Fearn Clendaniel
Architects INC
6 Larch Avenue - Suite 398 - Wilmington, DE 19804 - (P) 302-998-7615 - (F) 302-998-7685

SMYRNA SCHOOL DISTRICT
Thomas D. Clayton Building Renovations
Bid Number SSD-15-004

ADDENDUM NO. 2 — 20 January 2016

Smyrna School District
Thomas D. Clayton Building
80 Monrovia Ave.
Smyrna, Delaware 19977

Fearn-Clendaniel Architects, Inc.
6 Larch Avenue Suite 398
Wilmington, Delaware, 19804
Phone: (302) 998-7615
Fax: ((302) 998-7685

BIDS DUE: **3:00 p.m. on February 2, 2016**

LOCATION: **Smyrna School District Administrative Offices**
82 Monrovia Ave, Smyrna, DE 19977

ARCHITECT'S PROJECT NO: 14107e

1.0 NOTICE TO ALL BIDDERS:

1.1. Bidders are hereby notified that this Addendum shall be and hereby becomes part of their Contract Documents, and shall be attached to the Project Manual for this project.

1.2. The following items are intended to revise and clarify the Contract Documents, and shall be included by the Bidder in their proposal.

1.3. Bidders shall verify that their sub-bidders are in full receipt of the information contained herein.

1.4. A lighting substitution was submitted. The results will be included in the next Addendum.

2.0 QUESTIONS:

2.1 **Q:** Drawing S20-01 Detail 12 shows underpinning at the existing wall. Is there an existing footing at these locations?

A: Refer to attached Geotechnical Report.

2.2 **Q:** What is the depth of the existing foundation?

A: Refer to attached Geotechnical Report.

2.3 **Q:** Could the crawlspace elevation be issued to determine the amount of fill required?

A: Refer to attached Geotechnical Report.

2.4 **Q:** Drawing D10-01 states to remove masonry wall, see structural for bracing. Structural drawings do not include any bracing detail. Please provide.

A: This is a means and method of construction. Refer to Specification Section 021500 Underpinning and Shoring. A professional engineer, registered in the state of Delaware, hired by the contractor is required to design and document the underpinning.

2.5 **Q:** Can a drawing be issued on how the existing walls are to be braced during and after demo so all pricing can be equal?

A: This is a means and method of construction. Refer to Specification Section 021500 Underpinning and Shoring. a professional engineer, registered in the state of Delaware, hired by the contractor is required to design and document the shoring.

2.6 **Q:** Drawing A10-02 Note 2 refers to sheet A32-01. This drawing is not included in the bid documents. Please advise.

A: Drawing A10-02, Note 2 shall refer to sheet A33-01.

2.7 **Q:** Bid documents include specification section 101100 Visual Display boards. None are shown on drawings. Are they required for this project? If so, locations are needed.

A: See attached Specification Section 101100 Visual Display Boards and attached sketch A-SK-001.

2.8 **Q:** Sheet A41-01 includes a Glazing Key, please indicate where these glazing numbers are being used.

A: Refer to revised Sheets A40-01 & A41-01.

2.9 **Q:** Specification Section 85113, Aluminum Window Submittals: a full size mockup is requested. Which window will required for the mockup? Pricing and lead time will be affected.

A: A full size mockup will be waived, however, installation of one window (Type S-1, S-2, or S-3) shall be verified, by the architect, before the remaining window units are installed.

2.10 **Q:** Specification Section 85113, Aluminum Window Submittals: muntin bars are requested. Are the muntin bars to be applied to both sides of the window?

A: Muntin bars are to be applied to both sides of the window.

2.11 **Q:** Specification Section 085113, Glazing: “Versalux Gray” is requested. Should this be “Versalux Gray 2000” or “Versalux Gray R?”

A: Based on recent projects “Oldcastle – PPG Solargray” may be more readily available. The specification section shall read: color to match “Oldcastle – PPG Solargray”. “Versalux Gray 2000” is approved as an acceptable match.

2.12 **Q:** Several of the D3 type doors are designated as “smoke” doors. Do the doors require fire rated glazing and if so, what is the rating?”

A: Type D3 doors indicated as “smoke” doors do not require fire rated glazing. Only doors indicated as fire rated are required to meet fire rating indicated.

3.0 CHANGES TO THE PROJECT MANUAL:

3.1 Add attached Specification Section 238127 – Small Split-System Heating and Cooling and update TOC-4 with this additional section.

END OF ADDENDUM NO. 2

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing Geoprofessional Business Association Member Firm

September 29, 2015

Fearn-Clendaniel Architects, Inc.
6 Larch Avenue, Suite 398
Wilmington, Delaware 19804

Attn: Mr. Ken Fearn

Re: Report of Subsurface Exploration
Thomas D. Clayton Building
Smyrna, Delaware

Gentlemen:

In accordance with our agreement, Geo-Technology Associates, Inc. (GTA) has performed a subsurface exploration at the Thomas D. Clayton Building located at 80 Monrovia Avenue, in Smyrna, Delaware. The exploration consisted of performing hand-auger probes with Dynamic Cone Penetrometer (DCP) testing, observing the excavation of test pits, and examining the encountered soils for engineering classifications. The results of the field exploration, and our preliminary findings and general recommendations regarding new foundation that will be constructed at the site. Gta was provided with an FP dated June 16, 2016, and a red lined plan view of the existing building for use in our work.

Background

GTA understands that the Thomas D. Clayton building is a 10,800 square foot building will be renovated by the Smyrna School District. We understand building was constructed in the early 1920's, and was later expanded. It appears that the addition measures approximately 60 by 40, and is located on the southern end. The buildings currently houses offices and classrooms. The proposed renovation may include gutting the interior, filling in the crawl space in order to pour a concrete slab-in-grade, and construct new footings to support a new strcutral steel frame. The existing brick walls and shell are to remain. We understand that the new interior wall loads will be on the order of 2 kips per foot, and maximum column loads are expected to be on the order of 20 kips, based on information provided by Baker, Ingram & Associates, Inc.

Subsurface Exploration

Test Pits

The existing foundations and subsurface conditions were evaluated by observing the excavation of three tests adjacent to the existing buildings, designated as TP-1 through TP-3, on July 26, 2015. Test Pits TP-1 and TP-2 were excavated to a depth of 5 feet below existing grades, adjacent the older portion of the building. The test pits encountered existing fill materials visually classified as brown and gray, moist, sandy silt soils to a depth of 3½ to 4 feet below existing grades. The soils transitioned to natural soils visually classified as orange, moist, clayey sand. DCP testing was performed at approximately 24-inch intervals in the natural soils. DCP testing consists of driving a 1½-inch diameter conical point with a 15-pound hammer, free-falling a distance of 20 inches. The DCP blow counts are recorded for a penetration increment of 1¾ inches. The DCP blow counts can be correlated to the soils strength, compressibility, and density. Additionally, GTA observed the exposed foundation at the locations of Test Pit TP-1 and TP-2. The concrete footing extended to depths of about 38 and 42 inches, respectively, below existing grades. No footing projection was observed at these locations. It should be noted that the brick face was flush with the face of the concrete footing. We could not evaluate if the brick was multiwidth brick at these locations.

A third test pit, identified as Test Pit TP-3, was excavated adjacent the addition of the building. The test pit encountered existing fill materials visually classified as gray, moist, silty sand to a depth of 2¾ feet below existing grades. The soils transitioned to natural soils visually classified as brown, moist, clayey sand. The concrete footing extended to a depth of about 32 inches below existing grades. A footing projection of 3½ inches beyond the from face of wall was observed at this location. Photographs of the footings and test pits are attached to this letter.

Hand Augers

The subsurface conditions on the east side of the building were evaluated by performing three hand-auger probes with DCP testing, designated as HA-1 through HA-2, at the approximate locations depicted on the *Exploration Location Plan*, attached to this letter. At the Smyrna School District's request, hand augers were substituted in place of test pits to minimize the disruption to the parking lot and minimize disturbance to the existing pavement. The hand-auger probes were advanced using a 4-inch diameter hand-auger on July 26, 2015, and were advanced to depths ranging from 7 to 10 feet below existing grades. The DCP testing was performed at approximately 36-inch intervals. Soil samples were visually classified using the USCS Classification system, which is summarized on the appended *Notes for Exploration Logs*.

These explorations encountered fill overlying what appeared to be natural alluvial deposits. The fill materials encountered above the footing subgrade are associated with backfill of the foundation post placement of concrete for the foundation walls and fine-grading of the parking areas. The wall backfill material is typically not compacted for support of the structure. The fill below the footing subgrade level and in the parking lot areas was found to be medium stiff/dense, exhibiting DCP values between 5 to 12 blows per increment (bpi) of penetration.

Additionally, GTA performed a hand auger below the crawl space foundation. The SSD removed flooring and subflooring at two locations prior to our arrival onsite. The hand auger inside the building was performed in the northwestern portion of the building. The crawl space subgrade measured 36 inches below the floor elevation. A hand auger was advanced to a depth of 10 feet below the finished floor elevation. The hand auger encountered orange, moist, silty sand through the depth of exploration. A second hand auger located was planned; however, concrete was observed below flooring, and GAT could not advance a core through the concrete.

DCP testing indicated that the soils were medium dense to dense. The soil samples retrieved from the hand augers and test pits were brought to GTA's laboratory for visual classification by engineering personnel. The soil descriptions indicated on the logs are based on visual observations of the individual soil samples as summarized in the *Notes for Exploration Logs* also included in Appendix B.

It should be noted that an instrument survey for elevation was not performed at the test locations. Therefore, it should be understood that all elevations, as well as transitions in soil strata indicated on the test pit logs, are considered approximate.

Conclusions and Recommendations

Based on the results of this study, it is our opinion that construction of the proposed structures and associated infrastructure at this site is feasible, given that the geotechnical recommendations contained in this report are followed, and that the standard level of care is maintained during construction. GTA's preliminary recommendations are provided in the following paragraphs. When civil design has been finalized, GTA should be provided the opportunity to review the plans and details.

Foundations

Assuming maximum wall loads of 2 klf and column loads of 20 kips; the proposed structures may be supported on shallow spread footings designed for a net allowable bearing pressure of up to 2,500 pounds per square foot (psf). Minimum widths for wall footings of 16 inches and column footings of 24 inches are recommended when design based on 2,500 psf results in a more narrow footing. Settlement of less than 1-inch total and ½-inch differential can be anticipated, based on the assumed loads. Exterior footings should be founded a minimum of 30 inches below the final exterior grades to provide protection from frost action.

Footings should be supported on the medium dense/stiff natural soils below any existing fill and loose or soft surficial soils or on properly prepared structural fill materials. If existing fill or soft/loose soils are encountered during foundation construction, these areas should be over-excavated to a stable stratum, and be re-established with new compacted structural fill, open-graded aggregate (AASHTO No.57 stone) or additional concrete. The decision to undercut footings or perform any other foundation remedial measures should be made in the field at the time of foundation construction by the Geotechnical Engineer. We anticipate that the

excavations for new footings will be deep enough to remove the existing fill and any soft natural soils; however, footings at existing grade may need to be over-excavated to reach suitable natural soils.

Groundwater is not anticipated to impact construction; however, perched water may be encountered. If perched water is encountered during foundation or basement excavation, the use of sump or gravity flow trenches may be required. Detailed foundation evaluations should be performed in each footing excavation prior to the placement of reinforcing steel or concrete. These evaluations should be performed by a Geotechnical Engineer or their qualified representative to confirm that the allowable soil bearing capacity is available. The foundation bearing surface evaluations should be performed using a combination of visual observation, comparison with the borings, hand-rod probing, and Dynamic Cone Penetrometer (DCP) testing. GTA recommends that concrete placement be performed the same day footings are excavated to prevent exposure of the soils at footings level and potential weakening of the soils.

Seismic Information

Based on Table 1615.5.3 of the *International Building Code 2012* and subsurface information obtained during the test pits and review of local geology maps, GTA recommends that Site Class "D" be used for seismic analysis.

Floor Slab

The floor slab can be designed as concrete slab-on-grade. The structural engineer indicated that two additional feet of fill would be required over the crawl space subgrade to establish the new finished floor elevation. The subgrade will need to be evaluated for stability prior to placement of concrete. This evaluation should consist of at a minimum hand rod probing, hand augers, visual observations, and DCP testing. A proofroll of the subgrade will not likely be practical or feasible. Prior to placing structural fill, the subgrade should be stripped to remove any vegetation, organic material, existing fill, or other unsuitable materials. The proposed

Upon satisfactory evaluation of the subgrade, structural fill should be placed in lifts and compacted in accordance to a minimum of 95 percent of the Standard Proctor maximum dry density. The soil fill will need to be placed in 6 to 8-inch thick loose lifts. The off-site borrow used as fill should meet Unified Soil Classification System (USCS) designation clayey sand (SC), silty sand (SM), poorly-graded sand (SP), and with some limitation sandy silt (ML). GTA recommends that hand operated equipment be used to compact the soil fill to minimize excessive vibrations to the brick shell. Alternatively, AASHTO #57 can be placed in maximum one to two-foot lifts, provided the stone is densified in-place. This can be accomplished using a walk behind trench roller, or vibratory plate. Washed gravel in lieu of AASHTO #57 stone may be considered depending on the proposed floor loads, and provided that new footings or thickened slabs sections for interior bearing walls are extended to the existing soil subgrade. If desired, GTA can provide recommendations for using flowable fill to establish the subgrade elevation, if the placement of soil or stone is constrained by access and the shell remaining in-place.

The slab may bear on wall or footing projections, but they should be isolated and jointed so that the foundation walls can settle slightly without affecting the slab. GTA recommends that the concrete floor slabs supported on grade be founded on a 4-inch (minimum) coarse granular layer covered with polyethylene vapor retarder to interrupt the rise of capillary moisture through the slab. Imported washed gravel or crushed stone meeting the AASHTO No. 57 aggregate gradation should be used for the granular layer. The slabs may bear on wall or footing projections, but they should be isolated and jointed so that the foundation walls can settle slightly without affecting the slab.

Limitations

This report, including all supporting logs, field data, field notes, laboratory test data, calculations, estimates and other documents prepared by GTA in connection with this project have been prepared in accordance with generally accepted engineering practice. All terms and conditions set forth in the Agreement and the General Provisions attached thereto are incorporated herein by reference. No warranty, express or implied, is made herein. Use and reproduction of this report by any other person without the expressed written permission of GTA is unauthorized and such use is at the sole risk of the user.

The analysis and recommendations contained in this report are based on the data obtained from limited observation and testing of the encountered materials. Explorations indicate soil conditions only at specific locations and times and only at the depths penetrated. They do not necessarily reflect strata or variations that may exist between exploration locations. Consequently, the analysis and recommendations must be considered preliminary until the subsurface conditions can be verified by direct observation at the time of construction. If variations of subsurface conditions from those described in this report are noted during construction, recommendations in this report may need to be re-evaluated. In the event that any changes in the nature, design, or location of the facilities are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report are verified in writing. Geo- Technology Associates, Inc. is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data or engineering analysis without the expressed written authorization of Geo-Technology Associates, Inc.

We appreciate the opportunity to be of assistance on this project. Should you have questions, please contact our office at 302-326-2100.

Very truly yours,
GEO-TECHNOLOGY ASSOCIATES, INC.

Meghan Lester

Meghan Lester, P.E.

MEGHAN LESTER
REGISTERED
No. 13632
DELAWARE
PROFESSIONAL ENGINEER

Principal Engineer

ML/CMR/amd
110931

Attachments:

ASFE Important Information Regarding Your Geotechnical Engineering Report
Figure 1: Exploration Location Plan
Notes for Exploration Logs
Exploration Logs (TP-1 through TP-3, and HA-4 through HA-6)
Photographs

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

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IIGER06045.0M

NOTES FOR EXPLORATION LOGS

KEY TO USCS TERMINOLOGY AND GRAPHIC SYMBOLS

MAJOR DIVISIONS (BASED UPON ASTM D 2488)			SYMBOLS GRAPHIC	SYMBOLS LETTER
COARSE - GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% PASSING THE NO. 200 SIEVE)		GW
				GP
		GRAVELS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		GM
				GC
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% PASSING THE NO. 200 SIEVE)		SW
				SP
		SANDS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		SM
				SC
FINE - GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	SILT OR CLAY (<15% RETAINED THE NO. 200 SIEVE)		ML
		SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED THE NO. 200 SIEVE)		CL
		SANDY OR GRAVELY SILT OR CLAY (>30% RETAINED THE NO. 200 SIEVE)		OL
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	SILT OR CLAY (<15% RETAINED THE NO. 200 SIEVE)		MH
		SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED THE NO. 200 SIEVE)		CH
		SANDY OR GRAVELY SILT OR CLAY (>30% RETAINED THE NO. 200 SIEVE)		OH
HIGHLY ORGANIC SOILS				PT

NOTE: DUAL SYMBOLS ARE USED TO INDICATE COARSE-GRAINED SOILS CONTAINING AN ESTIMATED 10% FINES BY VISUAL CLASSIFICATION OR WHEN THE SOIL HAS BETWEEN 5 AND 12 PERCENT FINES FROM LABORATORY TESTS; AND FOR FINE-GRAINED SOILS WHEN THE PLOT OF LIQUID LIMIT & PLASTICITY INDEX VALUES FALLS IN THE PLASTICITY CHART'S CROSSHATCHED AREA. RESULTS OF LABORATORY TESTING ARE USED TO SUPPLEMENT THE CLASSIFICATION OF THE SOILS BASED ON THE VISUAL-MANUAL PROCEDURES OF ASTM D2488.

ADDITIONAL TERMINOLOGY AND GRAPHIC SYMBOLS

	DESCRIPTION		GRAPHIC SYMBOLS
ADDITIONAL DESIGNATION	TOPSOIL		
	MAN-MADE FILL		
	GLACIAL TILL		
	COBBLES AND BOULDERS		
RESIDUAL SOIL DESIGNATION	DESCRIPTION	"N" VALUE	
	HIGHLY WEATHERED ROCK	50 TO 50/1"	
	PARTIALLY WEATHERED ROCK	MORE THAN 50 BLOWS FOR 1" PENETRATION, AUGER PENETRABLE	

COARSE-GRAINED SOILS
(GRAVEL AND SAND)

DESIGNATION	BLOWS PER FOOT (BPF) "N"
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	>50

NOTE: "N" VALUE DETERMINED AS PER ASTM D1586

FINE-GRAINED SOILS
(SILT AND CLAY)

CONSISTENCY	BPF "N"
VERY SOFT	<2
SOFT	2 - 4
MEDIUM STIFF	5 - 8
STIFF	9 - 15
VERY STIFF	16 - 30
HARD	>30

NOTE: ADDITIONAL DESIGNATIONS TO ADVANCE SAMPLER INDICATED IN BLOW COUNT COLUMN:
WOH = WEIGHT OF HAMMER
WOR = WEIGHT OF ROD(S)

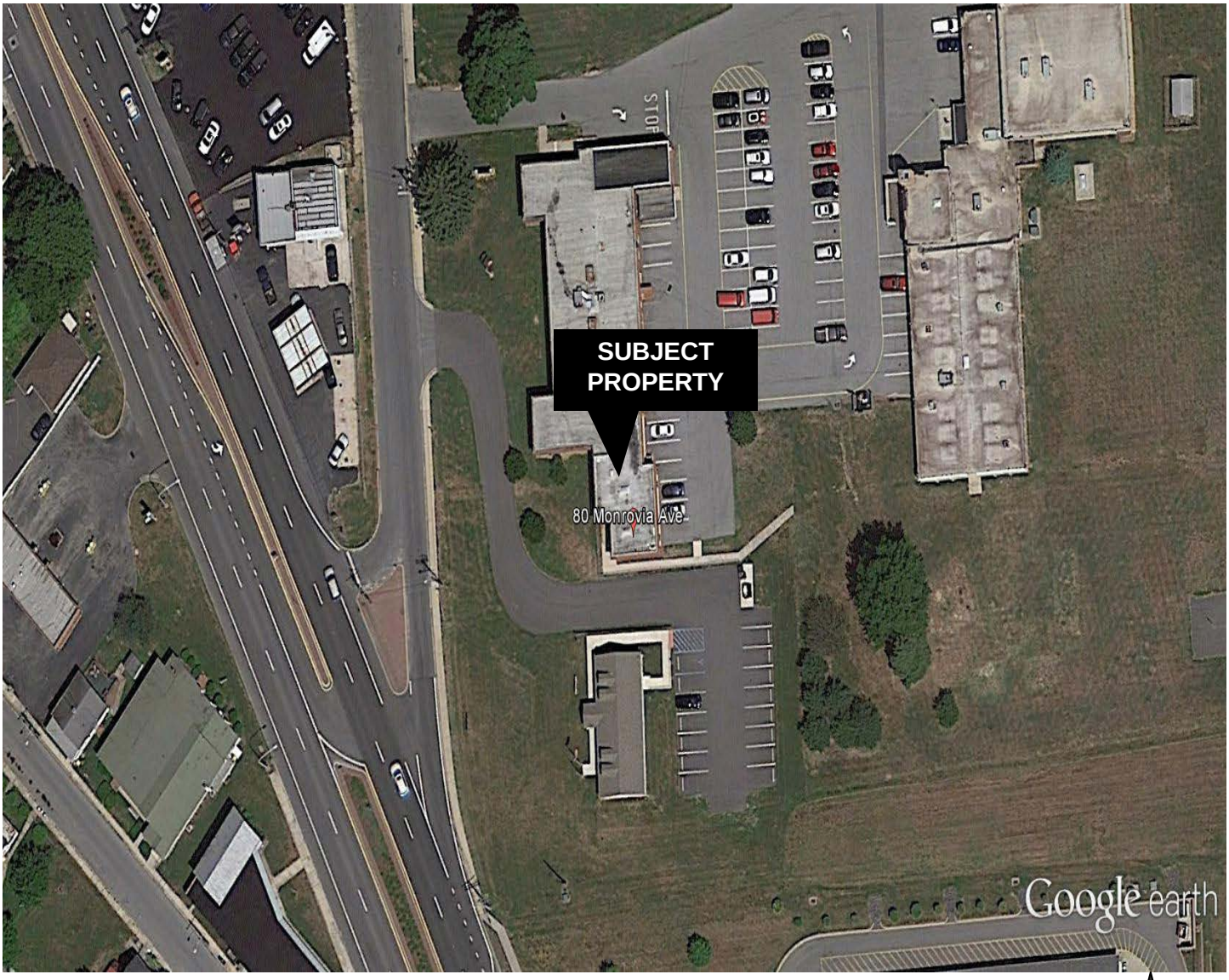
SAMPLE TYPE

DESIGNATION	SYMBOL
SPLIT-SPOON	S-
SHELBY TUBE	U-
ROCK CORE	R-

WATER DESIGNATION

DESCRIPTION	SYMBOL
ENCOUNTERED DURING DRILLING	
UPON COMPLETION OF DRILLING	
24 HOURS AFTER COMPLETION	

NOTE: WATER OBSERVATIONS WERE MADE AT THE TIME INDICATED. POROSITY OF SOIL STRATA, WEATHER CONDITIONS, SITE TOPOGRAPHY, ETC. MAY CAUSE WATER LEVEL CHANGES.



N

Notes:

1) Base map obtained from Google Earth Imagery, Inc. from May 2015.

GEO-TECHNOLOGY ASSOCIATES, INC.
Geotechnical and Environmental Consultants
18 Boulden Circle, Suite 36
New Castle, Delaware 19720
(302) 326-2100
Fax (302) 326-2399

SITE LOCATION PLAN

THOMAS D. CLAYTON BUILDING

SMYRNA, DELAWARE

SCALE	DATE	DRAWN BY	REVIEW BY	JOB NO.	FIGURE NO.
NTS	SEPT 2015	GOOGLE	CR	151218	1

LOG OF AUGER PROBE NO. HA-4

PROJECT: **Thomas D. Clayton Building**
PROJECT LOCATION: **Smyrna, Delaware**
CLIENT: **Fearn-Clendaniel Architects, Inc.**

DATE STARTED: **7/29/15**
DATE COMPLETED: **7/29/15**
CONTRACTOR: **Smyrna School District**

PROJECT NO.: **151218**

GROUNDWATER ENCOUNTERED: **Dry**
GROUND SURFACE ELEVATION: **25**
DATUM: **Topo**
LOGGED BY: **T. Kane**
CHECKED BY: **M. Lester**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			Asphalt +/- 8 inches	
24.3		FILL		Stone Subgrade +/- 4 inches Brown, moist, silty sand FILL	
23.0	2	CL		Orange, moist, Sandy Lean CLAY	
				Same	DCP: 6-8-8-9
21.0	4	SM		Orange, moist, Silty SAND	
20.0		CL		Brown, moist, Sandy Lean CLAY	
	6			Same	DCP: 10-10-11-12
17.0	8	SM		White, moist, Silty SAND	
				Same	DCP: 27-50
15.0	10			Hand Auger terminated at 10.0 feet.	
	12				

NOTES: **Elevation and location should be considered approximate.**

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LOG OF AUGER PROBE NO. HA-4

LOG OF AUGER PROBE NO. HA-5

PROJECT: **Thomas D. Clayton Building**
PROJECT LOCATION: **Smyrna, Delaware**
CLIENT: **Fearn-Clendaniel Architects, Inc.**

DATE STARTED: **7/29/15**
DATE COMPLETED: **7/29/15**
CONTRACTOR: **Smyrna School District**

PROJECT NO.: **151218**

GROUNDWATER ENCOUNTERED: **Dry**
GROUND SURFACE ELEVATION:
DATUM: **Topo**
LOGGED BY: **T. Kane**
CHECKED BY: **M. Lester**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			Asphalt +/- 5 inches	
-0.5		FILL		Stone Subgrade +/- 7 inches	
-1.0		CL		Orange and Brown, moist, Sandy Lean CLAY	
	2				
				Same	DCP: 5-7-5-5
	4				
	6			Same	DCP: 5-6-6-5
-7.0		SM		Orange, moist, Silty SAND	
	8				
-8.5		SC		Brown, moist, CLayey SAND	
				Same	DCP: 6-6-6-6
-10.0	10			Test Pit terminated at 10.0 feet.	
	12				

NOTES: **Elevation and location should be considered approximate.**

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New Castle, DE 19720

LOG OF AUGER PROBE NO. HA-5

LOG OF AUGER PROBE NO. HA-6

PROJECT: **Thomas D. Clayton Building**
PROJECT LOCATION: **Smyrna, Delaware**
CLIENT: **Fearn-Clendaniel Architects, Inc.**

DATE STARTED: **7/29/15**
DATE COMPLETED: **7/29/15**
CONTRACTOR: **Smyrna School District**

PROJECT NO.: **151218**

GROUNDWATER ENCOUNTERED: **Dry**
GROUND SURFACE ELEVATION: **28**
DATUM: **Topo**
LOGGED BY: **T. Kane**
CHECKED BY: **M. Lester**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0	SM		Orange, moist, Silty SAND	
	2			Same	DCP: 9-27-31
	4			Same	DCP: 25-50
23.8				Hand Auger terminated at 4.25 feet.	
	6				
	8				
	10				
	12				

NOTES: **Elevation and location should be considered approximate.**

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LOG OF AUGER PROBE NO. HA-6

LOG OF TEST PIT NO. TP-1

PROJECT: **Thomas D. Clayton Building**
PROJECT LOCATION: **Smyrna, Delaware**
CLIENT: **Fearn-Clendaniel Architects, Inc.**

PROJECT NO.: **151218**

GROUNDWATER ENCOUNTERED: **Dry**
GROUND SURFACE ELEVATION: **25**
DATUM: **Topo**
LOGGED BY: **T. Kane**
CHECKED BY: **M. Lester**

DATE STARTED: **7/29/15**
DATE COMPLETED: **7/29/15**
CONTRACTOR: **Smyrna School District**
EQUIPMENT: **Case 580 Backhoe**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			Topsoil +/- 3 inches	
24.8		ML		Brown, moist, Sandy SILT	
	2				
21.9		SM		Orange, moist, Silty Sand	DCP: 3-5-8-8
	4				
20.0				Test Pit terminated at 5.0 feet	DCP: 5-8-9-12
	6				
	8				
	10				
	12				

NOTES: **Elevation and location should be considered approximate.**

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LOG OF TEST PIT NO. TP-1

LOG OF TEST PIT NO. TP-2

PROJECT: **Thomas D. Clayton Building**
PROJECT LOCATION: **Smyrna, Delaware**
CLIENT: **Fearn-Clendaniel Architects, Inc.**

PROJECT NO.: **151218**

GROUNDWATER ENCOUNTERED: **Dry**
DATE STARTED: **7/29/15**
GROUND SURFACE ELEVATION: **25**
DATE COMPLETED: **7/29/15**
DATUM: **Topo**
CONTRACTOR: **Smyrna School District**
LOGGED BY: **T. Kane**
EQUIPMENT: **Case 580 Backhoe**
CHECKED BY: **M. Lester**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			Topsoil +/- 3 Inches	
24.8		ML		Gray, moist, Sandy SILT	
	2				
				Same	DCP: 3-4-4-4
	4				
19.4				Same	DCP: 4-4-4-4
	6			Test Pit Terminated at 5.6 feet.	
	8				
	10				
	12				

NOTES: **Elevation and location should be considered approximate.**

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LOG OF TEST PIT NO. TP-2

LOG OF TEST PIT NO. TP-3

PROJECT: **Thomas D. Clayton Building**
PROJECT LOCATION: **Smyrna, Delaware**
CLIENT: **Fearn-Clendaniel Architects, Inc.**

PROJECT NO.: **151218**

GROUNDWATER ENCOUNTERED: **Dry**
GROUND SURFACE ELEVATION: **25**
DATUM: **Topo**
LOGGED BY: **T. Kane**
CHECKED BY: **M. Lester**

DATE STARTED: **7/29/15**
DATE COMPLETED: **7/29/15**
CONTRACTOR: **Smyrna School District**
EQUIPMENT: **Case 580 Backhoe**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			Topsoil +/- 2 inches	
24.8		SM		Gray, moist, Silty SAND	
	2				
22.3		SC		Brown, moist, Clayey SAND	DCP: 7-9-12-13
	4			Same	DCP: 5-7-9-9
20.0				Test Pit terminated at 5.0 feet.	
	6				
	8				
	10				
	12				

NOTES: **Elevation and location should be considered approximate.**

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LOG OF TEST PIT NO. TP-3

Photograph 1: Test Pit TP1

Photograph 2: Test Pit TP-2

Photograph 3: Test Pit TP-3

Photograph 4:Footing Projection at Test Pit 3

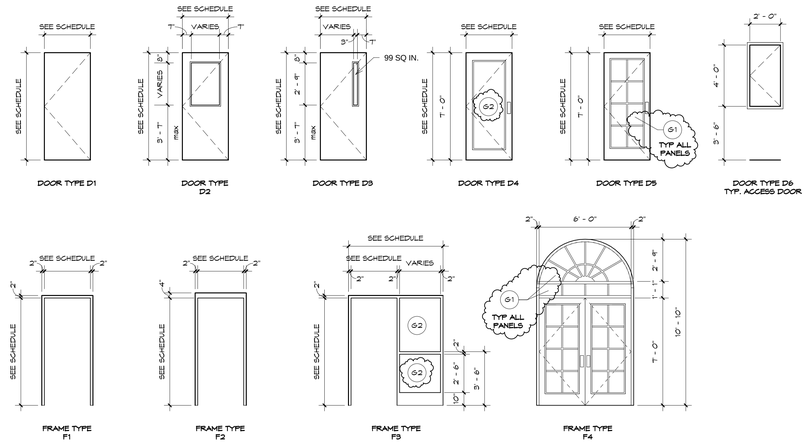
Photograph 5: Concrete below flooring at Southern end of building, transition to addition

Photograph 6: Concrete below flooring at Southern end of building, transition to addition

Photograph 7: Concrete below flooring at Southern end of building, transition to addition

DOOR SCHEDULE

EXT DOOR	MARK	SIZE WIDTH	SIZE HEIGHT	SIZE THK	DOOR TYPE	DOOR MTL	FRAME TYPE	FRAME MTL	DETAILS H	DETAILS J	DETAILS S	GLAZING	FIRE RATING	COMMENTS
•	100	6' - 0"	7' - 0"	1 3/4"	D5	ALUM	F4	ALUM			S1	G1		PANIC HARDWARE
	101A	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			45 min	6'-6" WIDTH
	101B	6' - 0"	7' - 0"	1 3/4"	D4	HM	F1	HM			S1	G2		PANIC HARDWARE, 7'-0" WIDTH
	101C	6' - 0"	7' - 0"	1 3/4"	D4	HM	F1	HM			S1	G2		PANIC HARDWARE
	102A	3' - 0"	7' - 0"	1 3/4"	D4	HM	F3	HM	H1	J1		G2		
	102B	3' - 0"	7' - 0"	1 3/4"	D4	HM	F3	HM	H1	J1		G2		
	102C	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	103A	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	103B	4' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	104	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			-	
	105A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			-	
	105B	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	106A	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			SMOKE	
	107A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			SMOKE	
	107B	2' - 8"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	108A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			-	
	108B	2' - 8"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	109	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			SMOKE	
	110A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			SMOKE	
	110B	2' - 8"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	111A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			SMOKE	
	111B	2' - 8"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	112A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			SMOKE	
	112B	2' - 8"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	113A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			SMOKE	
	113B	2' - 8"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	114A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			SMOKE	
	114B	2' - 8"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	115A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			SMOKE	
	115B	2' - 8"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	116A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			SMOKE	
	116B	2' - 8"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	117A	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			SMOKE	
	117B	2' - 8"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
•	118	6' - 0"	7' - 0"	1 3/4"	D5	ALUM	F4	ALUM			S1	G1		PANIC HARDWARE
	119A	3' - 6"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			SMOKE	
	119B	3' - 0"	7' - 0"	1 3/4"	D3	WD	F1	HM	H1	J1			-	
	120	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			SMOKE	
	121	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			SMOKE	
	122	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			SMOKE	
	123	3' - 0"	7' - 0"	1 3/4"	D4	HM	F3	HM	H1	J1				6'-0" WIDTH
	124	6' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			SMOKE	
	125A	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			45 min	
	125B	3' - 0"	7' - 0"	1 3/4"	D2	WD	F1	HM	H1	J1			SMOKE	
	125C	3' - 0"	7' - 0"	1 3/4"	D2	WD	F1	HM	H1	J1			SMOKE	
	126A	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	126B	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			45 min	
•	126C	3' - 0"	7' - 0"	1 3/4"	D1	HM	F2	HM	H2	J2			-	
	128	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			SMOKE	
	129	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			SMOKE	
	130	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			SMOKE	
	131A	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			SMOKE	
•	131B	4' - 0"	7' - 0"	1 3/4"	D1	HM	F2	HM	H2	J2			-	
	132A	3' - 0"	7' - 0"	1 3/4"	D4	HM	F3	HM	H1	J1		G2		6'-6" WIDTH
	132B	3' - 0"	7' - 0"	1 3/4"	D4	HM	F3	HM	H1	J1		G2		4'-6" WIDTH
	133	3' - 0"	7' - 0"	1 3/4"	D1	HM	F1	HM	H1	J1			-	
	134	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
	135A	3' - 0"	7' - 0"	1 3/4"	D1	WD	F1	HM	H1	J1			-	
•	135B	3' - 0"	7' - 0"	1 3/4"	D1	HM	F2	HM	H2	J2			-	
	AP1	2' - 0"	4' - 0"	1 3/4"	D6	STL	-	STL	H4	J4				



DOOR AND FRAME TYPES

Scale: 1/4" = 1'-0"

GENERAL NOTES - DOORS, FRAMES & HARDWARE

1. INTERIOR DOOR CLOSERS MUST BE SET NO HIGHER THAN 5 POUNDS OF PRESSURE TO OPERATE (TYP FOR INTERIOR).

2. DOOR CLOSERS MUST BE SET SO THAT IT TAKES AT LEAST 3 SECONDS TO CLOSE FROM AN OPEN POSITION OF 70 DEGREES TO WITHIN 3" OF THE LATCH.

3. OPENING HARDWARE IS CENTERED A MAXIMUM OF 48" ABOVE FINISH FLOOR.

4. MINIMUM STRIKE SIDE CLEARANCE ON PULL SIDE OF DOOR IS:
   - A. 18" MIN INTERIOR DOORS, FRONT APPROACH
   - B. 36" MIN INTERIOR DOORS, HINGE APPROACH
   - C. 42" MIN INTERIOR DOORS, HINGE APPROACH IF CORRIDOR IS LESS THAN 60", BUT GREATER THAN 54"
   - D. 24" MIN INTERIOR DOORS, LATCH APPROACH

5. MINIMUM STRIKE SIDE CLEARANCE ON PUSH SIDE OF DOOR
   - A. 0", FRONT APPROACH
   - B. 12" MIN, FRONT APPROACH W/ LATCH AND CLOSER
   - C. 54" MIN, TOTAL WIDTH, HINGE APPROACH
   - D. 24" MIN, LATCH APPROACH

6. ALL WIRING CONDUIT IDENTIFIED ON THE DRAWINGS, OR REQUIRED FOR THE INSTALLATION OF ELECTRONIC COMPONENTS, THAT IS WITHIN HOLLOW METAL FRAMES SHALL BE PROVIDED AS PART OF THE HOLLOW METAL FARME, WITH TERMINATIONS APPROPRIATE FOR EXTENSION BY OTHER TRADES.

7. SEE SPECIFICATION FOR DOOR HARDWARE SETS, TYP.

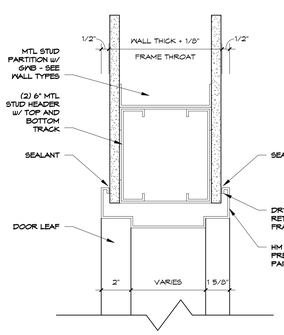
8. INTERIOR VESTIBULE ENTRANCES ARE CLEAR ANODIZED. EXTERIOR DOORS TO BE WHITE.

9. BORROWED LITE UNITS TO BE 7'-0" (7'-2" TO TOP OF FRAME) AFF AT HEAD, UNLESS NOTED OTHERWISE.

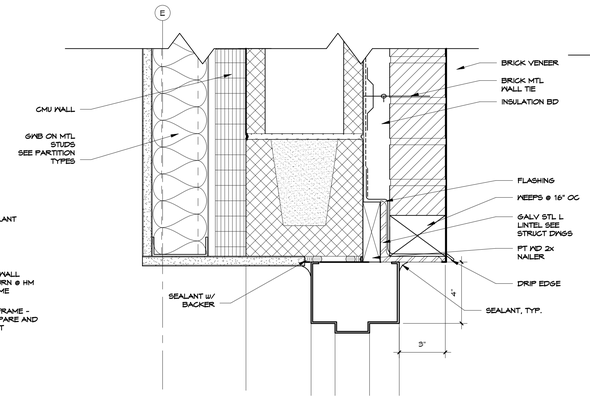
10. DOOR ROUGH OPENINGS IN FRAME WALLS TO BE 5" FROM ADJACENT WALL AT HINGE SIDE, UNLESS NOTED OTHERWISE.

11. DOOR/FRAME OPENINGS IN MASONRY WALLS TO BE 4" FROM ADJACENT WALL, UNLESS NOTED OTHERWISE.

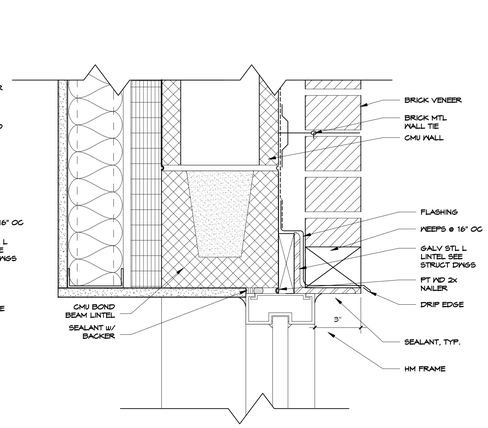
GLAZING KEY	
G1	1" INSULATED GLASS UNITS
G2	1/4" UNCOATED CLEAR FULLY TEMPERED GLASS
G3	45 MINUTE FIRE RATED GLAZING
G4	60 MINUTE FIRE RATED GLAZING
G6	OBSCURE INSULATING GLASS UNIT



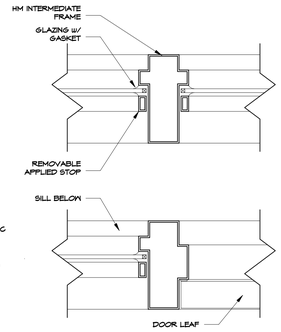
H1 Door - Head GWB Interior
Scale: 3" = 1'-0"



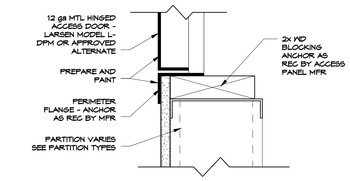
H2 Typical Door Head Detail
Scale: 3" = 1'-0"



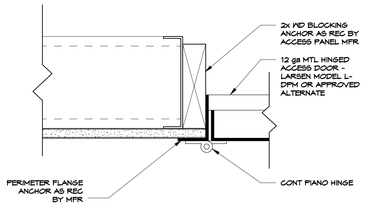
H3 Door - CMU/Brick Head
Scale: 3" = 1'-0"



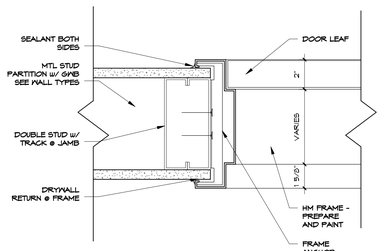
9 Door - Jamb Interior Dtls
Scale: 3" = 1'-0"



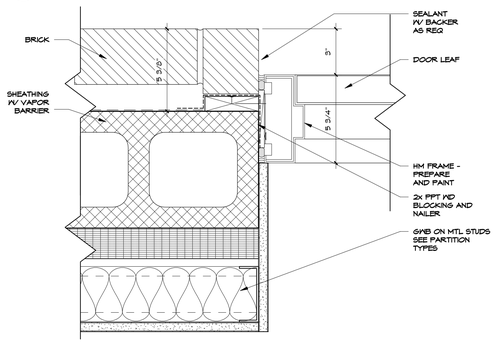
H4 Access Panel GWB Sill
Scale: 3" = 1'-0"



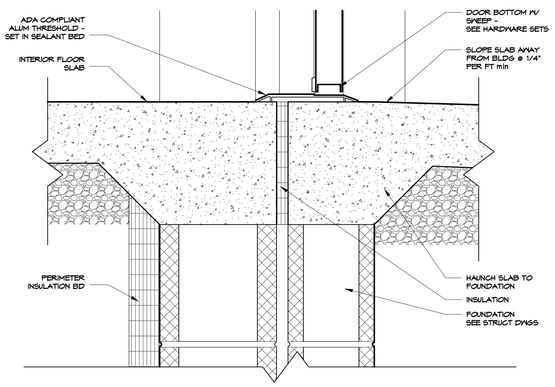
J4 Access Panel GWB Jamb
Scale: 3" = 1'-0"



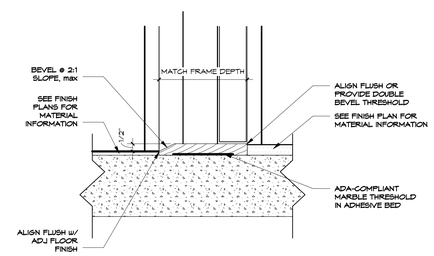
J1 Door - Jamb GWB Interior
Scale: 3" = 1'-0"



J2 Door - CMU/Brick Jamb
Scale: 3" = 1'-0"



S1 Door - Sill CW
Scale: 3" = 1'-0"



S2 Door - Sill Toilet Room
Scale: 3" = 1'-0"

KENNETH B. HEARN 8338 STATE OF DELAWARE REGISTERED ARCHITECT

CONSULTANTS:

CIVIL ENGINEER

CDA ENGINEERING, INC
6 LARCH AVE, SUITE 401
WILMINGTON, DE 19804
P: 302-998-9202 F: 302-691-1314

STRUCTURAL ENGINEER

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1050 S. STATE STREET
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MECHANICAL ENGINEER

DEDC, LLC
315 S CHAPEL STREET
NEWARK, DE 19711
P: 302-738-7172 F: 302-738-7175

ELECTRICAL ENGINEER

FAYDA ENGINEERING & ES, LLC
801 W. NEWPORT PIKE
WILMINGTON, DE 19804
P: 302-999-1060 F: 302-999-1053

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ISSUE DATES:

1	ISSUED FOR BIDDING/ CONSTRUCTION	12-08-15
2	ADDENDUM 2	1-20-16

Fearn Clendaniel Architects INC.
6 Larch Avenue Suite 398 Wilmington, Delaware 19804
Ph. 302-998-7615 Fax. 302-998-7685
www.fcarchitects.net

PROJECT

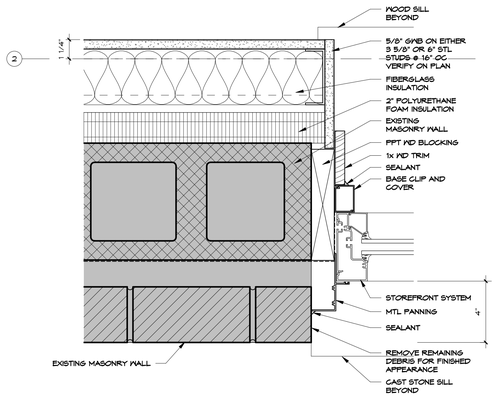
THOMAS D CLAYTON SCHOOL

RENOVATIONS

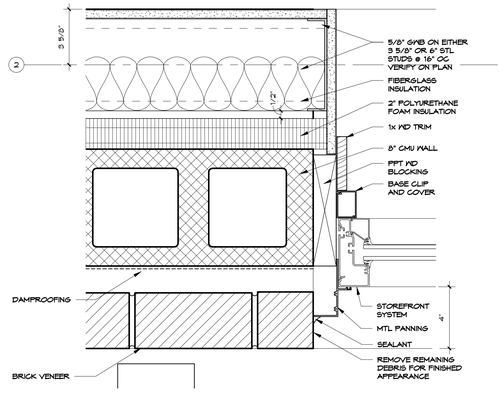
82 Monrovia Ave
Smyrna, DE 19977

DRAWING TITLE: **DOOR SCHEDULE**

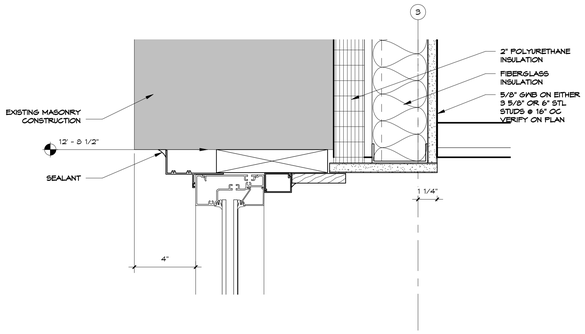
DWN BY: MAB	CHK BY: KBF	PROJ. NUMBER: 14107E
DATE: 01-20-2016		DRAWING NUMBER: A40-01
SCALE: As indicated		



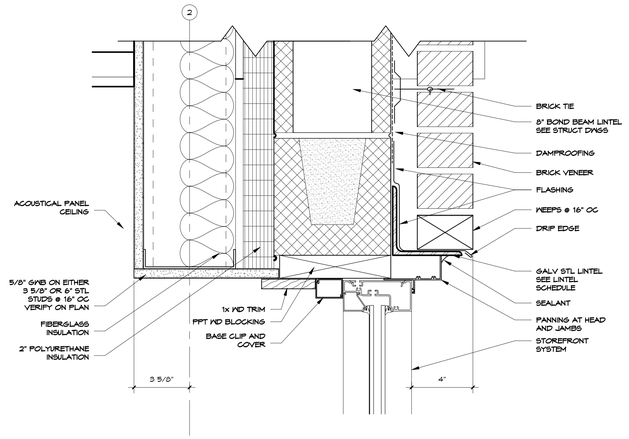
13 Typical Window Jamb Detail
Scale: 3" = 1'-0"



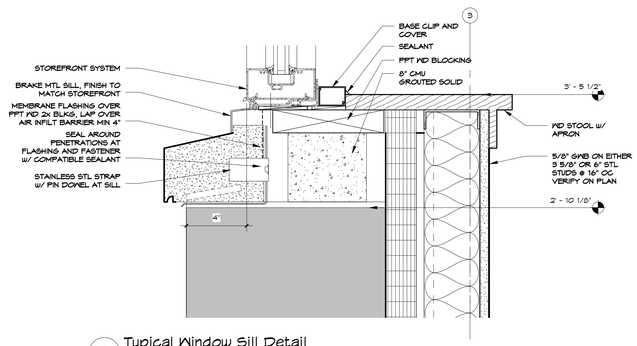
11 Window Jamb - CMU/Brick
Scale: 3" = 1'-0"



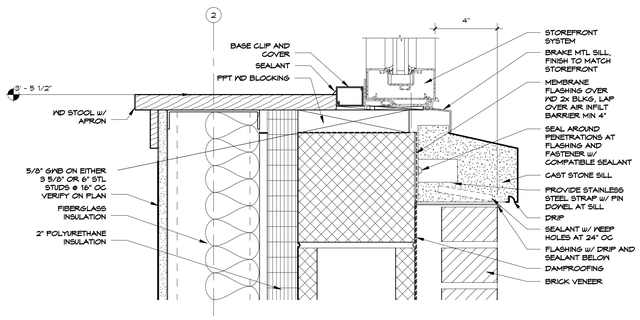
1 Typical Window Head Detail
Scale: 3" = 1'-0"



10 Window Head - CMU/Brick
Scale: 3" = 1'-0"

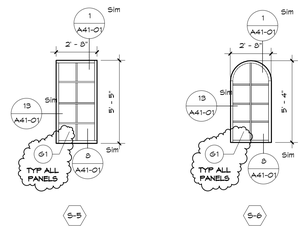


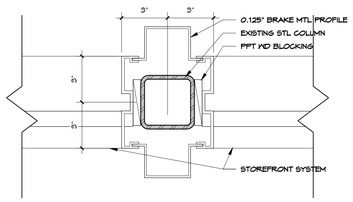
8 Typical Window Sill Detail
Scale: 3" = 1'-0"



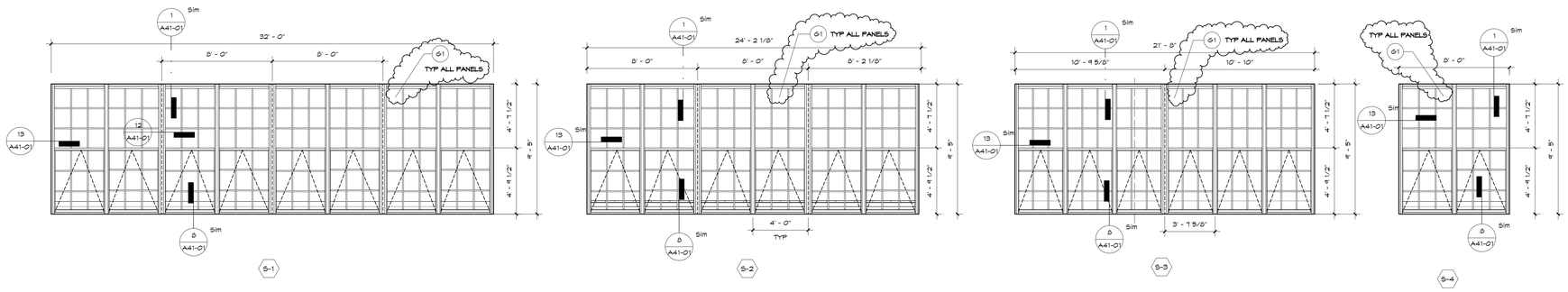
9 Window Sill - CMU/Brick
Scale: 3" = 1'-0"

GLAZING KEY	
G1	1" INSULATED GLASS UNITS
G2	1/4" UNCOATED CLEAR FULLY TEMPERED GLASS
G3	45 MINUTE FIRE RATED GLAZING
G4	60 MINUTE FIRE RATED GLAZING
G6	OBSCURE INSULATING GLASS UNIT





12 Window Mullion - Structure
Scale: 3" = 1'-0"



ONSULTANTS:

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CDA ENGINEERING, INC
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ISSUE DATES:

1	ISSUED FOR BIDDING/ CONSTRUCTION	12-08-15
2	ADDENDUM 2	1-20-16

Fearn Clendaniel Architects PC
6 Larch Avenue Suite 398 Wilmington, Delaware 19804
Ph. 302-998-7615 Fax. 302-998-7685
www.fcarchitects.net

PROJECT

THOMAS D CLAYTON SCHOOL

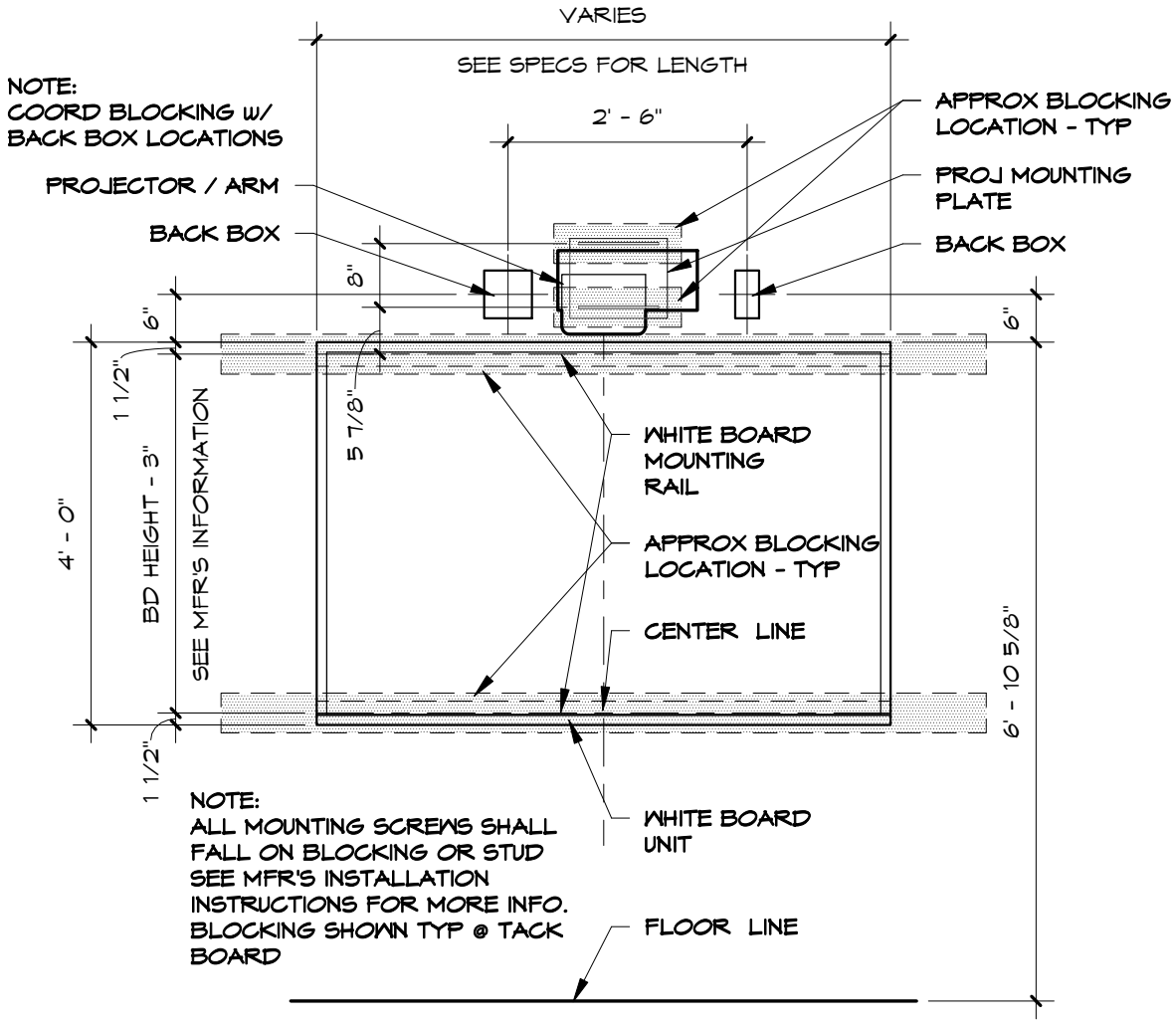
RENOVATIONS

82 Monrovia Ave
Smyrna, DE 19977

DRAWING TITLE:

WINDOW TYPES

DWN BY:	CHK BY:	PROJ. NUMBER:
MAB	KBF	14107E
DATE: 12-01-2015		DRAWING NUMBER:
SCALE: As indicated		A41-01



1 TYP WHITEBOARD MTG HGT

Scale: 1/2" = 1'-0"

Fearn Clendaniel Architects INC.
6 Larch Avenue Suite 398 Wilmington, Delaware 19804
Ph. 302-998-7615 Fax. 302-998-7685

PROJECT:	SKETCH NO:
Smyrna School District THOMAS D CLAYTON BUILDING	A-SK-001

SCALE:	PROJ NO:	DATE:
1/2" = 1'-0"	14107E	01-20-2016

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SECTION 101100 - VISUAL DISPLAY SURFACES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Markerboards.
2. Tackboards.
3. Visual display rails.
4. Visual display wall panels.
5. Support systems for visual display boards.

1.3 DEFINITIONS

A. Tackboard: Framed or unframed, tackable, visual display board assembly.

B. Visual Display Board Assembly: Visual display surface that is factory fabricated into composite panel form, either with or without a perimeter frame; includes chalkboards, markerboards, and tackboards.

C. Visual Display Surface: Surfaces that are used to convey information visually, including surfaces of chalkboards, markerboards, tackboards, and surfacing materials that are not fabricated into composite panel form but are applied directly to walls.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for visual display surfaces.

B. Shop Drawings: For visual display surfaces. Include plans, elevations, sections, details, and attachments to other work.

1. Show locations of panel joints.
2. Show locations of special-purpose graphics for visual display surfaces.
3. Include sections of typical trim members.
4. Wiring Diagrams: For power, signal, and control wiring if applicable.

C. Samples for Initial Selection: For each type of visual display surface indicated, for units with factory-applied color finishes, and as follows:

1. Actual sections of porcelain-enamel face sheet tackboard assembly display rail.
2. Fabric swatches of vinyl- and polyester-fabric-faced tack assemblies.
3. Include accessory Samples to verify color selected.

D. Samples for Verification: For each type of visual display surface indicated.

1. Visual Display Surface: Not less than 8-1/2 by 11 inches (215 by 280 mm), mounted on substrate indicated for final Work. Include one panel for each type, color, and texture required.
2. Trim: 6-inch- (152-mm-) long sections of each trim profile.
3. Display Rail: 6-inch- (152-mm-) long sections.
4. Accessories: Full-size Sample of each type of accessory.

E. Product Schedule: For visual display surfaces. Use same designations indicated on Drawings.

F. Qualification Data: For qualified Installer.

G. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for surface-burning characteristics of fabrics.

H. Maintenance Data: For visual display surfaces to include in maintenance manuals.

I. Warranties: Sample of special warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of motor-operated, sliding visual display units required for this Project.

B. Source Limitations: Obtain visual display surfaces from single source from single manufacturer.

C. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 50 or less.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate appearance and aesthetic effects and set quality standards for installation.

1. Build mockup of typical wall area as shown on Drawings. Include accessories.

2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver factory-built visual display surfaces, including factory-applied trim where indicated, completely assembled in one piece without joints, where possible. If dimensions exceed maximum manufactured panel size, provide two or more pieces of equal length as acceptable to Architect. When overall dimensions require delivery in separate units, prefit components at the factory, disassemble for delivery, and make final joints at the site.

B. Store visual display surfaces vertically with packing materials between each unit.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install visual display surfaces until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

B. Field Measurements: Verify actual dimensions of construction contiguous with visual display surfaces by field measurements before fabrication.

1. Allow for trimming and fitting where taking field measurements before fabrication might delay the Work.

1.8 WARRANTY

A. Special Warranty for Porcelain-Enamel Face Sheets: Manufacturer's standard form in which manufacturer agrees to repair or replace porcelain-enamel face sheets that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Surfaces lose original writing and erasing qualities.
b. Surfaces exhibit crazing, cracking, or flaking.

2. Warranty Period: Life of the building.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Provide Marker Board units as indicated on drawings and as specificed. Size of the units shall be as follows:

1. Conference Room 123: 12’ wide marker board x 4’ high, unless noted otherwise on the Drawings (Center in room aligned with projector).

2. Break Room 125: 10’ wide marker board x 4’ high, unless noted otherwise on the Drawings (Center in room aligned with projector). 4’ wide tack board x 4’ high (center on alcove of exterior wall laong column line 3, between column line K and L.

B. Provide individual Marker Boards and Tack Boards in sizes as noted on the Drawings.

C. Porcelain-Enamel Face Sheet: Manufacturer's standard steel sheet with porcelain-enamel coating fused to steel; uncoated thickness indicated.

1. Gloss Finish: Gloss as indicated; dry-erase markers wipe clean with dry cloth or standard eraser.

D. Melamine: Thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

E. High-Pressure Plastic Laminate: NEMA LD 3.

F. Natural Cork Sheet: Seamless, single-layer, compressed fine-grain cork sheet; bulletin board quality; face sanded for natural finish with surface-burning characteristics indicated.

G. Plastic-Impregnated Cork Sheet: Seamless, homogeneous, self-sealing sheet consisting of granulated cork, linseed oil, resin binders, and dry pigments that are mixed and calendared onto fabric backing; with washable vinyl finish and integral color throughout with surface-burning characteristics indicated.

H. Vinyl Fabric: Mildew resistant, washable, complying with FS CCC-W-408D, Type II; weighing not less than 13 oz./sq. yd. (440 g/sq. m); with surface-burning characteristics indicated.

I. Polyester Fabric: Nondirectional weave, 100 percent polyester; weighing not less than 15 oz./sq. yd. (508 g/sq. m); with surface-burning characteristics indicated.

J. Hardboard: ANSI A135.4, tempered.

K. Particleboard: ANSI A208.1, Grade M-1, made with binder containing no urea formaldehyde.

L. Fiberboard: ASTM C 208.

M. Extruded Aluminum: ASTM B 221 (ASTM B 221M), Alloy 6063.

2.2 MARKERBOARD ASSEMBLIES

A. Porcelain-Enamel Markerboards: Balanced, high-pressure, factory-laminated markerboard assembly of three-ply construction consisting of backing sheet, core material, and 0.021-inch-(0.53-mm-) thick, porcelain-enamel face sheet with high-gloss finish.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Best-Rite Manufacturing.
b. Claridge Products and Equipment, Inc.
c. Ghent Manufacturing, Inc.
d. Marsh Industries, Inc.; Visual Products Group.
e. Platinum Visual Systems; a division of ABC School Equipment, Inc.
f. PolyVision Corporation; a Steelcase company.
g. Tri-Best Visual Display Products.

2. Particleboard Core: 1/2 inch (13 mm) thick; with 0.015-inch- (0.38-mm-) thick, aluminum sheet backing.
3. Laminating Adhesive: Manufacturer's standard, moisture-resistant thermoplastic type.

2.3 TACKBOARD ASSEMBLIES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AARCO Products, Inc.
2. Best-Rite Manufacturing.
3. Claridge Products and Equipment, Inc.
4. Ghent Manufacturing, Inc.
5. Marsh Industries, Inc.; Visual Products Group.
6. Platinum Visual Systems; a division of ABC School Equipment, Inc.
7. PolyVision Corporation; a Steelcase company.
8. Tri-Best Visual Display Products.

B. Plastic-Impregnated-Cork Tackboard: 1/4-inch- (6-mm-) thick, plastic-impregnated cork sheet factory laminated to 1/4-inch- (6-mm-) thick particleboard backing.

2.4 VISUAL DISPLAY RAILS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AARCO Products, Inc.
2. Bangor Cork Company, Inc.
3. Best-Rite Manufacturing.
4. Claridge Products and Equipment, Inc.
5. Ghent Manufacturing, Inc.
6. Marsh Industries, Inc.; Visual Products Group.
7. Platinum Visual Systems; a division of ABC School Equipment, Inc.
8. PolyVision Corporation; a Steelcase company.
9. Tri-Best Visual Display Products.

B. General: Manufacturer's standard, aluminum-framed, tackable cork visual display surface fabricated into narrow rail shape and designed for displaying material.

2.5 MARKERBOARD AND TACKBOARD ACCESSORIES

A. Aluminum Frames and Trim: Fabricated from not less than 0.062-inch- (1.57-mm-) thick, extruded aluminum; standard size and shape.

1. Field-Applied Trim: Manufacturer's standard, snap-on trim with no visible screws or exposed joints.
2. Factory-Applied Trim: Manufacturer's standard.

B. Chalktray: Manufacturer's standard, continuous.

1. Box Type: Extruded aluminum with slanted front, grooved tray, and cast-aluminum end closures.
2. Solid Type: Extruded aluminum with ribbed section and smoothly curved exposed ends.

C. Map Rail: Provide the following accessories:

1. Display Rail: Continuous and integral with map rail; fabricated from cork approximately 1 to 2 inches (25 to 50 mm) wide.
2. End Stops: Located at each end of map rail.
3. Map Hooks and Clips: Two map hooks with flexible metal clips for every 48 inches (1219 mm) of map rail or fraction thereof.
4. Flag Holder: One for each room.
5. Paper Holder: Extruded aluminum; designed to hold paper by clamping action.

2.6 FABRICATION

A. Porcelain-Enamel Visual Display Assemblies: Laminate porcelain-enamel face sheet and backing sheet to core material under heat and pressure with manufacturer's standard flexible, waterproof adhesive.

B. Visual Display Boards: Factory assemble visual display boards unless otherwise indicated.

1. Where factory-applied trim is indicated, trim shall be assembled and attached to visual display boards at manufacturer's factory before shipment.

C. Factory-Assembled Visual Display Units: Coordinate factory-assembled units with trim and accessories indicated. Join parts with a neat, precision fit.

1. Make joints only where total length exceeds maximum manufactured length. Fabricate with minimum number of joints, balanced around center of board, as acceptable to Architect as indicated on approved Shop Drawings.
2. Provide manufacturer's standard vertical-joint spline system between abutting sections of markerboards.
3. Where size of visual display boards or other conditions require support in addition to normal trim, provide structural supports or modify trim as indicated or as selected by Architect from manufacturer's standard structural support accessories to suit conditions indicated.

D. Modular Visual Display Boards: Fabricated with integral panel clips attached to core material.

E. Aluminum Frames and Trim: Fabricate units straight and of single lengths, keeping joints to a minimum. Miter corners to a neat, hairline closure.

1. Where factory-applied trim is indicated, trim shall be assembled and attached to visual display units at manufacturer's factory before shipment.

2.7 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.8 ALUMINUM FINISHES

A. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance of the Work.

B. Examine roughing-in for electrical power systems to verify actual locations of connections before installation of motor-operated, sliding visual display units.

C. Examine walls and partitions for proper preparation and backing for visual display surfaces.

D. Examine walls and partitions for suitable framing depth where sliding visual display units will be installed.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Comply with manufacturer's written instructions for surface preparation.

B. Clean substrates of substances that could impair the performance of and affect the smooth, finished surfaces of visual display boards, including dirt, mold, and mildew.

C. Prepare surfaces to achieve a smooth, dry, clean surface free of flaking, unsound coatings, cracks, defects, projections, depressions, and substances that will impair bond between visual display surfaces and wall surfaces.

3.3 INSTALLATION, GENERAL

A. General: Install visual display surfaces in locations and at mounting heights indicated on Drawings, or if not indicated, at heights indicated below. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.

3.4 INSTALLATION OF FACTORY-FABRICATED VISUAL DISPLAY BOARDS AND ASSEMBLIES

A. Visual Display Boards: Attach concealed clips, hangers, and grounds to wall surfaces and to visual display boards with fasteners at not more than 16 inches (400 mm) o.c. Secure both top and bottom of boards to walls.

a. Attach chalktrays to boards with fasteners at not more than 12 inches (300 mm) o.c.

3.5 INSTALLATION OF VISUAL DISPLAY RAILS

A. Display Rails: Install rails in locations and at mounting heights indicated on Drawings, or if not indicated, at height indicated below. Attach to wall surface with fasteners at not more than 16 inches (400 mm) o.c.

1. Mounting Height: As shown on drawings above finished floor to top of rail.

3.6 CLEANING AND PROTECTION

A. Clean visual display surfaces according to manufacturer's written instructions. Attach one cleaning label to visual display surface in each room.

B. Touch up factory-applied finishes to restore damaged or soiled areas.

C. Cover and protect visual display surfaces after installation and cleaning.

END OF SECTION 101100

SECTION 238127 - SMALL SPLIT-SYSTEM HEATING AND COOLING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Air cooled condensing units.

B. Indoor ductless fan & coil units.

C. Controls.

1.2 RELATED REQUIREMENTS

A. Section 23 0913 - Instrumentation and Control Devices for HVAC: Thermostats, humidistats, time clocks.

B. Section 26 2717 - Equipment Wiring: Electrical characteristics and wiring connections and installation and wiring of thermostats and other controls components.

1.3 REFERENCE STANDARDS

A. ARI 210/240 - Standard for Performance Rating of Unitary Air Conditioning and Air-Source Heat Pump Equipment; Air-Conditioning, Heating, and Refrigeration Institute; 2008.

B. ARI 520 - Positive Displacement Condensing Units; Air-Conditioning, Heating, and Refrigeration Institute; 2004.

C. ASHRAE Std 15 - Safety Standard for Refrigeration Systems; American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.; 2007.

D. ASHRAE Std 23 - Methods of Testing for Rating Positive Displacement Refrigerant Compressors and Condensing Units; American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.; 2005.

E. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; National Fire Protection Association; 2009.

F. NFPA 90B - Standard for the Installation of Warm Air Heating and Air Conditioning Systems; National Fire Protection Association; 2009.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.

C. Shop Drawings: Indicate assembly, required clearances, and location and size of field connections.

D. Design Data: Indicate refrigerant pipe sizing.

E. Manufacturer's Instructions: Indicate rigging, assembly, and installation instructions.

F. Warranty: Submit manufacturers warranty and ensure forms have been filled out in Owner s name and registered with manufacturer.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.6 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Samsung.

B. Sanyo.

C. Mitsubishi.

D. Substitutions: See Section 01 6000 - Product Requirements.

2.2 SYSTEM DESIGN

A. Split-System Heating and Cooling Units: Self-contained, packaged, matched factory-engineered and assembled, pre-wired indoor and outdoor units; UL listed.
1. Provide refrigerant lines internal to units and between indoor and outdoor units, factory cleaned, dried, pressurized and sealed, with insulated suction line.

B. Performance Requirements: See Drawings for additional requirements.

2.3 INDOOR UNITS FOR DUCTLESS SYSTEMS

A. Indoor Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, evaporator coil, and controls; wired for single power connection with control transformer.

B. Evaporator Coils: Copper tube aluminum fin assembly, galvanized or polymer drain pan sloped in all directions to drain, drain connection, refrigerant piping connections, restricted distributor or thermostatic expansion valve.
1. Construction and Ratings: In accordance with ARI 210/240 and UL listed.
2. Manufacturer: System manufacturer.

C. Remote Actuators:

2.4 OUTDOOR UNITS

A. Outdoor Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, with compressor and condenser.
   1. Cabinet: Steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner.
   2. Construction and Ratings: In accordance with ARI 210/240 with testing in accordance with ASHRAE Std 23 and UL listed.

B. Compressor: ARI 520; hermetic, two speed 1800 and 3600 rpm, resiliently mounted integral with condenser, with positive lubrication, crankcase heater, high pressure control, motor overload protection, service valves and drier. Provide time delay control to prevent short cycling and rapid speed changes.

C. Accessories: Filter drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gage ports, thermometer well (in liquid line).
   1. Provide thermostatic expansion valves.

D. Operating Controls:
   1. Control by room thermostat to maintain room temperature setting.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that substrates are ready for installation of units and openings are as indicated on shop drawings.

B. Verify that proper power supply is available and in correct location.

C. Verify that proper fuel supply is available for connection.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions and requirements of local authorities having jurisdiction.

B. Install in accordance with NFPA 90A and NFPA 90B.

C. Install refrigeration systems in accordance with ASHRAE Std 15.

END OF SECTION 238127