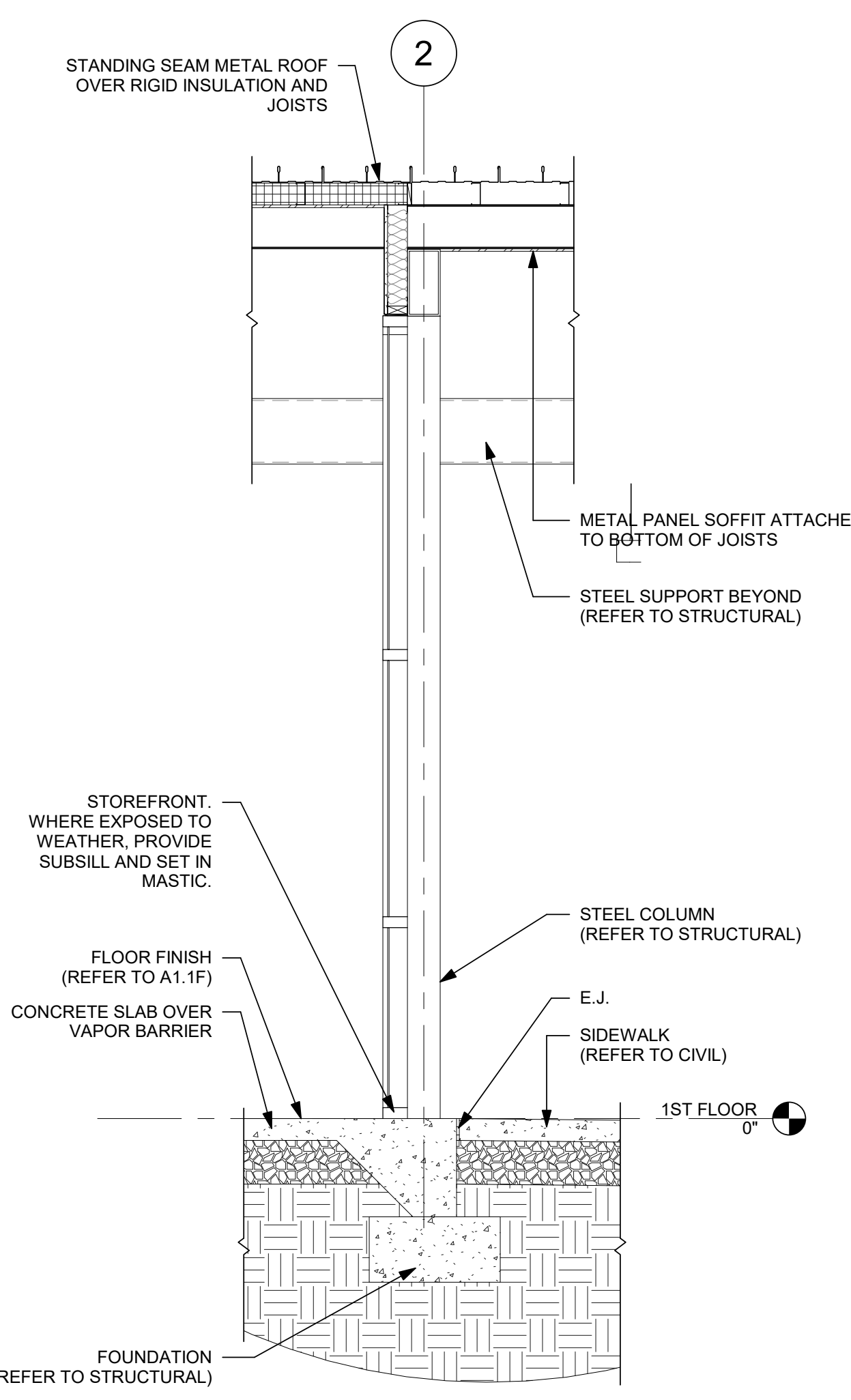
1 WALL SECTION
SCALE: 1/2" = 1'-0"



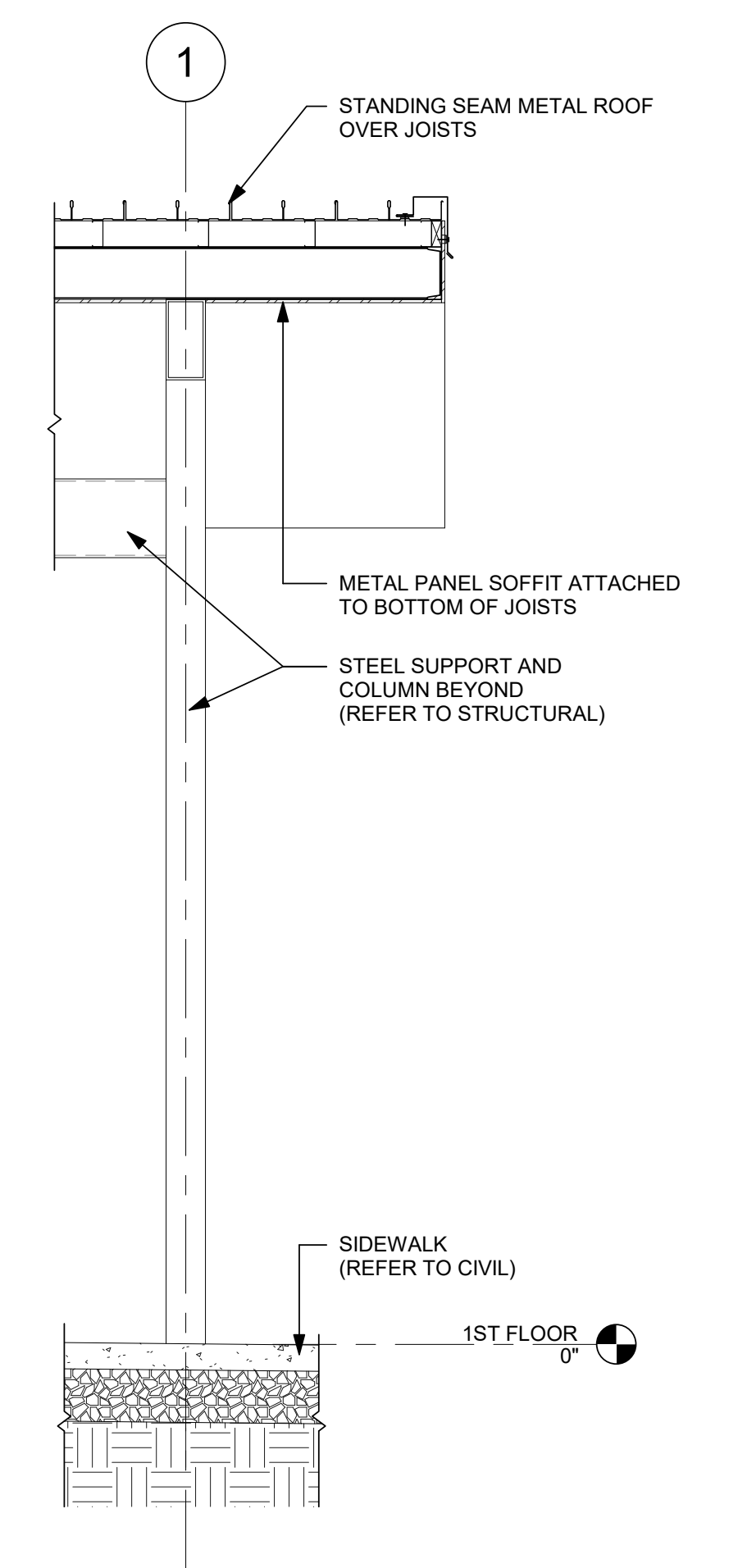
2 WALL SECTION
SCALE: 1/2" = 1'-0"



3 WALL SECTION
SCALE: 1/2" = 1'-0"



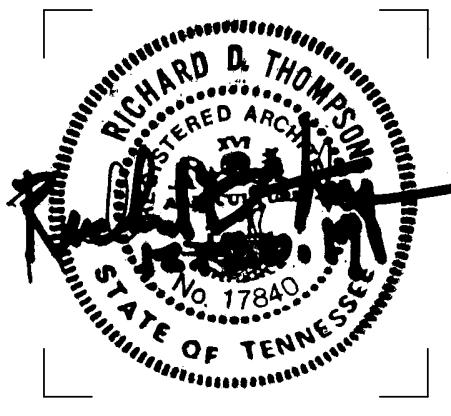
4 WALL SECTION
SCALE: 1/2" = 1'-0"



5 WALL SECTION
SCALE: 1/2" = 1'-0"

ENTIRE SHEET RESISSUED AS PART OF THIS ADDENDUM.

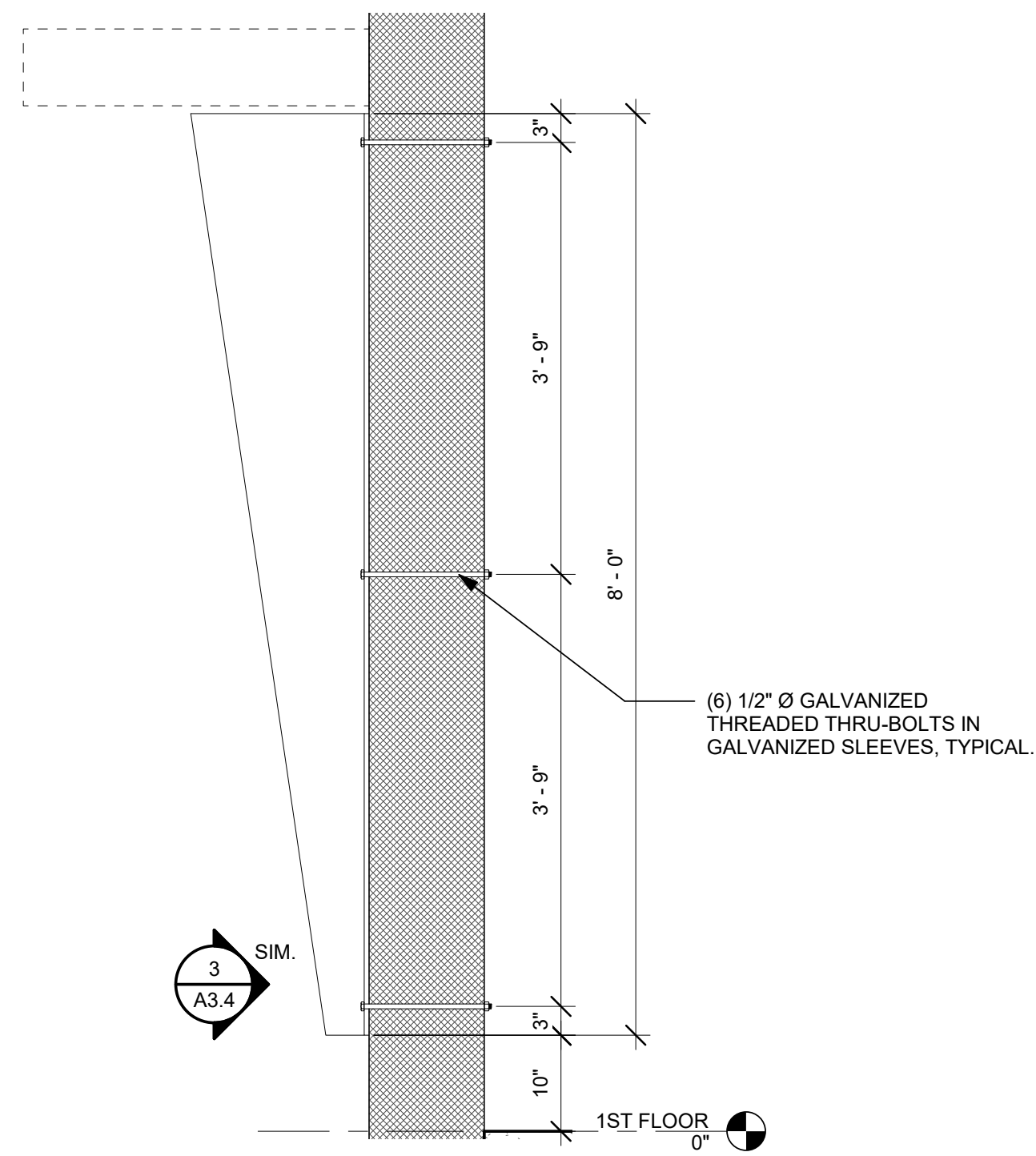
**90% REVIEW
2019-10-23**



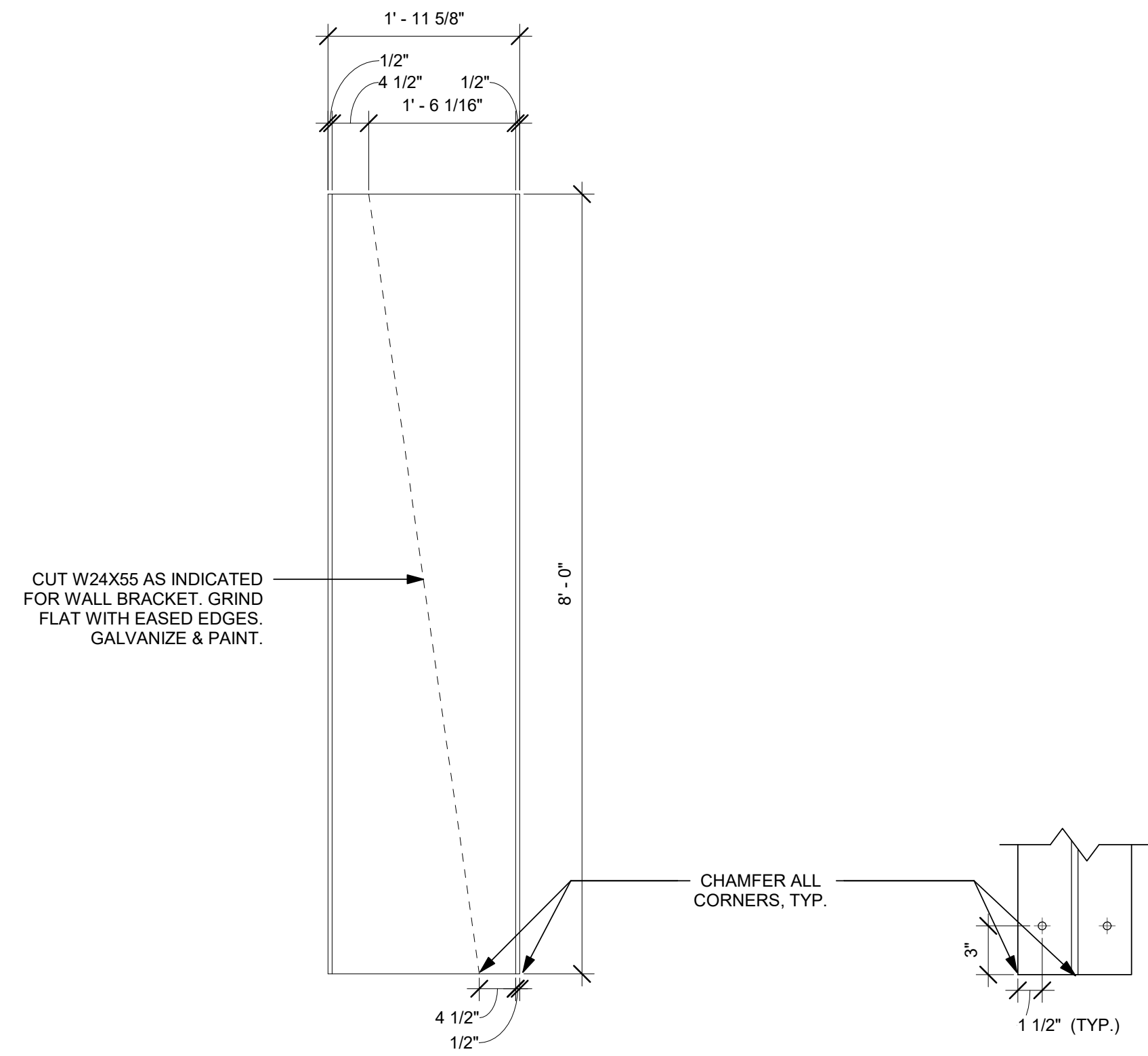
ISSUE DATES
INITIAL ISSUE 12-20-19
1 Addendum 4 01/10/2020

JOB NO. 18-072 D'WN Author CK'D Checker

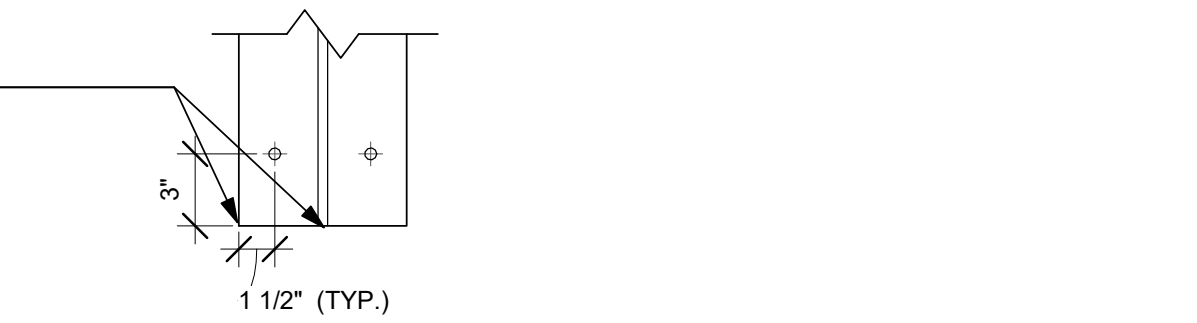
A3.3
EXTERIOR WALL SECTIONS



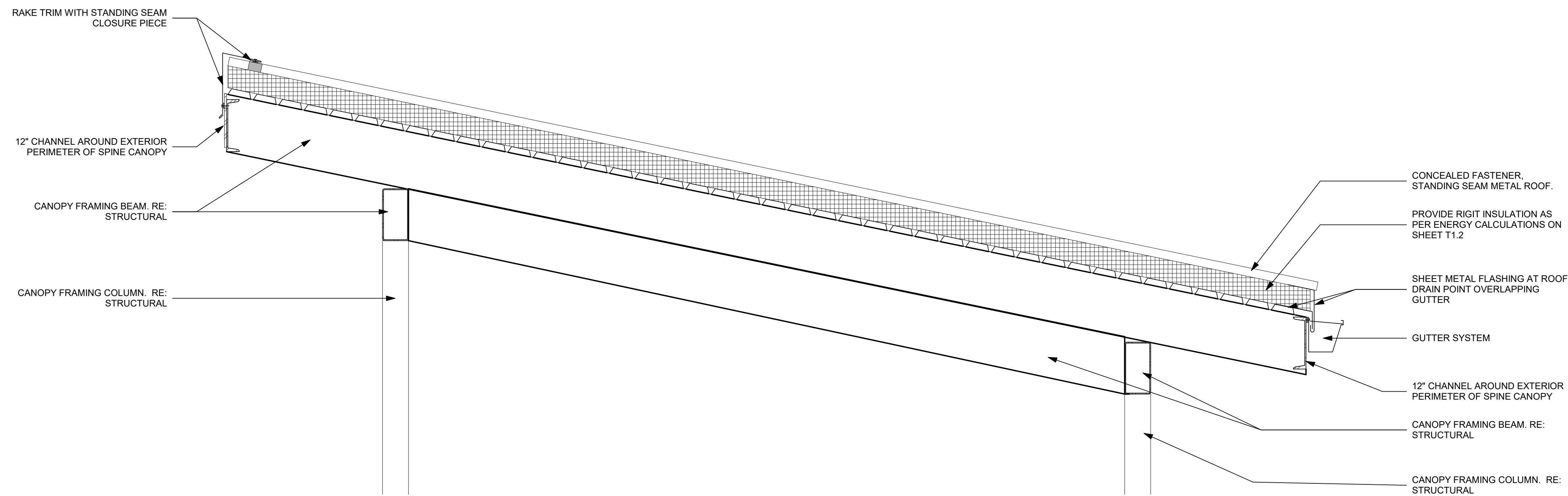
1 WALL BRACKET MOUNTING
SCALE: 3/4" = 1'-0"



2 BRACKET CUT DETAIL
SCALE: 3/4" = 1'-0"



3 BRACKET BOTTOM ELEVATION
SCALE: 1 1/2" = 1'-0"



4 CANOPY SECTION
SCALE: 3/4" = 1'-0"

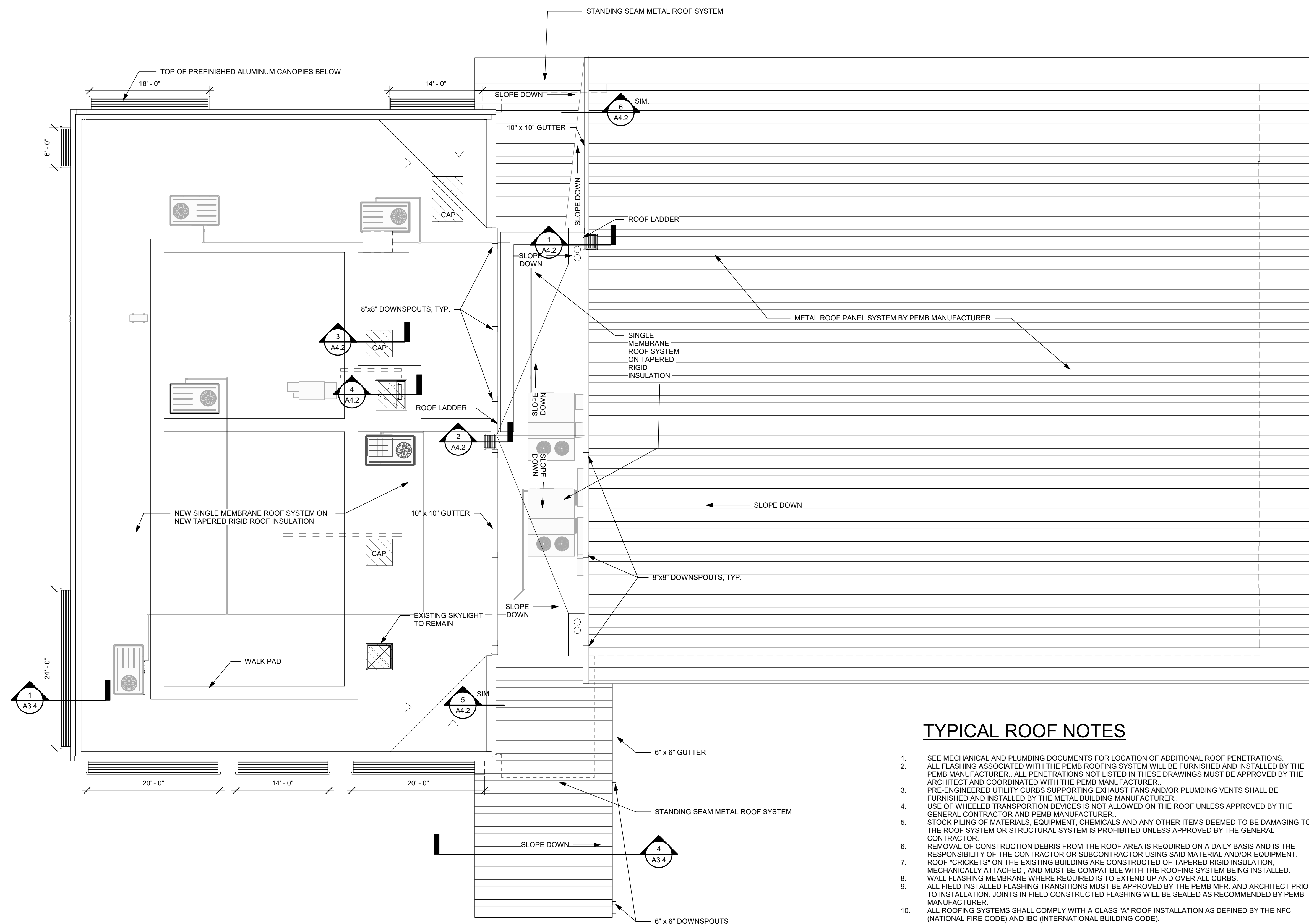


ISSUE DATES	
INITIAL ISSUE	12-20-19
1 Addendum 4	01/10/2020

JOB NO. 18-072	D'WN Author	CK'D Checker
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A3.4
EXTERIOR WALL
SECTIONS



1 ROOF PLAN
SCALE: 1/8" = 1'-0"

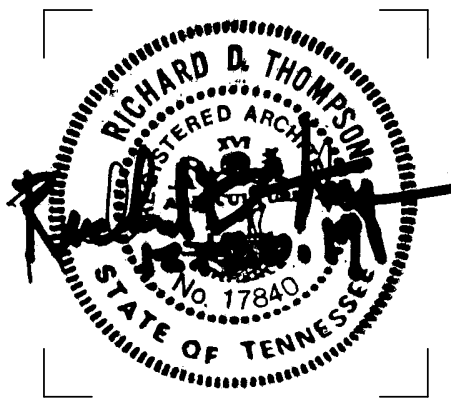


TYPICAL ROOF NOTES

1. SEE MECHANICAL AND PLUMBING DOCUMENTS FOR LOCATION OF ADDITIONAL ROOF PENETRATIONS.
2. ALL FLASHING ASSOCIATED WITH THE PEMB ROOFING SYSTEM WILL BE FURNISHED AND INSTALLED BY THE PEMB MANUFACTURER. ALL PENETRATIONS NOT LISTED IN THESE DRAWINGS MUST BE APPROVED BY THE ARCHITECT AND COORDINATED WITH THE PEMB MANUFACTURER.
3. PRE-ENGINEERED UTILITY CURBS SUPPORTING EXHAUST FANS AND/OR PLUMBING VENTS SHALL BE FURNISHED AND INSTALLED BY THE METAL BUILDING MANUFACTURER.
4. USE OF WHEELED TRANSPORTATION DEVICES IS NOT ALLOWED ON THE ROOF UNLESS APPROVED BY THE GENERAL CONTRACTOR AND PEMB MANUFACTURER.
5. STOCK PILING OF MATERIALS, EQUIPMENT, CHEMICALS AND ANY OTHER ITEMS DEEMED TO BE DAMAGING TO THE ROOF SYSTEM OR STRUCTURAL SYSTEM IS PROHIBITED UNLESS APPROVED BY THE GENERAL CONTRACTOR.
6. REMOVAL OF CONSTRUCTION DEBRIS FROM THE ROOF AREA IS REQUIRED ON A DAILY BASIS AND IS THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR USING SAID MATERIAL AND/OR EQUIPMENT.
7. ROOF "CRICKETS" ON THE EXISTING BUILDING ARE CONSTRUCTED OF TAPERED RIGID INSULATION, MECHANICALLY ATTACHED, AND MUST BE COMPATIBLE WITH THE ROOFING SYSTEM BEING INSTALLED.
8. WALL FLASHING MEMBRANE WHERE REQUIRED IS TO EXTEND UP AND OVER ALL CURBS.
9. ALL FIELD INSTALLED FLASHING TRANSITIONS MUST BE APPROVED BY THE PEMB MFR. AND ARCHITECT PRIOR TO INSTALLATION. JOINTS IN FIELD CONSTRUCTED FLASHING WILL BE SEALED AS RECOMMENDED BY PEMB MANUFACTURER.
10. ALL ROOFING SYSTEMS SHALL COMPLY WITH A CLASS "A" ROOF INSTALLATION AS DEFINED BY THE NFC (NATIONAL FIRE CODE) AND IBC (INTERNATIONAL BUILDING CODE).

ENTIRE SHEET REISSUED AS PART OF THIS ADDENDUM.

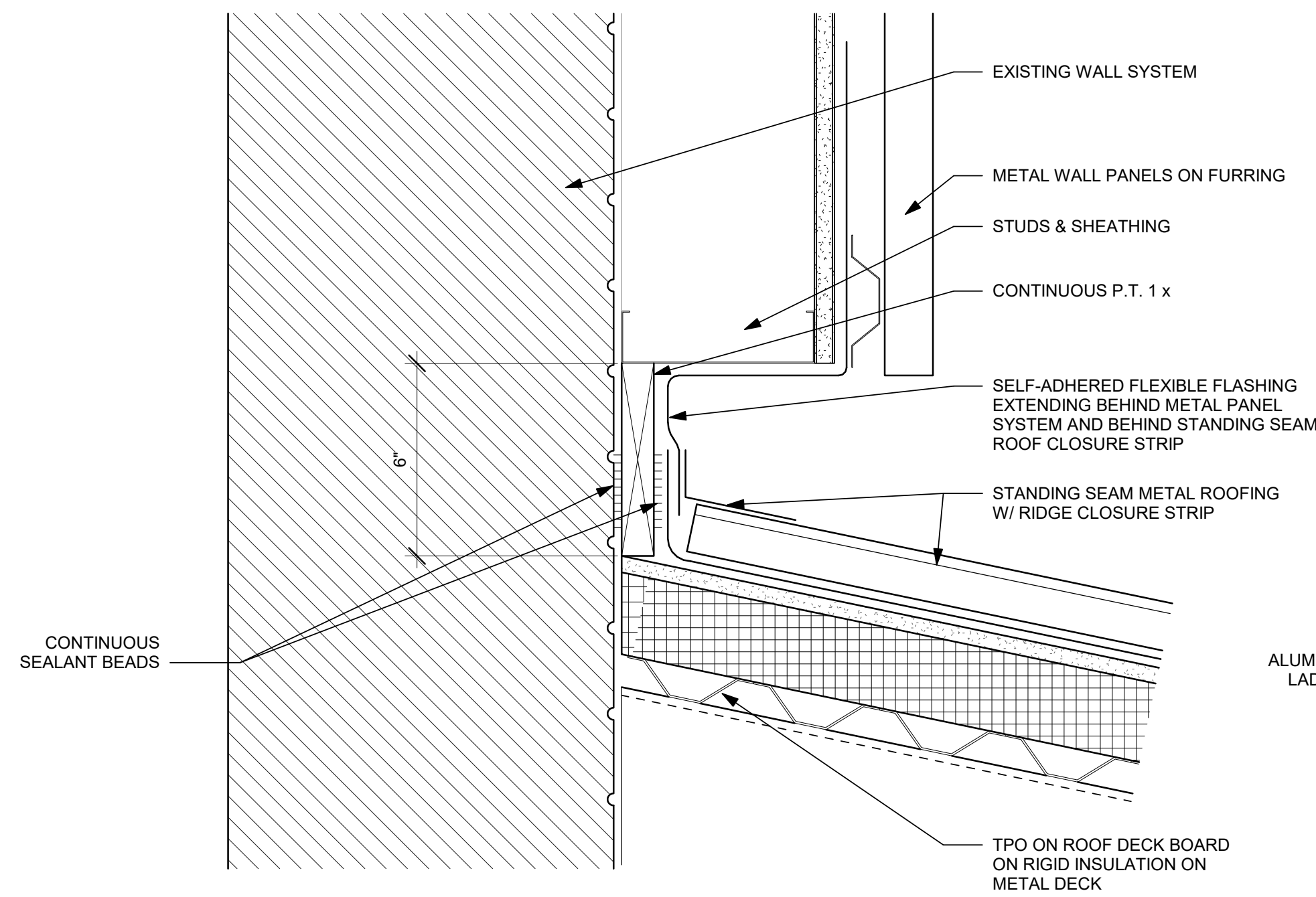
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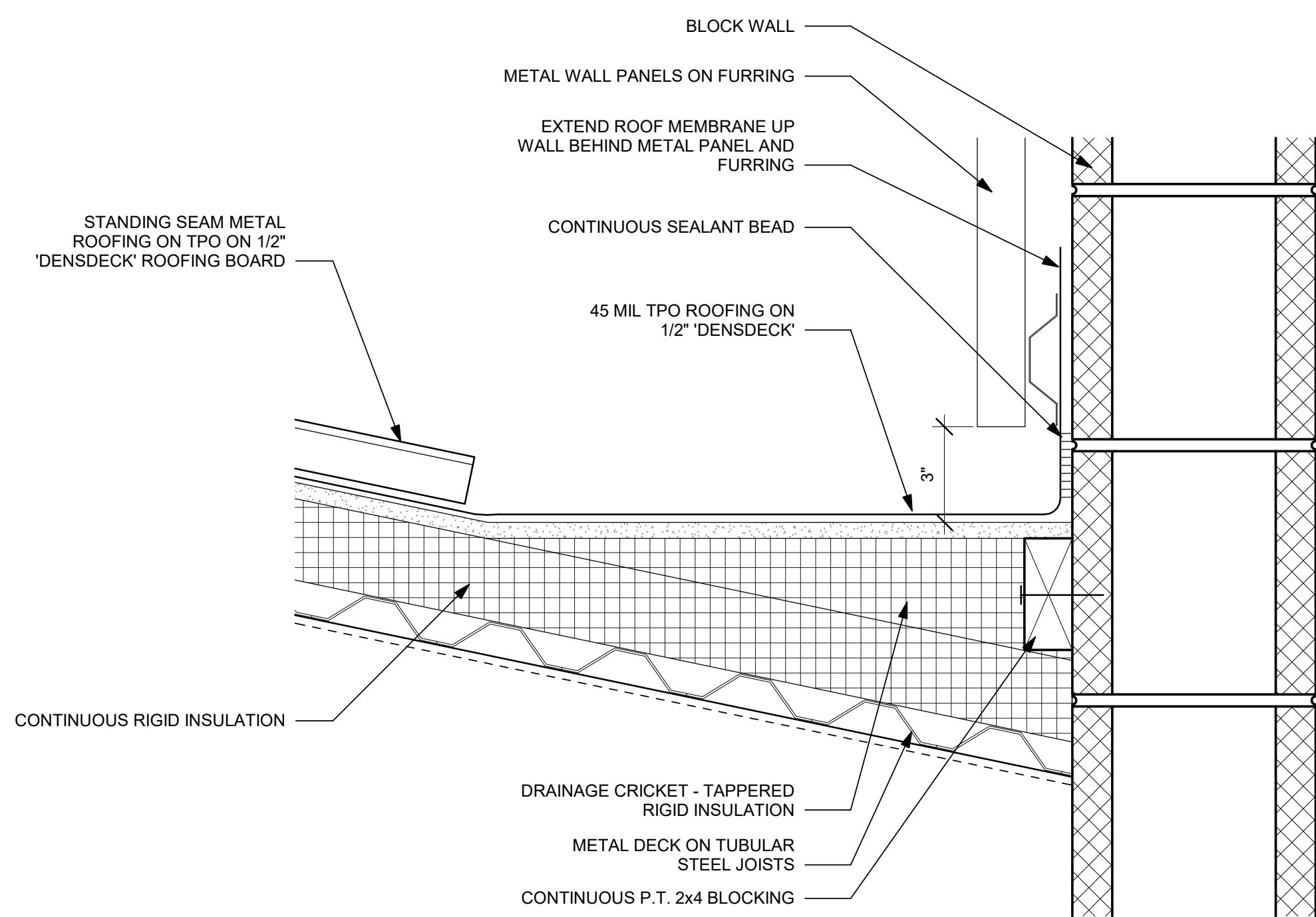
ISSUE DATES	
INITIAL ISSUE	12-20-19
1 Addendum 4	01/10/2020

JOB NO.	D'WN	CK'D
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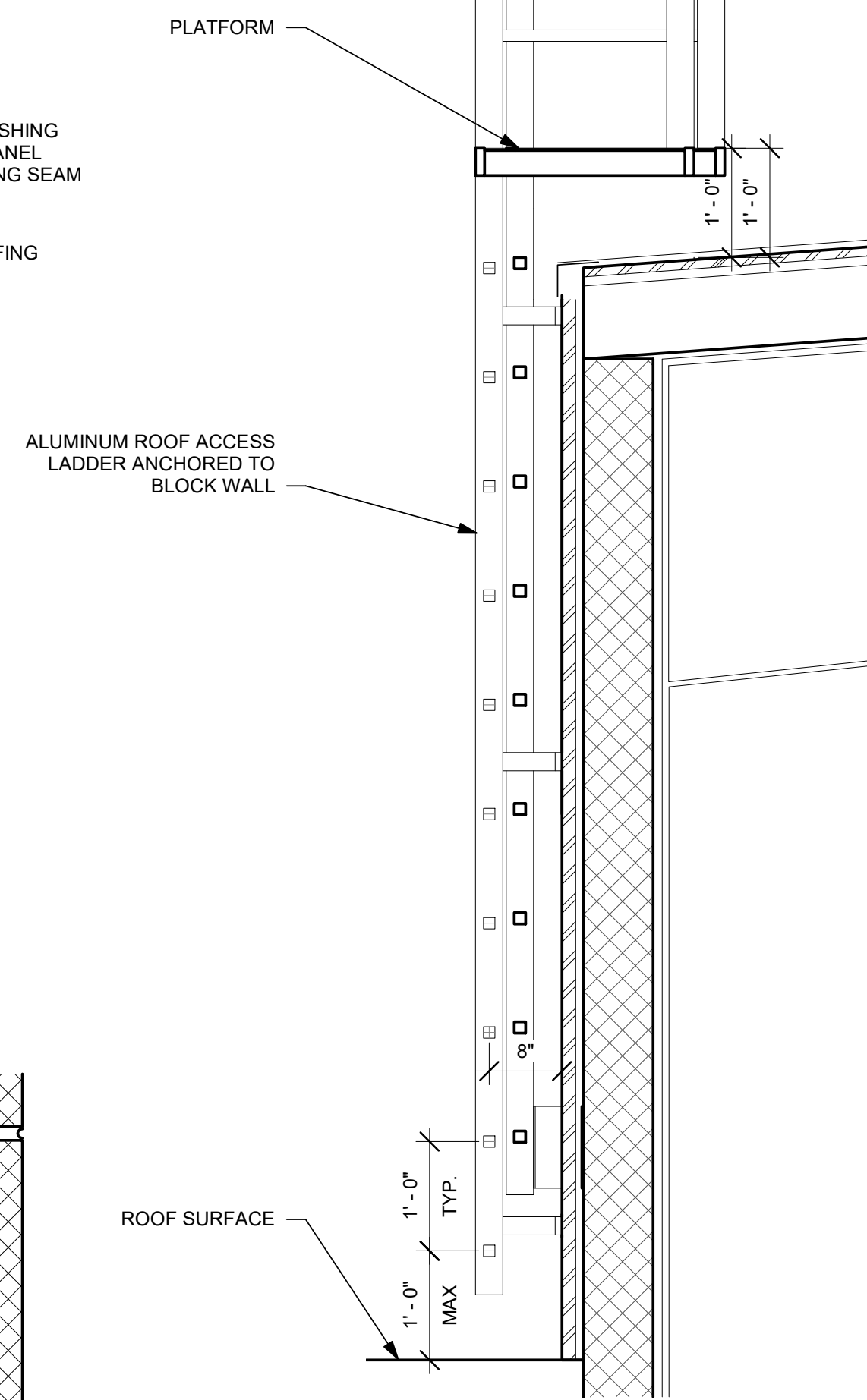
A4.1
ROOF PLAN



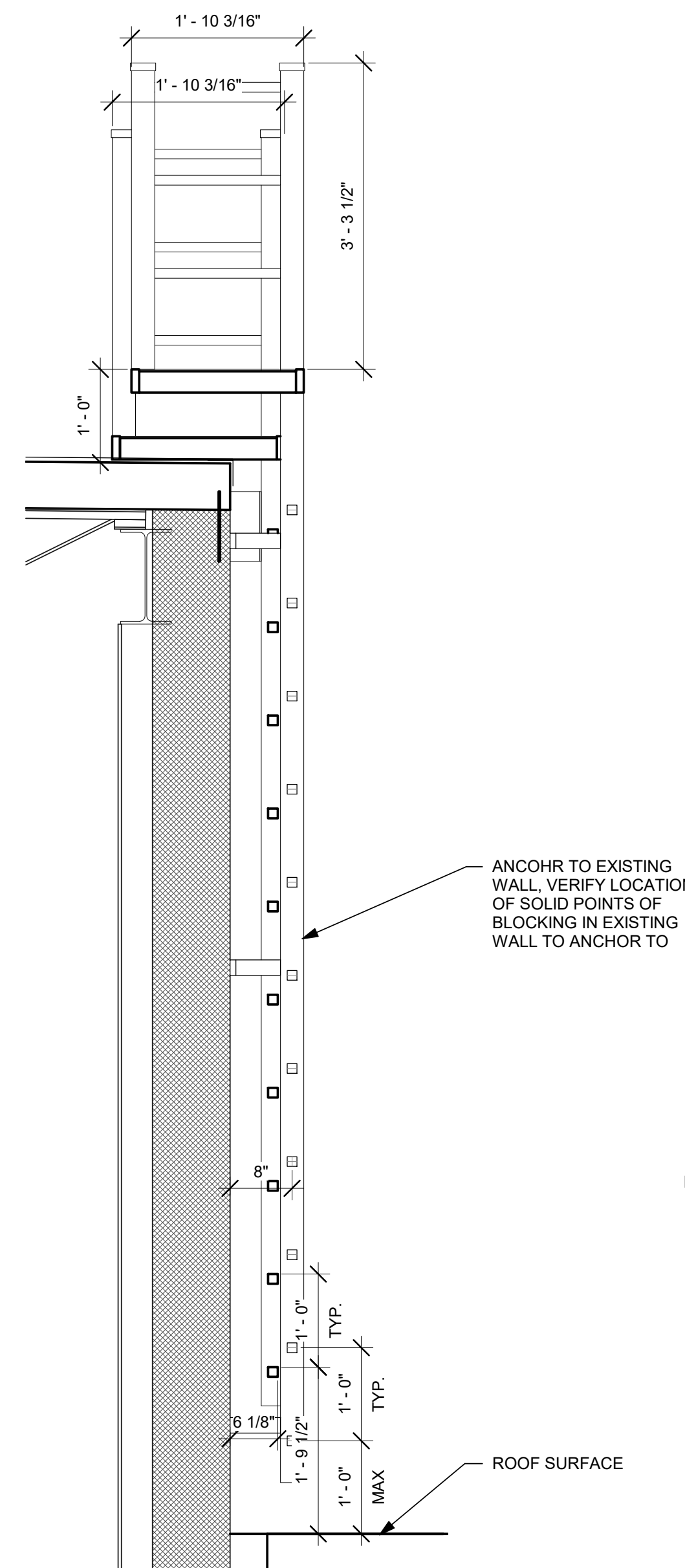
5 ROOF SECTION
SCALE: 3" = 1'-0"



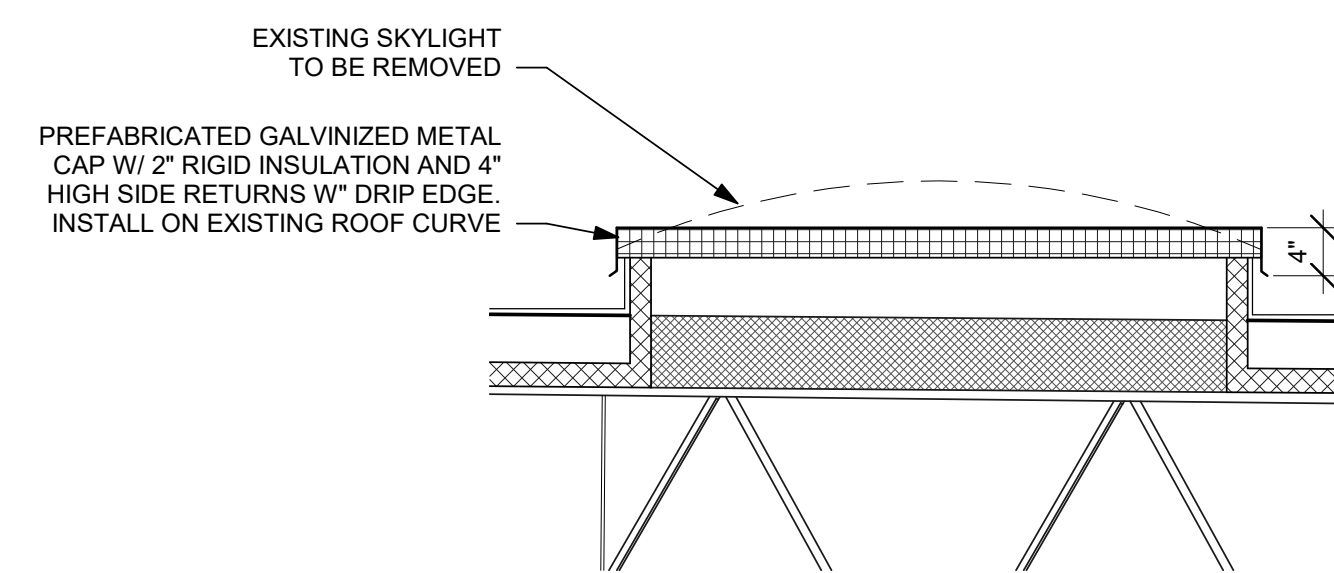
6 ROOF SECTION
SCALE: 3" = 1'-0"



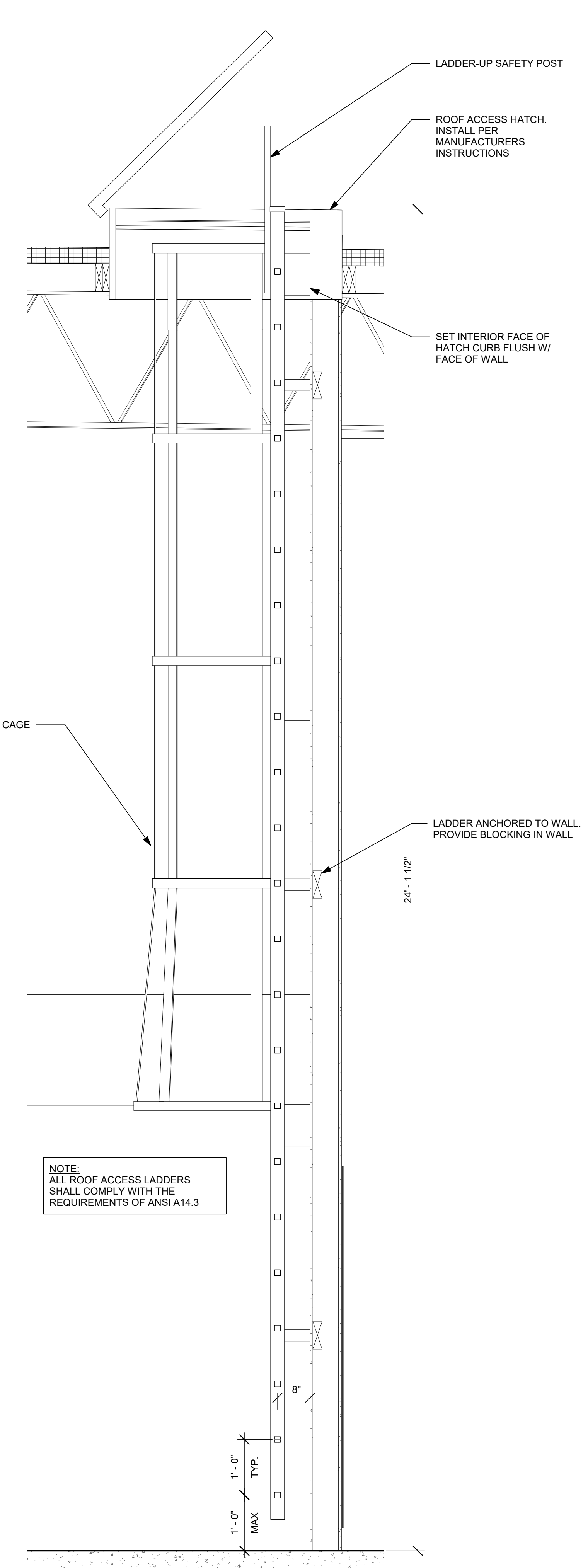
1 ROOF ACCESS LADDER
SCALE: 3/4" = 1'-0"



2 ROOF ACCESS LADDER
SCALE: 3/4" = 1'-0"



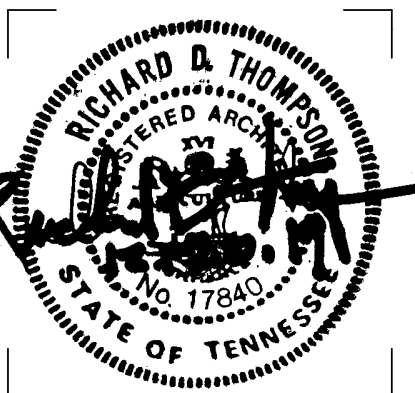
3 CAPPED SKYLIGHT DETAIL
SCALE: 3/4" = 1'-0"



NOTE:
ALL ROOF ACCESS LADDERS
SHALL COMPLY WITH THE
REQUIREMENTS OF ANSI A14.3

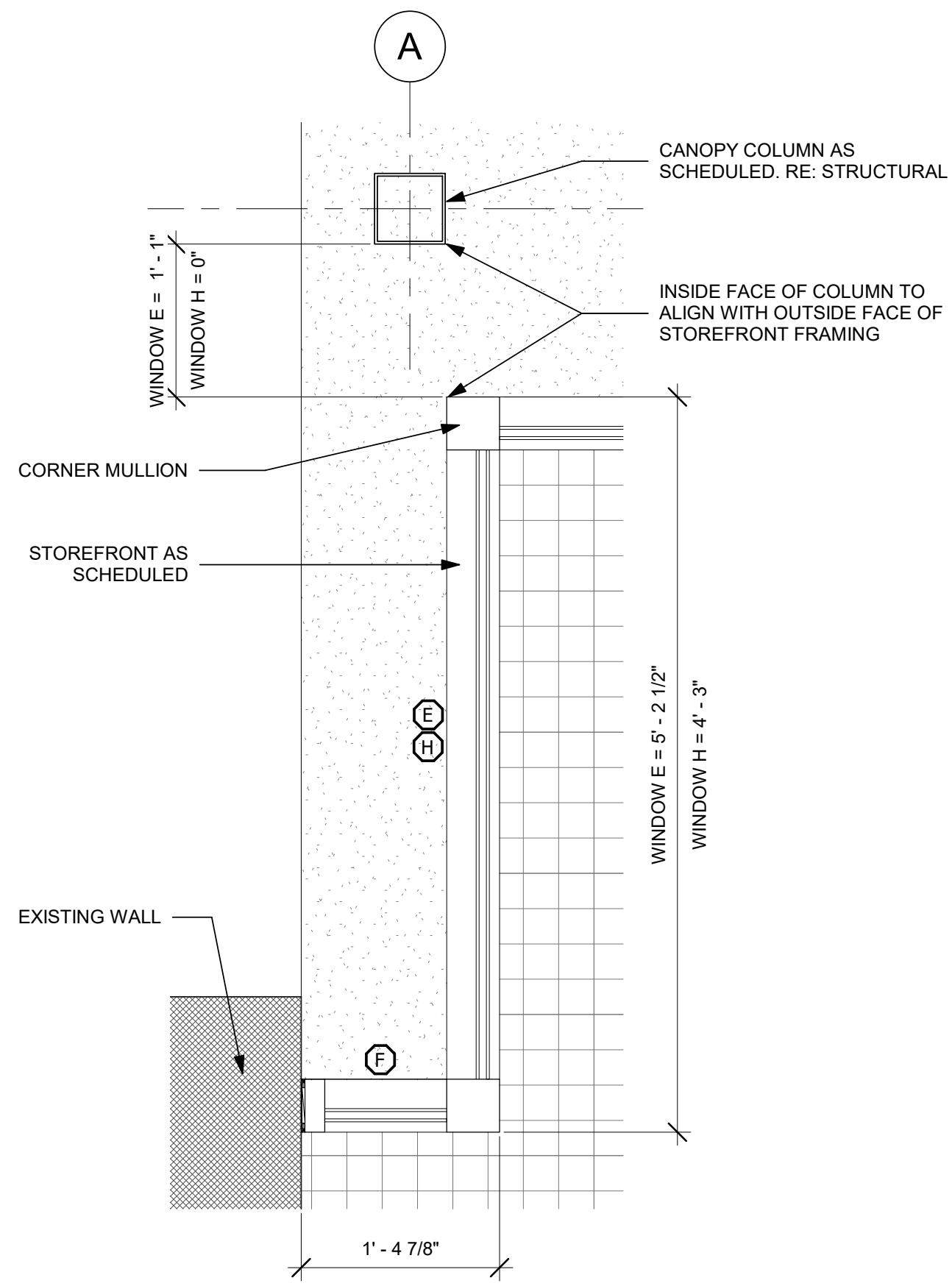
ENTIRE SHEET REISSUED AS PART OF THIS ADDENDUM.

4 ROOF HATCH LADDER SECTION
SCALE: 3/4" = 1'-0"

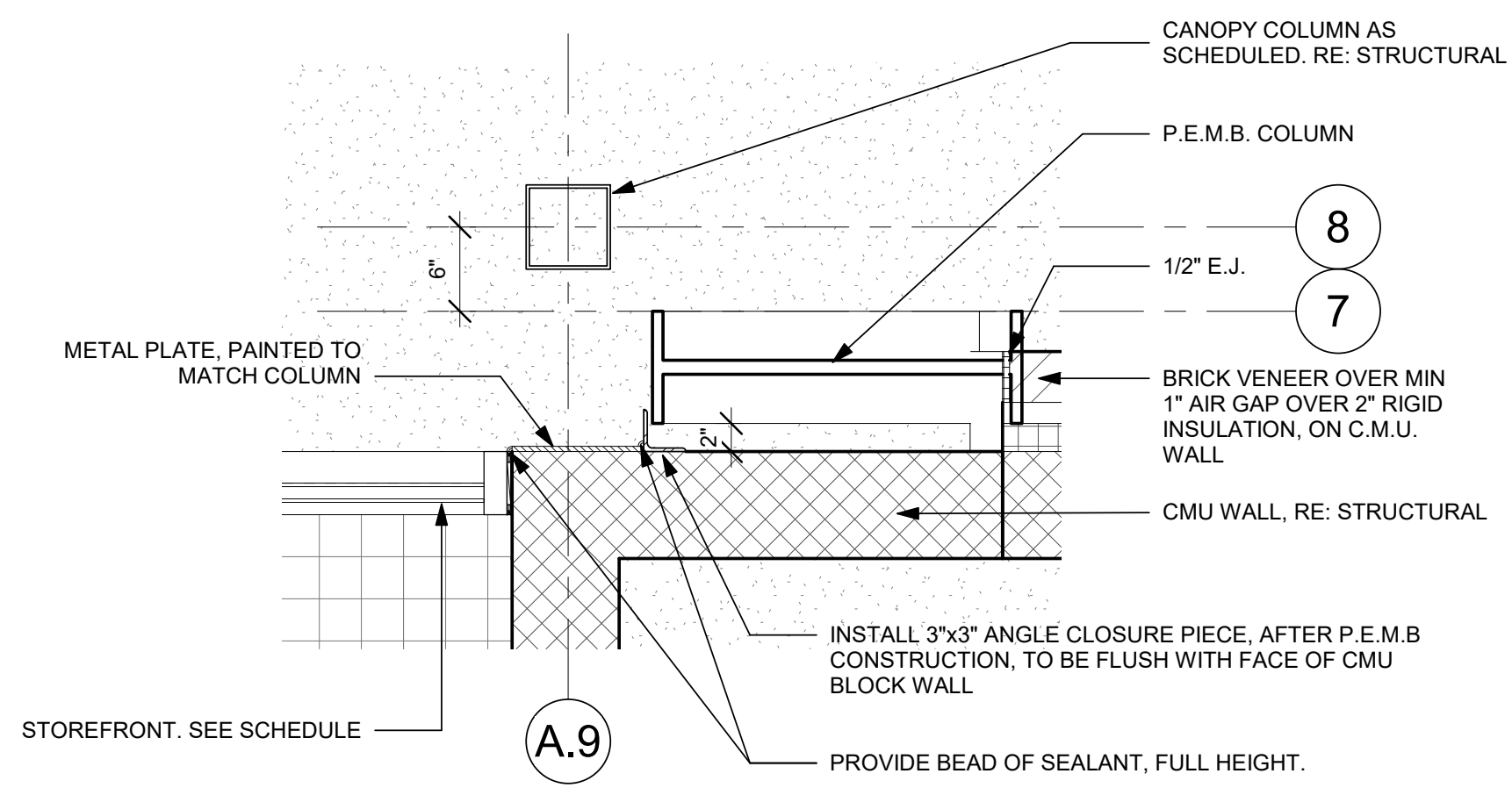


ISSUE DATES

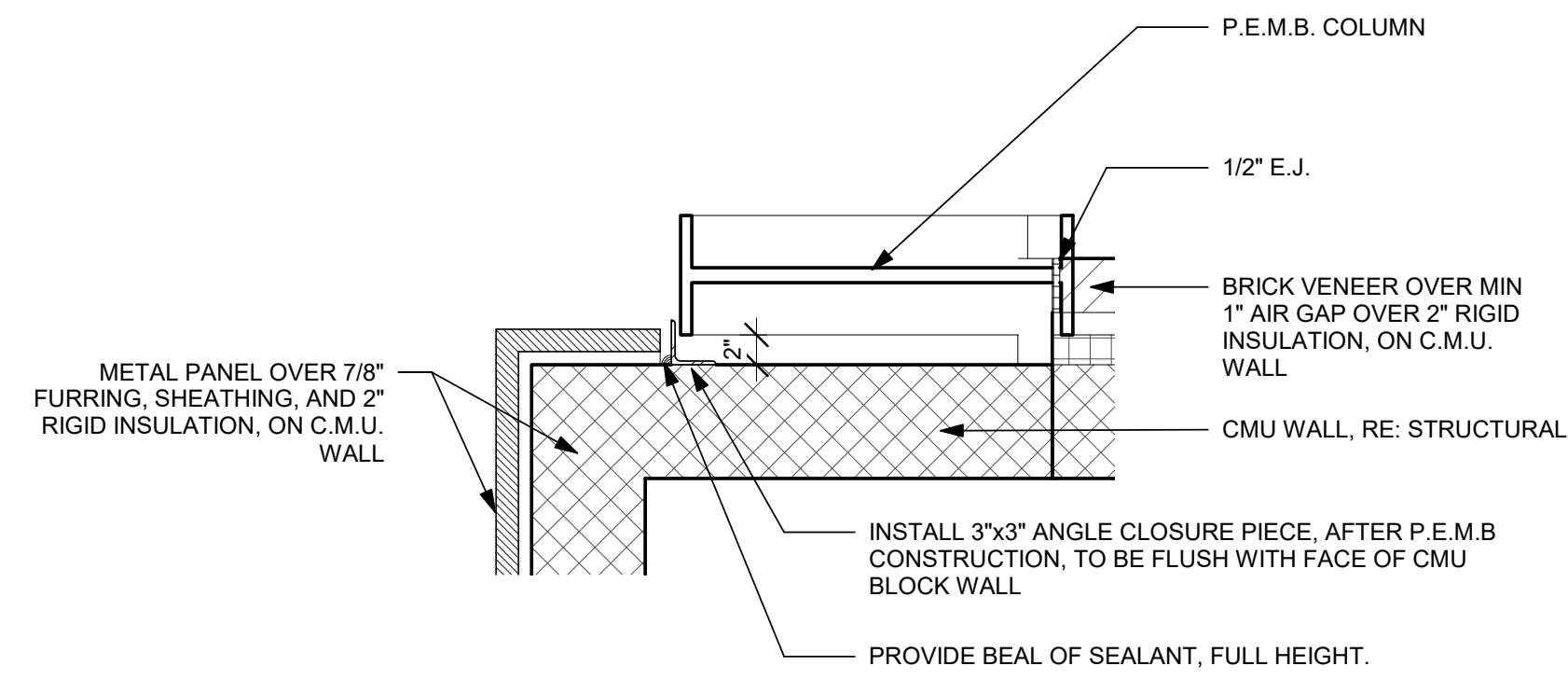
INITIAL ISSUE	12-20-19
1 Addendum 4	01/10/2020



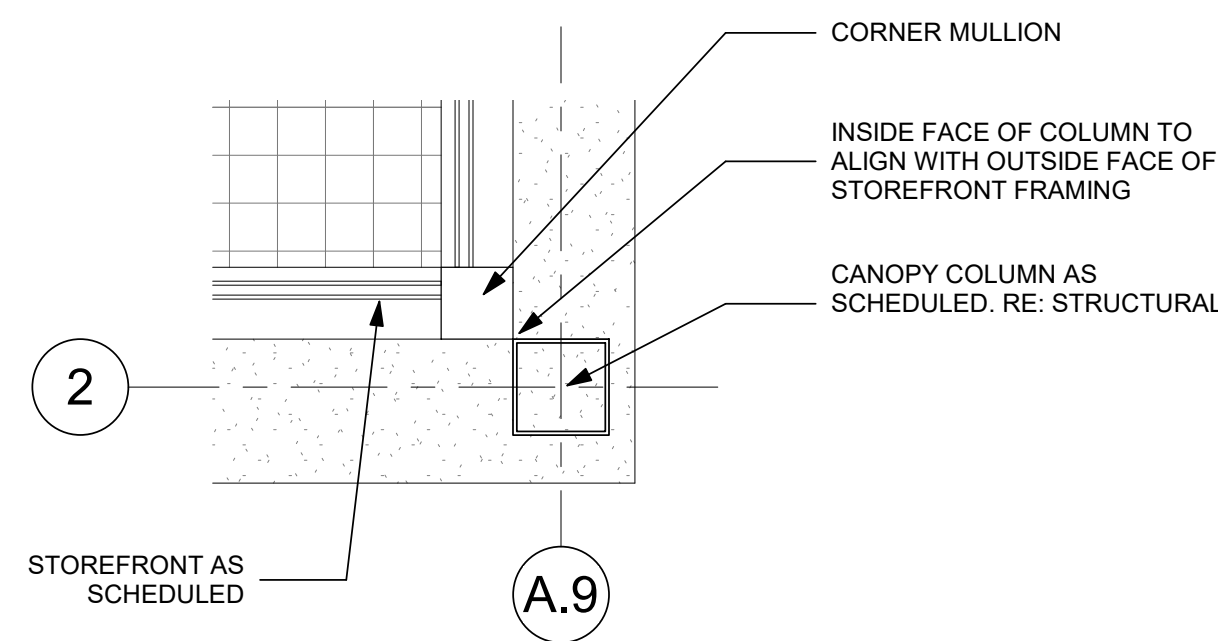
1 PLAN DETAIL
SCALE: 1" = 1'-0"



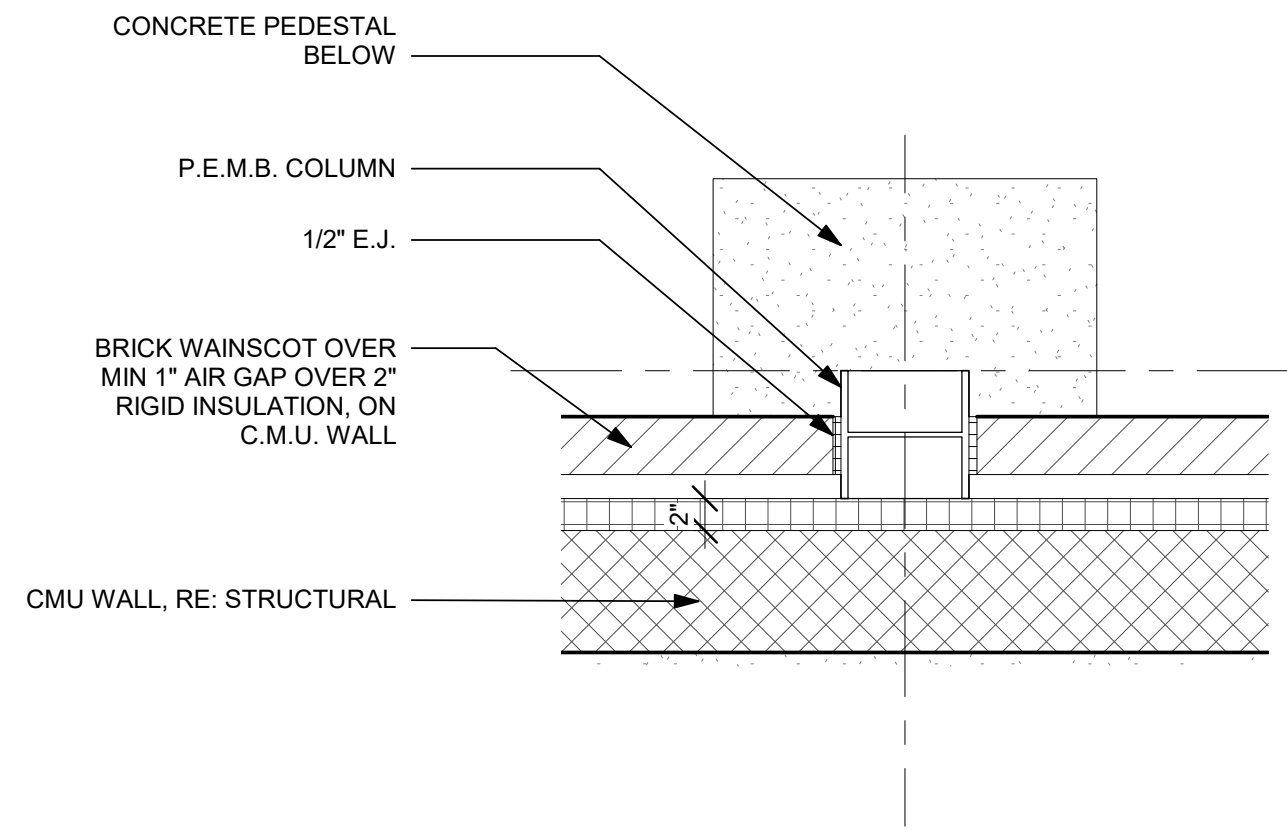
2A PLAN DETAIL - LOW
SCALE: 1" = 1'-0"



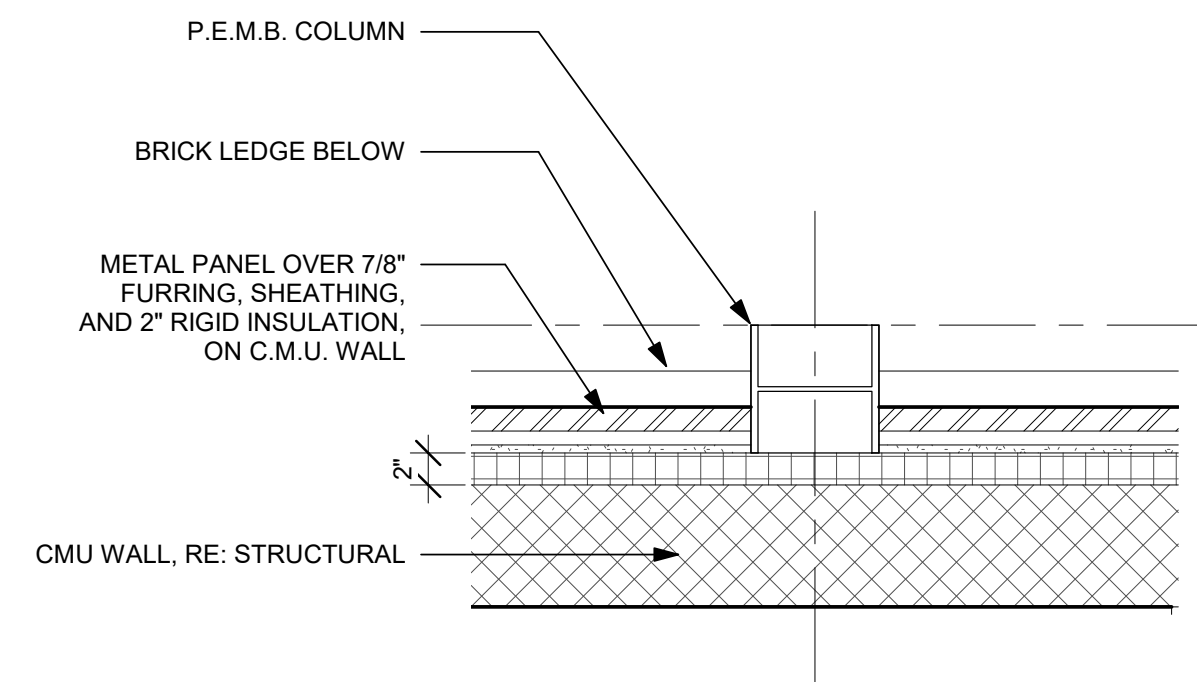
2B PLAN DETAIL - HIGH
SCALE: 1" = 1'-0"



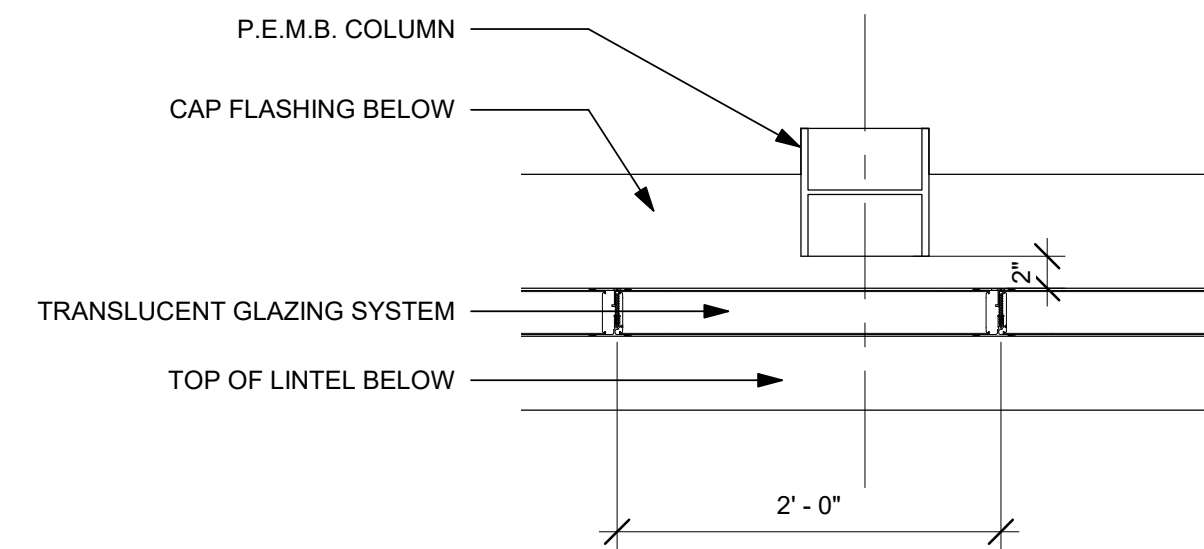
5 PLAN DETAIL
SCALE: 1" = 1'-0"



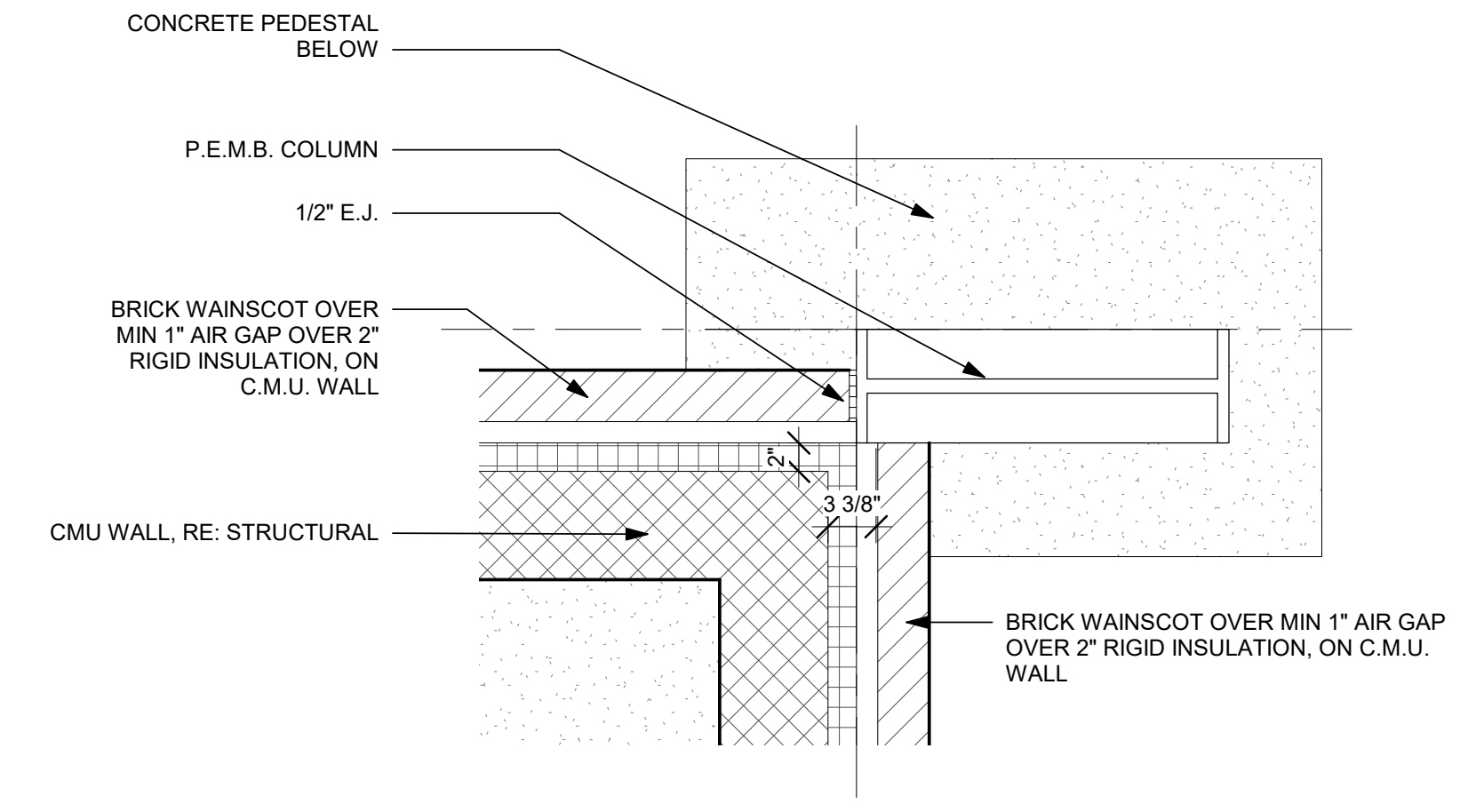
3A PLAN DETAIL - LOW
SCALE: 1" = 1'-0"



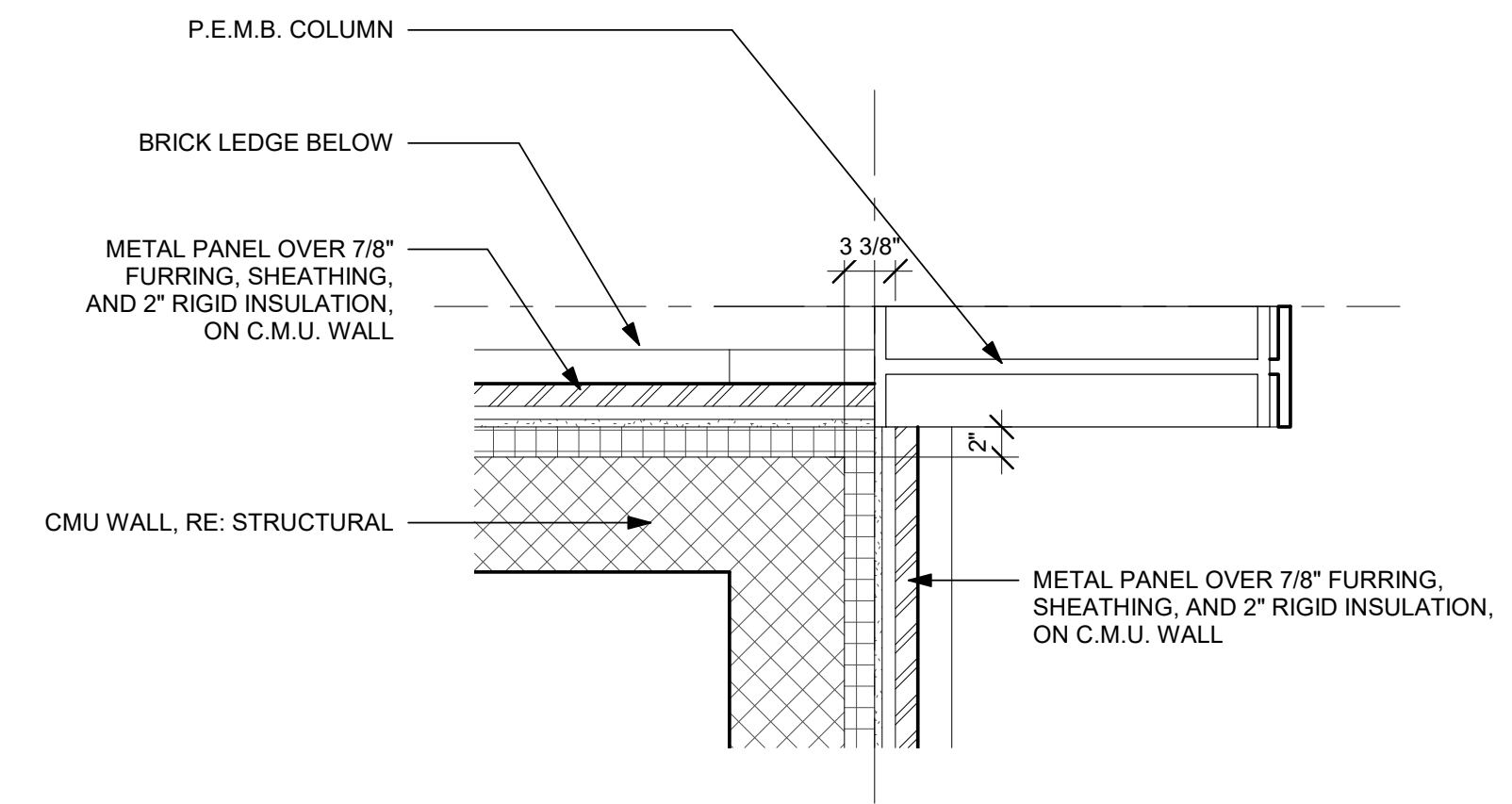
3B PLAN DETAIL - MID
SCALE: 1" = 1'-0"



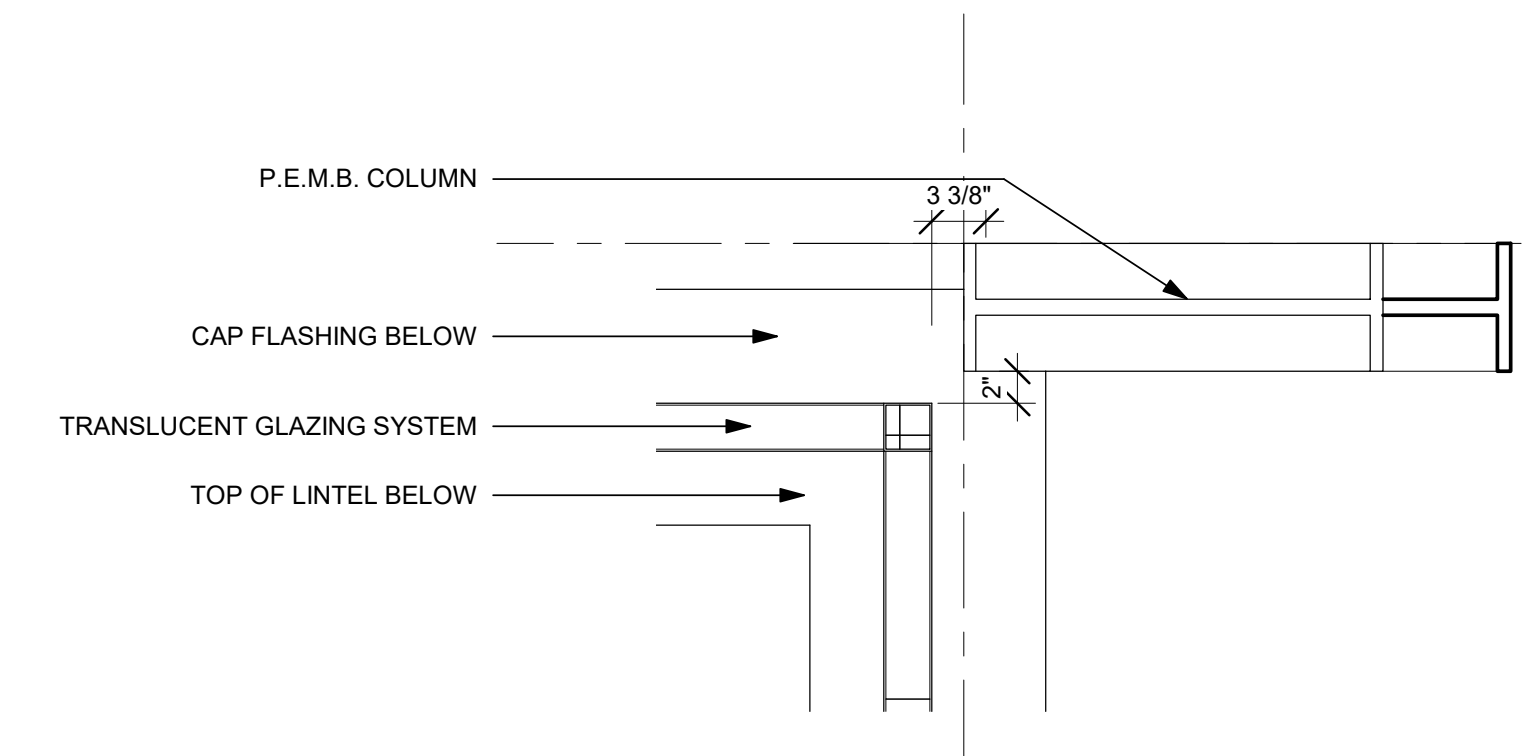
3C PLAN DETAIL - HIGH
SCALE: 1" = 1'-0"



4A PLAN DETAIL - LOW
SCALE: 1" = 1'-0"

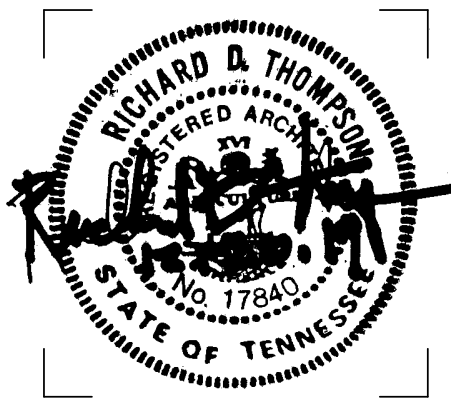


4B PLAN DETAIL - MID
SCALE: 1" = 1'-0"



4C PLAN DETAIL - HIGH
SCALE: 1" = 1'-0"

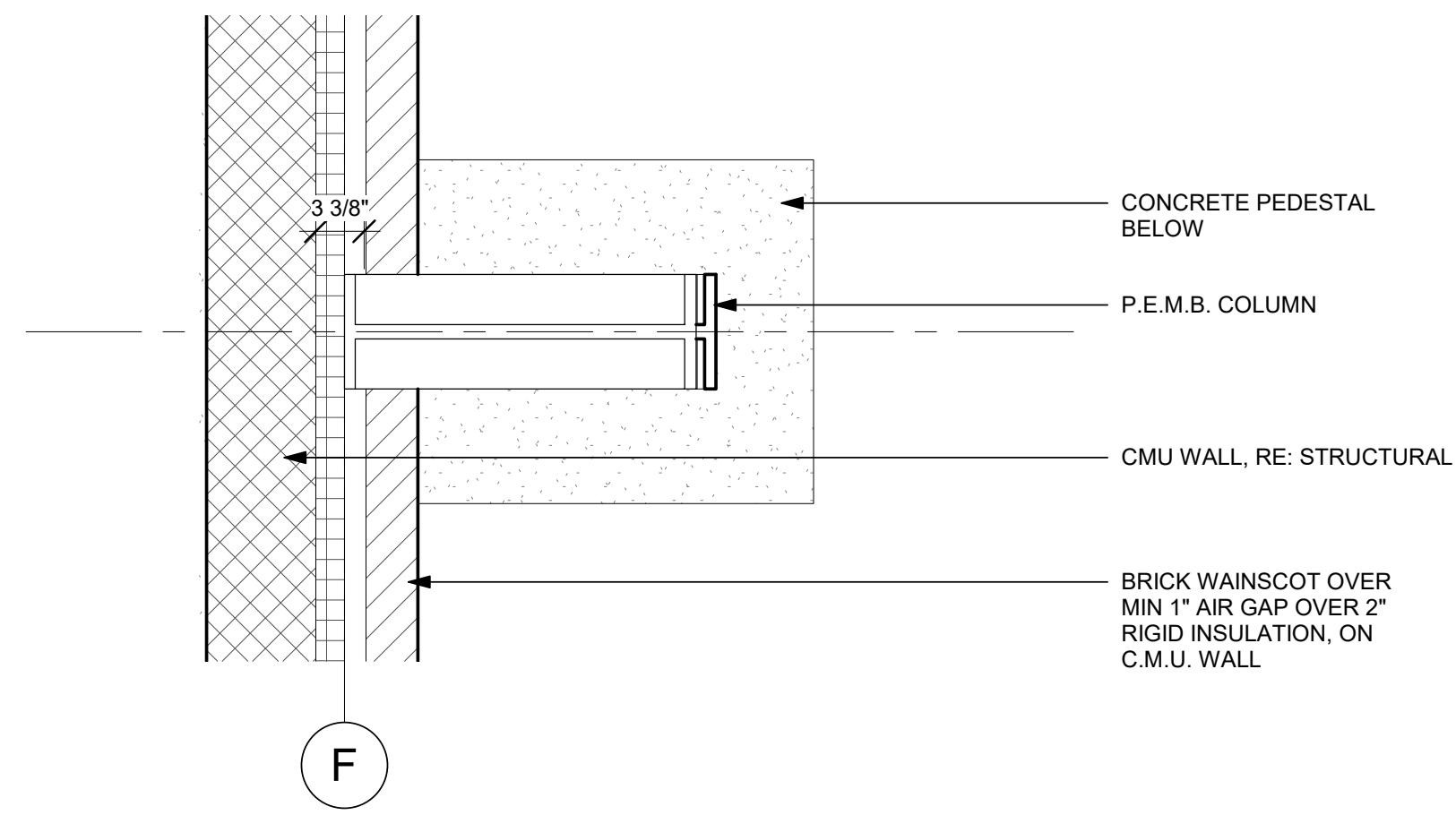
ENTIRE SHEET RESISSUED AS PART OF THIS ADDENDUM.



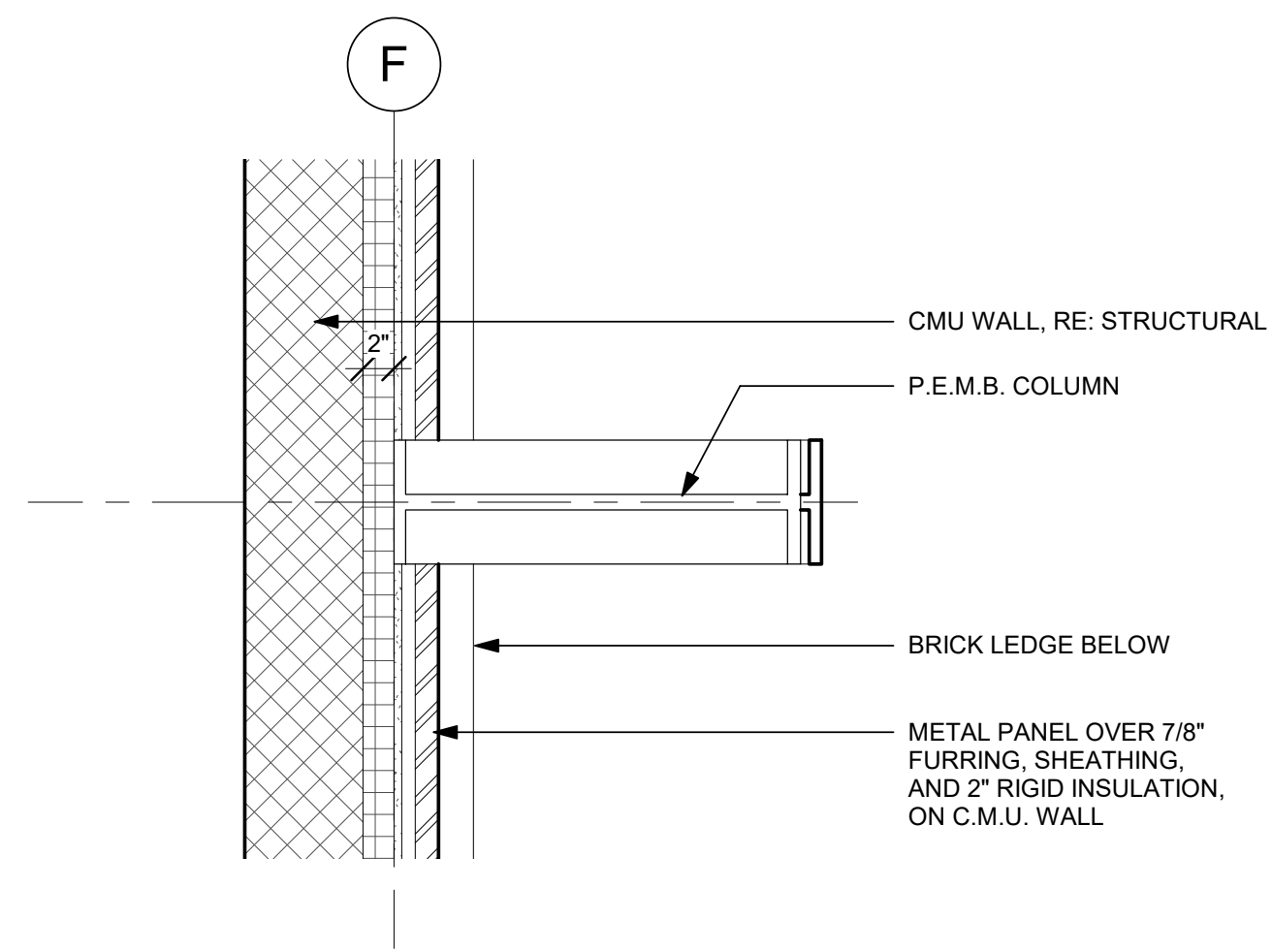
ISSUE DATES
INITIAL ISSUE 12-20-19
1 Addendum 4 01/10/2020

JOB NO. 18-072 | D'WN Author | CK'D Checker

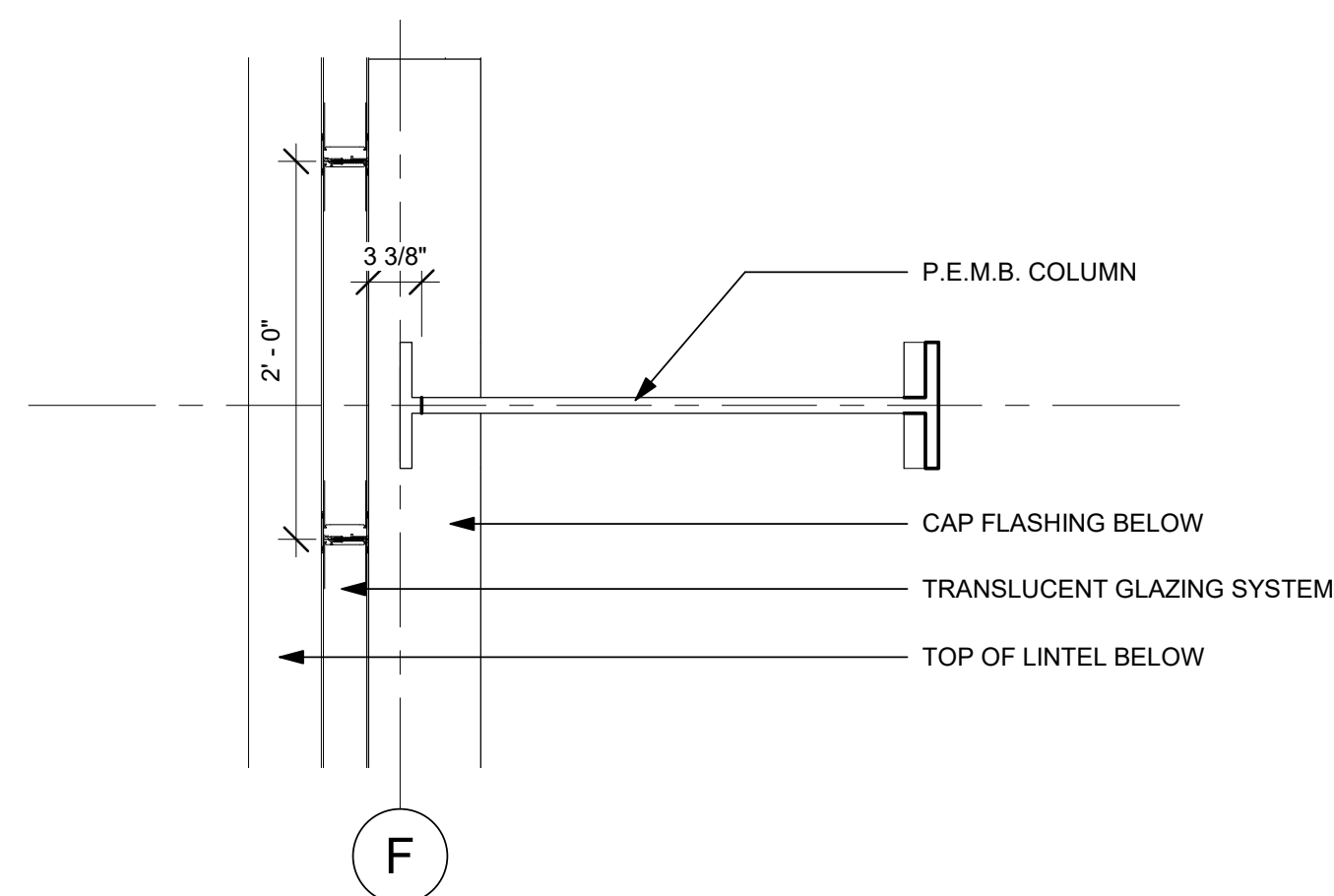
A5.1
ENLARGED PLANS & DETAILS



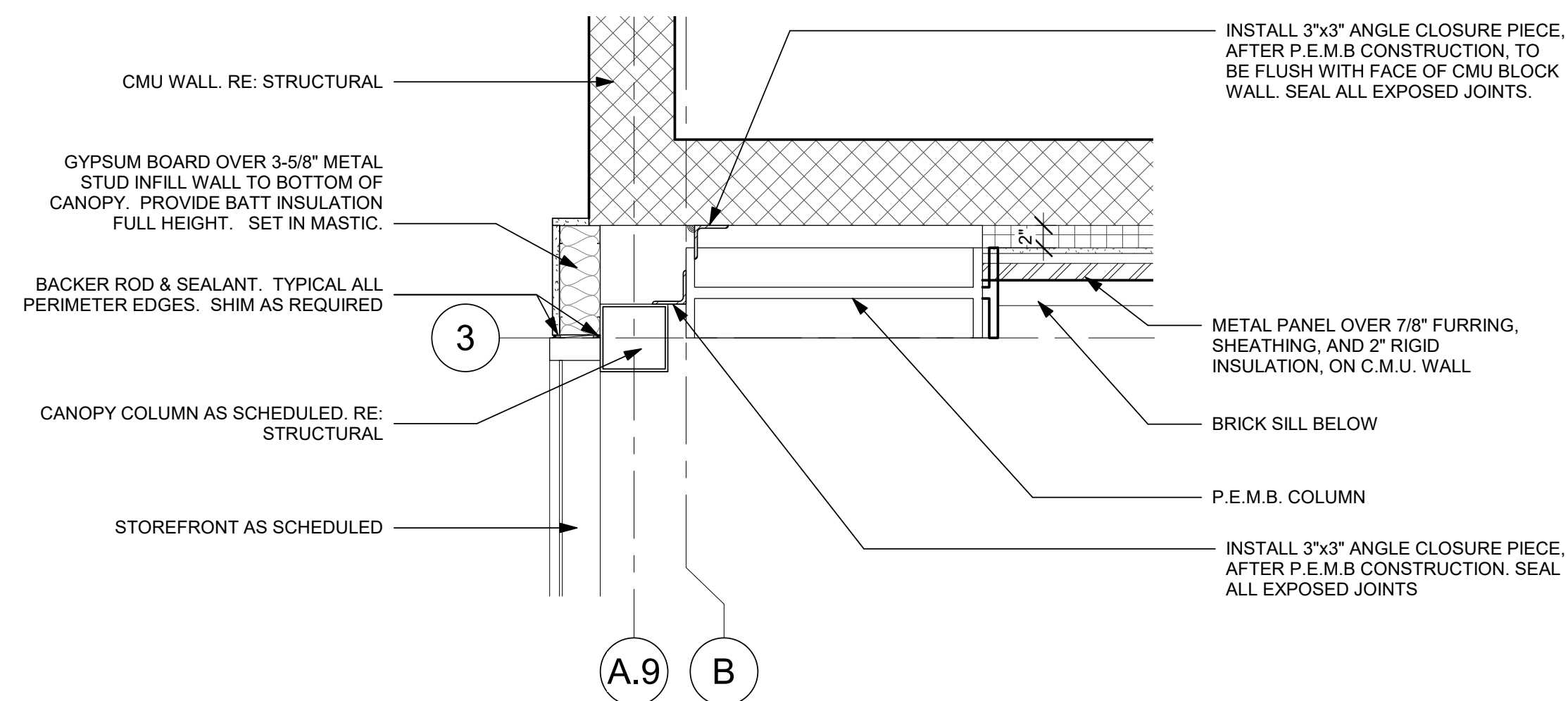
1A PLAN DETAIL -LOW
SCALE: 1" = 1'-0"



1 PLAN DETAIL MID
SCALE: 1" = 1'-0"



2 PLAN DETAIL HIGH
SCALE: 1" = 1'-0"



3 ENLARGED PLAN DETAIL
SCALE: 1" = 1'-0"



ENTIRE SHEET RESISSUED AS PART OF THIS ADDENDUM.

SITE AMENITIES

STEEL BOLLARD - SEE DETAIL

CUBE BENCH - PRECAST CONCRETE BENCHES @ VARYING HEIGHTS - BASIS OF DESIGN TF5119 WAUSAU MADE
COLOR: A20 WHITE



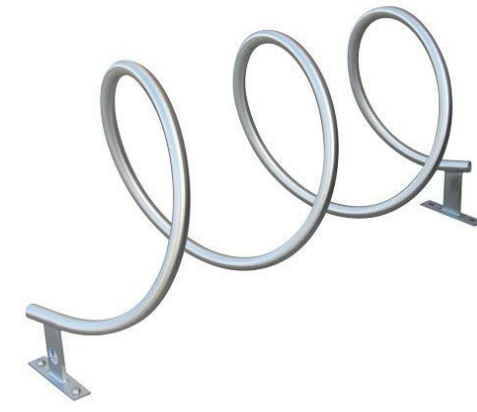
PRECAST CONCRETE BENCH - BASIS OF DESIGN TF5021 FROM WAUSAU MADE
COLOR: A20 WHITE



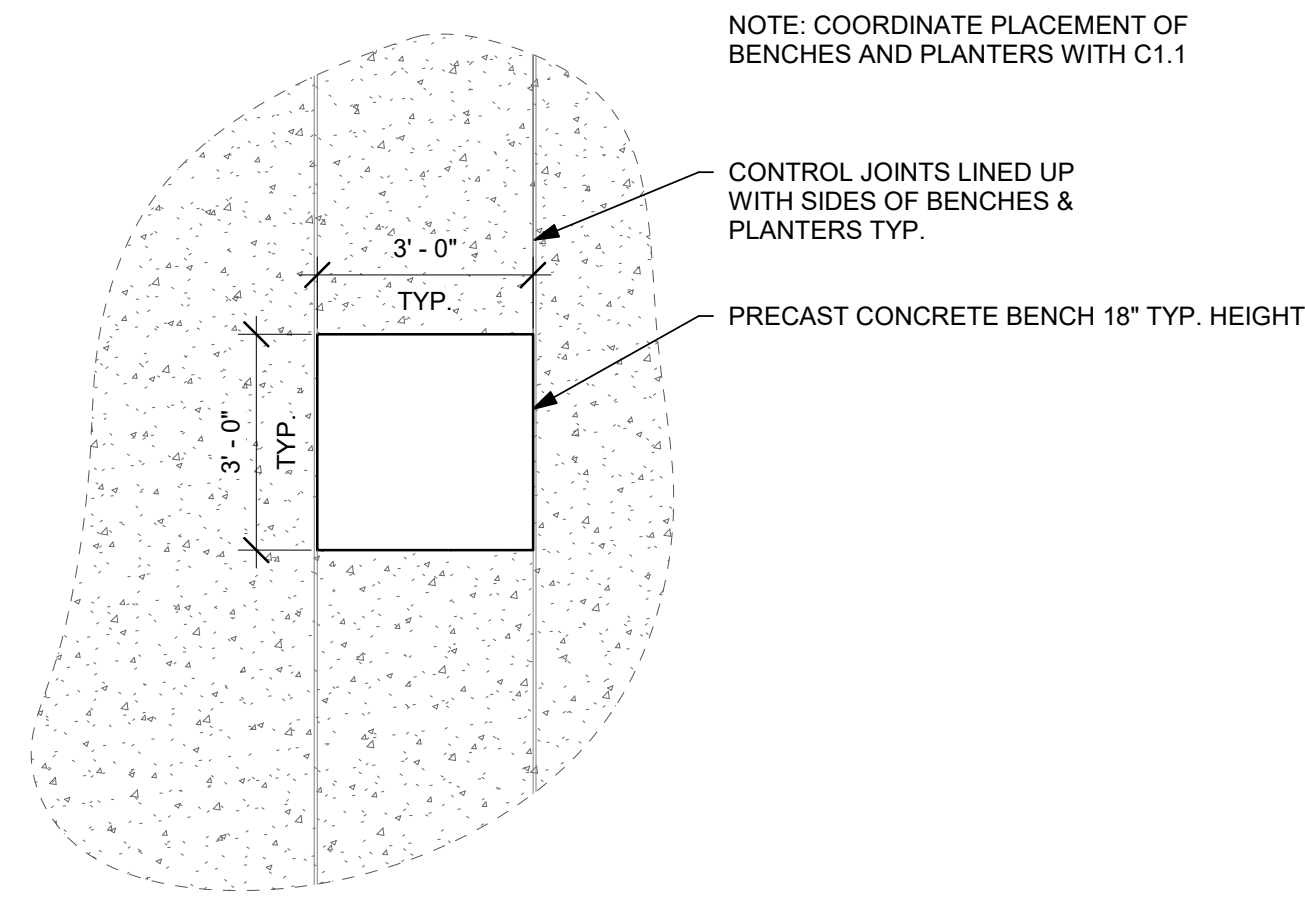
CUBE PLANTER - PRECAST CONCRETE CUBE PLANTER. BASIS OF DESIGN KORNEGAY DESIGN ASPECT SERIES SIZE: 36" x 36" HEIGHTS: 12", 21" 30"
COLOR: TBD



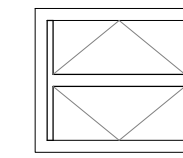
BIKE RACK (SPIRAL) - BASIS OF DESIGN "HELIX RACK" FROM DERO
COLOR: TBD



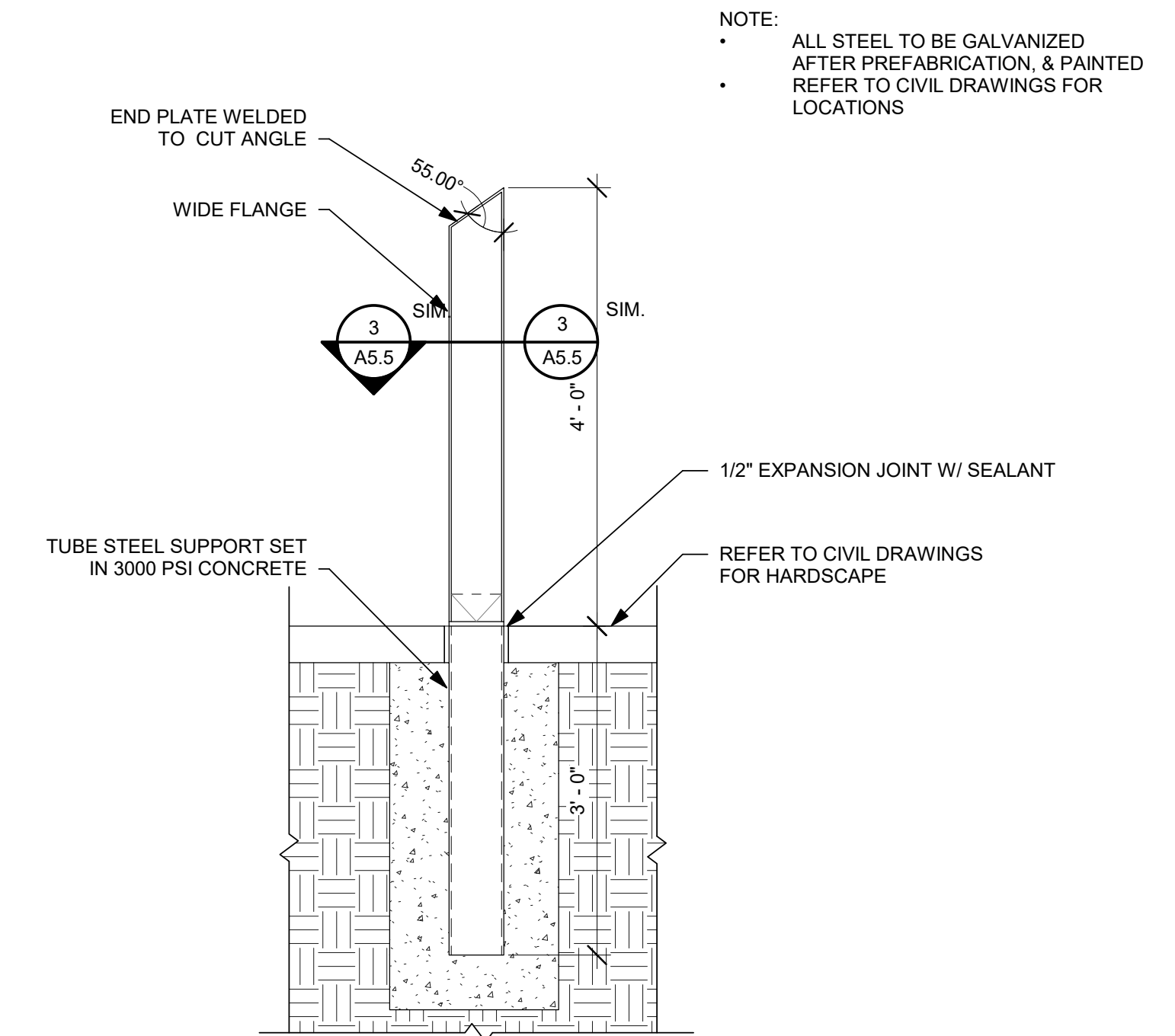
GUARD RAIL (DODDS & E 37TH ST) SEE DETAIL 2



4 CONCRETE BENCH TYPICAL PATTERN
SCALE: 3/8" = 1'-0"



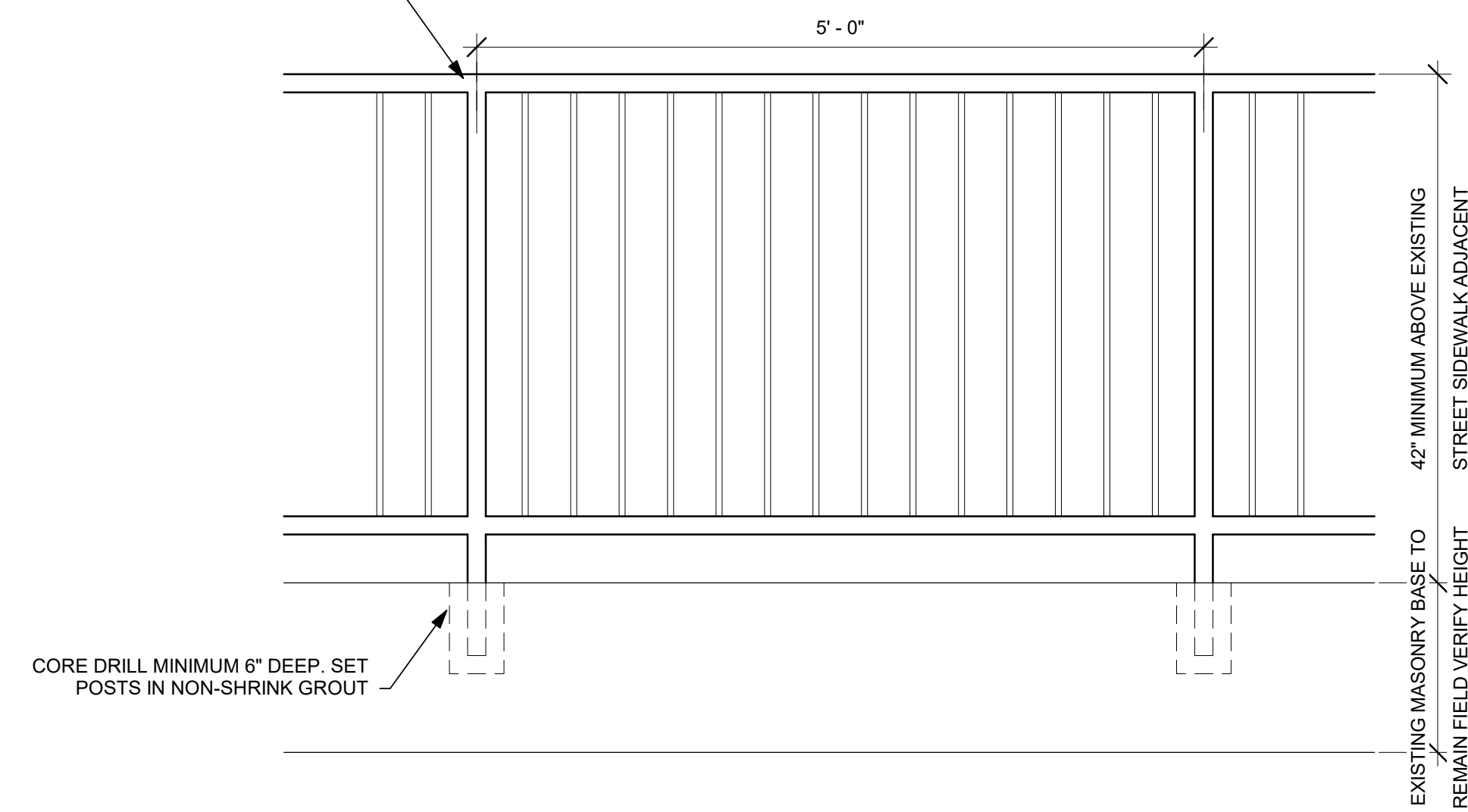
3 STEEL BOLLARD SECTION
SCALE: 1 1/2" = 1'-0"



1 STEEL BOLLARD DETAIL
SCALE: 3/4" = 1'-0"

PAINTED - COLOR TBD

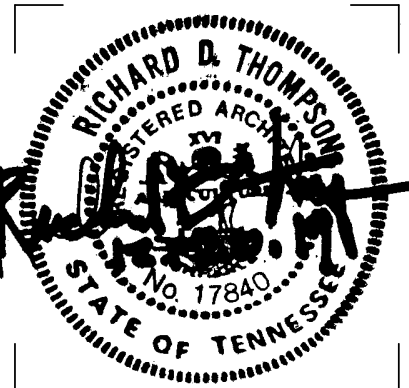
1 1/2" SQUARE STUD TUBE W/ 1/2" SQUARE SOLID PICKETS SPACED 4" O.C.

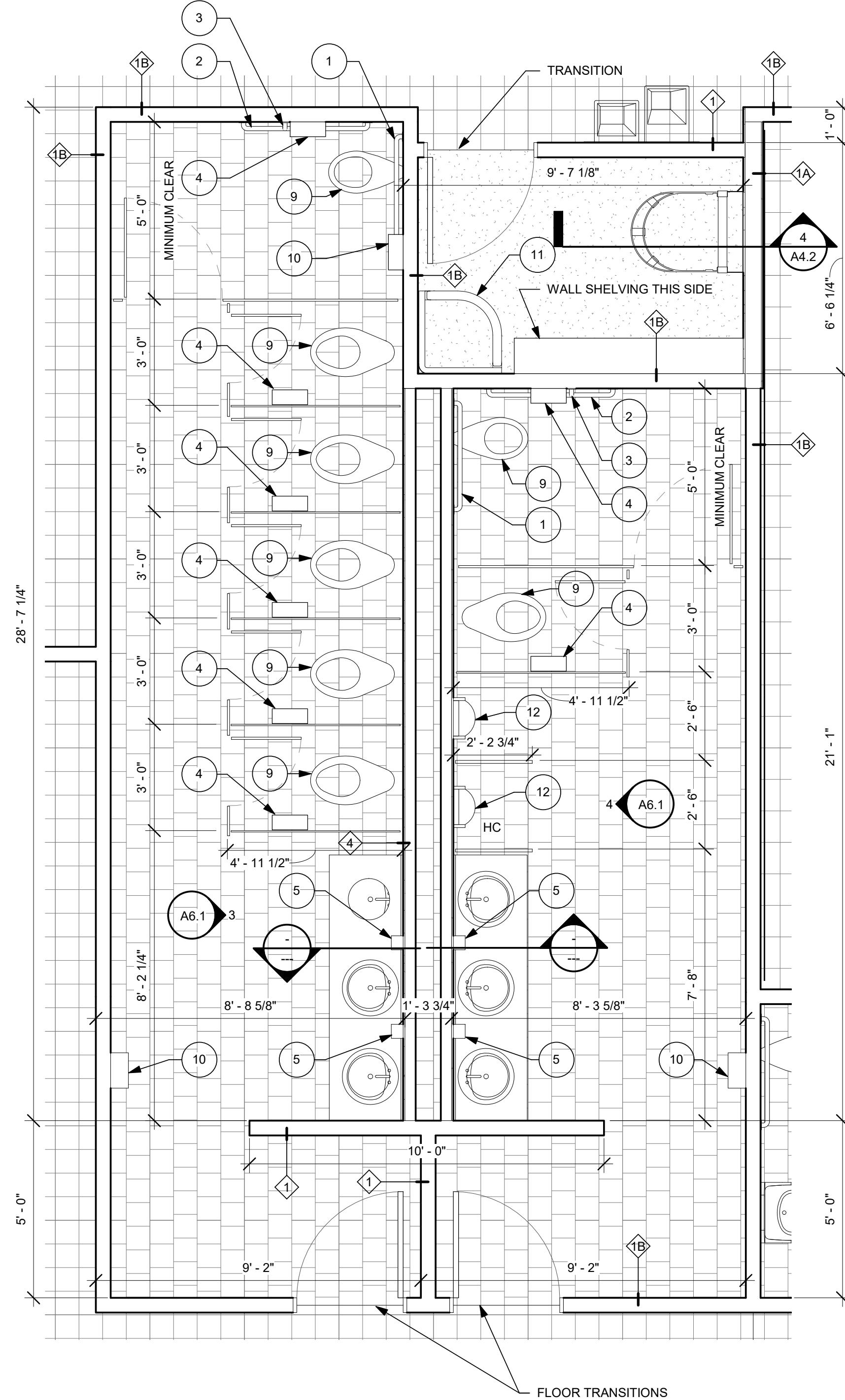


2 TYPICAL GUARD DETAIL
SCALE: 1" = 1'-0"

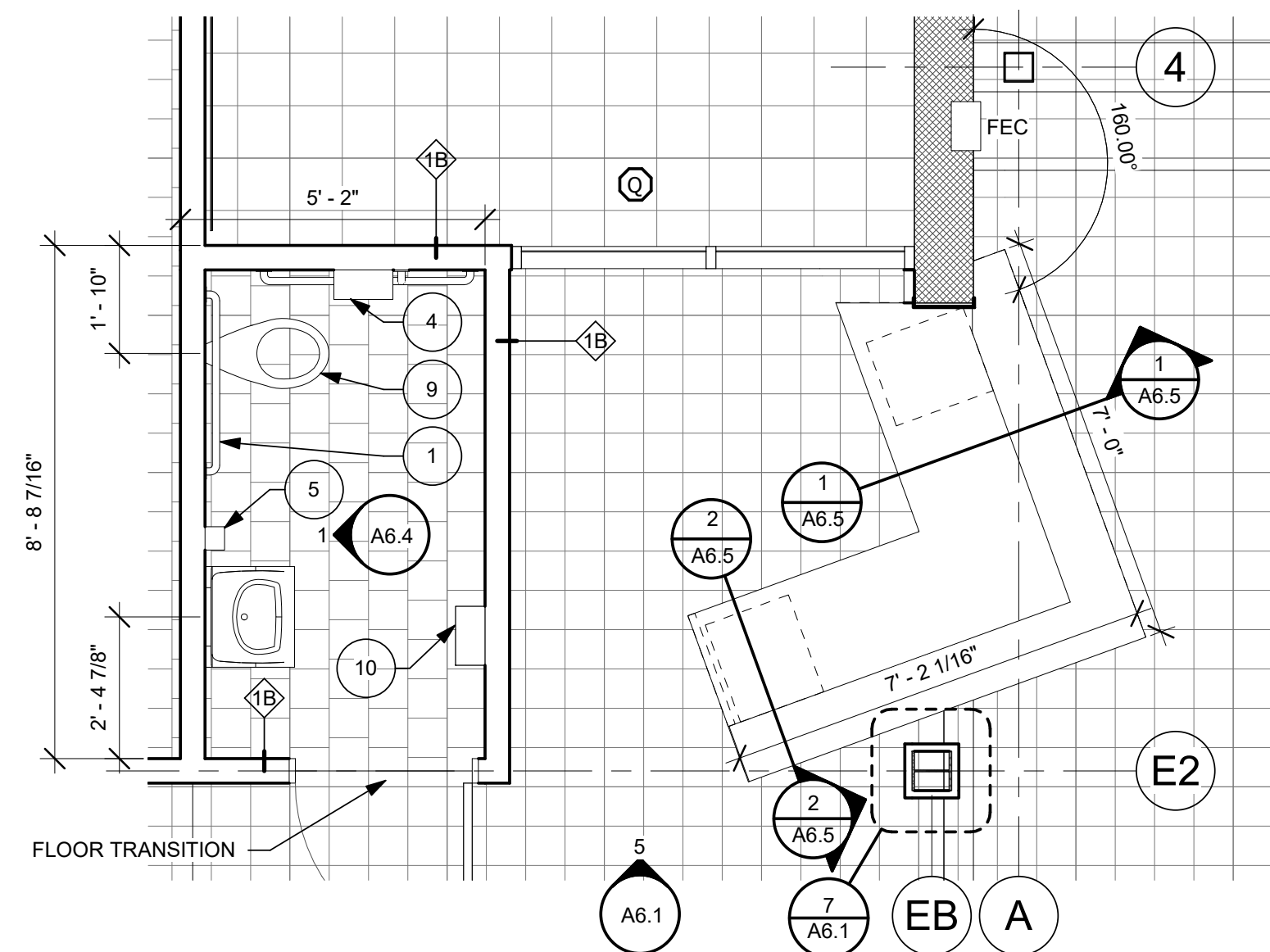
NOTE: ALL STEEL TO BE GALVANIZED AFTER PREFABRICATION, & PAINTED REFER TO CIVIL DRAWINGS FOR LOCATIONS

ENTIRE SHEET REISSUED AS PART OF THIS ADDENDUM.

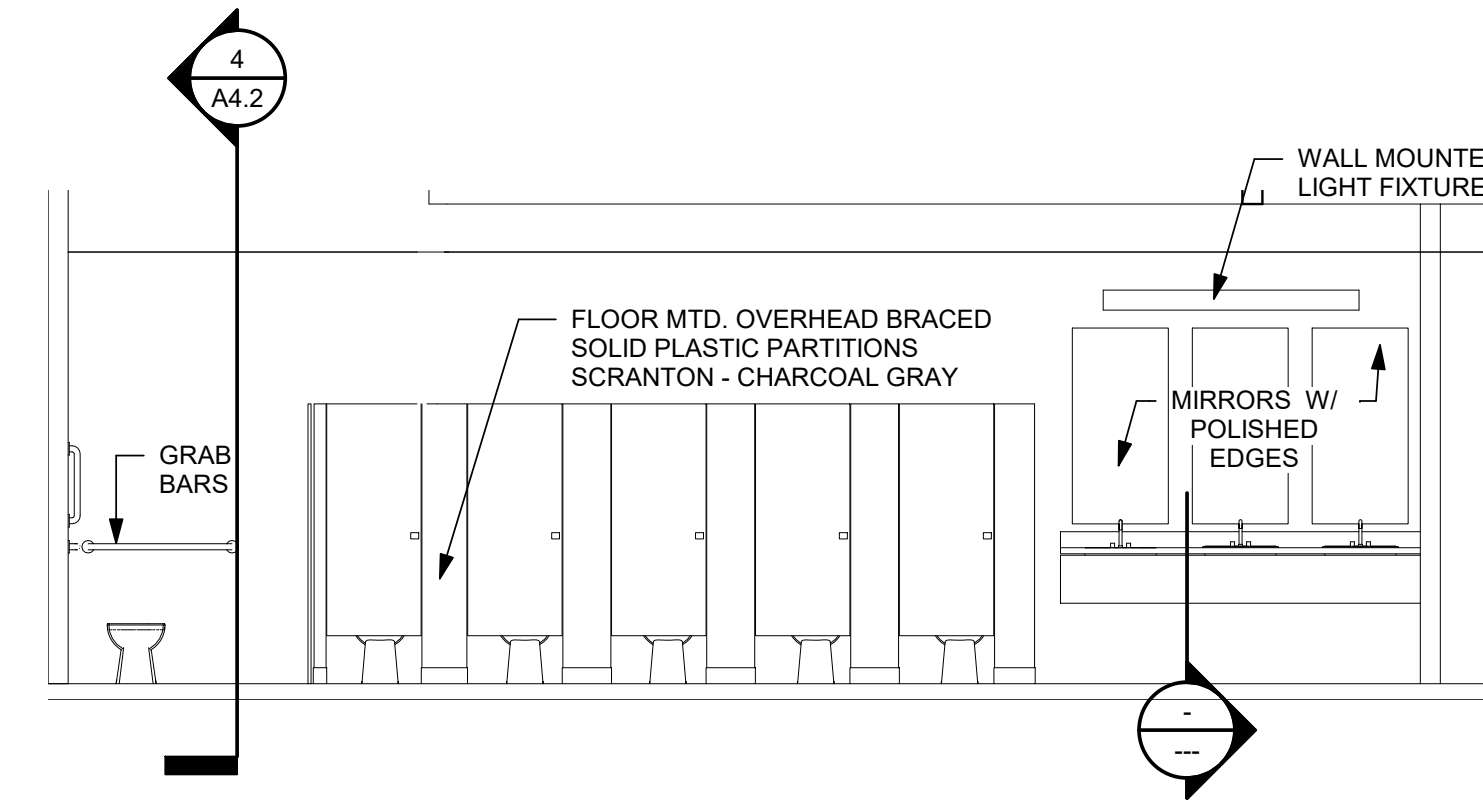




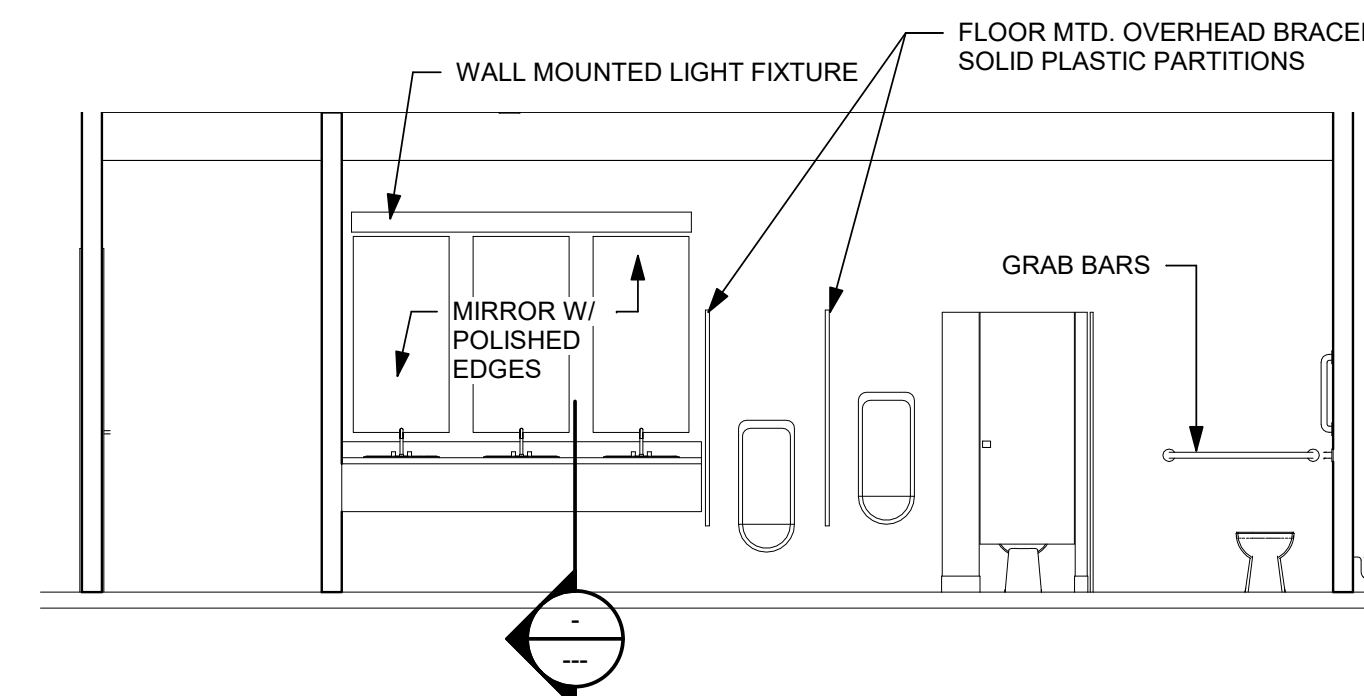
1 RESTROOMS PLAN
SCALE: 3/8" = 1'-0"



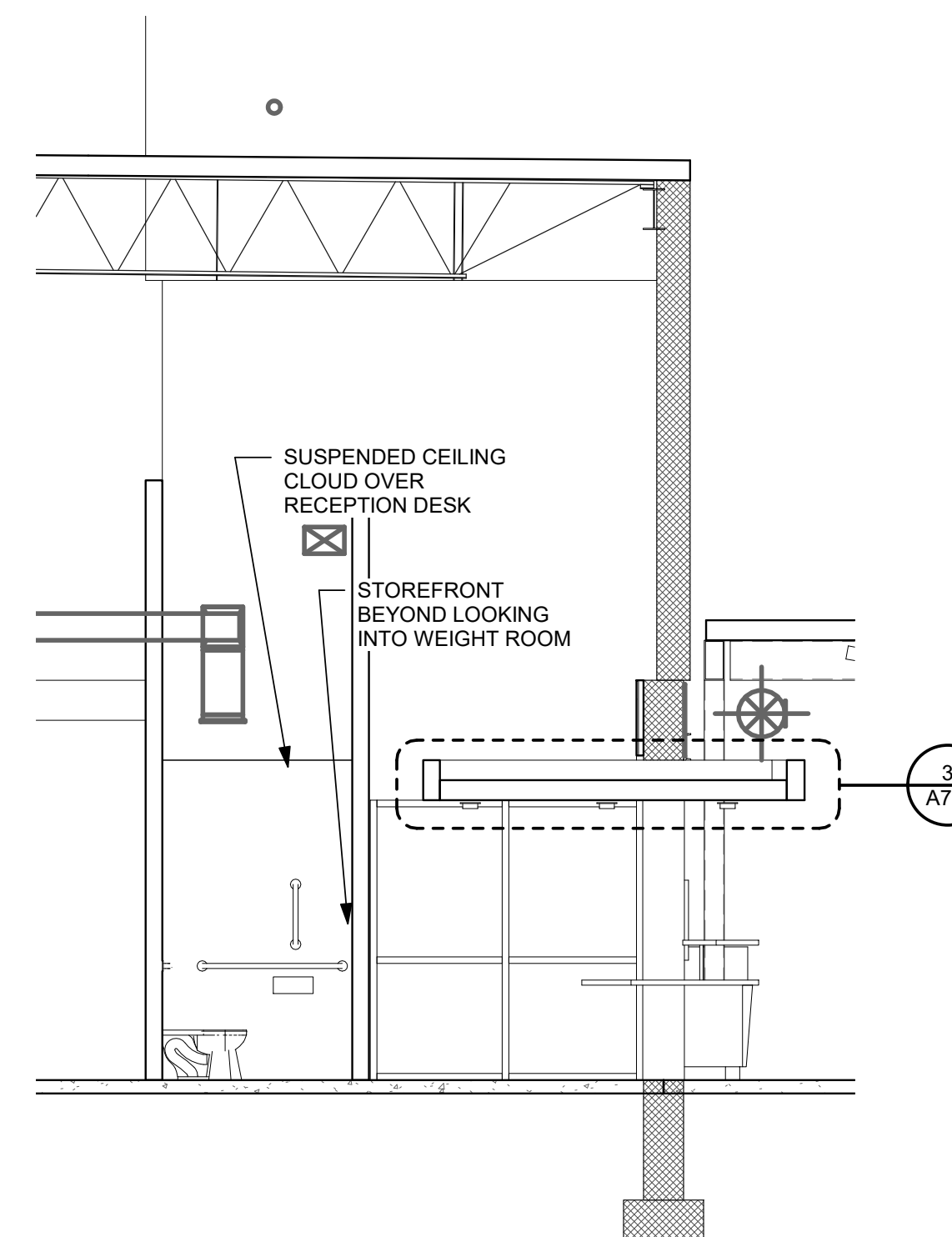
2 RECEPTION DESK PLAN
SCALE: 3/8" = 1'-0"



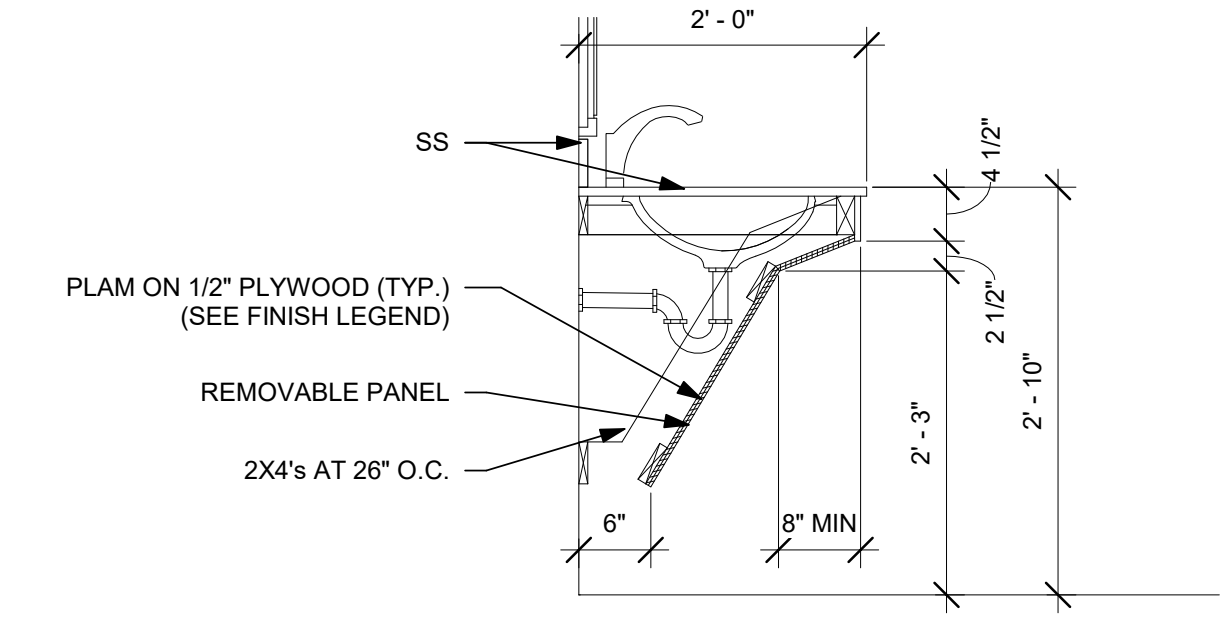
3 WOMEN'S RESTROOM
SCALE: 1/4" = 1'-0"



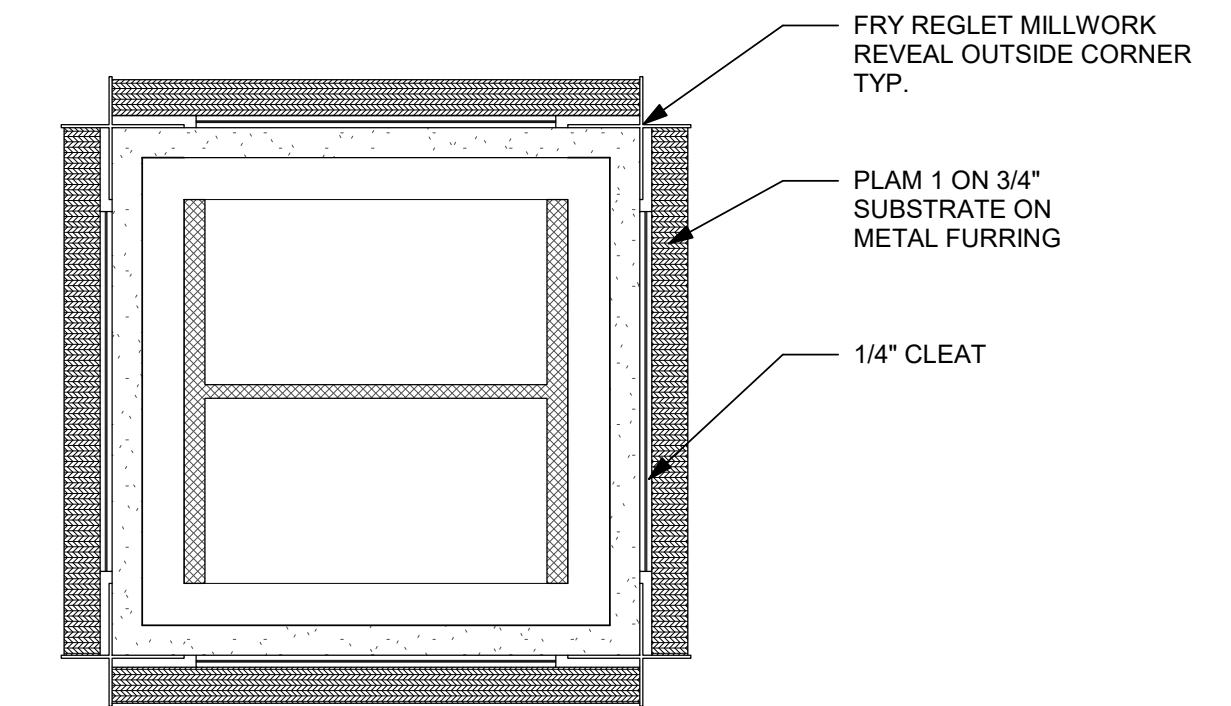
4 MEN'S RESTROOM
SCALE: 1/4" = 1'-0"



5 RECEPTION ELEVATION
SCALE: 1/4" = 1'-0"



6 SECTION (ADA VANITY)
SCALE: 3/4" = 1'-0"

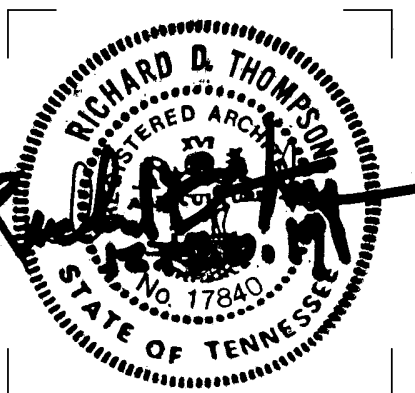


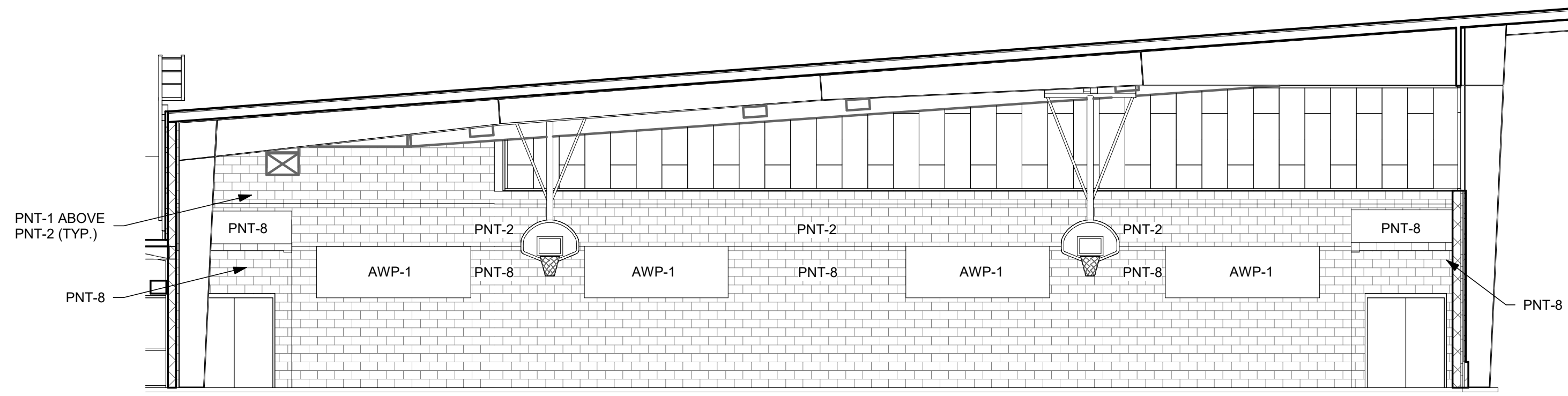
7 EXISTING COLUMN WRAP DETAIL
SCALE: 3" = 1'-0"

TOILET ACCESSORIES

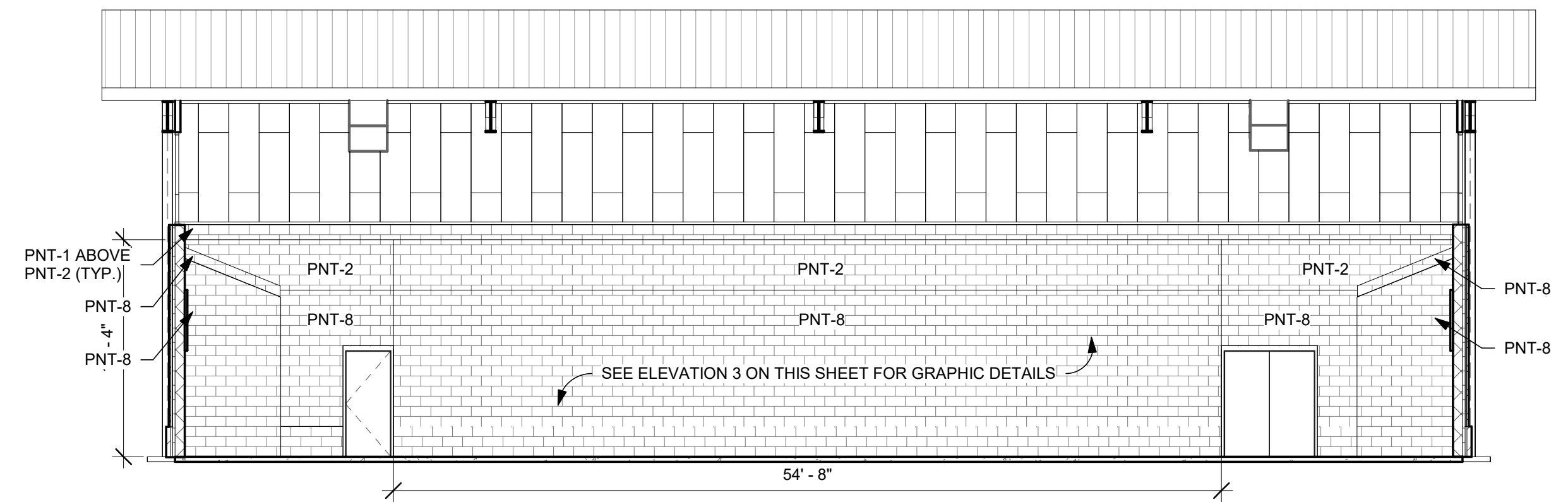
- 1 GRAB BAR 36"
- 2 GRAB BAR 42"
- 3 GRAB BAR 18"
- 4 DUEL ROLL TOILET PAPER DISPENSER
- 5 SOAP DISPENSER
- 6 MIRROR W/ POLISHED EDGES
- 7 NOT USED
- 8 NOT USED
- 9 TOILET - SEE PLUMBING DRAWINGS
- 10 SANITARY NAPKIN DISPENSER
- 11 MOP SINK - SEE PLUMBING
- 12 URINAL - SEE PLUMBING

ENTIRE SHEET RESISSUED AS PART OF THIS ADDENDUM.

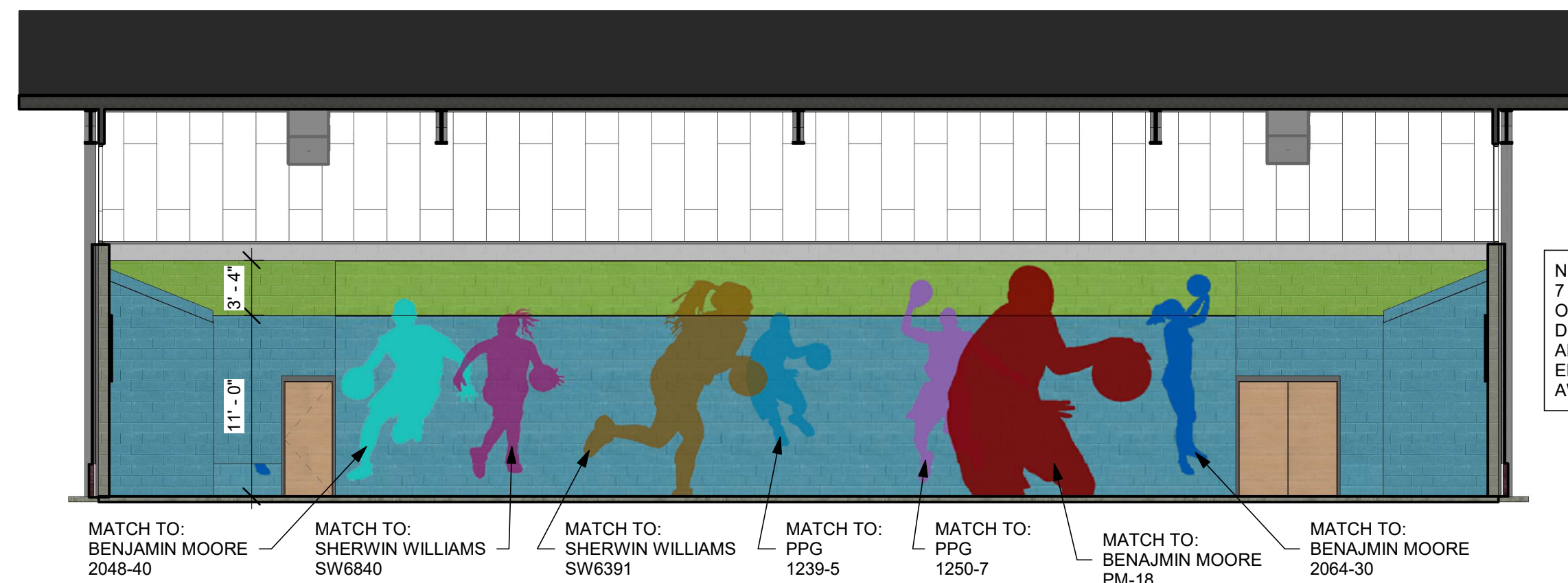




1 GYM 102 LOOKING EAST (WEST SIM. OPP. HAND)
SCALE: 1/8" = 1'-0"

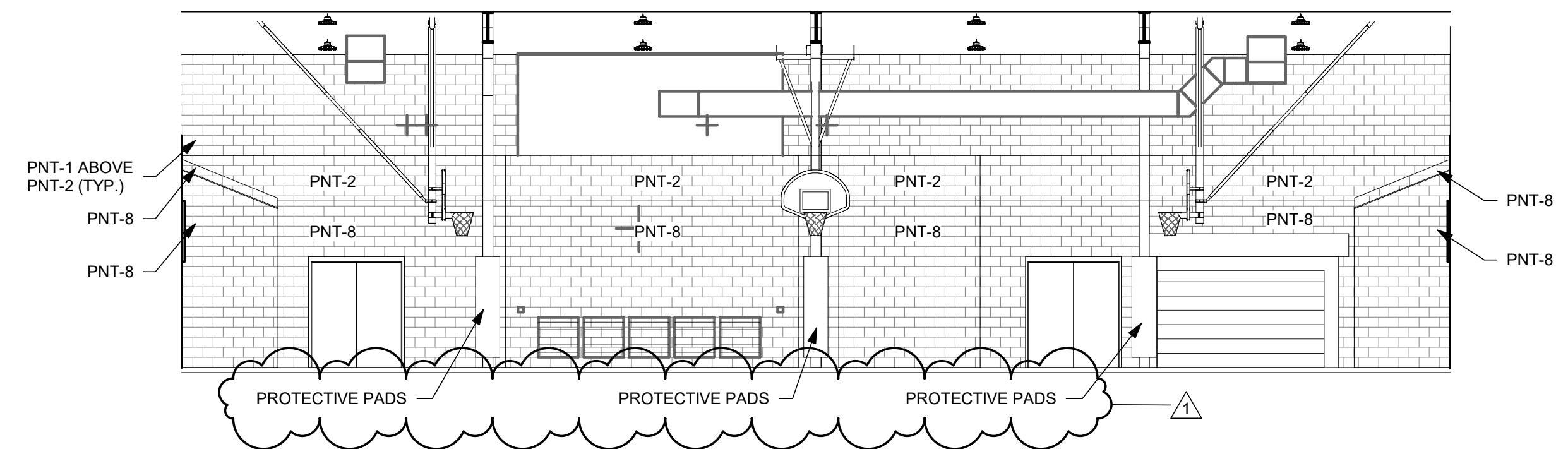


2 GYM 102 LOOKING SOUTH
SCALE: 1/8" = 1'-0"

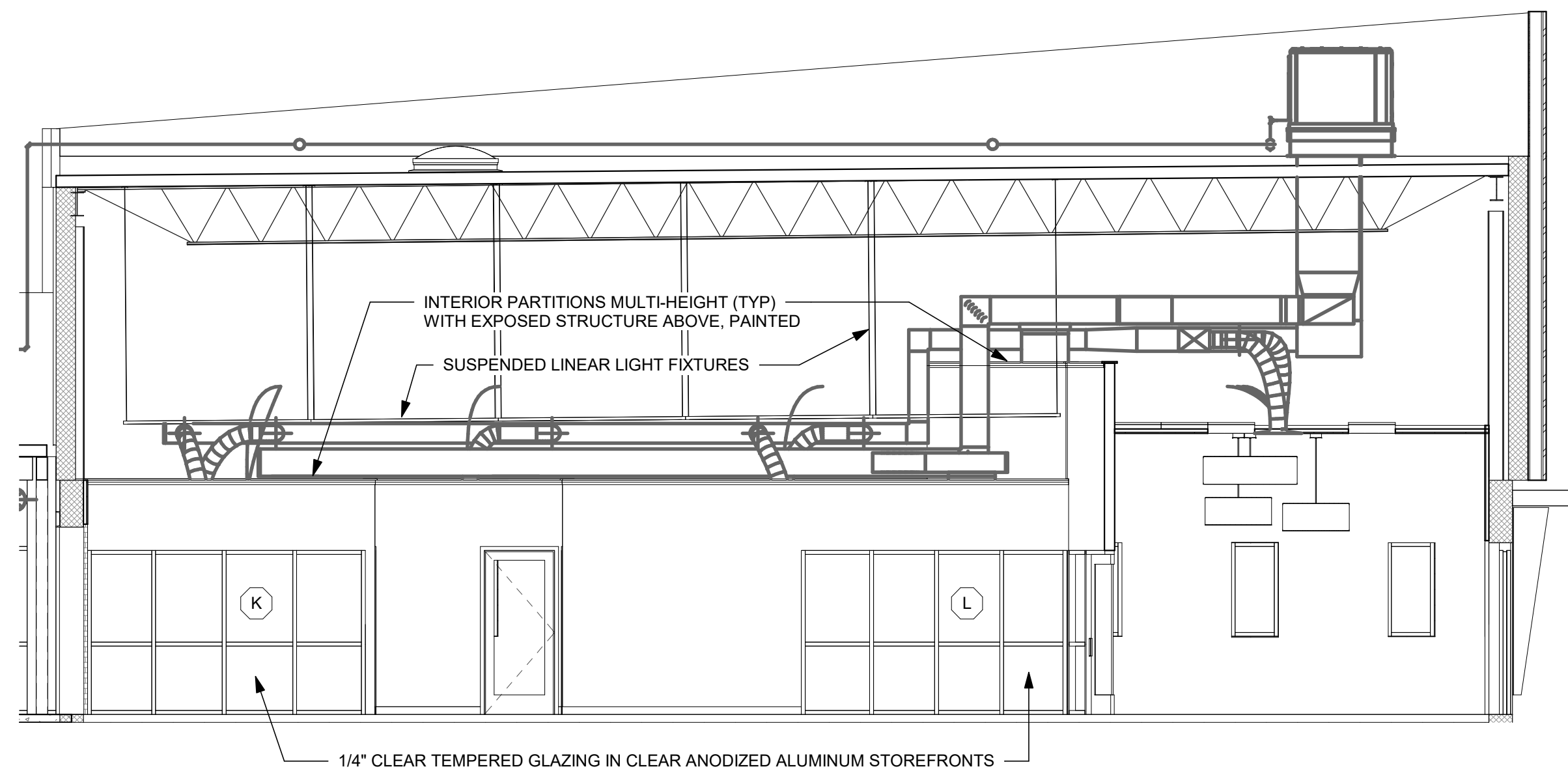


NOTE:
7 COLOR WALL GRAPHIC,
OVERALL WALL DIMENSION BETWEEN
DOORS IS APPROX. 14'-4" H X 52'-9" W.
ARCHITECT TO PROVIDE COLOR
ELEVATION W/ SCALE AND GRID AFTER
AWARDED BID.

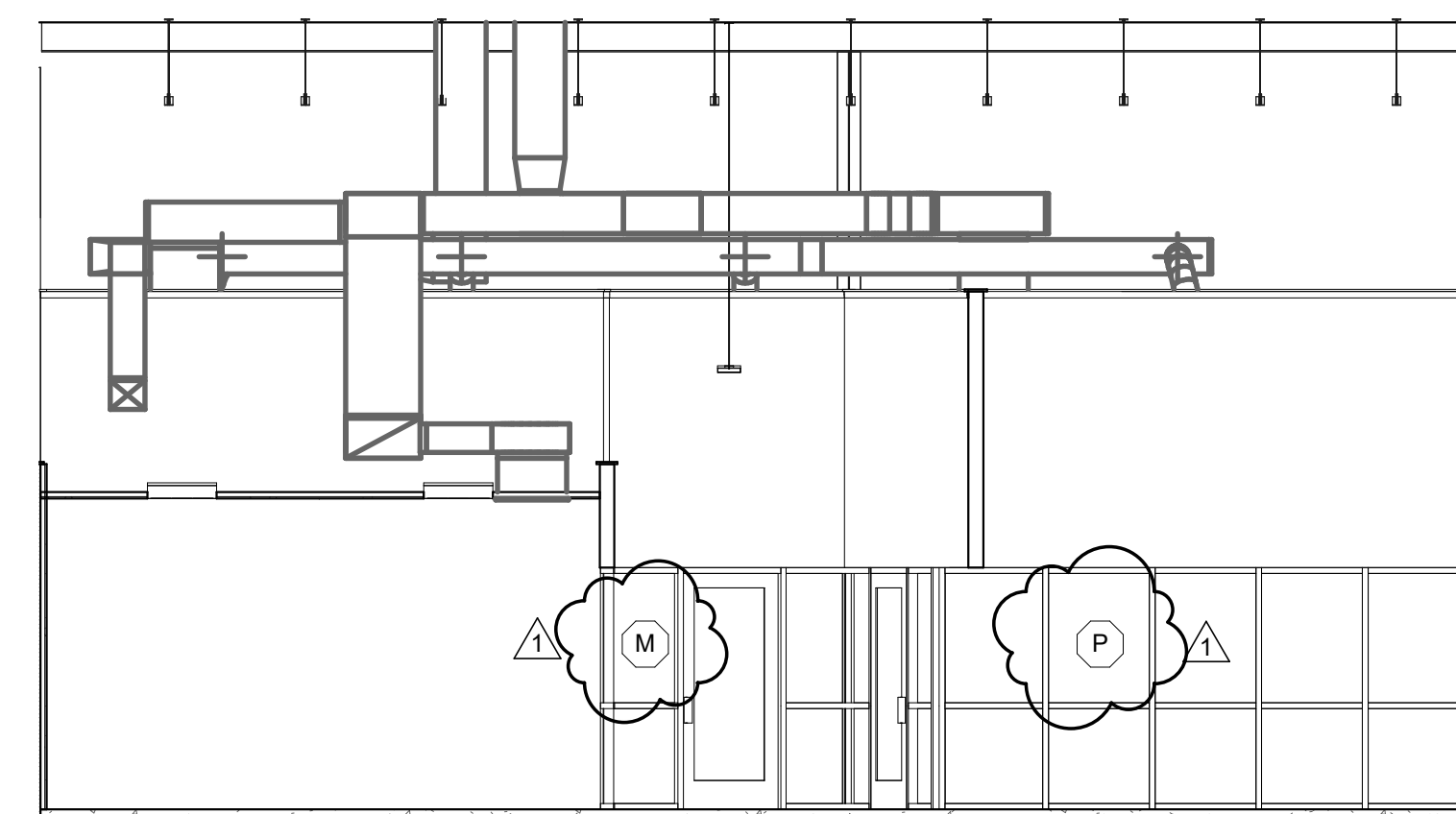
3 GYM 102 LOOKING SOUTH
SCALE: 1/8" = 1'-0"



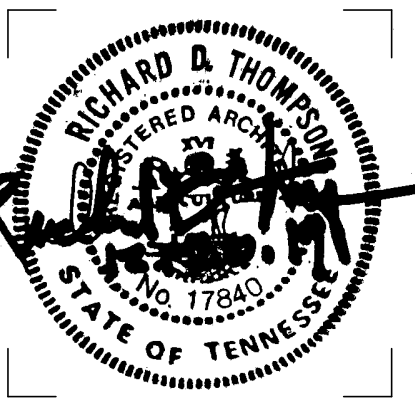
4 GYM 102 LOOKING NORTH
SCALE: 1/8" = 1'-0"



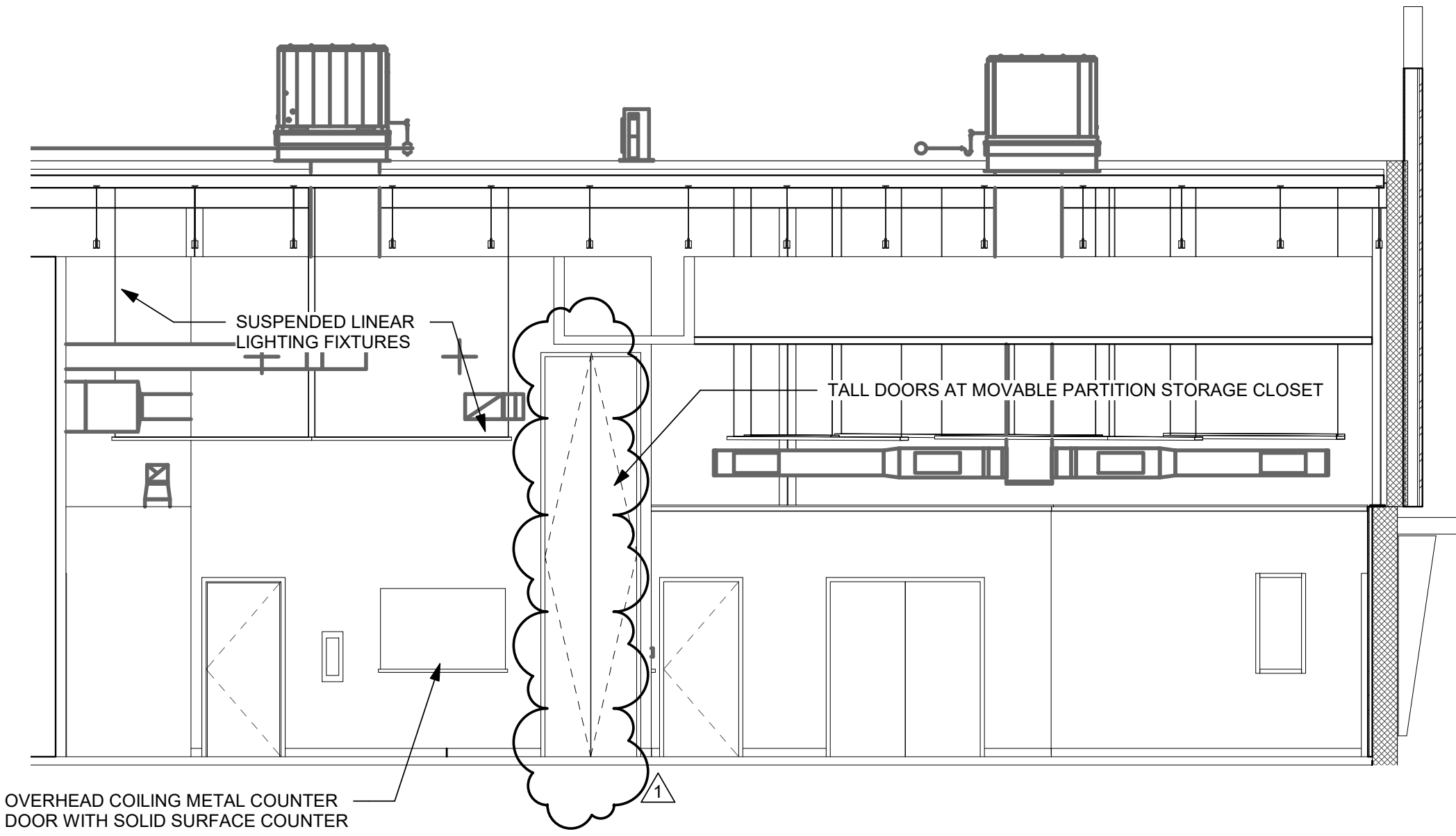
5 CORRIDOR 118 LOOKING SOUTH
SCALE: 3/16" = 1'-0"



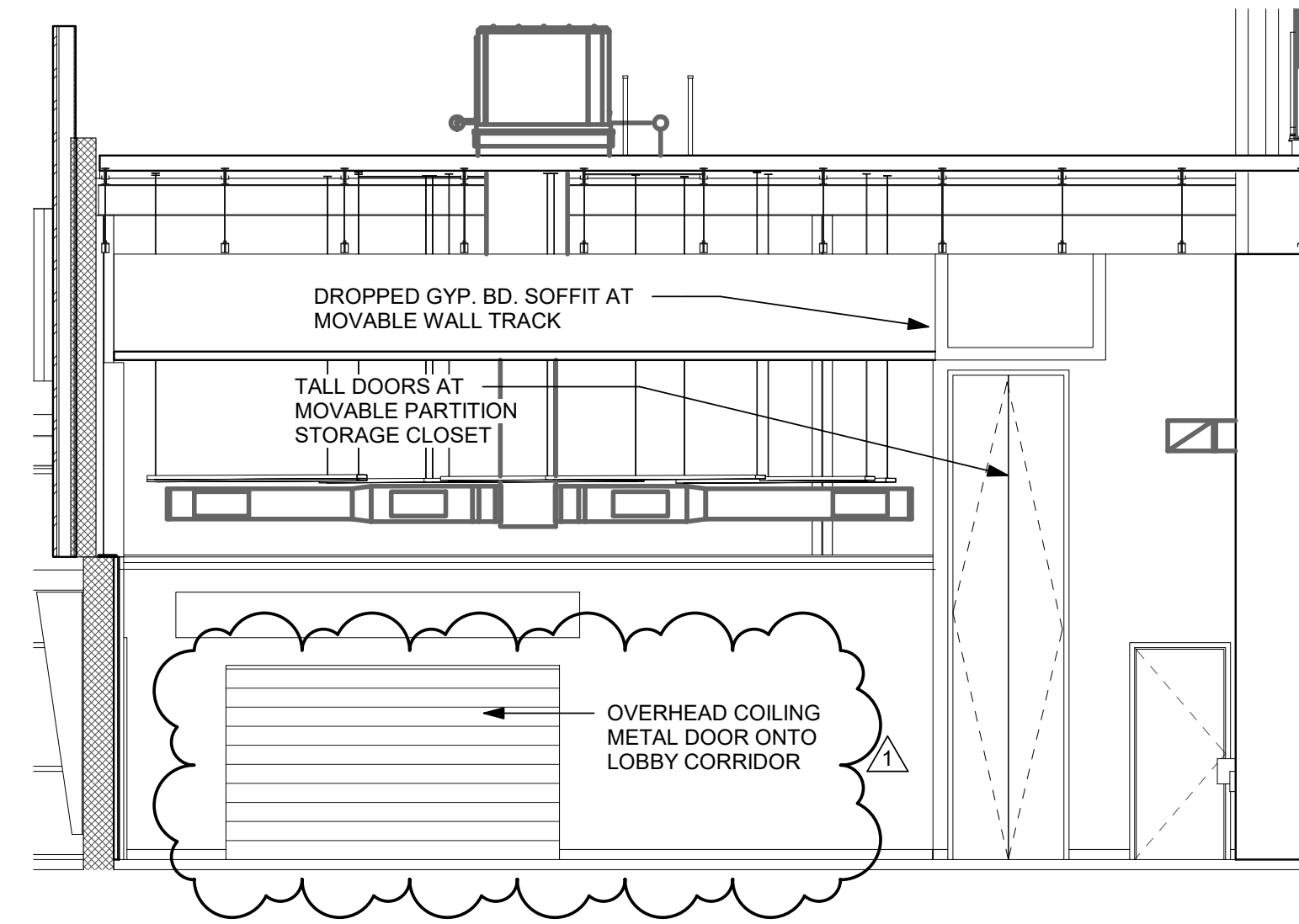
6 CORRIDOR 118 LOOKING WEST
SCALE: 3/16" = 1'-0"



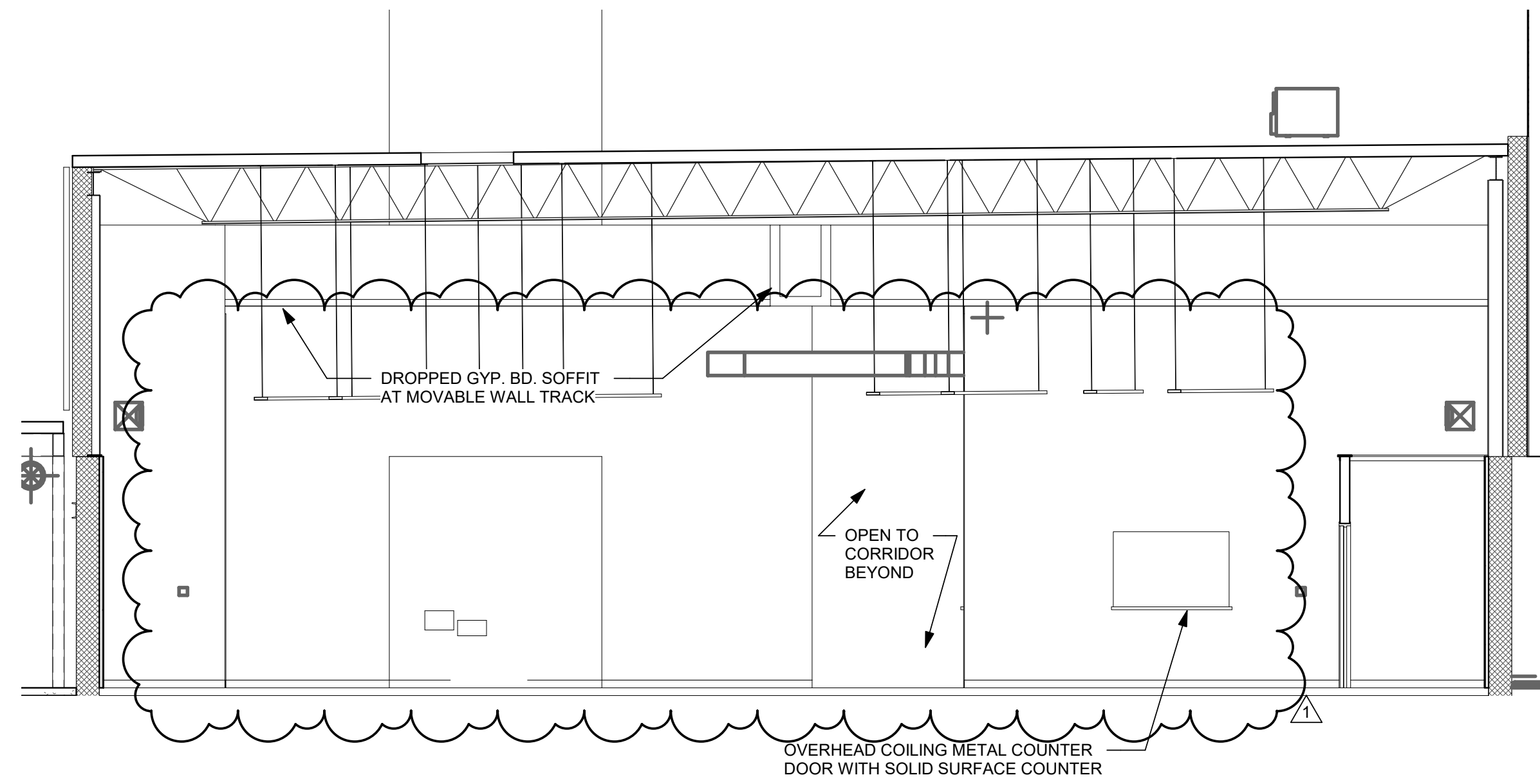
ISSUE DATES
INITIAL ISSUE 12-20-19
1 Addendum 4 01/10/2020



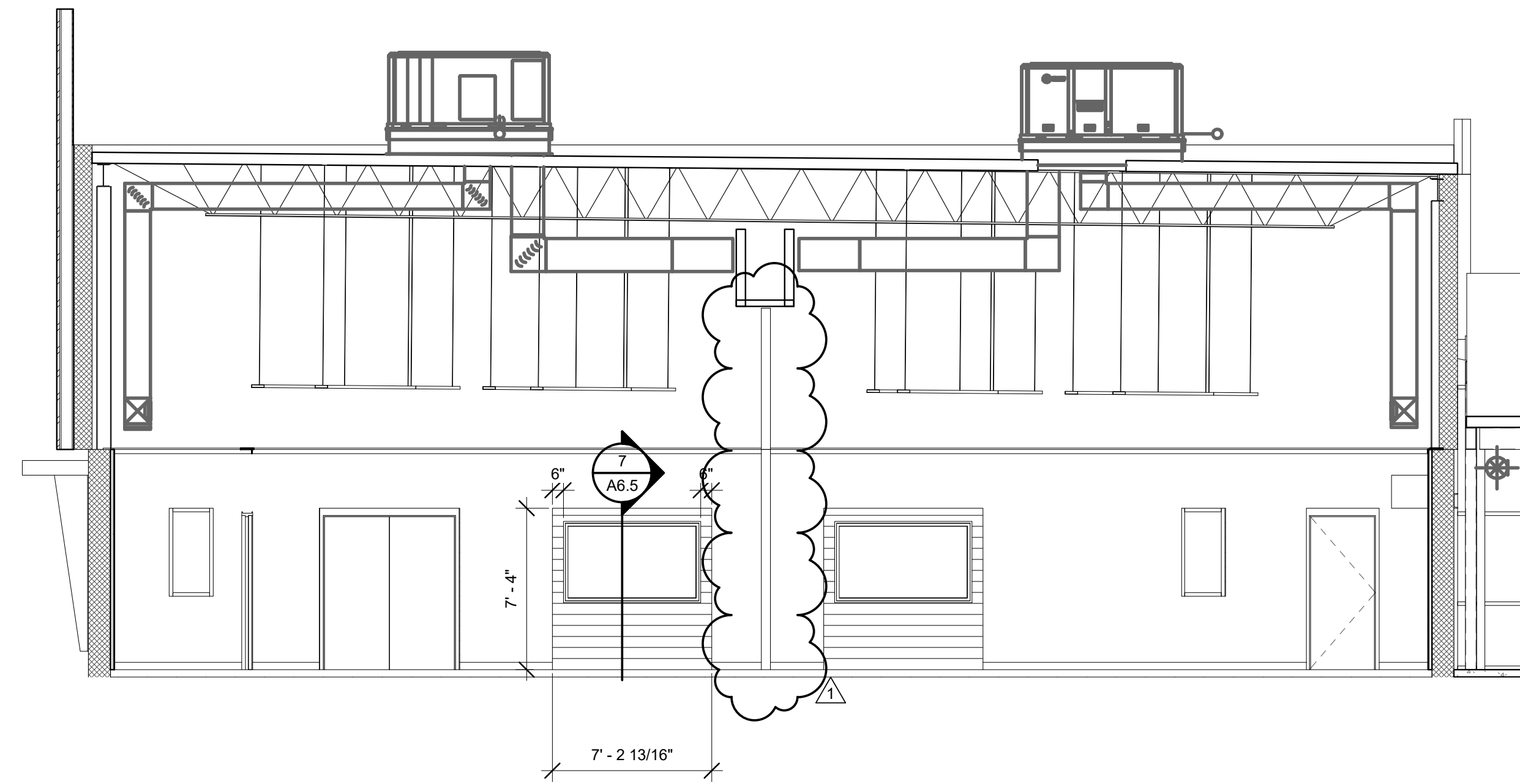
1 MULTI-PURPOSE ROOMS LOOKING NORTH
 SCALE: 3/16" = 1'-0"



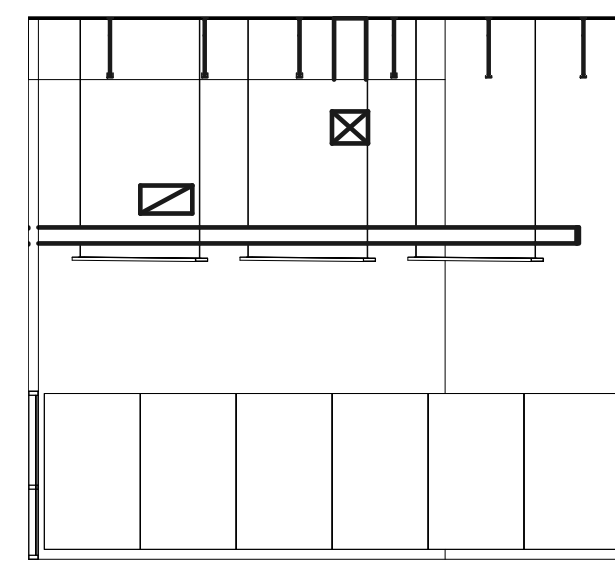
2 MULTI-PURPOSE ROOMS LOOKING SOUTH
 SCALE: 3/16" = 1'-0"



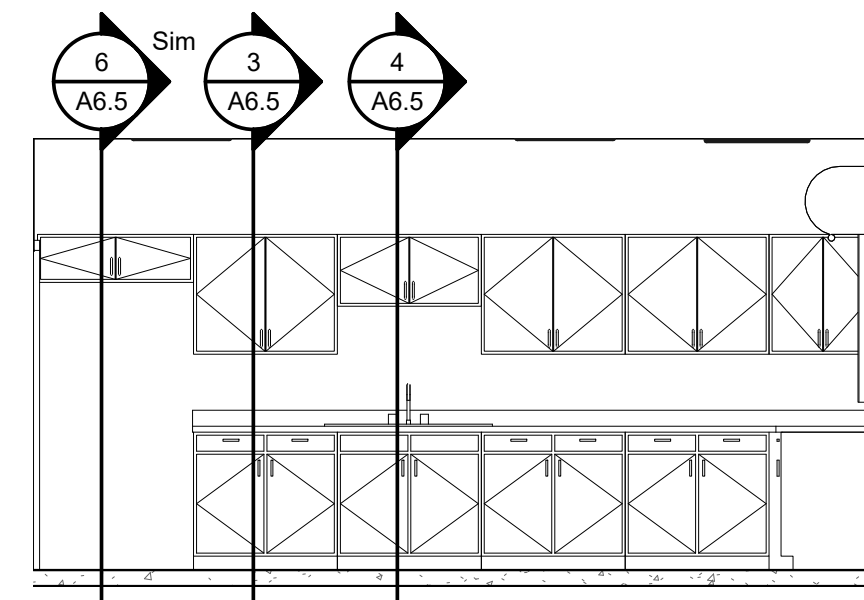
3 MULTI-PURPOSE ROOMS LOOKING WEST
 SCALE: 3/16" = 1'-0"



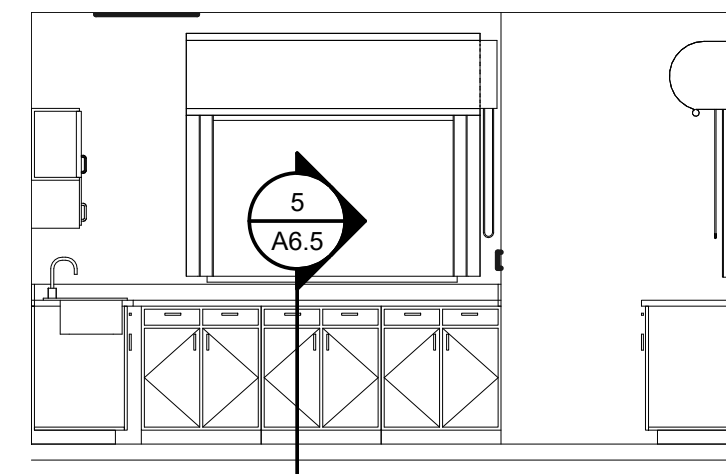
4 MULTI-PURPOSE ROOMS LOOKING EAST
 SCALE: 3/16" = 1'-0"



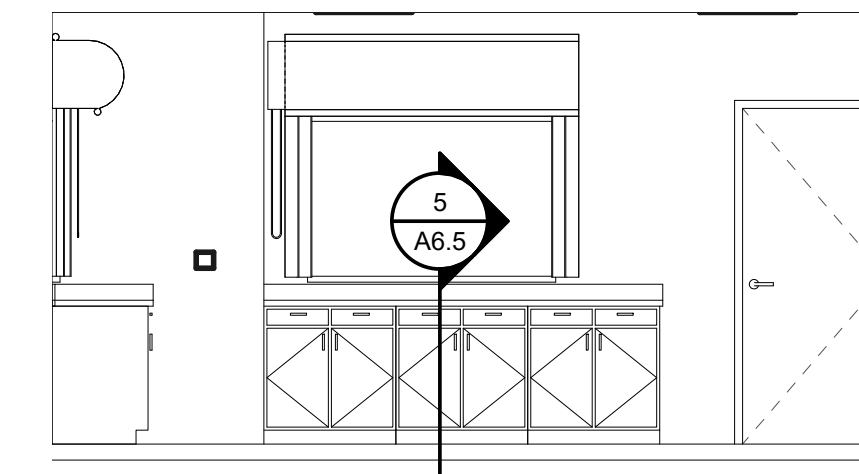
5 WEIGHTS 122
 SCALE: 1/8" = 1'-0"



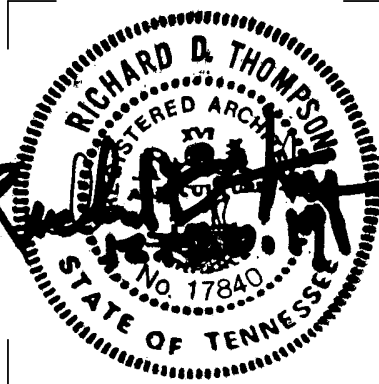
6 CATERING LOOKING NORTH
 SCALE: 1/4" = 1'-0"



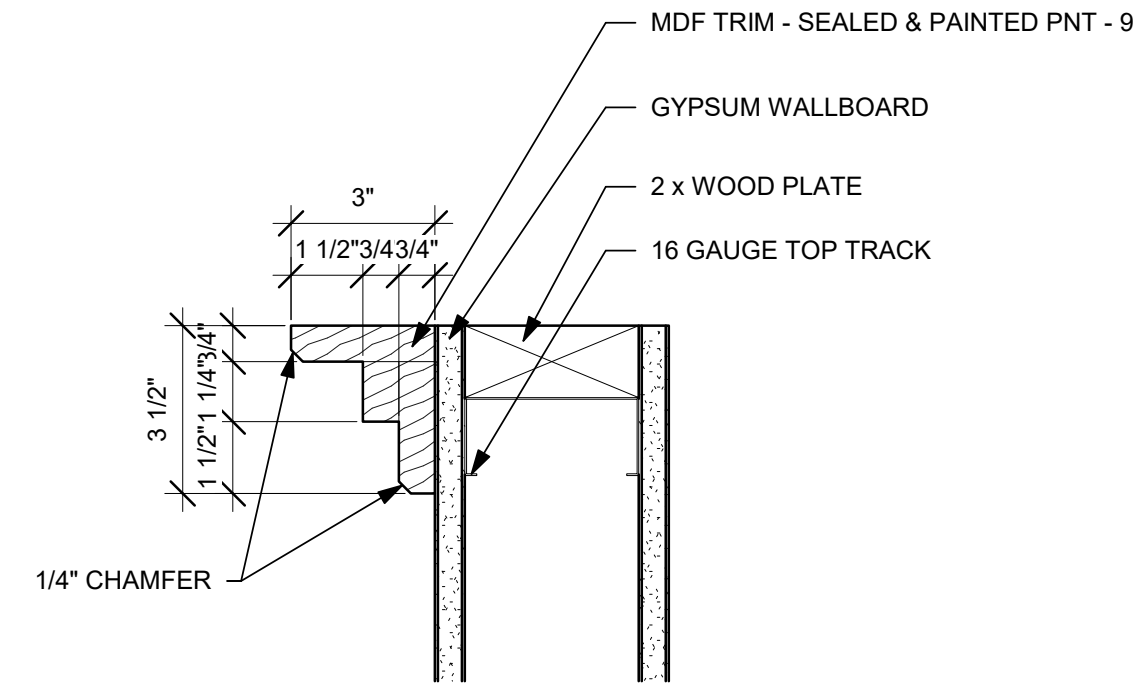
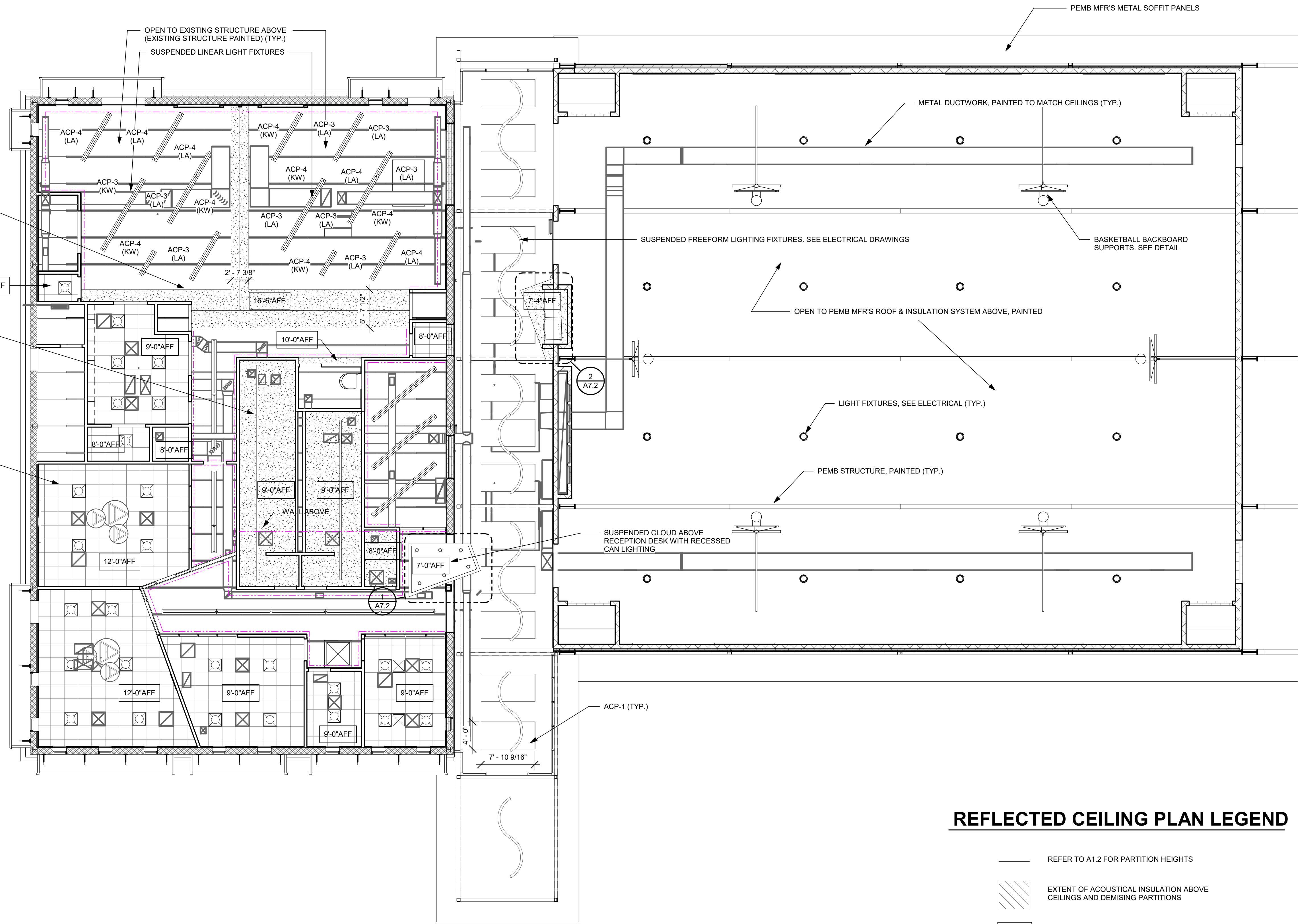
7 CATERING LOOKING EAST
 SCALE: 1/4" = 1'-0"



8 CATERING LOOKING SOUTH
 SCALE: 1/4" = 1'-0"



ISSUE DATES
 INITIAL ISSUE 12-20-19
 1 Addendum 4 01/10/2020



3 PARTITION CAP TRIM
 SCALE: 3" = 1'-0"

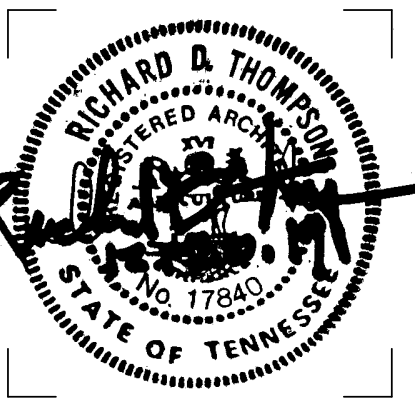
1 1ST FLOOR REFLECTED CEILING PLAN
 SCALE: 1/8" = 1'-0"



ENTIRE SHEET RESISSUED AS PART OF THIS ADDENDUM.

REFLECTED CEILING PLAN LEGEND

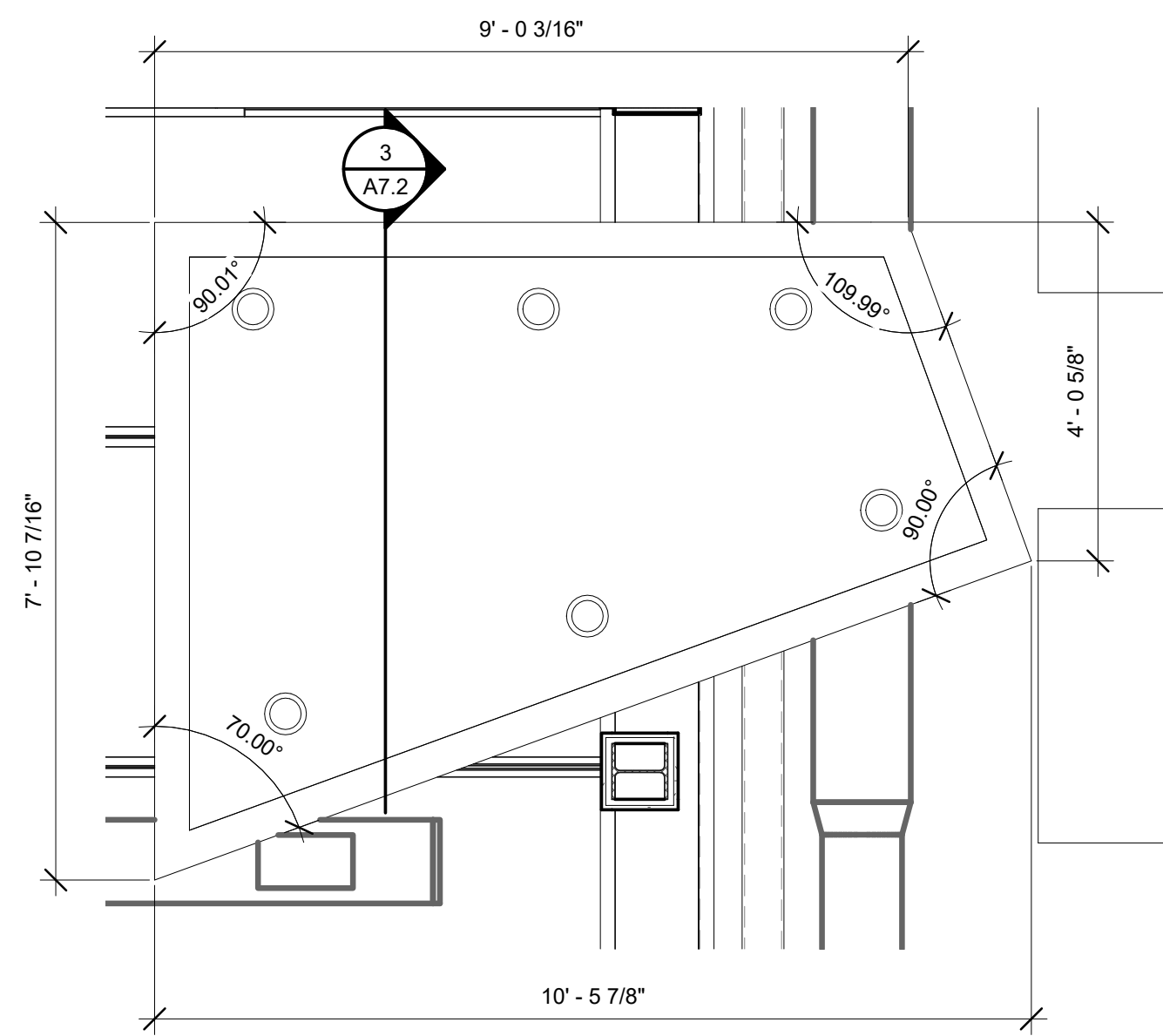
- REFER TO A1.2 FOR PARTITION HEIGHTS
- EXTENT OF ACOUSTICAL INSULATION ABOVE CEILINGS AND DEMISING PARTITIONS
- GYPSUM WALLBOARD CEILING
- 2' X 4' SUSPENDED ACOUSTICAL CEILING SYSTEM
- 2' X 2' SUSPENDED ACOUSTICAL CEILING SYSTEM
- 2' X 4' LIGHTING FIXTURE
- 1' X 4' LIGHTING FIXTURE OR PENDANT FIXTURE
- 4' STRIP LIGHT FIXTURE
- RECESSED CAN LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- SUPPLY DIFFUSER
- RETURN DIFFUSER
- SPRINKLER HEAD (CENTER WITHIN PANEL) SEE FIRE PROTECTION DRAWINGS
- WALL CAP SIDE DICTATION



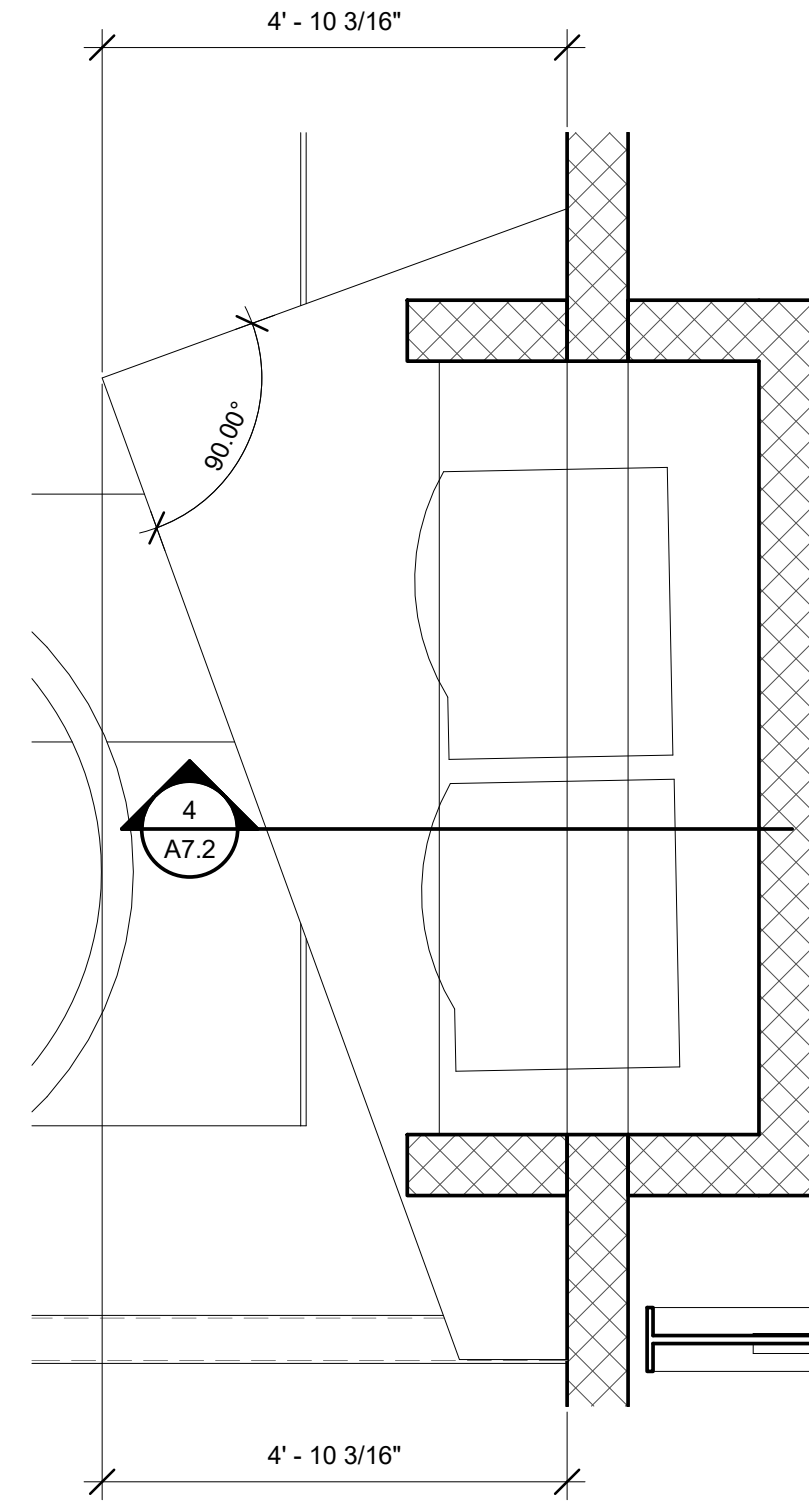
ISSUE DATES
 INITIAL ISSUE 12-20-19
 1 Addendum 4 01/10/2020

JOB NO. 18-072 | D'WN BL | CK'D MW

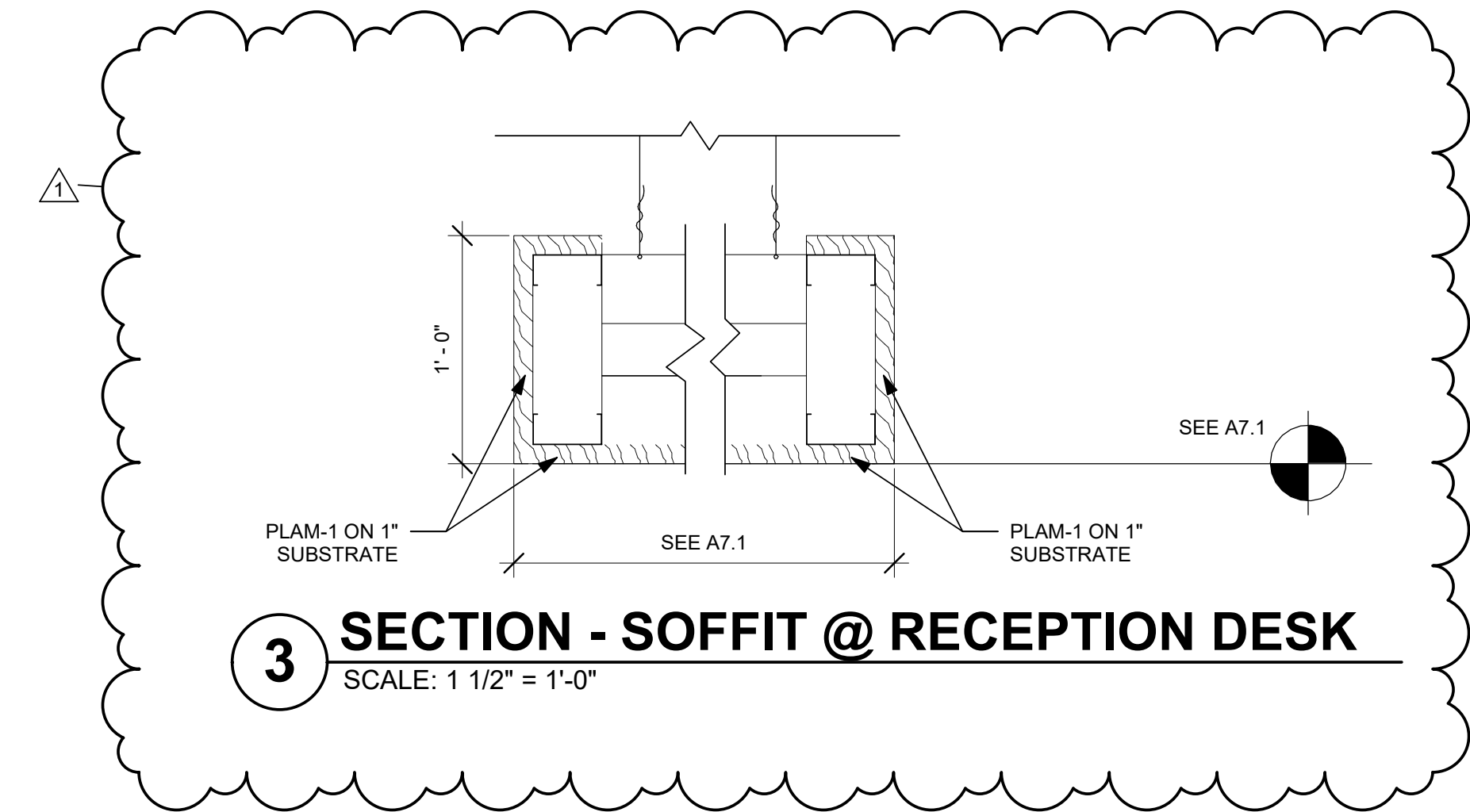
A7.1
 REFLECTED CEILING PLAN



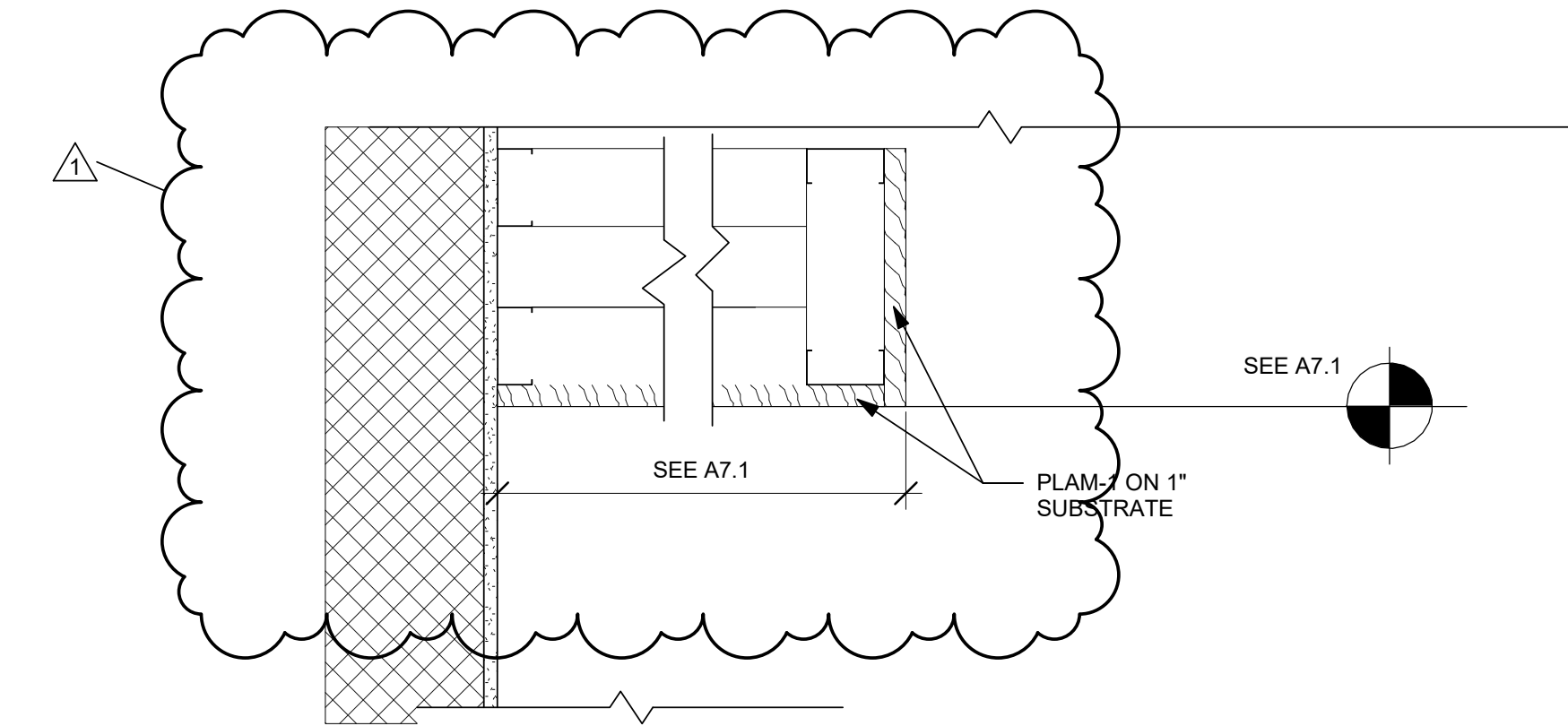
1 ENLARGED PLAN - SOFFIT @ RECEPTION DESK
SCALE: 1/2" = 1'-0"



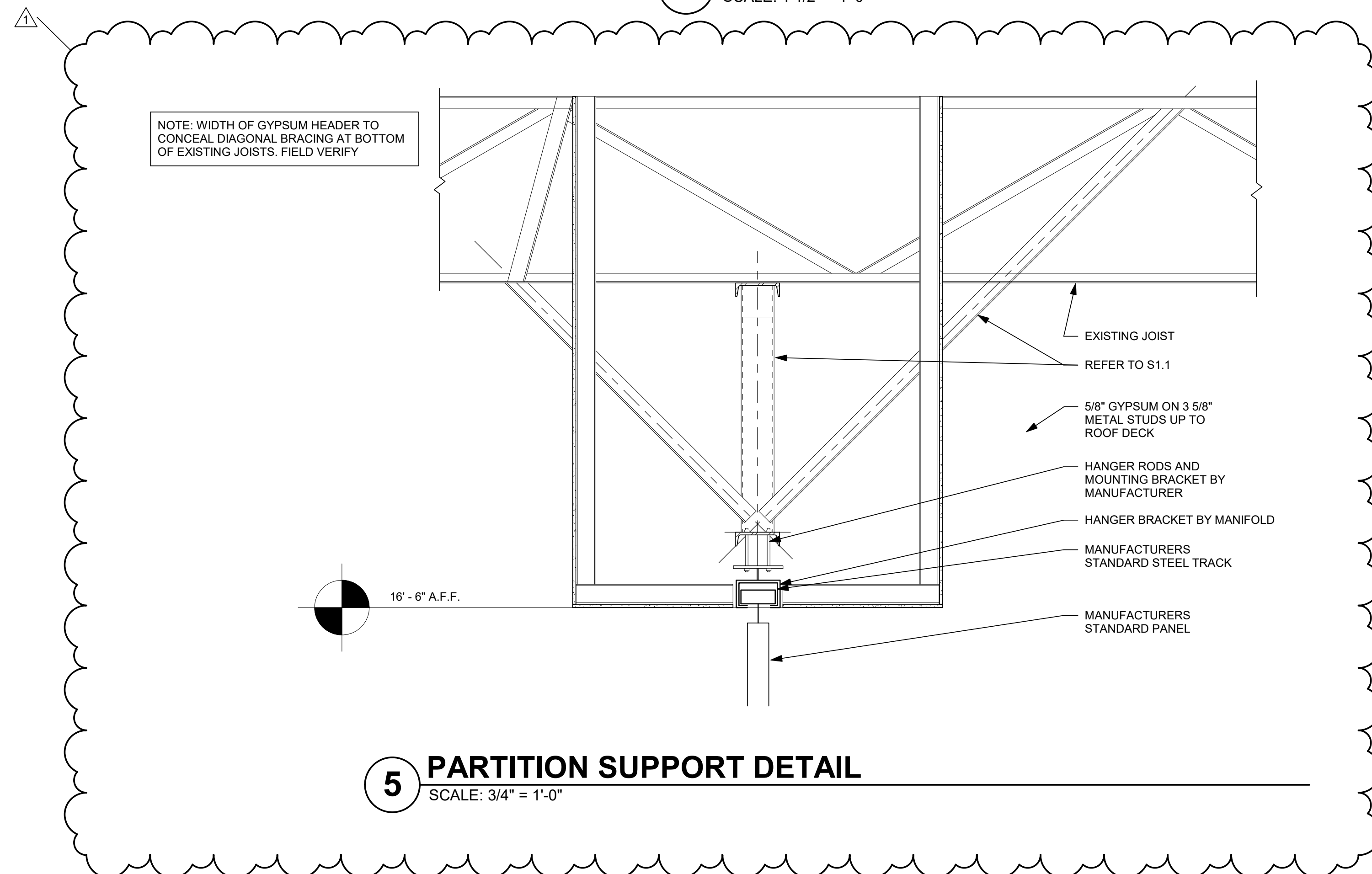
2 ENLARGED PLAN - SOFFIT @ VENDING
SCALE: 1/2" = 1'-0"



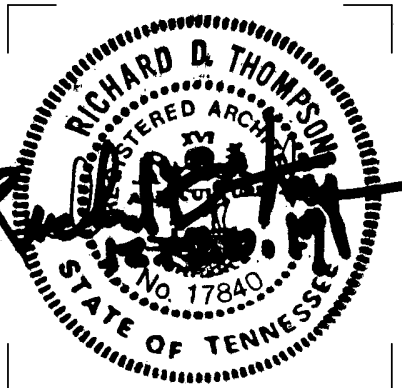
3 SECTION - SOFFIT @ RECEPTION DESK
SCALE: 1 1/2" = 1'-0"

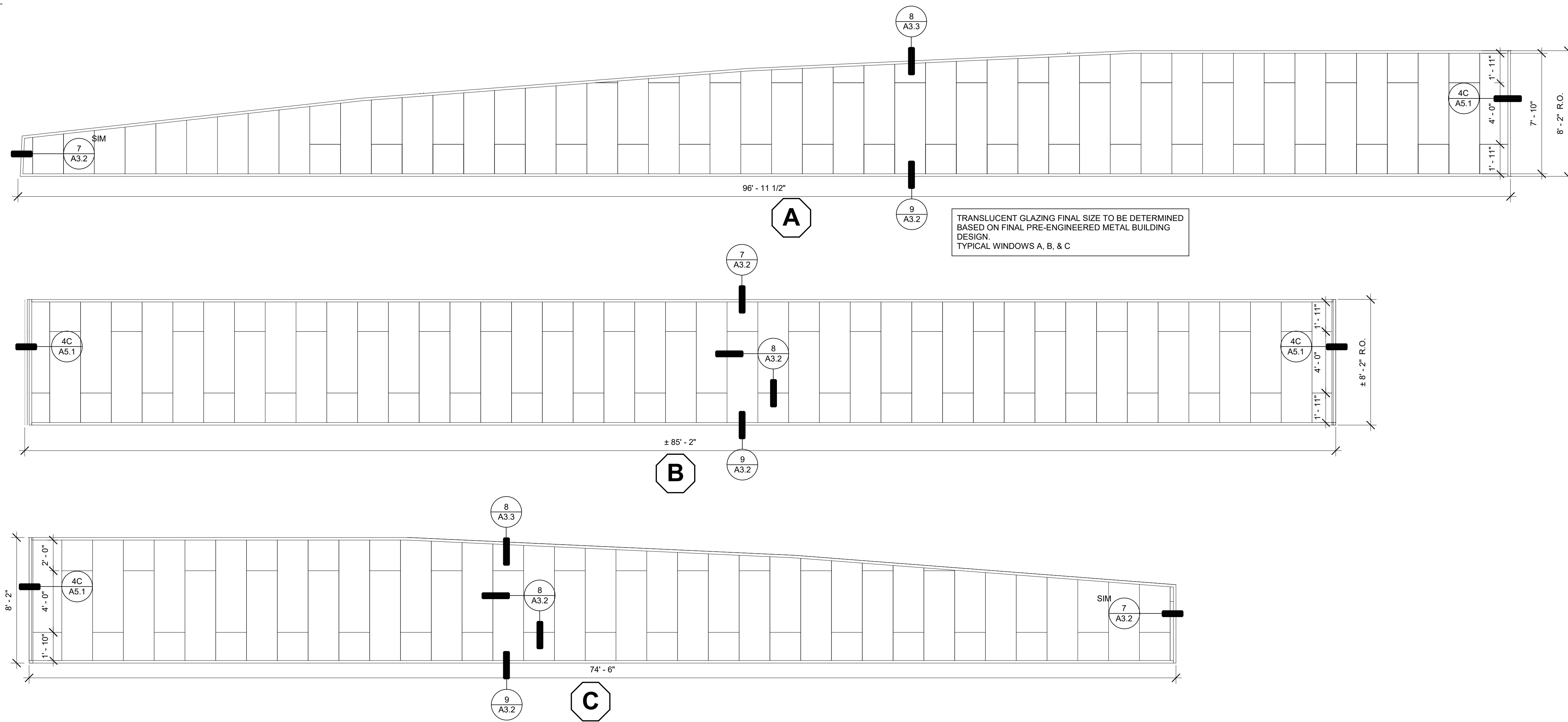


4 SECTION - SOFFIT @ VENDING
SCALE: 1 1/2" = 1'-0"

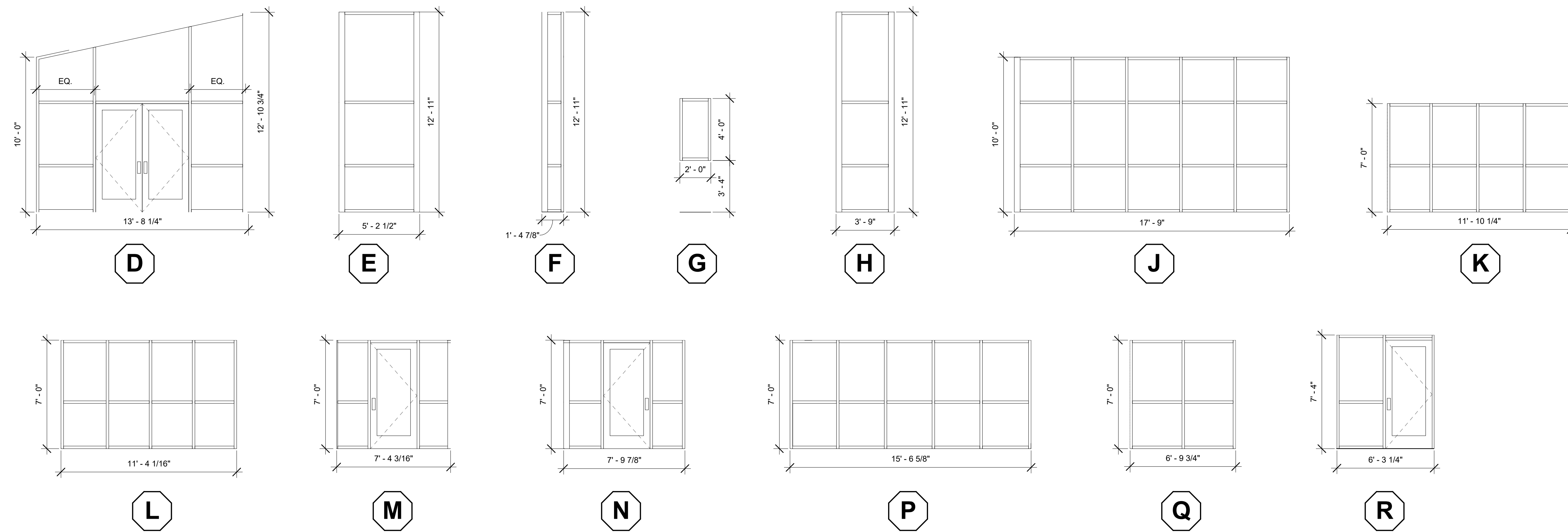


5 PARTITION SUPPORT DETAIL
SCALE: 3/4" = 1'-0"





TRANSLUCENT GLAZING FINAL SIZE TO BE DETERMINED
 BASED ON FINAL PRE-ENGINEERED METAL BUILDING
 DESIGN.
 TYPICAL WINDOWS A, B, & C



GLAZING SCHEDULE: (WINDOWS D - R)
 INTERIOR: 1/4\"/>

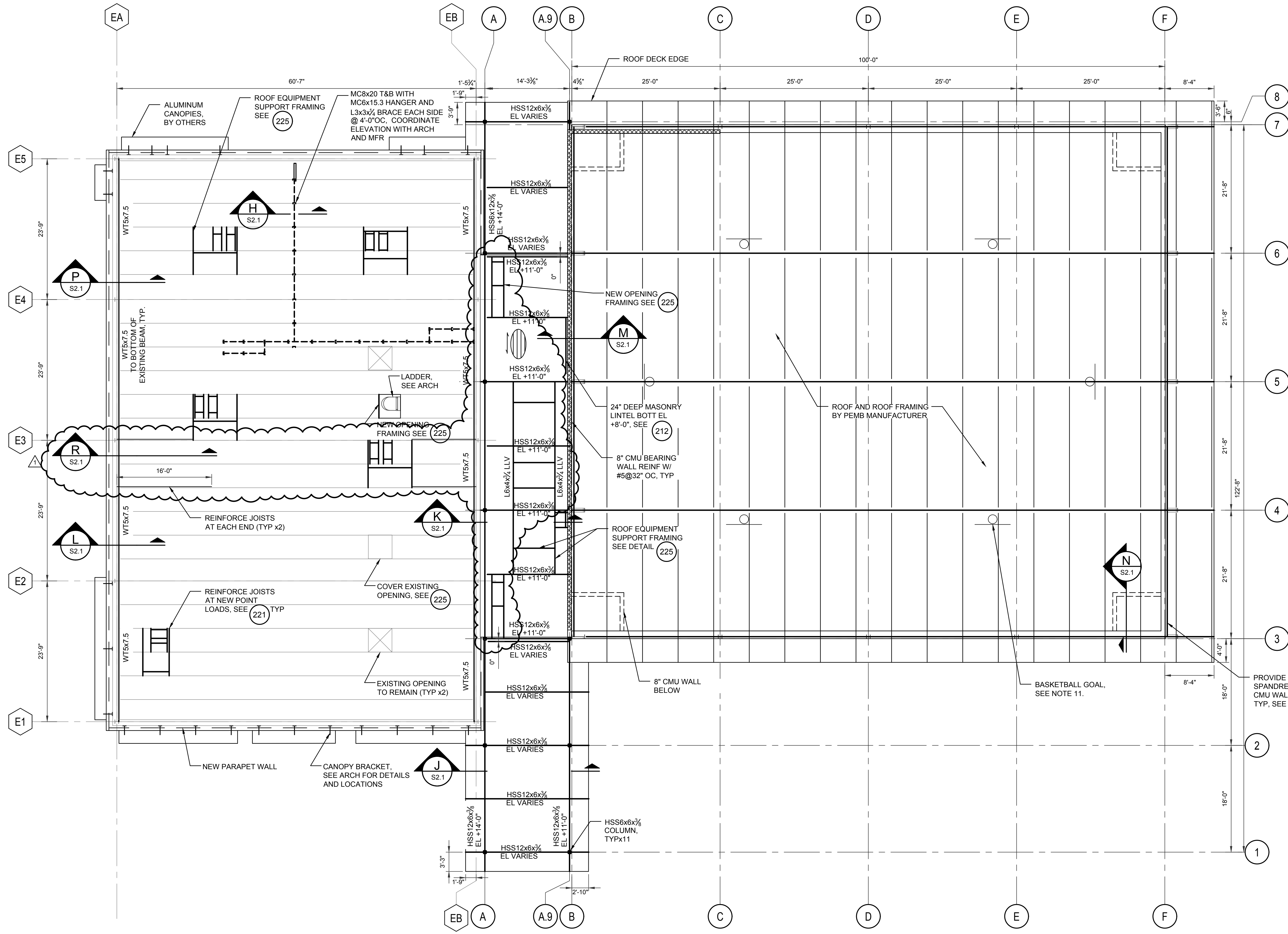


ISSUE DATES
 INITIAL ISSUE 12-20-19
 1 Addendum 4 01/10/2020

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 Checker

A8.2
 WINDOW SCHEDULE

ENTIRE SHEET RESISSUED AS PART OF THIS ADDENDUM.

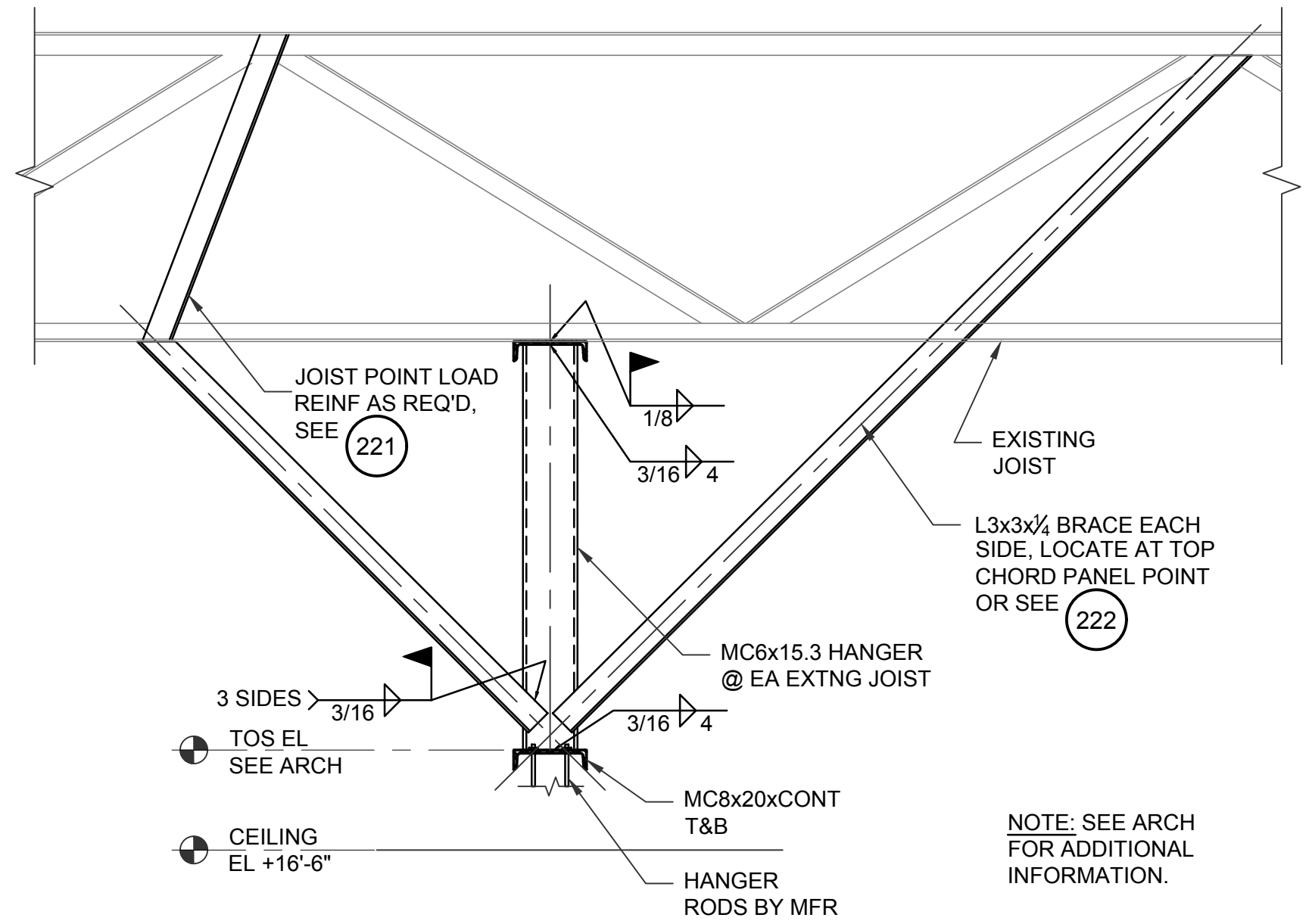


- NOTES**
- FOR GENERAL STRUCTURAL NOTES, ABBREVIATIONS AND SYMBOLS LEGEND, SEE SHEETS S0.0 AND S0.1.
 - INDICATES ROOF DECK SPAN.
 - ROOF DECK SHALL BE 3" DEEP, 18 GAGE DECKING UNO.
 - EL +X'=X" INDICATES ELEVATION TO TOP OF STEEL UNO.
 - FOR DIMENSIONS LOCATING ALL WALLS, SEE ARCHITECTURAL DWGS.
 - COORDINATE ALL WALL AND SLAB OPENINGS WITH ARCH, MECH, AND PLUMBING DWGS.
 - COORDINATE WITH MECHANICAL DRAWINGS FOR EQUIPMENT LOCATIONS. COORDINATE WITH MECHANICAL AND EQUIPMENT MANUFACTURER FOR ANY OPENINGS THAT INTERFERE WITH EXISTING STEEL JOISTS.
 - ALL NEW INTERIOR WALLS MAY NOT BE SHOWN. REFER TO ARCHITECTURE FOR ALL WALL LOCATIONS.
 - PROVIDE W12x30 SPANDREL BEAMS TO SUPPORT TOP OF CMU WALL. SPANDREL BEAM DESIGNED TO RESIST A HORIZONTAL LOAD OF 350 PLF (DESIGN WIND). SEE ARCH DRAWINGS FOR TOP OF WALL ELEVATIONS. BRACE SPANDREL BEAM AS REQUIRED. REFER TO DETAIL Q/S2.1.
 - ALL LINTELS MAY NOT BE SHOWN FOR LINTELS IN NEW WALLS SEE (212) AND FOR LINTELS IN EXISTING WALLS SEE (224).
 - SUPPORT BASKETBALL GOALS FROM PEMB ROOF FRAMING. CONTRACTOR TO COORDINATE ACTUAL LOAD WITH PEMB AND GOAL MANUFACTURERS (TYP FOR 6 GOALS).

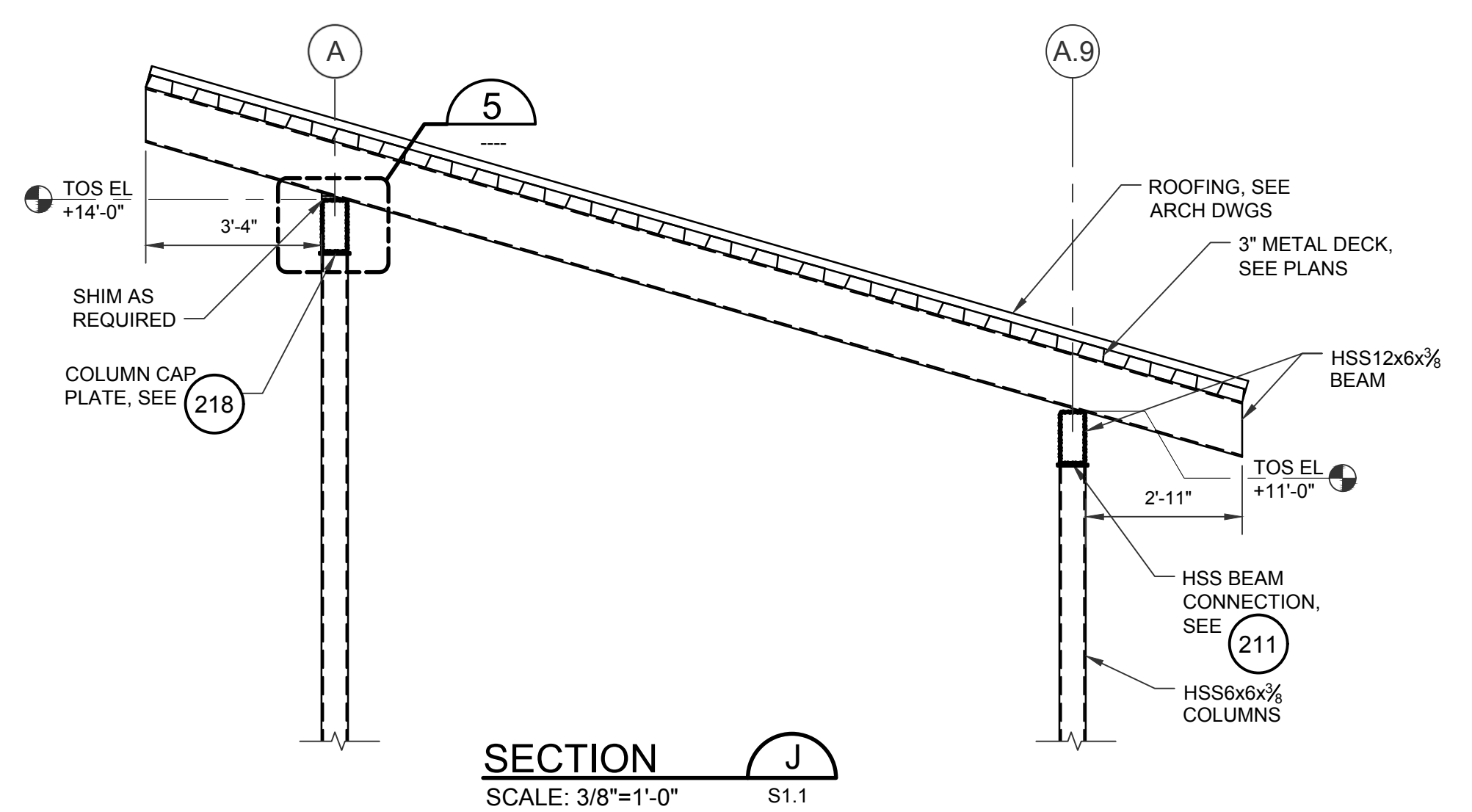


ISSUE DATES
 INITIAL ISSUE 12-20-19
 1. ADD 04 01-09-20

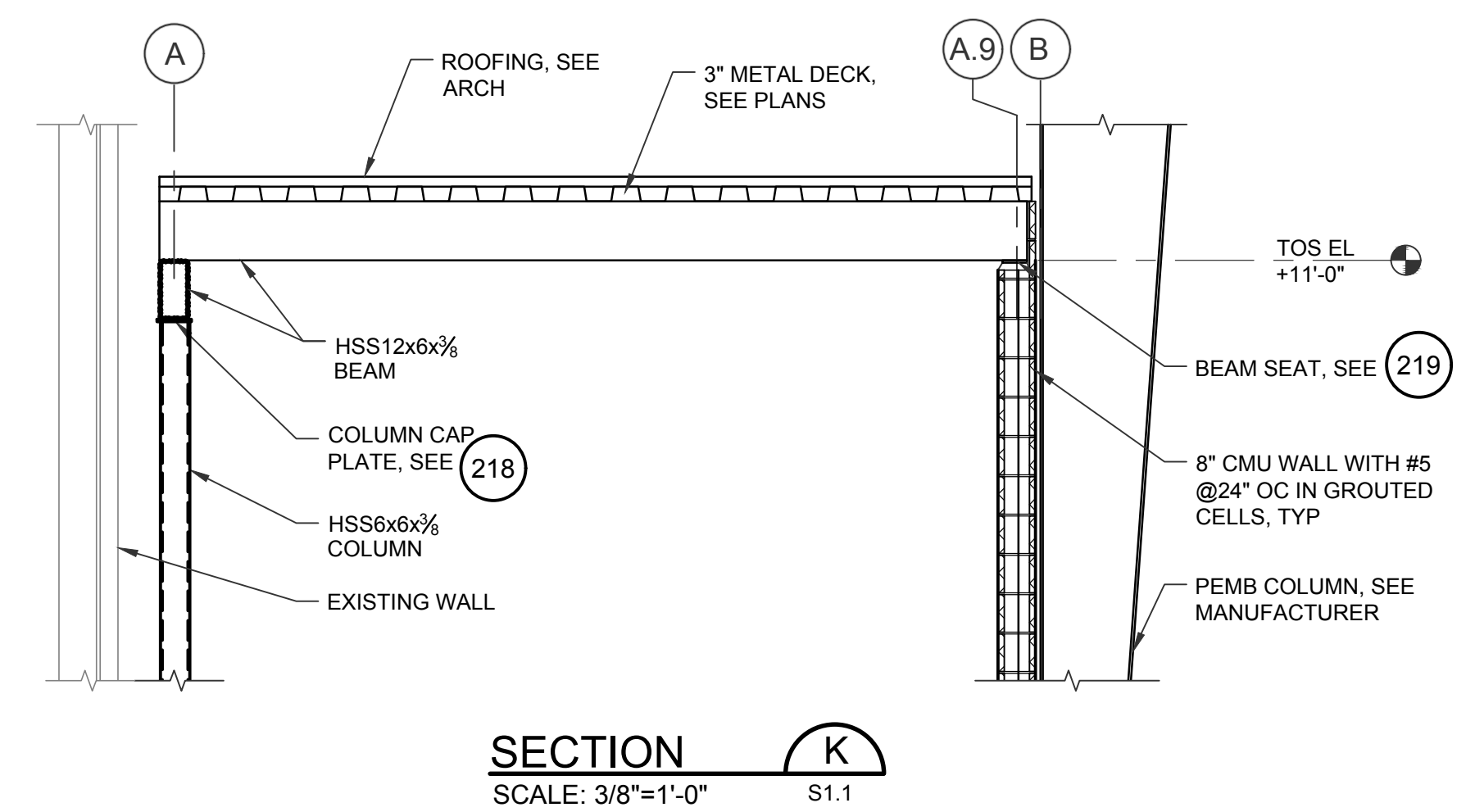
ROOF PLAN
 1/8"=1'-0"
 NORTH



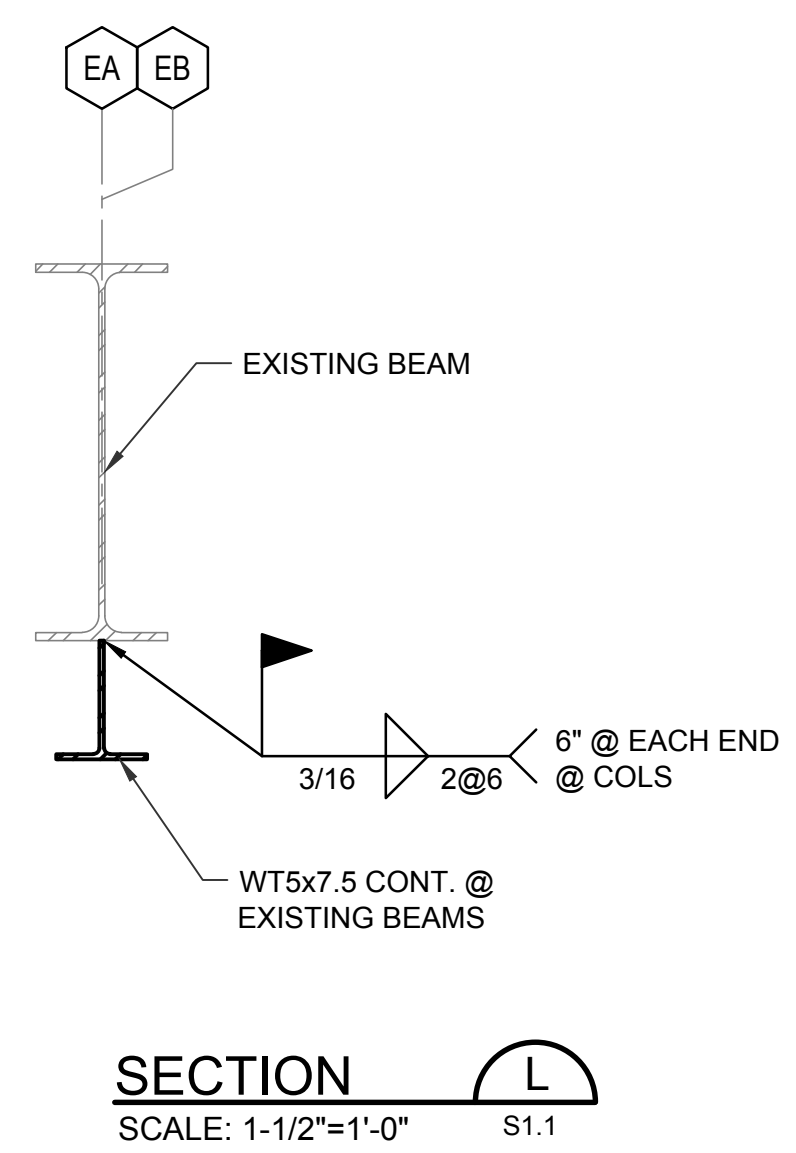
SECTION H
SCALE: 3/4"=1'-0"
S1.1



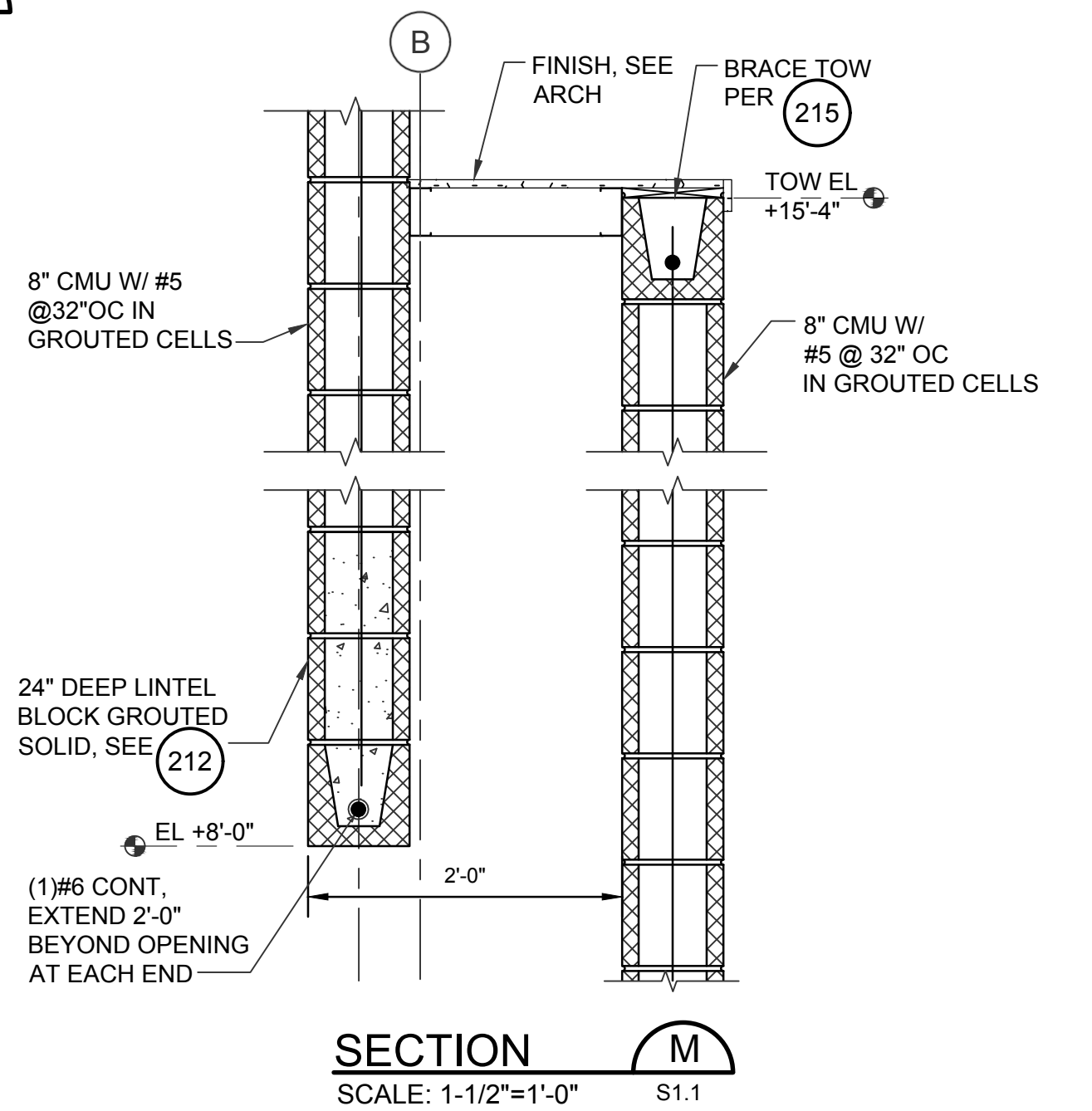
SECTION J
SCALE: 3/8"=1'-0"
S1.1



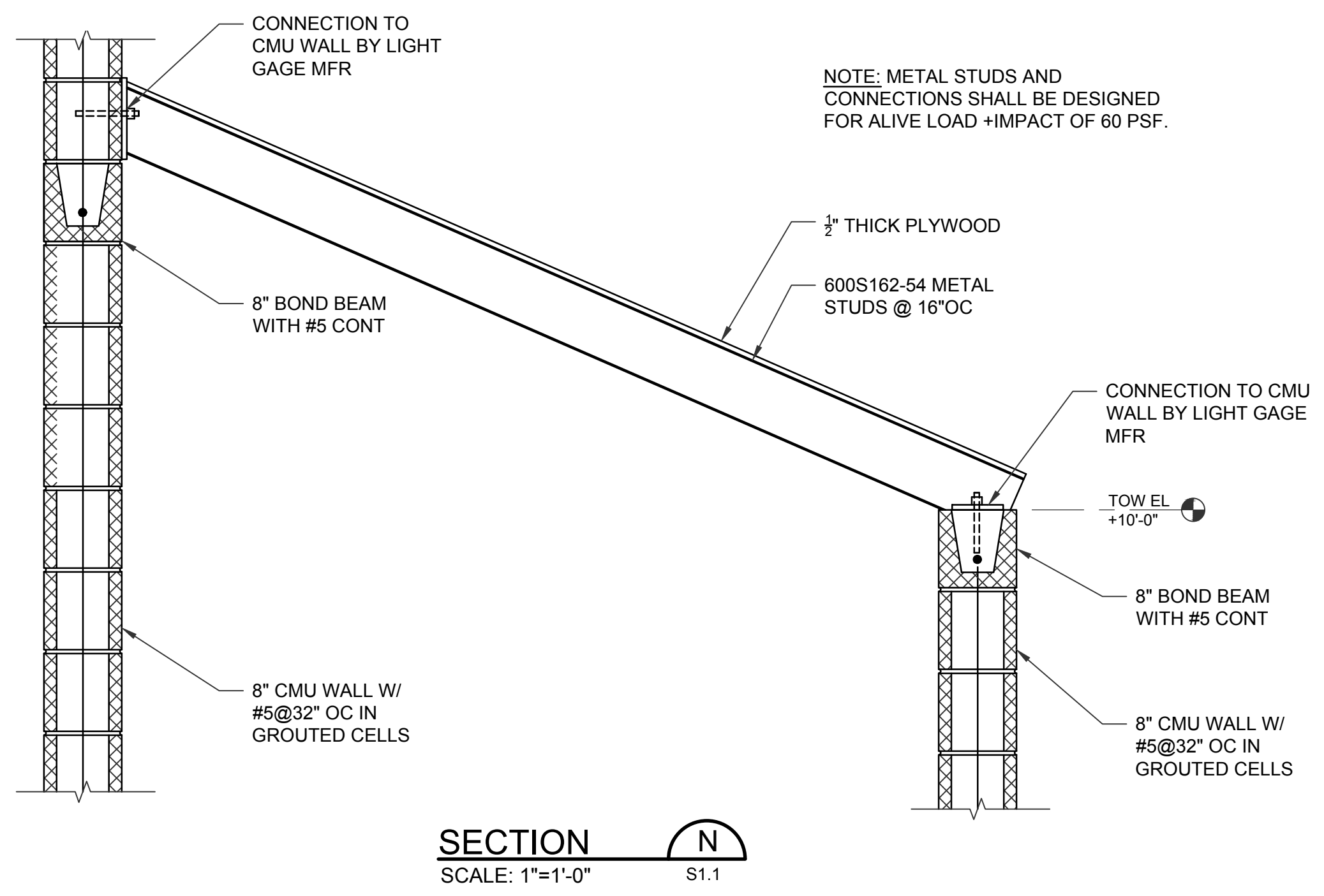
SECTION K
SCALE: 3/8"=1'-0"
S1.1



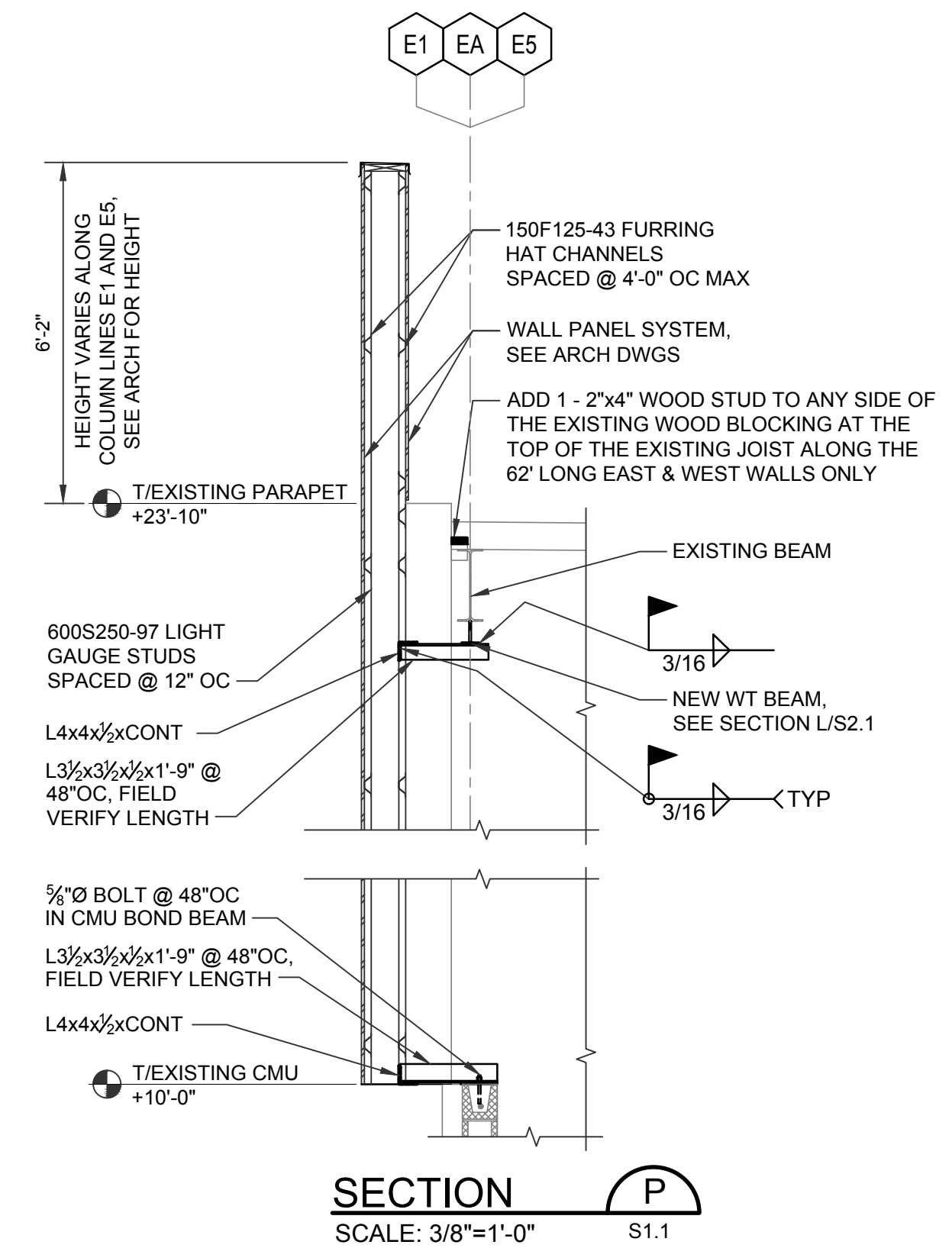
SECTION L
SCALE: 1-1/2"=1'-0"
S1.1



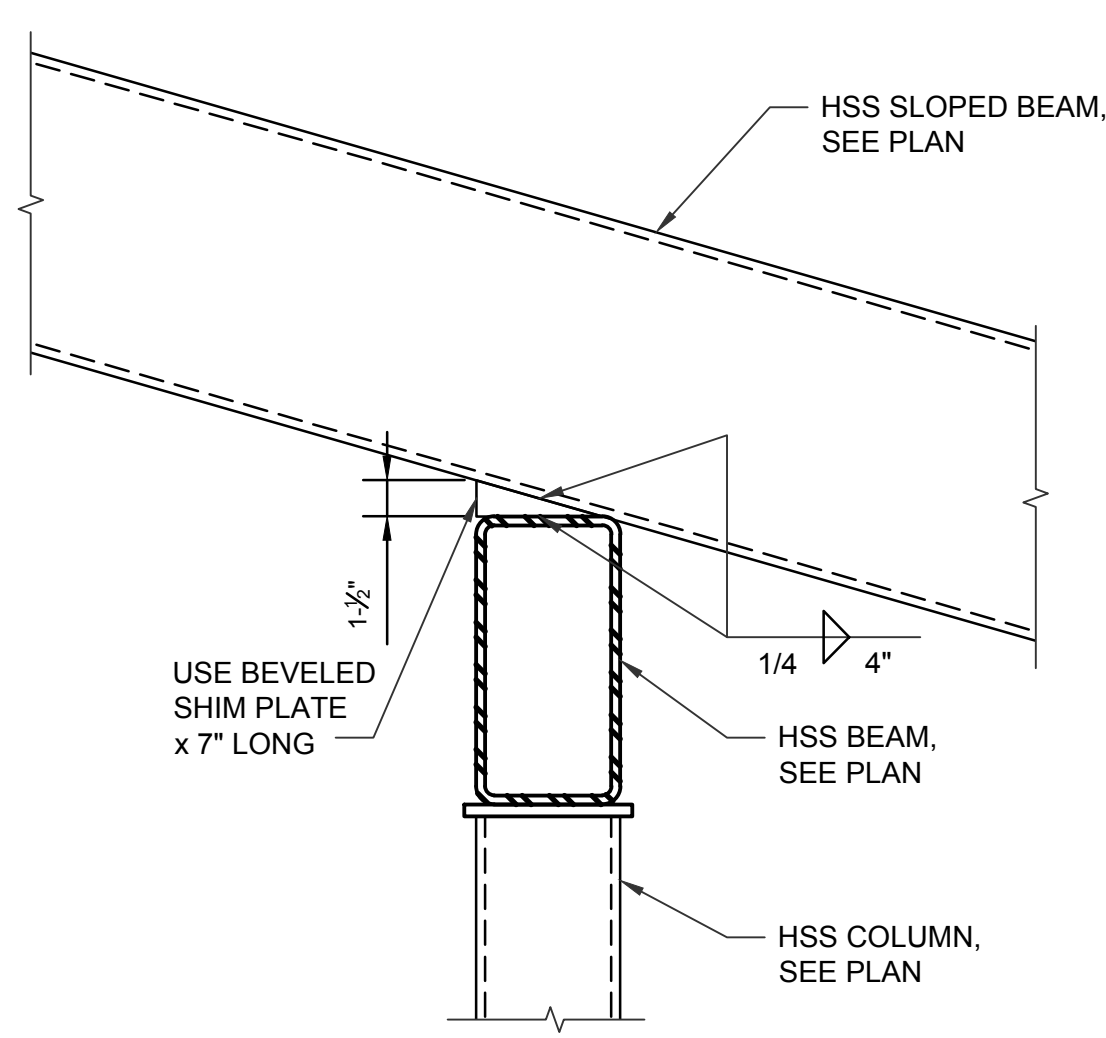
SECTION M
SCALE: 1-1/2"=1'-0"
S1.1



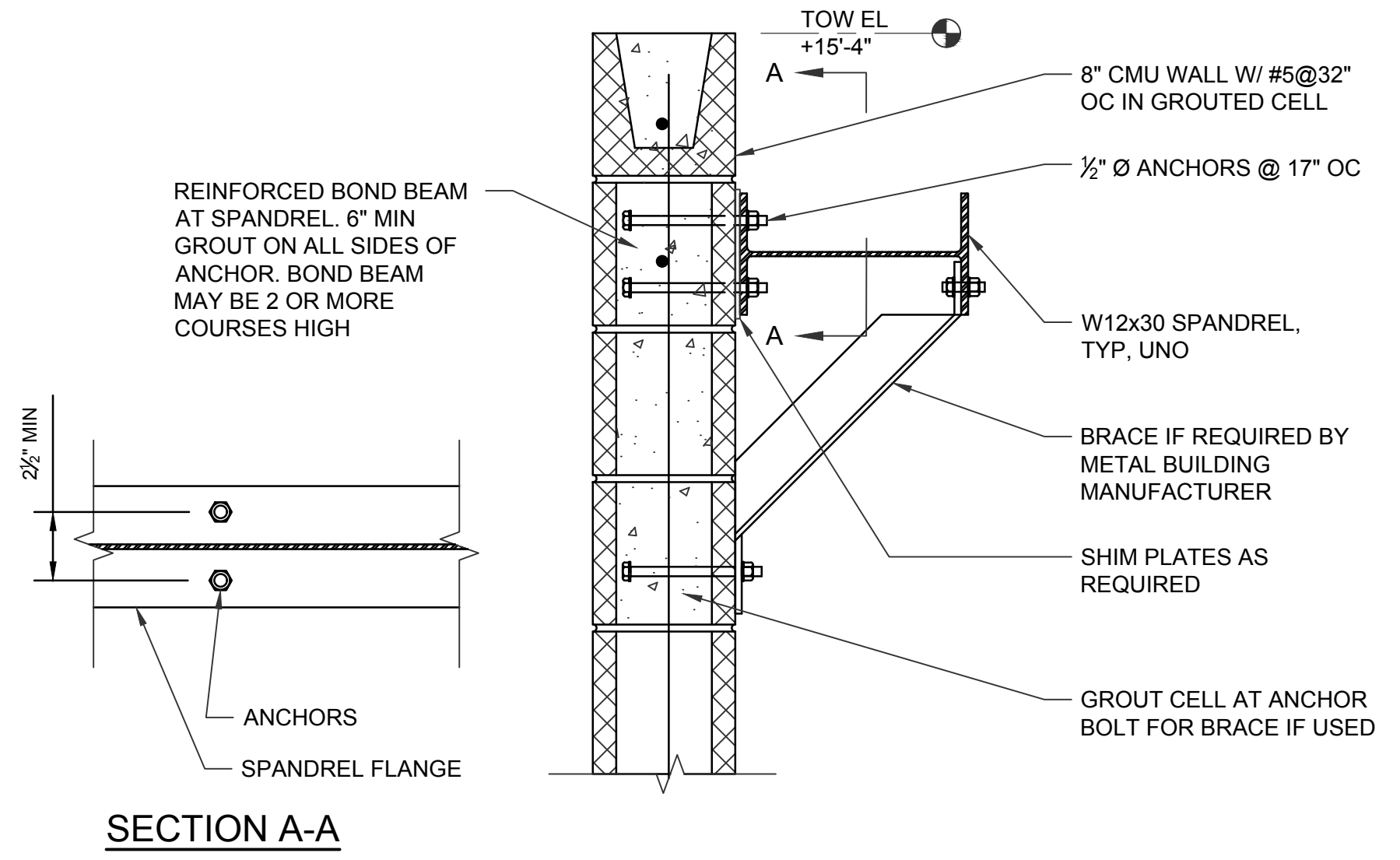
SECTION N
SCALE: 1"=1'-0"
S1.1



SECTION P
SCALE: 3/8"=1'-0"
S1.1

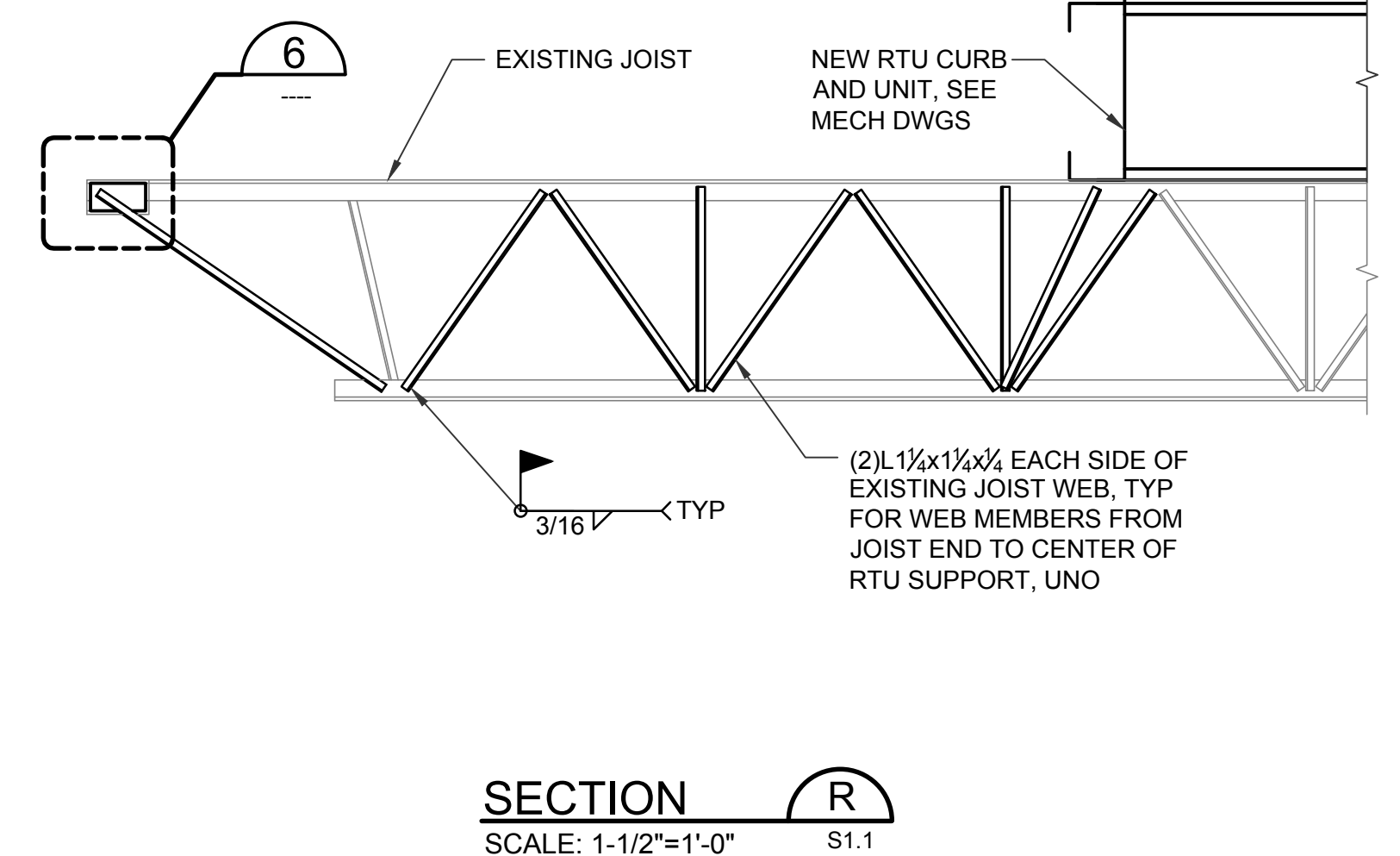


DETAIL 5
SCALE: 1-1/2"=1'-0"

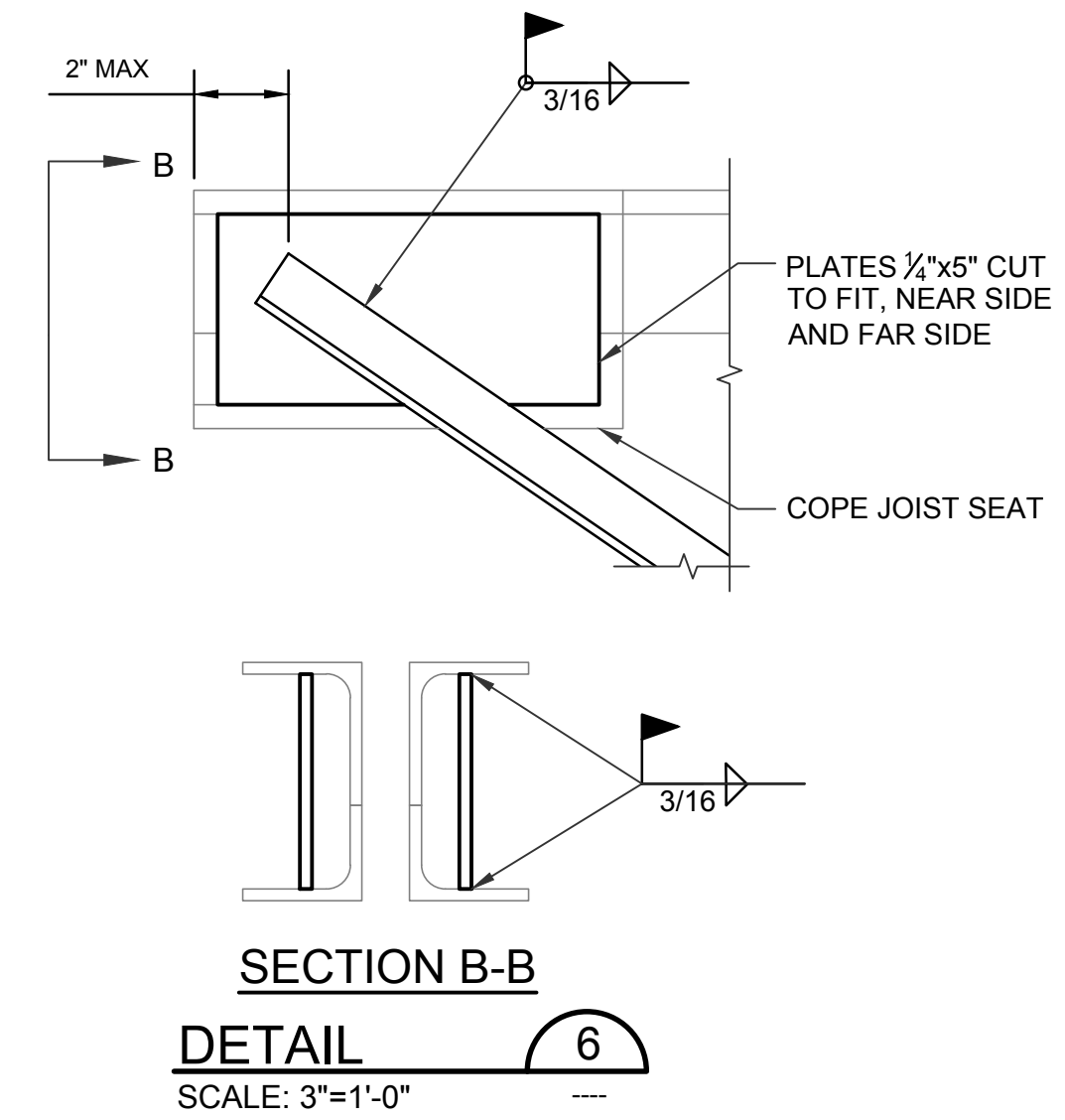


SECTION A-A

SECTION Q
SCALE: 1-1/2"=1'-0"
S2.1



SECTION R
SCALE: 1-1/2"=1'-0"
S1.1



SECTION B-B
DETAIL 6
SCALE: 3"=1'-0"

ENTIRE SHEET REISSUED AS PART OF THIS ADDENDUM



ISSUE DATES
INITIAL ISSUE 12-20-19
1. ADD 04 01-09-20

JOB NO. 18-072 | D'WN APWD | CK'D DOBD

ELECTRICAL SYMBOLS

- CONDUIT CONCEALED IN FINISHED AREAS, EXPOSED IN UNFINISHED AREAS.
- CONDUIT CONCEALED IN OR UNDER FLOOR SLAB.
- FLEXIBLE CONNECTION TO EQUIPMENT.
- HOMERUN TO PANELBOARD. EXAMPLE: HOMERUN TO PANEL R1, CKTS. #1 AND #3, 2 POLE BREAKER, 3#12 & 1#12 G 1/2" CONDUIT MINIMUM. CONDUCTORS SIZED PER NEC.
- JUNCTION BOX, 4" SQUARE OR SIZED AS NEEDED.
- FIXTURE OUTLET CEILING - SEE SCHEDULE FOR LAMP TYPE.
- FIXTURE OUTLET CEILING - STRIP
- WALL MOUNTED FIXTURE.
- FIXTURE PROVIDING EMERGENCY ILLUMINATION.
- EXIT LIGHTING FIXTURE, ARROWS AND EXIT FACE AS INDICATED ON DWGS.
- BOLLARD TYPE SITE LIGHTING.
- STANDARD DESIGNATIONS FOR ALL LIGHTING FIXTURES.
"A" = FIXTURE TYPE, REFER TO FIXTURE SCHEDULE
"2" = CIRCUIT NUMBER
"g" = SWITCH IDENTIFICATION
"p" = PHOTOCELL CONTROL - DUSK TO DAWN OPERATION
- OCCUPANCY SENSOR SWITCH OUTLET - AC TYPE, 1 POLE, 20A, 120, HUBBELL LUDHUMTS2 DIMMING DUAL TECH LIGHTING OR EQUAL.
- WEATHER PROOF SWITCH OUTLET - AC TYPE, 1 POLE, 20A, 120/277V, HUBBELL 1221 OR EQUAL. "WP" INDICATES WITH WEATHER PROOF COVER.
- SWITCH OUTLET - AC TYPE, 1 POLE, 20A, 120/277V, ILLUMINATED WITH LOAD OFF, HUBBELL 1221IL OR EQUAL.
- SWITCH OUTLET - AC TYPE, 3 WAY, 20A, 120/277V, HUBBELL 1223 OR EQUAL.
- WALL OUTLET - DUPLEX 20A, 125V, 2P/3W NEMA 5-20R GROUNDING, HUBBELL 5362 OR EQUAL. 2 INDICATES CIRCUIT #2.
- WALL OUTLET - DUPLEX 15A, 250V, 2P/3W NEMA 6-15R GROUNDING, HUBBELL 5662GY OR EQUAL. COORDINATE WITH UPS VENDOR FOR EXACT CONFIGURATION.
- WALL OUTLET - DOUBLE DUPLEX 20A, 125V, 2P/3W NEMA 5-20R GROUNDING, 2 EACH HUBBELL 5362 OR EQUAL.
- WALL OUTLET - DUPLEX GROUND FAULT CURRENT INTERRUPTER, 20A, 125V, 2P/3W NEMA 5-20R GROUNDING, HUBBELL GFR5352 OR EQUAL.
- WALL OUTLET - SINGLE OUTLET, 50A, 250V, 2P/3W NEMA 6-50R GROUNDING, HUBBELL 9367 OR AS REQUIRED TO MATCH EQUIPMENT.
- WALL OUTLET - DUPLEX WEATHER PROOF 20A, 125V, 2P/3W NEMA 5-20R GFCI, HUBBELL GFR5352 WITH WP26 COVER IN DAMP LOCATIONS & WP826MP IN WET LOCATIONS, AS DEFINED BY NEC, OR EQUAL.
- WALL OUTLET - MOUNTED 6" ABOVE COUNTER. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECTURAL. RATING AS INDICATED.
- WALL OUTLET - DUPLEX 20A, 250V, 2P/3W NEMA 6-20R GROUNDING, HUBBELL 5462 OR EQUAL.
- WALL OUTLET - ELECTRICAL WATER COOLER. COORDINATE LOCATION & HEIGHT W/PLUMBING. CONCEAL RECEPT. BEHIND WATER COOLER NEMA 5-20R GFCI.
- WIRELESS ACCESS DATA POINT LOCATION. WALL OR CEILING MOUNTED AS REQUIRED.
- TELEPHONE/DATA OUTLET. 2 GANG BOX WITH TWO GANG PLASTER RING. PROVIDE 1" CONDUIT FROM FLUSH MOUNTED OUTLET BOX TO VOID ABOVE DROPPED CEILING. TURN CONDUIT INTO CEILING VOID WITH 90 DEGREE BEND. INSTALL INSULATED BUSHING ON END OF CONDUIT. IN ROOMS WITH NO DROPPED CEILING, ROUTE CONDUIT TO NEAREST CEILING VOID. COMMUNICATIONS CABLES AND OUTLETS FURNISHED AND INSTALLED UNDER OTHER SECTIONS.
- TOGGLE MANUAL MOTOR STARTER SWITCH OUTLET - AC TYPE, 2 POLE, 30A, 120/277V, WITH MOTOR THERMAL OVERLOADS, HUBBELL 1372D
- DISCONNECT SWITCH, NON-FUSED, SIZED AS INDICATED ON DRAWINGS.
- DISCONNECT SWITCH, FUSED, SIZED AS INDICATED ON DRAWINGS.
- ACROSS THE LINE MOTOR STARTER, FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED AND CONNECTED BY THE ELECTRICAL CONTRACTOR.
- TRANSIENT VOLTAGE SURGE SUPPRESSOR. TYPE AS NOTED IN SPECIFICATIONS. MOUNT AS CLOSE TO PANEL TERMINALS AS POSSIBLE.
- RECEPTACLE PANEL, SEE PANEL SCHEDULES AND SINGLE LINE DIAGRAM.
- LIGHTING PANEL, SEE PANEL SCHEDULES AND SINGLE LINE DIAGRAM.
- MECHANICAL SYSTEMS PANEL, SEE PANEL SCHEDULES AND SINGLE LINE DIAGRAM.
- SERVICE ENTRANCE MAIN PANEL WITH METERING OF EACH LOAD AS REQUIRED BY ASHRAE 90.3, SEE PANEL SCHEDULES AND SINGLE LINE DIAGRAM.
- WIRE BASKET CABLE TRAY FOR EXPOSED PLENUM RATED SYSTEMS WIRING ABOVE LAY IN CEILING AND IN STRUCTURAL CEILING SPACES. INSTALL AT ELEVATIONS SHOWN AND PROVIDE THE INDICATED SIZES AND ROUTING. SEE SHEET E5.10 FOR ROUTING AND CONFIGURATION. SYSTEMS INCLUDE AUDIOVISUAL, DATA, LIGHTING CONTROLS, AND OTHER COMPATIBLE LOW VOLTAGE SYSTEMS.

LIGHTING CONTROLS SYSTEM

- WALL MOUNTED PRESET SCENE CONTROL FOR LOCAL LIGHTING CONTROL PANEL. MOUNTS 48" AFF.
- LOCAL 4 ZONE CONTROL PANEL WITH ON/OFF AND 0-10VDC DIMMING CONTROL FOR EACH ZONE. INSTALL ABOVE LAY-IN CEILING OR IN CLOSET SHOWN. INTERFACE WITH AV CONTROLS FOR PRESET ACTIVATIONS. FURNISH ALL BOXES, MOUNTING HARDWARE AND OTHER REQUIREMENTS OF THE EQUIPMENT MANUFACTURER, WALL MOUNTED 48" AFF OR ABOVE LAY IN CEILING.
- OCCUPANCY SENSOR FOR CONTROL OF LIGHTING AND RECEPTACLES AS INDICATED. PROVIDE WALL OR CEILING MOUNTED DUAL TECHNOLOGY UNITS AS SHOWN. FURNISH ALL BOXES, MOUNTING HARDWARE AND OTHER REQUIREMENTS OF THE EQUIPMENT MANUFACTURER. WALL UNITS MOUNTED 48" AFF.
- EMERGENCY LIGHTING INVERTER FOR GYMNASIUM LIGHTING. PROVIDE 90 MINUTE RUN TIME FOR LOADS SHOWN.

FIRE CONTROLS DEVICE LEGEND

- FIRE PULL STATION. SINGLE ACTION, SINGLE POLE WITH CLEAR PLASTIC COVER. MOUNTED 48" A.F.F.
- PHOTOELECTRIC SMOKE DETECTOR.
- AUDIBLE WATER FLOW WARNING HORN, SOUND LEVEL 87dB @ 10'-0" UNLESS OTHERWISE NOTED.
- PHOTOELECTRIC DUCT SMOKE DETECTOR WITH INTEGRAL LED. PROVIDE RELAY & CONNECT TO AHU SHUTDOWN.
- FIRE ALARM CONTROL PANEL.
- FIRE ALARM REMOTE ANNUNCIATOR
- STROBE, LIGHT LEVEL 75cd UNLESS OTHERWISE NOTED. MOUNT 95" A.F.F. OR 12" BELOW CEILING WHICHEVER IS LOWER.
- HEAT DETECTOR
- RELAY CONTROL POINT FOR HVAC FAN SHUTDOWN. "RT" INDICATES IN NEMA 3R RAIN TIGHT CABINET.
- CONTROL INPUT
- REMOTE LAMP AND TEST STATION FOR DUCT DETECTOR ABOVE LAY IN CEILING.
- WATER FLOW SWITCH BY SPRINKLER CONTRACTOR. MONITORED BY FIRE ALARM SYSTEM.
- VALVE SUPERVISORY SWITCH BY SPRINKLER CONTRACTOR. MONITORED BY FIRE ALARM SYSTEM.
- REMOTE LAMP AND TEST STATION FOR DUCT DETECTOR
- RED PAINTED FIRE ALARM CONDUIT AND BOX SYSTEM. PROVIDE CONCEALED CONDUIT WHERE POSSIBLE ABOVE LAY IN CEILING OR WALLS. CONDUIT SHALL BE 3/4" MINIMUM SIZE AND CONTAIN FPLP RATED CONDUCTORS AS DEFINED BY FIRE ALARM SHOP DRAWINGS.
- GREEN PAINTED EMERGENCY WARNING SYSTEM CONDUIT AND BOX SYSTEM. PROVIDE CONCEALED CONDUIT WHERE POSSIBLE ABOVE LAY IN CEILING OR WALLS. CONDUIT SHALL BE 3/4" MINIMUM SIZE AND CONTAIN FPLP RATED CONDUCTORS AS DEFINED BY EMERGENCY WARNING SYSTEM SHOP DRAWINGS.
- UL LISTED EMERGENCY WARNING SYSTEM CEILING MOUNTED SPEAKER. DEFINE TYPE, POWER TAP, ZONE NUMBER IN CERTIFIED NICET PREPARED SHOP DRAWINGS.
- UL LISTED EMERGENCY WARNING SYSTEM DIRECTIONAL WALL MOUNTED HORN TYPE SPEAKER. DEFINE TYPE, POWER TAP, AND ZONE NUMBER IN CERTIFIED NICET PREPARED SHOP DRAWINGS.

PAGING AND AV SYSTEMS DEVICES

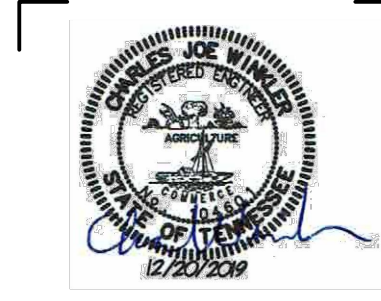
- PAGING SYSTEM CEILING MOUNTED SPEAKER. FLUSH MOUNTED IN LAY IN CEILING AND PENDANT TYPE (12" AFF) IN EXPOSED AREAS. SEE SPECS FOR TYPES.
- PAGING SYSTEM GYMNASIUM CEILING MOUNTED SPEAKER, MTD 20" ABOVE FLOOR LEVEL. SEE SINGLE LINE AND SPECS FOR SPECIFIC TYPES.
- TEEN LOUNGE SOUND SYSTEM 12" SUBWOOFER, WALL MOUNTED SPEAKER, MTD 9' ABOVE FLOOR LEVEL. SEE SINGLE LINE AND SPECS FOR SPECIFIC TYPES.
- TEEN LOUNGE SOUND SYSTEM 8" COAXIAL SPEAKER, WALL MOUNTED SPEAKER, MTD 9' ABOVE FLOOR LEVEL. SEE SINGLE LINE AND SPECS FOR SPECIFIC TYPES.
- PAGING SYSTEM 70.7 VOLT OR 8 OHM SPEAKER CIRCUIT. PLENUM RATED, MINIMUM #16AWG TWISTED JACKETED PAIR INSTALLED ABOVE LAY IN CEILING IN CABLE TRAYS OR SUPPORTED BY STRUCTURE WHERE CABLE TRAY IS NOT AVAILABLE. INSTALL IN CONDUIT IN WALLS AND EXPOSED STRUCTURE SUBJECT TO PHYSICAL DAMAGE SUCH AS THE GYMNASIUM. TEEN LOUNGE AND MULTIPURPOSE ROOMS MAY BE EXPOSED ABOVE TO FLEET.
- AMPLIFIER RACK FOR PAGING AND AV SYSTEMS. PROVIDE INSTALLATION OF PROCESSORS, POWER SUPPLIES, CONTROL SYSTEMS, NETWORK FUNCTIONS, ETC., AS SHOWN OR REQUIRED. FREE STANDING OR SWINGING WALL MOUNTED AS SHOWN.
- LOCAL WALL EQUIPMENT CABINET FOR AUDIOVISUAL EQUIPMENT LOCATED IN EACH INDEPENDENT SYSTEM ROOM. "X" INDICATES ROOM LOCATION. INSTALL INPUT DEVICES, CONTROL PROCESSORS, TOUCH SCREENS, POWER SUPPLIES, AUDIO EQUIPMENT ETC., AS SHOWN ON SINGLE LINES ETC., OR AS REQUIRED.
- WALL MOUNTED VIDEO DISPLAY UNIT "##" INDICATES DIAGONAL DIMENSION SIZE. FURNISH WITH ADJUSTABLE WALL MOUNT, AND INTERCONNECTIONS AS INDICATED. UNITS MOUNTED WITH TOP SIX INCHES BELOW CEILING OR BOTTOM SIX FEET ABOVE THE FLOOR, WHICHEVER IS LOWER. PROVIDE MOUNTING SUPPORT STRUCTURE COORDINATED WITH GENERAL CONTRACTOR TO SUPPORT EXPECTED WEIGHT PLUS 150#.
- LOCAL TOUCH SCREEN CONTROL PANEL FOR AUDIOVISUAL EQUIPMENT LOCATED IN EACH INDEPENDENT SYSTEM ROOM. "X" INDICATES ROOM LOCATION. INSTALL INTERNAL TO PANEL SWC OR WALL LOCATION AS SHOWN 54" AFF. MOUNTING BOX BY AV CONTRACTOR.
- LOCAL PLATE FOR CONNECTION OF PORTABLE DEVICES AS SHOWN ON SINGLE LINE DIAGRAMS. MOUNTED FLUSH IN WALL WITH STANDARD GANG BOX LOCATION SHOWN AT 18" AFF. "X" INDICATES ROOM LOCATION.
- LOCAL PLATE FOR CONNECTION OF USER LAP TOP OR OTHER PORTABLE DEVICES AS SHOWN ON SINGLE LINE DIAGRAMS. MOUNTED FLUSH IN WALL LOCATION SHOWN AT 48" AFF. "X" INDICATES ROOM LOCATION.
- FLUSH FLOOR MOUNTED BOX FOR CONNECTION OF PORTABLE DEVICES AS SHOWN ON SINGLE LINE DIAGRAMS. "X" INDICATES ROOM LOCATION AND "F" INDICATES SEQUENCE NUMBER AS SHOWN ON DRAWINGS. SEE SHEET E5.02 FOR MOUNTING DETAILS. FURNISH FBS TYPE C4X RECESSED FLOOR BOX WITH DEVICE PLATES INDICATED DRAWINGS. COVER TO BE APPROVED BY ARCHITECT.

SECURITY CONTROLS DEVICE LEGEND

- CARD READER BY OWNER. COORDINATE CONDUITS AND ACCESS WITH DOOR HARDWARE.
- SECURITY CAMERA BY OWNER. FURNISH 4" SQUARE BOX WITH TWO GANG BLANK PLATE. HOME-RUN 3/4" CONDUIT FROM BOX TO NEAREST LAY IN/ACCESSIBLE CEILING, CABLE TRAY OR NEAREST TBB.

GENERAL NOTES

1. MINIMUM POWER CIRCUIT CONDUCTOR SIZE SHALL BE NO. 12 AND MINIMUM CONDUIT SIZE SHALL BE 1/2". CONDUIT SHALL BE SCHEDULE 40 PVC, RGS, INC. OR EMT AS DEFINED IN SPECIFICATIONS. CONDUCTORS SHALL BE COPPER, BELOW GRADE CONDUIT SHALL BE SCHEDULE 40 PVC. SERVICE ENTRANCE CONDUITS SHALL BE SCHEDULE 80.
2. MOUNTING HEIGHTS OF ALL WALL DEVICES SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED. WALL SWITCHES: 4'-0" A.F.F., GENERAL RECEPTACLES: 1-6" A.F.F., EXIT LIGHT J-BOX: 1'-0" ON CENTER LINE ABOVE DOOR, TELEPHONE OUTLET: 1'-6" A.F.F.
3. THE CONTRACTOR SHALL CHECK ALL LIGHTING LUMINARIES FOR EXACT TYPE, MOUNTING, AND SPACE REQUIREMENTS BEFORE ROUGHING IN.
4. SHOULD ANY ELECTRICAL POWER, LIGHT, OR AUXILIARY CIRCUIT BE DAMAGED OR DISCONNECTED DURING CONSTRUCTION, THE ELECTRICAL CONTRACTOR SHALL RESTORE THE CIRCUIT TO ITS ORIGINAL STATE WITH NO ADDITIONAL COST TO THE OWNER.
5. VERIFY ALL DOOR SWINGS WITH ARCHITECTURAL BEFORE ROUGHING IN LIGHT SWITCHES IN ORDER TO ENSURE PROPER SWITCH LOCATION.
6. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK WITH GENERAL CONTRACTOR AND OTHER TRADES. VERIFY THE EXACT LOCATION, AMPACITY REQUIREMENTS, OVER CURRENT PROTECTION AND DIMENSIONS OF ALL MOTORS AND EQUIPMENT BEFORE ROUGHING IN.
7. ALL BRANCH CIRCUITS SHALL INCLUDE A GREEN INSULATED GROUND CONDUCTOR SIZED PER N.E.C. ARTICLE 250 (GROUNDING) OR AS SHOWN ON DRAWINGS, WHICHEVER IS LARGER.
8. WHEREVER HOME RUNS ARE SHOWN COMPRISING OF TWO OR MORE CIRCUITS, CONNECT ALL RECEPTACLES AND / OR LIGHTING FIXTURES ON ALTERNATING CIRCUITS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
9. ALL POWER RACEWAYS SHALL CONSIST OF 3 NO. 12 THHN/THWN CONDUCTORS; ONE POWER, ONE NEUTRAL, AND ONE GROUND INSTALLED IN A 1/2" MINIMUM CONDUIT UNLESS OTHERWISE INDICATED ON DRAWINGS. BELOW GRADE CONDUCTORS MUST BE THWN OR XHHW.
10. DO NOT UTILIZE A COMMON NEUTRAL CONDUCTOR ON POWER CIRCUITS IN COMMON CONDUITS. EACH CIRCUIT SHALL HAVE ITS OWN NEUTRAL CONDUCTOR EVEN WHEN DIFFERENT CIRCUITS ARE CONTAINED IN THE SAME CONDUIT.
11. LIGHTING CIRCUITRY IS SHOWN IN CONCEPT ONLY. PROVIDE AND INSTALL ALL CONDUCTORS NECESSARY TO PROVIDE THE SWITCHING AND CONTROL FUNCTIONS SHOWN ON THE DRAWINGS. "o" SWITCH CONTROLS "g" FIXTURES, ETC. PROVIDE ALL CONDUCTORS NECESSARY FOR PHOTOCELLS, 3 WAY SWITCHING AND OCCUPANCY SENSORS, REQUIRED HOT LEGS, ETC., AS SHOWN.
12. ELECTRICAL INSTALLATION SHALL CONFORM TO NATIONAL ELECTRICAL CODE NEC 2017 OR AS INDICATED BY LOCAL AUTHORITY.
13. HOLD

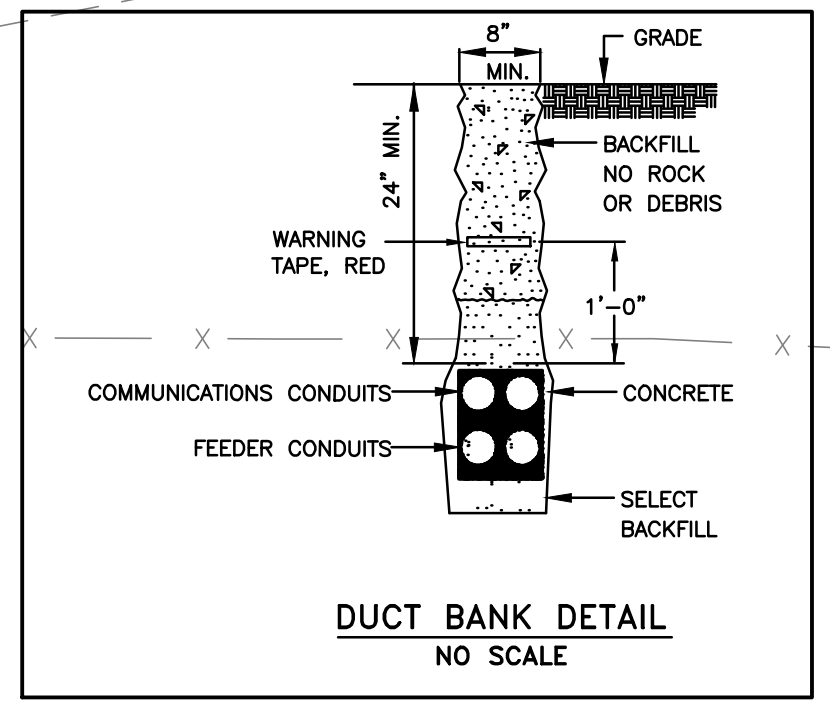
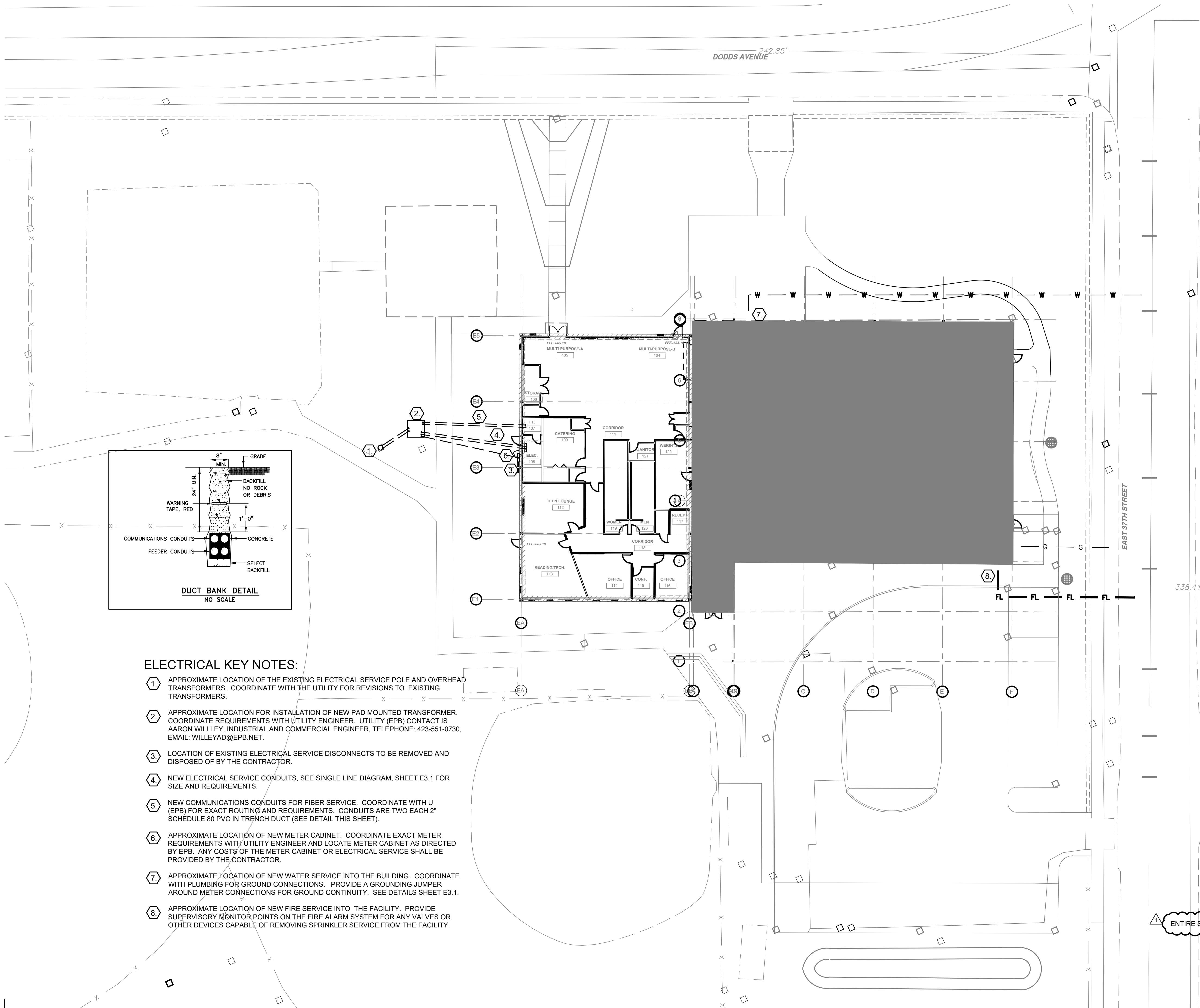


ISSUE DATES
INITIAL ISSUE 12-20-19
ADDENDUM 4 01-09-20

JOB NO. 18-072 | D'WN JRJT | CK'D CJWR

**East Lake YFD Center
 Improvements**

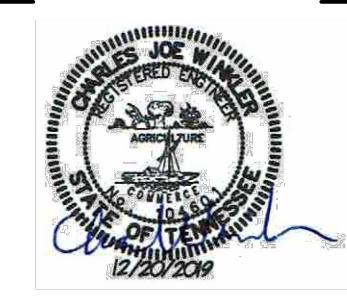
3610 Dodds Avenue, Chattanooga, TN 37402



ELECTRICAL KEY NOTES:

- ① APPROXIMATE LOCATION OF THE EXISTING ELECTRICAL SERVICE POLE AND OVERHEAD TRANSFORMERS. COORDINATE WITH THE UTILITY FOR REVISIONS TO EXISTING TRANSFORMERS.
- ② APPROXIMATE LOCATION FOR INSTALLATION OF NEW PAD MOUNTED TRANSFORMER. COORDINATE REQUIREMENTS WITH UTILITY ENGINEER. UTILITY (EPB) CONTACT IS AARON WILLEY, INDUSTRIAL AND COMMERCIAL ENGINEER, TELEPHONE: 423-551-0730, EMAIL: WILLEYAD@EPB.NET.
- ③ LOCATION OF EXISTING ELECTRICAL SERVICE DISCONNECTS TO BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.
- ④ NEW ELECTRICAL SERVICE CONDUITS, SEE SINGLE LINE DIAGRAM, SHEET E3.1 FOR SIZE AND REQUIREMENTS.
- ⑤ NEW COMMUNICATIONS CONDUITS FOR FIBER SERVICE. COORDINATE WITH U (EPB) FOR EXACT ROUTING AND REQUIREMENTS. CONDUITS ARE TWO EACH 2" SCHEDULE 80 PVC IN TRENCH DUCT (SEE DETAIL THIS SHEET).
- ⑥ APPROXIMATE LOCATION OF NEW METER CABINET. COORDINATE EXACT METER REQUIREMENTS WITH UTILITY ENGINEER AND LOCATE METER CABINET AS DIRECTED BY EPB. ANY COSTS OF THE METER CABINET OR ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CONTRACTOR.
- ⑦ APPROXIMATE LOCATION OF NEW WATER SERVICE INTO THE BUILDING. COORDINATE WITH PLUMBING FOR GROUND CONNECTIONS. PROVIDE A GROUNDING JUMPER AROUND METER CONNECTIONS FOR GROUND CONTINUITY. SEE DETAILS SHEET E3.1.
- ⑧ APPROXIMATE LOCATION OF NEW FIRE SERVICE INTO THE FACILITY. PROVIDE SUPERVISORY MONITOR POINTS ON THE FIRE ALARM SYSTEM FOR ANY VALVES OR OTHER DEVICES CAPABLE OF REMOVING SPRINKLER SERVICE FROM THE FACILITY.

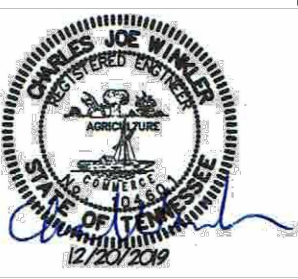
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JOB NO. 18-072 | D'WN JRTT | C'KD CJWR

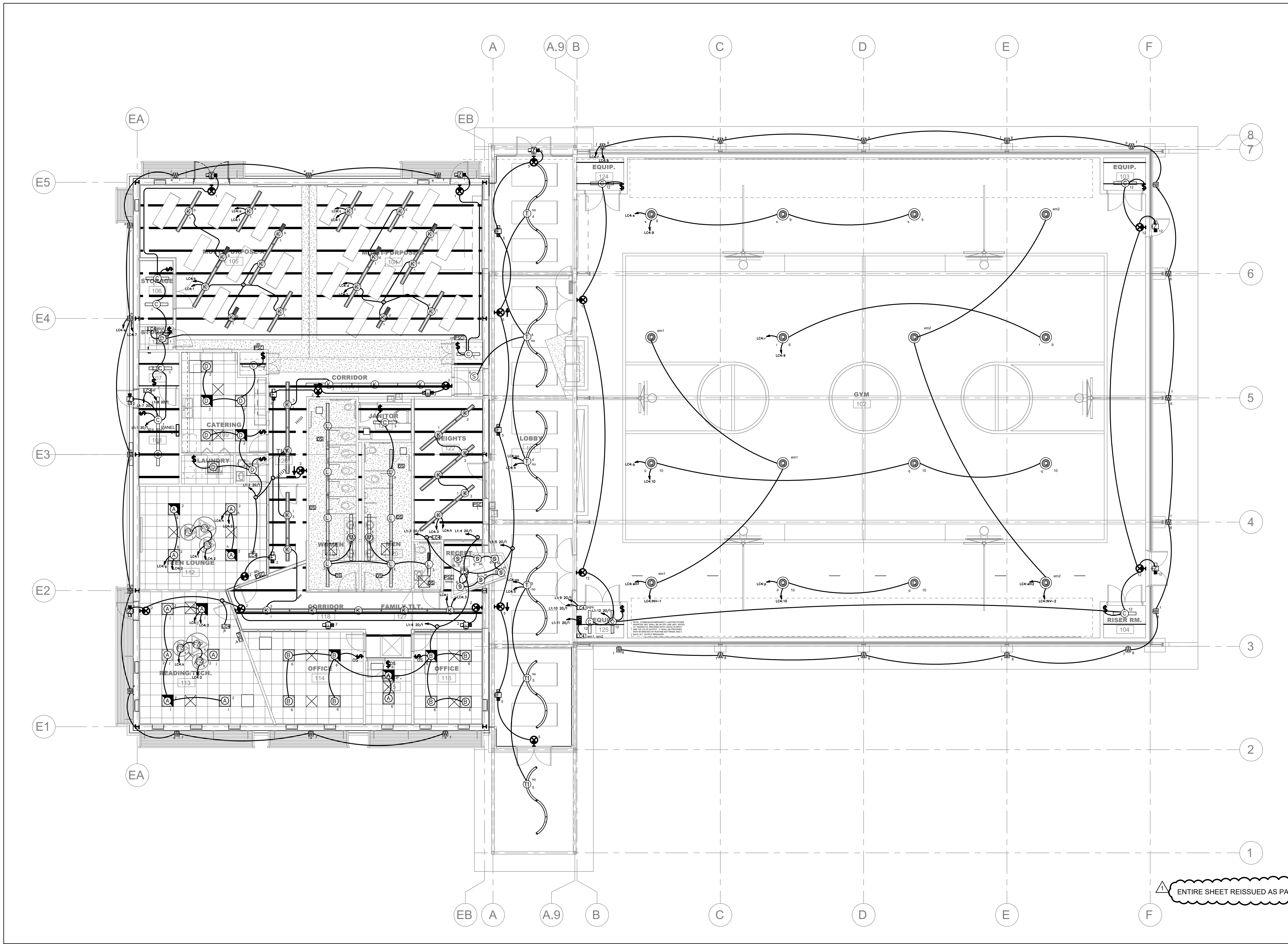
E0.2
 ELECTRICAL SITE PLAN



ISSUE DATES
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 ADDENDUM 4 01-09-20

JOB NO. 18-072 | D'WN JR TT | CK'D CJWR

E2.0
 LIGHTING PLAN



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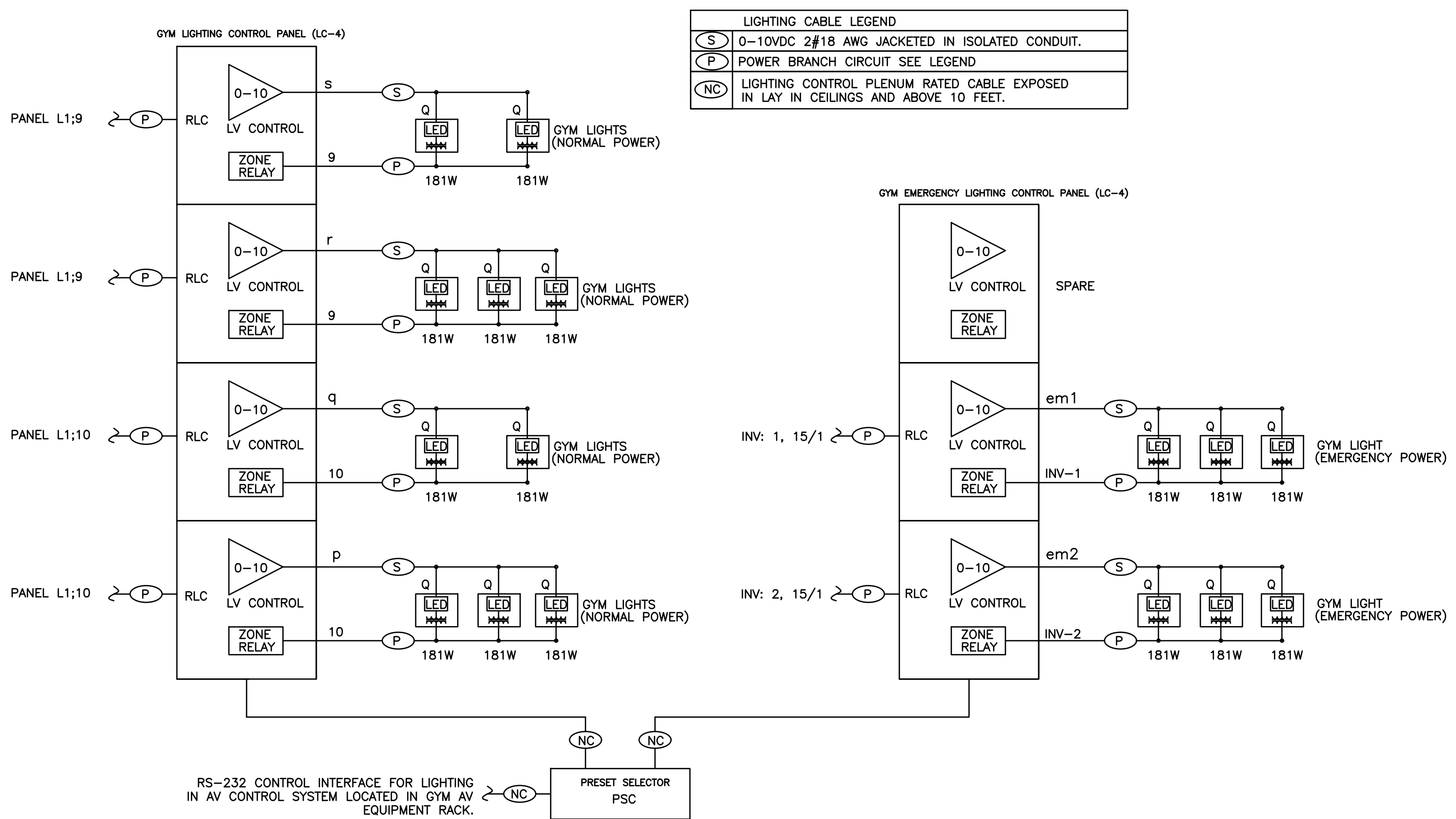
ZONE LIGHTING CONTROL SEQUENCE					
ZONE	AREA	DESCRIPTION	MANUAL OR	AV	REMARKS
a	MULTIPURPOSE A	VIDEO AMBIENT CONTROL	PSC	YES	FOUR PRESETS TBD
b	MULTIPURPOSE A	GENERAL LEVEL CONTROL	PSC	YES	FOUR PRESETS TBD
c	MULTIPURPOSE B	VIDEO AMBIENT CONTROL	PSC	YES	FOUR PRESETS TBD
d	MULTIPURPOSE B	GENERAL LEVEL CONTROL	PSC	YES	FOUR PRESETS TBD
e	NORTH EXTERIOR	AUTOMATIC TOD CONTROL	NO	YES	ASTRONOMICAL AND TOD CONTROL
f	SOUTH EXTERIOR	AUTOMATIC TOD CONTROL	NO	NO	ASTRONOMICAL AND TOD CONTROL
g	TEEN LOUNGE	VIDEO AMBIENT CONTROL	PSC	YES	FOUR PRESETS TBD
h	TEEN LOUNGE	GENERAL LEVEL CONTROL	PSC	YES	FOUR PRESETS TBD
i	TEEN LOUNGE	AMBIENT CONTROL	PSC	YES	FOUR PRESETS TBD
j	READING/TECH	GENERAL LEVEL CONTROL	PSC	NO	FOUR PRESETS TBD
k	READING/TECH	AMBIENT CONTROL	PSC	NO	FOUR PRESETS TBD
l	INT. CORRIDORS	AUTOMATIC TOD CONTROL	PSC	NO	TOD/MANUAL FOUR PRESETS TBD
m	RECEPTIONIST	AUTOMATIC TOD CONTROL	PSC	NO	TOD/MANUAL FOUR PRESETS TBD
n	LOBBY DOWNLIGHTS	AUTOMATIC TOD CONTROL	PSC	NO	TOD/MANUAL FOUR PRESETS TBD
o	LOBBY UP LIGHTS	AUTOMATIC TOD CONTROL	PSC	NO	TOD/MANUAL FOUR PRESETS TBD
p	GYM WEST	GENERAL LEVEL CONTROL	PSC	YES	FOUR PRESETS TBD
q	GYM WEST CENT.	GENERAL LEVEL CONTROL	PSC	YES	FOUR PRESETS TBD
r	GYM EAST CENT.	GENERAL LEVEL CONTROL	PSC	YES	FOUR PRESETS TBD
s	GYM EAST	GENERAL LEVEL CONTROL	PSC	YES	FOUR PRESETS TBD
t	WEIGHT ROOM	GENERAL LEVEL CONTROL	PSC	NO	FOUR PRESETS TBD
em1	GYM NORTH	EMERGENCY LIGHTING	PSC	YES	FOUR PRESETS TBD/MINIMUM
em2	GYM SOUTH	EMERGENCY LIGHTING	PSC	YES	FOUR PRESETS TBD/MINIMUM

NOTES:
1. ALL CONTROL SYSTEMS ARE STANDALONE WITHOUT CENTRAL NETWORK CONTROL.
2. GYMNASIUM SYSTEM IS SHOWN AS "TYPICAL" CONFIGURATION. OTHERS ARE SIMILAR IN GENERAL ARRANGEMENT.
3. ALL ZONES ARE 0-10VDC DIMMABLE AND ARE ACTIVATED BY PRESET CONFIGURATION. CONFIGURATION TO BE DETERMINED IN SHOP DRAWINGS.
4. AUDIO-VISUAL CONTROL SYSTEMS ARE PROVIDED FOR SPACES INDICATED AS "AV". THE AV TOUCH SCREEN WILL PROVIDE CONTROL OF PRESETS.
5. PRESET CONTROLS ARE PROVIDED WITH MANUAL DIMMING ADJUSTMENT FOR EACH ZONE
6. EMERGENCY LIGHTING ZONES ARE CONTROLLED WITH PRESETS BUT HAVE A MINIMUM SETTING FOR EMERGENCY ILLUMINATION 24/7.

LIGHTING FIXTURE SCHEDULE								
SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	WATTS PER UNIT	LAMP TYPE	MOUNTING HEIGHT	TYPE MOUNTING	REMARKS
A	2X2 VOLUMETRIC RECESSED	LITHONIA	2VTL2-48LADP-GZ1-LP840	40	LED	CLG	RECESSED CEILING	PROVIDE DRIVERS FOR 0-10VDC DIMMING CONTROL TO 1%.
AE	2X2 VOLUMETRIC RECESSED	LITHONIA	2VTL2-48LADP-GZ1-LP840-E10WCP	40	LED	CLG	RECESSED CEILING	WITH 10W CONSTANT POWER EMERGENCY BATTERY PACK
B	2X2 LED FLAT PANEL	LITHONIA	EPANL 2X2 4000LM 80CRI 40K MIN1 ZT MVOLT GMF	32	LED	CLG	RECESSED CEILING	PROVIDE DRIVERS FOR 0-10VDC DIMMING CONTROL TO 1%.
BE	2X2 LED TROFFER	LITHONIA	EPANL 2X2 4000LM 80CRI 40K MIN1 ZT MVOLT E10WCP GMF	32	LED	CLG	RECESSED CEILING	WITH 10W CONSTANT POWER EMERGENCY BATTERY PACK
C	STRIP	LITHONIA	ZL1N L48 SMR 5000LM LLENS MVOLT 40K 80CRI GALV WZ48	34	LED	10'-0" AFF	PENDANT BELOW STRUCTURE	PROVIDE WIRE GUARD. WALL MOUNTED WHERE SHOWN IN MECHANICAL ROOMS.
D	2X2 RECESSED CEILING	KENALL	CSED22-45TD-120-PAF-PAH-SYM-FN	45	LED	CLG	RECESSED CEILING	WASHABLE, GASKETED FIXTURE FOR USE IN FOOD PREPARATION AREAS.
E	EMERGENCY LIGHT	LITHONIA	ELM2 LED SD	3	LED	8'-6" AFF	WALL	WALL MOUNT EMERGENCY LIGHT
F1	ACOUSTIC SHADE	LIGHTART	34 MN ZN STD 830 BP BK BP	12	LED	10'-0" AFF	PENDANT BELOW STRUCTURE	TYPE L ACOUSTIC SHADE, COLORS VERIFIED BY ARCHITECT
F2	ACOUSTIC SHADE	LIGHTART	27 MN ZN STD 830 BP BK BP	7	LED	10'-0" AFF	PENDANT BELOW STRUCTURE	TYPE M ACOUSTIC SHADE, COLORS VERIFIED BY ARCHITECT
F3	ACOUSTIC SHADE	LIGHTART	22 MN ZN STD 830 BP BK BP	7	LED	10'-0" AFF	PENDANT BELOW STRUCTURE	TYPE S ACOUSTIC SHADE, COLORS VERIFIED BY ARCHITECT
K	PENDANT	LEDALITE TRUGROOVE	29 0 6L AC QQ 08K D E	43.2	LED	10'-0" AFF	PENDANT BELOW STRUCTURE	COLOR TO BE DETERMINED BY ARCHITECT
L	RECESSED	LEDALITE TRUGROOVE	39 0 1L AD QS4 08 7 D E	29.7	LED	CLG	RECESSED INTO GYPBOARD	COLOR TO BE DETERMINED BY ARCHITECT
M	WALL MOUNT	LEDALITE TRUGROOVE	29 2 6L AC WW 087 D E	23.3	LED	8'-0"	WALL MTD ABOVE VANITIES	COLOR TO BE DETERMINED BY ARCHITECT
Q	HIGH BAY PENDANT	LITHONIA	JEBL 24L 40K 80CRI WH WG2 M6 SC120 DALR2 M4	161	LED	20'-0" AFF	PENDANT BELOW STRUCTURE	WITH WIRE GUARD, REFLECTOR AND SAFETY CABLE
R	IN GRADE FLAG LIGHT	HYDREL	PDX10B 18LED WHT41K MVOLT NSP FLC	90	LED	IN GRADE	IN GRADE FOR FLAG ILLUMINATION	
S	RECESSED DOWN LIGHT	LITHONIA	LDN6 40/20 L06 WR LSS MVOLT GZ1	22.6	LED	CLG	RECESSED CEILING	
T	DECORATIVE	BETA CALCO	1AX12/2AX13 J4 CB1 CCD L0 W1 Y1	389	LED	10'-0" AFF	PENDANT BELOW STRUCTURE	ALL END CAPS, AND HARDWARE REQUIRED FOR CONFIGURATION SHOWN ON THE DRAWINGS.
T1	DECORATIVE	BETA CALCO	1AX12/1AX13 J4 CB1 CCD L0 W1 Y1	257	LED	10'-0" AFF	PENDANT BELOW STRUCTURE	ALL END CAPS, AND HARDWARE REQUIRED FOR CONFIGURATION SHOWN ON THE DRAWINGS.
W	WALL MOUNT	LITHONIA	OLWX1 LED 40W 40K	40	LED	10'0" ABOVE GRADE	EXTERIOR WALL MOUNTED	
Z	EGRESS LIGHT	LIGHTALARMS	CAMACSDDB-FT	12	LED	9'-0"	EXTERIOR EGRESS LIGHT	EMERGENCY EGRESS LIGHTING WITH -4F TO +104F TEMPERATURE RANGE
XL	EXIT LIGHT	LITHONIA	EDG-G-EL-SD-WM	4.5	LED	8'-6" AFF	WALL	LED EXIT SIGN WITH CHEVRONS AS REQD. SINGLE/DOUBLE FACE, NICAD BATTERY

FIXTURE SCHEDULE ABBREVIATIONS:
LED - LIGHT EMITTING DIODE C - CEILING O.B. - OUTLET BOX S - SURFACE L.I. - LAY-IN

FIXTURE SCHEDULE NOTES:
1. CATALOG NUMBERS ARE PROVIDED FOR REFERENCE ONLY. DETERMINE EXACT CATALOG NUMBER FROM FIXTURE APPLICATION AND DESCRIPTIONS.
2. ALL SUBSTITUTIONS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL AT LEAST 10 DAYS PRIOR TO PROJECT BID DATE.
3. ALL DRIVERS TO BE 120 VOLTS UNLESS SHOWN OTHERWISE.
4. EACH LED DRIVER SHALL BE FUSED WITH APPROVED DUAL ELEMENT FUSE.
5. ALL FIXTURES SHALL BE WIRED WITH FLEX WITH A SEPARATE GREEN GROUND WIRE.
6. ALL FIXTURES SHALL HAVE JOINING PLATES, END CAPS, CANOPIES, ETC.
7. FIXTURE MOUNTING AND SUSPENSION SHALL BE AS APPROVED BY ENGINEER. NO COMBUSTIBLE MATERIALS SHALL BE USED.
8. MOUNTING AND SUPPORT DETAILS FOR LIGHTING FIXTURES SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER BEFORE THE FIXTURES ARE INSTALLED.
9. FIXTURE OUTLET BOX LOCATIONS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND APPROXIMATE IN LOCATION. EXACT POSITION OF THE OUTLET BOX DEPENDS ON THE FIXTURE AND THE MOUNTING DETAIL.

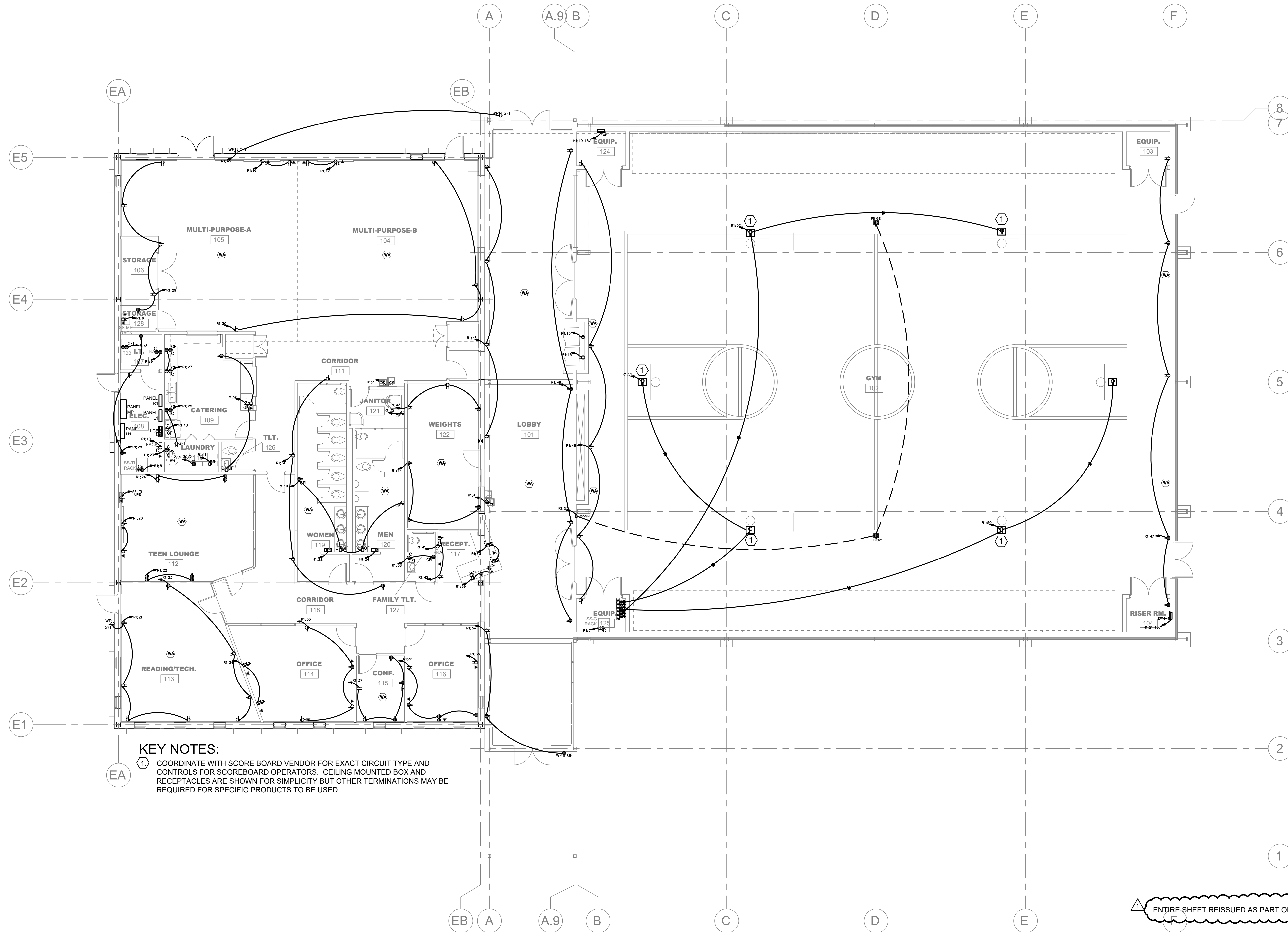


GYM LIGHTING CONTROL SINGLE LINE 1
NTS E2.1

ENTIRE SHEET REISSUED AS PART OF THIS ADDENDUM

ISSUE DATES
INITIAL ISSUE 12-20-19
ADDENDUM 4 01-09-20

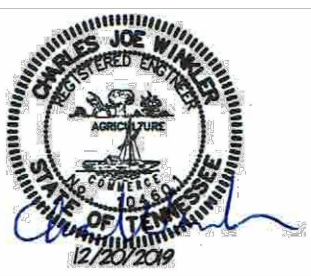
JOB NO. 18-072 | D'WN JRT | CK'D CJWR



KEY NOTES:

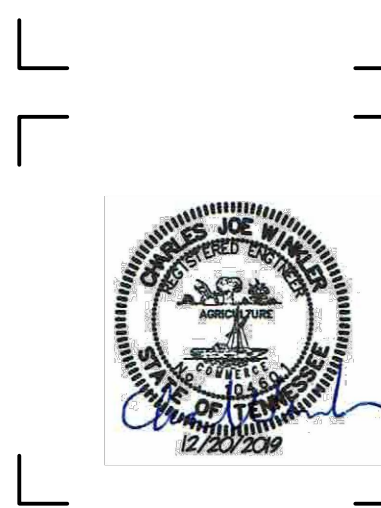
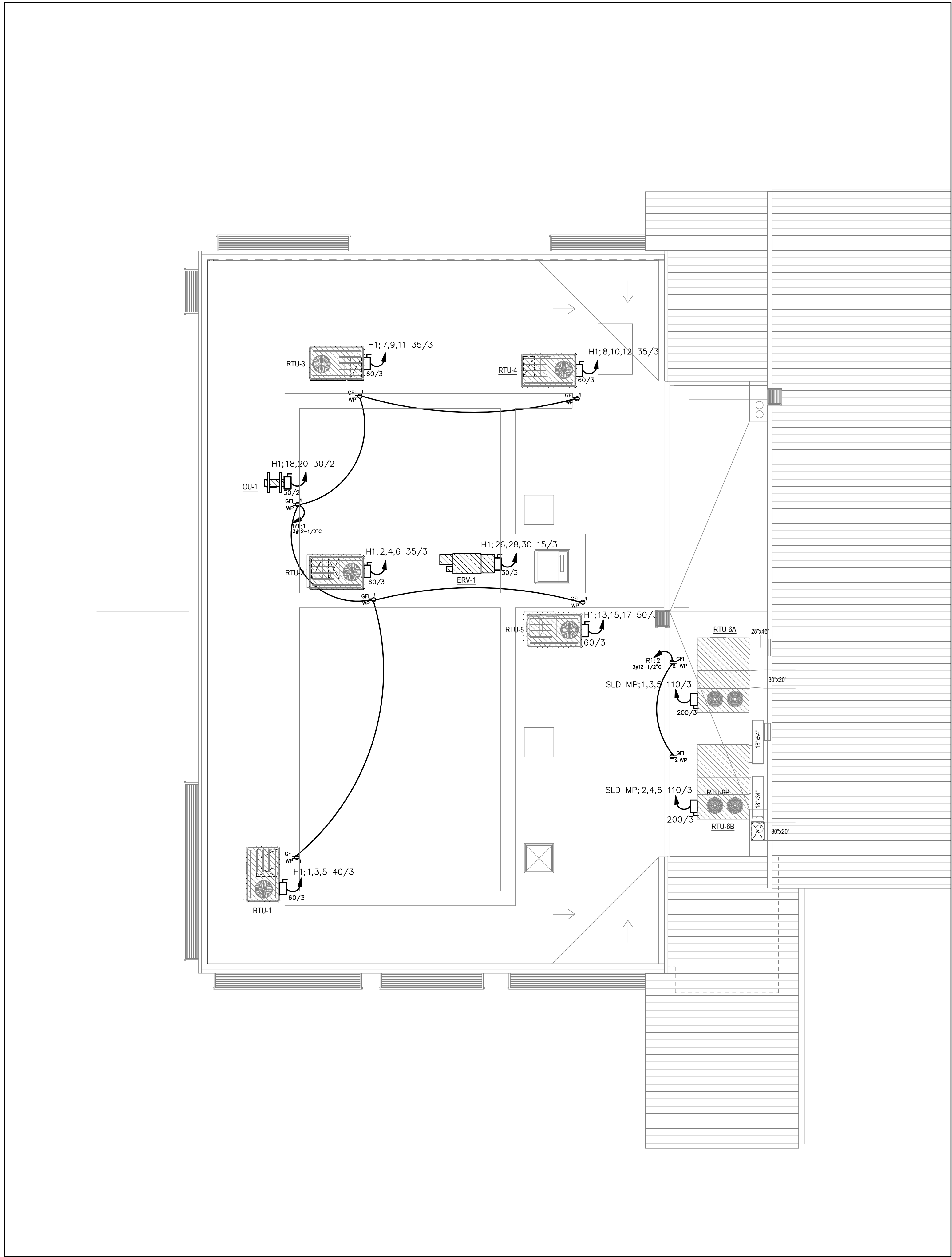
1 COORDINATE WITH SCORE BOARD VENDOR FOR EXACT CIRCUIT TYPE AND CONTROLS FOR SCOREBOARD OPERATORS. CEILING MOUNTED BOX AND RECEPTACLES ARE SHOWN FOR SIMPLICITY BUT OTHER TERMINATIONS MAY BE REQUIRED FOR SPECIFIC PRODUCTS TO BE USED.

ENTIRE SHEET REISSUED AS PART OF THIS ADDENDUM



ISSUE DATES
 INITIAL ISSUE 12-20-19
 ADDENDUM 4 01-09-20

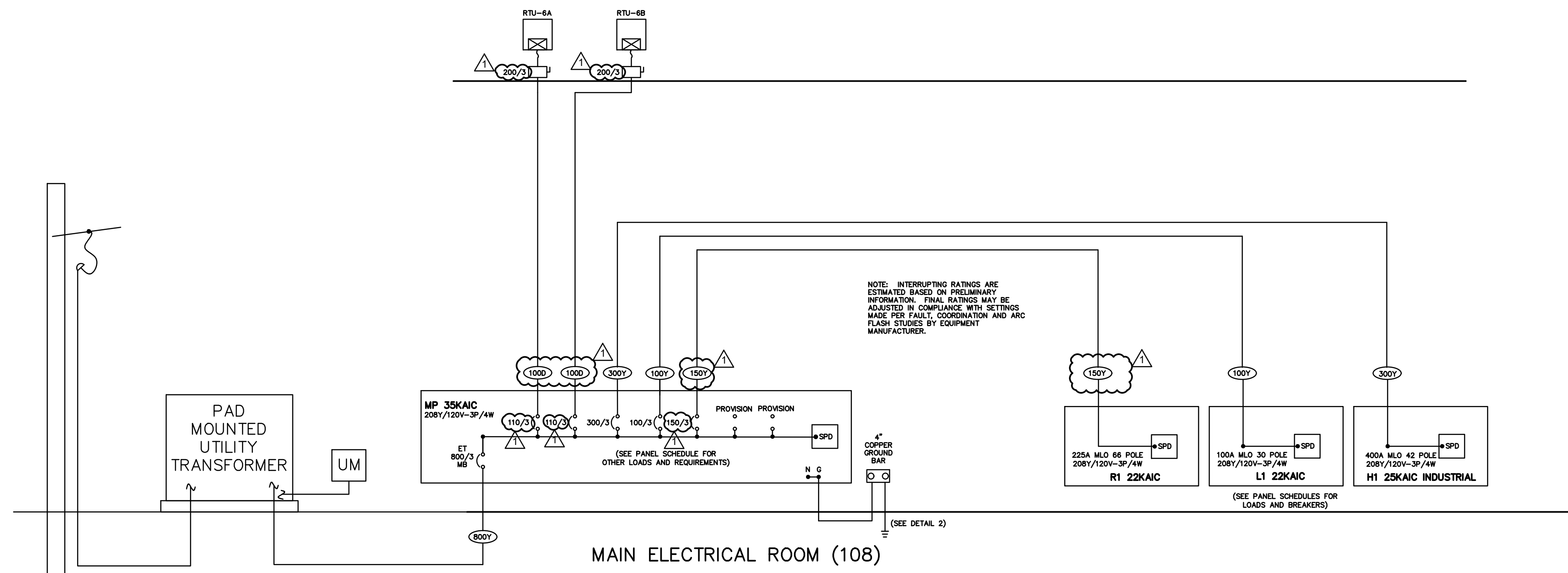
JOB NO. 18-072 | D'WN JRTT | CK'D CJWR



ISSUE DATES
 INITIAL ISSUE 12-20-19
 ADDENDUM 4 01-09-20

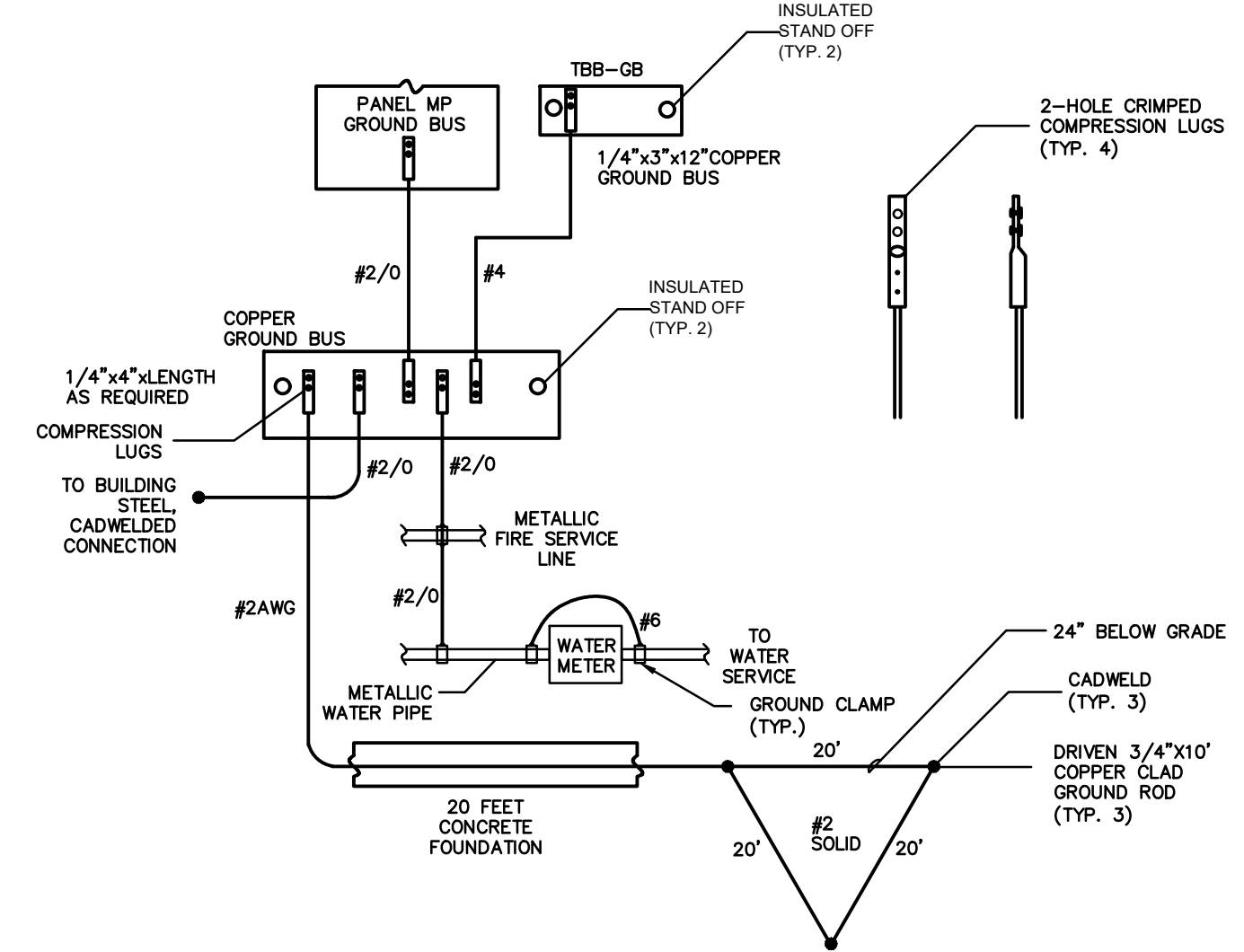
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JOB NO. 18-072 | D'WN JRJT | CK'D CJWR

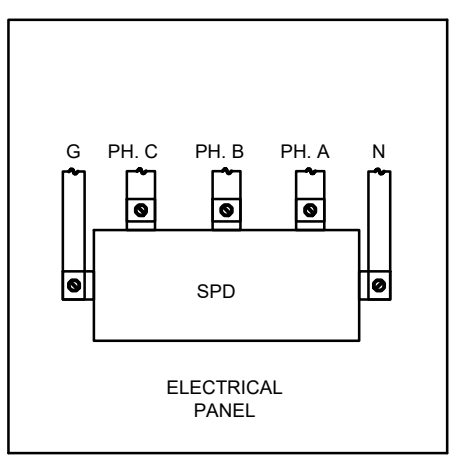


UTILITY YARD

SINGLE LINE POWER
NTS
E3.01



NOTES:
1. SURGE PROTECTIVE DEVICE FACTORY INSTALLED INSIDE PANEL. BUS CONNECTED FOR PHASE AND NEUTRAL CONDUCTORS. BOND GROUND TO CAN.



INTERNAL PANEL SPD DETAIL
E3.01
N.T.S.

GROUND SYSTEM
E3.01
N.T.S.

3 WIRE FEEDERS		FEEDER SIZES FOR SINGLE LINE DIAGRAM		4 WIRE FEEDERS (SEE NOTE 1)	
CKT	1750V OR 208Y/120V (EMF, RGS or SMC)	NOTE 3	CKT	1750V OR 208Y/120V (EMF, RGS or SMC)	NOTE 3
20A1P	2#12, 1#12S, 1/2"C	+	20Y	3#12, 1#12N & 1#12S, 1/2"C	+
20A2P	2#12 & 1#12S, 1/2"C	+	30Y	4#10 & 1#10S, 3/4"C	+
200	3#12 & 1#10S, 1/2"C	+	40Y	4#8 & 1#10S, 3/4"C	+
30A2P	2#10 & 1#10S, 1/2"C	+	50Y	4#6 & 1#10S, 1"C	+
300	3#10 & 1#10S, 1/2"C	+	60Y	4#6 & 1#10S, 1"C	+
400	3#8 & 1#10S, 3/4"C	+	70Y	4#4 & 1#8S, 1-1/4"C	+
600	3#6 & 1#10S, 3/4"C	+	80Y	4#4 & 1#8S, 1-1/4"C	+
700	3#4 & 1#8S, 1"C	+	90Y	4#3 & 1#8S, 1-1/4"C	+
800	3#3 & 1#8S, 1"C	+	100Y	4#2 & 1#8S, 1-1/2"C	+
900	3#3 & 1#8S, 1"C	+	110Y	4#2 & 1#8S, 1-1/2"C	+
1000	3#2 & 1#8S, 1-1/4"C	+	125Y	4#1 & 1#8S, 2"C	+
1100	3#2 & 1#8S, 1-1/4"C	+	150Y	4#10 & 1#8S, 2"C	+
1250	3#1 & 1#8S, 1-1/2"C	+	175Y	4#20 & 1#8S, 2"C	+
1500	3#10 & 1#8S, 2"C	+	200Y	4#30 & 1#8S, 2-1/2"C	+
1750	3#20 & 1#8S, 2"C	+	225Y	4#40 & 1#8S, 2-1/2"C	+
2000	3#30 & 1#8S, 2"C	+	250Y	4#250KCMIL & 1#4S, 2-1/2"C	+
2250	3#40 & 1#8S, 2"C	+	300Y	4#350KCMIL & 1#4S, 3"C	+
2500	3#50KCMIL & 1#4S, 2-1/2"C	+	350Y	4#400KCMIL & 1#3S, 3"C	+
3000	3#550KCMIL & 1#4S, 3"C	+	400Y	4#500KCMIL & 1#3S, 4"C	+
3500	3#400KCMIL & 1#3S, 3"C	+	450Y	2 RUNS EACH 4#400KCMIL & 1#3S, 3-1/2"C	+
4000	3#500KCMIL & 1#3S, 3-1/2"C	+	500Y	2 RUNS EACH 4#500KCMIL & 1#3S, 3"C	+
4500	2 RUNS EACH 3#400KCMIL & 1#3S, 2-1/2"C	+	600Y	2 RUNS EACH 3#500KCMIL & 1#10S, 3"C	+
5000	2 RUNS EACH 3#500KCMIL & 1#3S, 2-1/2"C	+	700Y	2 RUNS EACH 4#500KCMIL & 1#10S, 4"C	+
6000	2 RUNS EACH 3#500KCMIL & 1#10S, 3"C	+	800Y	2 RUNS EACH 4#500KCMIL & 1#10S, 4"C	+
8000	2 RUNS EACH 3#500KCMIL & 1#10S, 3-1/2"C	+	1000Y	3 RUNS EACH 4#400KCMIL & 1#20S, 3-1/2"C	+
10000	3 RUNS EACH 3#500KCMIL & 1#20S, 3"C	+	1100Y	3 RUNS EACH 4#500KCMIL & 1#20S, 4"C	+
11000	3 RUNS EACH 3#500KCMIL & 1#20S, 3-1/2"C	+	1200Y	4 RUNS EACH 4#500KCMIL & 1#20S, 4"C	+
12000	4 RUNS EACH 3#500KCMIL & 1#20S, 3"C	+	1500Y	4 RUNS EACH 4#500KCMIL & 1#40S, 4"C	+
15000	4 RUNS EACH 3#500KCMIL & 1#40S, 3-1/2"C	+	1600Y	5 RUNS EACH 4#400KCMIL & 1#40S, 3-1/2"C	+
16000	5 RUNS EACH 3#500KCMIL & 1#40S, 3"C	+	1900Y	5 RUNS EACH 4#500KCMIL & 1#250KCMIL G, 4"C	+
19000	5 RUNS EA 3#500KCMIL & 1#250KCMIL G, 3-1/2"C	+	2000Y	6 RUNS EA 3#400KCMIL & 1#250KCMIL G, 3-1/2"C	+
20000	6 RUNS EACH 3#400KCMIL & 1#250KCMIL G, 3"C	+	2200Y	6 RUNS EACH 4#500KCMIL & 1#500KCMIL G, 4"C	+
22000	6 RUNS EA 3#500KCMIL & 1#500KCMIL G, 3-1/2"C	+	2500Y	7 RUNS EACH 4#500KCMIL & 1#500KCMIL G, 4"C	+
25000	7 RUNS EA 3#500KCMIL & 1#500KCMIL G, 3-1/2"C	+	3000Y	8 RUNS EACH 4#500KCMIL & 1#400KCMIL G, 4"C	+
30000	8 RUNS EA 3#500KCMIL & 1#400KCMIL G, 3-1/2"C	+	3800Y	10 RUNS EACH 4#500KCMIL & 1#500KCMIL G, 4"C	+
38000	10 RUNS EA 3#500KCMIL & 1#500KCMIL G, 3-1/2"C	+	3000Y	8 RUNS EACH 4#500KCMIL & 1#400KCMIL G, 4"C	+
40000	11 RUNS EA 3#500KCMIL & 1#500KCMIL G, 3-1/2"C	+	3800Y	10 RUNS EA 4#500KCMIL & 1#500KCMIL G, 4"C	+
41000	11 RUNS EA 3#500KCMIL & 1#500KCMIL G, 3-1/2"C	+	4000Y	11 RUNS EA 4#500KCMIL & 1#500KCMIL G, 3-1/2"C	+
41000	11 RUNS EA 4#500KCMIL & 1#500KCMIL G, 4"C	+	4100Y	11 RUNS EACH 4#500KCMIL & 1#500KCMIL G, 4"C	+

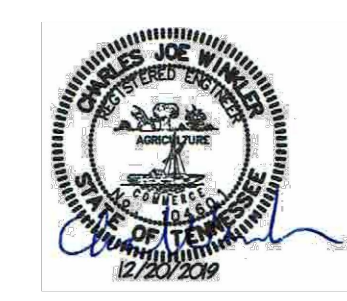
NOTE 1: PER NFPA 70 "ON A 4-WIRE, 3-PHASE WYE CIRCUIT WHERE THE MAJOR PORTION OF THE LOAD CONSISTS OF NON-LINEAR LOADS, HARMONIC CURRENTS ARE PRESENT IN THE NEUTRAL CONDUCTOR. THE NEUTRAL CONDUCTOR SHALL BE CONSIDERED A CURRENT CARRYING CONDUCTOR" REQUIRED ADJUSTMENTS SHALL BE APPLIED PER PROVISIONS OF 2014 NEC 310.15(B)(3)(A).

NOTE 2: USE OF NONSTANDARD CIRCUIT BREAKER SETTINGS IS RESTRICTED PER NEC 240.6, STANDARD AMPERE RATINGS.

NOTE 3: FOR 120/208 VOLT BRANCH CIRCUITS LONGER THAN 100 FEET, INCREASE THE CONDUCTOR SIZE ONE GAUGE. FOR EVERY ADDITIONAL 50 FEET INCREASE THE CONDUCTOR SIZE ONE ADDITIONAL GAUGE.

NOTE 4: FOR 208 VOLT BRANCH CIRCUITS LONGER THAN 150 FEET, INCREASE THE CONDUCTOR SIZE BY 1 GAUGE. FOR EVERY ADDITIONAL 75 FEET, INCREASE THE CONDUCTOR SIZE ONE ADDITIONAL GAUGE.

* DENOTES 200% NEUTRAL.



MP														
LOCATION		ELECTRICAL ROOM 108												
RATING		800A. MCB (NOTE 7)												
VOLTAGE (L-L)		208												
VOLTAGE (L-N)		120												
PHASE		3												
WIRE		4												
MOUNTING		SURFACE MOUNTED												
CODE	CKT #	BKR	POLE	DESCRIPTION	LOAD (VA)	PHASE A	PHASE B	PHASE C	LOAD (VA)	DESCRIPTION	POLE	BKR	CKT #	CODE
M	1	110	3	RTU 6A 12.5 TON (NOTE 6)	9,960	19,920			9,960	RTU 6B 12.5 TON (NOTE 6)	3	110	2	M
M	3	---	---		9,960		19,920		9,960		---	---	4	M
M	5	---	---		9,960			19,920	9,960		---	---	6	M
M	7	300	3	PANEL H-1 (NOTE 6)	25,300	30,700			4,750	PANEL L-1	3	100	8	L
M	9	---	---		25,730		31,230		5,500		---	---	10	L
M	11	150	3	PANEL R-1	25,530	11,711	16,711		5,850	PROVISION	3	225	14	S
R	15	---	---		12,377		17,377		5,000		---	---	16	S
R	17	---	---		11,863			16,863	5,000		---	---	18	S
S	19	225	3	PROVISION	5,000	7,500			2,500	PROVISION	3	225	20	S
S	21	---	---		5,000		7,500		2,500		---	---	22	S
S	23	---	---		5,000			7,500	2,500		---	---	24	S
SURGE PROTECTION DEVICE										SURGE PROTECTION DEVICE				
BUS CONNECTED										BUS CONNECTED				

NOTES:
 1 BASIS OF DESIGN IS SCHNEIDER SQUARE D. MINIMUM AIC RATING SHALL BE 35K
 2 PANEL TO BE PROVIDED WITH MANUFACTURER'S STANDARD INTERNAL SURGE SUPPRESSION
 3 FULLY RATED, NOT SERIES RATED.
 4 SERVICE ENTRANCE RATED
 5 DOOR-IN-DOOR HINGED COVER.
 6 HACR RATED
 7 ELECTRONIC TRIP (LSI)

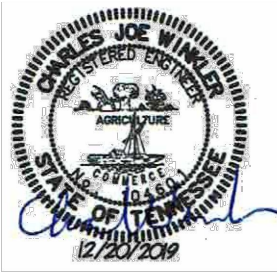
Load Type	Load Factor	Connected Load (VA)			Total Conn. Load (VA)	Demand Factor	Demand Load (VA)			Total Demand Load (VA)
		A	B	C			A	B	C	
Lighting (L)	1.00	4750	5500	5850	16100	1.00	4750	5500	5850	16100
Receptacles (R)	1.00	11711	12377	11863	35951	NEC	7484	7910	7581	22975
Motor (M)	1.00	45870	45850	45450	136970	1.00	45870	45850	45450	136970
Largest Motor	1	9960	9960	9960	9960	1	9960	9960	9960	9960
Other (O)	1.00	0	0	0	0	1.00	0	0	0	0
Spare (S)	1.00	12500	12500	12500	37500	1.00	12500	12500	12500	37500
Electric Heat (H)	1.00	0	0	0	0	1.00	0	0	0	0
Total Load (VA)	1.00	84791	85987	85623	263871	---	80564	81520	81341	250895
Total Load (AMPS)	---	707	717	714	732	---	671	679	678	696

R1														
LOCATION		ELECTRICAL ROOM 108												
RATING		225 AMPERE MAIN LUGS												
VOLTAGE (L-L)		208												
VOLTAGE (L-N)		120												
PHASE		3												
WIRE		4												
MOUNTING		SURFACE MOUNTED												
CODE	CKT #	BKR	POLE	DESCRIPTION	LOAD (VA)	PHASE A	PHASE B	PHASE C	LOAD (VA)	DESCRIPTION	POLE	BKR	CKT #	CODE
R	1	20	1	ROOF TOP MECH MTCE	1000				1000	ROOF TOP MECH MTCE	1	20	2	R
R	3	20	1	WATER FOUNTAIN CORR. 111	1200		2400		1200	WATER FOUNTAIN LOBBY 101	1	20	4	R
R	5	20	1	AV RACK SS-TL ELEC. 108	1200			2000	800	AV RACK SS-MP STOR. 128	1	20	8	R
R	7	20	1	AV RACK SS-OM EQUIP. 125	1200	2000			800	FIB	1	20	8	R
R	9	20	1	IT EQUIP. RACK. 107	1200		2000		800	FACP ELEC. 108 (NOTE 4)	1	20	10	R
R	11	20	1	CLOTHES WASHER LAUND. 110	950			3110	2160	CLOTHES DRYER LAUND. 110	2	30	12	R
R	13	20	1	DRINK COOLER LOB. 101	1200	3360			2160		---	---	14	R
R	15	20	1	DRINK COOLER LOB. 101	1200		1800		600	VIDEO OUTLET MULTIPURP.-A	1	20	16	R
R	17	20	1	VIDEO OUTLET MULTIPURP.-B	800		2000	1200	1200	REFRIGERATOR OR CATERING 109	1	20	18	R
R	19	20	1	RESTROOMS 118/20 RECEPT.	800		800		800	VIDEO OUTLET TEEN LGE 112	1	20	20	R
R	21	20	1	READING/TECH 113 NORTH REC	1000		1800		800	TEEN LGE WEST RECEPT. 112	1	20	22	R
R	23	20	1	READING/TECH 113 SOUTH REC	800		1600		800	TEEN LGE EAST RECEPT. 112	1	20	24	R
R	25	20	1	CATERING/LAUNDRY 109/10	800	1400			800	CATERING SOUTH REC. 109	1	20	26	R
R	27	20	1	CATERING 109 NORTH REC.	800		1400		800	ELECT. IT 108/107 REC.	1	20	28	R
R	29	20	1	MULTIPURP. A NORTH REC.	1000			1800	800	MULTIPURP. B SOUTH REC.	1	20	30	R
R	31	20	1	CORRIDOR 126 REC.	1231	1631			400	JANITOR 121 RECEPT ACLES	1	20	32	R
R	33	20	1	OFFICE 114 SOUTH RECEPT.	800		1600		800	OFFICE 114 NORTH RECEPT ACLES	1	20	34	R
R	35	20	1	OFFICE 116 PRINTER	800		1900	1000	1000	OFFICE 116 RECEPT.	1	20	36	R
R	37	20	1	CONFERENCE 115 RECEPT.	800	1300			400	FAMILY TOILET 127 RECEPT.	1	20	38	R
R	39	20	1	RECEPTION COUNT. 117 NORTH	800		1600		800	RECEPTION 117 COUNTER SOUTH	1	20	40	R
R	41	20	1	FA AN. FRA 117 (NOTE 4)	600		1000	400	400	RECEPTION 117 RECEPT ACLES	1	20	42	R
R	43	20	1	WEIGHTS 122 EAST RECEPT.	800	1400			600	WEIGHTS 122 WEST RECEPT.	1	20	44	R
R	45	20	1	EAST EXTERIOR RECEPT.	800		1600		1000	GYM 102 NORTH RECEPT.	1	20	46	R
R	47	20	1	GYM 102 SOUTH RECEPT.	1000			1800	800	LOBBY 101 NORTH RECEPT.	1	20	48	R
R	49	20	1	LOBBY 101 SOUTH RECEPT.	800	2000			1200	SOUTH SCOREBOARDS	1	20	50	R
R	51	20	1	NORTH SCOREBOARDS	1200		2400		1200	EAST SCOREBOARDS	1	20	52	R
R	53	20	1	GYM AV OUTLETS (W/FPF)	600		1200		600	LOBBY 101 WEST RECEPT ACLES	1	20	54	R
S	55	20	1	SPARE	600	800			200	SPARE	1	20	56	S
S	57	20	1	SPARE	600		800		200	SPARE	1	20	58	S
S	59	50	1	PROVISION	200			400	200	PROVISION	1	50	60	S
S	61	50	1	PROVISION	200	400			200	PROVISION	1	50	62	S
S	63	50	1	PROVISION	200		400		200	PROVISION	1	50	64	S
S	65	50	1	PROVISION	200			400	200	PROVISION	1	50	66	S
SURGE PROTECTION DEVICE										SURGE PROTECTION DEVICE				
BUS CONNECTED										BUS CONNECTED				

NOTES:
 1 BASIS OF DESIGN IS SIEMENS P2. MINIMUM AIC RATING SHALL BE 22K
 2 PANEL TO BE PROVIDED WITH MANUFACTURER'S STANDARD INTERNAL SURGE SUPPRESSION
 3 FULLY RATED, NOT SERIES RATED.
 4 PROVIDE LOCKING DEVICE FOR EMERGENCY POWER CIRCUITS
 5 DOOR-IN-DOOR HINGED COVER.
 6 HOLD

Load Type	Load Factor	Connected Load (VA)			Total Conn. Load (VA)	Demand Factor	Demand Load (VA)			Total Demand Load (VA)
		A	B	C			A	B	C	
Lighting (L)	1.00	0	0	0	0	1.00	0	0	0	0
Receptacles (R)	1.00	16491	16600	16410	49501	NEC	9917	9977	9863	29751
Motor (M)	1.00	0	0	0	0	1.00	0	0	0	0
Largest Motor	1	1200	1200	1200	3600	1	1200	1200	1200	3600
Other (O)	1.00	0	0	0	0	1.00	0	0	0	0
Spare (S)	1.00	600	1200	800	2600	1.00	600	1200	800	2600
Electric Heat (H)	1.00	0	0	0	0	1.00	0	0	0	0
Total Load (VA)	1.00	18291	19000	18410	56601	---	11711	12377	11863	36851
Total Load (AMPS)	---	152	158	153	157	---	98	103	99	102

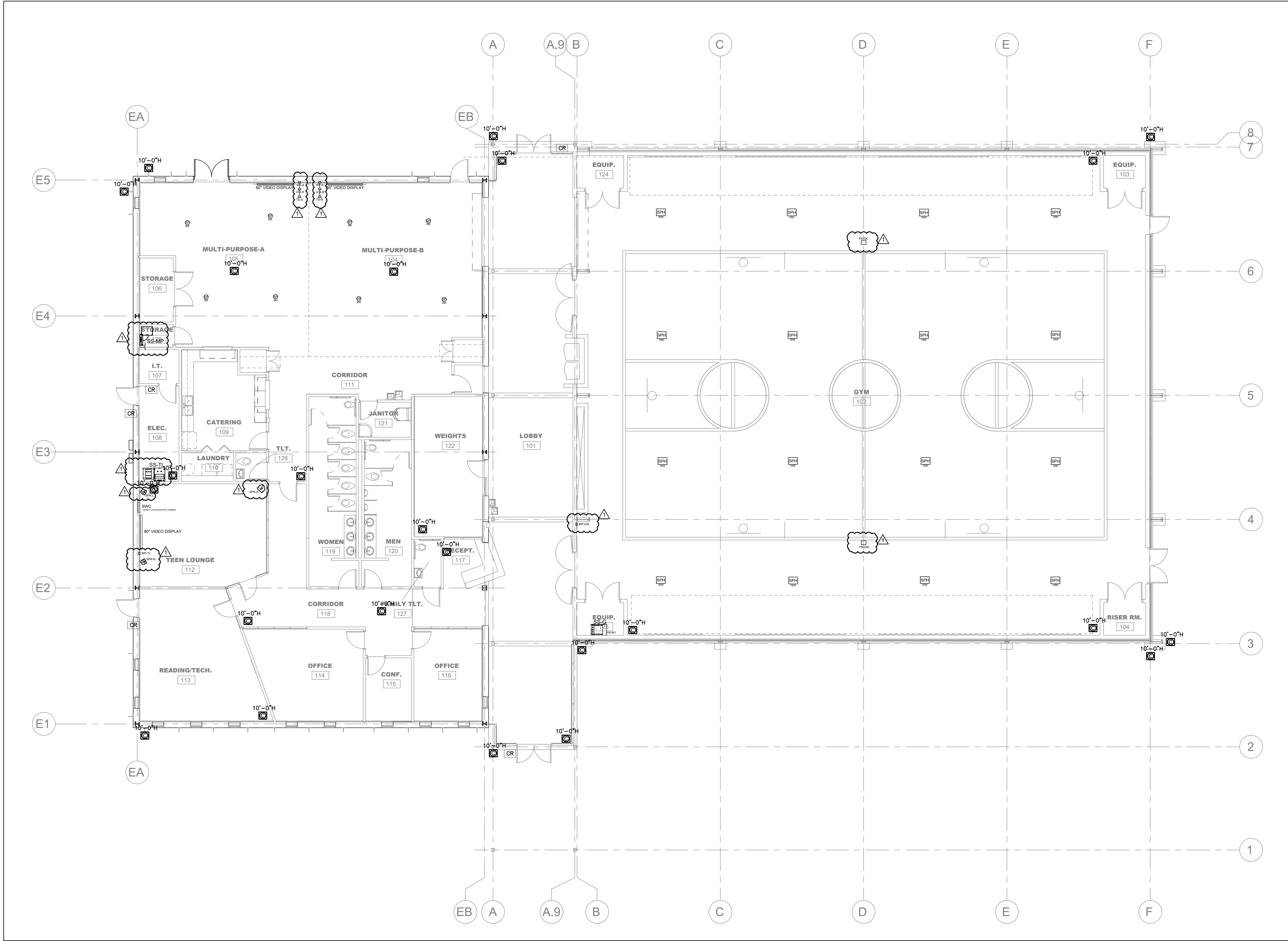
H1 (MECHANICAL SYSTEMS)														
LOCATION		ELECTRICAL ROOM 108												
RATING		400 MAIN LUGS ONLY												
VOLTAGE (L-L)		4												
VOLTAGE (L-N)		120												
PHASE		3												
WIRE		4												
MOUNTING		SURFACE MOUNTED												
CODE	CKT #	BKR	POLE	DESCRIPTION	LOAD (VA)	PHASE A	PHASE B	PHASE C	LOAD (VA)	DESCRIPTION	POLE	BKR	CKT #	CODE
M	1	40	3	RTU-1	3480	6600			3120	RTU-2	3	35	2	M
M	3	---	---		3480		6600		3120		---	---	4	M
M	5	---	---		3480			6600	3120		---	---	6	M
M	7	35	3	RTU-3	3120	6240			3120	RTU-4	3	35	8	M
M	9	---	---		3120		6240		3120		---	---	10	M
M	11	---	---		3120			6240	3120		---	---	12	M
M	13	80	3	RTU-5	4440	4840			400	SPARE	2	15	14	M
M	15	---	---		4440		4840		400		---	---	16	M
M	17	---	---		4440			4440			---	---	18	M
H	19	15	1	EW-1	750	2070			1320		---	---	20	M
H	21	20	1	EW-1	750		2200		1480	HD-1	1	20	22	S
H	23	20	1	WH	600			2060	1460	HD-2	1	20	24	S
S	25	20	1	SPARE	600	1100			600	ERV-1	3	15	26	S
S	27	30	2	SPARE	600		1100		600		---	---	28	S
S	29	---	---		600			1100	600		---	---	30	S
S	31	60	3	PROVISION	100	350			250	PROVISION	1	20	32	S
S	33	---	---		100		350		250		---	---	34	S
S	35	---	---		100			350	250		---	---	36	S
S	37	60	3	PROVISION	100	350			250	PROVISION	3	60	38	

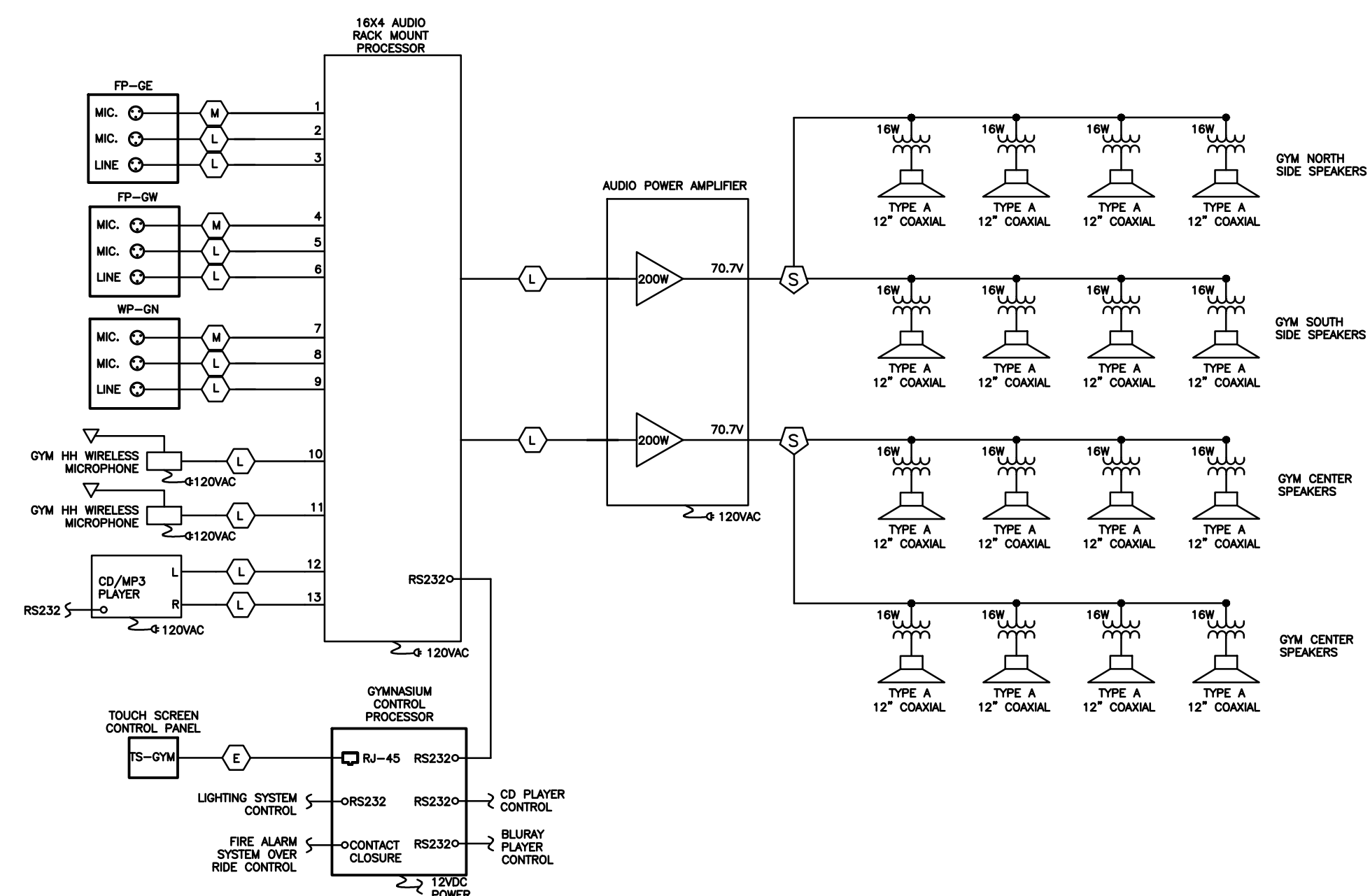


ISSUE DATES
 INITIAL ISSUE 12-20-19
 ADDENDUM 4 01-09-20

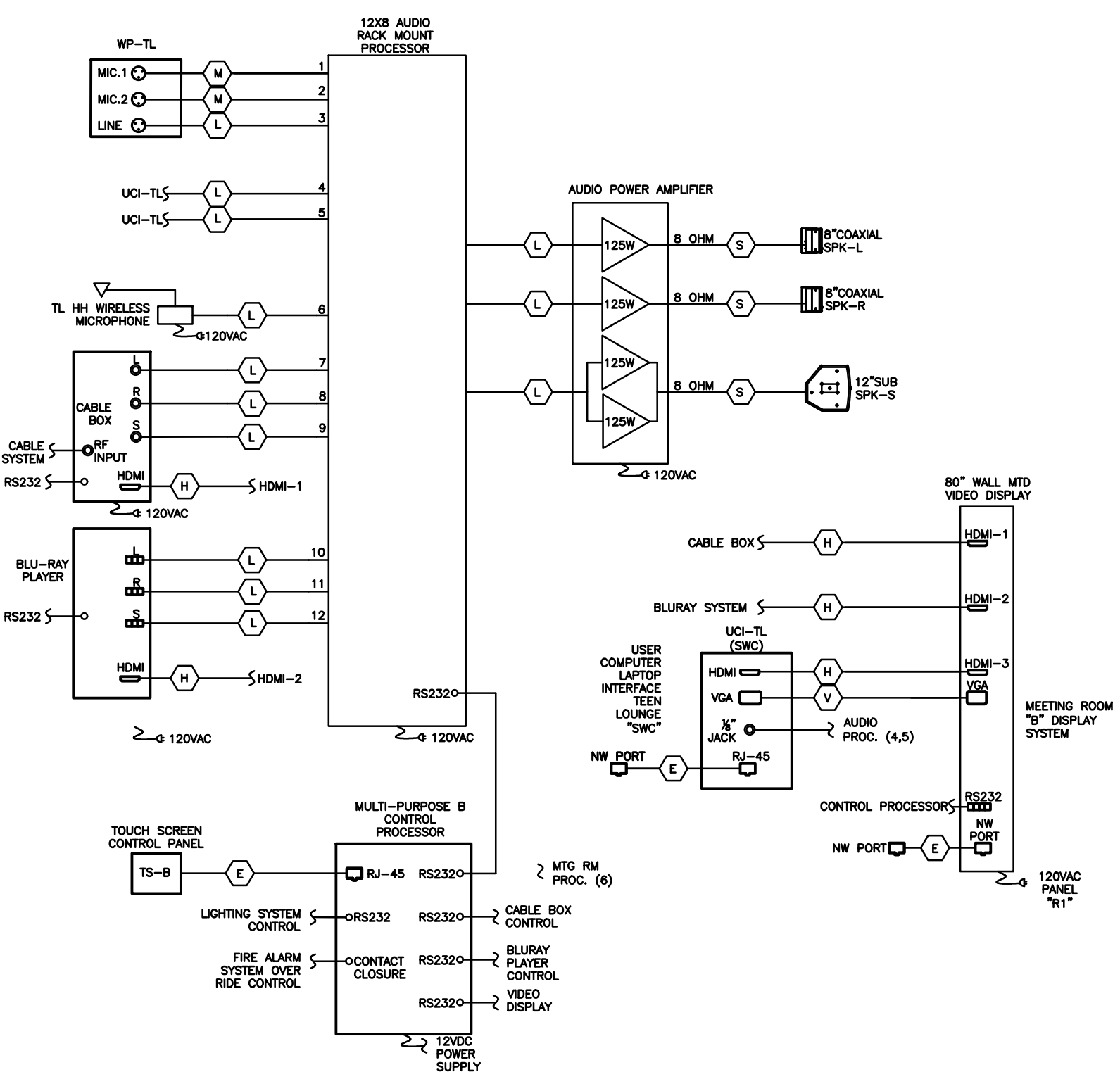
JOB NO. 18-072 | D'WN JRRT | CK'D CJWR

E5.0
 AUXILIARY PLAN

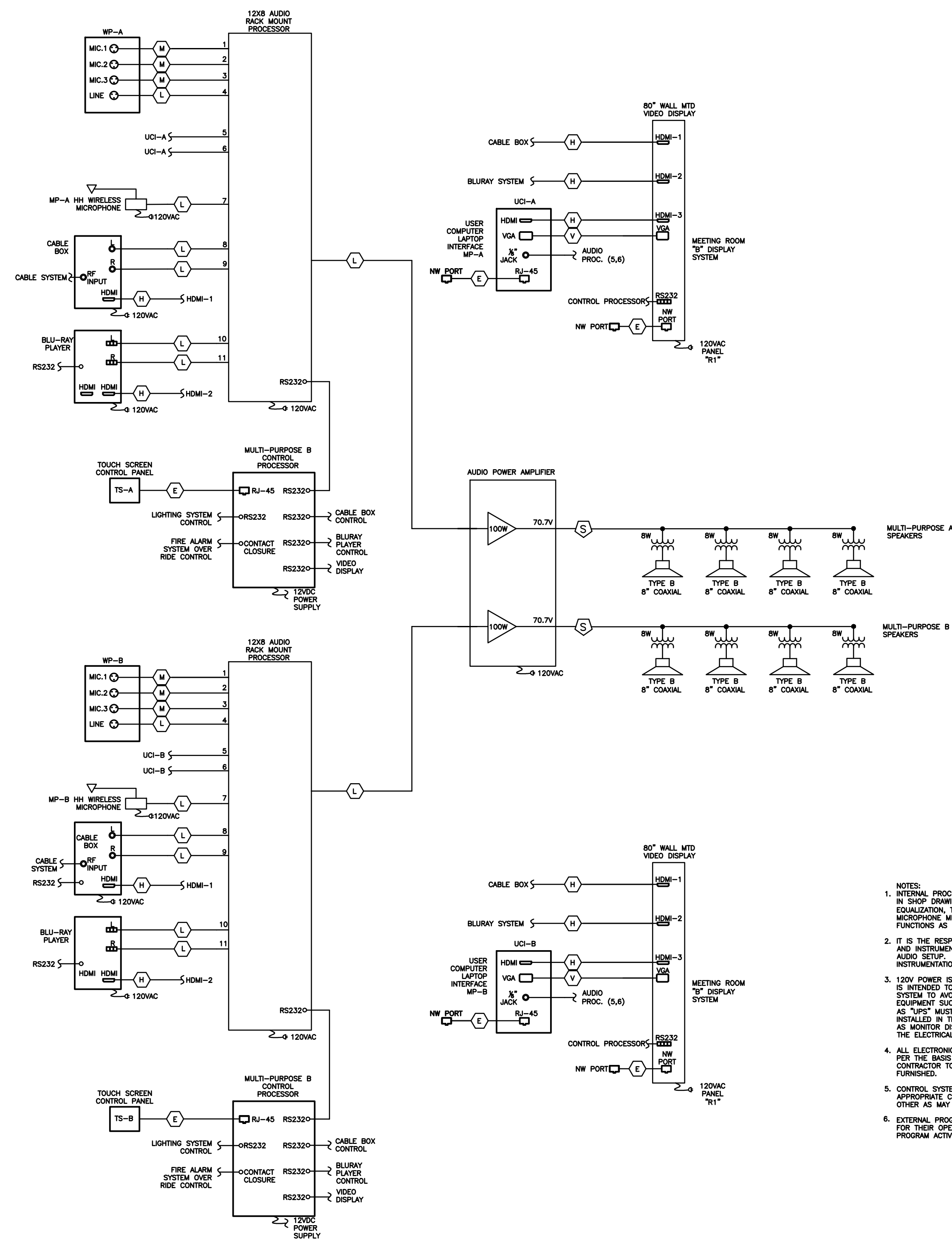




GYMNASIUM SOUND SYSTEM SINGLE LINE DIAGRAM



TEEN LOUNGE SOUND SYSTEM SINGLE LINE DIAGRAM



MULTI-PURPOSE ROOMS SOUND SYSTEM SINGLE LINE DIAGRAM

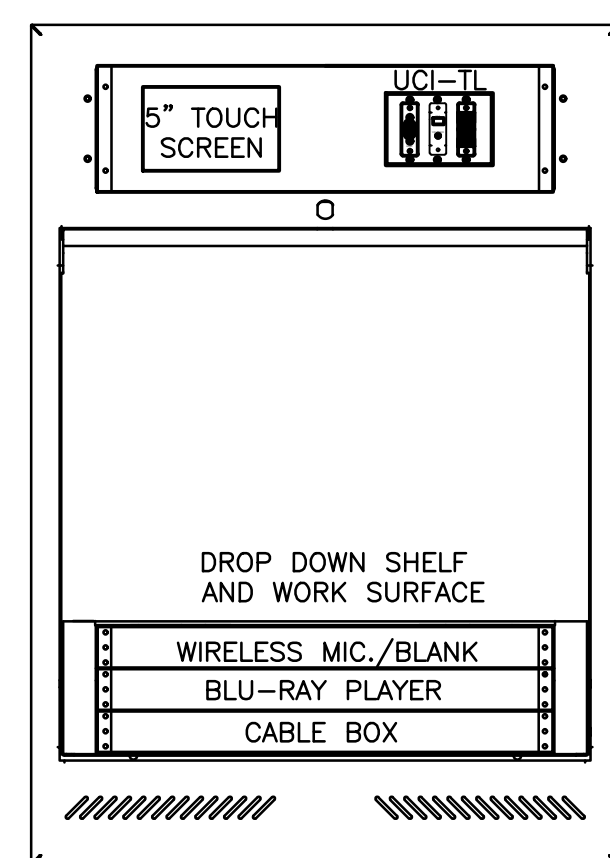
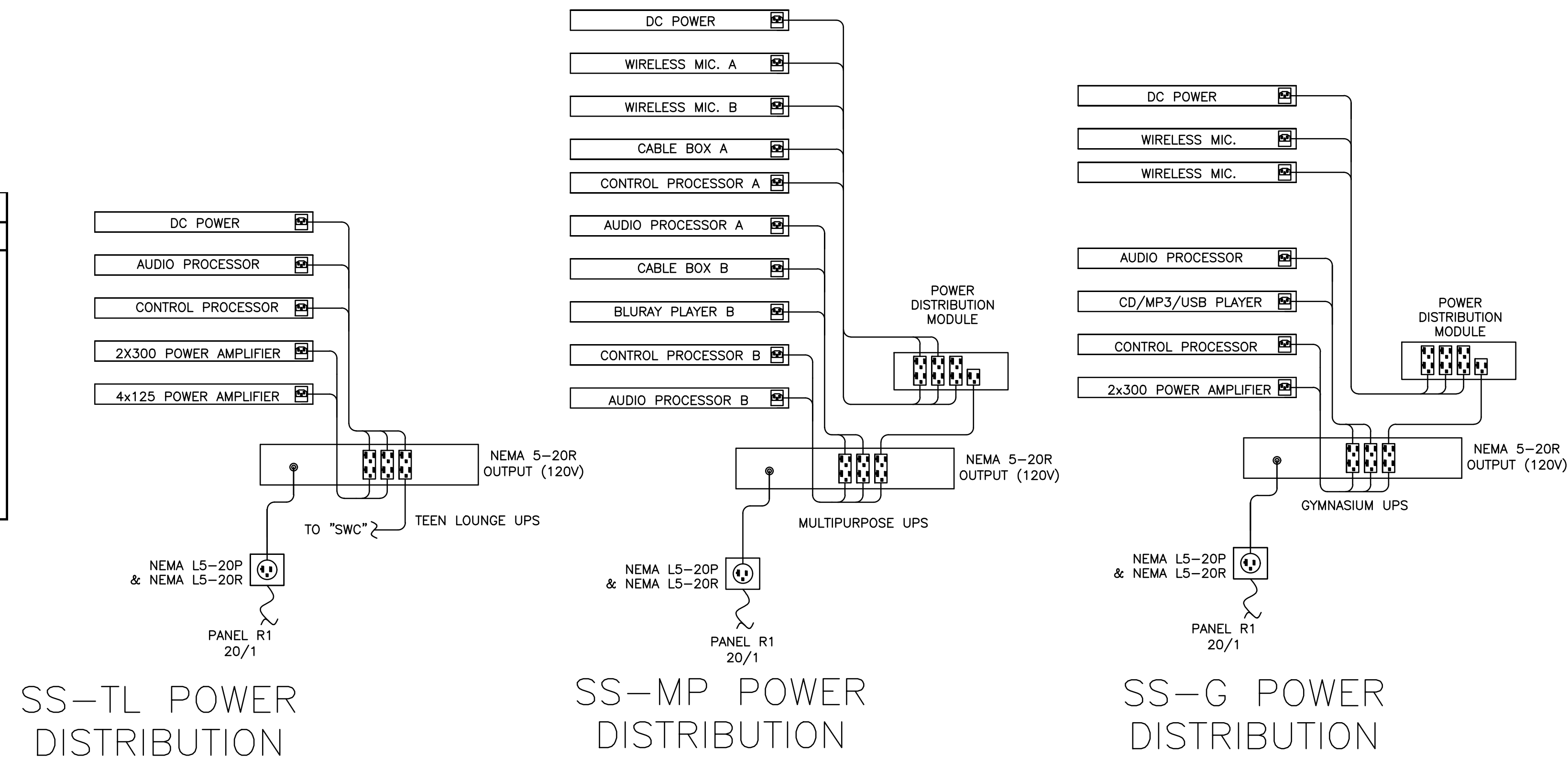
- NOTES:
- INTERNAL PROCESSOR PROGRAMMING DEVICES AND ROUTING SHALL BE DEFINED IN SHOP DRAWINGS. FUNCTIONS SHOULD INCLUDE GRAPHIC OR PARAMETRIC EQUALIZATION, TIME DELAYS, COMPRESSION/LIMITING, HIGH PASS FILTERS, AUTOMATIC MICROPHONE MIXING, ROUTING, MULTI CONTROL BY FIRE ALARM AND OTHER FUNCTIONS AS REQUIRED FOR A COMPLETE WORKING SOUND REINFORCEMENT SYSTEM.
 - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL PROGRAMMING AND INSTRUMENTATION INCLUDING PROVISION OF A REAL TIME ANALYZER FOR AUDIO SETUP. SEE SPECIFICATIONS FOR SPECIFIC REQUIREMENTS FOR OTHER INSTRUMENTATION.
 - 120V POWER IS SHOWN DIAGRAMMATICALLY ONLY. ALL ELECTRONIC EQUIPMENT IS INTENDED TO BE STARTED SEQUENTIALLY BY THE CONTROL AND AUTOMATION SYSTEM TO AVOID TRANSIENT VOLTAGE DISTURBANCES TO DOWN STREAM EQUIPMENT SUCH AS AMPLIFIERS AND SPEAKERS. EQUIPMENT POWER DESIGNATED AS "UPS" MUST BE SUPPORTED BY THE UNINTERRUPTIBLE POWER SYSTEM INSTALLED IN THE EQUIPMENT RACKS. EQUIPMENT LOCATED REMOTELY SUCH AS MONITOR DISPLAYS WILL HAVE POWER BRANCH CIRCUITS AS INDICATED ON THE ELECTRICAL DRAWINGS AND WILL NOT HAVE UPS SUPPORT.
 - ALL ELECTRONIC EQUIPMENT IS SHOWN WITH 120V, 60 HZ OR 120VDC POWER PER THE BASIS OF DESIGN MANUFACTURER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY AND PROVIDE APPROPRIATE POWER FOR THE EQUIPMENT FURNISHED.
 - CONTROL SYSTEM CABLE REQUIREMENTS ARE TO BE DETERMINED BY THE APPROPRIATE CONTROL FUNCTIONALITY, SUCH AS RS232, CAT5, INFRARED OR OTHER AS MAY BE REQUIRED BY THE EQUIPMENT FURNISHED.
 - EXTERNAL PROGRAMS AND SYSTEMS INTERFAACE THROUGH THE CONTROL SYSTEM FOR THEIR OPERATIONS. FIRE ALARM SYSTEM OVER RIDES AND MUTES ANY PROGRAM ACTIVE IN ANY OR ALL SYSTEMS.

ENTIRE SHEET REISSUED AS PART OF THIS ADDENDUM

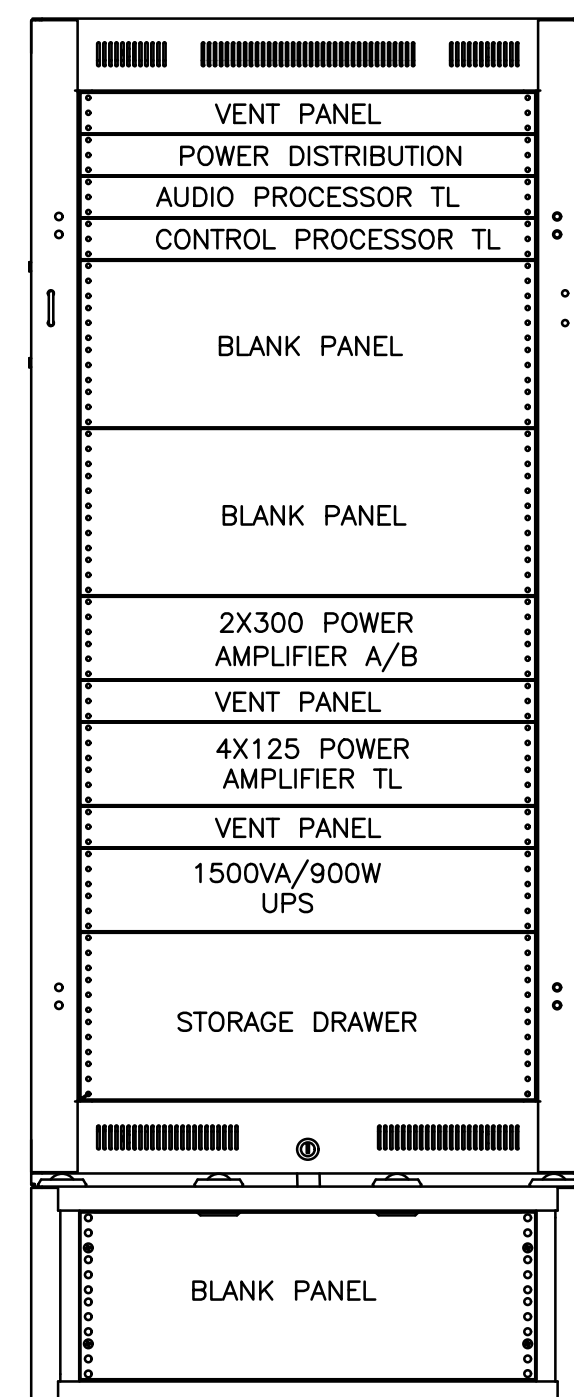
ISSUE DATES
INITIAL ISSUE 12-20-19
ADDENDUM 4 01-09-20

JOB NO. 18-072 | D'WN JRJT | CK'D CJWR

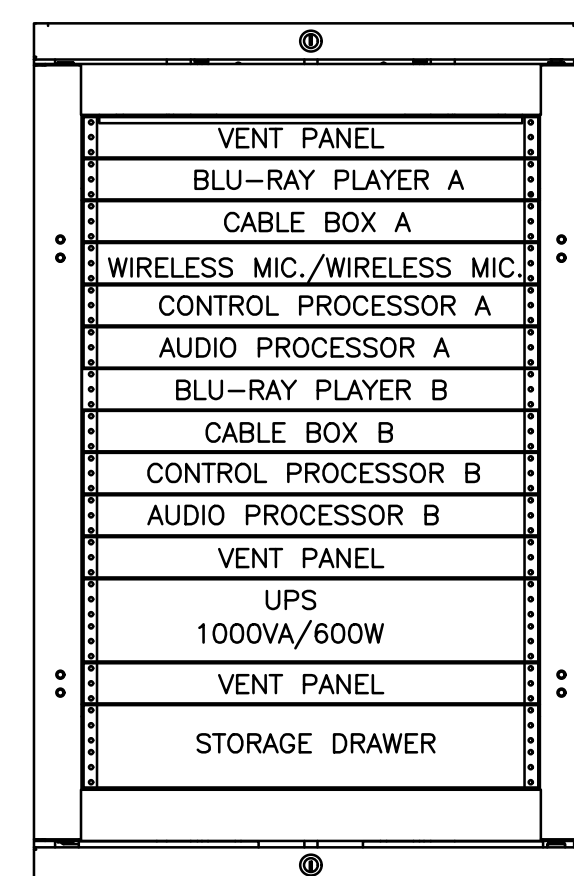
MISCELLANEOUS SOUND SYSTEM EQUIPMENT SCHEDULE		
QUANTITY	USE AREA	Description
4	ALL SYSTEMS	HANDHELD WIRED MICROPHONES
AS SHOWN	SEE SINGLE LINES	WIRELESS MICROPHONES
6	ALL SYSTEMS	MICROPHONE FLOOR STANDS
2	ALL SYSTEMS	MICROPHONE TABLE STANDS
8	ALL SYSTEMS	25 FOOT MICROPHONE CABLE
4	ALL SYSTEMS	50 FOOT MICROPHONE CABLE
4	ALL SYSTEMS	10 FOOT LINE LEVEL CABLE
4	ALL SYSTEMS	6 FOOT HDMI CABLE



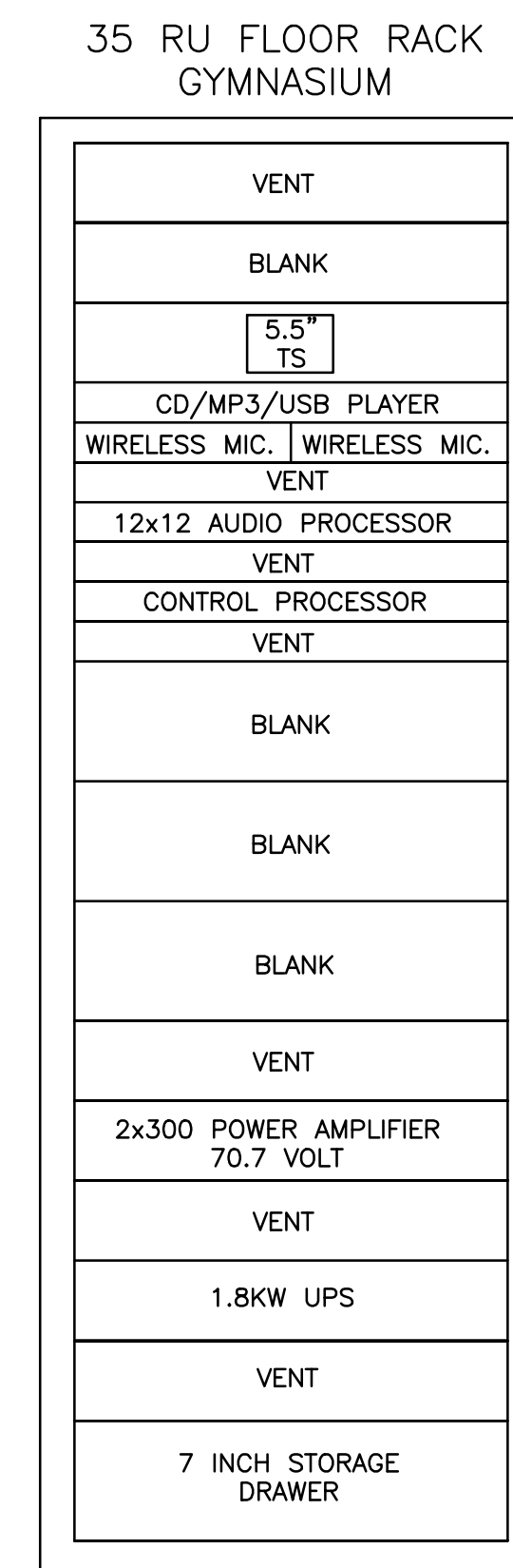
TEEN ROOM WALL CABINET "SWC"
N.T.S.



TEEN LOUNGE RACK "SS-TL"
N.T.S.

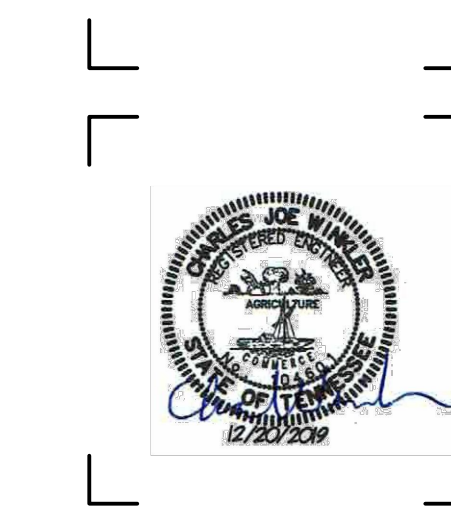


MULTI-PURPOSE ROOM RACK "SS-MP"
N.T.S.



GYMNASIUM RACK "SS-G"
N.T.S.

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ISSUE DATES
INITIAL ISSUE 12-20-19
ADDENDUM 4 01-09-20

JOB NO. | DWN | CK'D
18-072 | JRTT | CJWR