ADDENDUM #1 (ONE)

MAY 4, 2023

JOB #2022-10B ADDITIONS & ALTERATIONS TO
GEORGETOWN HIGH SCHOOL
GEORGETOWN, LA
GRANT PARISH SCHOOL BOARD - OWNER

Yeager, Watson & Associates, LLC (Job #2022-10B)

****

Each bidder shall note on his Bid Form receipt of Addendum #1; that his Bid is for the conditions set forth in this Addendum plus the complete Contract Documents.

SEALED PROPOSALS OF CURRENT LOUISIANA LICENSED GENERAL CONTRACTORS FOR **#2022-10B ADDITIONS & ALTERATIONS TO GEORGETOWN HIGH SCHOOL** WILL BE RECEIVED BY **GRANT PARISH SCHOOL BOARD, 512 MAIN ST., COLFAX, LOUISIANA 71417, UNTIL 2:00 PM LOCAL TIME, TUESDAY, MAY 9, 2023.**

SOLE RESPONSIBILITY FOR PROPER DELIVERY OF BID IN COMPLIANCE WITH THE OFFICIAL PROJECT ADVERTISEMENT IS THAT OF THE GENERAL CONTRACTORS.

MANDATORY PRE-BID CONFERENCE ATTENDEES (2:00 P.M. CST, TUESDAY, APRIL 25, 2023)

Pre- Bid Attendees	Company	Phone Number
Perry Watson	YWA	318-202-5708
Stephanie Morse	YWA	318-202-5708
Zoé Collum	YWA	318-202-5708
Jim Verzwyvelt	PAE	318-473-2100
Scott Gaspard	Gaspard Construction Services	318-308-9397
John Wilson	Guth	318-221-8638
Daren Richey	Ratcliff Construction Company	318-448-0826
Trent Descant	M. D. Descant, LLC	318-346-6857
Eunice Henderson	A-Lert Building	713-206-3444
Justin Floyd	Tudor, Inc.	318-445-3606
Carl Riche	Tudor, Inc.	318-445-3606
Rodney Simmons	Mechanical Systems & Service	318-594-8535
Kent Fordham	Don M. Barron Contractor	318-368-2622
Tony Clark	Pat Williams Construction	318-460-0006
Bill Smith	GeoSport Lighting	517-607-5360
Jared Taylor	GeoSport Lighting	225-287-4834
Paxton Teddlie	GPSB	318-627-3274
Jennifer Winslett	Georgetown High School	205-789-4603

PLAN ROOMS HOLDING CONTRACT DOCUMENTS:

ISqFt/ConstructConnect Construction.com CMD.com DODGE Plan rooms

BIDEXPRESS.COM LAGC: centralauctionhouse.com/Category/4/LAGCPlanRooms

GENERAL CLARIFICATIONS

1. For this project, BIM is not required.
2. For this project, there is no unit price requirement.
3. For this project, there is no cost load schedule requirement.
4. CMU for the Storm Shelter is to be lightweight CMU with a minimum strength greater than 2,000 PSI in accordance with IBC and ICC-500. Refer to Structural.
5. For interactive boards in classrooms, **CHANGE** electrical and data boxes to 48" AFF.

PROJECT MANUAL ARCHITECTURAL

General: Several of the documents contained in this division of the Project Manual shall be modified, discarded and replaced, or added as noted below. Replacement documents and new documents are attached at the end of this Addendum.

BIDDING AND CONTRACT REQUIREMENTS:

1. **INSTRUCTIONS TO BIDDERS:** 4.6. Liquidated Damages: 4.6.1: At the end of the second line of the sentence CHANGE: $300 per calendar day **TO: $750 per calendar day**.

TABLE OF CONTENTS:

1. **TABLE OF CONTENTS:** Delete the following sections from the TOB, 033100 CAST IN PLACE CONCRETE (STRUCTURAL) CIVIL SITEWORK and 031513 WATERSTOPS.
2. **TABLE OF CONTENTS:** Change Section number of PLASTIC LAMINATE-FACED ARCHITECTURAL CABINETS FROM 064113 **TO** 064116.
3. **TABLE OF CONTENTS:** Change Section number of PLASTIC TOILET COMPARTMENTS FROM 102113.17 **TO** 102113.19.
4. **TABLE OF CONTENTS:** Change Section number of PLASTIC LOCKERS FROM 105123 **TO** 105126.

Section 014600 Storm Shelter Quality Assurance Plan– Add entire section attached to project manual.

Section 074113.16 Standing Seam Metal Roof Panels – Add entire section attached to project manual.

Section 081113 Hollow Metal Doors and Frames- Clarification for Storm Shelter Doors: Manufacturer must be approved for use with the Approved Finish Hardware Schedule. Tornado Shelter doors are to be tested assemblies. Care should be given when bidding Hollow Metal and not Finish Hardware.

Section 081416 Flush Wood Doors – Add entire section attached to project manual.

Section 087100 Door Hardware –

1. **Hardware Group 02: ADD** Opening 108.
2. **Hardware Group 03:** DELETE Opening 108
3. **Hardware Group 07:** DELETE the following,

   1 EA CONT. HINGE 112XY EPT/224XY EPT AS REQ
   1 EA WIRE HARNESS CON-XX (PANIC TO EPT)
   1 EA WIRE HARNESS CON-6W (EPT TO AC SYS)

   ADD the following,

   1 EA CONT. HINGE 112XY /224XY AS REQ
   1 EA WIRE HARNESS CON-XX (ELECTRIC STRIKE TO AC SYS)

4. **Hardware Group 15:** DELETE the following,
   1 EA WIRE HARNESS CON-XX (PANIC TO EPT)
   1 EA WIRE HARNESS CON-6W (EPT TO AC SYS)
   ADD the following,
   1 EA WIRE HARNESS CON-XX (ELECTRIC STRIKE TO AC SYS)
5. **Hardware Group 18:** DELETE the following,
   1 EA WIRE HARNESS CON-XX (PANIC TO EPT)
   1 EA WIRE HARNESS CON-6W (EPT TO AC SYS)
   ADD the following,
   1 EA WIRE HARNESS CON-XX (ELECTRIC STRIKE TO AC SYS)
6. **Hardware Group 21:** DELETE the following,
   REVISE Fire Exit Hardware as follows.
   1 EA FIRE EXIT HARDWARE- WS-9857-L-F-996L-SNB
7. **Hardware Group 24: ADD** opening 221.
8. **Hardware Group 25:** DELETE the following,
   1 EA PUSH PLATE- 8200 4" X 16"
   1 EA PUSH PLATE- 8303 8" 4" X 16"
   ADD the following,
   1 EA PASSAGE LOCK- ND10S RHO 626
   1 EA OVERHEAD STOP- 900S-630
   1 EA GASKETING- 488SBK PSA
9. **Hardware Group 34: REVISE** the following,
   1 EA STOREROOM LOCK - ND80PD RHO PRIMUS
   DELETE the following,
   1 EA POWER TRANSFER - EPT10
   1 EA WIRE HARNESS - CON-XX (PANIC TO EPT)
   1 EA WIRE HARNESS - CON-6W (EPT TO AC SYS)
10. **Door Hardware General Notes:**
    a. Supplier is to cooperate and coordinate with Access Control vendor.
    b. Electrical Contractor or their subcontractor will be responsible for supplying, pulling and terminating wiring at electrified hardware as per the opening specific Riser Diagrams which are to be supplied by the hardware supplier.

Section 093013 CERAMIC TILING-

1. 093013- 2.2.C. DELETE and REPLACE with the following:

C. Porcelain Tile Type PT-1: Unglazed porcelain tile (Floors and walls).

1. Basis-of-Design Product: Subject to compliance with requirements, provide American Olean Union with stepwise, or comparable product by one of the following: Marazzi with Stepwise
2. Composition: Porcelain.
3. Certification: Porcelain tile certified by the Porcelain Tile Certification Agency.
4. Module Size: 12 by 24 inch.
5. Thickness: 5/16 inch.
6. Face: Rectified edges.
7. Dynamic Coefficient of Friction: Not less than 0.42.
8. Tile Color and Pattern: As selected by Architect from manufacturer’s full range. Pattern as indicated on drawings.
9. Grout Color: As selected by Architect from manufacturer's full range.
10. Trim Units: Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
11. Covebase: Bullnose: Module size 6 by 12 inches

2. 093013- 3.4.A.1. and 3.4.A.2- ADD PT-1.

Section 096519 Resilient Tile Flooring 2.2 Luxury Vinyl Floor Tile Clarification:

1. **096519- 2.2.A.1: CHANGE** Tarkett tile to ID Latitude Abstract LVT.
2. **096519- B: CHANGE to** Mohawk Premium Wood 8" x 52"
3. **096519- B.2.1: CHANGE** to Tarkett ID Latitude Wood LVT 6" x 48".
4. **096519- B.2.2: CHANGE** to Mannington Select Wood 5" x 48" or 7.25" x 48".
5. **096519- B.2.a.** Luxury Vinyl Tile Type LVT-2 provide in rooms A147, A148, A150, A151, A153, A154, A155, A156, A158, A159, A160, and A161.
6. **096519- D.3: ADD** Training: At Substantial Completion, provide onsite Manufacturer provided maintenance training.

Section 101419 Dimensional Letter Signage

1. **101419.2.1.A.3. Clarification:** Refer to A301 Exterior Elevations for Wording and character height.
2. **101419.2.1.B Clarification:** Refer to 4/A701 for letter location and size.

Section 107301 Aluminum Canopies Clarifications:

1. Per specifications, all member sizes are subject to change per design calculations. Refer to 107301- 1.2.B.2 and 107301- 2.2.A.
2. **Finish: 107313- 2.2.A.8: CHANGE** from Kynar paint finish on exposed surfaces **TO** Clear anodized finish on exposed surfaces.

ARCHITECTURAL DRAWINGS

A001 SCHEDULES:

WORK ITEM SCHEDULE Clarifications:

1. **MILLWORK: M6-** Laminate clad student cubbies, single height w/ storage cabinets above. Provide wall fillers & finished exposed end. 4 unit sections. 6 sections per classroom.
2. **MILLWORK: M7-** Laminate clad student cubbies, single height w/ storage cabinets above. Provide wall fillers & finished exposed end. 2 unit sections. 1 sections per classroom.
3. **MILLWORK: M15- CHANGE** from plastic laminate clad **TO** Melamine clad.
4. **MILLWORK: M29-** Laminate clad kitchen upper cabinets.
5. **WORK ITEMS OF CONSTRUCTION: W13**- Install owner provided wood lettering on cmu walls. Provide wood painted 1x trim surround.
6. **WORK ITEMS OF CONSTRUCTION: W9, W10, W11, and W12** to be wall applied professionally printed vinyl graphic letters and logos for wall type as notes. Font and graphic to be provided by Architect during construction.

DOOR SCHEDULE:

1. Door A116 and A191: **CHANGE** frame elevation to SF-1.
2. Door A117 and A192: **CHANGE** frame elevation to SF-4.
3. Door F101- **DELETE** hardware H-03.
4. Door F103- **ADD** hardware H-03.

A003 STORM SHELTER CODE SHEET: REPLACE with RA003 attached at the end of this addendum.

A005 SIGNAGE PLAN Clarification: This sheet locates interior room signage.

A101 ARCHITECTURAL SITE PLAN- BUILDING PLAN LEGEND BUILDING B Clarification: Along West face of Building B, remove temporary plastic, replace exterior metal gable face metal with new R-panels. Fasten to existing structure per manufacturer's recommendation. On North and South face of Building B, remove existing vinyl siding (approximately 24" high) full length of building. Provide and install new r-panels full length of wall. Fasten to existing structure per manufacturer's recommendation.

A102 SITE DETAILS Clarification: Detail 2 to be used at Building F. Refer to Civil Sheets for Building A downspout sump detail.

A204 FLOOR PLAN AREA "B" Clarification: In Kitchen A133, **CHANGE** partition types FROM Type 2 **TO** Type 4.

A207 REFLECTED CEILING PLAN: REPLACE with RA207 attached at the end of this addendum.

A400 PARTITION SCHEDULE: DELETE note 37.

A601 OPENINGS ELEVATIONS: 4 Louver Elevations Clarification: Refer to M100, M101, M103, M104. M105 NOTE 2 for louver L4 locations.

A701 INTERIOR ELEVATIONS- Clarification Item 16: Bulldog logo on wall is a printed vinyl logo applied to gypsum board wall.

A802 MILLWORK DETAILS- Detail 7/A802, **CHANGE** shelf **TO** Melamine clad.

OTHER ACCEPTABLE MANUFACTURERS - ARCHITECTURAL PRODUCTS

No Exceptions are taken to the following manufacturers and/or products for bidding purposes in addition to those specified. Substituting products other than those specified is based upon the best information now available. Should any modification be required to accommodate the substitute product, it is the responsibility of this supplier and/or subcontractor to include the cost of this modification in his quotation. It should be understood that any deviation from the products specified with respect to quality, details and performance in the opinion of the Architect is grounds for disapproval of this product subsequent to a contract award. Any manufacturer or product that is not listed here or in the Specifications shall be deemed NOT ACCEPTABLE for this project. Verification of this is the responsibility of the General Contractor. The Architect after Contract Award will strictly enforce this policy.

033000 Cast-In-Place Concrete (Vapor Retarders): Viper II by Insulation Solutions.
042000 Unit Masonry: Masonry Materials: Mortor Web- Sandell Manufacturing Co., Inc.
064116 Plastic-Laminate-Faced Architectural Cabinets: ProTech; Case Systems, Inc.; Douglas Cabinet Company, Inc.; Allen Millwork, Inc; Daigrepont Woodwork LLC.
071113 Bituminous Damproofing: Henry 788 Asphalt Dampproofing.
072119 Foamed-In-Place Insulation (Masonry Walls): cfiFOAM.
072500 Weather Barriers: W.R. Meadows Air-Shield SMP.
074113.16 Standing-Seam Metal Roof Panels (All Roof Systems must meet or exceed the Single Source Weathertightness Warranty specified): McElroy Metal; Metal Sales, Architectural Metal Systems (AMS); American Building Components (ABC); Pinnacle Structures; ACI Metal Roofing Systems; AIM Metals; Whirlwind Steel; Pac-Clad Tite-Loc 18" wide; Centurion A-Lert KR24-S 16" wide; Alliance AS-24 panel.
074213.13 Formed Metal Wall Panels: McElroy Metal; Metal Sales, Architectural Metal Systems (AMS); American Building Components (ABC); Pinnacle Structures; ACI Metal Roofing Systems; AIM Metals; Whirlwind Steel; Alliance PBR panel (Alt. #2).
074293 Soffit Panels: McElroy Metal; Metal Sales, Architectural Metal Systems (AMS); American Building Components (ABC); Pinnacle Structures; ACI Metal Roofing Systems; AIM Metals; Whirlwind Steel; Centurion A-Lert AL-12 with indents; Alliance A-12 panel.
076200 Sheet Metal Flashing & Trim (Underlayment Materials): Jiffy Seal Ice and Water Guard by Protecto Wrap.

081113 Hollow Metal Doors and Frames: Security Metal Products Corp.
084113 Aluminum-Framed Entrances and Storefronts: YKK AP Yes 45 TU and Model 50D Medium Stile Entrance Door; YKK 750 Curtainwall.
085113 Aluminum Windows: EFCO Thermal Windows; Columbia.
092216 Non-structural Metal Framing: CEMCO; JN LINROSE.
093013 Ceramic Tiling (Setting Materials): C-Cure Chemical Co.; Tex-Rite; Texas Cement Products.
095123 Acoustical Ceilings: Certainteed.
101100 Visual Display Units: NACO, ASI
101423.16 Room-Identification Panel Signage: Sign International, Inc.
102800 Toilet Accessories: A & J Washroom Accessories; McKinney-Parker.
104413 Fire Protection Cabinets: Potter Roemer.
104416 Fire Extinguishers: Potter Roemer.
107301 Aluminum Canopies: (Subject to closely matching canopy components and providing engineering): Williams Fence/Eastern Metal Supply; Glendale Enterprises/Eastern Metal Supply; Tennessee Valley Metals, Inc.; Avadek.
114000 Foodservice Equipment: ThermalRite Walk-In Cooler/Freezers.
123623.13 Plastic-Laminate-Clad Countertops: ProTech; Case Systems, Inc.; Douglas Cabinet Company, Inc.; Allen Millwork, Inc.
133419 Metal Building Systems **(If supplying any panels, manufacturer must match metal roof, wall and soffit gauges, profiles, and finishes as specified in 074113.16 & 074213.13, otherwise the specified panel shall be provided and installed)**: ACI; AIM; Gulf States; Alliance Steel Building Systems; Red Dot Building Systems, Rigid Building Systems; Star Building Systems; CECO; Pinnacle Structures; Delta Consolidated LLC; Frontier Steel Buildings; Ideal Steel; Whirlwind Steel.

NOTE: ATTACHED TO THE END OF THIS ADDENDUM ARE THE FOLLOWING REVISION DOCUMENTS INCORPORATED INTO THIS PROJECT BY THIS ADDENDUM #1:

- **Spec Section 014600 Storm Shelter Quality Assurance Plan**
- **Spec Section 074113.16 Standing Seam Metal Roof Panels**
- **Spec Section 081416 Flush Wood Doors**
- **RA003 STORM SHELTER CODE SHEET (30”x42”)**
- **RA207 RELECTED CEILING PLAN (30”x42”)**
- **Civil Addendum #1 Narrative dated May 04, 2023**
- **Structural Addendum #1 Narrative dated May 03, 2023**
- **MEP Addendum #1 Narrative dated May 03, 2023**

END OF ADDENDUM #1 (ONE)

SECTION 014600 – STORM SHELTER QUALITY ASSURANCE PLAN

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Quality Assurance Plan: Requirements per ICC 500 for material and product quality and control of installation. Refer to related sections and the Storm Shelter drawings.

B. References and Standards

C. Testing Laboratory Services

D. Inspection Services

1.2 RELATED SECTIONS

A. Section 014100 – Regulatory Requirements

B. Section 014500 – Quality Control

C. Section 014523 – Testing and Inspecting Services

D. Section 013300 - Submittal Procedures

E. Subsurface Investigation Report 2

F. The Work of this Section shall be included as a part of all Sections of Work, whether referenced therein or not.

1.3 DESCRIPTION OF REQUIREMENTS

A. Unless specifically noted otherwise, perform all Work shown, mentioned, or reasonably inferred and comply with all work restrictions.

B. Many of the requirements specified elsewhere are included herein for reference and convenience. Where a conflict occurs between the Contract Documents, either within themselves or each other, the more stringent requirement or the most expensive combination of materials and workmanship shall prevail.

C. Contractor shall:
1. perform Work in accordance with the General Conditions, as specified herein, and with the quality control requirements of each Specification Section;
2. perform Work in the highest quality workmanship, unless specified otherwise;
3. join materials with a uniform and accurate fit so they meet with neat straight lines, free of smears, overlaps or irregularities, as applicable to the work;
4. install all exposed materials appropriately level, plumb, and at accurate angles as shown and flush with adjoining materials;
5. attach materials with sufficient strength, and with number and spacing of fasteners and attachments that will not fail until materials joined are broken or permanently deformed.

1.4 REFERENCES AND STANDARDS

A. Codes – 2021 International Building Code (IBC 2021) and ICC 500-2020.

B. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

C. Conform to reference standard by date of issue current on the date of the Owner-Contractor Agreement except where specific date is established by code.

D. Obtain copies of standards where required by product specification sections.

E. When specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

F. Neither contractual relationships, duties, responsibilities of parties in Contract nor those of Architect/Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

G. Refer to Section 014100, Codes, Regulations and Standards, for additional information concerning applicable reference and standards requirements.

1.5 SUBMITTALS

A. Product Data and Shop Drawings: Include each type of material or system specified that is tested and labeled by a qualified testing agency meeting the requirements of ICC 500 design standards.

B. Quality Assurance/Control Submittals: Contractor shall collect and maintain copies of information relating to the Quality Assurance Plan.
   1. Certificates and Test Reports: Products shall meet or exceed specified requirements.
   2. Qualification Documents: Provide documentation indicating applicants meet or exceed qualification requirements.
   3. Field Reports: Provide field reports related to manufacturers field reports for installation of products and general field reports required by the Storm Shelter Quality Assurance Plan.

C. Contractor Statement of Responsibility Letter (see sample letter at the end of this Section). In accordance with ICC 500-20; 107.4, each contractor and subcontractor responsible for the construction, fabrication or installation of a main wind force-resisting system or any component listed in the quality assurance plan shall submit a written statement of responsibility to the authority having jurisdiction, the responsible design professional, and the Owner prior to the commencement of work on the system or component.

1.6 QUALITY ASSURANCE

A. Qualifications: Perform work with contractor forces and subcontractors experienced and qualified to produce required and specified quality. Subcontractors shall use personnel who are experienced with similar commercial construction of their trade.

B. Owner will appoint, employ, and pay for specified services of an independent firm or firms to perform testing and inspection services related to the Storm Shelter. Refer to Section

014000 for general quality assurance, control of installation and testing services requirements.

C. It is the Contractor's responsibility to coordinate and schedule testing, inspections and structural observations at the appropriate times during the Storm Shelter construction. Refer to Structural Drawings for notes pertaining to the scope of required testing, inspection and observation services.

D. Storm Shelter Pre-Construction Meeting: A pre-construction meeting shall be held specifically for all construction related to the storm shelter facilities. This meeting will be scheduled by the Architect prior to any work being done on these shelters.

1.7 MATERIALS AND COMPONENTS

A. Materials and components that are part of the Storm Shelter construction shall comply with the requirements of ICC 500-20 design standards for wind pressures, missile impact and debris protection. Materials and components listed here are included but not necessarily limited to the following:

1. Concrete footing shafts,
2. Concrete foundations, slabs, toppings with reinforcement
3. Structural and miscellaneous steel fabrications
4. Steel decks
5. Concrete masonry with reinforcement
6. Door, frame, hardware assemblies
7. Storm shutter door, frame, hardware assemblies
8. Louvers and dampers
9. Penetration protective assemblies (fabricated or prefabricated)

1.8 FIELD QUALITY CONTROL

A. General: Refer to Section 014523, Testing and Inspecting Services, plus notes contained herein for additional information concerning testing, and submittal procedures and requirements for Testing Reports.

B. Special Inspections & Tests: Refer to the notes contained on the Structural Drawings which outline structural tests, inspections and observations that are required for the Storm Shelter design and construction.

C. Structural Observation: Includes visual observations of the construction of the structural system for general conformance to the construction documents at significant construction stages and at completion of the construction of the structural system. Refer to notes on the Structural Drawings for the minimum stages of construction that require observation.

D. Testing does not relieve Contractor to perform Work to contract requirements.

E. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Architect/Engineer. Payment for re-testing will be charged to the Contractor by deducting testing charges from the Contract Sum/Price.

1.7 STORM SHELTER QUALITY ASSURANCE PLAN

A. Detailed Requirements per ICC 500-20, Section 107, Paragraph 107.2:

1. Roof Cladding and roof framing connections:
The roof cladding is an 8" total thickness concrete deck (1 ½" composite steel floor deck with 6 ½" concrete cover above the steel deck) reinforced with #4 bars spaced at 12" on center, each way. The concrete deck is supported by structural steel framing (steel beams and columns) and acts compositely with the steel beams by the use of ¾" diameter, 7" long shear stud connectors.

2. Wall connections to the roof diaphragms and framing:
The wall connections to the roof diaphragms are made with a steel reinforced, monolithic concrete pour including the concrete deck and the top of the wall indicated on Sections 1S003, 2S003, 3S003, 4S003, and 5S003.

3. Roof diaphragm systems, including connectors, drag struts, and boundary elements:
The roof diaphragm system includes the 8" total thickness concrete deck (diaphragm) and the steel beams around the perimeter of the shelter are the collectors and drag struts, all shown on the Framing Plan 1S002.

4. Main wind force-resisting system (MWFRS) is a reinforced, concrete masonry shear wall system as detailed on the drawings (Plan 1S004). The MWFRS reinforced, concrete masonry shear walls are connected to the foundation by use of 2 #5 dowels at each vertical CMU cell as indicated on the drawings. The 2 #5 dowels shall be cast into the grade beams as indicated. The wall connection at the bottom of the wall (doweled connection) is indicated on Sections 1S001, 2S001, 3S001, 6S001, and 7S001.

5. Fabrication and installation of components and assemblies of the shelter envelope required to meet missile impact test requirements of Chapter 3:
Shelter envelope components and assemblies required to meet missile impact test criteria include roof and wall systems, door/frame assemblies, storm shutter assemblies, windows, louvers, and other opening protectives as indicated on the Architectural and Structural drawings. Manufactured products shall be tested and carry a label from an acceptable testing agency indicating compliance with missile testing.

6. Wall cladding and wall connections:
The exterior wall cladding for the shelter is 12" CMU, each vertical cell filled solid with concrete and reinforced with a 2 #5 vertical bars. Refer to Plan 1S004 and Detail 3S004 for special reinforcing at opening jambs. The wall connection at the top is indicated on Sections 1S003, 2S003, 3S003, 4S003, and 5S003. The wall connection at the bottom of the wall (doweled connection) is indicated on Sections 1S001, 2S001, 3S001, 6S001, and 7S001.

7. Corrosion resistance or protection of exposed metal connectors providing load path continuity: All of the structural connections providing load patch continuity are entirely contained within the shelter envelope and are not exposed.

8. Critical support systems and connections and debris impact protection of components and connections:
Critical support systems include integral battery backup for lighting and battery powered inverters for ventilation control which are all protected within the shelters. Both water and sewer to and from the shelters are fed underground from the site.

Debris protection for openings is handled by CMU baffle alcoves at the low ventilation intake points, steel angle-supported welded steel plate assemblies behind high ventilation outflow points, and steel pipe opening protectives for duct and plumbing vent openings. See details on Architectural and Structural drawings.

9. Foundation design:
The design of the foundation is completely dependent upon the Owner-furnished Report of Geotechnical Investigation. The foundation for the shelter is a deep foundation, including drilled, cast-in-place concrete footing shafts at the columns and supporting grade beam footings at the masonry walls. The foundation elements are indicated on Plan 1S000, and details on Drawings S000 and S001.

B. Special Inspections Required:

1. Required Special Inspections and Tests of Soils:
Types 2, 3, 4, and 5 as indicated in IBC2021, Table 1705.6.

2. Required Special Inspections and Tests of Cast-in-Place Deep Foundation Elements:
Types 1, 2, and 3 as indicated in IBC2021, Table 1705.8.

3. Required Special Inspections and Tests of Concrete Construction:
Types 1, 3, 5, 6, 7, 8, 13, and 14 as indicated in IBC2021, Table 1705.3.

4. Required Special Inspections for Masonry Construction:
Level C Quality Assurance – Minimum Tests and Minimum Special Inspection Types 1, 2a, 2b, 2c, 2d, 2e, 2f, 2g, 2h, 2j, and 3, as indicated in TMS 402-13/ACI530-13/ASCE 5-13, Table 3.1.3.

5. Required Special Inspections for Steel Construction:
In accordance with the Quality Assurance inspection requirements of AISC360, Chapter N, and indicated in IBC2021, Paragraph 1705.2.1. Visual inspection of the installation/placement of the steel column anchor rods, visual inspection of all bolted connections, field testing of all complete penetration welds in the beam-to-column moment connections. Shear stud connector inspection - Testing Agency shall visually inspect the installation of all composite shear studs. During the installation process, a 10% representative sample of the studs shall be bent over to 30 degrees from their vertical axis by hitting them on the headed end with a 2# sledge hammer. Where failure of the stud at the weld occurs, proceed to an immediately adjacent stud and bend it in a similar fashion. Continue until at least 2 adjacent studs do not fail.

6. Required Special Inspections for Cold-Formed Steel Deck (Composite Steel Deck):
In accordance with the Quality Assurance inspection requirements of SDI QA/QC, and indicated in IBC 2021, Paragraph 1705.2.2.

7. Required Special Inspections for Wind Resistance:
In accordance with IBC2021, Paragraph 1705.12.3, periodic special inspection is required for fastening of the following systems and components:
   a. Roof (ceiling) deck and roof framing connections.
   b. Exterior walls and wall connections to roof diaphragms, framing, and foundation elements.

END OF SECTION

CONTRACTOR'S/SUBCONTRACTOR'S LETTERHEAD

To: (*Superintendent*),
(*Title*),
(*Email Address*)
(*General Contractor Company Name*)

From: (*Subcontractor Foreman*),
(*Title*),
(*Email Address*)
(*Subcontractor Company Name*)

Reference: (*Project Name*),
(*Project Address*)
(*Owners Names*)

Subject: Subcontractors - Storm Shelter Responsibility & Inspection Acknowledgement

Dear (*Superintendent Name*),

The (*subcontractor company name*) team acknowledges the requirements as set forth in the structural contract documents, specifically sheets; SX.XX, SX.XX (*list all sheets pertinent to sub's responsibility*) to provide the final in-place product for elements pertaining to the shelter under our direct responsibility. We (*subcontractor company name*) understand and acknowledge what is required of us to complete the work for the (project name) shelter that is under our direct responsibility. We shall also provide written documentation that our work was quality controlled (QC) via (*internal review or GC's review*) to meet the requirements as set forth in the structural contract documents.

Our on-site QC review will be completed by (*Subcontractor Person-In-Charge, Title*), herein known as the reviewer. The reviewer will be providing any required documentation as indicated per the requirements as set forth in the structural contract documents. We understand and acknowledge that a report of the aforementioned QC reviews will be generated and distributed to the Owner's third party inspector and Architect through (*Contractors Company Name*).

This procedure will be followed as required per structural contract documents sheet (*storm shelter notes sheet SX.XX*).

Please let (*subcontractor company name*) know if you need additional information.

Thank you,

(*Subcontractor's Person-In-Charge Signature*)

(*Subcontractor's Name,*
Company) (*Number*)
(*Title*)

SECTION 074113.16 - STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Standing-seam metal roof panels.

1.2 SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.

C. Warranties: Sample of special warranties.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.4 WARRANTY

A. Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 20 years from date of Substantial Completion.

B. Weathertightness Warranty (Standing Seam Roof System): Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:

1. Wind Loads: As indicated on Drawings.
2. Other Design Loads: As indicated on Drawings.
3. Deflection Limits: For wind loads, no greater than 1/180 of the span.

B. Air Infiltration, ASTM E 1680: Maximum 0.09 cfm/sq. ft. (0.457 L/s per sq. m) at static-air-pressure difference of 6.24 lbf/sq. ft. (300 Pa).

C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 or ASTM E 331 at the following test-pressure difference:

1. Test-Pressure Difference: 12 lbf/sq. ft. (575 Pa).

D. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E 2140.

E. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: UL 90.

F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 STANDING-SEAM METAL ROOF PANELS

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.

B. Snap Joint, Concealed Fastener, Trapezoidal Seam Metal Roof Panels: Structural metal roof panel consisting of formed metal sheet with raised trapezoidal ribs at panel edges, installed by lapping and interlocking edges of adjacent panels, and mechanically attaching panels to supports using concealed clips and fasteners in a weathertight installation.

1. Basis-of-Design Product: Subject to compliance with requirements, provide MBCI; a division of NCI Group, Inc.; Double-Lok, 24” wide panel, or a comparable product by one of the following:

a. Architectural Metal Systems SS II, 24” wide with intermediate ribs.
b. McElroy Metal, Inc. MasterLok-90, 24” wide with intermediate ribs.

2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A 653/A 653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A 755/A 755M.

a. Nominal Thickness: 24 gauge.
b. Exterior Finish: Signature 300 (Kynar).
c. Color: As selected by Architect from manufacturer's full range.

3. Clips: Two-piece floating to accommodate thermal movement.

a. Material: Manufacturer’s recommended clip, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.

4. Joint Type: Snap joint.
5. Panel Coverage: 24 inches (610 mm).
6. Panel Height: 3.0 inches (76 mm) minimum.

2.3 THERMAL INSULATION - BUILDING A (BASE BID)

A. Pre-Engineered Building Banded Blanket Insulation System: Refer to Section 072116 for banded insulation system specifications.

2.4 THERMAL INSULATION – BUILDING F (ALTERNATE NO. 2)

A. Standard Vinyl-Backed Composite Insulation System: Refer to Section 133419 for standard insulation system specifications.

2.5 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C 645; cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, G90 (Z275 hot-dip galvanized) coating designation or ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Gutters and Downspouts: Formed from same material as roof panels according to SMACNA's "Architectural Sheet Metal Manual." Finish to match roof fascia and rake trim.

E. Roof Curbs: Fabricated from same material as roof panels, 0.048-inch (1.2-mm) nominal thickness; with bottom of skirt profiled to match roof panel profiles and with welded top box and integral full-length cricket. Fabricate curb subframing of 0.060-inch- (1.52-mm-) nominal thickness, angle-, C-, or Z-shaped steel sheet. Fabricate curb and subframing to withstand indicated loads of size and height indicated. Finish roof curbs to match metal roof panels.

F. Panel Fasteners: Self-tapping screws designed to withstand design loads.

G. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing; 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
2. Joint Sealant: ASTM C 920; as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.6 FABRICATION

A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

2.7 FINISHES

A. Panels and Accessories:

1. Fluoropolymer Two-Coat System: 0.2 – 0.3 mil primer with 0.7 - 0.8 mil 70 percent PVDF fluoropolymer color coat, AAMA 621[, meeting solar reflectance index requirements].
2. Basis of Design: MBCI, Signature 300.

B. Concealed Finish: White or light-colored acrylic or polyester backer finish.

PART 3 - EXECUTION

3.1 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

3.2 THERMAL INSULATION INSTALLATION

A. Insulation system is specified in Section 072116. Install system per manufacturer’s instructions.

3.3 METAL PANEL INSTALLATION

A. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.

1. Install clips to supports with self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
4. Watertight Installation:

    a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
    b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
    c. At panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with sealant and fastened together by interlocking clamping plates.

B. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

C. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

3.4 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

END OF SECTION 074113.16

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid-core doors with plastic-laminate faces.
2. Factory fitting flush wood doors to frames and factory machining for hardware.

B. Related Requirements:

1. Section 088000 "Glazing" for glass view panels in flush wood doors.

1.2 SUBMITTALS

A. Product Data: For each type of door.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:

1. Dimensions and locations of blocking.
2. Dimensions and locations of mortises and holes for hardware.
3. Dimensions and locations of cutouts.
4. Undercuts.
5. Fire-protection ratings for fire-rated doors.

C. Samples: For plastic-laminate door faces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

Manufacturers listed are representative only; many others make flush wood doors. See WDMA's and AWI's Web sites for listings of door manufacturers. Retain only manufacturers offering doors complying with requirements selected for each type used, and insert other manufacturers offering suitable products. See Evaluations and manufacturers' catalogs.

1. ABS-American Building Supply- Doormerica.
2. Algoma Hardwoods, Inc.
3. Ampco Products, LLC.
4. Chappell Door Co.
5. Eggers Industries.
6. General Veneer Manufacturing Co.
7. Graham Wood Doors; an Assa Abloy Group company.
8. Haley Brothers, Inc.

9. Ipik Door Company.
10. Lambton Doors.
11. Marlite.
12. Marshfield Door Systems, Inc.
13. Mohawk Flush Doors, Inc.
14. Oregon Door.
15. Oshkosh Door Company.
16. Poncraft Door Company.
17. Vancouver Door Company.
18. VT Industries, Inc.

2.2 FLUSH WOOD DOORS, GENERAL

A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."

B. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

1. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
2. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
3. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.

C. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.

D. Particleboard-Core Doors:

1. Particleboard: ANSI A208.1, Grade LD-2, made with binder containing no urea-formaldehyde.
2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.

E. Mineral-Core Doors:

1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.
3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

2.3 PLASTIC-LAMINATE-FACED DOORS

A. Interior Solid-Core Doors:

1. Grade: Custom.

2. Plastic-Laminate Faces: High-pressure decorative laminates complying with NEMA LD 3, Grade HGS.
3. Colors, Patterns, and Finishes: As selected by Architect from laminate manufacturer's full range of products.
4. Exposed Vertical Edges: Factory finished hardwood edges for staining to match faces or plastic laminate that matches faces, applied before faces.
5. Core: Particleboard.
6. Construction: Three plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before faces are applied. Faces are bonded to core using a hot press.

2.4 LIGHT FRAMES AND LOUVERS

A. Metal Frames for Light Openings in Non-Rated and Fire-Rated Doors: Manufacturer's standard frame formed of 0.048-inch-thick, cold-rolled steel sheet; factory primed for paint finish; and approved for use in doors of fire-protection rating indicated.

B. Metal Louvers:

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

a. Air Louvers, Inc, a Division of the Activar Construction Products Group.
b. Anemostat Products; a Mestek company.
c. L & L Louvers, Inc.
d. Louvers & Dampers, Inc.; a division of Mestek, Inc.
e. McGill Architectural Products.
f. Industrial Louvers, Inc.

2. Metal and Finish: Hot-dip galvanized steel, 0.040 inch thick, factory primed for paint finish.

2.5 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

1. Comply with NFPA 80 requirements for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied.

C. Openings: Factory cut and trim openings through doors.

1. Light Openings: Trim openings with moldings of material and profile indicated.
2. Louvers: Factory install louvers in prepared openings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hardware: For installation, see Section 087100 "Door Hardware."

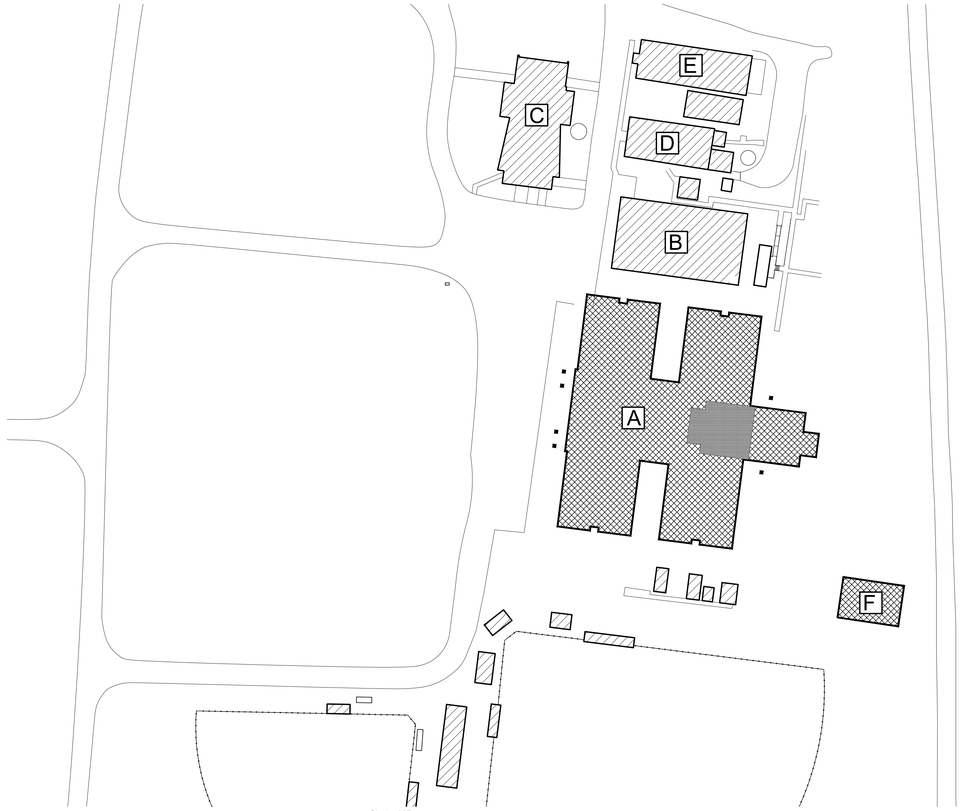
B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

1. Install fire-rated doors according to NFPA 80.
2. Install smoke- and draft-control doors according to NFPA 105.

C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

END OF SECTION 081416



1 SITE PLAN
SCALE 1"= 60'-0"

TORNADO SHELTER INFORMATION:

TYPE OF CONSTRUCTION: NEW CONSTRUCTION
DESCRIPTION: COMMUNITY TORNADO SHELTER FOR USE BY THE SCHOOL OCCUPANTS CITY: GEORGETOWN, LOUISIANA
COUNTRY: UNITED STATES OF AMERICA
PARISH: GRANT
OWNER: GRANT PARISH SCHOOL BOARD
USE: EDUCATION, HIGH SCHOOL

CODE COMPLIANCE

IBC 2021
ICC 500-2020

TORNADO STORM SHELTER INFORMATION

TYPE: EDUCATION, HIGH SCHOOL
NUMBER OF EGRESS POINTS: 6
DURATION: 2 HOURS
GROSS AREA: 2,659 SF
NON-OCCUPIABLE AREA: 975 SF
USABLE AREA: 2,014 SF
MAXIMUM ALLOWABLE OCCUPANCY: 401
LUNCHROOM , TOILET ROOM AND TOILET ROOM = (2,014 SF/ 5 SF/ occupant = 403 occupants) 403 occupants/ 200 = 3 HC occupants
(2,014 SF - 3 occupants (10 SF/ occupant))= 1,984 SF
1,987 SF/ 5 SF = 398 occupants + 3 occupants = **401 occupants**
BEDRIDDEN = 0

ACTUAL MAXIMUM OCCUPANCY: 225 + 35= 260 (TOTAL STUDENT POPULATION + STAFF)

STRUCTURAL DESIGN CRITERIA:

LOAD COMBINATIONS, ALLOWABLE STRESS DESIGN (PER ICC500-2020, SECTION 302.2 & ASCE 7-10, SECTION 2.4.1)
ROOF LIVE LOAD (TORNADO SHELTER ROOF DECKS: 100 PSF, PER ICC500-2020, SECTION 303.3 (NO ROOF LIVE LOAD REDUCTION)
FLOOR LIVE LOADS PER IBC 2021, TABLE 1607.1:
GRADE SUPPORTED FLOOR SLABS: 100 PSF+
TORNADO SHELTER ELEVATION FLOOR DECK: 100 PSF (NO FLOOR LIVE LOAD REDUCTION)
WIND:
DESIGN WIND SPEED: 250 MILES PER HOUR, PER ICC500-2020, FIGURE 304.2(1)
RISK CATEGORY IV, PER ASCE 7-10, TABLE 1.5-1
EXPOSURE CATEGORY C (PER ICC500-2020, SECTION 304.4)
INTERNAL PRESSURE COEFFICIENT GCpi = ± 0.55 (PARTIALLY ENCLOSED BUILDING) (PER ICC500-2020, SECTION 304.7 AND ASCE 7-10 FIGURE 26.11-1)
TOPOGRAPHIC FACTOR Kzt = 1.0 PER ICC500-2020, SECTION 304.5
WIND DIRECTIONAL FACTOR Kd = 1.0 PER ICC500-2020, SECTION 304.3
WIND IMPORTANCE FACTOR Iw = 1.0 PER ASCE 7-10, TABLE 1.5-2
THE MWFRS SYSTEM FOR THE TORNADO SHELTERS IS ORDINARY REINFORCED SHEAR WALL, AS DETAILED IN STRUCTURAL DRAWINGS.

ASSEMBLY TESTING REFERENCES:

Construction Materials Threshold Testing, Wind Science and Engineering Research Center, Texas Tech University, November 2004:
WALLS: *Table A-3 Reinforced Masonry Units (CMU):* 8" CMU REINFORCED WITH CONCRETE & #4 REBAR IN EACH CELL, 121.0 MPH THRESHOLD MISSILE SPEED
ROOF SLAB: *Table A-1 Reinforced Concrete:* 6" CONCRETE REINFORCED WITH #4 REBARS EACH WAY, 102.4 MPH THRESHOLD MISSILE SPEED

National Wind Institute, Texas Tech University, Report No. 20131123C, Dec. 13, 2013 & Jan. 10, 2014:
DEBRIS PROTECTION ASSEMBLIES (PLUMBING, DUCTWORK, VENTS): PASSED IMPACT TEST FEMA 320 / 361 & ICC-500 - Tornado Protocol 4, Series 4 Steel Panel with no Plywood Backing

Underwriters Laboratories (UL):
DOOR/FRAME/HARDWARE ASSEMBLIES: U.L. Windstorm-rated Assembly #ZHLA.26
STORM SHUTTER ASSEMBLIES: U.L. Windstorm-rated Assembly #ZHLA.24
LOUVERS: U.L. Certificate of Compliance, dated Jan. 16, 2014

FLOOD HAZARD: PER ICC 500-2020, CHAPTER 4, THIS TORNADO SHELTER IS NOT BEING BUILT IN AN AREA SUSCEPTIBLE TO FLOODING.

SFHA: N/A
FIRM PANEL NUMBER: 22043C0050D, DATED: 06-16-2016
FLOOD ZONE: ZONE X (.02% CHANCE OF ANNUAL EXCEEDANCE) or ZONE D (AREA IN WHICH FLOOR HAZARDS ARE UNDETERMINED BUT POSSIBLE)
BASE FLOOD ELEVATION: N/A
LOWEST FLOOR FFE: 94.00 = 0'-0"
LOWEST FLOOR FFE (M&E): 94.00 = 0'-0"
HIGHEST FLOOR FFE: 94.00
HIGHEST FLOOR FFE: 94.00
DATUM: ELEVATIONS INDICATE HEREON ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEOID18, AND WERE DERIVED USING C4G REAL-TIME NETWORK (RTN).

OTHER HAZARDS

NEHRP COMPLIANCE:
OTHER: STORM SHELTER IS DESIGNED TO WITHSTAND DAMAGE FROM COLLAPSE OF ADJACENT SCHOOL STRUCTURE.

WALLS/OPENING/DOOR ASSEMBLIES/WINDOW & WINDOW ASSEMBLIES

WALL CONSTRUCTION: FULLY REINFORCED AND FILLED CELLS OF CMU
ROOF CONSTRUCTION: 6.5"+ CONCRETE OVER METAL DECKING
SYSTEM TEST METHOD FOR TORNADO: ICC-500, SECTION 800
GLAZING TEST METHOD: N/A PER ICC-500, SECTION 306.2.3 EXCEPTION #2 - STORM SHUTTERS
OPENING PROTECTION: DOOR AND SHUTTERS, ICC-500, SECTION 306 & 804
SOIL COVERAGE: N/A (SAFE ROOM COMPLETELY ABOVE GRADE)
AUTHORITY HAVING JURISDICTION: CITY MUNICIPALITY AND LOUISIANA STATE FIRE MARSHAL

MECHANICAL/VENTILATION/ELECTRICAL

VENTILATION METHOD: NATURAL
MINIMUM VENTING AREA REQUIRED: 401 OCC. x 6 SQUARE INCHES = 2,406 SQ IN. (43% LOW; 57%+ HIGH)
VENTING AREA PER OCCUPANT: 6 SQUARE INCHES
LIGHTING: EMERGENCY LIGHTING BATTERY POWERED
OPENING PROTECTION: FULLY REINFORCED CMU BAFFLE ALCOVE WALLS, ENGINEERED STEEL DUCT OPENINGS AT ROOF SLAB, TESTED/LABELED WALL VENTILATION LOUVERS
METHOD OF PROTECTION EQUIPMENT:
WIND FORCES: ICC-500
DEBRIS IMPACT: ICC-500
FLOODING: N/A
SEISMIC: N/A
MANMADE: N/A

ADA REQUIREMENTS

STORM SHELTER IS ACCESSIBLE TO INDIVIDUALS WITH DISABILITIES LOCATED ON GROUND LEVEL.

TOILETS

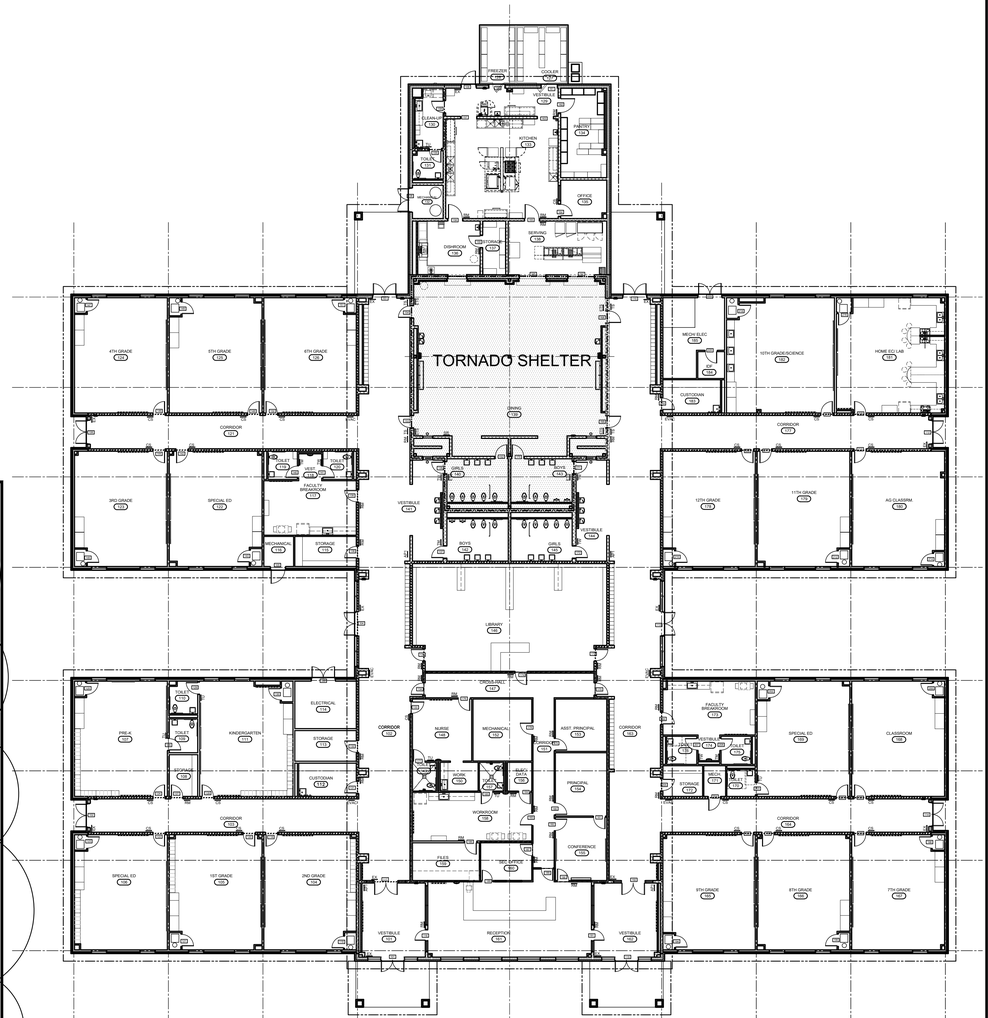
TWO (2) FLUSH TOILETS ARE REQUIRED AND PROVIDED WITHIN STORM SHELTER (ADA ACCESSIBLE).

SIGNAGE

SIGNAGE IS PROVIDED PER ICC500. REFER TO SHEET A003 FOR SIGN TYPES & LOCATIONS.

FIRST AID KIT & ASSOCIATED SUPPLIES

A FIRST AID KIT AND ASSOCIATED SUPPLIES PER ICC 500 SHALL BE FURNISHED BY THE OWNER AND STORED IN THE LOCKABLE MILLWORK CABINET MK. M31 LOCATED IN VESTIBULE 123 AS SCHEDULED ON SHEET A004 AND SHOWN ON SHEET A201.



2 STORM SHELTER FLOOR PLAN
SCALE 1/16"= 1'-0"

SITE PLAN LEGEND:

- TORNADO SHELTER WITHIN MAIN BUILDING
- MAIN BUILDING - NEW CONSTRUCTION
- EXISTING BUILDINGS - EXISTING BUILDINGS TO REMAIN

BUILDING SITE PLAN LEGEND:

- A BUILDING A: NEW MAIN BUILDING
- B BUILDING B: EXISTING GYMNASIUM- RECEIVING UPDATED INTERCOM AND FIRE ALARM. RECEIVING NEW METAL SIDING.
- C BUILDING C: EXISTING AUDITORIUM- RECEIVING UPDATED FIRE ALARM.
- D BUILDING D: EXISTING LUNCHROOM- RECEIVING UPDATED FIRE ALARM.
- E BUILDING E: EXISTING SHOP- RECEIVING UPDATED FIRE ALARM.
- F BUILDING F: ADDITIVE ALTERNATE 2- NEW METAL BUILDING

YEAGER, WATSON & ASSOCIATES LLC
ARCHITECTS
TELEPHONE: (318) 202-5708
118 SOUTH ITTERNTON STREET
RUSTON, LOUISIANA 71270

ADDITIONS AND ALTERATIONS TO GEORGETOWN HIGH SCHOOL
Georgetown, Louisiana
Grant Parish School Board - Owner

PERRY W. WATSON No. 29080 LICENSED ARCHITECT STATE OF LOUISIANA

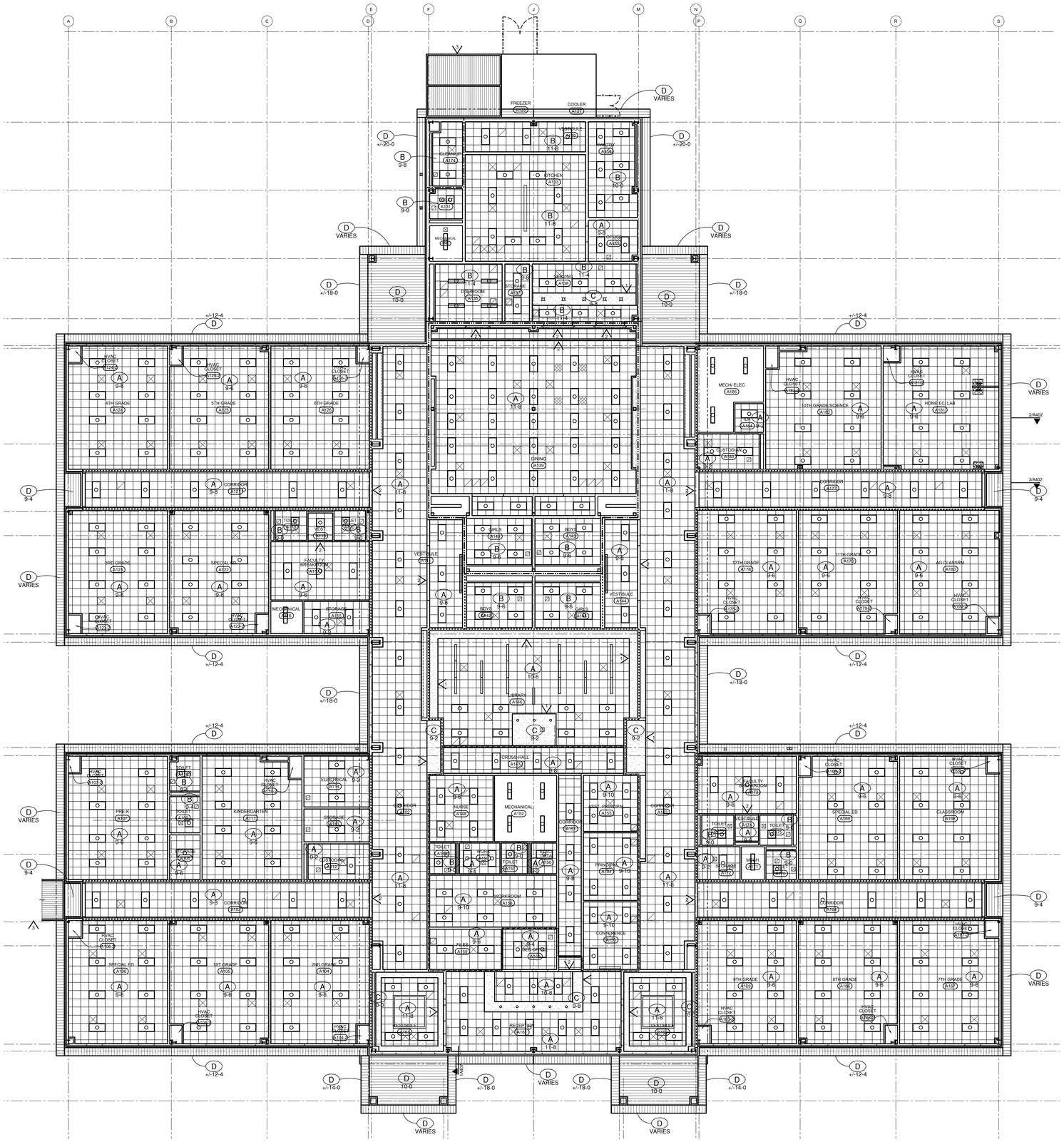
STORM SHELTER CODE SHEET

DATE: APRIL 2023

REVISIONS: 1. MAY 4, 2023

JOB NUMBER: 2022-10B

RA003



1 REFLECTED CEILING PLAN
SCALE 3/32"=1'-0"

GENERAL PLAN NOTES:

G1. INSTALL PROTECTIVE BARRIERS TO DIRECT PUBLIC AND CAMPUS TRAFFIC AROUND CONSTRUCTION AREA. DO NOT ALLOW STUDENTS OR GENERAL PUBLIC DIRECT ACCESS INTO CONSTRUCTION AREA.

G2. COORDINATE CONSTRUCTION STAGING, PARKING AND PERSONNEL WITH PRINCIPAL AND SCHOOL BOARD.

G3. IF SCHOOL WILL BE ONGOING DURING CONSTRUCTION, MAINTAIN EXIT PATHWAYS AND PROVIDE FOR DAILY STUDENT FOOT TRAFFIC. BARRICADE AREAS AS REQUIRED TO KEEP POPULATION SAFE.

G4. MAINTAIN FIRE ALARM AND ELECTRICAL SERVICE WHENEVER DISRUPTION OF SERVICES ARE REQUIRED. GIVE THE PRINCIPAL 48 HOURS NOTICE IF AT ALL POSSIBLE.

CEILING TYPES:

- (A) 2X2 "FINE FISSURED" LAY IN ACOUSTICAL CEILING TILE SYSTEM SET IN 1" PAINTED GRID. MAIN RUNNERS ON 9 GAUGE WIRE.
- (B) 2X2 CLEAN ROOM LAY IN ACOUSTICAL CEILING TILE SYSTEM SET IN 1" PAINTED. GRID. MAIN RUNNERS ON 9 GAUGE WIRE.
- (C) 5/8" GYP. BOARD CEILING ON SUSPENSION SYSTEM OR 3 5/8", 20GA METAL FRAMING @ 16" O.C.
- (D) 12" WIDE KYNAR FINISHED ALUMINUM SOFFIT PANELS WITH DOUBLE INTERMEDIATE RIBS. NON-VENTED.

REFLECTED CEILING PLAN LEGEND:

- 2X4 RECESSED LIGHT
- 2X2 RECESSED LIGHT
- SURFACE MOUNTED LIGHT
- SURFACE MOUNTED WET LOCATION LIGHT
- ACCENT RECESSED CAN LIGHT
- EXTERIOR WALL LIGHT
- PENDANT MOUNTED LIGHT. REFER TO ELECTRICAL DRAWINGS AND SCHEDULES.
- SURFACE MOUNTED LIGHT. REFER TO ELECTRICAL DRAWINGS AND SCHEDULES.
- SUPPLY AIR
- EXHAUST VENT OR RETURN AIR
- 24" x 24" EGG CRATE GRILLES.
- LOUVER IN SOFFIT

FLOOR PLAN LEGEND:

- EXTERIOR WALL, 8" NOMINAL CMU WITH FACE BRICK ON EXTERIOR SIDE. REINFORCE WITH CONTINUOUS #5 REINF. BAR UP FROM FOUNDATION TO TOP MOST BOND BEAM, TYPICAL FOR ALL CMU WALLS. FILL ALL CORES NOT FILLED WITH CONCRETE WITH INJECTED FOAM INSULATION. REFER TO PARTITION SCHEDULE. SEE EXTERIOR WALL SECTIONS FOR ADDITIONAL NOTES.
- 8" OR 12" CONCRETE MASONRY UNIT PARTITION. REFER TO PARTITION SCHEDULE.
- 16" CONCRETE MASONRY UNIT PARTITION, DOUBLE WYTHE WALL OF 4" & 8" CMU. PROVIDE HORIZONTAL JOINT REINFORCEMENT, SPANNING BOTH WYTHES AT 16" O.C. VERTICAL. REFER TO PARTITION SCHEDULE.
- METAL STUDS AT 16" O.C. WITH 5/8" GYP. BOARD EACH SIDE AND 6" UNFACED INSULATION IN CAVITY. BRACE FRAMING 4'-0" O.C. AND AT ALL INTERSECTIONS AND OPENINGS. REFER TO PARTITION SCHEDULE.
- SMOKE PARTITION. FULL HEIGHT TO BOTTOM OF FLOOR DECK OR TO BOTTOM OF ROOF DECK. SEAL TIGHT TO DECK
- 1-HOUR FIRE RATED PARTITION, FULL HEIGHT TO BOTTOM OF FLOOR DECK, TO BOTTOM OF ROOF DECK, OR SEALED TIGHT TO FIRE RATED CEILING. SEAL AROUND ALL PENETRATIONS. CEILING TO DESIGNED AS UL: I501, 1 HR. FIRE RATED METAL STUD AND GYPSUM BOARD PARTITION, OR 1 HR FIRE RATED COMPOSITE PARTITION MADE UP OF A D-2 CLASSIFIED CONCRETE MASONRY PARTITION BOTTOM SECTION WITH A METAL STUD/DRYWALL PARTITION UPPER SECTION. PARTITION EXTENDS FROM FLOOR TO ROOF DECK ABOVE. UL DESIGNS #U905 & #U465.REFER TO PARTITION SCHEDULE .
- 2-HOUR FIRE RATED PARTITION, FULL HEIGHT TO BOTTOM OF ROOF DECK, SEAL AROUND ALL PENETRATIONS. 2 HR FIRE RATED PARTITION MADE UP OF A D-2 CLASSIFIED CONCRETE MASONRY PARTITION. PARTITION EXTENDS FROM FLOOR TO ROOF DECK ABOVE. UL DESIGN #U905

KEYNOTES:

- GYPSUM BOARD FURRING ON FRAMING. REFER TO SECTIONS & A801.
- SUSPENDED FURRING AT CEILING CHANGES. REFER TO A801.
- EXTRUDED ALUMINUM WALKWAY COVER WITH INTERNAL DRAINAGE.

YEAGER, WATSON & ASSOCIATES, LLC
ARCHITECTS
118 SOUTH ITERNTON STREET
RUSTON, LOUISIANA 71270-4432
TELEPHONE (318) 202-5708

ADDITIONS AND ALTERATIONS TO GEORGETOWN HIGH SCHOOL
Georgetown, Louisiana
Grant Parish School Board - Owner

PERRY W. WATSON No. 29008 REGISTERED ARCHITECT STATE OF LOUISIANA

REFLECTED CEILING PLAN
REVISIONS: 1. MAY 4, 2023
DATE: APRIL 2023
JOB NUMBER: 2022-10B

RA207 | 14 OF 34A

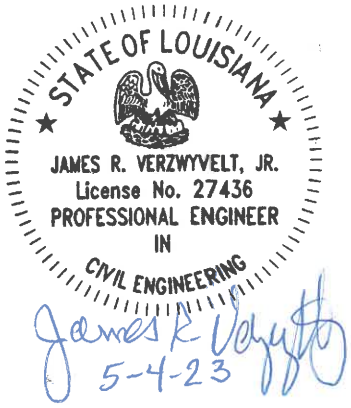
TO: **ALL GENERAL CONTRACTORS BIDDING**

FROM: PAN AMERICAN ENGINEERS, LLC
JIM VERZWYVELT, JR., P.E.

SUBJECT: 2022-10B ADDITIONS AND ALTERATIONS TO GEORGETOWN HIGH SCHOOL
GEORGETOWN, LOUISIANA

DATE: May 4, 2023

ADDENDUM # 1



This ADDENDUM is an integral part of the contract documents and shall be treated as such. Contractor shall acknowledge receipt of this ADDENDUM on the Bid Form.

PROJECT MANUAL

Section 033053 – Cast-In-Place Concrete (Civil Sitework)

1. Paragraph 3.2 Concrete Compressive Strength: Clarification: Class "A" Concrete Mix from the 2006 Edition of the LSSRB Manual is specified for "Drives/Parking Pavement". LSSRB specifies Class "A concrete to have a minimum compressive strength (28 day) of 3,800 psi. In lieu of the 3,800 psi LSSRB requirement, 3,500 psi compressive strength (28 day) shall be allowed for this project.

Section 107516 – Flagpoles

1. Add Section 107516 – Flagpoles

DRAWINGS

General Clarification: All existing elevations/contours included on the Civil Plan and Profile/Section Sheets (C1-C7) were acquired prior to removal of the existing building and related slab, walks, etc.

Sheet C1 – Erosion Control Plan

1. Detail 2 – Legend: Replace the description for Item 9 with the following:
   9. St. Augustine or Common Bermuda Sod Around New Paved Improvements at Shown

Sheet C4 – Site Plan

1. Detail 1 – Plan:
   a. Add concrete walks between the wings on both sides of the New Main Building (Bldg A) and adjust adjacent concrete walk joints spacing. Note: Subsurface drainage shall be modified as shown on Sheet C6-R1 (included herein).
   (see attached 11x17 drawing (C4-R1)
   b. Add concrete walk between the two (2) entrances at the front of Bldg A (at added flagpole location (included herein)).
   c. Adjust concrete walk joints spacing along front of building (full length of walk).
   d. Add one (1) - 30' height, internal-halyard, aluminum flagpole assembly at the front of Bldg A.
   (see attached 8.5x11 drawing (C4-R2)
   e. Clarifications:
      i. Base Bid shall include 70 L.F. of additional chain link fence (beyond that shown) to fully enclose the southeast corner of the yard. This 70 L.F. of fence would basically fall at the same location as the south and east walls of the New Shop Building (Bldg F) proposed within Alternate No. 2. This same 70 L.F. of fence would be eliminated within Alternate No. 2.
      ii. All new chain link fence and gates to be installed under this project are denoted by Master Key Nos. 10-13 (circled numbers).

2. Detail 3 – Site Plan Notes: Add the following Note 12:
   12. **Atmos Energy Gas Service: New Gas Tap, Service Line, Valves, Fittings, Riser, Initial Regulator and Meter to New Main Building (Bldg A) by Atmos Energy (Fee Required – Contractor to Include an Allowance of $10,000 in his Bid for Direct Payment to Atmos Energy). Remainder of Work Downstream of Meter, Including Final Regulator, Piping, Fittings, Connection(s) to Building, Etc. Shall be the Responsibility of the Contractor. Note: An Increase or Deduct Change Order will be Issued as Required to Adjust the Final Atmos Fee in Relation to the Listed Allowance.**
3. Detail 4 – Site Plan Master Key: Add No. 15 as follows:
   15. 30' Flagpole (Re: 6/C12 and E102 for Pole Lighting)

Sheet C6 – Drainage Plan

1. Detail 1 – Plan: Incorporate the following subsurface drainage revisions to coincide with the concrete walk additions between the wings on the south side of New Main Building (Bldg A:
   a. Shift Drainage Structure No. 5 south approximately 12' to align with Drainage Pipe No. 2.
   b. Delete Drainage Pipe No. 5.
   c. Delete Drainage Structure No. 6.
   d. Delete Drainage Pipe No. 6.
   e. Extend downspout connection piping as required to connect to Drainage Structure No. 3 and relocated Drainage Structure No. 5.

   (see attached 8.5x11 drawing (C6-R1)
2. Clarification: Bar scale should be shown as 1" = 20'.

Sheet C12 – Site Details

1. Detail 4 – Downspout Sump Detail: Clarification: This Detail is applicable to ALL downspout discharge locations at the New Main Building (Bldg A). Concrete Splash Blocks are required for downspouts at New Shop Building (Bldg F) (refer to Sheet A901).
2. Add Detail 6 – Flagpole Detail
   (see attached 8.5x11 drawing (C12-R1)

SECTION 10 75 16

FLAGPOLES

PART 1 - GENERAL

1.1 Scope: This Section includes internal halyard aluminum flagpole with satin aluminum finish. Flagpole shall be provided and installed as specified herein and as shown on the Drawings.

1.2 Submittals: Submittals shall be provided in accordance with Section 01 33 00 – Submittal Procedures. Provide data for each type of flagpole and accessory specified. Include installation instructions and details for foundation system of ground-set poles.

1.3 Applicable Publications: The publications listed below form a part of this Specification to the extent referenced. The publication may be referred to in the text by designation only.

American Society for Testing and Materials (ASTM) Publications:

B 241M Specification for Aluminum and Aluminum - Alloy Seamless Pipe and Seamless Extruded Tube

B 597 Practice for Heat Treatment of Aluminum Alloys

1.4 Quality Assurance and Qualifications:

A. Manufacturing Standards: Provide each flagpole as a complete unit produced by a single manufacturer, including fittings, accessories, bases, and anchorage devices.

B. Design Criteria: Provide flagpole and installation constructed to withstand a 90-mph wind velocity minimum when flying a flag of appropriate size. Use heavy pipe sizes as required for flagpole height and type specified.

C. Pole Construction, General: Construct poles and ship to project site in one piece, if possible. If more than one piece is necessary, provide snug-fitting, weathertight, hairline joints.

1.5 Delivery, Storage and Handling: Spiral wrap flagpole with heavy Kraft paper or other weather-tight wrapping and prepare for shipment in hard fiber tube or other protective container. Deliver flagpole and accessories completely identified for installation procedure.

1.6 Related Work: Work related to construction of the concrete foundation shall be in accordance with Section 03 30 53 – Cast-In-Place Concrete.

PART 2 - PRODUCTS

2.1 Manufacturers: Provide aluminum flagpole with satin aluminum finish as manufactured by Acme Lingo Flagpoles, Baartol Company or approved equal.

2.2 Flagpole: Aluminum flagpole shall be fabricated as follows:

1. Provide cone-tapered flagpole.
2. Finish: Satin Aluminum
3. Height: 30' poles.

2.3 Foundation Tube: As recommended by manufacturer.

2.4 Baseplate: Welded steel baseplate for anchor-bolt mounting, of same metal and finish as flagpole. Provide with anchor bolts.

2.5 Fittings:

A. Final Ball: Provide manufacturer's standard flush-seam ball, size to match pole butt diameter.

B. Internal Halyard: Ball-bearing, non-fouling, revolving truck assemblies of cast metal with continuous 5/16-inch diameter, braided polypropylene halyards and 9-inch cast-metal cleats with fasteners.

2.6 Concrete Footings: Concrete for flagpole footings shall be Class "M" (3,000 psi at 28 days) in accordance with Section 03 30 53 – Cast-In-Place Concrete.

PART 3 - EXECUTION

3.1 Preparation for Ground Set Poles:

A. Excavation: Excavate for foundation concrete to neat clean lines in undisturbed soil. Provide forms where required due to unstable soil conditions. Remove wood, loose soil, rubbish, and other foreign matter from excavation; and moisten earth before placing concrete. Back fill open excavation after concreting with original excavated material.

B. Concrete: Finish trowel exposed concrete surfaces to smooth, dense surface. Provide positive slope for water runoff to base perimeter.

3.2 Flagpole Installation:

A. General: Prepare and install flagpole at the location shown on the Drawings and in compliance with accepted shop drawings and manufacturer's instructions.

1. Provide 3/4" dia x 18" lighting ground spike attached to base plate for each flagpole installation.

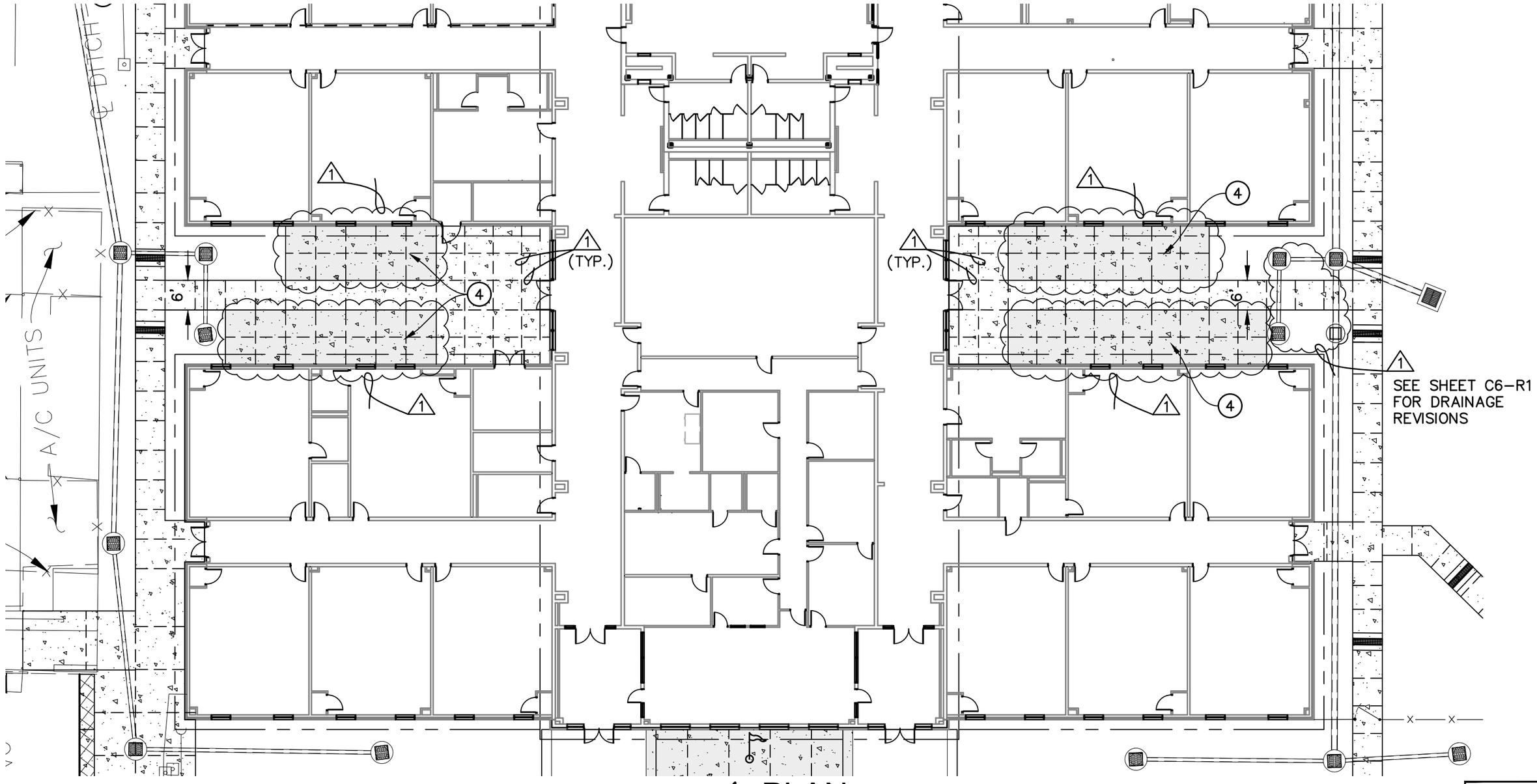
2. Paint below-grade portions of ground-set flagpole with heavy coat of bituminous paint.

- END OF SECTION -

1 NOTE:
THIS SHEET INDICATES ADDENDUM #1 ITEMS ONLY. SEE SHEET C4 FROM ORIGINAL DOCUMENTS FOR REMAINDER OF ITEMS AND INFORMATION.

4 SITE PLAN MASTER KEY

(4) 4" TH. CONCRETE WALK (RE: 1/C12)



1 PLAN
1"=20'

FROM SHEET C4
1 ADDENDUM 1

SITE PLAN
SCALE NOTED

YEAGER, WATSON & ASSOCIATES, LLC
ARCHITECTS

APRIL 2023 JOB # 2022-10B

C4 R1

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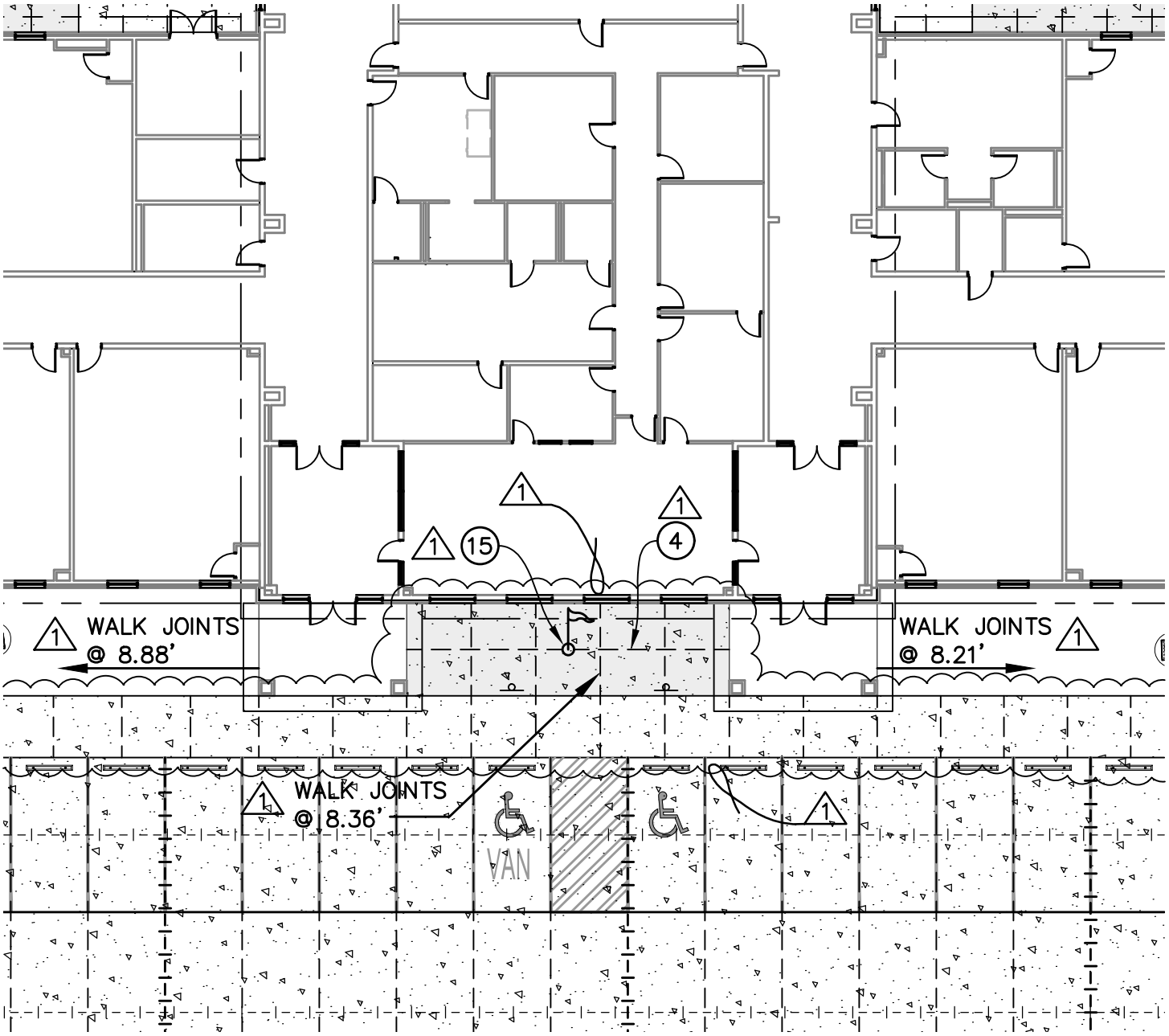
4 SITE PLAN MASTER KEY

④ 4" TH. CONCRETE WALK (RE: 1/C12)

△1 ⑮ 30' FLAGPOLE
(RE: 6/C12 AND E102 FOR POLE LIGHTING)



△1 NOTE:
THIS SHEET INDICATES ADDENDUM #1 ITEMS ONLY. SEE SHEET C4 FROM ORIGINAL DOCUMENTS FOR REMAINDER OF ITEMS AND INFORMATION.

1 PLAN

SCALE: 1"=20'

△1

FROM SHEET C4

ADDENDUM 1

SITE PLAN

SCALE NOTED

YWA YEAGER, WATSON & ASSOCIATES, LLC
ARCHITECTS

APRIL 2023 JOB # 2022-10B

C4
R2

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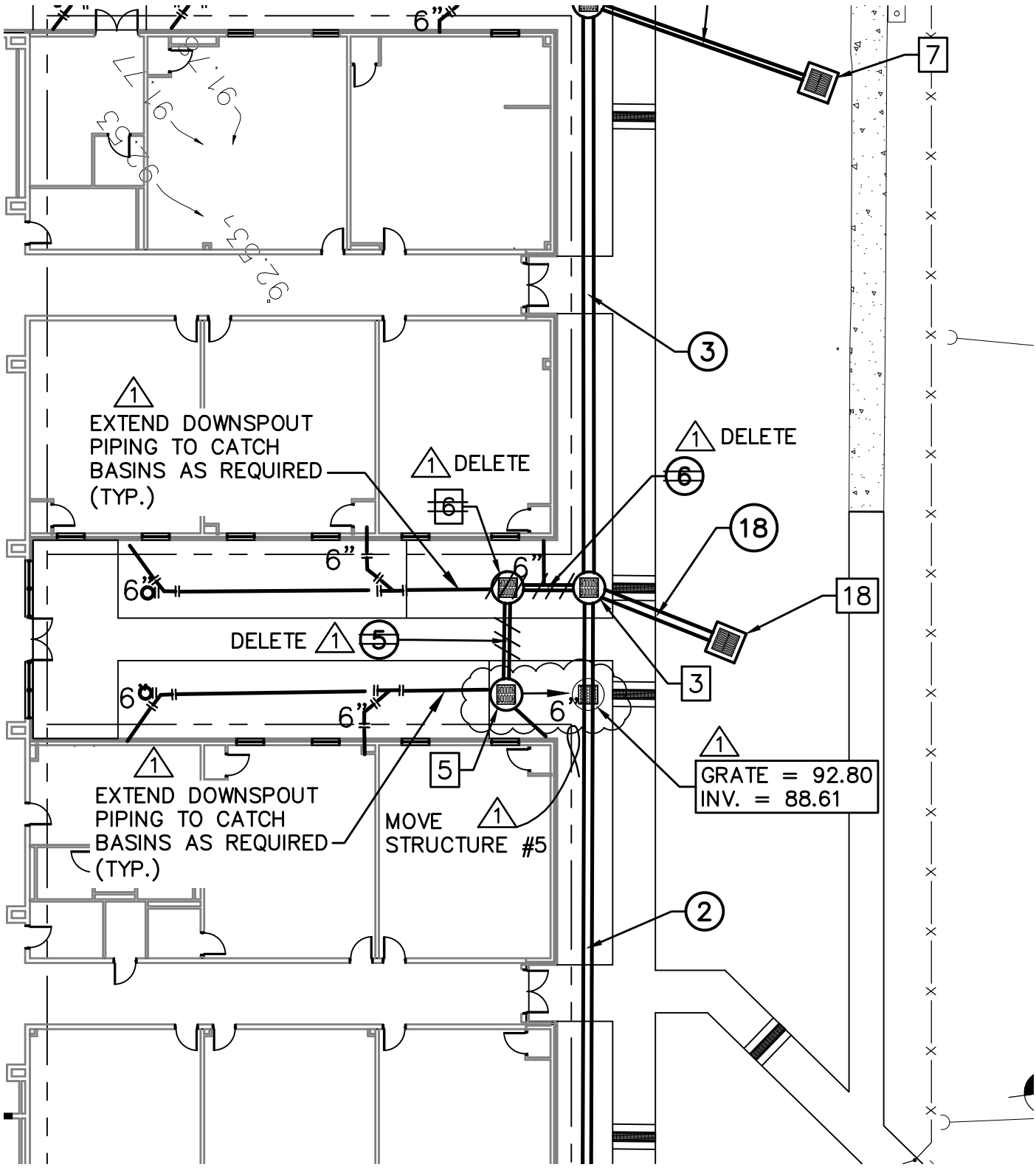

1 PLAN

SCALE: 1"=20'

1

FROM SHEET C6

ADDENDUM 1

DRAINAGE PLAN

SCALE NOTED

YWA YEAGER, WATSON & ASSOCIATES, LLC ARCHITECTS

APRIL 2023 JOB # 2022-10B

C6 R1

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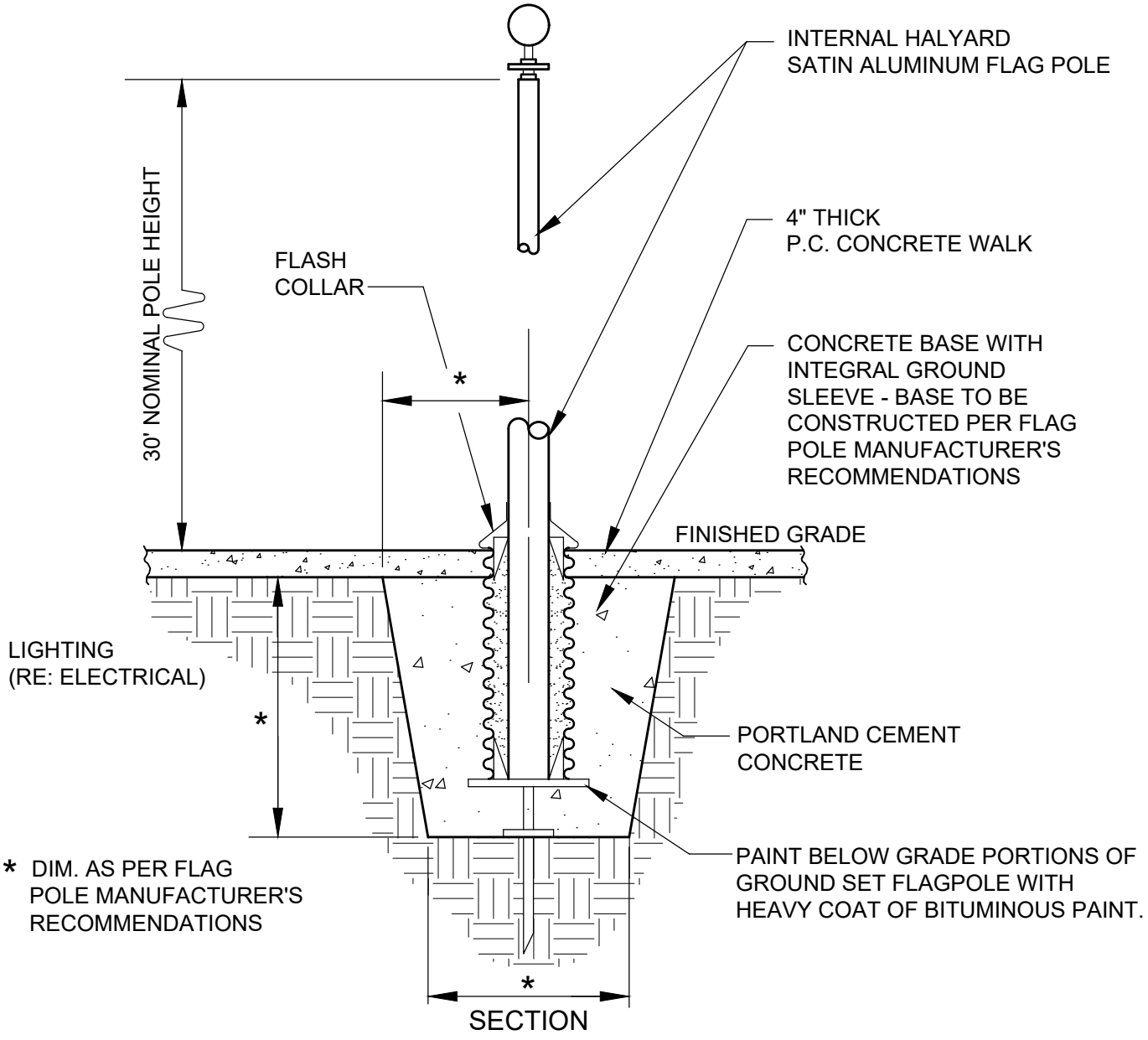

1 6 FLAGPOLE DETAIL

N.T.S.

1 NOTE:
THIS SHEET INDICATES ADDENDUM #1 ITEMS ONLY. SEE SHEET C12 FROM ORIGINAL DOCUMENTS FOR REMAINDER OF ITEMS AND INFORMATION.

FROM SHEET C12
1 ADDENDUM 1

SITE DETAILS	YEAGER, WATSON & ASSOCIATES, LLC ARCHITECTS	C12 R1
SCALE NOTED	APRIL 2023 JOB # 2022-10B	

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May 3, 2023

Structural Addendum

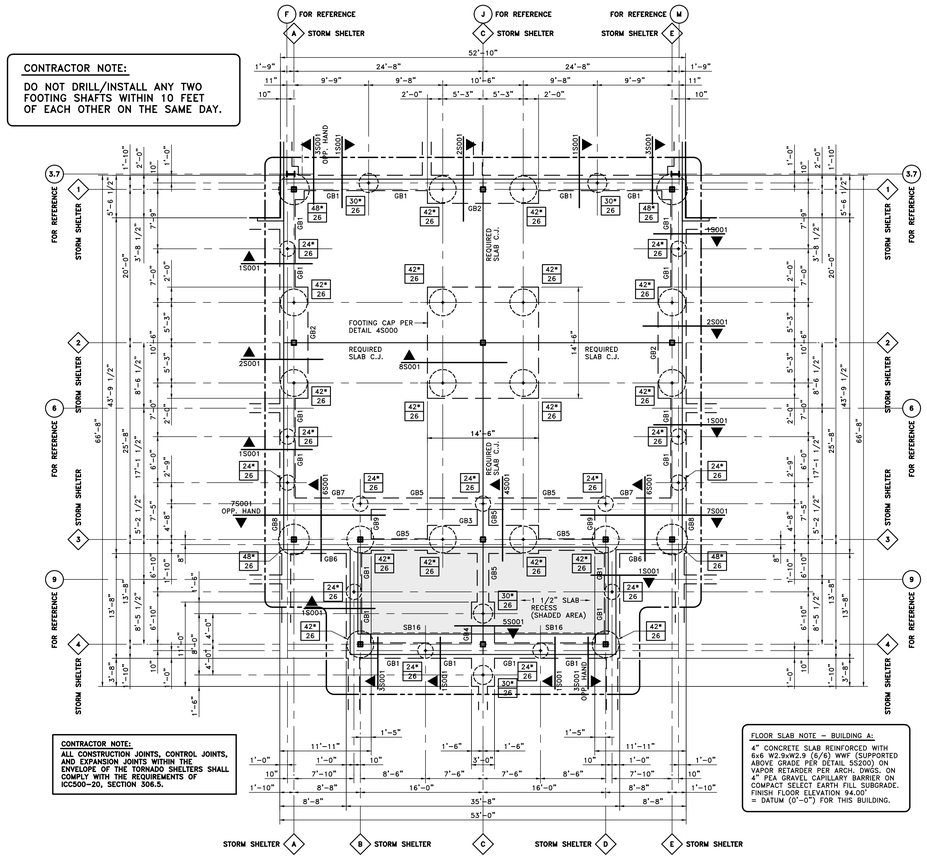
Additions and Alterations to Georgetown High School
Georgetown, LA
Grant Parish School Board – Owner

1. **Foundation/Slab Plan – Building A Storm Shelter – 1S000:** At the Contractor's Option, 4" clean, compacted flume sand may be substituted for the 4" pea gravel as the capillary barrier beneath the concrete slab-on-grade at Building A.

2. **Partial Foundation/Slab Plan – Building A – North End – 1S100:** At the Contractor's Option, 4" clean, compacted flume sand may be substituted for the 4" pea gravel as the capillary barrier beneath the concrete slab-on-grade at Building A.

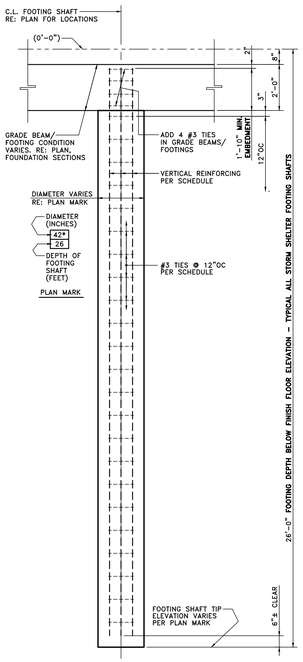
3. **Partial Foundation/Slab Plan – Building A – South End – 1S101:** At the Contractor's Option, 4" clean, compacted flume sand may be substituted for the 4" pea gravel as the capillary barrier beneath the concrete slab-on-grade at Building A.

4. **Foundation/Slab Plan – Building F – 1S102:** At the Contractor's Option, 4" clean, compacted flume sand may be substituted for the 4" pea gravel as the capillary barrier beneath the concrete slab-on-grade at Building F.



1 FOUNDATION/SLAB PLAN – BUILDING A – STORM SHELTER

1/8" = 1'-0"
RE: ARCH., MECH., ELECT. DRAWINGS, GENERAL NOTES



FOOTING SHAFT REINFORCING SCHEDULE

RE: FOUNDATION/SLAB PLAN – STORM SHELTER 1S000

SHAFT DIAMETER	SHAFT DIAMETER PLAN MARK	VERTICAL REINFORCING	#3 SHAFT TIES	TOP OF SHAFT ELEVATION	REMARKS
24"ø	24*	8 #7 VERTICAL	◯ 17" ROUND	–(2'–8")	STORM SHELTER ONLY
30"ø	30*	12 #7 VERTICAL	◯ 23" ROUND	–(2'–8")	STORM SHELTER ONLY
36"ø	36*	12 #9 VERTICAL	◯ 29" ROUND	–(2'–8")	STORM SHELTER ONLY
42"ø	42*	16 #9 VERTICAL	◯ 35" ROUND	–(2'–8")	STORM SHELTER ONLY
48"ø	48*	20 #9 VERTICAL	◯ 41" ROUND	–(2'–8")	STORM SHELTER ONLY

2 STORM SHELTER DESIGN CRITERIA

RE: SHEETS S000, S001, S002, S003, S004

1. The Storm Shelter indicated on Plans 1S000 and 1S002 has been designed as a Community STORM Shelter.
2. The Storm Shelter indicated on Plans 1S000 and 1S002 has been designed to be in compliance with the Wind Design Provisions of the ICC/NSSA Standard for the Design and Construction of Storm Shelters, 2020 Edition.
3. Refer to General Structural Notes 2S101 for additional information regarding materials used in the construction of the Storm Shelter.

DESIGN CRITERIA:

LOAD COMBINATIONS, ALLOWABLE STRESS DESIGN (Per ICC500–2020, Section 302.3, and ASCE 7–16, Section 2.4.1)

ROOF LIVE LOAD (STORM SHELTER ROOF DECK): 100 PSF, PER ICC500–2020, Section 303.3. (NO ROOF LIVE LOAD REDUCTION)

FLOOR LIVE LOADS, PER IBC 2021, Table 1607.1:

GRADE SUPPORTED FLOOR SLABS: 100 PSF+

WIND: Basic Design Wind Speed V = 250 miles per hour (mph), per ICC500–2020, Figure 304.2(1)
Risk Category IV, per ASCE 7–16, Table 1.5–1
Exposure Category C (per ICC500–2020, Section 304.4)
Internal Pressure Coefficient GCpi = +/– 0.55 (Partially Enclosed Building) (per ICC500–2020, Section 304.7 and ASCE 7–16 Table 26.13–1)
Topographic Factor Kzt = 1.0 per ICC500–2020, Section 304.5
Wind Directionality Factor Kd = 1.0 per ICC500–2020, Section 304.3
Wind Importance Factor Iw = 1.0 per ASCE 7–16, Table 1.5–2
The MWFRS system for the Storm Shelter is Reinforced Concrete Masonry Shear Walls, as detailed on these drawings.

Components and Cladding (per ASCE 7–16, Chapter 30, Part 1)
Refer to 8S000 for C&C Wind Pressure Design Zone Definitions

LOCATION – ROOF – Exposure Area = 10 square feet
Zone 1' P = –209 psf or +122 psf
Zone 1 P = –324 psf or +122 psf
Zone 2 P = –410 psf or +122 psf
Zone 3 P = –540 psf or +122 psf
LOCATION – WALL – Exposure Area = 10 square feet
Zone 4 P = –238 psf or +223 psf
Zone 5 P = –281 psf or +223 psf

LOCATION – ROOF – Exposure Area = 20 square feet
Zone 1' P = –209 psf or +115 psf
Zone 1 P = –310 psf or +115 psf
Zone 2 P = –389 psf or +115 psf
Zone 3 P = –497 psf or +115 psf
LOCATION – WALL – Exposure Area = 20 square feet
Zone 4 P = –230 psf or +216 psf
Zone 5 P = –266 psf or +216 psf

LOCATION – ROOF – Exposure Area = 50 square feet
Zone 1' P = –209 psf or +111 psf
Zone 1 P = –281 psf or +111 psf
Zone 2 P = –353 psf or +111 psf
Zone 3 P = –439 psf or +111 psf
LOCATION – WALL – Exposure Area = 50 square feet
Zone 4 P = –223 psf or +202 psf
Zone 5 P = –245 psf or +202 psf

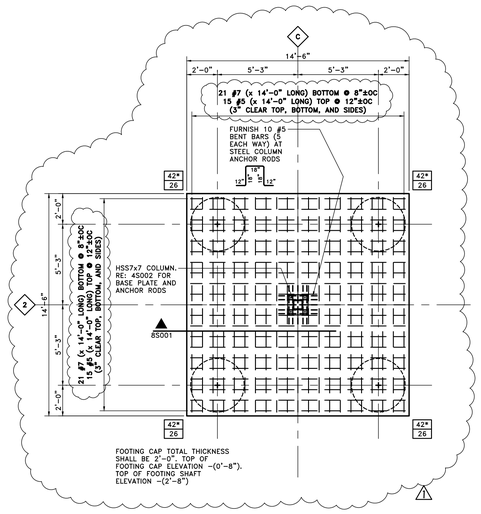
LOCATION – ROOF – Exposure Area = 100 square feet
Zone 1' P = –209 psf or +108 psf
Zone 1 P = –266 psf or +108 psf
Zone 2 P = –338 psf or +108 psf
Zone 3 P = –389 psf or +108 psf
LOCATION – WALL – Exposure Area = 100 square feet
Zone 4 P = –209 psf or +194 psf
Zone 5 P = –230 psf or +194 psf

LOCATION – ROOF – Exposure Area = 500 square feet
Zone 1' P = –158 psf or +108 psf
Zone 1 P = –223 psf or +108 psf
Zone 2 P = –281 psf or +108 psf
Zone 3 P = –281 psf or +108 psf
LOCATION – WALL – Exposure Area = 500 square feet
Zone 4 P = –194 psf or +180 psf
Zone 5 P = –194 psf or +180 psf

FOUNDATION: THE FOUNDATION DESIGN IS FULLY RELIANT UPON INFORMATION CONTAINED IN A REPORT OF GEOTECHNICAL INVESTIGATION, NEW MAIN BUILDING FOR GEORGETOWN HIGH SCHOOL, GEORGETOWN, GRANT PARISH, LOUISIANA, PREPARED BY GEOTECHNICAL TESTING LABORATORY, INC., ALEXANDRIA, LA, GTL REPORT NUMBER 12–22–193, DATED JANUARY 5, 2023, AND GTL ADDENDUM NUMBER 1, DATED JANUARY 17, 2023. THIS REPORT IS AVAILABLE AT THE OFFICE OF THE OWNER AND THE ARCHITECT FOR REVIEW BY CONTRACTORS AND OTHER INTERESTED PARTIES.

3 TYPICAL FOOTING SHAFT DETAIL/ SCHEDULE – STORM SHELTER

3/8" = 1'-0"
RE: FOUNDATION/SLAB PLAN – STORM SHELTER 1S000



4 FOOTING CAP PLAN DETAIL

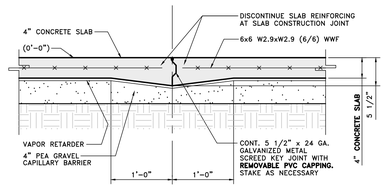
1/4" = 1'-0"
RE: FOUNDATION/SLAB PLAN – STORM SHELTER 1S000

5 GRADE BEAM SCHEDULE – STORM SHELTER

RE: FOUNDATION/SLAB PLAN – STORM SHELTER 1S000, GRADE BEAM ELEVATION 3S200

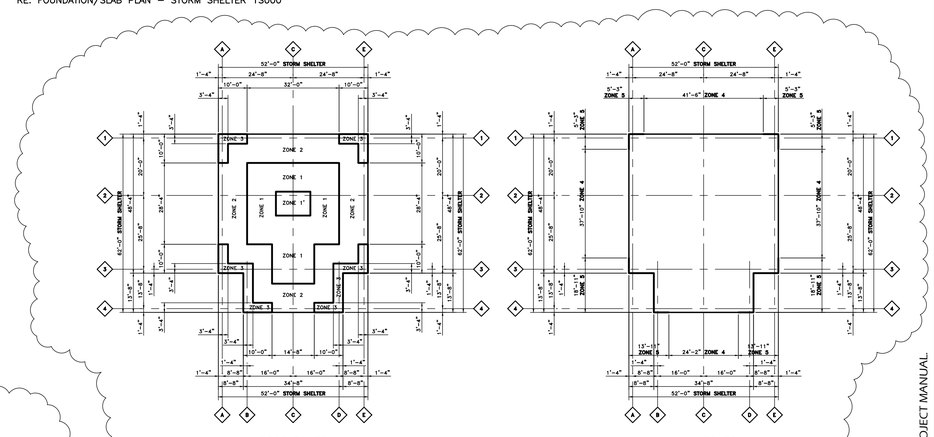
GRADE BEAM MARK	DIMENSIONS WxD (INCHES)	REINFORCEMENT TOP BARS	REINFORCEMENT BOTTOM BARS	REINFORCEMENT STIRRUPS	TOP OF GRADE BEAM ELEVATION	DETAIL OF REFERENCE (MOST TYPICAL CONDITION) RE: PLAN	REMARKS
GB1	24 x 24	4 #7 CONT.	4 #7 CONT.	#3 @ 10"OC	–(0'–8")	RE: 1S001, 3S001	.
GB2	44 x 24	7 #7 CONT.	7 #7 CONT.	2 #3 @ 10"OC	–(0'–8")	RE: 2S001	
GB3	44 x 24	7 #7 CONT.	7 #7 CONT.	2 #3 @ 10"OC	–(0'–8")	RE: 4S001	
GB4	36 x 24	6 #7 CONT.	6 #7 CONT.	2 #3 @ 10"OC	–(0'–8")	RE: 5S001	
GB5	18 x 24	3 #7 CONT.	3 #7 CONT.	#3 @ 10"OC	–(0'–8")	RE: 4S001	
GB6	24 x 24	4 #7 CONT.	4 #7 CONT.	#3 @ 10"OC	–(0'–8")	RE: 6S001	
GB7	18 x 24	3 #7 CONT.	3 #7 CONT.	#3 @ 10"OC	–(0'–8")	RE: 6S001	
GB8	24 x 24	4 #7 CONT.	4 #7 CONT.	#3 @ 10"OC	–(0'–8")	RE: 7S001	
GB9	18 x 24	3 #7 CONT.	3 #7 CONT.	#3 @ 10"OC	–(0'–8")	RE: 7S001	

NOTES:
1. GRADE BEAM SCHEDULE IS FOR SIZE AND REINFORCING ONLY. EACH SCHEDULED BEAM TYPE OCCURS IN MANY DIFFERENT PLAN LOCATIONS. REINFORCING STEEL DETAILER SHALL PROVIDE ELEVATION DETAILS AND/OR EXPANDED SCHEDULES TO COVER EACH SPECIFIC LOCATION INCLUDING HORIZONTAL BARS, STIRRUP QUANTITIES AND SPACING, AND SLAB DOWELS (IF ANY).
2. FURNISH 4 CORNER BARS (2 TOP, 2 BOTTOM), MATCHING LARGEST HORIZONTAL BAR SIZE FOR THAT LOCATION, AT ALL CORNERS AND T–INTERSECTIONS, EXTENDING 40 DIAMETERS EACH WAY, UNLESS OTHERWISE DETAILED.



6 TYPICAL SLAB CONSTRUCTION JOINT (SLAB C.J.) DETAIL

1" = 1'–0"
RE: 1S000, 1S100



8 C&C WIND PRESSURE DESIGN ZONE DEFINITIONS

NO SCALE
RE: 2S000

7 STRUCTURAL TESTS, INSPECTIONS, AND QUALITY ASSURANCE – STORM SHELTER

RE: DRAWINGS S000, S001, S002, S003, S004, as well as SPECIFICATION SECTION 14600 STORM SHELTER QUALITY ASSURANCE PLAN

1. ALL STRUCTURAL TESTS AND INSPECTIONS SHALL BE PERFORMED PER THE REFERENCED BUILDING CODE, INCLUDING THE 2021 IBC CHAPTER 17 (SPECIAL INSPECTIONS), WITH LOCAL SUPPLEMENTS, UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED.
2. THE STRUCTURE SHALL BE SPECIAL INSPECTED AND REPORTS SHALL BE DEVELOPED BY QUALIFIED PERSONNEL PER SECTION 1704.2 OF THE INTERNATIONAL BUILDING CODE, 2021 EDITION. PRIOR TO THE START OF CONSTRUCTION, THE STRUCTURE SHALL HAVE A WRITTEN STATEMENT OF SPECIAL INSPECTIONS PER SECTION 1704.2.3 AND 1704.3 OF THE 2021 IBC.
   THE FOLLOWING ITEMS ARE REQUIRED TO HAVE SPECIAL INSPECTIONS PER SECTION 1705 OF THE INTERNATIONAL BUILDING CODE:
   A. FABRICATION OF LOAD BEARING ASSEMBLIES AND MEMBERS IN A SHOP NOT APPROVED PER SECTION 1704.2.5.1 OF THE IBC. APPROVED FABRICATORS MUST SUBMIT THE NATIONALLY RECOGNIZED CERTIFICATION DOCUMENTATION PRIOR TO CONSTRUCTION.
   B. FABRICATION OF DEBRIS IMPACT ASSEMBLIES FOR THE SHELTER MUST BE INSPECTED AND LABELED BY AN APPROVED AGENCY THAT MEETS THE REQUIREMENTS OF ICC–500. INSTALLATION OF THESE ASSEMBLIES SHALL BE INSPECTED.
   C. STEEL CONSTRUCTION SHALL BE INSPECTED PER SECTION 1705.2 OF THE IBC.
   D. CONCRETE CONSTRUCTION SHALL BE INSPECTED PER SECTION 1705.3 AND TABLE 1705.3 OF THE IBC. CONCRETE FOOTINGS, ISOLATED AND CONTINUOUS, SHALL BE INSPECTED. SLABS ON GRADE SHALL BE INSPECTED WITHIN THE SHELTER AREA, BUT ARE EXEMPT IN NON–SHELTER AREAS.
   E. MASONRY CONSTRUCTION SHALL BE INSPECTED PER SECTION 1705.4 OF THE IBC.
   F. EXISTING SITE SOIL CONDITIONS AND EARTHWORK SHALL BE INSPECTED PER SECTION 1705.6 AND TABLE 1705.6 OF THE IBC. THE EXCEPTION FOR FILL PLACEMENT LESS THAN 12 INCHES SHALL NOT APPLY WITHIN THE SHELTER AREA.
   G. POST–INSTALLED ANCHORING SYSTEMS SHALL BE INSPECTED PER THE ANCHORS ICC–ES REPORT PROVIDED BY THE ANCHOR MANUFACTURER.
   H. ITEMS NOT LISTED HERE, BUT IN THE OPINION OF THE BUILDING OFFICIAL, OWNER, OR ARCHITECT NEED INSPECTION, SHALL BE INSPECTED.
   THE SPECIAL INSPECTOR SHALL BE INDEPENDENT OF THE TESTING AGENCY AND AS APPROVED BY THE OWNER. THE COORDINATION OF THE SPECIAL INSPECTION WITH THE CONSTRUCTION OF THE INSPECTED ITEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. THE CONTRACTOR AND EACH SUBCONTRACTOR INVOLVED IN THE STORM SHELTER CONSTRUCTION SHALL PROVIDE A WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY FOR THE SHELTER PORTION OF THE STRUCTURE PER SECTION 1704.4 OF THE INTERNATIONAL BUILDING CODE PRIOR TO THE START OF THE SHELTER CONSTRUCTION.
4. STRUCTURAL OBSERVATION IS REQUIRED AT FOUR (4) DIFFERENT STAGES OF THE SHELTER PORTION OF CONSTRUCTION FOR GENERAL CONFORMANCE OF THE STRUCTURAL SYSTEM. THE CONTRACTOR SHALL NOTIFY THE PROFESSIONAL OF RECORD FOR THE OBSERVATIONS AT THE FOLLOWING TIMES DURING CONSTRUCTION:
   A. PRIOR TO THE INSTALLATION OF THE CONCRETE FOOTING SHAFTS (FIRST DAY OF INSTALLATION).
   B. PRIOR TO THE GRADE BEAM CONCRETE POUR (ALL CMU WALL DOWELS AND STEEL COLUMN ANCHOR BOLTS SHALL BE IN PLACE FOR THIS OBSERVATION).
   C. AFTER THE FOUNDATIONS ARE COMPLETE AND THE WALLS ARE APPROXIMATELY 50% COMPLETE.
   D. AFTER THE WALLS AND ALL ROOF FRAMING, INCLUDING CONNECTIONS, HAVE BEEN COMPLETED, BUT PRIOR TO POURING THE TOPPING ON THE ROOF STRUCTURE.

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ADDITIONS AND ALTERATIONS TO
GEORGETOWN HIGH SCHOOL
Georgetown, Louisiana
Grant Parish School Board - Owner

FOUNDATION/SLAB PLAN - BLDG A - STORM SHELTER; DESIGN CRITERIA

DATE: APRIL 2023
REVISIONS: 5/3/23
JOB NUMBER: 2022-10B

S000R | OF 20S

REFER TO STANDARD DRAWINGS, DETAILS AND SCHEDULES IN PROJECT MANUAL.

STATE OF LOUISIANA
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PROFESSIONAL ENGINEER
IN
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4-5-23

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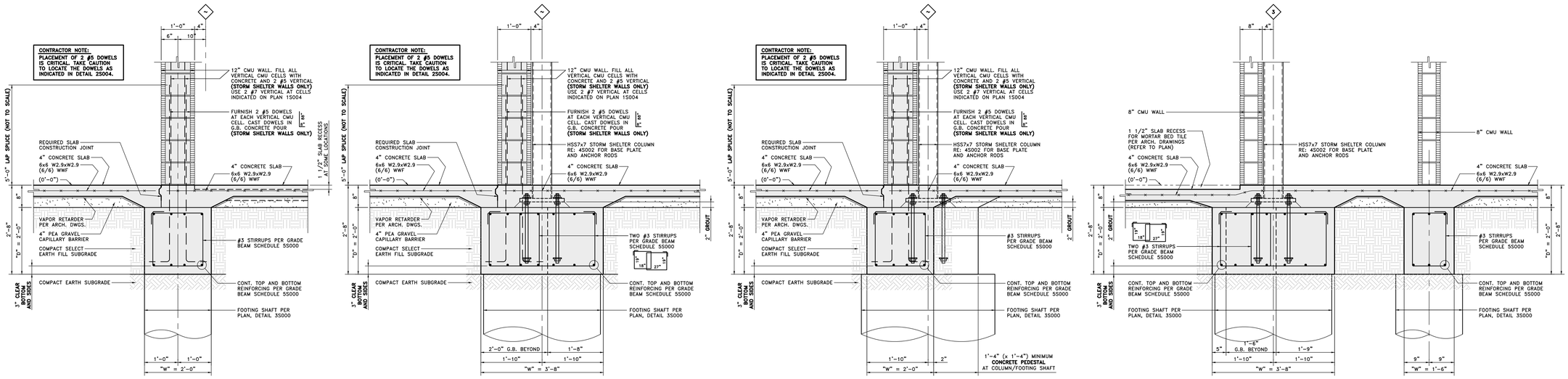
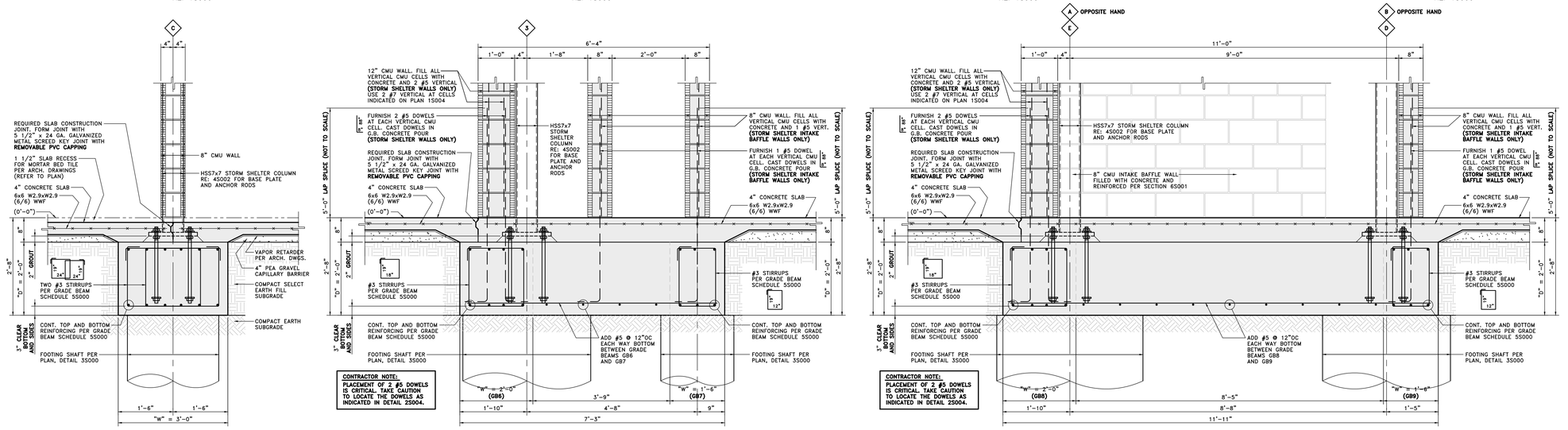


1 SECTION
3/4" = 1'-0"
RE: 1S000

2 SECTION
3/4" = 1'-0"
RE: 1S000

3 SECTION
3/4" = 1'-0"
RE: 1S000

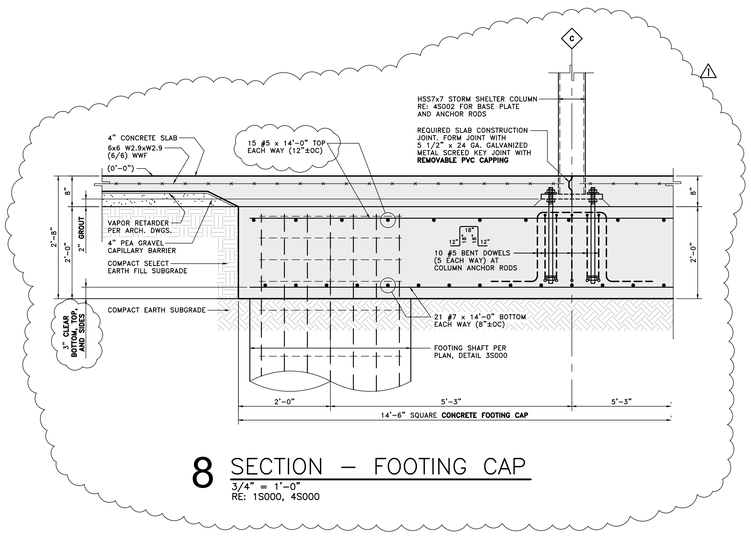
4 SECTION
3/4" = 1'-0"
RE: 1S000



5 SECTION
3/4" = 1'-0"
RE: 1S000

6 SECTION
3/4" = 1'-0"
RE: 1S000

7 SECTION
3/4" = 1'-0"
RE: 1S000



8 SECTION – FOOTING CAP
3/4" = 1'-0"
RE: 1S000, 4S000

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ADDITIONS AND ALTERATIONS TO GEORGETOWN HIGH SCHOOL
Georgetown, Louisiana
Grant Parish School Board - Owner

REFER TO STANDARD DRAWINGS, DETAILS AND SCHEDULES IN PROJECT MANUAL.

STORM SHELTER FOUNDATION SECTIONS AND DETAILS

DATE: APRIL 2023
REVISIONS: 5/3/23
JOB NUMBER: 2022-108

S001R OF 20S

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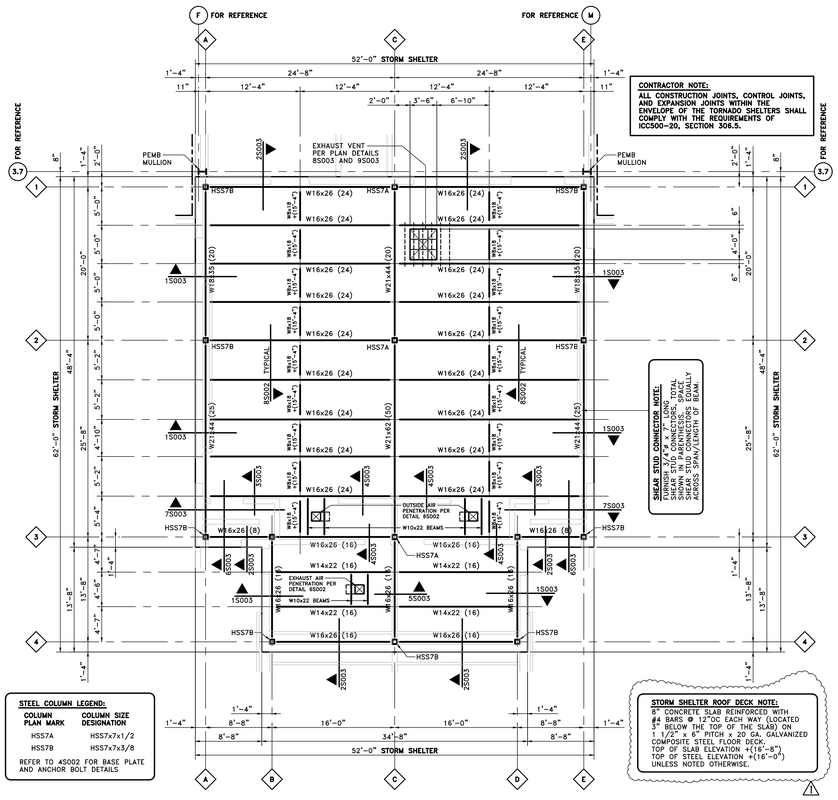
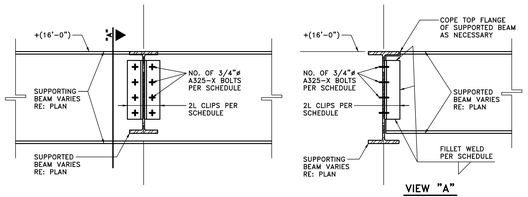


1 ROOF FRAMING PLAN – BUILDING A – STORM SHELTER

1/8" = 1'-0"
RE: ARCH., MECH., ELECT. DRAWINGS, GENERAL NOTES

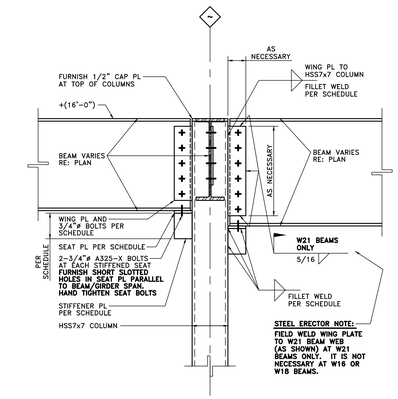


STANDARD FRAMED CONNECTION SCHEDULE – W BEAM TO W BEAM

SUPPORTED BEAM SIZE	NO. OF 3/4"ø A325-X BOLTS	2 CUP L SIZE/LENGTH	FILLET WELD (SEE DETAIL)	REMARKS
W18 BEAM	10 – 3/4"ø A325-X BOLTS	2 L3 1/2x3 1/2x3/8 x 1'-2 1/2"	1/4" FILLET	
W16 BEAM	8 – 3/4"ø A325-X BOLTS	2 L3 1/2x3 1/2x3/8 x 11 1/2"	1/4" FILLET	
W14 BEAM	6 – 3/4"ø A325-X BOLTS	2 L3 1/2x3 1/2x3/8 x 8 1/2"	1/4" FILLET	
W12 BEAM	6 – 3/4"ø A325-X BOLTS	2 L3x3x5/16 x 8 1/2"	3/16" FILLET	
W10 BEAM	4 – 3/4"ø A325-X BOLTS	2 L3x3x3/8 x 5 1/2"	3/16" FILLET	
W8 BEAM	4 – 3/4"ø A325-X BOLTS	2 L3x3x5/16 x 5 1/2"	3/16" FILLET	

2 STANDARD FRAMED CONNECTION DETAIL/SCHEDULE W BEAMS TO W BEAMS STORM SHELTER

1" = 1'-0"
RE: 1S002

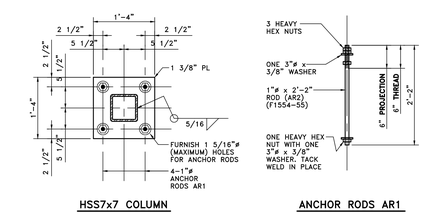


STANDARD FRAMED CONNECTION SCHEDULE
W BEAM TO HSS COLUMN

BEAM SIZE	WING PL CONNECTION		STIFFENED SEAT CONNECTION		FILLET WELD (SEE DETAIL)
	WING PL	NO. BOLTS	SEAT PL	STIFFENER PL	
W21	1/2" PL	6–3/4"ø A325–X	1/2" PL x 6"	1/2" PL x 5"	5/16" FILLET
W18	1/2" PL	5–3/4"ø A325–X	1/2" PL x 6"	1/2" PL x 5"	5/16" FILLET
W16	3/8" PL	4–3/4"ø A325–X	NONE REQUIRED	NONE REQUIRED	1/4" FILLET
W14	3/8" PL	3–3/4"ø A325–X	NONE REQUIRED	NONE REQUIRED	1/4" FILLET

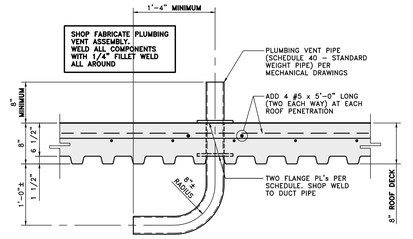
3 STANDARD FRAMED CONNECTION DETAIL/SCHEDULE W BEAMS TO HSS COLUMNS STORM SHELTER

1" = 1'-0"
RE: 1S002



4 TYPICAL BASE PLATE AND ANCHOR ROD DETAILS STORM SHELTER

3/4" = 1'-0"
RE: 1S000, 2S000

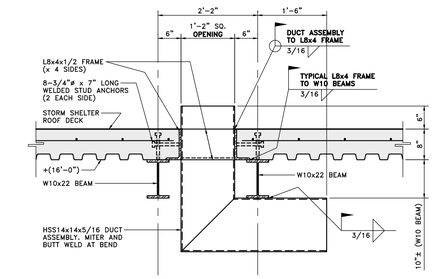


PLUMBING VENT SCHEDULE

PLUMBING VENT PIPE SIZE	FLANGE PL SIZE (HOLE AT CENTER TO MATCH PLUMBING VENT PIPE O.D.)
2"ø STD. PIPE	TWO PL 5"x5"x3/8"
2 1/2"ø STD. PIPE	TWO PL 5"x5"x3/8"
3"ø STD. PIPE	TWO PL 6"x6"x1/2"
3 1/2"ø STD. PIPE	TWO PL 7"x7"x1/2"

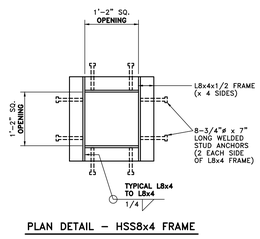
5 ROOF PENETRATION DETAIL – PLUMBING VENT

1" = 1'-0"
RE: 1S002

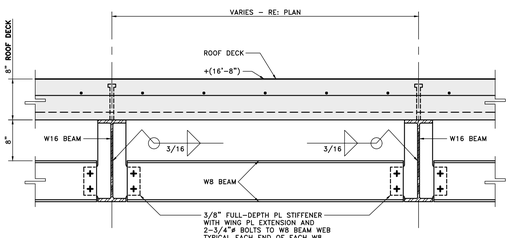


6 ROOF PENETRATION DETAIL – DUCTED OPENING

3/4" = 1'-0"
RE: 1S002



PLAN DETAIL – HSS8x4 FRAME



7 W8 BRACING BEAM DETAIL

1" = 1'-0"
RE: 1S002

8 GENERAL STORM SHELTER ROOF/WALL PENETRATION NOTES:

RE: STORM SHELTER, PLANS 1S002 AND 1S004

1. PLUMBING VENTS THRU THE ROOF DECK BETWEEN 2" – 4" DIAMETER, CONSTRUCTED FROM SCHEDULE 40 STEEL PIPE. REFER TO MECHANICAL DRAWINGS FOR DIAMETERS. REFER TO DETAIL 5S002 FOR PENETRATIONS.
2. SQUARE DUCT THRU THE ROOF DECK (14" SQUARE) FOR AN EXHAUST FAN, CONSTRUCTED FROM HSS14x14. REFER TO MECHANICAL DRAWINGS. REFER TO DETAIL 6S002 FOR PENETRATIONS.
3. FIRE PROTECTION SPRINKLER, HVAC CONDENSATE LINES AND REFRIGERANT LINES PENETRATING WALLS OR ROOF DECK SHALL NOT EXCEED 1 1/2" DIAMETER.
4. LOUVERS, FIRE DAMPERS, CONTROL DAMPERS AND OTHER COMPONENTS ASSOCIATED WITH THE NATURAL VENTILATION SYSTEM OF EACH SHELTER SHALL BE CONSTRUCTED AS DETAILED.
5. ELECTRICAL CONDUIT PENETRATING EITHER WALLS OR ROOF DECK SHALL BE LIMITED TO NO MORE THAN 1 1/2" DIAMETER PIPE. FOR MULTIPLE CONDUITS IN THE SAME AREA, SEPARATE CONDUITS BY AT LEAST 3 DIAMETERS DISTANCE BETWEEN EACH.
6. CONDUIT CABLE SLEEVES FOR DATA/COMMUNICATION CABLING PENETRATING WALLS OR ROOF DECK SHALL NOT EXCEED 1 1/2" DIAMETER. PROVIDE FIRE SEALANT SYSTEM AT FIRE–RATED PERIMETER WALLS.
7. GROUT SOLID AROUND ALL PENETRATIONS.
8. CAREFULLY COORDINATE THE LOCATIONS OF ALL PENETRATIONS BETWEEN ALL TRADES INVOLVED TO AVOID CONFLICTS WITH STRUCTURAL SYSTEMS AND/OR OTHER MEP SYSTEMS.

REFER TO STANDARD DRAWINGS, DETAILS AND SCHEDULES IN PROJECT MANUAL

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ADDITIONS AND ALTERATIONS TO
GEORGETOWN HIGH SCHOOL
Georgetown, Louisiana
Grant Parish School Board - Owner

ROOF FRAMING PLAN - BLDG A - STORM SHELTER, SECTIONS AND DETAILS

DATE: APRIL 2023
REVISIONS: 5/3/23
JOB NUMBER: 2022-108

S002R OF 20S

STATE OF LOUISIANA
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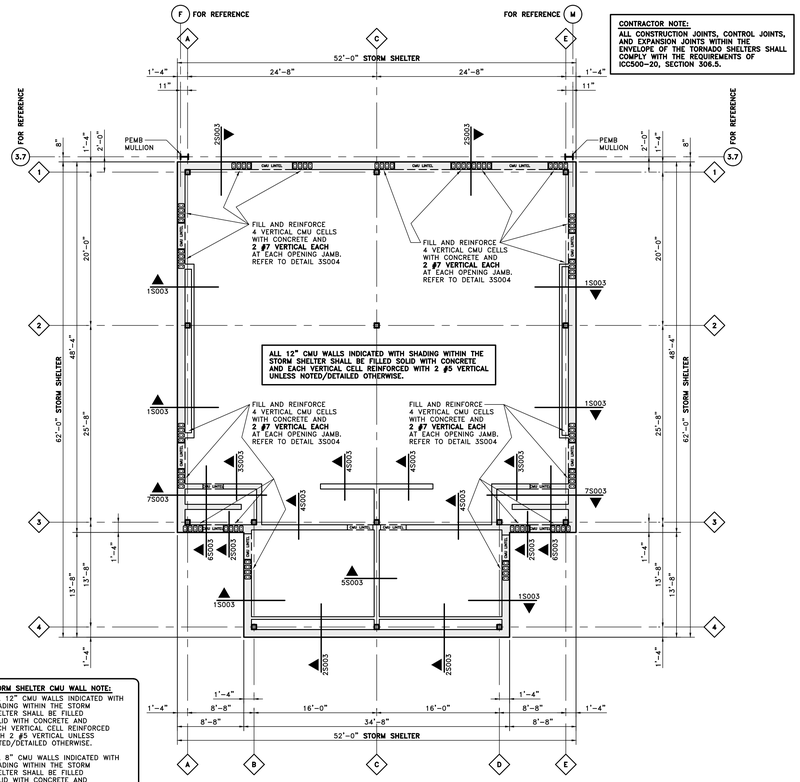


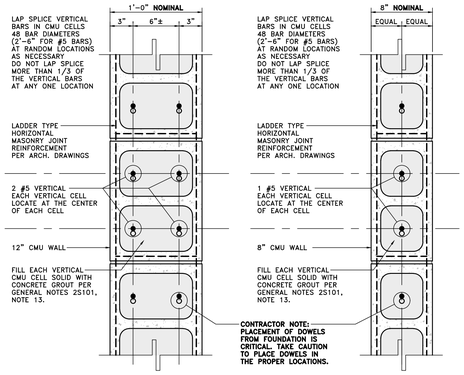
CONTRACTOR NOTE:
ALL CONSTRUCTION JOINTS, CONTROL JOINTS, AND EXPANSION JOINTS WITHIN THE ENVELOPE OF THE TORNADO SHELTERS SHALL COMPLY WITH THE REQUIREMENTS OF ICC500–20, SECTION 306.5.

STORM SHELTER CMU WALL NOTE:
ALL 12" CMU WALLS INDICATED WITH SHADING WITHIN THE STORM SHELTER SHALL BE FILLED SOLID WITH CONCRETE AND EACH VERTICAL CELL REINFORCED WITH 2 #5 VERTICAL UNLESS NOTED/DETAILED OTHERWISE.

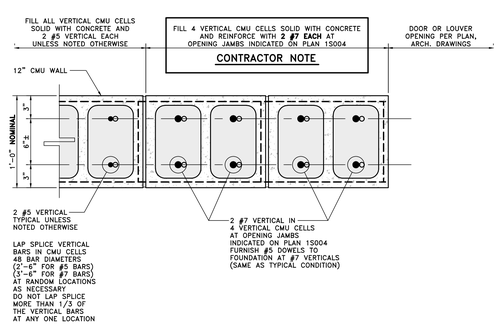
ALL 8" CMU WALLS INDICATED WITH SHADING WITHIN THE STORM SHELTER SHALL BE FILLED SOLID WITH CONCRETE AND EACH VERTICAL CELL REINFORCED WITH 1 #5 VERTICAL.

ALL CMU BLOCK UNITS USED IN THE CONSTRUCTION OF THE STORM SHELTER WALLS SHALL MEET THE DENSITY CLASSIFICATION REQUIREMENT AS LIGHTWEIGHT UNITS (MINIMUM COMPRESSIVE STRENGTH OF 2000 psi) AS DEFINED BY ASTM C90.

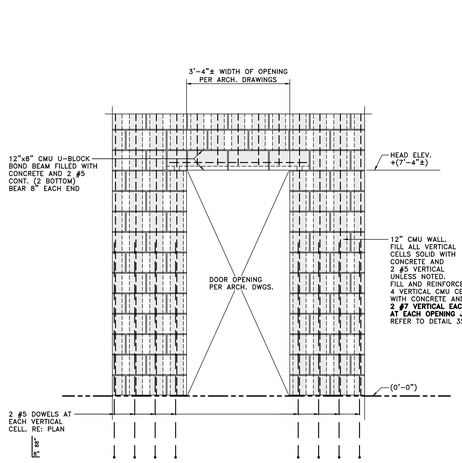
1 CMU WALL PLAN
BUILDING A – STORM SHELTER
1/8" = 1'–0"
RE: ARCH., MECH., ELECT. DRAWINGS, GENERAL NOTES



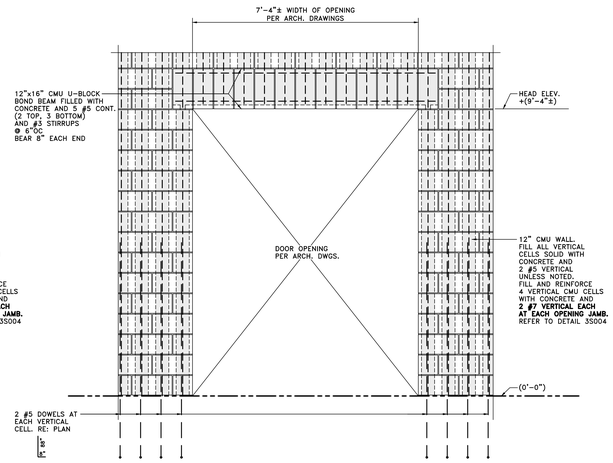
2 PLAN DETAIL – TYPICAL CMU WALL REINFORCING
1 1/2" = 1'–0"
RE: 1S004, STORM SHELTER WALLS



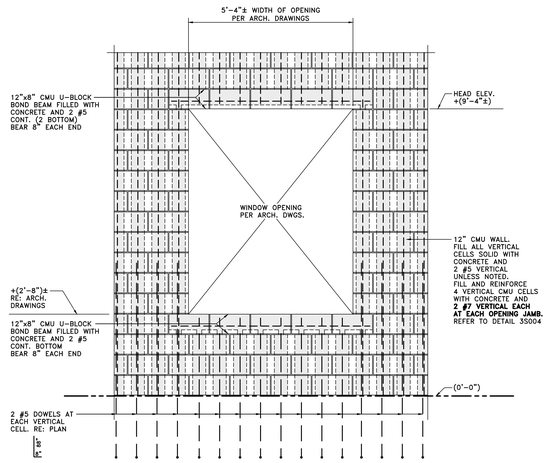
3 PLAN DETAIL – SPECIAL REINFORCING AT 12" CMU WALL OPENING JAMBS
1 1/2" = 1'–0"
RE: 1S004, STORM SHELTER WALLS



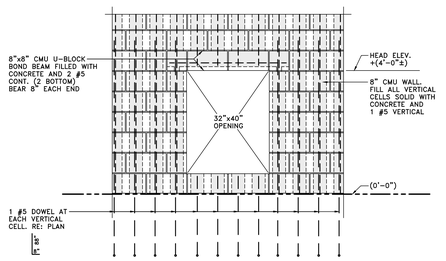
DOORS 153, 154, 168, 169



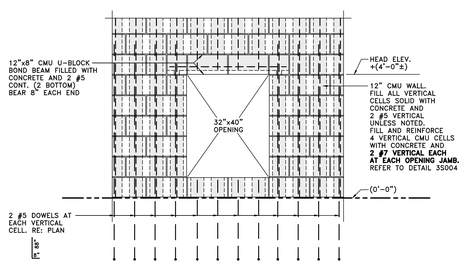
DOORS 166 AND 167



DISHWASH PASS–THROUGH WINDOW



INTAKE LOUVER L1 (8" CMU WALL)



INTAKE LOUVER L2 (12" CMU WALL)

4 TORNADO SHELTER WALL OPENING REINFORCING DETAILS
1/2" = 1'–0"
RE: 1S004, ARCHITECTURAL, MECHANICAL DRAWINGS

REFER TO STANDARD DRAWINGS, DETAILS AND SCHEDULES IN PROJECT MANUAL.

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ADDITIONS AND ALTERATIONS TO
GEORGETOWN HIGH SCHOOL
Georgetown, Louisiana
Grant Parish School Board - Owner

CMU WALL PLAN - BLDG A - STORM SHELTER, SECTIONS AND DETAILS

DATE: APRIL 2023
REVISIONS: ⚠ 5/3/23
JOB NUMBER: 2022-10B

S004R | OF 20S

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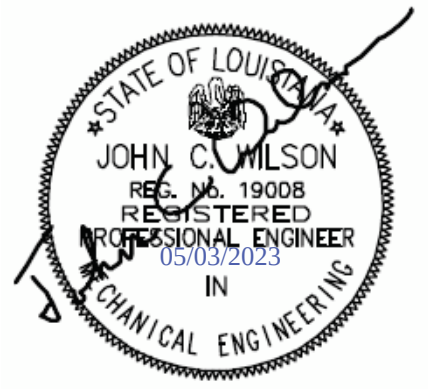


ADDENDUM #1
GRANT PARISH SCHOOL BOARD
ADDITIONS & ALTERATIONS TO
GEORGETOWN HIGH SCHOOL
4528 STATE HIGHWAY # 500
GEORGETOWN, LOUISIANA
YWA PN 2022-10B
GUTH PN 33-7192

May 3, 2023

THE FOLLOWING MODIFICATIONS AND/OR CLARIFICATIONS SHALL BE MADE TO THE DRAWING AND PROJECT MANUAL FOR THE CAPTIONED PROJECT:

M E C H A N I C A L

SPECIFICATIONS

1. SECTION 22 05 53 – MECHANICAL IDENTIFICATION FOR PLUMBING AND HVAC PIPING AND EQUIPMENT

   a. Add section in its entirety in accordance with the attached.

2. SECTION 23 35 33 – KITCHEN VENTILATION

   a. Page 1 item 1.1.B change section number to 22 14 00.

   b. Page 1 item 1.1.C change section number to 23 31 25.

   c. Page 1 item 1.1.D change section number to 23 05 19.

   d. Page 1 item 1.4.A delete sub item 2 compressor warranty.

3. SHEET M103 – 4'x3.5' ROOF VENT

   a. Provide 4'x3.5' ventilation duct from 4'x3.5' roof opening to shelter opening and large 4'x3.5' return air grill in dining ceiling connected to lower end of duct. Provide motorized damper in 4x3.5' duct set to be naturally open in the event of power failure and closed in normal use with power.

EQUIPMENT APPROVALS

The following manufacturers are approved as substitutes for the items listed, subject to compliance with drawings, specifications, space limitation requirements, and comparison to the specified unit:

1. Mini-Split Heat Pumps:
   a. Mechanical Concepts, Daikin FTX24AXVJU / RX24AXVJU

2. Round Manual Volume Dampers
   a. Dace, RMBD

3. Rectangular Manual Volume Dampers
   a. Dace, MBD

4. Flexible Duct
   a. Peppertree, EM

5. Side Take-Offs
   a. Dace, STOD-CO3

6. HVAC Split Systems
   a. Reem, Endeavor line of 2-5 ton 15 SEER units. Verify these units can provide the long line application to meet the line lengths shown on the drawings and that the unit capacity meets schedule shown on the drawings.
   b. Ruud, Achiever line of 2-5 ton 15 SEER units. Verify these units can provide the long line application to meet the line lengths shown on the drawings and that the unit capacity meets schedule shown on the drawings.

E L E C T R I C A L

DRAWINGS

1. Sheet E010:

   a. A symbol of an open triangle with a slash represents a data outlet installed above a counter.
   b. On the Lighting Fixture Schedule the Type “A” fixture should be Tech Lighting catalogue number: 700TD YL LED927.
   c. The catalogue number for the inverter to be installed in the Storm Shelter connected to the storm shutters shall be IOTA # IISCN-1100-120M-01-20-ON or approved equal. The inverter for the storm shutters shall be furnished with a rated battery run time of not less than 120 minutes.

2. Sheet E101:

   a. The sports lighting system identified on the Bid Documents is based upon the Musco lighting fixtures identified on the Lighting Fixture System with the

associated fixture counts and arrangements shown on the site plan shown accordingly. The fixture counts furnished by Geo shall be adjusted accordingly so that the sports lighting system furnished meets the illumination levels indicated in the Project Specifications.

3. Sheet E201:

   a. In room 155, Conference, furnish type M luminaires of the quantity and location indicated.
   b. In room 156, Elec/Data, furnish type M luminaires of the quantity and location indicated.
   c. All type M fixtures identified for installation within Storm Shelter that contain emergency power packs shall be compliant with sheet note 4.

4. Sheet E301:

   a. The feeder routed from switchboard MSB to panel C shall be routed underground.
   b. Add power for three (3) storm shutters in accordance with the attached sketch.
   c. Add power for hand dryers in restrooms in Storm Shelter in accordance with the attached sketch.
   d. Add power for door buzzer controller in accordance with the attached sketch.
   e. The fan coil for the mini-splits for installation in the data closet (room 156) and IDF (room 184) should be furnished with a 2-pole manual motor starter.
   f. In room 156 (Elec/Data), extend a circuit from nearest receptacle in space and connect to plugmold on data rack accordingly.
   g. In room 184 (IDF), extend a circuit from nearest receptacle in space and connect to plugmold on data rack accordingly.
   h. Add electrical connection from nearest electrical panel for keypads at all exterior doors as well as doors A134, A175 & A189.
   i. Provide electrical connection from nearest electrical panel to Access Control controller. Verify location with the Architect.

5. Sheet E401:

   a. Provide keypads with Wifi capability at doors A116, A117, A191 & A192.

5. Sheet E501:

   a. A single zone for the signal line circuit and notification appliance circuit shall be extended to the remote buildings identified on the site plan.
   b. Revise circuit breaker rating and associated feeder size for panel C feeder in accordance with the attached sketch.

6. Sheet E602:

   a. On Detail K, change the fixture type from “SF” to “P”.

7. Sheet E801:

a. Revise schedule for switchboard MSB in accordance with the attached sketch.
b. Revise schedule for panel C in accordance with the attached sketch.

SPECIFICATIONS

1. SECTION 27 11 00 – COMMUNICATIONS EQUIPMENT ROOM FITTINGS

a. The voice and data cabling will be furnished by the Owner under separate contract.
b. Delete paragraphs 1.2.B.1 and 1.2.B.2 in their entirety from this specification section.
c. Delete paragraphs 2.2 & 2.3 and all associated sub-paragraphs in their entirety from this specification section.

2. SECTION 28 13 02 – DOOR BUZZER SYSTEM

a. This specification section only applies to a door buzzer system only for those locations identified on the Bid Documents. An access control system for the entire school is not included under the scope of this project.

3. SECTION 26 33 23 – CENTRAL BALLERY EQUIPMENT FOR EMERGENCY LIGHTING

a. On paragraph 2.1.K1, the battery run time for the inverter installed within the Storm Shelter shall be not less than 120 minutes.

4. SECTION 28 31 11 – FIRE ALARM

a. As indicated in paragraph 1.10.A, the existing fire alarm system at the site shall remain operational until the new fire alarm system has been installed and is fully functional.

5. SECTION 28 13 00 – ACCESS CONTROL

a. Add section in its entirety in accordance with the attached.

EQUIPMENT APPROVALS

The following manufacturers are approved as substitutes for the items listed, subject to compliance with drawings, specifications, space limitation requirements, and comparison to the specified unit:

1. Lighting Fixtures:

TYPE	MANUFACTURER	CATALOG NUMBER
A	BEGA-US	56 614.2
	AMERICAN NAILPLATE	PB08MBSSCXXXX100GLCL[FINISH}
B	NEW STAR	AGV11OPUN40MOD[1,500]
	LIGHTWAY	WSRW12LEDS1C4BLACKWSP
C	LIGHTWAY	TLOW8LEDO2A4Z3DIM
	LSI	GST2LFTUNV40K7
D	EELP	UC6C24L120V3K
	WILLIAMS	1SF2L12/835DMA(L6)DRVUNV
E	LITHONIA	WL222LGZ1LP835
	ELITE	2OC1LED3000LDIM10MVOLT35K85
F	LITHONIA	2GTL233LFWA12125GZ10LP835
	ELITE	22OTLED4000LDIM10MVOLT35K85A125
G	LITHONIA	CSSL48ALO3MVOLTSWW380CRI
	ELITE	4OC1LED3000LDIM10MVOLT35K85V2
H	LITHONIA	CSVTL484000LMMVOLT35K80CRI
	ELITE	4OW1IPLED4000LDIM10MVOLT35K85
I	LITHONIA	WL440LGZ10LP835
	ELITE	4OC1LED4000LDIM10MVOLT35KK85V2
J1	CORELITE	SQ4F050U/040D8351DUNVSTDWAC48UM4’
	ORACLE	OLSDILED4S4750D750U1CDIM10MVOLT35K85WH
J2	LIGHTNET	1AP4OWE830ML900KG
	GECURRENT	LOPA048835VQD8CSWHITE
K	LITHONIA	3GTL430LFWA12125GZ10LP835
	ELITE	24OTLED3000LDIM10MVOLT35K85A125
L	LITHONIA	2GTL440LFWA12125GZ10LP835
	ELITE	24OTLED4000LDIM10MVOLT35K85A125
M	LITHONIA	2GTL448LFWA12125GZ10LP835
	ELITE	24OTLED5000LDIM10MVOLT35K85A125
N	NLS LIGHTING	NV1T348L140K8UNVDPS3[FINISH]RPA4
	KW INDUSTRIES	RTSP306.8-11[FINISH]DM10BC

	LSI LIGHTING	MRSLED15LSIL3UNVDIM4070CRIBRZ 5SQB3S11G30S***ABKITBC
O	NLS LIGHTING	NVF3T4104W40K3UNVTM[FINISH]
	EVOLVE	EFM10201066740AAK1DKBZ
P	NLS LIGHTING EVOLVE	NVF3T4104W40K3UNVTM[FINISH] EFM10101277740AES1DKBZ
Q	GEO LIGHTING	CLIR SERIES
R	GEO LIGHTING	CLIR SERIES
S	GEO LIGHTING	CLIR SERIES
T	GEO LIGHTING	CLIR SERIES
X	ISOLITE	RLEMGUW

2. Lighting Control Devices:

   a. Inverter: LVS, Inc. CEPS-EM SERIES FAST TRANSFER

3. Fire Alarm Control Panel: Honeywell – XLS3000s series with XLS-DVC audio option.

P L U M B I N G

EQUIPMENT APPROVALS

The following manufacturers are approved as substitutes for the items listed, subject to compliance with drawings, specifications, space limitation requirements, and comparison to the specified unit:

1. Water Heaters (Mech Rms 185 and 132):
   a. Rheem Triton GHE100SS-160A / Rheem Triton GHE100SS-250A

2. Gas Meter:
   a. Revise Gas Meter in accordance with attached Detail.

3. Electric Water Cooler:
   a. EWC – MURDOCK A171108F-UG
   b. EWCB – MURDOCK A171408F-UG-BF
   c. EWBF – MURDOCK A172108S-BF 12-BCD
   d. ERBF – MURDOCK BF168-BCD-WF3

22 05 53
MECHANICAL IDENTIFICATION FOR PLUMBING AND HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes mechanical identification materials and devices.

1.3 SUBMITTALS

A. Product Data: For identification materials and devices.

B. Samples: Of color, lettering style, and graphic representation required for each identification material and device.

1.4 QUALITY ASSURANCE

A. Comply with ASME A13.1, "Scheme for the Identification of Piping Systems" for lettering size, length of color field, colors, and viewing angles of identification devices.

1.5 SEQUENCING AND SCHEDULING

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

PART 2 - PRODUCTS

2.1 IDENTIFYING DEVICES AND LABELS

A. General: Products specified are for applications referenced in other Division 22 and 23 Sections. If more than single type is specified for listed applications, selection is Installer's option.

B. Equipment Nameplates: Metal permanently fastened to equipment with data engraved or stamped.

1. Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and essential data.

2. Location: Accessible and visible.

C. Snap-On Plastic Pipe Markers: Manufacturer's standard preprinted, semirigid, snap-on type. Include color-coding according to ASME A13.1, unless otherwise indicated.

D. Pipes with OD, Including Insulation, Less Than 6 Inches (150 mm): Full-band pipe markers, extending 360 degrees around pipe at each location.

E. Pipes with OD, Including Insulation, 6 Inches (150 mm) and Larger: Either full-band or strip-type pipe markers, at least 3 times letter height and of length required for label.

F. Lettering: Manufacturer's standard preprinted captions as selected by Engineer.

1. Arrows: Either integrally with piping system service lettering, to accommodate both directions, or as separate unit, on each pipe marker to indicate direction of flow.

G. Plastic Tape: Manufacturer's standard color-coded, pressure-sensitive, self-adhesive, vinyl tape, at least 3 mils (0.08 mm) thick.

1. Width: 1-1/2 inches (40 mm) on pipes with OD, including insulation, less than 6 inches (150 mm); 2-1/2 inches (65 mm) for larger pipes.

2. Color: Comply with ASME A13.1, unless otherwise indicated.

H. Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white melamine subcore, unless otherwise indicated. Fabricate in sizes required for message. Provide holes for mechanical fastening.

1. Engraving: Engraver's standard letter style, of sizes and with terms to match equipment identification.

2. Thickness: 1/16 inch (2 mm), for units up to 20 sq. in. (130 sq. cm) or 8 inches (200 mm) in length, and 1/8 inch (3 mm) for larger units.

3. Fasteners: Self-tapping, stainless-steel screws or contact-type, permanent adhesive.

I. Plastic Equipment Markers: Manufacturer's standard laminated plastic, in the following color codes:

1. Green: Cooling equipment and components.

2. Yellow: Heating equipment and components.
3. Brown: Energy reclamation equipment and components.
4. Blue: Equipment and components that do not meet criteria above.
5. Hazardous Equipment: Use colors and designs recommended by ASME A13.1.
6. Terminology: Match schedules as closely as possible. Include the following:
a. Name and plan number.
b. Equipment service.
c. Design capacity.
d. Other design parameters such as pressure drop, entering and leaving conditions, and speed.
7. Size: 2-1/2 by 4 inches (65 by 100 mm) for control devices and valves; 4-1/2 by 6 inches (115 by 150 mm) for equipment.

J. Lettering and Graphics: Coordinate names, abbreviations, and other designations used in mechanical identification with corresponding designations indicated. Use numbers, letters, and terms indicated for proper identification, operation, and maintenance of mechanical systems and equipment.

1. Multiple Systems: Identify individual system number and service if multiple systems of same name are indicated.

PART 3 - EXECUTION

3.1 LABELING AND IDENTIFYING PIPING SYSTEMS

A. Install pipe markers on each system. Include arrows showing normal direction of flow.
B. Marker Type: Plastic markers, with application systems.
C. Fasten markers on pipes and insulated pipes smaller than 6 inches (150 mm) OD by one of following methods:
1. Snap-on application of pre-tensioned, semi-rigid plastic pipe marker.

D. Fasten markers on pipes and insulated pipes 6 inches (150 mm) in diameter and larger by one of following methods:
1. Laminated or bonded application of pipe marker to pipe or insulation.
2. Taped to pipe or insulation with color-coded plastic adhesive tape, not less than 1-1/2 inches (40 mm) wide, lapped a minimum of 3 inches (75 mm) at both ends of pipe marker, and covering full circumference of pipe.
3. Strapped to pipe or insulation with manufacturer's standard stainless-steel bands.

E. Locate pipe markers and color bands where piping is exposed; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior nonconcealed locations according to the following:
1. Near each valve and control device.
2. Near each branch connection, excluding short takeoffs. Mark each pipe at branch, where flow pattern is not obvious.
3. Near penetrations through walls, floors, ceilings, or nonaccessible enclosures.
4. At access doors, manholes, and similar access points that permit view of concealed piping.
5. Near major equipment items and other points of origination and termination.
6. Spaced at a maximum of 50-foot (15-meters) intervals along each run. Reduce intervals to 25 feet (7.5 meters) in areas of congested piping and equipment.

3.2 EQUIPMENT SIGNS AND MARKERS

A. Install engraved plastic-laminate signs or equipment markers on or near each major item of mechanical equipment. Include signs for the following general categories of equipment:
1. Split system air conditioning units (inside and outside units)
2. Packaged rooftop units
3. Fans/power ventilators

3.3 ADJUSTING AND CLEANING

A. Relocate mechanical identification materials and devices that have become visually blocked by work of this or other Divisions.
B. Clean faces of identification devices and glass frames of valve charts.

END OF SECTION 22 05 53

SECTION 28 13 00
ACCESS CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
- **1.** Security access central-control station.
- **2.** One or more security access networked workstations.
- **3.** Security access operating system and application software with capability of integrating with Video Surveillance software.
- **4.** Security access controllers connected to high-speed electronic-data transmission network.
- **5.** Provide key pads with wifi capability.

B. Expansion: Modular in nature to permit expansion in both capacity and functionality through the addition of controllers, card readers, workstations or by increasing the number of cards.

C. The system shall incorporate the necessary hardware, software, and firmware; to collect, transmit, and process alarm, tamper and trouble and shall control the flow of authorized personnel through secured areas of the facility.

1.2 DEFINITIONS

A. Credential: Data assigned to an entity and used to identify that entity.

B. DTS: Digital Termination Service. A microwave-based, line-of-sight communication provided directly to the end user.

C. Identifier: A credential card, keypad personal identification number or code, biometric characteristic, or other unique identification entered as data into the entry-control database for the purpose of identifying an individual. Where this term is presented with an initial capital letter, this definition applies.

D. Location: A Location on the network having a PC-to-controller communications link, with additional Controllers at the Location connected to the PC-to-controller link with TIA 485-A communications loop. Where this term is presented with an initial capital letter, this definition applies.

E. PCI Bus: Peripheral Component Interconnect. A peripheral bus providing a high-speed data path between the CPU and peripheral devices such as monitor, disk drive, or network.

F. RAS: Remote access services.

G. TWAIN: Technology without an Interesting Name. A programming interface that lets a graphics application, such as an image editing program or desktop publishing program, activate a scanner, frame grabber, or other image-capturing device.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Comply with SIA BIO-01.

B. Shop Drawings:
- **1.** Diagrams for cable management system.
- **2.** System labeling schedules.
- **3.** Wiring diagrams.
- **4.** Cable administration drawings.
- **5.** Battery and charger calculations for central station, workstations, and controllers.

C. Field quality-control reports.

D. Operation and maintenance data include the following:
- **1.** Software documentation.
- **2.** PC installation and operating documentation, manuals, and software for the PC and all installed peripherals. Software shall include system restore, emergency boot diskettes, and drivers for all installed hardware. Provide separately for each PC.
- **3.** Hard copies of manufacturer's specification sheets, operating specifications, design guides, user's guides for software and hardware, and PDF files on CD-ROM of the hard-copy submittal.
- **4.** System installation and setup guides with data forms to plan and record options and setup decisions.

1.4 QUALITY ASSURANCE

A. 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.

B. Comply with NFPA 70, (2014).

C. Comply with SIA DC-01 and SIA DC-03.

1.5 PROJECT CONDITIONS

A. Environmental Conditions: System shall be capable of withstanding the following environmental conditions without mechanical or electrical damage or degradation of operating capability:

1. Control Station: Rated for continuous operation in ambient conditions of 60 to 85 deg F (16 to 30 deg C) and a relative humidity of 20 to 80 percent, noncondensing.

2. Indoor, Controlled Environment: NEMA 250, Type 1 enclosure. System components, except central-station control unit, installed in temperature-controlled indoor environments shall be rated for continuous operation in ambient conditions of 36 to 122 deg F (2 to 50 deg C) dry bulb and 20 to 90 percent relative humidity, noncondensing.

3. Indoor, Uncontrolled Environment: NEMA 250, Type 12K enclosures. System components installed in non-air-conditioned indoor environments shall be rated for continuous operation in ambient conditions of 0 to 122 deg F (minus 18 to plus 50 deg C) dry bulb and 20 to 90 percent relative humidity, noncondensing.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Manufacturers: Subject to compliance with requirements, provide controller by Johnson Controls, Inc. P2000 or approved equal.

2.2 DESCRIPTION

A. Security Access System: PC-based central station and field-installed controllers, connected by a high-speed electronic-data transmission network.

B. System Software: Based on 32-bit, central-station, workstation operating system, server operating system, and application software. Software shall have the following capabilities:

1. Graphical user interface to show pull-down menus and a menu-tree format that complies with interface guidelines of Microsoft Windows.

2. System license for the entire system including capability for future additions that are within the indicated system size limits specified in this Section.

3. Open-architecture system that allows importing and exporting of data and interfacing with other systems that are compatible with Microsoft Windows.

4. Password-protected operator login and access.

5. Open-database-connectivity compliant.

C. Network(s) connecting PCs and controllers shall consist of one or more of the following:

1. Local area, IEEE 802.3 Fast Ethernet Gigabit-Ethernet, star topology network based on TCP/IP.

D. Administration: System shall be capable of creating badges for accepted cardholders for ready access into the facility by swiping badge next to card reader.

1. Access Templates: System shall set all badge options at once by assigning an access template to large groups of cardholders that need badges with the same access privileges.

2. Temporary Access: Allows temporary access to any valid access group for each individual badge defined by a selected date and time which shall grant the cardholder limited access within the normal time zone.

3. Required Cardholder Fields: System shall provide the definition of required cardholder fields which must be completed before cardholder record is saved. An asterisk (*) shall adjacent to a required field. If left empty, the system shall display a warning message.

4. User-defined Database Fields: System shall support an unlimited number of user-defined data fields

5. Badge Definition: Allows cardholders to be defined by the following parameters:

a. Badge number.

b. Badge type.

c. Badge description.

d. Issue lever (0-255).
e. Badge facility code.
f. Validation period.
g. Executive privilege enabled or disabled.
h. PIN code (4 or 5 digits).
i. Badge event privilege. (0-7)
j. Security level (0-99).
k. Special access privileges.

6. Cardholder Definition: Cardholder records shall be defined by the following parameters:
a. Cardholder name.
b. Cardholder type.
c. Cardholder identification.
d. Cardholder portrait.
e. Cardholder address.
f. Cardholder telephone number and extension.
g. Validation period.
h. Department and Company information.
i. Email address.
j. Cardholder journal (user-entered notes associated with the cardholder).

2.3 OPERATION

A. Security access system shall use a single database for access-control and credential-creation functions.

B. Distributed Processing: A fully distributed processing system.
1. Access-control information, including time, date, valid codes, access levels, and similar data, shall be downloaded to controllers so each controller can make access-control decisions.
2. Intermediate controllers for access control are prohibited.
3. In the event that communications with the central controller are lost, controllers shall automatically buffer event transactions until communications are restored, at which time buffered events shall be uploaded to the central station.

C. Number of Locations:
1. Support at least 32,000 separate Locations using a single PC with combinations of direct-connect or TCP/IP LAN connections to each Location.
2. Each Location shall have its own database and history in the central station.
3. Locations may be combined to share a common database.

D. Data Capacity:
1. 130 different card-reader formats.
2. 999 comments.
3. 48 graphic file types for importing maps.

E. Location Capacity:
1. 128 reader-controlled doors.
2. 50,000 total-access credentials.
3. 2048 supervised alarm inputs.
4. 2048 programmable outputs.
5. 32,000 custom action messages per Location to instruct operator on action required when alarm is received.

F. System Network Requirements:
1. System components shall be interconnected and shall provide automatic communication of status changes, commands, field-initiated interrupts, and other communications required for proper system operation.
2. Communication shall not require operator initiation or response and shall return to normal after partial- or total-network interruption such as power loss or transient upset.
3. System shall automatically annunciate communication failures to the operator and shall identify the communications link that has experienced a partial or total failure.
4. Communications controller may be used as an interface between the central-station display systems and the field device network. Communications controller shall provide functions required to attain the specified network communications performance.

5. System shall support the Federal Government smart card encoding protocol. All encoded badges shall include FASC-N (Federal Agency Smart Credential Number) data fields. System shall allow the option of defining FASC-N badges, normal badges or both as the badge type to be used throughout the facility.

G. Central station shall provide operator interface, interaction, display, control, and dynamic and real-time monitoring. Central station shall control system networks to interconnect all system components, including workstations and field-installed controllers.

H. CCTV Integration: System shall provide controls to operate cameras and monitors of the Video Surveillance system, including PTZ control, camera/monitor switches and tours.

I. DVR Integration: System shall be integrated with the Digital Video Recording (DVR) systems that allows users to search, retrieve and download real-time or archived recordings from any transaction or surveillance camera from any place at any time.

J. Intercom Interface: System shall interface with intercom systems to allow operators to establish audio communication links between any two or more intercom stations.

K. Guard Tour: System shall verify that physical checks of a building occur at specific intervals to provide real-time monitoring of guard activities. Patrol control shall be instigated to ensure that guards are visiting their appointed tour locations in sequence.

L. Field equipment shall include controllers, sensors, and controls.

1. Controllers shall serve as an interface between the central station and sensors and controls.

2. Data exchange between the central station and the controllers shall include down-line transmission of commands, software, and databases to controllers.

3. The up-line data exchange from the controller to the central station shall include status data such as intrusion alarms, status reports, and entry-control records.

4. Controllers are classified as alarm-annunciation or entry-control type.

M. System Response to Alarms: Field device network shall provide a system end-to-end response time of one second or less for every device connected to the system.

N. False-Alarm Reduction: The design of the central station and controllers shall contain features to reduce false alarms. Equipment and software shall comply with SIA CP-01.

O. Error Detection:

1. Use a cyclic code method to detect single- and double-bit errors, burst errors of eight bits or fewer, and at least 99 percent of all other multibit and burst errors between controllers and the central station.

2. Interactive or product error-detection codes alone will not be acceptable.

P. Data Line Supervision: System shall initiate an alarm in response to opening, closing, shorting, or grounding of data transmission lines.

Q. Door Hardware Interface:

1. Comply with requirements in Division 8 Sections for door hardware required to be monitored or controlled by the security access system.

2. Electrical characteristics of controllers shall match the signal and power requirements of door hardware.

2.4 APPLICATION SOFTWARE

A. System Software: Based on 32-bit, Microsoft Windows central-station and workstation operating system and application software. The system shall support the automatic distribution of software updates to workstations in the system.

1. Graphical user interface shall show pull-down menus and a menu-tree format.

2. Capability for future additions within the indicated system size limits.

3. Open architecture that allows importing and exporting of data and interfacing with other systems that are compatible with operating system.

4. Password-protected operator login and access.

B. Application Software: Interface between the alarm annunciation and entry-control controllers to monitor sensors, operate displays, report alarms, generate reports, and help train system operators.

1. Reside at the central station, workstations, and controllers as required to perform specified functions.

2. Operate and manage peripheral devices.

3. Manage files for disk I/O, including creating, deleting, and copying files; and automatically maintain a directory of all files, including size and location of each sequential and random-ordered record.

4. Import custom icons into graphics to represent alarms and I/O devices.

5. Globally link I/O so that any I/O can link to any other I/O within the same Location without requiring interaction with the host PC. This operation shall be at the controller.

6. Globally code I/O links so that any access-granted event can link to any I/O with the same Location without requiring interaction with the host PC. This operation shall be at the controller.

7. Message Filtering: System shall control messages from local and remote sites by only transmitting and receiving messages that pass filter criteria. Filtering criteria shall include:
- **a.** Alarm or message type and sub-type.
- **b.** Site name.
- **c.** Operator name.
- **d.** Partition.
- **e.** Item name.
- **f.** Query string.
- **g.** Alarm category name.
- **h.** Priority and alarm escalation ranges.

8. Messages from PC to controllers and controllers to controllers shall be on a polled network that utilizes check summing and acknowledgment of each message. Communication shall be automatically verified, buffered, and retransmitted if message is not acknowledged.

9. Selectable poll frequency and message time-out settings shall handle bandwidth and latency issues for TCP/IP, RF, and other PC-to-controller communications methods by changing the polling frequency and the amount of time the system waits for a response.

10. Automatic and encrypted backups for database and history backups shall be automatically stored at a selected workstation and encrypted with a nine-character alphanumeric password that must be used to restore or read data contained in backup.

11. Operator audit trail for recording and reporting all changes made to database and system software.

12. Support network protocol and topology, TCP/IP, Novel Netware, Digital Pathworks, Banyan Vines, LAN/WAN, and RAS.

C. Workstation Software:

1. Password levels shall be individually customized at each workstation to allow or disallow operator access to program functions for each Location.

2. Workstation event filtering shall allow user to define events and alarms that will be displayed at each workstation. If an alarm is unacknowledged (not handled by another workstation) for a preset amount of time, the alarm will automatically appear on the filtered workstation.

3. Monitoring: Able to monitor current status (including current software version) and monitor who is logged at which workstation.

4. Control: Workstations to be assigned a name with the following capabilities:
- **a.** Be identified as either a workstation or workstation/video badging.
- **b.** Identify a time zone to define the period of time to be in use.
- **c.** Assign message filtering to define the messages that can be received by the workstation.
- **d.** Have an enable button to allow operator login at the workstation.
- **e.** Have a location name to define where the workstation is located.
- **f.** Alarm monitor selection option to define whether the Alarm Monitor window shall display at the workstation.

D. Controller Software:

1. Controllers shall operate as autonomous, intelligent processing units.
- **a.** Controllers shall make decisions about access control, alarm monitoring, linking functions, and door-locking schedules for their operation, independent of other system components.
- **b.** Controllers shall be part of a fully distributed processing-control network.
- **c.** The portion of the database associated with a controller, and consisting of parameters, constraints, and the latest value or status of points connected to that controller, shall be maintained in the controller.

2. The following functions shall be fully implemented and operational within each controller:
- **a.** Monitoring inputs.
- **b.** Controlling outputs.
- **c.** Automatically reporting alarms to the central station.
- **d.** Reporting of sensor and output status to central station on request.
- **e.** Maintaining real time, automatically updated by the central station at least once a day.
- **f.** Communicating with the central station.
- **g.** Executing controller resident programs.

h. Diagnosing.
i. Downloading and uploading data to and from the central station.

3. Controller Operations at a Location:
a. Up to 64 controllers connected to TIA 485-A communications loop. Globally operating I/O linking and anti-passback functions between controllers within the same Location without central-station or workstation intervention. Linking and anti-passback shall remain fully functional within the same Location even when the central station or workstations are off-line.
b. In the event of communication failure between the central station and a Location, there shall be no degradation in operations at the controllers at that Location. Controllers at each Location shall be connected to a memory buffer with a capacity to store up to 10,000 events; there shall be no loss of transactions in system history files until the buffer overflows.
c. Buffered events shall be handled in a first-in-first-out mode of operation.

4. Individual Controller Operation:
a. Controllers shall transmit alarms, status changes, and other data to the central station when communications circuits are operable. If communications are not available, controllers shall function in a stand-alone mode; operational data, including the status and alarm data normally transmitted to the central station, shall be stored for later transmission to the central station. Storage capacity for the latest 1024 events shall be provided at each controller.
b. Card-reader ports of a controller shall be custom configurable for at least 120 different card-reader or keypad formats. Multiple reader or keypad formats may be used simultaneously at different controllers or within the same controller.
c. Controllers shall provide a response to card readers or keypad entries in less than 0.25 seconds, regardless of system size.
d. Controllers that are reset, or powered up from a nonpowered state, shall automatically request a parameter download and reboot to their proper working state. This shall happen without any operator intervention.
e. Initial Startup: When controllers are brought on-line, database parameters shall be automatically downloaded to them. After initial download is completed, only database changes shall be downloaded to each controller.
f. Upon failure for any reason, controllers shall perform an orderly shutdown and force controller outputs to a predetermined failure-mode state, consistent with the failure modes shown and the associated control device.
g. After power is restored, following a power failure, startup software shall initiate self-test diagnostic routines, after which controllers shall resume normal operation.
h. After controller failure, if the database and application software are no longer resident, controllers shall not restart but shall remain in the failure mode until repaired. If database and application programs are resident, controllers shall immediately resume operation. If not, software shall be restored automatically from the central station.
i. Controller shall accept any badge with the correct facility code when the terminal is offline; however, when the terminal is offline an algorithmic PIN number shall be required.

5. Communications Monitoring:
a. System shall monitor and report status of TIA 485-A communications loop of each Location.
b. Communication status window shall display which controllers are currently communicating, a total count of missed polls since midnight, and which controller last missed a poll.
c. Communication status window shall show the type of CPU, the type of I/O board, and the amount of RAM memory for each controller.

6. Operating systems shall include a real-time clock function that maintains seconds, minutes, hours, day, date, and month. The real-time clock shall be automatically synchronized with the central station at least once a day to plus or minus 10 seconds. The time synchronization shall be automatic, without operator action and without requiring system shutdown.

E. PC-to-Controller Communications:
1. Central-station or workstation communications shall use the following:
a. Direct connection using serial ports of the PC.
b. TCP/IP LAN interface cards.

2. Each serial port used for communications shall be individually configurable for "direct communications," "modem communications incoming and outgoing," or "modem communications incoming only," or as an

ASCII output port. Serial ports shall have adjustable data transmission rates and shall be selectable under program control.

3. Use multiport communications board if more than two serial ports are needed.
- **a.** Use a 4-, 8-, or 16-serial port configuration that is expandable to 32 or 64 serial ports.
- **b.** Connect the first board to an internal PCI bus adapter card.

4. Direct serial, TCP/IP, and cable or satellite communications shall be alike in the monitoring or control of system except for the connection that must first be made to a voice-over IP Location.

5. TCP/IP network interface card (NIV) shall have an option to set the poll-frequency and message-response time-out settings.

6. PC-to-controller and controller-to-controller communications (direct or TCP/IP) shall use a polled-communication protocol that checks sum and acknowledges each message. All communications shall be verified and buffered, and retransmitted if not acknowledged.

F. Direct Serial or TCP/IP PC-to-Controller Communications:
1. Communication software on the PC shall supervise the PC-to-controller communications link.
2. Loss of communications to any controller shall result in an alarm at all PCs running the communication software.
3. When communications are restored, all buffered events shall automatically upload to the PC, and any database changes shall be automatically sent to the controller.

G. Controller-to-Controller Communications:
1. TIA 485-A, four-wire, point-to-point, regenerative (repeater) communications network methodology.
2. TIA 485-A communications signal shall be regenerated at each controller.

H. Database Downloads:
1. All data transmissions from PCs to a Location, and between controllers at a Location, shall include a complete database checksum to check the integrity of the transmission. If the data checksum does not match, a full data download shall be automatically retransmitted.
2. If a controller is reset for any reason, it shall automatically request and receive a database download from the PC. The download shall restore data stored at the controller to their normal working state and shall take place with no operator intervention.

I. Operator Interface:
1. Inputs in system shall have two icon representations, one for the normal state and one for the abnormal state.
2. When viewing and controlling inputs, displayed icons shall automatically change to the proper icon to display the current system state in real time. Icons shall also display the input's state, whether armed or bypassed, and if the input is in the armed or bypassed state due to a time zone or a manual command.
3. Outputs in system shall have two icon representations, one for the secure (locked) state and one for the open (unlocked) state.
4. Icons displaying status of the I/O points shall be constantly updated to show their current real-time condition without prompting by the operator.
5. The operator shall be able to scroll the list of I/Os and press the appropriate toolbar button, or right click, to command the system to perform the desired function.
6. Graphic maps or drawings containing inputs, outputs, and override groups shall include the following:
   - **a.** Database to import and store full-color maps or drawings and allow for input, output, and override group icons to be placed on maps.
   - **b.** Maps to provide real-time display animation and allow for control of points assigned to them.
   - **c.** System to allow inputs, outputs, and override groups to be placed on different maps.
   - **d.** Software to allow changing the order or priority in which maps will be displayed.
7. Override Groups Containing I/Os:
   - **a.** System shall incorporate override groups that provide the operator with the status and control over user-defined "sets" of I/Os with a single icon.
   - **b.** Icon shall change automatically to show the live summary status of points in that group.
   - **c.** Override group icon shall provide a method to manually control or set to time-zone points in the group.
   - **d.** Override group icon shall allow the expanding of the group to show icons representing the live status for each point in the group, individual control over each point, and the ability to compress the individual icons back into one summary icon.
8. Schedule Overrides of I/Os and Override Groups:

a. To accommodate temporary schedule changes that do not fall within the holiday parameters, the operator shall have the ability to override schedules individually for each input, output, or override group.
b. Each schedule shall be composed of a minimum of two dates with separate times for each date.
c. The first time and date shall be assigned the override state that the point shall advance to when the time and date become current.
d. The second time and date shall be assigned the state that the point shall return to when the time and date become current.

9. Copy command in database shall allow for like data to be copied and then edited for specific requirements, to reduce redundant data entry.

J. Operator Access Control:

1. Control operator access to system controls through three password-protected operator levels. System operators and managers with appropriate password clearances shall be able to change operator levels for operators.
2. Three successive attempts by an operator to execute functions beyond their defined level during a 24-hour period shall initiate a software tamper alarm.
3. A minimum of 32 passwords shall be available with the system software. System shall display the operator's name or initials in the console's first field. System shall print the operator's name or initials, action, date, and time on the system printer at login and logoff. System shall provide for automatic log off due to user inactivity.
4. Operator records shall be created for each person that will operate the system that will consist of:
a. Login name, full name and password.
b. Parameters to provideadded security by requiring operators to enter password when performing system-critical functions.
c. Assignment to menu permission groups that define the system elements to which the operator can have access.
d. Assignment to message processing groups to define which messages the operator can see.
e. Assigment to alarm processing groups to define which alarms the operator can see.
5. The password shall not be displayed or printed.
6. Each password shall be definable and assignable for the following:
a. Selected commands to be usable.
b. Access to system software.
c. Access to application software.
d. Individual zones that are to be accessed.
e. Access to database.

K. Operator Commands:

1. Command Input: Plain-language words and acronyms shall allow operators to use the system without extensive training or data-processing backgrounds. System prompts shall be a word, a phrase, or an acronym.
2. Command inputs shall be acknowledged and processing shall start in not less than one second(s).
3. Tasks that are executed by operator's commands shall include the following:
a. Acknowledge Alarms: Used to acknowledge that the operator has observed the alarm message.
b. Place Zone in Access: Used to remotely disable intrusion-alarm circuits emanating from a specific zone. System shall be structured so that console operator cannot disable tamper circuits.
c. Place Zone in Secure: Used to remotely activate intrusion-alarm circuits emanating from a specific zone.
d. System Test: Allows the operator to initiate a system-wide operational test.
e. Zone Test: Allows the operator to initiate an operational test for a specific zone.
f. Print reports.
g. Change Operator: Used for changing operators.
h. Run system tests.
i. Generate and format reports.
j. Request help with the system operation.
1) Include in main menus.
2) Provide unique, descriptive, context-sensitive help for selections and functions with the press of one function key.

3) Provide navigation to specific topic from within the first help window.
4) Help shall be accessible outside the application program.

k. Entry-Control Commands:
1) Lock (secure) or unlock (open) each controlled entry and exit up to four times a day through time-zone programming.
2) Arm or disarm each monitored input up to four times a day through time-zone programming.
3) Enable or disable readers or keypads up to two times a day through time-zone programming.
4) Enable or disable cards or codes up to four times a day per entry point through access-level programming.

4. Command Input Errors: Show operator input assistance when a command cannot be executed because of operator input errors. Assistance screen shall use plain-language words and phrases to explain why the command cannot be executed. Error responses that require an operator to look up a code in a manual or other document are not acceptable. Conditions causing operator assistance messages include the following:
a. Command entered is incorrect or incomplete.
b. Operator is restricted from using that command.
c. Command addresses a point that is disabled or out of service.
d. Command addresses a point that does not exist.
e. Command is outside the system's capacity.

L. Alarms:
1. System Setup:
a. Assign manual and automatic responses to incoming-point status change or alarms.
b. Automatically respond to input with a link to other inputs, outputs, or operator-response plans; unique sound with use of WAV files; and maps or images that graphically represent the point location.
c. Sixty-character message field for each alarm.
d. Operator-response-action messages shall allow message length of at least 65,000 characters, with database storage capacity of up to 32,000 messages. Setup shall assign messages to zone.
e. Secondary messages shall be assignable by the operator for printing to provide further information and shall be editable by the operator.
f. Allow 25 secondary messages with a field of four lines of 60 characters each.
g. Store the most recent 1000 alarms for recall by the operator using the report generator.

2. Software Tamper:
a. Annunciate a tamper alarm when unauthorized changes to system database files are attempted. Three consecutive unsuccessful attempts to log onto system shall generate a software tamper alarm.
b. Annunciate a software tamper alarm when an operator or other individual makes three consecutive unsuccessful attempts to invoke functions beyond their authorization level.
c. Maintain a transcript file of the last 5000 commands entered at each central station to serve as an audit trail. System shall not allow write access to system transcript files by any person, regardless of their authorization level.
d. Allow only acknowledgment of software tamper alarms.

3. Read access to system transcript files shall be reserved for operators with the highest password authorization level available in system.

4. Animated Response Graphics: Highlight alarms with flashing icons on graphic maps; display and constantly update the current status of alarm inputs and outputs in real time through animated icons.

5. Alarm Handling: Each input may be configured so that an alarm cannot be cleared unless it has returned to normal, with options of requiring the operator to enter a comment about disposition of alarm. Allow operator to silence alarm sound when alarm is acknowledged.
a. System shall allow setting e-mail accounts to send messages as event actions where automatic error return could be sent.
b. System shall allow external inputs to be used as event trigger conditions that will in turn trigger an alarm or other event action.

6. Annunciation: The system shall audibly and visually annunciate all alarms, advisories, tamper and trouble conditions.

M. Alarm Monitoring: Monitor sensors, controllers, and DTS circuits notify operators of an alarm condition. Display higher-priority alarms first and, within alarm priorities, display the oldest unacknowledged alarm first. Operator acknowledgment of one alarm shall not be considered acknowledgment of other alarms nor shall it inhibit reporting of subsequent alarms.

1. Displayed alarm data shall include type of alarm, location of alarm, and secondary alarm messages.

2. Printed alarm data shall include type of alarm, location of alarm, date and time (to nearest second) of occurrence, and operator responses.

3. Maps shall automatically display the alarm condition for each input assigned to that map if that option is selected for that input location.

4. Alarms initiate a status of "pending" and require the following two handling steps by operators:

a. First Operator Step: "Acknowledged." This action shall silence sounds associated with the alarm. The alarm remains in the system "Acknowledged" but "Un-Resolved."

b. Second Operator Step: Operators enter the resolution or operator comment, giving the disposition of the alarm event. The alarm shall then clear.

5. Each alarm point shall be programmable to disallow the resolution of alarms until the alarm point has returned to its normal state.

6. Alarms shall transmit to central station in real time.

7. Alarms shall be displayed and managed from a minimum of six different windows.

a. Input Status Window: Overlay status icon with a large red blinking icon. Selecting the icon will acknowledge the alarm.

b. History Log Transaction Window: Display name, time, and date in red text. Selecting red text will acknowledge the alarm.

c. Alarm Log Transaction Window: Display name, time, and date in red. Selecting red text will acknowledge the alarm.

d. Alarm Instructions Window: Displays up to ten lines of user-defined instructions to indicate to the operator how to respond to the selected alarm.

e. Alarm Response Entry: A window to acknowledge how an alarm was responded to.

f. Graphic Map Display: Display a steady colored icon representing each alarm input location. Change icon to flashing red when the alarm occurs. Change icon from flashing red to steady red when the alarm is acknowledged.

8. Once an alarm is acknowledged, the operator shall be prompted to enter comments about the nature of the alarm and actions taken. Operator's comments may be manually entered or selected from a programmed predefined list, or a combination of both.

9. For locations where there are regular alarm occurrences, provide programmed comments. Selecting that comment shall clear the alarm.

10. The time and name of the operator who acknowledged and resolved the alarm shall be recorded in the database.

11. Identical alarms from the same alarm point shall be acknowledged at the same time the operator acknowledges the first alarm. Identical alarms shall be resolved when the first alarm is resolved.

12. Alarm functions shall have priority over downloading, retrieving, and updating database from workstations and controllers.

13. When a reader-controlled output (relay) is opened, the corresponding alarm point shall be automatically bypassed.

14. Remote alarm monitoring: The system shall be configured to receive alarm messages from remote sites.

N. Monitor Display: Display text and graphic maps that include zone status integrated into the display. Colors are used for the various components and current data. Colors shall be uniform throughout the system.

1. Color Code:

a. FLASHING RED: Alerts operator that a zone has gone into an alarm or that primary power has failed.

b. STEADY RED: Alerts operator that a zone is in alarm and alarm has been acknowledged.

c. YELLOW: Advises operator that a zone is in access.

d. GREEN: Indicates that a zone is secure and that power is on.

2. Graphics:

a. Support 32,000 graphic display maps and allow import of maps from a minimum of 16 standard formats from another drawing or graphics program.

b. Allow I/O to be placed on graphic maps by the drag-and-drop method.

c. Operators shall be able to view the inputs, outputs, and the point's name by moving the mouse cursor over the point on graphic map.

d. Inputs or outputs may be placed on multiple graphic maps. The operator shall be able to toggle to view graphic map associated with I/Os.

e. Each graphic map shall have a display-order sequence number associated with it to provide a predetermined order when toggled to different views.

f. Camera icons shall have the ability to be placed on graphic maps that, when selected by an operator, will open a video window, display the camera associated with that icon, and provide pan-tilt-zoom control.

g. Input, output, or camera placed on a map shall allow the ability to arm or bypass an input, open or secure an output, or control the pan-tilt-zoom function of the selected camera.

O. System test software enables operators to initiate a test of the entire system or of a particular portion of the system.

1. Test Report: The results of each test shall be stored for future display or printout. The report shall document the operational status of system components.

P. Report Generator Software: Include commands to generate reports for displaying, printing, and storing on disk and tape. Reports shall be stored by type, date, and time. Report printing shall be the lowest-priority activity. Report-generation mode shall be operator selectable but set up initially as periodic, automatic, or on request. Include time and date printed and the name of operator generating the report. Report formats may be configured by operators.

1. Automatic Printing: Setup shall specify, modify, or inhibit the report to be generated; the time the initial report is to be generated; the time interval between reports; the end of period; and the default printer.

2. Printing on Request: An operator may request a printout of any report.

3. Alarm Reports: Reporting shall be automatic as initially set up. Include alarms recorded by system over the selected time and information about the type of alarm (such as door alarm, intrusion alarm, tamper alarm, etc.), the type of sensor, the location, the time, and the action taken.

4. Access and Secure Reports: Document zones placed in access, the time placed in access, and the time placed in secure mode.

5. Custom Reports: Reports tailored to exact requirements of who, what, when, and where. As an option, custom report formats may be stored for future printing.

6. Automatic History Reports: Named, saved, and scheduled for automatic generation.

7. Cardholder Reports: Include data, or selected parts of the data, as well as the ability to be sorted by name, card number, imprinted number, or by any of the user-defined fields.

8. Cardholder by Reader Reports: Based on who has access to a specific reader or group of readers by selecting the readers from a list.

9. Cardholder by Access-Level Reports: Display everyone that has been assigned to the specified access level.

10. Panel Labels Reports: Printout of control-panel field documentation including the actual location of equipment, programming parameters, and wiring identification. Maintain system installation data within system database so that they are available on-site at all times.

11. History Reports: Custom reports that allows the operator to select any date, time, event type, device, output, input, operator, Location, name, or cardholder to be included or excluded from the report.

a. Initially store history on the hard disk of the host PC.

b. Permit viewing of the history on workstations or print history to any system printer.

c. The report shall be definable by a range of dates and times with the ability to have a daily start and stop time over a given date range.

d. Each report shall depict the date, time, event type, event description, and device; or I/O name, cardholder group assignment, and cardholder name or code number.

e. Each line of a printed report shall be numbered to ensure that the integrity of the report has not been compromised.

f. Total number of lines of the report shall be given at the end of the report. If the report is run for a single event such as "Alarms," the total shall reflect how many alarms occurred during that period.

12. Reports shall have the following four options:

a. View on screen.

b. Print to system printer. Include automatic print spooling and "Print To" options if more than one printer is connected to system.

c. "Save to File" with full path statement.
d. System shall have the ability to produce a report indicating status of system inputs and outputs or of inputs and outputs that are abnormal, out of time zone, manually overridden, not reporting, or in alarm.

13. Custom Code List Subroutine: Allow the access codes of system to be sorted and printed according to the following criteria:
a. Active, inactive, or future activate or deactivate.
b. Code number, name, or imprinted card number.
c. Group, Location, access levels.
d. Start and stop code range.
e. Codes that have not been used since a selectable number of days.
f. In, out, or either status.
g. Codes with trace designation.

14. The reports of system database shall allow options so that every data field may be printed.
15. The reports of system database shall be constructed so that the actual position of the printed data shall closely match the position of the data on the data-entry windows.

Q. Anti-Passback:
1. System shall have global and local anti-passback features, selectable by Location. System shall support hard and soft anti-passback.
2. Hard Anti-Passback: Once a credential holder is granted access through a reader with one type of designation (IN or OUT), the credential holder may not pass through that type of reader designation until the credential holder passes through a reader of opposite designation.
3. Soft Anti-Passback: Should a violation of the proper IN or OUT sequence occur, access shall be granted, but a unique alarm shall be transmitted to the control station, reporting the credential holder and the door involved in the violation. A separate report may be run on this event.
4. Timed Anti-Passback: A controller capability that prevents an access code from being used twice at the same device (door) within a user-defined amount of time.
5. Provide four separate zones per Location that can operate without requiring interaction with the host PC (done at controller). Each reader shall be assignable to one or all four anti-passback zones. In addition, each anti-passback reader can be further designated as "Hard," "Soft," or "Timed" in each of the four anti-passback zones. The four anti-passback zones shall operate independently.
6. The anti-passback schemes shall be definable for each individual door.
7. The Master Access Level shall override anti-passback.
8. System shall have the ability to forgive (or reset) an individual credential holder or the entire credential-holder population anti-passback status to a neutral status.

R. Visitor Assignment:
1. Provide for and allow an operator to be restricted to only working with visitors. The visitor badging subsystem shall assign credentials and enroll visitors. Allow only those access levels that have been designated as approved for visitors.
2. Provide an automated log of visitor name, time and doors accessed, and name of person contacted.
3. Allow a visitor designation to be assigned to a credential holder.
4. Security access system shall be able to restrict the access levels that may be assigned to credentials issued to visitors.
5. Allow operator to recall visitors' credential-holder file, once a visitor is enrolled in the system.
6. The operator may designate any reader as one that deactivates the credential after use at that reader. The history log shall show the return of the credential.
7. System shall have the ability to use the visitor designation in searches and reports. Reports shall be able to print all or any visitor activity.

S. Training Software: Enables operators to practice system operation including alarm acknowledgment, alarm assessment, response force deployment, and response force communications. System shall continue normal operation during training exercises and shall terminate exercises when an alarm signal is received at the console.

T. Entry-Control Enrollment Software: Database management functions that allow operators to add, delete, and modify access data as needed.
1. The enrollment station shall not have alarm response or acknowledgment functions.

2. Provide multiple, password-protected access levels. Database management and modification functions shall require a higher operator access level than personnel enrollment functions.

3. The program shall provide means to disable the enrollment station when it is unattended, to prevent unauthorized use.

4. The program shall provide a method to enter personnel identifying information into the entry-control database files through enrollment stations. In the case of personnel identity-verification subsystems, this shall include biometric data. Allow entry of personnel identifying information into the system database using menu selections and data fields. The data field names shall be customized during setup to suit user and site needs. Personnel identity-verification subsystems selected for use with the system shall fully support the enrollment function and shall be compatible with the entry-control database files.

5. Cardholder Data: Provide 99 user-defined fields. System shall have the ability to run searches and reports using any combination of these fields. Each user-defined field shall be configurable, using any combination of the following features:

a. MASK: Determines a specific format with which data must comply.

b. REQUIRED: Operator is required to enter data into field before saving.

c. UNIQUE: Data entered must be unique.

d. DEACTIVATE DATE: Data entered will be evaluated as an additional deactivate date for all cards assigned to this cardholder.

e. NAME ID: Data entered will be considered a unique ID for the cardholder.

6. Personnel Search Engine: A report generator with capabilities such as search by last name, first name, group, or any predetermined user-defined data field; by codes not used in definable number of days; by skills; or by seven other methods.

7. Multiple Deactivate Dates for Cards: User-defined fields to be configured as additional stop dates to deactivate any cards assigned to the cardholder.

8. Batch card printing.

9. Default card data can be programmed to speed data entry for sites where most card data are similar.

10. Enhanced ACSII File Import Utility: Allows the importing of cardholder data and images.

11. Card Expire Function: Allows readers to be configured to deactivate cards when a card is used at selected devices.

2.5 SYSTEM DATABASE

A. Database and database management software shall define and modify each point in database using operator commands. Definition shall include parameters and constraints associated with each system device.

B. Database Operations:

1. System data management shall be in a hierarchical menu-tree format, with navigation through expandable menu branches and manipulated with use of menus and icons in a main menu and system toolbar.

2. Navigational Aids:

a. Toolbar icons for add, delete, copy, print, capture image, activate, deactivate, and muster report.

b. Point and click feature to facilitate data manipulation.

c. Next and previous command buttons visible when editing database fields to facilitate navigation from one record to the next.

d. Copy command and copy tool in the toolbar to copy data from one record to create a new similar record.

3. Data entry shall be automatically checked for duplicate and illegal data and shall be verified for valid format.

4. System shall generate a memo or note field for each item that is stored in database, allowing the storing of information about any defining characteristics of the item. Memo field is used for noting the purpose for which the item was entered, reasons for changes that were made, and the like.

C. File Management:

1. File management shall include database backup and restoration system, allowing selection of storage media, including 3.5-inch floppy disk, Zip and Jaz drives, and designated network resources.

2. Operations shall be both manual and automatic modes. The number of automatic sequential backups before the oldest backup becomes overwritten; FIFO mode shall be operator selectable.

3. Backup program shall provide manual operation from any PC on the LAN and shall operate while system remains operational.

D. Operator Passwords:
- **1.** Support up to 32,000 individual system operators, each with a unique password.
- **2.** One to eight alphanumeric characters.
- **3.** Allow passwords to be case sensitive.
- **4.** Passwords shall not be displayed when entered.
- **5.** Passwords shall have unique and customizable password profile, and allow several operators to share a password profile. Include the following features in the password profile:
  - **a.** Predetermine the highest-level password profile for access to all functions and areas of program.
  - **b.** Allow or disallow operator access to any program operation, including the functions of View, Add, Edit, and Delete.
  - **c.** Restrict doors to which an operator can assign access.
- **6.** Operators shall use a user name and password to log on to system. This user name and password shall be used to access database areas and programs as determined by the associated profile.
- **7.** Make provision to allow the operator to log off without fully exiting program. User may be logged off but program will remain running while displaying the login window for the next operator.

E. Access Card/Code Operation and Management: Access authorization shall be by card, by a manually entered code (PIN), or by a combination of both (card plus PIN).
- **1.** Access authorization shall verify the facility code first, the card or card-and-PIN validation second, and the access level (time of day, day of week, date), anti-passback status, and number of uses last.
- **2.** Use data-entry windows to view, edit, and issue access levels. Access-authorization entry-management system shall maintain and coordinate all access levels to prevent duplication or the incorrect creation of levels.
- **3.** Allow assignment of multiple cards/codes to a cardholder.
- **4.** Allow assignment of up to four access levels for each Location to a cardholder. Each access level may contain any combination of doors.
- **5.** Each door may be assigned four time zones.
- **6.** Access codes may be up to 11 digits in length.
- **7.** Software shall allow the grouping of locations so cardholder data can be shared by all locations in the group.
- **8.** Visitor Access: Issue a visitor badge for data tracking or photo ID purposes without assigning that person a card or code.
- **9.** Cardholder Tracing: Allow for selection of cardholder for tracing. Make a special audible and visual annunciation at control station when a selected card or code is used at a designated code reader. Annunciation shall include an automatic display of the cardholder image.
- **10.** Allow each cardholder to be given either an unlimited number of uses or a number from one to 9999 that regulates the number of times the card can be used before it is automatically deactivated.
- **11.** Provide for cards and codes to be activated and deactivated manually or automatically by date. Provide for multiple deactivate dates to be preprogrammed.

F. Security Access Integration:
- **1.** Photo ID badging and photo verification shall use the same database as the security access and may query data from cardholder, group, and other personal information to build a custom ID badge.
- **2.** Automatic or manual image recall and manual access based on photo verification shall also be a means of access verification and entry.
- **3.** System shall allow sorting of cardholders together by group or other characteristic for a fast and efficient method of reporting on, and enabling or disabling, cards or codes.

G. Operator Comments:
- **1.** With the press of one appropriate button on the toolbar, the user shall be permitted to enter operator comments into the history at anytime.
- **2.** Automatic prompting of operator comment shall occur before the resolution of each alarm.
- **3.** Operator comments shall be recorded by time, date, and operator number.
- **4.** Comments shall be sorted and viewed through reports and history.
- **5.** The operator may enter comments in two ways; either or both may be used:
  - **a.** Manually entered through keyboard data entry (typed), up to 65,000 characters per each alarm.
  - **b.** Predefined and stored in database for retrieval on request.
- **6.** System shall have a minimum of 999 predefined operator comments with up to 30 characters per comment.

H. Group:
- **1.** Group names may be used to sort cardholders into groups that allow the operator to determine the tenant, vendor, contractor, department, division, or any other designation of a group to which the person belongs.
- **2.** System software shall have the capacity to assign one of 32,000 group names to an access authorization.
- **3.** Make provision in software to deactivate and reactivate all access authorizations assigned to a particular group.
- **4.** Allow sorting of history reports and code list printouts by group name.

I. Time Zones:
- **1.** Each zone consists of a start and stop time for seven days of the week and three holiday schedules. A time zone is assigned to inputs, outputs, or access levels to determine when an input shall automatically arm or disarm, when an output automatically opens or secures, or when access authorization assigned to an access level will be denied or granted.
- **2.** Up to four time zones may be assigned to inputs and outputs to allow up to four arm or disarm periods per day or four lock or unlock periods per day; up to three holiday override schedules may be assigned to a time zone.
- **3.** Data-entry window shall display a dynamically linked bar graph showing active and inactive times for each day and holiday, as start and stop times are entered or edited.
- **4.** System shall have the capacity for 2048 time zones for each Location.

J. Holidays:
- **1.** Three different holiday schedules may be assigned to a time zone. Holiday schedule consists of date in format MM/DD/YYYY and a description. When the holiday date matches the current date of the time zone, the holiday schedule replaces the time-zone schedule for that 24-hour period.
- **2.** System shall have the capacity for 32,000 holidays.
- **3.** Three separate holiday schedules may be applied to a time zone.
- **4.** Holidays have an option to be designated as occurring on the designated date each year. These holidays remain in system and will not be purged.
- **5.** Holidays not designated to occur each year shall be automatically purged from the database after the date expires.

K. Access Levels:
- **1.** System shall allow for the creation of up to 32,000 access levels.
- **2.** One level shall be predefined as the Master Access Level. The Master Access Level shall work at all doors at all times and override any anti-passback.
- **3.** System shall allow for access to be restricted to any area by reader and by time. Access levels shall determine when and where an Identifier is authorized.
- **4.** System shall be able to create multiple door and time-zone combinations under the same access level so that an Identifier may be valid during different time periods at different readers even if the readers are on the same controller.

L. User-Defined Fields:
- **1.** System shall provide a minimum of 99 user-defined fields, each with up to 50 characters, for specific information about each credential holder.
- **2.** System shall accommodate a title for each field; field length shall be 20 characters.
- **3.** A "Required" option may be applied to each user-defined field that, when selected, forces the operator to enter data in the user-defined field before the credential can be saved.
- **4.** A "Unique" option may be applied to each user-defined field that, when selected, will not allow duplicate data from different credential holders to be entered.
- **5.** Data format option may be assigned to each user-defined field that will require the data to be entered with certain character types in specific spots in the field entry window.
- **6.** A user-defined field, if selected, will define the field as a deactivate date. The selection shall automatically cause the data to be formatted with the windows MM/DD/YYYY date format. The credential of the holder will be deactivated on that date.
- **7.** A search function shall allow any one user-defined field or combination of user-defined fields to be searched to find the appropriate cardholder. The search function shall include search for a character string.
- **8.** System shall have the ability to print cardholders based on and organized by the user-defined fields.

2.6 SURGE AND TAMPER PROTECTION

A. Surge Protection: Protect components from voltage surges originating external to equipment housing and entering through power, communication, signal, control, or sensing leads. Include surge protection for external wiring of each conductor-entry connection to components.

1. Minimum Protection for Power Connections 120 V and More: Auxiliary panel suppressors complying with requirements in Division 26 Section "Surge Protection Device."

2. Minimum Protection for Communication, Signal, Control, and Low-Voltage Power Connections: Comply with requirements in Division 26 Section " Surge Protection Device" as recommended by manufacturer for type of line being protected.

B. Tamper Protection: Tamper switches on enclosures, control units, pull boxes, junction boxes, cabinets, and other system components shall initiate a tamper-alarm signal when unit is opened or partially disassembled. Control-station control-unit alarm display shall identify tamper alarms and indicate locations.

2.7 CENTRAL-STATION HARDWARE

A. Central-Station Computer: Standard unmodified PC of modular design. The CPU word size shall be 32 bytes or larger; the CPU operating speed shall be at least 66 GHz.

1. Memory: 256 MB of usable installed memory, expandable to a minimum of 1024 MB without additional chassis or power supplies.

2. Power Supply: Minimum capacity of 250 W.

3. Real-Time Clock:

a. Accuracy: Plus or minus one minute per month.

b. Time-Keeping Format: 24-hour time format including seconds, minutes, hours, date, day, and month; resettable by software.

c. Clock shall function for one year without power.

d. Provide automatic time correction once every 24 hours by synchronizing clock with the Time Service Department of the U.S. Naval Observatory.

4. Parallel Port: An enhanced parallel port.

5. LAN Adapter Card: 10/100 Mbps PCI bus, internal network interface card.

6. Sound Card: For playback and recording of digital WAV sound files that are associated with audible warning and alarm functions.

7. Color Monitor: Not less than 19 inches (430 mm), with a minimum resolution of 1280 by 1024 pixels, noninterlaced, and a maximum dot pitch of 0.28 mm. The video card shall support at least 256 colors at a resolution of 1280 by 1024 at a minimum refresh rate of 70 Hz.

8. Keyboard: With a minimum of 64 characters, standard ASCII character set based on ANSI INCITS 154.

9. Mouse: Standard, compatible with the installed software.

10. Special-function keyboard attachments or special-function keys to facilitate data input of the following operator tasks:

a. Help.

b. Alarm Acknowledge.

c. Place Zone in Access.

d. Place Zone in Secure.

e. System Test.

f. Print Reports.

g. Change Operator.

11. Disk storage shall include the following, each with appropriate controller:

a. Minimum 10 GB hard disk, maximum average access time of 10 ms.

b. Floppy Disk Drive: High density, 3-1/2-inch (90-mm) size.

c. PCMCIA slot with removable 500 MB media.

d. 100 MB Iomega Zip drive.

e. 250 MB Iomega Jaz drive.

12. Magnetic Tape System: 4-mm cartridge magnetic tape system with minimum 20 GB formatted capacity per tape. Provide 10 tapes, each in a rigid cartridge with spring-loaded cover and operator-settable write-protect feature.

13. Audible Alarm: Manufacturer's standard.

14. CD-ROM Drive:

a. Nominal storage capacity of 650 MB.

b. Data Transfer Rate: 1.2 Mbps.
c. Average Access Time: 150 ms.
d. Cache Memory: 256 KB.
e. Data Throughput: 1 MB/second, minimum.

15. Report Printer:
a. Connected to the central station and designated workstations.
b. Laser printer with minimum resolution of 600 dpi.
c. RAM: 2 MB, minimum.
d. Printing Speed: Minimum 12 pages per minute.
e. Paper Handling: Automatic sheet feeder with 250-sheet paper cassette and with automatic feed.

16. Interface: Bidirectional parallel, and universal serial bus.
17. LAN Adapter Card: 10/100 Mbps internal network interface card.

2.8 CONTROLLERS

A. Controllers: Intelligent peripheral control unit, complying with UL 294, that stores time, date, valid codes, access levels, and similar data downloaded from the central station or workstation for controlling its operation.
B. Subject to compliance with requirements in this article, manufacturers may use multipurpose controllers.
C. Battery Backup: Sealed, lead acid; sized to provide run time during a power outage of 90 minutes, complying with UL 924.
D. Alarm Annunciation Controller:
1. The controller shall automatically restore communication within 10 seconds after an interruption with the field device network.
a. Inputs: Monitor dry contacts for changes of state that reflect alarm conditions. Provides at least eight alarm inputs, which are suitable for wiring as normally open or normally closed contacts for alarm conditions.
b. Alarm-Line Supervision:
1) Supervise the alarm lines by monitoring each circuit for changes or disturbances in the signal, by monitoring for abnormal open, grounded, or shorted conditions using dc change measurements. System shall initiate an alarm in response to an abnormal current, which is a dc change of 10 percent or more for longer than 500 ms.
2) Transmit alarm-line-supervision alarm to the central station during the next interrogation cycle after the abnormal current condition.
c. Outputs: Managed by central-station software.
2. Auxiliary Equipment Power: A GFI service outlet inside the controller enclosure.
E. Entry-Control Controller:
1. Function: Provide local entry-control functions including one- and two-way communications with access-control devices such as card readers, keypads, biometric personnel identity-verification devices, door strikes, magnetic latches, gate and door operators, and exit push buttons.
a. Operate as a stand-alone portal controller using the downloaded database during periods of communication loss between the controller and the field-device network.
b. Accept information generated by the entry-control devices; automatically process this information to determine valid identification of the individual present at the portal:
1) On authentication of the credentials or information presented, check privileges of the identified individual, allowing only those actions granted as privileges.
2) Privileges shall include, but are not limited to, time of day control, day of week control, group control, and visitor escort control.
c. Maintain a date-, time-, and Location-stamped record of each transaction. A transaction is defined as any successful or unsuccessful attempt to gain access through a controlled portal by the presentation of credentials or other identifying information.
2. Inputs:
a. Data from entry-control devices; use this input to change modes between access and secure.
b. Database downloads and updates from the central station that include enrollment and privilege information.
3. Outputs:
a. Indicate success or failure of attempts to use entry-control devices and make comparisons of presented information with stored identification information.

b. Grant or deny entry by sending control signals to portal-control devices and mask intrusion-alarm annunciation from sensors stimulated by authorized entries.

c. Maintain a date-, time-, and Location-stamped record of each transaction and transmit transaction records to the central station.

d. Door Prop Alarm: If a portal is held open for longer than 20 seconds, alarm sounds.

4. With power supplies sufficient to power at voltage and frequency required for field devices and portal-control devices.

5. Data Line Problems: For periods of loss of communication with the central station, or when data transmission is degraded and generating continuous checksum errors, the controller shall continue to control entry by accepting identifying information, making authentication decisions, checking privileges, and controlling portal-control devices.

a. Store up to 1000 transactions during periods of communication loss between the controller and access-control devices for subsequent upload to the central station upon restoration of communication.

6. Controller Power: NFPA 70, Class II power-supply transformer, with 12- or 24-V ac secondary, backup battery and charger.

a. Backup Battery: Valve-regulated, recombinant-sealed, lead-calcium battery; spill proof; with a full one-year warranty and a pro rata 9-year warranty. With single-stage, constant-voltage-current, limited battery charger, comply with battery manufacturer's written instructions for battery terminal voltage and charging current recommendations for maximum battery life.

b.

c. Backup Power-Supply Capacity: 90 minutes of battery supply. Submit battery and charger calculations.

d. Power Monitoring: Provide manual, dynamic battery-load test, initiated and monitored at the control center; with automatic disconnection of the controller when battery voltage drops below controller limits. Report by using local controller-mounted digital displays and by communicating status to central station. Indicate normal power on and battery charger on trickle charge. Indicate and report the following:

1) Trouble Alarm: Normal power-off load assumed by battery.

2) Trouble Alarm: Low battery.

3) Alarm: Power off.

2.9 KEYPADS

A. Keypad and Wiegand-Swipe-Reader Combination: Designed to require an entry on the keypad before presenting the credential card.

1. Keypad: Allow the entry of four numeric digits that are associated with a specific credential. Keypads shall contain an integral alphanumeric/special symbol keyboard with symbols arranged in ascending ASCII-code ordinal sequence. Keypad display or enclosure shall limit viewing angles of the keypad as follows:

a. Maximum Horizontal Viewing Angle: Plus or minus 5 degrees or less off a vertical plane perpendicular to the plane of the face of the keypad display.

b. Maximum Vertical Viewing Angle: Plus or minus 15 degrees or less off a horizontal plane perpendicular to the plane of the face of the keypad display.

2. Wiegand Swipe Reader: Set up for 33-bit data cards to generate a unique card identification code. Comply with SIA AC-01.

2.10 CABLES

A. General Cable Requirements: Comply with requirements in Division 28 Section "Conductors and Cables for Electronic Safety and Security" and as recommended by system manufacturer for integration requirement.

B. PVC-Jacketed, TIA 485-A Cables: Two pairs, twisted, No. 22 AWG, stranded (7x30) tinned copper conductors, PVC insulation, unshielded, PVC jacket, and NFPA 70, Type CMG.

C. Plenum-Type, TIA 485-A Cables:

1. Two pairs, No. 22 AWG, stranded (7x30) tinned copper conductors, fluorinated-ethylene-propylene insulation, unshielded, and fluorinated-ethylene-propylene jacket.

2. NFPA 70, Type CMP.

3. Flame Resistance: NFPA 262 flame test.

D. Multiconductor, PVC, Reader and Wiegand Keypad Cables:
- **1.** No. 22 AWG, paired and twisted multiple conductors, stranded (7x30) tinned copper conductors, semirigid PVC insulation, overall aluminum-foil/polyester-tape shield with 100 percent shield coverage, plus tinned copper braid shield with 65 percent shield coverage, and PVC jacket.
- **2.** NFPA 70, Type CMG.
- **3.** Flame Resistance: UL 1581 vertical tray.
- **4.** For TIA 232-F applications.

E. LAN Cabling:
- **1.** Comply with requirements in Division 26 Section "Voice and Data Communication Cabling."
- **2.** NFPA 262.

2.11 TRANSFORMERS

A. NFPA 70, Class II control transformers, NRTL listed. Transformers for security access-control system shall not be shared with any other system.

2.12 CABLE AND ASSET MANAGEMENT SOFTWARE

A. Manufacturers: Subject to compliance with requirements, provide products by Johnson Controls:

B. Computer-based cable and asset management system, with fully integrated database and graphic capabilities, complying with requirements in TIA/EIA 606-A.
- **1.** Document physical characteristics by recording the network, asset, user, TIA/EAI details, device configurations, and exact connections between equipment and cabling.
  - **a.** Manage the physical layer of security system.
  - **b.** List device configurations.
  - **c.** List and display circuit connections.
  - **d.** Record firestopping data.
  - **e.** Record grounding and bonding connections and test data.
- **2.** Information shall be presented in database view, schematic plans, or technical drawings.
  - **a.** Microsoft Visio Technical Drawing shall be used as drawing and schematic plans software. Drawing symbols, system layout, and design shall comply with SIA/IAPSC AG-01.
- **3.** System shall interface with the following testing and recording devices:
  - **a.** Direct-upload tests from circuit testing instrument into the PC.
  - **b.** Direct-download circuit labeling into labeling printer.

C. Software shall be designed for Microsoft Windows XP of the same version as security access system's central station and workstations and shall be installed on the designated PC, using a hard drive dedicated only to this management function. Hard-drive capacity shall be not less than 50 GB.

PART 3 - EXECUTION

3.1 PREPARATION

A. Comply with recommendations in SIA CP-01.

B. Comply with TIA/EIA 606-A, "Administration Standard for Commercial Telecommunications Infrastructure."

C. Obtain detailed Project planning forms from manufacturer of access-control system; develop custom forms to suit Project. Fill in all data available from Project plans and specifications and publish as Project planning documents for review and approval.
- **1.** Record setup data for control station and workstations.
- **2.** For each Location, record setup of controller features and access requirements.
- **3.** Propose start and stop times for time zones and holidays, and match up access levels for doors.
- **4.** Set up groups, facility codes, linking, and list inputs and outputs for each controller.
- **5.** Assign action message names and compose messages.
- **6.** Set up alarms. Establish interlocks between alarms, intruder detection, and video surveillance features.
- **7.** Prepare and install alarm graphic maps.
- **8.** Develop user-defined fields.
- **9.** Develop screen layout formats.
- **10.** Propose setups for guard tours and key control.
- **11.** Discuss badge layout options; design badges.
- **12.** Complete system diagnostics and operation verification.

13. Prepare a specific plan for system testing, startup, and demonstration.
14. Develop acceptance test concept and, on approval, develop specifics of the test.
15. Develop cable and asset-management system details; input data from construction documents. Include system schematics and Visio Technical Drawings in electronic format Windows XP.

D. In meetings with Architect and Owner, present Project planning documents and review, adjust, and prepare final setup documents. Use final documents to set up system software.

3.2 CABLING

A. Comply with NECA 1, "Good Workmanship in Electrical Construction."
B. Install cables and wiring according to requirements in Division 26 Section "Basic Electrical Materials and Methods."
C. Wiring Method: Install wiring in raceway and cable tray except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Use NRTL-listed plenum cable in environmental airspaces, including plenum ceilings. Conceal raceway and cables except in unfinished spaces.
D. Install LAN cables using techniques, practices, and methods that are consistent with Category 5E rating of components and fiber-optic rating of components, and that ensure Category 6 and fiber-optic performance of completed and linked signal paths, end to end.
E. Boxes and enclosures containing security-system components or cabling, and which are easily accessible to employees or to the public, shall be provided with a lock. Boxes above ceiling level in occupied areas of the building shall not be considered accessible. Junction boxes and small device enclosures below ceiling level and easily accessible to employees or the public shall be covered with a suitable cover plate and secured with tamperproof screws.
F. Install end-of-line resistors at the field device location and not at the controller or panel location.

3.3 CABLE APPLICATION

A. Comply with TIA 569-B, "Commercial Building Standard for Telecommunications Pathways and Spaces."
B. Cable application requirements are minimum requirements and shall be exceeded if recommended or required by manufacturer of system hardware.
C. TIA 485-A Cabling: Install at a maximum distance of 4000 ft. (1220 m).
D. Keypads:
1. Install number of conductor pairs recommended by manufacturer for the functions specified.
2. Unless manufacturer recommends larger conductors, install No. 22 AWG wire if maximum distance from controller to the reader is 250 ft. (75 m), and install No. 20 AWG wire if maximum distance is 500 ft. (150 m).
3. For greater distances, install "extender" or "repeater" modules recommended by manufacturer of the controller.
4. Install minimum No. 18 AWG shielded cable to readers and keypads that draw 50 mA or more.

3.4 GROUNDING

A. Comply with Division 26 Section "Grounding and Bonding."
B. Comply with IEEE 1100, "Recommended Practice for Power and Grounding Electronic Equipment."
C. Ground cable shields, drain conductors, and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.
D. Bond shields and drain conductors to ground at only one point in each circuit.
E. Signal Ground:
1. Terminal: Locate in each equipment room and wiring closet; isolate from power system and equipment grounding.
2. Bus: Mount on wall of main equipment room with standoff insulators.
3. Backbone Cable: Extend from signal ground bus to signal ground terminal in each equipment room and wiring closet.

3.5 INSTALLATION

A. Install keypads with wifi capabilities at locations indicated on the drawings.

3.6 IDENTIFICATION

A. In addition to requirements in this article, comply with applicable requirements in Division 26 Section "Basic Electrical Materials and Methods" and with TIA/EIA 606-A.

B. Using software specified in "Cable and Asset Management Software" Article, develop cable administration drawings for system identification, testing, and management. Use unique, alphanumeric designation for each cable, and label cable and jacks, connectors, and terminals to which it connects with the same designation. Use logical and systematic designations for facility's architectural arrangement.

C. Label each terminal strip and screw terminal in each cabinet, rack, or panel.

1. All wiring conductors connected to terminal strips shall be individually numbered, and each cable or wiring group being extended from a panel or cabinet to a building-mounted device shall be identified with the name and number of the particular device as shown.

2. Each wire connected to building-mounted devices is not required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.

D. At completion, cable and asset management software shall reflect as-built conditions.

3.7 SYSTEM SOFTWARE AND HARDWARE

A. Develop, install, and test software and hardware, and perform databases tests for the complete and proper operation of systems involved. Assign software license to Owner.

3.8 FIELD QUALITY CONTROL

A. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Tests and Inspections:

1. LAN Cable Procedures: Inspect for physical damage and test each conductor signal path for continuity and shorts. Use Class 2, bidirectional, Category 5 tester. Test for faulty connectors, splices, and terminations. Test according to TIA/EIA 568-B.1, "Commercial Building Telecommunications Cabling Standards - Part 1: General Requirements." Link performance for UTP cables must comply with minimum criteria in TIA/EIA 568-B.1.

2. Test each circuit and component of each system. Tests shall include, but are not limited to, measurements of power-supply output under maximum load, signal loop resistance, and leakage to ground where applicable. System components with battery backup shall be operated on battery power for a period of not less than 10 percent of the calculated battery operating time. Provide special equipment and software if testing requires special or dedicated equipment.

3. Operational Test: After installation of cables and connectors, demonstrate product capability and compliance with requirements. Test each signal path for end-to-end performance from each end of all pairs installed. Remove temporary connections when tests have been satisfactorily completed.

C. Devices and circuits will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

3.9 STARTUP SERVICE

A. Engage a factory-authorized service representative to supervise and assist with startup service.

1. Complete installation and startup checks according to approved procedures that were developed in "Preparation" Article and with manufacturer's written instructions.

2. Enroll and prepare badges and access cards for Owner's operators, management, and security personnel.

3.10 PROTECTION

A. Maintain strict security during the installation of equipment and software. Rooms housing the control station, and workstations that have been powered up shall be locked and secured with an activated burglar alarm and access-control system reporting to a central station complying with UL 1610, "Central-Station Burglar-Alarm Units," during periods when a qualified operator in the employ of Contractor is not present.

3.11 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain security access system. See Division 1 Section "Demonstration and Training."

B. Develop separate training modules for the following:

1. Computer system administration personnel to manage and repair the LAN and databases and to update and maintain software.

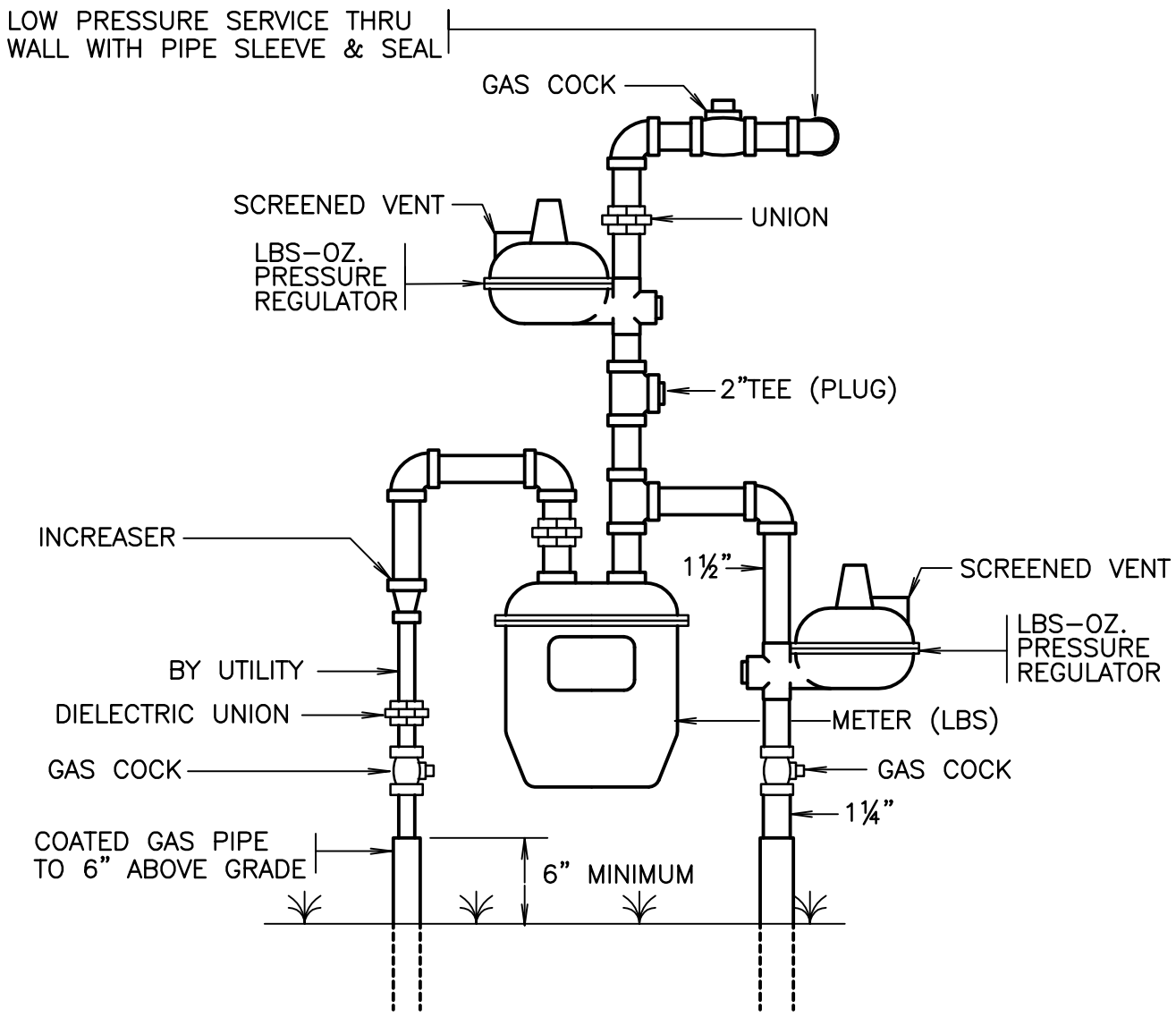
2. Operators who prepare and input credentials to man the control station and workstations and to enroll personnel.

3. Security personnel.

4. Hardware maintenance personnel.

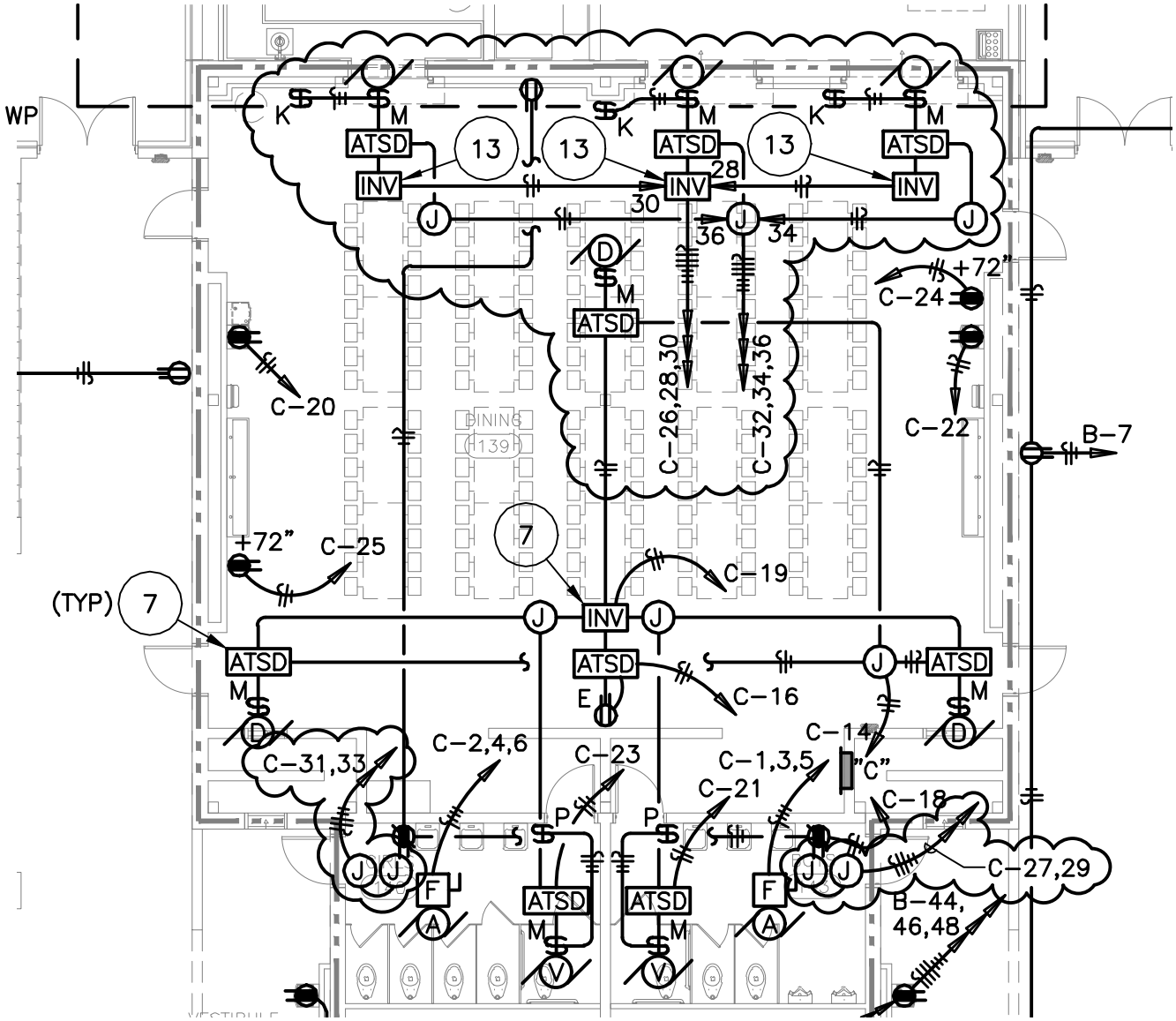
5. Corporate management.

END OF SECTION 28 13 00



(B) DETAIL–GAS ENTRANCE WITH METER & REGULATOR

NO SCALE



PARTIAL FLOOR PLAN 3/32"=1'-0"
POWER

N

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J. P. FOREMAN
REG. No. 22378
REGISTERED
PROFESSIONAL ENGINEER
IN
ELECTRICAL ENGINEERING
5/2/2023

SHEET NOTES:

(13) SEE STRUCTURAL DRAWINGS FOR MOUNTING REQUIREMENTS.

GEORGETOWN HIGH SCHOOL
GUTH PN 7192
ADDENDUM NO.1 (05/2/23)
SHEET ESK301-1

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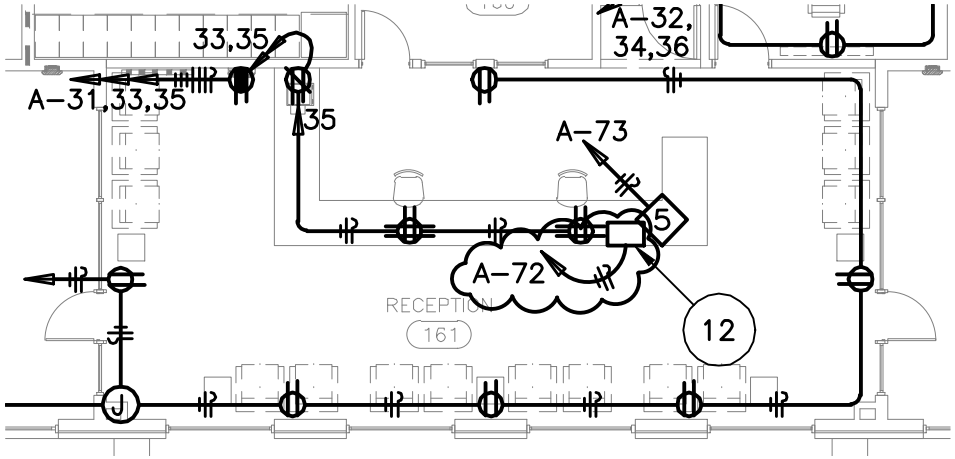

PARTIAL FLOOR PLAN 3/32"=1'-0"
POWER

N

SHEET NOTES:

(12) PROVIDE CONNECTION TO DOOR BUZZER SYSTEM CONTROLLER.

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GEORGETOWN HIGH SCHOOL
GUTH PN 7192
ADDENDUM NO.1 (05/2/23)
SHEET ESK301-2

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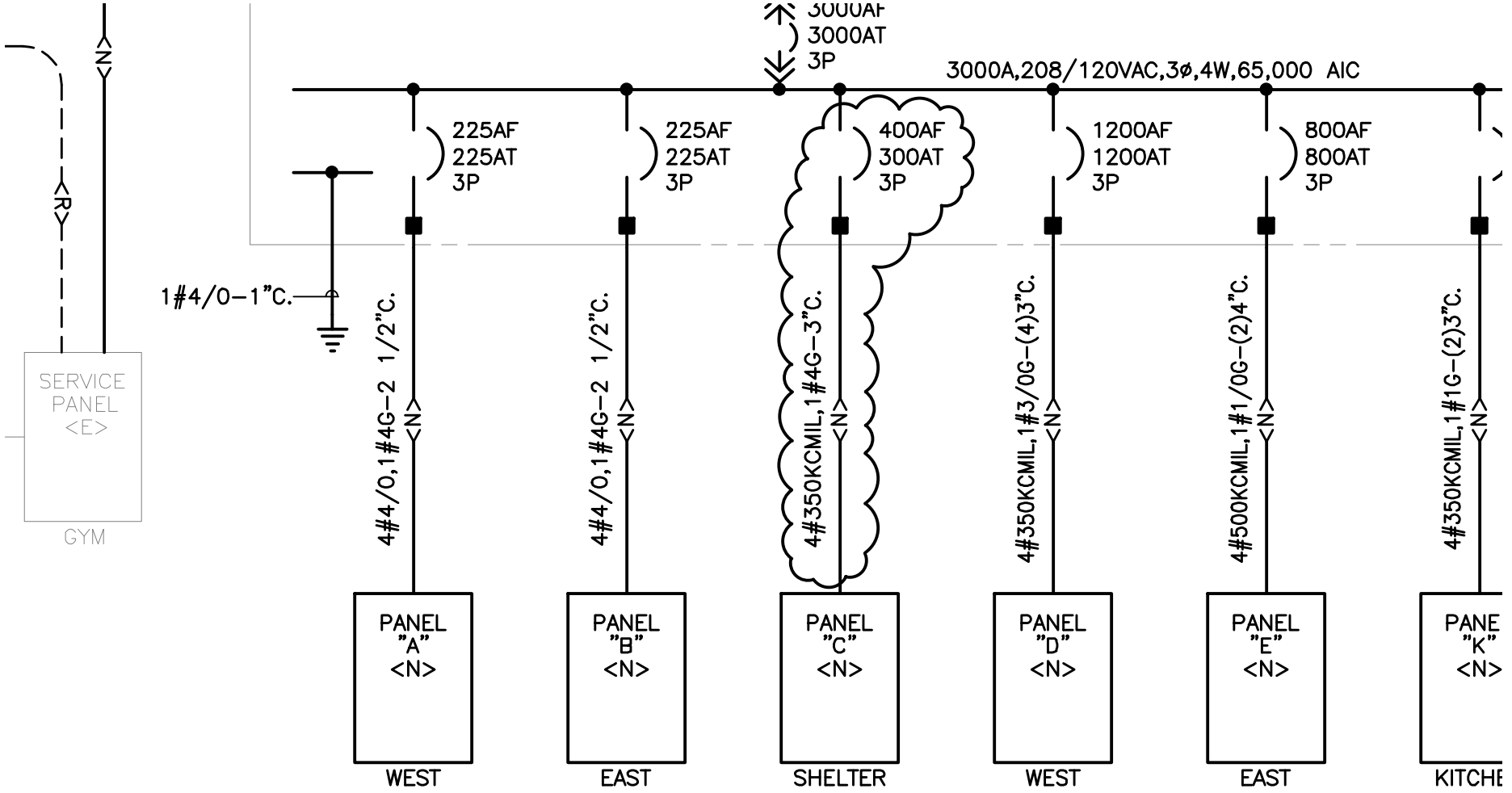

PARTIAL SINGLE LINE DIAGRAM NO SCALE

ELECTRICAL

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GEORGETOWN HIGH SCHOOL
GUTH PN 7192
ADDENDUM NO.1 (05/2/23)
SHEET ESK501

PANELBOARD AND FEEDER SCHEDULE

MARK	MAINS	BRANCH	BRANCH DES.	BRANCH SIZE	FEEDING
MSB <N>	3000A MCB 3000A BUS 208/120 VAC 3ø,4W 65,000 AIC W/GFI/SPD SE RATED	1-1200A-3P	1	4#350KCMIL,1#3/0G-(4)3"C.	PANEL "D"
		1-800A-3P	2	4#500KCMIL,1#1/0G-(2)4"C.	PANEL "E"
		1-600A-3P	3	4#350KCMIL,1#1G-(2)3"C.	PANEL "K"
		1-300A-3P	4	4#350KCMIL,1#4G-3"C.	PANEL "C"
		2-225A-3P	5,6	4#4/0,1#6G-2 1/2"C.	PANEL "A" & "B"
		1-200A-3P	7	4#3/0,1#6G-2"C.	PANEL "F"
A <N>	225A MLO 225A BUS 208/120 VAC 3ø,4W 42,000 AIC W/SPD	74-20A-1P	1-73,75	2#12,1#12G-3/4"C.	LIGHTS, RECEPTACLES, INTERCOM, DOOR BUZZER
		4-20A-1P	74,76-78	---	SPARE
		6-1P	79-84	---	SPACE
B <N>	225A MLO 225A BUS 208/120 VAC 3ø,4W 22,000 AIC W/SPD	52-20A-1P	1-51,53	2#12,1#12G-3/4"C.	LIGHTS, RECEPTACLES, EWH, FA BELL
		20-20A-1P	52,54-72	---	SPARE
		12-1P	73-84	---	SPACE
C <N> STORM SHELTER	250A MLO 250A BUS 208/120 VAC 3ø,4W 22,000 AIC	2-80A-3P	1-6	3#2,1#8G-1 1/4"C.	FAN COILS
		2-70A-3P	7-12	3#4,1#8G-1 1/4"C.	CONDENSING UNITS
		1-30A-2P	13,15	3#10,1#10G-3/4"C.	DRYER
		11-20A-1P	14,16-25	2#12,1#12G-3/4"C.	RECEPTACLES, VENT FAN, DAMPER
		6-20A-1P	26,28,30,32,34,36	2#12,1#12G-3/4"C.	STORM SHUTTERS
		4-20A-1P	27,29,31,33	2#10,1#10G-3/4"C.	HAND DRYERS
		1-20A-1P	35	---	SPARE
		6-1P	37-42	---	SPACE

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SHEET ESK801