

MASTER SPECIFICATIONS

PROJECT:
GREEN EDUCATION CENTER

TOWN OF CLAY
9604 BLACK CREEK ROAD
BREWERTON, NEW YORK

Set # _____

ISSUED: October 11 , 2023

All information within this Document is considered **CONFIDENTIAL and PROPRIETARY**. By receipt and use of this Document, the recipient agrees not to divulge any of the information herein and attached hereto to persons other than those within the recipients' organization that have specific need to know for the purposes of reviewing and referencing this information. Recipient also agrees not to use this information in any manner detrimental to the interests of the Town of Clay.

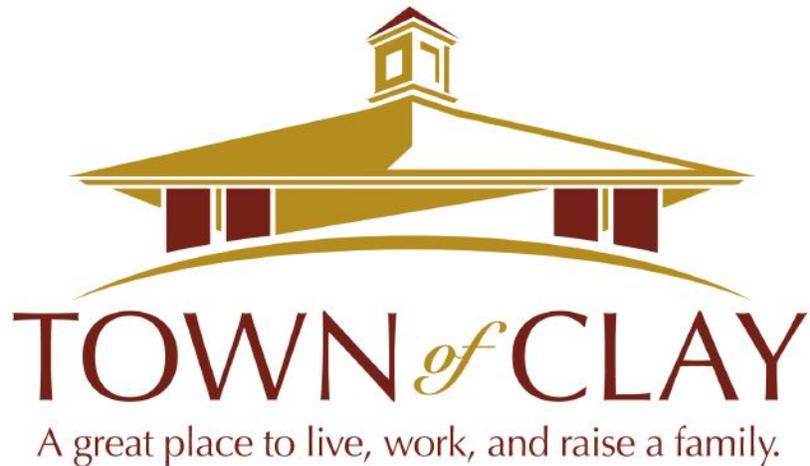
SCOPE OF WORK

With the following set of drawings and specifications supplied, only the following list of items are included in the Scope of Work being bid at this time.

With the following list, please include all of your insurance, bonding and construction site requirements. This is a Capital Improvement and compensation rates are supplied. Contractors may visit the site to see existing conditions. Coordinate visit with the Town as needed. The Masonry walls are in place.

Here is a list of carpentry items you must include in your bid. The Town of Clay shall provide ALL materials shown/called-out in the drawings. Contractor shall provide a price for labor ONLY to complete the following construction list.

1. Backfill, insulation board shall be completed by the Town of Clay.
2. Provide ALL labor to set basement structure, floor joist and subfloor. All materials by Town.
3. Backfill and rough grade around the foundation shall be completed by Town.
4. Provide labor to frame all exterior walls and interior walls. All materials by Town.
5. Provide labor to set all the trusses including zip board for truss sheathing and exterior walls. All materials by Town.
6. Provide labor to frame in porch including post and joist. All materials by Town.
7. Provide labor to install exterior doors and windows. Town to provide materials.
8. Provide labor to install temporary stairs inside and outside to all levels.
9. Town to provide all materials. Contractor of this bid shall provide labor and equipment to complete the shell as shown on the drawings.
10. Drawings and Specifications may include larger scope of work. Provide price for the written description of work.
11. Provide complete price, labor for labor ONLY.
12. Provide a calendar of events to determine quarter points and completion date.
13. Provide price for crane or lift for truss/roof work.



MASTER SPECIFICATIONS

Division 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

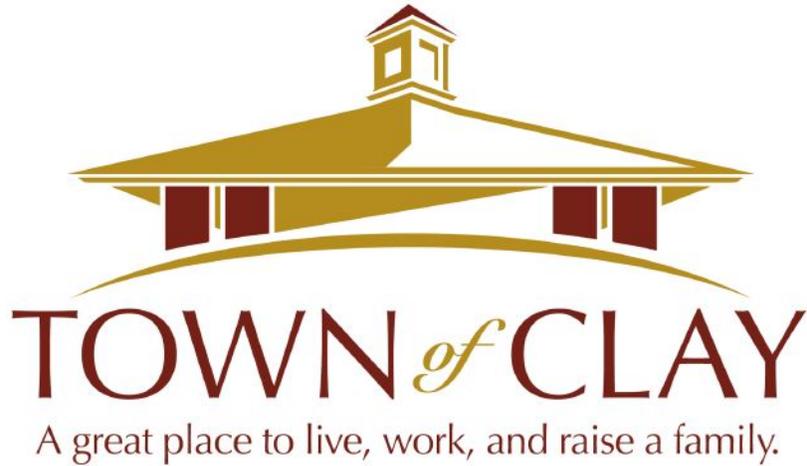
GREEN EDUCATION CENTER FOR:
TOWN OF CLAY

9604 BLACK CREEK ROAD
BREWERTON, NEW YORK

PROJECT NO: 195.101.021

ISSUED: October 11, 2023

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MASTER SPECIFICATIONS

PROJECT:
GREEN EDUCATION CENTER

TOWN OF CLAY
9604 BLACK CREEK ROAD
BREWERTON, NY

Set # _____

Drawings by: C&S Companies

ISSUED: October 11, 2023

499 Col. Eileen Collins Blvd., Syracuse, NY 13212
NYS License # 81896, 082000, 031950, 100194, 096512, 104326

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END OF SECTION

PROJECT TITLE PAGE
00 01 01 - 1

SECTION 00 01 03

PROJECT DIRECTORY

Owner:

TOWN OF CLAY
Damian Ulatowski, Town Supervisor
4401 Route 31
Clay, New York 13041
supervisor@townofclay.org
Ph: 315-652-3800 ext. 114

Drawings by:

C&S Companies
NYS License # 81896, 082000, 031950, 100194, 096512, 104326
499 Col. Eileen Collins Blvd.
Syracuse, NY 13212
(315) 455-2000



Specifications by:

Donahoe Architectural Design
Architect, Guy Donahoe
NYS License # 028365
4503 NW Townline RD
Marcellus, NY 13108
(315) 673-2883



END OF SECTION

SECTION 00 01 07

SEALS PAGE

DESIGN PROFESSIONALS OF RECORD

Engineer/Drawings By:

C&S Companies

NYS License #'s: 81896, 082000, 031950, 100194, 096512, 104326

Responsible for Divisions 01-49 Sections except where indicated as prepared by other design professionals of record.

Specifications by:

Donahoe Architectural Design

NYS License # 028365

END OF SECTION

SECTION 00 01 10

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DIVISION 04 - MASONRY

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END OF SECTION

SECTION 00 01 15
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COVER SHEET

<u>SHEET #</u>	<u>ISSUE DATE</u>
G-001 TITLE SHEET	06/29/2022

SITE/CIVIL

<u>SHEET #</u>	<u>ISSUE DATE</u>
C-101 SITE PLAN	06/29/2022
C-501 DETAILS	06/29/2022

STRUCTURAL

<u>SHEET #</u>	<u>ISSUE DATE</u>
S-001 GENERAL NOTES & TYPICAL DETAILS	06/29/2022
S-002 TYPICAL DETAILS	06/29/2022
S-101 FOUNDATION PLAN	06/29/2022
S-102 FLOOR PLAN	06/29/2022
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A-001 CODE REVIEW	06/29/2022
A-101 FLOOR PLANS	06/29/2022
A-102 REFLECTED CEILING AND ROOF PLANS	06/29/2022
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A-202 EXTERIOR ELEVATIONS	06/29/2022
A-203 INTERIOR ELEVATIONS	06/29/2022
A-301 BUILDING AND WALL SECTIONS	06/29/2022
A-501 DETAILS	06/29/2022
A-601 SCHEDULES AND DETAILS	06/29/2022

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<u>SHEET #</u>	<u>ISSUE DATE</u>
P-001 NOTES, LEGEND & DETAILS	06/29/2022
P-101 PLUMBING PLAN	06/29/2022

MECHANICAL

<u>SHEET #</u>	<u>ISSUE DATE</u>
M-001 NOTES, LEGEND, SCHEDULE, DETAILS & SPECIFICATIONS	
M-101 MECHANICAL FLOOR PLANS	06/29/2022

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<u>SHEET #</u>	<u>ISSUE DATE</u>
E-001 ELECTRICAL NOTES, SYMBOLS, ABBREVIATIONS, SCHEDULES	06/29/2022
E-101 ELECTRICAL FLOOR PLANS	06/29/2022
E-102 ELECTRICAL CEILING PLANS	06/29/2022
E-501 ELECTRICAL DETAILS	

END OF SECTION

SECTION 00 11 13

ADVERTISEMENT FOR BIDS

PART 1 GENERAL

1.01 PROJECT INFORMATION

- A. Notice to Bidders: Qualified bidders may submit bids for project as described in this Document. Submit bids according to the Instructions to Bidders.
 - 1. Project Identification: Green Education Center, Town of Clay.
 - 2. Project Location: 9604 Black Creek Road, Brewerton, NY
- B. Owner: Town of Clay
 - 1. Owner's Representative: Damian Ulatowski, 315-652-3800 ext. 114
- C. Architect: Donahoe Architectural Design, 315-673-2883
- D. Construction Contract: Bids will be received for the following Work:
 - 1. Single Contract Project consisting of the following prime contracts:
 - a. General Building Construction

1.02 BID SUBMITTAL AND OPENING

- A. Owner will receive sealed lump sum bids until the bid time and date at the location given below. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:
 - 1. Bid Date: November 1, 2023.
 - 2. Bid Time: 11:00 a.m. local time.
 - 3. Location: Town of Clay, Town Hall 4401 Route 31, Clay, NY 13041.
- B. Bids will be thereafter publicly opened and read aloud.

1.03 BID SECURITY

- A. Bid security shall be submitted with each bid in the amount of 5 percent of the bid amount. No bids may be withdrawn for a period of 45 days after opening of bids. Owner reserves the right to reject any and all bids and to waive informalities and irregularities.

1.04 PREBID MEETING

- A. Prebid Meeting: See Document 002513 "Prebid Meetings."

1.05 DOCUMENTS

- A. Printed Procurement and Contracting Documents: Obtain after October 11, 2023 by contacting Syracuse Blueprint Co., Inc. Only complete sets of documents will be issued.
 - 1. Deposit: \$150.00 made payable to the Town of Clay.
 - 2. Shipping: Additional shipping charges of \$25+ will apply.
- B. Online Procurement and Contracting Documents: Obtain access after October 11, 2023 by accessing the online plan room for Syracuse Blueprint at: <https://www.syracuseblueprintplanroom.com/>. Online access will be provided to all registered bidders and suppliers.
- C. Viewing Procurement and Contracting Documents: Examine after October 11, 2023, at the locations below:
 - 1. Town of Clay, Town Hall 4401 Route 31, Clay.

1.06 TIME OF COMPLETION

- A. Successful bidder shall begin the Work on receipt of the Notice to Proceed and shall complete the Work within the Contract Time.

1.07 BIDDER'S QUALIFICATIONS

- A. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work. A Performance Bond, separate Labor and Material Payment Bond, and Insurance in a form acceptable to Owner will be required of the successful Bidder.

1.08 NOTIFICATION

- A. This Advertisement for Bids document is issued by the Town of Clay.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 00 11 16

INVITATION TO BID

PART 1 GENERAL

1.01 PROJECT INFORMATION

- A. Notice to Bidders: Qualified bidders are invited to submit bids for Project as described in this Document according to the Instructions to Bidders.
- B. Project Identification: Green Education Center, Town of Clay.
 - 1. Project Location: 9604 Black Creek Road, NY.
- C. Owner: Town of Clay.
 - 1. Owner's Representative:
- D. Architect: Donahoe Architectural Design, 315-673-2883
- E. Construction Contract: Bids will be received for the following Work:
 - 1. General Contract
 - 2. Single Contract Project consisting of the following prime contracts:
 - a. General Building Construction.

1.02 BID SUBMITTAL AND OPENING

- A. Owner will receive sealed bids until the bid time and date at the location indicated below. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:
 - 1. Bid Date: November 1, 2023
 - 2. Bid Time: 11:00 AM, local time.
 - 3. Location: Town of Clay, 4401 Route 31, Clay, NY.
- B. Bids will be thereafter opened in the presence of the bidders and read aloud.

1.03 BID SECURITY

- A. Bid security shall be submitted with each bid in the amount of [5] percent of the bid amount. No bids may be withdrawn for a period of [45] days after opening of bids. Owner reserves the right to reject any and all bids and to waive informalities and irregularities.

1.04 PREBID CONFERENCE

- A. Contractor is free to visit anytime.

1.05 DOCUMENTS

- A. Printed Procurement and Contracting Documents: Obtain after October 11, 2023 by contacting the Town Clerk's Office or Syracuse Blue Print Company. Documents will be provided to prime bidders only; only complete sets of documents will be issued.
 - 1. Deposit: \$150.00, Check made payable to Town of Clay.
 - 2. Shipping: Additional shipping charges of \$25 will apply.
- B. Online Procurement and Contracting Documents: Obtain access after October 11, 2023 by accessing Syracuse Blue Print Company's online plan room <https://www.syracuseblueprintplanroom.com/>. Online access will be provided to all registered bidders and suppliers.
- C. Bidding documents remain the property of the Engineer and must be returned in good condition within thirty (30) days after award of contract or rejection of bids. The selected bidder is not required to return the bidding documents. All refunds of deposits will be made only in accordance with the Plan Deposit Policy.

1.06 TIME OF COMPLETION

- A. Bidders shall begin the Work on receipt of the Notice to Proceed and shall complete the Work within the Contract Time.

1.07 BIDDER'S QUALIFICATIONS

- A. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work. A Performance Bond, a separate Labor and Material Payment Bond, and Insurance in a form acceptable to Owner will be required of the successful Bidder.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

TOWN OF CLAY
INSURANCE REQUIREMENTS

A. _____, hereinafter referred to as the Developer/Contractor shall furnish:

ONE ORIGINAL OR ONE CERTIFIED COPY OF THE ORIGINAL POLICY OF INSURANCE, PLUS ONE CERTIFICATE OF INSURANCE with a brief description of the project or service, and for each of the several kinds of Insurance specified in paragraph B of this section. All of such policies shall be delivered with the required certificate and endorsements where applicable, to the Office of the Attorney for the Town of Clay as follows:

**EXECUTIVE OFFICE
CLAY TOWN HALL
4401 STATE ROUTE 31
CLAY, NEW YORK 13041**

**ATTN: CHELSEA CLARK
Telephone No.: (315) 652-3800 Ext. 162
E-mail: cclark@townofclay.org**

The Developer/Contractor shall procure and maintain at their expense without expense to the Town of Clay all of the insurance required herein. Such insurance shall be written by an insurance company authorized to write insurance in the State of New York, shall be drawn on standard forms approved by the New York State Insurance Department and shall protect the Developer/Contractor, his subcontractors and the **Town of Clay** from liability for claims for personal injury, death and property damage which may arise from operations under this Contract.

All property damage insurance shall include coverage for **explosion, collapse and underground operations.**

B. The kinds and amounts of insurance required to appear on the Certificate are as follows:

(1) **Worker's Compensation Insurance.** The policy covering the obligations of the Developer/Contractor in accordance with the provisions of Chapter 41 of the Laws of 1914, as amended, known as the Workers' Compensation Law, covering all operations under the Agreement, whether performed by the Developer/Contractor or by his subcontractors.

The Developer/Contractor shall keep insured during the life of this Agreement such employees in compliance with the provisions of the Workmen's Compensation Law (State Finance Law, Section 142).

(2) **Liability Insurance.** Policy or policies naming the Developer/Contractor as the insured and naming Town of Clay as additional insured on a primary and a non-contributory basis and accompanied with an Additional Insured Endorsement, a Waiver of Subrogation Endorsement, and must be checked on the Certificate next to the policy number, except as otherwise provided below. Such policies shall be furnished as follows:

COVERAGE	LIMITS OF LIABILITY	
1. <u>Comprehensive General Liability Insurance</u>	General Aggregate	\$2,000,000.00
Including Bodily Injury and Property Damage	Prod./Comp. Op. Agg.	\$2,000,000.00
Damage for Premises/Operations, Products and	Pers. and Adv. Injury	\$1,000,000.00
Completed Operations and coverage provided by	Each Occurrence	\$1,000,000.00
the General Liability coverage form CG00010 1/96	Fire Damage	\$ 50,000.00
in connection with work to be completed by the	Medical Expense	\$ 5,000.00
Developer/Contractor and all sub-contractors		
<u>Naming the Town of Clay as additional insured</u>		
<u>with the endorsement attached</u>		

2. <u>Automobile Liability Insurance</u> Including Bodily Injury and Property Damage for the operation of Any Auto (Symbol 1) used in connection with work to be completed by the Developer/Contractor and all sub-contractors Naming the Town of Clay as additional insured with the endorsement attached	Comb. Single Limit	\$1,000,000.00
3. <u>Umbrella Liability Insurance</u> Providing additional limits of liability over and above the General Liability and Automobile Liability Coverage's outlined in this section	Each Occurrence Aggregate Self-Insured Retention	\$5,000,000.00 \$5,000,000.00 \$ 10,000.00
4. <u>Owner's Protective Liability Insurance</u> Providing liability coverage for damages imposed by law upon the Town of Clay with respect to all operations under the Agreement performed by the Developer/Contractor and all sub-contractors Town of Clay is named insured****	Aggregate Each Occurrence	\$2,000,000.00 \$1,000,000.00

In addition to the coverage outlined above, the following conditions are agreed to by the Developer/Contractor/Vendor.

The Developer/Contractor/Vendor shall indemnify the Town of Clay against liability for claims, demands, loss, payments, suits, actions, recoveries, and judgments of every nature and description brought or recovered against it by reason of any omission or act of the Developer/Contractor/Vendor, his agents or employees, all sub-contractors, his or their agents or employees, including also any omission or supervisory act of the Town of Clay, its employees or agents, in the performance of this Agreement, and shall hold the Town of Clay harmless therefrom.

Products and Completed Operations coverage shall remain in effect for a period of two (2) years after the opening of all the streets to be constructed under this Agreement, if applicable, performed by Developer/Contractor/Vendor and by all subcontractors.

Policies shall cover liability for damages imposed by law upon the Town of Clay and the Town Superintendent of Highways and all employees of the Town of Clay both officially and personally.

(FOR CONTRACTORS ONLY) - With respect to temporarily opening to vehicular traffic any portion of the Town streets under this Agreement, until construction or reconstruction, pursuant to this Agreement has been accepted and until the Town Board of the Town of Clay adopts a resolution accepting and opening the streets required to be constructed under this Agreement.

GUARANTEE

The Developer/Contractor/Vendor shall guarantee all the work and equipment furnished under the Contract/Agreement against any defects in workmanship or materials for a period of two (2) years following the date of final acceptance of the work by the Town of Clay. Under this guarantee, the Developer/Contractor/Vendor agrees to make good without delay, at his own expense, any failure of such parts due to faulty materials, construction, installation or to the failure of any such equipment to successfully perform all the work put upon it within the limits of the specifications and further shall make good any damage to any part of the work caused by such failure. **The Developer/Contractor/Vendor also agrees that any Letter of Credit shall fully cover all guarantees contained in this paragraph. Items replaced or rebuilt shall carry a two (2) year guarantee from the date of acceptance of the replacement or repairs.**

The Town of Clay **must** be given sixty (60) days written notice prior to cancellation and/or non-renewal by the Developer/Contractor/Vendor of any of the aforesaid policies by the issuing insurance company, agents and/or representatives whether such policies are for named insured or additional insured.

The issuing insurance company, agents and/or representatives shall set forth in writing that there are no pending claims against the insured and/or that there is ample coverage remaining to cover insured in the event of a claim.

Such insurance as is herein required (1) applies to all operations of said insured in connection with the work required by the provisions of the documents forming the contract, (2) also applies on the effective dates stated, whether or not the Contract documents between the insured contractor's and the Town have been executed, and (3) is written in accordance with the company's regular policies and endorsements.

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.01 INSTRUCTIONS TO BIDDERS

- A. AIA Document A701, "Instructions to Bidders," is hereby incorporated into the Procurement and Contracting Requirements by reference.
 - 1. A copy of AIA Document A701, "Instructions to Bidders," is bound in this Project Manual.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 00 25 13

PREBID MEETINGS

PART 1 GENERAL

1.01 PREBID MEETING – Not Required

- A. Bidder Questions: Submit to Architect
- B. Review Before Submitting: Review of topics that may affect proper preparation and submittal of bids, including the following:
 - 1. Procurement and Contracting Requirements:
 - a. Advertisement for Bids.
 - b. Instructions to Bidders.
 - c. Bidder Qualifications.
 - d. Bonding.
 - e. Insurance.
 - f. Bid Security.
 - g. Bid Form and Attachments.
 - h. Bid Submittal Requirements.
 - i. Bid Submittal Checklist.
 - j. Notice of Award.
 - 2. Communication during Bidding Period:
 - a. Obtaining documents.

- b. Access to Project Web site.
 - c. Bidder's Requests for Information.
 - d. Bidder's Substitution Request/Prior Approval Request.
 - e. Addenda.
3. Contracting Requirements:
- a. Agreement.
 - b. The General Conditions.
 - c. The Supplementary Conditions.
 - d. Other Owner requirements.
4. Construction Documents:
- a. Scopes of Work.
 - b. Temporary Facilities.
 - c. Use of Site.
 - d. Work Restrictions.
 - e. Alternates, Allowances, and Unit Prices.
 - f. Substitutions following award.
5. Separate Contracts:
- a. Work by Owner.
 - b. Work of Other Contracts.
6. Schedule:
- a. Project Schedule.
 - b. Contract Time.

- c. Liquidated Damages.
- d. Other Bidder Questions.
- 7. Site/facility visit or walkthrough.
- 8. Post-Meeting Addendum.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 00 26 00

PROCUREMENT SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 DEFINITIONS

- A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids.
- B. Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Contract Documents, submitted following Contract award. See Section 012500 "Substitution Procedures" for conditions under which Substitution requests will be considered following Contract award.

1.02 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.03 PROCUREMENT SUBSTITUTIONS

- A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.
- B. Procurement Substitution Requests will be received and considered by Owner when the following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action:
 - 1. Extensive revisions to the Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of the Contract Documents, including the level of quality of the Work represented by the requirements therein.
3. The request is fully documented and properly submitted.

1.04 SUBMITTALS

- A. Procurement Substitution Request: Submit to [Architect]. Procurement Substitution Request must be made in writing[by prime contract Bidder only] in compliance with the following requirements:
1. Requests for substitution of materials and equipment will be considered if received no later than [seven] <7> days prior to date of bid opening.
 2. Submittal Format: Submit [three] <3> copies of each written Procurement Substitution Request, using [CSI Substitution Request Form 1.5C].
 3. Submittal Format: Submit Procurement Substitution Request, using format provided on Project Web site.
 - a. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specifications Sections and drawing numbers.
 - b. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:
 - 1) Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
 - 2) Copies of current, independent third-party test data of salient product or system characteristics.
 - 3) Samples where applicable or when requested by Architect.
 - 4) Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and

requirements indicated. Indicate deviations, if any, from the Work specified.

- 5) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - 6) Research reports, where applicable, evidencing compliance with building code in effect for Project, from [ICC-ES] <Insert applicable code organization>.
 - 7) Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate the proposed substitute.
- c. Provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.
 - d. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the Procurement Substitution Request.
- B. Architect's Action:
1. Architect may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Architect will notify all bidders of acceptance of the proposed substitute by means of an Addendum to the Procurement and Contracting Documents.
- C. Architect's approval of a substitute during bidding does not relieve Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

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October 11, 2023

GREEN EDUCATION CENTER FOR TOWN OF CLAY
9604 BLACK CREEK ROAD, BREWERTON, NY

END OF SECTION

SECTION 00 31 43

PERMIT APPLICATION

PART 1 GENERAL

1.01 PERMIT APPLICATION INFORMATION

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of the Bidders' own investigations. This Document and its attachments are not part of the Contract Documents.

- B. Permit Application: The building permit for Project has been applied for by Owner.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 00 41 16

BID FORM - STIPULATED SUM

PART 1 GENERAL

1.01 BID INFORMATION

- A. Bidder: _____.
- B. Prime Contract: General Contractor / Roofing Contractor.
- C. Project Name: Green Education Center, Town of Clay.
- D. Project Location: 9604 Black Creek Road, Brewerton, NY
- E. Owner: Town of Clay
- F. Architect: Donahoe Architectural Design
- G. Architect's Project Number: 23061

1.02 CERTIFICATIONS AND BASE BID

A. Base Bid, Single Prime (Single-Trade) Contract for General Contractor: The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by Donahoe Group and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment, and services, including all scheduled allowances, necessary to complete the construction of _____ Work for above-named Project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:

1. _____ Dollars
(\$_____).

2. The above amounts may be modified by amounts indicated by the Bidder on the attached Bid Supplement - Alternates and Bid Supplement - Unit Prices.

1.03 BID GUARANTEE

A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within [10] days after a written Notice of Award, if offered within [60] days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid amount above:

1. _____ Dollars (\$_____).

B. In the event Owner does not offer a Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.04 TIME OF COMPLETION

A. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Architect, and shall fully complete the Work by June 1, 2024.

1.05 ACKNOWLEDGEMENT OF ADDENDA

A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

1. Addendum No. 1, dated _____.

2. Addendum No. 2, dated _____.

3. Addendum No. 3, dated _____.

4. Addendum No. 4, dated _____.

1.06 BID SUPPLEMENTS

A. The following supplements are a part of this Bid Form and are attached hereto:

1. Bid Form Supplement - Alternates.

2. Bid Form Supplement - Unit Prices.

- 3. Bid Form Supplement - Allowances.
- 4. Bid Form Supplement - Bid Bond Form (AIA Document A310).

1.07 CONTRACTOR'S LICENSE

A. The undersigned further states that it is a duly licensed Contractor, for the type of work proposed, in New York State, Onondaga County, and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.

1.08 SUBMISSION OF BID

- A. Respectfully submitted this ____ day of _____, 2012.
- B. Submitted By: _____ (Name of bidding firm or corporation).
- C. Authorized Signature: _____ (Handwritten signature).
- D. Signed By: _____ (Type or print name).
- E. Title: _____ (Owner/Partner/President/Vice President).
- F. Witnessed By: _____ (Handwritten signature).
- G. By: _____ (Type or print name).
- H. Title: _____ (Corporate Secretary or Assistant Secretary).
- I. Street Address: _____.
- J. City, State, Zip: _____.
- K. Phone: _____.
- L. License No.: _____.

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M. Federal ID No.: _____ (Affix Corporate Seal Here).

END OF SECTION

SECTION 00 43 13

BID SECURITY FORMS

PART 1 GENERAL

1.01 BID FORM SUPPLEMENT

- A. A completed bid bond form is required to be attached to the Bid Form.

1.02 BID BOND FORM

- A. AIA Document A310, "Bid Bond," is the recommended form for a bid bond. A bid bond acceptable to Owner, or other bid security as described in the Instructions to Bidders, is required to be attached to the Bid Form as a supplement.
- B. Copies of AIA standard forms may be obtained from The American Institute of Architects; www.aia.org/contractdocs/purchase/index.htm; email: docspurchases@aia.org; (800) 942-7732.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 00 43 73

PROPOSED SCHEDULE OF VALUES FORM

PART 1 GENERAL

1.01 BID FORM SUPPLEMENT

- A. A completed Proposed Schedule of Values form is required to be attached to the Bid Form.

1.02 PROPOSED SCHEDULE OF VALUES FORM

- A. Proposed Schedule of Values Form: Provide a breakdown of the bid amount, including alternates, in enough detail to facilitate continued evaluation of bid. Coordinate with the Project Manual table of contents. Provide multiple line items for principal material and subcontract amounts in excess of [five] <5> percent of the Contract Sum.
- B. Arrange schedule of values consistent with format of [AIA Document G703].
 - 1. Copies of AIA standard forms may be obtained from the American Institute of Architects; <http://www.aia.org/contractdocs/purchase/index.htm>; docspurchases@aia.org; (800) 942-7732.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 00 60 00

PROJECT FORMS

PART 1 GENERAL

1.01 FORM OF AGREEMENT AND GENERAL CONDITIONS

- A. The following form of Owner/Contractor Agreement and form of the General Conditions shall be used for Project:
 - 1. AIA Document A101, "Standard Form of Agreement between Owner and Contractor, Stipulated Sum."
 - a. The General Conditions for Project are AIA Document A201, "General Conditions of the Contract for Construction."
 - 2. The General Conditions are incorporated by reference.

1.02 ADMINISTRATIVE FORMS

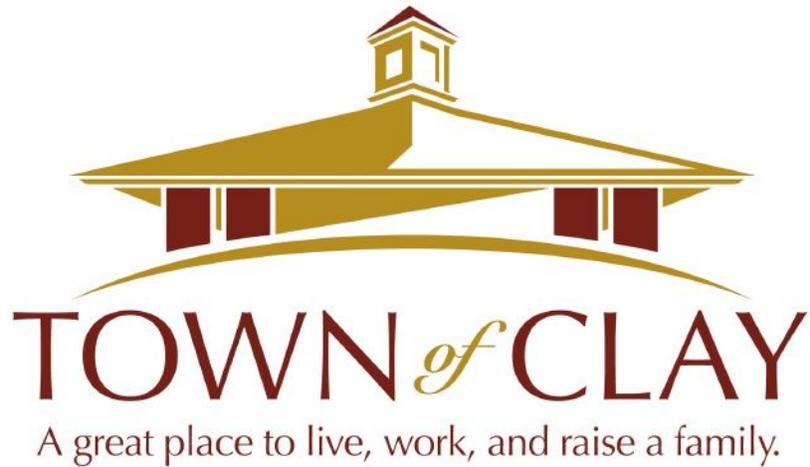
- A. Administrative Forms: Additional administrative forms are specified for reference in Division 01 General Requirements.
- B. Copies of AIA standard forms may be obtained from the American Institute of Architects; <http://www.aia.org/contractdocs/purchase/index.htm>; docspurchases@aia.org; (800) 942-7732.
- C. Preconstruction Forms (Referenced Only):
 - 1. Form of Performance Bond and Labor and Material Bond: AIA Document A312, "Performance Bond and Payment Bond."
 - 2. Form of Certificate of Insurance: AIA Document G715, "Supplemental Attachment for ACORD Certificate of Insurance 25-S."
- D. Information and Modification Forms (Referenced Only):

1. Form for Requests for Information (RFIs): AIA Document G716, "Request for Information (RFI)."
 2. Form of Request for Proposal: AIA Document G709, "Work Changes Proposal Request."
 3. Change Order Form: AIA Document G701, "Change Order."
- E. Payment Forms (Referenced Only):
1. Schedule of Values Form: AIA Document G703, "Continuation Sheet."
 2. Payment Application: AIA Document G702/703, "Application and Certificate for Payment and Continuation Sheet."
 3. Form of Contractor's Affidavit: AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 4. Form of Affidavit of Release of Liens: AIA Document G706A, "Contractor's Affidavit of Payment of Release of Liens."
 5. Form of Consent of Surety: AIA Document G707, "Consent of Surety to Final Payment."

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION



MASTER SPECIFICATIONS

Division 01 – GENERAL REQUIREMENTS

GREEN EDUCATION CENTER

TOWN OF CLAY

9604 BLACK CREEK ROAD
BREWERTON, NEW YORK

PROJECT NO: 195.101.021

ISSUED: October 11, 2023

All information within this Document is considered **CONFIDENTIAL and PROPRIETARY**. By receipt and use of this Document, the recipient agrees not to divulge any of the information herein and attached hereto to persons other than those within the recipients' organization that have specific need to know for the purposes of reviewing and referencing this information. Recipient also agrees not to use this information in any manner detrimental to the interests of **THE TOWN OF CLAY**.

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Owner-furnished products.
 - 2. Contractor-furnished, Owner-installed products.
 - 3. Access to site.
 - 4. Coordination with occupants.
 - 5. Work restrictions.
 - 6. Specification and Drawing conventions.

1.03 OWNER-FURNISHED PRODUCTS

- A. Owner will furnish products indicated. The Work includes receiving, unloading, handling, storing, protecting, and installing Owner-furnished products and making building services connections.
- B. Owner-Furnished Products:
 - 1. See drawings.

1.04 ACCESS TO SITE

- A. General: Each Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Confine construction operations to area flagged out.
 - a. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
- D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.05 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 6:00 a.m. to 6:00 p.m., Monday through Friday, unless otherwise indicated.
 - 1. Weekend Hours: 6:00 a.m. to 6:00 p.m.
 - 2. Early Morning Hours: Coordinate with Owner.
 - 3. Hours for Utility Shutdowns: Coordinate with Owner.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after

providing temporary utility services according to requirements indicated:

1. Notify [Owner] not less than [two] <2> days in advance of proposed utility interruptions.
 2. Obtain [Owner's] written permission before proceeding with utility interruptions.
- D. Restricted Substances: Use of tobacco products and other controlled substances [within the existing building] [on Project site] is not permitted.
- E. Employee Screening: Comply with Owner's requirements for [drug] [and] [background] screening of Contractor personnel working on Project site.
1. Maintain list of approved screened personnel with Owner's representative.

1.06 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations

[published as part of the U.S. National CAD Standard] [and] [scheduled on Drawings].

3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 12 00
MULTIPLE CONTRACT SUMMARY

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes a summary of each contract, including responsibilities for coordination and temporary facilities and controls.
- B. Specific requirements for Work of each contract are also indicated in individual Specification Sections and on Drawings.

1.03 GENERAL CONSTRUCTION CONTRACT

- A. Work of the General Construction Contract includes, but is not limited to, the following:
 - 1. Remaining work not identified as work under other contracts.
 - 2. Exterior closure, including walls, doors, windows.
 - 3. Interior construction, including partitions, doors, and fittings.
 - 4. Interior finishes [finish carpentry] [architectural woodwork] [interior specialties], and floor and ceiling finishes.
- B. Temporary facilities and controls in the General Construction Contract include, but are not limited to, the following:
 - 1. Barricades, warning signs, and lights.
 - 2. Site enclosure fence.

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PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
 - 1. Related Requirements:
 - 2. Section 012100 "Allowances" for products selected under an allowance.
 - 3. Section 012300 "Alternates" for products selected under an alternate.
 - 4. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.03 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.04 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use facsimile of form provided in Project Manual.
 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from [ICC-ES] <Insert applicable code organization>.

- j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within [seven] <Insert number> days of receipt of a request for substitution. Architect will notify Contractor[through Construction Manager] of acceptance or rejection of proposed substitution within [15] <Insert number> days of receipt of request, or [seven] <Insert number> days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.05 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.06 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.07 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than [15] <Insert number> days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Revise conditions in subparagraphs below. If required, insert more restrictive conditions to limit consideration of proposed substitutions.
 - b. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect Contractor's construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

- B. Substitutions for Convenience: Not allowed [unless otherwise indicated].

- C. Substitutions for Convenience: Architect will consider requests for substitution if received within [30] days after [commencement of the Work] [the Notice to Proceed] [the Notice of Award]. Requests received after that time may be considered or rejected at discretion of Architect.

- 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. Requested substitution is compatible with other portions of the Work.
 - h. Requested substitution has been coordinated with other portions of the Work.
 - i. Requested substitution provides specified warranty.
 - j. If requested substitution involves more than one contractor, requested

substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATIONS PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.03 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on [AIA Document G710].

1.04 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: [Architect] [Construction Manager] will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by [Architect] are not instructions either to stop work in progress or to execute the proposed change.

2. Within [time specified in Proposal Request] [or] [20 days, when not otherwise specified,] <Insert number of days> after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use [forms provided by Owner or forms acceptable to Architect].

- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to [Architect].
 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's construction schedule that indicates the effect

of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form provided by Owner or form acceptable to Architect.

1.05 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Change Proposal Request, [Architect] will issue a Change Order for signatures of Owner and Contractor on [AIA Document G701] [AIA Document G701CMa].

1.06 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: [Architect] may issue a Construction Change Directive on [AIA Document G714] [AIA Document G714CMa]. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
- C. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.07 WORK CHANGE DIRECTIVE

- A. Work Change Directive: [Architect] may issue a Work Change Directive on EJCDC Document C-940 [form included in Project Manual]. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.03 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.04 SCHEDULE OF VALUES

- A. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
- B. Arrange schedule of values consistent with format of [AIA Document G703]

[EJCDC Document C-620] <Insert name and designation of standard form>.

- C. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of [five] percent of the Contract Sum.
- D. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - 1. Differentiate between items stored on-site and items stored off-site.
- E. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
- F. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling [five] <Insert number> percent of the Contract Sum and subcontract amount.
- G. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.05 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect[and Construction Manager] and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
 - 1. Submit draft copy of Application for Payment [seven] <Insert number> days prior to due date for review by Architect.
- C. Application for Payment Forms: Use [AIA Document G702 and AIA Document G703] [AIA Document G732 and AIA Document G703] [EJCDC Document C-620] as form for Applications for Payment.

- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. [Architect] will return incomplete applications without action.
1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- F. Transmittal: Submit [three] 3 signed and notarized original copies of each Application for Payment to [Architect] by a method ensuring receipt[within 24 hours]. One copy

shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from [entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment] [subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application].
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
 5. Products list (preliminary if not final).

6. Sustainable design action plans, including preliminary project materials cost data.
 7. Schedule of unit prices.
 8. Submittal schedule (preliminary if not final).
 9. List of Contractor's staff assignments.
 10. List of Contractor's principal consultants.
 11. Copies of building permits.
 12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 13. Initial progress report.
 14. Report of preconstruction conference.
- I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706.
 5. AIA Document G706A.
 6. AIA Document G707.

7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final liquidated damages settlement statement.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. RFIs.
 - 4. Digital project management procedures.
 - 5. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Requirements:
 - 1. Section 011200 "Multiple Contract Summary" for a description of the division of work among separate contracts and responsibility for coordination activities not in this Section.
 - 2. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.

3. Section 019113 "General Commissioning Requirements" for coordinating the Work with Owner's Commissioning Authority.

1.03 DEFINITIONS

- A. BIM: Building Information Modeling.
- B. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.04 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within [15] days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1.05 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination: Each contractor shall [cooperate with Project coordinator who shall]coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its own operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities[and scheduled activities of other contractors] [and direction of Project coordinator] to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.

3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.06 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Coordinate the addition of trade-specific information to coordination drawings [by multiple contractors]in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 - c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.

- f. Indicate required installation sequences.
 - g. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
 2. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 3. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 4. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
 5. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches (32 mm) in diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and

other fire-alarm locations.

- c. Panel board, switch board, switchgear, transformer, busway, generator, and motor-control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
6. Review: Architect will review coordination drawings to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit.
7. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 "Submittal Procedures."

1.07 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.

6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: [AIA Document G716]
1. Attachments shall be electronic files in PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow [seven] <7> working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.

- e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within [7] days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.
 - 10.

- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within [seven] days if Contractor disagrees with response.

1.08 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:
 - 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.09 PROJECT MEETINGS

- A. General: [Schedule and conduct] will schedule and conduct] meetings and conferences at Project site unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, and Architect, within [three] <Insert number> days of the meeting.
- B. Preconstruction Conference: Owner will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than [15] days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.
 - e. Designation of key personnel and their duties.
 - f. Lines of communications.
 - g. Use of web-based Project software.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Sustainable design requirements.
 - o. Preparation of Record Documents.
 - p. Use of the premises[and existing building].
 - q. Work restrictions.

- r. Working hours.
 - s. Owner's occupancy requirements.
 - t. Responsibility for temporary facilities and controls.
 - u. Procedures for moisture and mold control.
 - v. Procedures for disruptions and shutdowns.
 - w. Construction waste management and recycling.
 - x. Parking availability.
 - y. Office, work, and storage areas.
 - z. Equipment deliveries and priorities.
 - aa. First aid.
 - bb. Security.
 - cc. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.

- b. Options.
- c. Related RFIs.
- d. Related Change Orders.
- e. Purchases.
- f. Deliveries.
- g. Submittals.
- h. Sustainable design requirements.
- i. Review of mockups.
- j. Possible conflicts.
- k. Compatibility requirements.
- l. Time schedules.
- m. Weather limitations.
- n. Manufacturer's written instructions.
- o. Warranty requirements.
- p. Compatibility of materials.
- q. Acceptability of substrates.
- r. Temporary facilities and controls.
- s. Space and access limitations.
- t. Regulations of authorities having jurisdiction.
- u. Testing and inspecting requirements.
- v. Installation procedures.
- w. Coordination with other work.

- x. Required performance results.
 - y. Protection of adjacent work.
 - z. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: [Schedule and conduct] a project closeout conference, at a time convenient to Owner and Architect, but no later than [15] days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of Owner and Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of Record Documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Procedures for completing and archiving web-based Project software site data files.

- d. Submittal of written warranties.
 - e. Requirements for completing sustainable design documentation.
 - f. Requirements for preparing operations and maintenance data.
 - g. Requirements for delivery of material samples, attic stock, and spare parts.
 - h. Requirements for demonstration and training.
 - i. Preparation of Contractor's punch list.
 - j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - k. Submittal procedures.
 - l. Coordination of separate contracts.
 - m. Owner's partial occupancy requirements.
 - n. Installation of Owner's furniture, fixtures, and equipment.
 - o. Responsibility for removing temporary facilities and controls.
4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: [Conduct] meetings at [biweekly] intervals.
- 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

- a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.

- b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of BIM component conflicts.
 - 4) Status of submittals.
 - 5) Status of sustainable design documentation.
 - 6) Deliveries.
 - 7) Off-site fabrication.
 - 8) Access.
 - 9) Site use.
 - 10) Temporary facilities and controls.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) Status of RFIs.

- 16) Status of Proposal Requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Startup construction schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Unusual event reports.
- B. Related Requirements:
 - 1. Section 011200 "Multiple Contract Summary" for preparing a combined Contractor's Construction Schedule.

1.03 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling,

monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 2. Predecessor Activity: An activity that precedes another activity in the network.
 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.04 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
1. Working electronic copy of schedule file, where indicated.
 2. Two paper copies, of sufficient size to display entire period or schedule, as required.
- B. Startup construction schedule.
1. Submittal of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Startup Network Diagram: Of size required to display entire network for entire

construction period. Show logic ties for activities.

- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.
- E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 - 1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
 - 3. Total Float Report: List of activities sorted in ascending order of total float.
 - 4. Earnings Report: Compilation of Contractor's total earnings from [commencement of the Work] until most recent Application for Payment.
- F. Construction Schedule Updating Reports: Submit with Applications for Payment.
- G. Daily Construction Reports: Submit at [monthly] intervals.
- H. Material Location Reports: Submit at [monthly] intervals.
- I. Site Condition Reports: Submit at time of discovery of differing conditions.
- J. Unusual Event Reports: Submit at time of unusual event.
- K. Qualification Data: For scheduling consultant.

1.05 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.

- B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's Construction Schedule, including, but not limited to, the following:
1. Review software limitations and content and format for reports.
 2. Verify availability of qualified personnel needed to develop and update schedule.
 3. Discuss constraints, including [phasing].
 4. Review delivery dates for Owner-furnished products.
 5. Review schedule for work of Owner's separate contracts.
 6. Review submittal requirements and procedures.
 7. Review time required for review of submittals and resubmittals.
 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
 9. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
 10. Review and finalize list of construction activities to be included in schedule.
 11. Review procedures for updating schedule.

1.06 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values,[list of subcontracts,] submittal schedule, progress reports, payment requests, and other required schedules and reports.
1. Secure time commitments for performing critical elements of the Work from entities involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PROJECT NO. 195.101.021
October 11, 2023

GREEN EDUCATION CENTER FOR TOWN OF CLAY
9604 BLACK CREEK ROAD, BREWERTON, NY

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 32 33
PHOTOGRAPHIC DOCUMENTATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
 - 3. Final completion construction photographs.

1.03 Related Requirements:

- A. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.

1.04 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each [photograph] [and] [video recording]. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files within [three] 3 days of taking photographs.
 - 1. Submit photos by uploading to web-based project software site. Include copy of key plan indicating each photograph's location and direction.

2. Identification: Provide the following information with each image description [in file metadata tag] [in web-based project software site]:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - f. Description of location, vantage point, and direction.
 - g. Unique sequential identifier keyed to accompanying key plan.

1.05 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of [12] <Insert number> megapixels, and at an image resolution of not less than [3200 by 2400] <Insert resolution> pixels[, and with vibration-reduction technology]. Use flash in low light levels or backlit conditions.
- B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- C. File Names: Name media files with [date] [Project area] and sequential numbering suffix.

1.06 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs with maximum depth of field and in focus.
 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Preconstruction Photographs: Before [starting construction], take photographs of Project site and surrounding properties, including existing items to remain during

construction, from different vantage points, as directed by [Architect].

- D. Periodic Construction Photographs: Take [20] photographs [weekly] [coinciding with the cutoff date associated with each Application for Payment]. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Final Completion Construction Photographs: Take [20] photographs after date of Substantial Completion for submission as Project Record Documents. [Architect] will inform photographer of desired vantage points.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

1.02 RELATED DOCUMENTS

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

1.03 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
4. Section 013233 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and final completion construction photographs.
5. Section 014000 "Quality Requirements" for submitting test and inspection

reports, and schedule of tests and inspections.

6. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
7. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
8. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.04 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.05 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

- a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
- a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled date of fabrication.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.06 SUBMITTAL FORMATS

- A. Submittal Information: Include the following information in each submittal:
1. Project name.
 2. Date.
 3. Name of Architect.
 4. Name of Contractor.
 5. Name of firm or entity that prepared submittal.
 6. Names of subcontractor, manufacturer, and supplier.

7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
 8. Category and type of submittal.
 9. Submittal purpose and description.
 10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
 11. Drawing number and detail references, as appropriate.
 12. Indication of full or partial submittal.
 13. Location(s) where product is to be installed, as appropriate.
 14. Other necessary identification.
 15. Remarks.
 16. Signature of transmitter.
- B. Options: Identify options requiring selection by Architect.
- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect[and Construction Manager] on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. Paper Submittals:
1. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
 2. Provide a space approximately [6 by 8 inches (150 by 200 mm)] <Insert dimensions> on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Action Submittals: Submit [three] 3 paper copies of each submittal unless otherwise indicated. Architect will return [two] 2 copies.

4. Informational Submittals: Submit [two] 2 paper copies of each submittal unless otherwise indicated. Architect will not return copies.
5. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
6. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using AIA Document G810 transmittal form.

1.07 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 1. Paper: Prepare submittals in paper form, and deliver to Architect.
- B. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on [Architect's] receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow [10] days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. [Architect] will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow [10] days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow [21] <Insert number> days for initial review of each submittal.
- C. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- D. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- E. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.08 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.

- g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - 5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 - 2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 24 by 36 inches.

- a. [Two]opaque (bond) copies of each submittal. Architect[, through Construction Manager,] will return [one] <Insert number> copy(ies).
- C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 3. Paper Transmittal: Include paper transmittal including complete submittal information indicated.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit [two] full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit [three] <3> sets of Samples. Architect will retain [two] <2> Sample sets; remainder will be returned.[Mark up and retain one returned Sample set as a project record Sample.]
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least [three] <Insert number> sets of paired units that show approximate limits of variations.

- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.

2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
- G. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
 6. Welding Certificates: Prepare written certification that welding procedures and

personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.

- d. Product and manufacturers' names.
- e. Description of product.
- f. Test procedures and results.
- g. Limitations of use.

1.09 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit [digitally signed PDF file] [and] [three] <Insert number> paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.10 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
 - 1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, Commissioning Authority, or authorities having jurisdiction are not limited by provisions of this Section.
 - 4. Specific test and inspection requirements are not specified in this Section.

1.03 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced" unless otherwise

further described means having successfully completed a minimum of [five] <Insert number> previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

- B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

- I. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.04 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
 - 2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.

7. Time schedule or time span for tests and inspections.
 8. Requirements for obtaining samples.
 9. Unique characteristics of each quality-control service.
- F. Reports: Prepare and submit certified written reports and documents as specified.
- G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.05 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
1. Project quality-control manager may also serve as Project superintendent.
- B. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- C. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
1. Contractor-performed tests and inspections including Subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.
 2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.
 3. Owner-performed tests and inspections indicated in the Contract Documents[, including tests and inspections indicated to be performed by Commissioning Authority].

- D. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- E. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.06 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, telephone number, and email address of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.

12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.

1.07 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to [ASTM E 329]; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is

acceptable to authorities.

- H. **Manufacturer's Technical Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. **Preconstruction Testing:** Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. When testing is complete, remove test specimens and test assemblies; do not reuse products on Project.
- K. **Testing Agency Responsibilities:** Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.08 QUALITY CONTROL

- A. **Owner Responsibilities:** Where quality-control services are indicated as Owner's

responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 2. Payment for these services will be made from testing and inspection allowances, as authorized by Change Orders.
 3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least [24] hours in advance of time when Work that requires testing or inspection will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

- D. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6. Do not perform duties of Contractor.

- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

- G. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and

provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspection equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's Construction Schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.09 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Conducted by a qualified [testing agency] as required by authorities having jurisdiction, as indicated in individual Specification Sections[and in the Statement of Special Inspections attached to this Section], and as

follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect, Commissioning Authority, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Commissioning Authority with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION

3.01 ACCEPTABLE TESTING AGENCIES

- A. Atlantic Testing Laboratories, Syracuse, NY (315)699-5281
- B. CMT, (866)268-5378

3.02 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.

4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's[, Commissioning Authority's,][and Construction Manager's] reference during normal working hours.
1. Submit log at Project closeout as part of Project Record Documents.

3.03 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01 42 00

REFERENCES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.03 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.04 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. AABC - Associated Air Balance Council; www.aabc.com.
 - 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.

3. AAPFCO - Association of American Plant Food Control Officials;
www.aapfco.org.
4. AASHTO - American Association of State Highway and Transportation Officials;
www.transportation.org.
5. AATCC - American Association of Textile Chemists and Colorists;
www.aatcc.org.
6. ABMA - American Bearing Manufacturers Association;
www.americanbearings.org.
7. ABMA - American Boiler Manufacturers Association; www.abma.com.
8. ACI - American Concrete Institute; (Formerly: ACI International);
www.concrete.org
9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
11. AF&PA - American Forest & Paper Association; www.afandpa.org.
12. AGA - American Gas Association; www.aga.org.
13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The);
www.ahrinet.org.
15. AI - Asphalt Institute; www.asphaltinstitute.org.
16. AIA - American Institute of Architects (The); www.aia.org.
17. AISC - American Institute of Steel Construction; www.aisc.org.
18. AISI - American Iron and Steel Institute; www.steel.org.
19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
20. AMCA - Air Movement and Control Association International, Inc.;
www.amca.org.

21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Architectural Precast Association; www.archprecast.org.
25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Safety Engineers (The); www.asse.org.
34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Architectural Woodwork Institute; www.awinet.org.
39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
40. AWPA - American Wood Protection Association; www.awpa.com.

41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association;
www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture
Manufacturer's Association); www.bifma.org.
47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton
Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CE - Conformite Europeenne; <http://ec.europa.eu/growth/single-market/ce-marking/>
51. CEA - Canadian Electricity Association; www.electricity.ca.
52. CEA - Consumer Electronics Association; www.ce.org.
53. CFFA - Chemical Fabrics and Film Association, Inc.;
www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.

60. CPA - Composite Panel Association; www.pbmdf.com.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csa.ca.
65. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
66. CSI - Construction Specifications Institute (The); www.csinet.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
71. DHI - Door and Hardware Institute; www.dhi.org.
72. ECA - Electronic Components Association; (See ECIA).
73. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
74. ECIA - Electronic Components Industry Association; www.eciaonline.org.
75. EIA - Electronic Industries Alliance; (See TIA).
76. EIMA - EIFS Industry Members Association; www.eima.com.
77. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
78. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
79. ESTA - Entertainment Services and Technology Association; (See PLASA).

80. ETL - Intertek (See Intertek); www.intertek.com.
81. EVO - Efficiency Valuation Organization; www.evo-world.org.
82. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
83. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
84. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
85. FM Approvals - FM Approvals LLC; www.fmglobal.com.
86. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
87. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarroof.com.
88. FSA - Fluid Sealing Association; www.fluidsealing.com.
89. FSC - Forest Stewardship Council U.S.; www.fscus.org.
90. GA - Gypsum Association; www.gypsum.org.
91. GANA - Glass Association of North America; www.glasswebsite.com.
92. GS - Green Seal; www.greenseal.org.
93. HI - Hydraulic Institute; www.pumps.org.
94. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
95. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
96. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
97. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
98. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.

99. IAS - International Accreditation Service; www.iasonline.org.
100. IAS - International Approval Services; (See CSA).
101. ICBO - International Conference of Building Officials; (See ICC).
102. ICC - International Code Council; www.iccsafe.org.
103. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
104. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
105. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
106. IEC - International Electrotechnical Commission; www.iec.ch.
107. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
108. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
109. IESNA - Illuminating Engineering Society of North America; (See IES).
110. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
111. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
112. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
113. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
114. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
115. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
116. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
117. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.

118. ISO - International Organization for Standardization; www.iso.org.
119. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
120. ITU - International Telecommunication Union; www.itu.int/home.
121. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
122. LMA - Laminating Materials Association; (See CPA).
123. LPI - Lightning Protection Institute; www.lightning.org.
124. MBMA - Metal Building Manufacturers Association; www.mbma.com.
125. MCA - Metal Construction Association; www.metalconstruction.org.
126. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
127. MFMA - Metal Framing Manufacturers Association, Inc.;
www.metalframingmfg.org.
128. MHIA - Material Handling Industry of America; www.mhia.org.
129. MIA - Marble Institute of America; www.marble-institute.com.
130. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
131. MPI - Master Painters Institute; www.paintinfo.com.
132. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
133. NAAMM - National Association of Architectural Metal Manufacturers;
www.naamm.org.
134. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
135. NADCA – National Air Duct Cleaners Association; www.nadca.com.
136. NAIMA - North American Insulation Manufacturers Association;
www.naima.org.

137. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
138. NBI - New Buildings Institute; www.newbuildings.org.
139. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
140. NCMA - National Concrete Masonry Association; www.ncma.org.
141. NEBB - National Environmental Balancing Bureau; www.nebb.org.
142. NECA - National Electrical Contractors Association; www.necanet.org.
143. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
144. NEMA - National Electrical Manufacturers Association; www.nema.org.
145. NETA - InterNational Electrical Testing Association; www.netaworld.org.
146. NFHS - National Federation of State High School Associations; www.nfhs.org.
147. NFPA - National Fire Protection Association; www.nfpa.org.
148. NFPA - NFPA International; (See NFPA).
149. NFRC - National Fenestration Rating Council; www.nfrc.org.
150. NHLA - National Hardwood Lumber Association; www.nhla.com.
151. NLGA - National Lumber Grades Authority; www.nlga.org.
152. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
153. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
154. NRCA - National Roofing Contractors Association; www.nrca.net.
155. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
156. NSF - NSF International; www.nsf.org.
157. NSPE - National Society of Professional Engineers; www.nspe.org.
158. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.

159. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
160. NWFA - National Wood Flooring Association; www.nwfa.org.
161. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
162. PDI - Plumbing & Drainage Institute; www.pdionline.org.
163. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); <http://www.plasa.org>.
164. RCSC – Research Council on Structural Connections; www.boltcouncil.org.
165. RFCI – Resilient Floor Covering Institute; www.rfci.com.
166. RIS – Redwood Inspection Service; www.redwoodinspection.com.
167. SAE – SAE International; www.sae.org.
168. SCTE – Society of Cable Telecommunications Engineers; www.scte.org.
169. SDI – Steel Deck Institute; www.sdi.org.
170. SDI – Steel Door Institute; www.steeldoors.org.
171. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
172. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
173. SIA - Security Industry Association; www.siaonline.org.
174. SJI - Steel Joist Institute; www.steeljoist.org.
175. SMA - Screen Manufacturers Association; www.smainfo.org.
176. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
177. SMPTE - Society of Motion Picture and Television Engineers; www.smppte.org.
178. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.

179. SPIB - Southern Pine Inspection Bureau; www.spib.org.
180. SPRI - Single Ply Roofing Industry; www.spri.org.
181. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
182. SSINA - Specialty Steel Industry of North America; www.ssina.com.
183. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
184. STI - Steel Tank Institute; www.steeltank.com.
185. SWI - Steel Window Institute; www.steelwindows.com.
186. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
187. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
188. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
189. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
190. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
191. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
192. TMS - The Masonry Society; www.masonrysociety.org.
193. TPI - Truss Plate Institute; www.tpinst.org.
194. TPI - Turfgrass Producers International; www.turfgrasssod.org.
195. TRI - Tile Roofing Institute; www.tilerroofing.org.
196. UL - Underwriters Laboratories Inc.; <http://www.ul.com>.
197. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
198. USAV - USA Volleyball; www.usavolleyball.org.

199. USGBC - U.S. Green Building Council; www.usgbc.org.
200. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
201. WA - Wallcoverings Association; www.wallcoverings.org
202. WASTEC - Waste Equipment Technology Association; www.wastec.org.
203. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
204. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
205. WDMA - Window & Door Manufacturers Association; www.wdma.com.
206. WI - Woodwork Institute; www.wicnet.org.
207. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
208. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.

3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
 4. DOD - Department of Defense; www.quicksearch.dla.mil.
 5. DOE - Department of Energy; www.energy.gov.
 6. EPA - Environmental Protection Agency; www.epa.gov.
 7. FAA - Federal Aviation Administration; www.faa.gov.
 8. FG - Federal Government Publications; www.gpo.gov/fdsys.
 9. GSA - General Services Administration; www.gsa.gov.
 10. HUD - Department of Housing and Urban Development; www.hud.gov.
 11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
 12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
 13. SD - Department of State; www.state.gov.
 14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
 15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
 16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
 17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
 18. USP - U.S. Pharmacopeial Convention; www.usp.org.
 19. USPS - United States Postal Service; www.usps.com.
- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
 2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
 3. DSCC - Defense Supply Center Columbus; (See FS).
 4. FED-STD - Federal Standard; (See FS).
 5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
 6. MILSPEC - Military Specification and Standards; (See DOD).
 7. USAB - United States Access Board; www.access-board.gov.
 8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).
- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
 2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
 3. CDHS; California Department of Health Services; (See CDPH).

4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; www.txforestservation.tamu.edu.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.

1.03 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.04 PERFORMANCE REQUIREMENTS

- A. General: Achieve end-of-Project rates for salvage/recycling of at least 50 percent by weight of total non-hazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:

- 1. Demolition Waste:

- a. Plywood
- b. Roofing.
- c. Insulation.

- 2. Construction Waste:

- a. Lumber.
- b. Wood sheet materials.
- c. Roofing.
- d. Insulation.
- e. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
 - 1) Paper.
 - 2) Cardboard.
 - 3) Boxes.
 - 4) Plastic sheet and film.
 - 5) Polystyrene packaging.

6) Wood crates.

1.05 ACTION SUBMITTALS

- A. Waste Management Plan: Submit plan within 30 days of date established for the Notice to Proceed.

1.06 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis.[Distinguish between demolition and construction waste.] Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition [site-clearing] and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION

3.01 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - 1. Comply with operation, termination, and removal requirements in Section 01 5000 "Temporary Facilities and Controls."
- B. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - 2. Comply with Section 01 5000 "Temporary Facilities and Controls" for

controlling dust and dirt, environmental protection, and noise control.

3.02 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION

SECTION 01 78 23

OPERATION & MAINTENANCE DATA

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Emergency manuals.
 - 3. Systems and equipment operation manuals.
 - 4. Systems and equipment maintenance manuals.
 - 5. Product maintenance manuals.
- B. Related Requirements:
 - 1. Section 011200 "Multiple Contract Summary" for coordinating operation and maintenance manuals covering the Work of multiple contracts.
 - 2. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 3. Section 019113 "General Commissioning Requirements" for verification and compilation of data into operation and maintenance manuals.

1.03 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.04 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:
 - 1. Submit [three] 3 paper copies. Architect will return [two] 2 copies.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 15 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 10 days before commencing demonstration and training. Architect will return copy with comments.
 - 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 10 days of receipt of Architect's comments and prior to commencing demonstration and training.

1.05 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.
 - 1. Binders: Heavy-duty, three-ring, vinyl-covered, [loose-leaf] [post-type] binders,

in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

- a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name,[and] subject matter of contents[, and indicate Specification Section number on bottom of spine]. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
 4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.06 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.

- B. Title Page: Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name and contact information for Contractor.
 - 6. Name and contact information for Construction Manager.
 - 7. Name and contact information for Architect.
 - 8. Name and contact information for Commissioning Authority.
 - 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 - 10. Cross-reference to related systems in other operation and maintenance manuals.

- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

- D. **Manual Contents:** Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

- E. **Identification:** In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.07 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

- A. **Operation and Maintenance Documentation Directory:** Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:
 - 1. **List of Systems and Subsystems:** List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

 - 2. **List of Equipment:** List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

 - 3. **Tables of Contents:** Include a table of contents for each emergency, operation, and maintenance manual.

1.08 EMERGENCY MANUALS

- A. **Emergency Manual:** Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

- B. **Content:** Organize manual into a separate section for each of the following:
 - 1. Type of emergency.

 - 2. Emergency instructions.

 - 3. Emergency procedures.

1.09 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 - 2. Performance and design criteria if Contractor has delegated design responsibility.
 - 3. Operating standards.
 - 4. Operating procedures.
 - 5. Operating logs.
 - 6. Wiring diagrams.
 - 7. Control diagrams.
 - 8. Piped system diagrams.
 - 9. Precautions against improper use.
 - 10. License requirements including inspection and renewal dates.

- C. Descriptions: Include the following:
 - 1. Product name and model number. Use designations for products indicated on Contract Documents.

2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- D. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.10 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. **Systems and Equipment Maintenance Manuals:** Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

- B. **Content:** For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.

- C. **Source Information:** List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

- D. **Manufacturers' Maintenance Documentation:** Include the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 3. Identification and nomenclature of parts and components.
 4. List of items recommended to be stocked as spare parts.
- E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.
- F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.
- J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
1. Do not use original project record documents as part of maintenance manuals.

1.11 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Product Information: Include the following, as applicable:
 1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- E. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 1. Inspection procedures.

2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Requirements:
 - 1. Section 011200 "Multiple Contract Summary" for coordinating project record documents covering the Work of multiple contracts.
 - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.03 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit [one] 1 set of marked-up record prints.
 - 2. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit [one] 1 paper-copy set of marked-up record prints.
 - 2) Submit PDF electronic files of scanned record prints and [one] <Insert number> of file prints.
 - 3) Submit record digital data files and [one] 1 set of plots.
 - 4) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
- B. Record Specifications: Submit [one paper copy] [<Insert number> paper copies] [annotated PDF electronic files] of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit [one paper copy] [<Insert number> paper copies] [annotated PDF electronic files and directories] of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

1.04 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.

- h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or [Construction] [Work] Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
- 1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Format: Annotated PDF electronic file[with comment function enabled].
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

1.05 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 5. Note related Change Orders[, record Product Data,] and record Drawings where applicable.
- B. Format: Submit record Specifications as [annotated PDF electronic file] [paper copy] [scanned PDF electronic file(s) of marked-up paper copy of Specifications].

1.06 RECORD PRODUCT DATA

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders[, record Specifications,] and record Drawings where applicable.
- C. Format: Submit record Product Data as [annotated PDF electronic file] [paper copy] [scanned PDF electronic file(s) of marked-up paper copy of Product Data].
1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

PROJECT NO.195.101.021
October 11, 2023

GREEN EDUCATION CENTER FOR TOWN OF CLAY
9604 BLACK CREEK ROAD, BREWERTON, NY

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 01 91 33

GENERAL COMMISSIONING REQUIREMENTS

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Commissioning is a designed quality-assurance process for achieving, verifying and documenting that the performance of facilities, systems, and assemblies meet the owner's documented objectives and criteria. The design team, contractor and subcontractors provide the quality control for the design, the installation and startup of the building systems. The commissioning process provides review and quantitative functional testing in order to formally observe and document that the quality control efforts of the designers and contractors are successfully completed.
- B. Commissioning includes the completion of a formal commissioning process on the equipment and systems within the Commissioning Scope of Work, as specified within Section 019133. Commissioning is performed by the Commissioning Team under the leadership of the Commissioning Authority (CxA). The entire Commissioning Team is responsible for performing the process and achieving successful commissioning results. Commissioning Team is defined in Definition of Terms portion of this section of the specifications. The CxA is a totally independent firm under contract directly with the Owner, and is not contractually or financially associated with the Design Team or any Contractor performing work on this project.
- C. Commissioning Standards: The commissioning process shall be in accordance with:
 - 1. All sections of the Contract Documents
 - 2. The Building Commissioning Association's (BCA) "Essential Attributes of Building Commissioning (1999)"
 - 3. ASHRAE Guideline 0-2005
- D. Contractors' Responsibility: The Contractor is responsible for completion of the specified commissioning work. The contractors' responsibilities include:

1. The General Contractor shall provide a Commissioning Coordinator (CC), as defined in Definition of Terms portion of this section of the specifications. The General Contractor's Commissioning Coordinator is responsible for managing the commissioning work specified for the contractors.
 2. The Contractor shall be responsible for providing material, equipment, and labor to participate in the specified commissioning process. The Contractor will assure the participation and co-operation of sub-contractors under their jurisdiction, as required to complete the commissioning process.
 3. The Contractor shall support the commissioning process by integrating it into the construction process and schedule.
- E. Support of Materials, Equipment and Systems Suppliers: Suppliers of major equipment and systems within the Commissioning Scope of Work (specified elsewhere in Section 019133) shall support the commissioning process. Minimum support shall consist of the following:
1. Submit the manufacturer's installation & startup manuals as a part of the initial equipment submittal in accordance with the equipment specifications.
 2. Submit the manufacturer's operating and maintenance manuals as a part of the initial equipment submittal in accordance with the equipment specifications.
 3. Assist in developing the final functional test procedures as specified in Sections 019133, 239000, 269000 and related sections.
 4. Provide authorized startup technician to perform functional performance testing as specified in Sections 019133, 239000, 269000 and related sections.

1.02 RELATED SECTIONS

- A. All project specifications related to the "Systems Within The Commissioning Scope Of Work"

1.03 SYSTEMS WITHIN THE COMMISSIONING SCOPE OF WORK

- A. Heating and ventilating systems.
- B. Building Energy Management and Control System
- C. Test and Balance Verification

D. Electrical Systems as follows:

1. Lighting Controls (Interior sampling)
2. Power Distribution (Spot-check of receptacle power connectivity)
3. Fire Alarm (Oversight)
4. Security (Oversight)

1.04 SUBMITTALS

- A. Provide the following submittals in accordance with the general submittal requirements specified elsewhere in Division 1 and according to the commissioning specifications:
- B. Contractor's Systems Readiness Plans as specified in 239000, 269000
- C. Start-up procedures as required in the specifications for systems and equipment within the commissioning scope of work. This is required for acceptance of initial equipment submittal
- D. Equipment Operation and Maintenance manuals as required in the specifications for systems and equipment within the commissioning scope of work. This is required for acceptance of initial equipment submittal
- E. Contractors' review of Initial FPTs.

1.05 DEFINITION OF TERMS & RESPONSIBILITIES

- A. Acceptance Criteria: Acceptance of the systems is based on the contractor being able to demonstrate that the systems and their components function in accordance with the commissioning acceptance criteria.
 1. Installation and static testing acceptance criteria: The acceptance criteria for installation and static testing are the materials and methods requirements specified in Divisions 23 and 26.
 2. Functional testing acceptance criteria: The acceptance criteria for functional performance tests are described within the procedures. The functional performance test procedures include descriptions of system's and component's responses that are to be verified. These are the functional testing acceptance

criteria. The functional testing acceptance criteria are based on the project documents and the basis of design.

- B. The Commissioning Plan is a detailed document prepared and maintained by the CxA that describes the entire commissioning process.
- C. Contractor's System Readiness Checklist: These checklists are provided by the CxA and include equipment installation and start-up items specified to be performed and verified by the Contractor. These checklists shall be completed by the Contractor and returned to the CxA prior to the final CxA installation verification and functional performance testing process.
- D. CxA Final Installation Verification Process: This process includes the on-site review of related system components for conformance to the Project Documents. The CxA will conduct this review and verify system readiness for final functional testing procedures upon receipt of the Contractor completed Contractor's System Readiness Checklists. The CxA shall document issues identified during this process and assign them to the appropriate party for resolution.
- E. Functional Performance Testing Process: Functional Performance Testing verifies that the systems perform in accordance with the project documents, the owner's design intent, and the A/E's basis of design. The process includes the documented testing of the systems under actual and simulated operating conditions. Functional Performance Test (FPT) procedures are detailed instructions that allow experienced system technicians to perform the FPTs with repeatable results. The repeatability of the procedures and results validate the tests. Final performance testing of systems will begin only after the Contractor certifies that systems are 100% complete and ready for functional testing, and the CxA has completed the subsequent installation verification process for the systems to be tested.
- F. Commissioning Issues Log: All issues raised during commissioning shall be logged and tracked until they have been resolved. A commissioning issues log shall be maintained by the CxA. The Issues Log includes the description of all issues discovered as a result of the commissioning process. The list also includes the current issues status, assignment to the responsible party and the date of final resolution as confirmed by the CxA. Items listed may include issues where design, products, execution or performance does not appear to satisfy the Project Contract Documents and/or the design intent. The resolution of issues identified on this list may be the responsibility of the Contractor, design team, or the owner.

- G. **Back-Checking:** Back-Checking is the process of verifying that commissioning related issues have been resolved by the responsible party. The back-checking process takes place once the Contractor has provided written notification that an issue or issues in the Commissioning Issues Log have been resolved.

- H. **Performance Period:** The performance period is a set length of time designated to demonstrate proper facility operation prior to acceptance. The performance period commences after successful completion of other functional testing. Performance data is typically collected via DDC system trend logging or data logging. Evaluation typically includes zone temperature stability, optimum start/stop, warm-up period and other related functions. As part of this process the contractor will be required to set up and provide trends of control system parameters per the direction of the CxA. The performance period trend logs will be specified in the Functional Performance Test Procedures.

- I. **Seasonal or Deferred Testing:** This testing is completed during conditions that do not occur during the initial functional testing period; for example during design or seasonal transition temperatures. Seasonal or Deferred FPTs are a limited sub-set of the original tests and are designed to evaluate capacity and systems' interaction.

- J. **Final Commissioning Report:** The Final Commissioning Report contains a summary description of the commissioning process as it occurred, and the final versions of all commissioning documentation. The Final Commissioning Report shall be prepared by the Commissioning Authority.

- K. **Project Contract Documents:** As defined elsewhere in Division 1.

- L. **Initial Commissioning Coordination Meeting:** This meeting is intended to present the Commissioning Plan to the Contractor and is typically scheduled to occur after bid award and prior to installation of commissioned systems.

- M. **The Commissioning Team:** Commissioning is performed by the Commissioning Team, which consist of the Owner, Commissioning Authority, the Commissioning Coordinator, the Design Team, all subcontractors performing work on the equipment and systems within the commissioning scope of work, and all materials and equipment suppliers supplying equipment and systems within the commissioning scope of work. The commissioning team is lead by the Commissioning Authority. The Commissioning Coordinator is the on-site manager of the commissioning process.

- N. **Commissioning Authority (CxA):** The CxA is the owner's commissioning consultant

and the leader of the commissioning Team. The CxA oversees the commissioning process and advises the owner on commissioning issues, emphasizing the long-term performance and maintainability of the systems included in the commissioning scope of work. The CxA is required to advise the owner of issues involving the design, construction, testing, adjusting and balancing, or other issues that would compromise the ability of the facility to meet the needs of the owner. The CxA is authorized to recommend to the owner the acceptance, modification, or rejection of all materials, procedures, schedules, tests, reports, or other required commissioning submittals. The CxA is not authorized to change existing contract documents, schedules, costs, or scope of work for any of the parties involved (architect or contractor).

- O. General Contractor's Commissioning Coordinator (CC): The General Contractor shall provide a Commissioning Coordinator. The CxA and the CC comprise a commissioning management team. While the CxA leads the overall commissioning process, the CC is responsible for managing contractors in their day to day performance of the specified commissioning work. The CC is an employee of the General Contractor who is regularly and frequently on site. Qualifications for the Commissioning Coordinator include relevant process management experience and excellent abilities to schedule, coordinate, and manage mechanical and electrical subcontractors. The following tasks are some of the critical items included in the CC's scope of work:
 - 1. Integrating the specified commissioning activities into an overall construction schedule, updating the schedule, and providing two-week look-ahead schedules showing the upcoming commissioning related activities
 - 2. Providing all commissioning submittals
 - 3. Coordinating owner training, and ensuring that training is provided in accordance with the commissioning specifications
 - 4. Ensuring that subcontractor and supplier review of the CxA provided FPT procedures and forms are completed and submitted in accordance with the specifications. This includes providing written comments regarding issues from all required FPT participants pertaining to safety, equipment protection and warranty, and appropriateness of the procedure for the systems as provided, and providing written comments, even if no exception is taken, for every FPT.
 - 5. Coordinating development and submittal of specified flushing, cleaning and start-up procedures; and ensuring that these procedures are completed and

documentation is submitted

6. Providing test reports and progress reports in accordance with the commissioning specifications.
7. Managing the contractors' participation in the FPT process as specified in the commissioning specifications.
8. Managing the contractors' participation in resolution of issues identified during commissioning.
9. Ensuring that subcontractors perform preliminary testing to verify readiness for final FPT. demonstrations; submitting documented verification that systems will pass FPTs with acceptable results as documented in the FPTs; and Coordinating the FPT demonstrations to Owner and CxA.
10. Coordinating repeat FPTs that fail due to contract deficiencies until acceptable results are achieved, and managing the reimbursement of the Owners costs for repeated tests in accordance with the specifications.

1.06 CONSTRUCTION PHASE COMMISSIONING PROCESS OVERVIEW

- A. After the bid award and acceptance of mechanical and electrical submittals, the Commissioning Authority will conduct a pre-installation commissioning coordination meeting with the Contractors, Owner's Representative and the Design Team. The CxA will present the commissioning plan, discuss commissioning process in detail, and identify specific commissioning related responsibilities. Milestones shall be discussed, including contractor start-up and testing forms, preliminary O&M manuals, training agendas and other approved submittals needed to complete the plan. The final plan will be developed after the CxA receives all submittals from the contractor and design team.
- B. The Contractor shall provide the Commissioning Submittals.
- C. Functional performance Test procedures shall be developed by the CxA with input from the Contractor, Owner, and A/E as specified in Part 3.
- D. Commissioning status meetings shall be scheduled to occur during the construction and closeout phase to monitor progress and to help facilitate the commissioning process. Contractor representatives for commissioned systems shall be required to attend these meetings. Meetings will generally be scheduled to occur with scheduled

construction or management meetings.

- E. The CxA shall perform periodic site visits during construction and identify potential issues in a site report. The Contractor shall review these site reports and resolve issues in accordance with the contract documents.
- F. The Contractors shall prepare the equipment and systems for startup in accordance with the Project Documents, industry standard guidelines, and the guidelines of the equipment and systems manufacturers. Startup shall be performed by the contractors and manufacturer's startup technicians in accordance with the Project Documents, industry standard guidelines, and the guidelines of the equipment and systems manufacturers. The Contractor shall test the systems to verify that they perform in accordance with the Project Documents, including the Commissioning Functional Performance Test Procedures. The CxA may witness equipment start up and testing. The contractor shall notify the CxA in writing at least 10 working days in advance of the start-up and testing dates so that the CxA can schedule attendance. If the CxA is not notified in advance of a scheduled start-up or testing activity, the start-up or testing shall be rescheduled and repeated to the satisfaction of the CxA. When scheduled start-up activities are not executed because of lack of preparation or coordination by the Contractor, the Contractor will be subject to back-charges in accordance with the contract documents.
- G. Once the Contractor has provided the CxA with written verification (Contractor's System Readiness Checklists) indicating completion of installation procedures, the Commissioning Authority will conduct a final on-site system readiness review of the specific systems and equipment to be commissioned. Issues noted during this process will be documented by the CxA in the Commissioning Issues List.
- H. Upon confirmation of system readiness and receipt of the preliminary balancing (TAB) report, functional performance testing shall be scheduled. Functional testing shall not commence until all critical issues identified during the Installation Verification Process are resolved.
- I. Issues noted during the functional performance tests will be documented by the CxA. When easily corrected, issues will be resolved at the time of discovery. The appropriate contractor will resolve all other issues at a later time. Issues will be tracked by issue number, responsible party, status and activity date. The contractor shall be responsible for reporting, in writing, to the CxA when issues have been resolved so that the CxA can verify the resolution.

- J. The construction phase commissioning process will be complete when all noted issues have been corrected, proved to be in compliance with the Project Documents or otherwise resolved to the satisfaction of the Owner.

1.07 CLOSEOUT PHASE COMMISSIONING PROCESS OVERVIEW

- A. Closeout contractor responsibilities include completion and submission of the Project Closeout Checklist for commissioned systems. Project closeout requirements and a draft checklist are included in this section.
- B. Training on related systems and equipment operation and maintenance shall be scheduled after commissioning is satisfactorily completed, O&M manuals have been accepted and delivered to the owner, and systems are verified to be complete and functional. Each Contractor is responsible to provide a topical outline of all subjects to be covered in the training session(s), the expected length of time for the training sessions, and a brief resume listing the qualifications of the proposed training presenters. Training will be coordinated with the Owner.
- C. Upon request, the Contractor is responsible for providing the CxA with copies of all balancing reports, as-built drawings and O&M manuals relevant to the systems commissioned. The CxA will review this material for compliance with Project Documents and will note and report all issues for resolution by the responsible party.
- D. Upon completion of all commissioning activities the CxA will prepare and submit to the owner the Final Commissioning Report detailing the commissioning plan and all commissioning activities.

1.08 BACK-CHARGING

- A. The Contractor is responsible for scheduling and coordinating commissioning activities. The Contractor shall reimburse the owner for the cost of commissioning activities that must be repeated because of a lack of preparation or coordination by the Contractor. Reimbursable costs include CxA fees for services billed at the CxA's standard hourly rate of \$105.00/Hour, mileage billed at the current IRS rate, and the cost of any rented test equipment. A \$200.00 per diem rate shall be assessed to meet travel, meals, and lodging needs.
 - 1. Repeated back-checking: Commissioning issues are documented in the Commissioning Issues Log. The Contractor shall submit a brief written statement of when and how each issue has been resolved, using issues

response forms provided by the CxA. The CxA shall back-check these issues on a one-time-per-issue basis to verify they have been resolved. If the back-checked issues that have not been resolved as reported the associated cost of the unsuccessful back-check shall be subject to back-charging.

2. Repeated installation verification: After the Contractor has submitted the completed System Readiness Checklists, the CxA will perform final installation verifications on selected systems. Discrepancies discovered will be reported in the Commissioning Issues Log. Back-checking the correction of these discrepancies shall be subject to back- charging.
3. Repeated witnessing of FPT demonstrations: As specified in this section, the Contractor demonstrates the functional performance tests after they have verified that performing the FPTs will yield the documented acceptable results. The cost of witnessing demonstrations that do not demonstrate specified acceptance criteria shall be subject to back-charging.
4. Excessive contractor coordination by the CxA due to lack of contractor scheduling.
5. Cancelled functional tests or appointments due to contractor under preparedness or lack of communication.

PART 2 – PRODUCTS

2.01 CONTRACTOR SYSTEMS READINESS CHECKLISTS

- A. The Contractor shall maintain and complete copies of the Contractor’s System Readiness Forms, which will be provided by the CxA. Initial forms are provided in the project specifications; however, working drafts will be created based on actual submittal data and contractor reviews. Checklist forms and supporting documents shall be signed by the Contractor and submitted to the CxA upon completion.
- B. Completion of these items shall not release the Contractor from their responsibility to complete other specified requirements of the Project Contract Documents.

2.02 STARTUP PROCEDURES AND FORMS

- A. Startup procedures and checklists for equipment within the commissioning scope of

work shall be submitted for review as a part of the equipment submittal. Minimum startup procedures are specified in the specifications for systems and equipment within the commissioning scope of work. Procedures shall also include all installation and start-up procedures and checklists that are provided by the equipment or system manufacturer. The accepted startup documentation shall be completed by the Contractor and submitted to the CxA for review and inclusion within the Final Commissioning Report.

2.03 TEST INSTRUMENTATION

- A. The contractor shall provide the commissioning test equipment.
- B. The test equipment shall be provided in sufficient quantities to execute functional testing in an expedient fashion.
- C. The test equipment shall be suitable for testing and calibration with accuracy and tolerances necessary to demonstrate that system performance is in accordance with the basis of design.
- D. Equipment used for functional testing sensors and gages shall be certified to an accuracy of 10% of the smallest tolerance to be measured. For example, if a temperature gage is required to be +2 degrees F, the calibration device must have a minimum accuracy of +0.2 degrees F.
- E. Instrumentation used for functional testing system performance must have a minimum repeatability and accuracy of $\pm 1.0\%$ of the acceptance criteria being measured. For example: if a supply temperature of 50F is being verified, the repeatability and accuracy of the test instrument must be at least $\pm 0.5F$.
- F. The test equipment shall have calibration certification per equipment manufacturer's interval level or within one year if not specified.

2.04 PROJECT CLOSE-OUT CHECKLIST

2.05 The Contractor shall complete and sign the Commissioning Project Closeout Checklist to indicate completion of Contractor's specified responsibilities regarding: arrangements for post- construction testing, spare parts for owner, final O&M manuals, as-built documents, O&M training, performance testing, indoor air quality testing and any other requirements that occur just prior to owner acceptance of the project. Initial forms are provided in the project specifications, however, working drafts will be created based on actual submittal data and contractor reviews.

PART 3 – EXECUTION

3.01 DOCUMENTATION

- A. All checklists, start-up documentation, test forms and other commissioning related documentation required by contract shall be neatly completed and submitted to the CxA in a clear and easily readable condition.
- B. All required checklists, start-up documentation, test forms and other commissioning related documentation shall be submitted to the CxA in accordance with the commissioning and construction schedule.
- C. When the Contractor is unable to comply with an item as listed on the checklist or form, the Contractor shall immediately notify the CxA in writing as to the reasons for non-compliance.

3.02 COMMISSIONING MEETINGS:

- A. Commissioning meetings provide an opportunity for direct coordination and prompt resolution of commissioning issues. The CC coordinates the meetings; the CxA chairs and provides notes for these meetings. Participants include the CC, CxA, Owner, Design Team, Test & Balancing Agency, the contractors, and key subcontractors and equipment suppliers as needed. Commissioning meetings shall be held in accordance with the following requirements
 - 1. Commissioning meetings shall be held on an as needed basis until startup and / or functional testing of major equipment begins. The CC, the Owner, CxA, and all subcontractors listed as members of the Commissioning Team shall attend these meetings. The attendance of other commissioning team members may be required if necessary to efficiently address the meeting's agenda.
 - 2. While startup and functional testing are occurring, weekly commissioning meetings shall be held at a regularly scheduled time. The CC, CxA, Owner, and subcontractors responsible for installing the system(s) shall attend these meetings. The Design Team members responsible for the design of these systems shall be available by phone. The attendance of other commissioning team members may be required if necessary to efficiently address the meeting's agenda.
 - 3. Commissioning Site Observations: The commissioning Authority will perform periodic site observations. Reports will be submitted to the CxR and the CC.

Copies will be simultaneously distributed to the rest of the commissioning team. Issues identified during the site observations will be logged in the master commissioning issues log

3.03 COMMISSIONING ISSUES LOG

- A. Issues identified during the commissioning process, including site observations, prefunctional testing verification and functional testing, will be logged in the commissioning issues log. The CxA will maintain the master log. For each issue, the CxA will make a recommendation regarding who they believe is in the best position to provide the resolution. It is the GC's responsibility, however, to manage issue resolution, including the determination of how the issue will be resolved and who will do the work.
- B. Each issue in the list will be classified with a "status" of either "resolved", "unresolved" or "resolved-unverified". Resolved issues are closed – having either been addressed by the contractor and verified as corrected by the CxA, or accepted by the owner. Resolved– unverified issues have been reported as resolved by the contractor, but are not yet verified by the CxA as resolved. Unresolved issues have not been reported as addressed by the contractor. Updated unresolved issues lists will be distributed to team in MS Word format.
- C. Materials and methods issues discovered during commissioning but that pertain to AE construction review will be transferred to the Design Team for tracking through resolution. When the design team reports the issue resolved, the CxA will classify the issue as Resolved, without back-checking.
- D. When a commissioning issue is resolved the Contractor shall submit the list with a written response describing when and how the issue is resolved. The CxA or the AE shall then back- check the issue. The CxA scope of work includes one back-check of issues that the Contractor reports as resolved. BACK-CHARGING applies to back-checking required due to lack of preparation by contractor.

3.04 PREFUNCTIONAL TESTING VERIFICATION

- A. Contractor's Systems Readiness & Startup Activities: In preparation for the system readiness and startup, the contractor performs work in accordance with the contract bid documents, such as flushing and pressure testing piping systems, TAB, startup and contractor QC testing. The CC coordinates the subcontractors to verify and document that:

1. Piping and duct systems have been cleaned, flushed and tested in accordance with the contract documents
 2. Equipment is installed and placed into operation in accordance with the manufacturers' requirements and contract documents.
 3. The contractor shall perform equipment start-up per the accepted start-up plan and start-up forms. The contractor shall correct issues as they are discovered and submit the successfully completed start-up documentation to the CxA.
 4. Equipment is accessible for maintenance, operation, and testing
 5. All necessary instrumentation and flow control devices are provided, and sensors are properly located
 6. Equipment startup is performed in accordance with the contract documents, the equipment manufacturer's recommendations and good industry practices
 7. TAB is provided in accordance with the contract documents.
- B. CxA Scope of Work: The CxA's scope of work for pertaining to these activities shall consist of the following. The CC shall coordinate with the contractors and suppliers accordingly. The CxA shall receive a minimum of 10 working days advanced notice for any activity to be witnessed:
1. Review the contractor's startup, testing, and TAB plans. Review completed documentation and include them in the final commissioning report.
 2. For piping systems, review the contractors' pressure testing and flushing plans for compliance with the specifications. Review completed documentation and include it in the final commissioning report.
 3. Witness the TAB contractor's demonstration of 10% of TAB measurements and settings.
 4. For startup of major equipment :
 - a. The CxA shall review the Contractor/supplier's startup and test plan
 - b. The CxA shall meet with the startup tech at the time of startup to discuss the startup plan.

- c. The CxA shall be available via phone to answer questions during the startup period.
- d. The CxA shall meet with the startup tech at the end of startup period to review and discuss the reports.
- e. The startup tech shall demonstrate to the CxA any acceptance criteria included in the FPTs.
- f. Startup reports shall be included in the final commissioning report.

3.05 SYSTEM READINESS DOCUMENTATION

- A. The CxA creates System Readiness Forms for the Contractor, which document that the equipment has been provided in accordance with the project requirements and is ready for functional testing
- B. The contractor completes and signs the forms and submits them for CxA review. The CC shall review and sign off on all System Readiness Forms prior to submittal to the CA
- C. The CxA shall review all System Readiness Forms and supporting documentation from installation and start-up activities.
- D. Acceptable results must be demonstrated for the entire sample. If the actual state of the system, equipment, or component is not consistent with the state documented in readiness form, the readiness forms for all similar systems equipment or components will be double-checked. Whenever the double-checking results are not acceptable, the contractors shall make corrections and the FPT shall be demonstrated again in accordance with the commissioning specifications. The cost of back-checking with unacceptable results and expanded sampling is not included in the Commissioning Authority's scope of work. BACK-CHARGING applies to additional back-checking required due to lack of preparation by contractor.
- E. The contractor must have approval from the CxA to proceed with testing

3.06 FUNCTIONAL PERFORMANCE TESTS (FPTs)

- A. Functional performance testing of commissioned systems shall begin after all critical issues discovered during the installation verification process have been corrected.

- B. The procedure for developing and performing the FPTs shall be as follows.
1. The Contractor shall provide the equipment and commissioning submittals as specified in the project documents.
 2. The Commissioning Authority shall draft the FPT procedures based on the contractor's submittals and project documents. The draft procedures shall be submitted to the Commissioning Team for review.
 3. Each contractor and equipment supplier that is specified as an FPT participant in the FPT Summary Tables in Section 239000 and 269000 shall participate in the development and performance of the associated FPTs. Each FPT participant shall provide written comments on the associated FPT regarding each of the following issues:
 - a. Verify that the procedures can be performed without compromising the safety of the participants.
 - b. Verify that the procedures can be performed without compromising the warranties of equipment, components, and systems.
 - c. Verify that the procedure is appropriate for the equipment, components, and systems as provided
 - d. At the contractor's option, make recommendations to incorporate the FPTs into the contractor's in-house startup and QC testing process.
 4. The CxA shall complete the working drafts of the FPTs
 5. Subcontractors and suppliers shall provide the personnel, expertise and test equipment to operate and maintain the systems during testing.
 6. The Contractor shall test all systems within the commissioning scope of work, using the FPTs until the acceptable results specified in the FPT procedure are verified and documented. If necessary to obtain acceptable results, the Contractor may consult with the CxA to acquire clarification and resolve issues. The CxA shall be available for on- site assistance of this nature.
 7. The Contractor shall submit documentation that verifies that the acceptable results specified in the FPT procedures have been verified and that they are ready to demonstrate the FPTs with acceptable results. Acceptable

documentation consist of completed FPT record forms which document acceptable FPT results, or indication on the Systems Readiness Checklists that the Contractor's pre-functional testing has verified that functional performance testing of the equipment and associated system demonstrates the acceptable results specified in 239000 and 269000.

8. After the CxA has accepted the Contractor's documentation of acceptable results, the FPTs shall be demonstrated to the CA. If acceptable results are not demonstrated for an FPT, the Contractor shall resolve the issue(s) and the demonstration shall be repeated.
 9. The CC is responsible for scheduling and coordinating functional testing activities. The Contractor shall demonstrate the functional performance tests after they have verified that performing the FPTs will yield the documented acceptable results. The contractor is subject to back-charging, as specified herein, if acceptable results are not demonstrated because of work that should have been verified during pre-demonstration testing. Acceptable results must be obtained during a single demonstration with no more than two delays of 15 minutes or less, during each test.
- C. In addition to participating in functional tests developed by the CxA, the Contractor shall be required to complete all start-up and testing procedures as specified elsewhere in the Project Contract Documents.

3.07 ISSUE CORRECTION

- A. Issues entered into the Commissioning Issues Log, shall be resolved by the contractor in a timely manner. The Contractor shall submit a brief written statement of when and how each issue has been resolved, using issues response forms provided by the CxA.

3.08 PERFORMANCE PERIOD

- A. Functional performance testing shall include a performance period test plan, which includes measured variables and success criteria based on performance characteristics described in the Project Documents. The CxA will provide the Control System Contractor with a list of required trend log definitions to be implemented as a basis for reviewing performance during this period.
- B. The Contractor will review the performance period test plan and set up the trend log

definitions from the CxA. The trending shall be provided by the contractor in both a text and graphic format with related system parameters grouped together for easy comparison. If DDC system resident memory is limited or there are other issues with the trending requirements, the Contractor will notify the CxA and request the CxA redefine the test plan.

- C. The performance period shall be as specified in the FPTs. If failures are encountered, the performance period shall be aborted. After corrections are made, the performance period shall be re-started at day one. Back-Charging as specified herein shall apply.

3.09 SYSTEMS ACCEPTANCE

- A. Equipment and systems shall not be accepted by the Owner until all commissioning activities are complete and the performance period standards have been met.

3.10 PROJECT CLOSEOUT

- A. Post construction contractor responsibilities include completion and submission of the Project Closeout Checklist for each commissioned system to the CxA, to verify completion of contractual obligations for the owner. Project closeout requirements, tracking sheet and checklists are included in Schedule A located at the end of this section.
- B. Training on related systems and equipment operation and maintenance shall only be scheduled to commence after functional testing is satisfactorily completed, O&M manuals have been delivered and approved, and systems are verified to be 100% complete and functional. Each Contractor is responsible to provide a topical outline of all subjects to be covered in the training session(s), the expected length of time for the training sessions, and a brief resume listing the qualifications of the proposed training presenters. The CC is responsible for developing the training plan with input from the contractor and directing any video taping efforts. The CC is responsible for coordinating training with the Owner and CxA and to verify execution of the training plan.
- C. Upon request, the Contractor is responsible for providing the CxA with copies of all balancing reports, as-built drawings and O&M manuals relevant to the systems commissioned. The CxA will review this material for compliance with Project Documents and will note and report all issues for resolution by the responsible party.

- D. Upon completion of all commissioning activities the CxA will prepare and submit the following to the Owner:
 - 1. Final Commissioning Report detailing the commissioning plan and all commissioning activities and recommending acceptance to the Owner. The CC will support this effort by coordinating the contractor provided documentation.
 - 2. Systems Manual that outlines to O&M staff optimally operating the building systems in the Cx scope.
 - 3. Near-End Warranty review after 10 months of substantial completion with issues list.

3.11 DEFERRED AND SEASONAL TESTING

- A. Deferred or Seasonal testing requirements are specified in Section 239000.
- B. The Contractor shall provide labor and material for seasonal testing and make corrections to any Contractor related issues discovered.

GENERAL CONTRACTOR'S COMMISSIONING CLOSEOUT CHECKLIST

INSTRUCTIONS:

Contractor's Commissioning Coordinator shall verify completion of all items, sign and return the checklist to the Commissioning Authority as an indication of final completion with all installation criteria as specified in the Project Contract Documents.

PROJECT CLOSEOUT CHECKLIST:

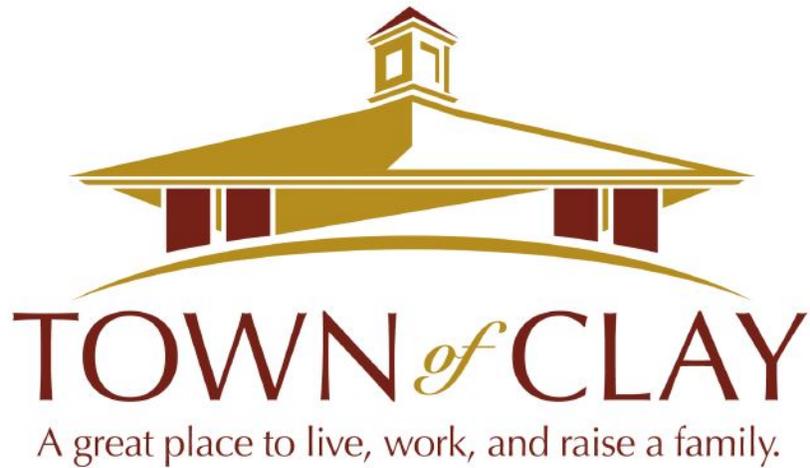
- Training has been completed in compliance with specifications.
- O&M Manuals are complete and submitted.
- Warranties have been provided to Owner.
- Record drawings have been updated as-built.
- Required spares have been submitted to owner and receipt of materials signed.
- Contractor considers all specified close-out requirements to be complete.

PLEASE NOTE: This checklist is not intended to represent all the requirements of the Project Documents within this section. Completion of the items on this checklist does not release the contractor from their contractual obligation to complete all the work as detailed within the entire specification section.

Signed: _____ Date: _____

Company: _____

END OF SECTION



MASTER SPECIFICATIONS

Divisions 02 / 04 / 05 / 06 / 07 / 08 / 09 / 31

GREEN EDUCATION CENTER FOR:
TOWN OF CLAY

9604 BLACK CREEK ROAD
BREWERTON, NEW YORK

PROJECT NO: 195.101.021

ISSUED: October 11, 2023

All information within this Document is considered **CONFIDENTIAL and PROPRIETARY**. By receipt and use of this Document, the recipient agrees not to divulge any of the information herein and attached hereto to persons other than those within the recipients' organization that have specific need to know for the purposes of reviewing and referencing this information. Recipient also agrees not to use this information in any manner detrimental to the interests of **THE TOWN OF CLAY**.

02 41 00 DEMOLITION

SCHEDULE

Perform demolition as indicated.

Obtain necessary permits.

Provide a proposed schedule for demolition work.

Sawcut concrete to be removed.

DEBRIS

Debris resulting from demolition operations shall be promptly removed from the Owner property.

Burning of rubbish or debris shall not be permitted on the site.

END OF SECTION

04 42 00 STONE CLADDING

SUBMITTALS

Submit following items: Product Data: Manufactured masonry and application materials including mortar color charts, water resistive barrier. : Panel containing full-size samples of specified manufactured masonry showing full range of colors and textures with specified mortar.

QUALITY ASSURANCE

Manufacturer Qualifications: Minimum five years experience in producing manufactured masonry. Member of following organizations: MSJC. ACI. ASTM. Installer Qualifications: Company with documented experience in installation of manufactured masonry including minimum 5 projects within 400 mile radius of this Project.

DELIVERY, STORAGE, AND HANDLING

Follow manufacturer's instructions. Store moisture-sensitive materials in weather protected enclosures. Environmental Requirements: Maintain materials and ambient temperature in area of installation at minimum 40 degrees F (4 degrees C) prior to, during, and for 48 hours following installation.

WARRANTY

Provide manufacturer's standard limited warranty against defects in manufacturing for a period of 50 years following date of Substantial Completion

MAINTENANCE

Extra Materials: Furnish extra manufactured stone material in a variety of shapes and sizes in quantity equal to three percent of the installed stone.

PRODUCTS

MANUFACTURER - Stone Products LLC Tel: (800) 255-1727

One Owens Corning Parkway Fax: (419) 325-3995

Toledo, OH 43659 Website: www.culturedstone.com

Architectural Trim: Pier Capstones: Size: 32 by 32 inches as shown

on Drawings. Sill—Stone Textured to match field stone. Size: 2 (front), 2-1/2 (back), by 3 by 18 inches. Provide sloped top surface and drip edge.

Manufactured Masonry Physical Properties:

Compressive Strength: ASTM C 192 and ASTM C 39, 1800 psi (12.4 Mpa) Bond Between Stone Unit, Type S Mortar, and Backing: ASTM C 482, 50 psi (345 kPa). Thermal Resistance:

ASTM C 177, R-factor, 0.355 per inch (25.4 mm) of thickness. Freeze/Thaw: ASTM C 67, 50 cycles, no disintegration and less than 3 percent weight loss. Fire Hazard Test, UL 723: Flame spread: 0. Smoke Development: 0. Maximum Veneer Unit Weight: 15 psf (73 kg/m²).

RELATED MATERIALS

Water Resistive Barrier: No. 15, Type I, asphalt saturated felt, ASTM D 226]. [Vapor permeable flexible sheet water resistive barriers comply with ASTM E 2556/ E 2556M]

Metal Lath: [2.5 lb (1.4 kg/m²) galvanized expanded metal lath] [18 (1.3 mm) gauge woven wire mesh] [3.4 lb (1.8 kg/m²) galvanized expanded rib lath].

Fasteners: Into Wood Studs: Minimum 1/8 inch (25 mm) shank diameter galvanized nails or minimum 3/4 inch (19 mm) crown staples of sufficient length to penetrate 1 inch (25 mm) minimum into the stud. Into Metal Studs: Minimum 7/16 inch (11.1 mm) head diameter, corrosion-resistant, self-drilling, self tapping, pancake head screws of sufficient length to penetrate 3/8 inch (10 mm) minimum into the stud. :

Premixed Type N, Type S or mortar mixed using components and proportions following manufactured masonry manufacturer's installation instructions. Comply with ASTM C 270. Color: Iron oxide pigments. screed as required for installation over framed construction.

EXAMINATION

Examine substrates upon which manufactured masonry will be installed. Coordinate with responsible entity to correct unsatisfactory conditions.

Commencement of work by installer is acceptance of substrate conditions.

Protection: Prevent work from occurring on the opposite of walls to which manufactured masonry is applied during and for 48 hours following installation of the manufactured masonry.

Surface Preparation: Follow manufacturer's instructions designated below for the appropriate type of manufactured masonry and substrate.

FIELD QUALITY CONTROL

PROTECTION

Protect finished work from rain during and for 48 hours following installation. Protect finished work from damage during remainder of construction period.

END OF SECTION

05 40 00 COLD-FORMED METAL FRAMING

QUALITY ASSURANCE

Design Criteria: Drawings indicate general arrangement, aesthetic requirements and minimum sizes of principal members only. Contractor shall complete the design and provide wall framing of the design indicated, constructed to withstand a uniform wind load of 20 pounds per square foot, unless code requires greater load, with a maximum deflection of $L/360$.

Design analysis and section properties shall conform to AISI "Specification for the Design of Cold-Formed Steel Structural Members".

Wall systems shall be designed to provide for movement of components without damage, failure of joint seals, excess stress on fasteners and other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.

Systems shall be designed to accommodate construction tolerances, anticipated building settlement, deflection of building structural members, and clearances of openings.

Tolerances: Erect walls and partitions on straight lines, plumb, free of twists or other defects, and contacting a 10-foot straightedge for its entire length at any location within a $1/8$ " tolerance. Erect horizontal framing level within a tolerance of $1/8$ " in 12-feet in any direction.

MATERIAL

Light gauge metal framing: Conform to ASTM A568 for uncoated steel thickness, hot dip galvanized conforming to ASTM A 123, Coating Class G60. Strengths shall be as specified in ASTM A653, Grade D, yield strength 50 ksi.

Framing shall be manufactured by USG, Western Metal, or equal.

Gauges and properties of studs shall be as indicated.

Mechanical anchors to concrete and masonry shall be metal cinch not less than $3/8$ -inch in diameter threaded bolt head type. Anchor bolts to be set in concrete shall be hook type $1/2$ -inch diameter or more.

Mechanical anchors to metal framing shall be No. 10 self tapping and self drilling wafer head screws.

Accessories: Special top tracks, angles, fasteners, and strips of gypsum wallboard, as required for fire rating assembly required at each condition.

FABRICATION

The work shall be fitted, shop assembled and ready for erection. Exposed joints shall be made where least conspicuous in final product.

WELDING

Welding shall be in accordance with applicable Codes and the AWS Standards for fusion and gas cutting or welding. Welding shall be done on the unexposed sides to prevent pitting, discoloring, weld-halo and other surface imperfections.

INSTALLATION

Install structural studs where indicated on drawings, spaced at 16" centers unless otherwise indicated, complete with tracks and shoes. Allow for deflection of structure above. Provide doubled studs at jambs of all openings more than 16" wide.

Tracks shall be securely anchored to the supporting structure as detailed on approved shop drawings. At track butt joints, abutting pieces of track shall be anchored to a common structural element, or they shall be butt-welded or spliced together.

Studs shall be plumbed, aligned and attached to the flanges or webs of both upper and lower tracks.

Wall stud bridging shall be attached in a manner to prevent stud rotation, and resistance to minor axis bending. Bridging rows shall be spaced at midpoint of walls to 10'-0" and at 5'-0" intervals for walls higher than 10 feet.

Make provision for structure vertical movement with vertical slide clips or other method as indicated on approved submittals.

Where framing is subject to vertical loads, provide uniform and level bearing support for bottom track. Construct shear walls as indicated, including bracing and additional bridging as shown or required. Provide all additional studs to resist horizontal components as required. Axially loaded studs shall not be spliced.

Install supporting members, fastenings, frames, hangers, bracing, brackets, bolts, angles and other items as required to set and connect the metal framing to the concrete or steel structural framing.

Weld all connections in accordance with AWS D1.1, Structural Welding Code.

CONNECTIONS TO METAL DECKING:

Provide pre-molded neoprene filler strips matching the flute profile for non-fire-rated walls and partitions covered on one or both sides up to metal decking.

PROJECT NO. 195.101.021
October 11, 2023

GREEN EDUCATION CENTER FOR TOWN OF CLAY
9604 BLACK CREEK ROAD, BREWERTON, NY

END OF SECTION

05 45 00 METAL SUPPORT ASSEMBLIES

DESCRIPTION OF WORK

Provide light gauge metal framing for interior non-load bearing partitions and ceilings, and for exterior soffits.

QUALITY ASSURANCE

Code: Conform all installations to code. In case of conflict between contract documents and code, the more stringent requirements shall govern.

Reference Specification: Except as modified herein or required by code, conform metal support systems for plaster to the CLPCA Plaster/Metal Framing/Lath Manual and to MLSFA Metal Lathing and Furring.

Tolerances: Erect walls and partitions on straight lines, plumb, free of twists or other defects, and contacting a 10-foot straightedge for its entire length at any location within a 1/8" tolerance. Erect horizontal framing level within a tolerance of 1/8" in 12-feet in any direction.

MATERIALS:

Wall Framing and Furring for Gypsum Wallboard: Conform to ASTM C 645. Studs shall be C-shaped, roll-formed steel with minimum uncoated design thickness of 20 gauge, made from G40 hot-dip galvanized coated sheet.

Floor and ceiling runner tracks shall conform to ASTM C 645.

Tracks shall be prefabricated, U-shaped, unpunched web, thickness to match studs, made from G40 hot-dip galvanized coated sheet.

Stud gauges indicated on drawings or specified above are minimum. Where required stud height exceeds Code approvals or manufacturer's recommendations, provide heavier gauge studs and/or decrease stud spacing as necessary to conform to code approvals, at no additional contract cost.

Wires: Soft-annealed galvanized steel wire, 8 gauge for hanger wires and 16 gauge for framing unless otherwise specified.

Fasteners: Wafer head screws, self-drilling type for 20 gauge metal and heavier.

Zinc-Rich Paint: Conform to Fed Spec DOD-P-21035A, Z.R.C. "Cold Galvanizing Compound", manufactured by ZRC Products Company. Use for touch-up of galvanized surfaces.

Steel Backing Plates: Fabricate of minimum 4" wide by 16 gauge steel, or sections of studs and stud track welded to web of studs, except as otherwise indicated. Apply shop coat of metal primer.

INSTALLATIONS

Conform installation of light gauge steel framing and furring to requirements of ASTM C 754 and ASTM C 841.

INSTALLATION OF STUD TRACKS

Bolt or screw fasten to metal and anchor at least 1-1/4" into concrete with bolts and expansion shields, sleeved 'dryvins', cinch anchors, screws and lead plugs, drilled and bolted steel shells, or other approved device. Concrete nails are not acceptable.

Abutting lengths of track shall be securely anchored to a common structural element, butt-welded or spliced.

Secure all tracks within 6" of ends and at maximum 24" centers between unless otherwise indicated.

WALL FRAMING AND FURRING FOR GYPSUM DRYWALL

Provide 20 gauge studs at maximum 16" centers typically, unless otherwise shown, specified, or required under Subparagraph "Stud Height".

Cut studs 1/2" short and secure to top track in manner that allows for deflection of structure above.

Steel framing and furring members shall be installed in accordance with ASTM C 754 and as specified herein.

Members shall be in alignment. Runners shall be aligned accurately at the floor and ceiling and securely anchored.

Control joints for expansion and contraction in the walls shall be constructed with double studs installed 1/2" apart in interior walls or wall furrings where indicated on drawings.

Control joint spacing shall not exceed 30'.

Ceiling-height door frames may be used as vertical control joints.

Door frames of less than ceiling height may be used as control joints only if standard control joints extend to ceiling from both corners of top of door frame.

Control joints between studs shall be filled with firesafing insulation in fire rated partitions.

BACKING PLATES AND ANCHORAGE

Install and attach to metal studs or furring for anchoring items indicated or specified elsewhere. Install plates of lengths to span over at least two supports, equipped with two countersunk machine screws at each support except plates may be welded to supports 18 gauge or heavier.

CONNECTIONS TO METAL DECKING

Provide premolded neoprene filler strips matching the flute profile for non-fire-rated walls and partitions covered on one or both sides up to metal decking.

END OF SECTION

06 10 00 ROUGH CARPENTRY

ENVIRONMENTAL PROTECTION:

All wood products shall originate in "certified well-managed" forests as determined by standards endorsed by the Forest Stewardship Council. Timber products shall come from sources adopting environmentally friendly practices in forest management, logging and processing.

Acceptable practices shall mean forests that are being managed through professionally administered forestry management and logging plans that assure regeneration of desired species following harvest. Forest management shall also include protecting rivers and streams from degradation, minimizing damage to the forest when harvesting, protecting biodiversity, operating in concert with the lawful interests of local populations, and maximizing both the yield and value of the forest products.

LUMBER:

Douglas fir, Larch, or Southern Pine, S4S unless otherwise shown or specified, manufactured, graded, and bearing grade mark of applicable grading rules for the location of the project, moisture content at time of installation not over 19 percent or less than 7 percent.

Lumber Pressure Preservative Treatment:

Pressure treat wood for blocking, screeds, cants, nailers, grounds, stripping, rough bucks, plates, sills, and similar items resting on or against masonry or concrete in accordance with AWPA Standard C1 and AWPI Standard LP-2, each piece of lumber bearing the mark of an approved testing agency.

Deliver at maximum 14 percent moisture content. Whenever necessary to cut, notch, dap, bore, splice, or frame treated lumber, thoroughly paint newly cut surfaces with same preservative used in treatment of lumber.

Plywood: Douglas fir plywood conforming to PS 1-95, Group I, "Exterior" type with exterior glue, grade marked, grades as noted on Structural Drawings.

Structural Use and Oriented Strand Board (OSB) Panels: Conform to PS2-92, Exposure 1. OSB shall be not less than the following grades:

Wood Grounds: Milled to size and profile shown or required by thickness of lath and plaster, of pressure preservative treated Douglas fir, or equal.

Gypsum Sheathing: USG Gypsum Sheathing, fire-resistant, 5/8" thick with asphalted gypsum core and specially formulated black water repellent paper on both faces and both long edges. Furnish screws conforming to ASTM C646, Type S, corrosion resistant treated, minimum 1" long.

ROUGH HARDWARE

Provide rough hardware required to complete work shown and specified.

Rough hardware includes bolts, nuts, nails, washers, lag screws, washers, plates, post and beam anchors, framing hangers, wood connectors, and similar hardware used for construction of the rough wood framing.

Non-standard steel framing connectors are specified in Division 5 and installed under this section.

Nails: Provide common nails, sizes as indicated. Box nails and sinker nails are not acceptable.

Bolts and Nuts: ASTM A307, galvanized for exterior or exposed use.

Washers: As noted on drawings, galvanized for exterior or exposed use.

Framing Connectors: Provide joist hangers, cross bracing and other framing connectors having the minimum design and load capacities equal to those provided by the Simpson Strong Tie Co. model nos. shown on the drawings. Fabricate connectors from zinc coated steel sheet complying with ASTM A 525, coating designation G60 or of steel plate zinc coated in accordance with ASTM A 153. Connectors shall be manufactured by one of the following:

Simpson Strong-Tie Company Inc.
K. C. Metal Products; Superspeed Connectors
Silver Metal Products, Inc.
Union Steel Connectors

GENERAL INSTALLATION REQUIREMENTS

Fabricate, size, install, connect and fasten, bore, notch, and cut wood and plywood framing with joints true, tight, and well-nailed, screwed, or bolted as required, all members with solid bearing without being shimmed.

Set horizontal members subject to bending with crown up. Install framing plumb, square, true, and cut for full bearing.

Splices are not permitted between bearings. Use full lengths except as detailed.

The notching, drilling, splicing, or cutting of any structural member is not permitted without prior approval.

Reinforce or replace wood framing members damaged by erroneous cutting as directed.

Perform cutting for work of other sections, as required.

Wherever necessary to avoid splitting, sub-drill for nails and screws with diameter of hole smaller than that of nails or screws.

NAILING

Use nails or spikes of such lengths that penetration into second piece of wood is not less than one-half nail or spike length, except 16d nails may connect pieces of 2" nominal thickness.

Set nails no closer together than one-half nail length, nor closer to wood edges than one-fourth the nail length. Sub-drill holes where necessary to prevent splitting.

Demonstrate satisfactory installation of machine nailing at the site and obtain approval before using machine-applied nails; such approval is subject to continued satisfactory performance.

LAG SCREWS

Place by screwing; do not hammer drive into place. Install screws with anchorage embedment into piece lagged of not less than 60 percent of screwlength or 8 diameters.

Provide standard malleable iron or steel plate washers under heads.

Bore a hole of same diameter and depth as the shank. For threaded portion of screw, bore the hole with a bit not larger than base of thread.

BOLTS

Clamp wood members together and bore holes true to line and 1/32" larger than the bolt diameter.

Provide standard malleable iron or steel washers under heads and nuts when bearing on wood.

Draw nuts up tight as installed and again just prior to being enclosed with other materials or at completion.

SILLS ON CONCRETE OR MASONRY

Anchor as indicated or required by code. Tighten with washers and nuts to level bearing. Use pressure treated lumber or approved redwood.

WOOD STUD WALLS, PARTITIONS, AND FURRING

Studs of sizes and spacings shown, with single plate at bottom and doubled plate at top unless otherwise shown.

Stagger joints in double members of top plate at least 4-feet. Provide diagonal bracing as indicated or required by code.

Blocking: Provide one horizontal row of nominal 2" thick blocking of same width as stud, fitted snugly and spiked into studs at mid-height of partitions or walls over 7-feet high.

Fire Stops: Provide 2" thick wood firestops at furred spaces, same width as the furred space, installed at ceiling line and mid-height of partitions other than free-standing partitions. If width of opening is such that more than one piece of lumber is necessary, provide two thicknesses of 1" material with offset joints. Provide vertical and horizontal firestops on maximum 8'-0" centers.

Angles and Openings: Form angles at corners, and where stud partitions and wood vertical furring meet, of blocked triple studs or as detailed. Form openings in wood stud partitions with doubled studs at each side, and doubled headers across top resting on short studs at each end. Place doubled headers on edge and truss above.

INSTALLATION OF TIMBER CONNECTORS

Conform to applicable requirements of AFPA-T901.

NAILING STRIPS AND PLATES

Provide wood blocking, nailing strips, plates, and the like as shown or required, securely nailed or screw fastened in place.

Bolt wood strips and plates to metal.

Use treated lumber for wood on concrete or masonry.

WOOD BACKING

Provide to receive mechanical or electrical equipment and fixtures, bases, cabinets, door stops, wall plates, toilet accessories, toilet partitions, and other fixed equipment, as indicated or required, securely nailed or screw fastened to framework. Coordinate locations with related Sections.

INSTALLATION OF TIMBER CONNECTORS

Installation of timber connectors shall conform to applicable requirements of AFPA-T901.

INSTALLATION OF GLULAM MEMBERS

Use padded or non-marring slings and protect member corners and edges with wood blocking.

Assembly: Securely fasten all joints without damage and bring compression joints to full bearings. Check accuracy of dimensions, anchorages, and camber prior to erection.

Bracing: Provide temporary bracing to resist erection stresses and loads, and keep in place until

final connections are completed. Conform to "Bracing", Section 11 of AITC 102, and Code of Standard Practice, AITC 106. As erection progresses, secure members to resist dead and live loads, stresses, and weather conditions.

Alignment: Do not finally tighten bolts or screws until the structure is correctly aligned.

Sealing: Coat field cuts in ends or body of members with clear resin sealer.

GYPSUM SHEATHING

Install with long edges horizontal, end joints centered on stud flanges and staggered. Secure to steel studs with specified screws at 12" centers along all supports keeping screws 3/8" from board edges.

Roofing felt covering for sheathing under masonry is specified with the masonry in Division. Caulk and seal cuts and edges in accordance with sheathing manufacturer's instructions.

END OF SECTION

07 21 00 THERMAL INSULATION

IMPORTANT: Building Insulation, including exterior walls is to be provided with a minimum assembly value of R-19. The roof is to be provided with a minimum assembly value of R-30, with rigid insulation installed on the deck. Batt insulation to the underside of the roof deck is NOT acceptable.

ACCEPTABLE MANUFACTURERS

Owens/Corning Fiberglas, Four Hutton Centre Dr., Suite 100, Santa Ana, CA 92707, (714) 433-2440.

Johns Manville, 14030 Crest Way, Del Mar, CA 92014 (800) 345-9597 x 6207
FAX (619) 509-1135, Linda Hollingsworth/Technical Representative.

USG Corporation, 125 South Franklin St., P.O. Box 806278, Chicago, IL 60680
(800) 874-4968

CertainTeed, P.O. Box 860, Valley Forge, PA 19482 (800) 233-8990.

Erico Fastening Systems, 1533 W. 139th St., Gardena, CA 90249, (213) 770-0321.

MATERIALS

Batt Insulation, Foil-Faced: Glass fiber batts, conforming to HH-I-521F, Type III, FS-25 manufactured by Owens Corning or FSK-25 by Johns Manville, R-11 regular batts and R-30 Superbatts.

Semi-Rigid Insulation Boards: Celotex "Thermax", foil faced and foil backed, with No. 604 heavy duty white coating and embossed finish on exposed surface. Insulation shall comply with Fed. Spec. HH-I-1972/1, Class 2. Thickness shall be as indicated.

Spindle Anchors: Stic-Klip Mfg. Co., Type A or B as required, with Type S adhesive; Miracle Adhesives Corp. "Miracle StukUps" with Type HT994 adhesive; or Goodloe E. Moore Gemco or Tuff-Weld with G-P Improved or Tuff-Bond Quik-Set Type Adhesive as applicable; or equal. Use adhesives of correct type for substrates and type of anchor.

Staples: Stainless steel, monel, or copper-coated steel, size directed by batt manufacturer or required by Code.

String Wires: Minimum 18 gage galvanized steel wire.

Stud Furring and Insulation at Concrete and Masonry Walls: W.R. Grace "Thermo-Stud System" consisting of Thermostud boards, metal furring channels and T-clips. Insulation shall be pregrooved to accept furring, and shall be 2" thick unless otherwise indicated. Furring channels shall be U-shaped galvanized steel with serrated edges designed for attachment of insulation to substrate, and incorporating a drywall furring strip.

"Zee" Furring: Manufactured by Allied Structural Industries, Detroit, MI. (313) 571-0500, USG, or approved equal, thicknesses as required for each application.

INSTALLATION OF BATTS

Install batts with close fit, free of gaps, holes, or sagging. Maintain nominal 3/4" air space between the insulation and interior wall or ceiling finish.

Supplement the installation with wire ties, adhesive, spindle anchors, or staples where required to prevent sagging.

Provide spindle anchors where shown or necessary in accordance with manufacturer's instructions, spaced at maximum 12" centers both ways.

Batts In Metal Framing: Provide friction-fit batts tightly fitted to stud webs and to metal furring.

Batts In Wood Walls: Staple flanges to wood supports at 4" centers and ensure batt facings form a continuous vapor barrier. Provide tightly stretched string wires along center of horizontal or sloping batts where support spacings exceed 16" on centers.

Batts on Masonry Walls: Attach "Zee" channels vertically at 24-inch centers, or as required for width of insulation batts. Attach with concrete nails, or, if approved, powder actuated fasteners. Set batts between channels, completely covering wall space.

"Thermostud" System: Install in accordance with manufacturer's recommendations. Fit insulation snugly to minimize gaps. Attach furring to masonry using drive pins, concrete nails, or other approved fasteners.

END OF SECTION

07 31 13 ASPHALT SHINGLES

QUALITY ASSURANCE

Installer Minimum Qualifications: Installer shall be licensed or otherwise authorized by all federal, state and local authorities to install all products specified in this section. Installer shall perform work in accordance with NRCA Roofing and Waterproofing Manual Work shall be acceptable to the synthetic slate roof tile manufacturer.

PRODUCTS

MANUFACTURERS: Acceptable Manufacturer: Provide products manufactured by the CertainTeed Corporation. Contact Sales Support Group P.O. Box 860 Valley Forge, PA 19482 Toll Free 800-233-8990

ASPHALT FIBERGLASS SHINGLES

CertainTeed Grand Manor: Conforming to ASTM D 3018 Type Self-Sealing; UL Certification of ASTM D 3462, ASTM D 3161 Class "F" (110-mph)/UL997 Wind Resistance and UL Class A Fire Resistance; glass fiber mat base; ceramically colored/UV resistant mineral surface granules across the entire face of the shingle; algae-resistant; full two layer laminated four tab shingle, plus additional random tabs

Eaves Protection: CertainTeed "WinterGuard";ASTM D1970 sheet barrier of self-adhering rubberized asphalt membrane shingle underlayment having internal reinforcement and "split" back plastic release film; provide material warranty equal in duration to that of shingles being applied.

Underlayment: CertainTeed "Roofers' Select", ASTM D 6757; asphalt-impregnated fiberglass-reinforced organic felt designed for use on roof decks as a water-resistant layer beneath roofing shingles

FLASHING MATERIALS

Sheet Flashing: ASTM B 209; 0.025 (0.63mm) thick aluminum, mill finish.

ACCESSORIES

Nails: Standard round wire type roofing nails, corrosion resistant; hot dipped zinc coated steel, aluminum or chormated steel; minimum 3.8 inch (9.5mm) head diameter; minimum 11 or 12 gage (2.5mm) shank diameter; shank to be sufficient length to penetrate through the roof sheathing or inch (19mm) into solid wood, plywood or non-veneer wood decking.

EXAMINATION

Verify existing site conditions.

Verify that roof penetrations and plumbing stacks are in place and flashed to deck surfaces.

Verify deck surfaces are dry and free of ridges, warps or voids.

ROOF DECK PREPARATION

Follow shingle manufacturer's recommendations for acceptable roof deck material. Broom clean deck surfaces under eave protection and underlayment prior to their application.

INSTALLATION EAVE ICE DAM PROTECTION

Place eave edge and gable metal edge flashing tight with fascia boards.

Weather-lap joints 2 inches (50mm). Secure flange with nails spaced 8 inches (200 mm) on center.

Apply CertainTeed "WinterGuard" Waterproofing Shingle Underlayment as eave protection in accordance with manufacturer's instructions.

Extend eave protection membrane minimum 36 inches (640 mm) up slope beyond interior face of exterior wall.

VALLEY PROTECTION

For "closed-cut," "woven," and "open" valleys, first place one ply of WinterGuard, minimum 36 inches (910 mm) wide, centered over valleys.

Lap joints minimum of 6 inches (152 mm) Follow instructions of shingle a waterproofing membrane manufacturer.

METAL FLASHING

Weather-lap joints minimum 2 inches (50 mm). Seal work projecting through or mounted on roof with asphalt roofing cement and make weather tight.

INSTALLATION- ASPHALT SHINGLES

Install shingles in accordance with manufacturer's instructions for product type and application specified.

END OF SECTION

07 46 46 FIBER CEMENT SIDING

QUALITY ASSURANCE

Installer Qualifications: Provide installer with not less than three years of experience with products similar to those specified.

DELIVERY, STORAGE, AND HANDLING

Store products off the ground, on a flat surface, and under a roof or separate waterproof covering.

PRODUCTS

CertainTeed Corporation, Siding Products Group, P.O. Box 860, Valley Forge, Pennsylvania 19482. ASD. Tel: (800) 233-8990 (professional) or (800) 782-8777 (consumer).
www.certainteed.com.

PANELS

Fiber Cement Board Panels:

General: CertainTeed Fiber Cement Board Panels consist of cement, recycled content and cellulose fiber formed under high pressure into boards with integral surface texture; complying with ASTM C 1186 Type A Grade II; machined edges; for nail attachment.

Surface Burning Characteristics: Flame spread index of 0, smoke developed index of 5, maximum; when tested in accordance with ASTM E 84 (Class I/A).

Flammability: Noncombustible, when tested in accordance with ASTM E 136. Flexural Strength: At least 1450 psi (10 MPa) when in equilibrium condition, and at least 1015 psi (7 MPa) when in wet condition, tested in accordance with ASTM C 1185. Coefficient of

Thermal Expansion: Less than 1×10^{-5} /inch/inch/degree F (0.5×10^{-5} /degree C), when tested in accordance with ASTM E 228.

Freeze Thaw Resistance: At least 80 percent flexural strength retained, when tested in accordance with ASTM C 1185.

UV Resistance: No cracking, checking, or erosion, when tested for 2000 hours in accordance with ASTM G 26.

Water Tightness: No water droplets on underside, when tested in accordance with ASTM C 1185.

Horizontal Siding: CertainTeed WeatherBoards Lap Siding.

Thickness: 5/16 inch (7.9 mm), plus or minus .04 inch (1 mm). Length: 12 feet (3657 mm), plus 0, minus 1/8 inch (3 mm).

Style: Cedar lap siding. Width: 6-1/4 inches (159 mm) wide.

Sealant/Primer: FiberTect Sealant/Primer.

Field Finish Paint: 100 percent acrylic latex.

Soffit: CertainTeed WeatherBoards Soffit, ventilated and non-ventilated.

Thickness: 1/4 inch (6.35 mm), plus or minus 1/32 inch (0.8 mm).

Style: Cedar texture, 24 inches (610 mm) wide. Ventilated soffit.

Field Finish Paint: 100 percent acrylic latex.

Porch Panel: CertainTeed FiberCement Soffit/Porch Panel.

Thickness: 1/4 inch (6 mm), (6.35 mm, plus or minus 0.8 mm).

Width: 48 inches (1220 mm).

Length: 8 feet (2440 mm), plus 0, minus 1/8 inch (3.17 mm).

Sealant/Primer: FiberTect Sealant/Primer.

Field Finish Paint: 100 percent acrylic latex.

Trim: CertainTeed WeatherBoards Trim- Size: Thickness 7/16 inch (11 mm) plus or minus (1 mm). Width: 5-1/2 inch Length: 12 feet (3.657 m) plus or minus 1/8 inch (3.17 mm). Provide the following trim:

Starter strip for lap siding.

Outside corners, overlapping siding.

Fascia board.

Nails: Length as required to penetrate minimum 1-1/4 inch (32mm) into solid backing; hot-dipped galvanized or stainless steel.

Building Paper: Kraft or bituminous paper; not polyethylene or foil.

Paint or stain should be as recommended by siding manufacturer (verify current approvals) and must not be an oil-based coating. Field Finish Paint:100 percent acrylic latex

EXAMINATION

Prior to commencing installation, verify governing dimensions of building and condition of substrate. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

PREPARATION

Examine, clean, and repair as necessary any substrate conditions that would be detrimental to proper installation.

Do not begin installation until unacceptable conditions have been corrected.

INSTALLATION

Install in accordance with manufacturer's instructions and Drawing details. Read warranty and comply with all terms necessary to maintain warranty coverage. Install in accordance with conditions stated in model code evaluation report applicable to location of project.

Use trim details indicated on drawings.

Touch up all field cut edges before installing.

Pre-drill nail holes if necessary to prevent breakage.

Over Wood Studs Without Sheathing: Install building paper over studs prior to installing siding.

Over Wood and Wood-Composite Sheathing: Fasten siding through sheathing into studs.

Over Foam Sheathing: Read and comply with sheathing manufacturer's recommendations.

For sheathing of 1 inch (25 mm) thickness or less, nail through sheathing into studs using correspondingly longer nails.

Over Masonry Walls: Install furring strips of adequate thickness to accept full length of nails and spaced at 16 inches (406 mm) on center.

Over Steel Studs: Minimum 20 gauge steel, 3 5/8" (92 mm) C-studs. Use 1-5/8" (41 mm) long, #8-18 x 3/8" HD self-tapping, corrosion-resistant ribbed bugle head screws.

Attach siding at each stud ensuring that at least 3 screw threads penetrate the studs.

Diagonal Siding: Follow manufacturer's instructions. Allow space between both ends of siding panels that butt against trim for thermal movement; seal joint between panel and trim with exterior grade sealant. Joints in

Horizontal Siding: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.

Joints in Vertical Siding: Install Z-flashing in horizontal joints between successive courses of vertical siding.

Furred Installation: Leave space at top and bottom open; top may be behind soffit; at bottom install insect screen over opening by wrapping a strip of screen over bottom ends of vertical furring strips.

Install sheet metal flashing above door and window casings and horizontal trim in field of siding.

Do not install siding less than 6 inches (150 mm) from surface of ground nor closer than 1 inch (25 mm) to roofs, patios, porches, and other surfaces where water may collect.

After installation, seal all joints except lap joints of lap siding.

Seal around all penetrations.

Paint all exposed cut edges.

Finish Painting: Within 24 months after installation, paint siding and trim with one coat finish paint.

CLEANING

At completion of work, remove debris caused by siding installation from project site. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

07 60 00 FLASHING AND SHEET METAL

QUALITY ASSURANCE

Drawings and requirements specified govern.

Conform to the current "Architectural Sheet Metal Manual" published by Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), 1611 North Kent Street, Arlington, VA 22209 for conditions not indicated or specified and for general fabrication of sheet metal items.

MATERIALS

Galvanized steel: ASTM A525, coating G90, mill phosphatized for paint adhesion, 24 gauge unless otherwise shown or specified.

Lead: Type L50049 soft common lead or L51121 soft copper bearing lead, weighing not less than 4 pounds per square foot, conforming to ASTM B749.

Solder: ASTM B32, B284.

Solder flux: Standard brand non-corrosive acid-base type.

Fasteners: Zinc or cadmium coated steel or stainless steel.

Felt: ASTM D226, 15-pound type.

Primer: Approved brand of zinc-dust zinc-oxide primer per Section 09900 with manufacturer's pretreatment materials.

Sealant: Single component nonsag polyurethane.

Building Paper: Fed. Spec. UU-B-790, Style 4, Grade B.

Reglets and Counterflashings:

Fry Reglet Corp. flashing systems complete with unions and preformed corners of necessary types for particular locations, of 24 gauge galvanized steel, or approved equals by Metco Metal Products Co., Pacific Loxtite Flashing Co., National Cornice Works, Redco, Lane-Air, or equal.

Use a single manufacturer's products, equivalent to Type CO at concrete, Type MA at masonry, Type ST at plaster, or Type SM, as detailed.

GENERAL FABRICATION REQUIREMENTS

Fabricate items to avoid distortion and overstressing of fastenings due to expansion and contraction.

Provide expansion joints where necessary in continuous runs of sheet metal, constructed watertight and spaced 30-feet apart maximum. Lock and solder corners and blind hem exposed edges.

Make joints with 4" lap and solder unless otherwise shown or specified. Fill single lock seams with sealant where soldering is infeasible.

Run flanges 4" minimum onto roof and wall surfaces.

Fabricate sheet metal items in nominal 8-foot lengths unless otherwise shown or specified.

Soldering: Do soldering slowly, immediately after application of flux, seams showing evenly flowed solder. Clean and neutralize finished soldering.

Shop Priming: Clean completed items, apply pretreatment, and prime all exposed surfaces with specified primer.

FABRICATED ITEMS: Of 24 gauge galvanized steel unless otherwise indicated or specified.

Counterflashing:

Except where indicated or specified otherwise, insert counterflashing in reglets and extend down vertical surfaces over upturned vertical leg of base flashings not less than 3 inches.

Fold the exposed edges of counterflashings 1/2 inch.

Provide end laps in counterflashings not less than 3 inches and make weathertight with plastic cement. Lengths of metal counterflashings shall not exceed 10 feet.

Form the flashings to the required shapes before installation.

Factory-form the corners not less than 12 inches from the angle.

Secure the flashings in the reglets with lead wedges and space not more than 18 inches apart; short runs, place wedges closer together.

Fill caulked-type reglets or raked joints which receive counterflashing with caulking compound as covered in Section 07920.

Turn up the concealed edge of counterflashings built into masonry or concrete walls not less than 1/4 inch and extend not less than 2 inches into the walls.

Install counterflashing to provide a spring action against base flashing.

Coping Caps:

Corner units having maximum 18" long legs and joints locked and soldered watertight, intermediate joints spaced at maximum 8-foot centers and equally spaced.

Make intermediate joints of the flush butted type, edges spaced about 1/4" apart and centered over an 8" long backing plate of the same profile and gauge as the cap, set in a 1/2" wide bead of sealant.

Secure both edges of caps with 1-1/2" wide 20 gauge galvanized steel cleats spaced at maximum 32" centers and locked into drip hem.

Drip Flashings:

Provide at heads of windows and doors. Use material compatible with window and frame materials. Coordinate installation of flashing with that of windows and doors. Provide hemmed exposed edges, 1-piece lengths.

Pitch Pockets: Of 20 gauge galvanized steel, fully flanged, hemmed and soldered.

Pitch pockets shall be not less than 4" high.

INSTALLATION

Install metal items as indicated, according to approved submittals, and as required to complete the entire work. Securely fasten and assemble, and make watertight and weathertight.

Coordination: Coordinate sheet metal items in connection with roofing for proper installation, and furnish in sufficient time to avoid delay in roofing construction. Install roofing sheet metal simultaneously with roofing.

Protection from Contact with Dissimilar Materials:

Metal Surfaces: Paint surfaces in contact with mortar, concrete, or other masonry materials with alkali-resistant coatings such as heavy-bodied bituminous paint.

Wood or Other Absorptive Materials: Paint surfaces that may become repeatedly wet and in contact with metal with two coats of aluminum paint or a coat of heavy-bodied bituminous paint.

Expansion and Contraction: Provide expansion and contraction joints at not more than 30-foot intervals. Where the distance between the last expansion joint and the end of the continuous run is more than half the required interval, an additional joint shall be provided. Space joints evenly.

END OF SECTION

07 92 00 CAULKING AND SEALANTS

MATERIALS

Sealants: Types as listed below, no substitutions unless specifically approved in writing for each application:

For joints in storefront, and other vertical surfaces: Conform to ASTM C920, silicone based, single component, non-sag, one of the following:

GE Silicones SCS 2000 Series
Dow Corning 795
Tremco Spectrem 2

For joints in concrete, concrete masonry, plaster and EIFS walls and other vertical surfaces: Conform to ASTM C920, silicone based, single component, non-sag, one of the following:

GE Silicones Silpruf
Dow Corning 790
Tremco Spectrem 1 or Spectrem 3

For joints in horizontal surfaces, including floor slabs and paving, subjected to foot traffic: Two component, polyurethane based, self-levelling type, conforming to Fed. Spec. TT-S-00227E(3), one of the following:

Sonneborn SL 2.
Vulkem 245
Tremco THC 900/901.

For joints in aluminum and galvanized steel: single component nonsag urethane sealant, Type S, Grade NS, Class 25, one of the following:

Vulkem 116; Mameco International.
Sikaflex - 1a; Sika Corporation.
NP 1; Sonneborn Building Products Div., ChemRex Inc.

Primers: As recommended by sealant manufacturer for each condition of application.

Joint Backing:

Closed cell polyolefin, neoprene, polypropylene, or polyethylene, conforming to ASTM C 1330, Type B or ASTM D 5249, Type 3, permanently elastic, mildew resistant, nonmigratory, nonstaining and compatible with joint substrates and sealants.

Joint backing shall be "SofRod" manufactured by Nomaco, Inc., 501 NMC Drive, Zebulon, NC 27597 (800) 345 -7279, Dow "Ethafoam" or Sonneborn "Sonofoam", types recommended by sealant manufacturer for each type substrate and sealant.

Bond breaker: Polyethylene tape recommended by sealant manufacturer.

JOINT PREPARATION

Rake and thoroughly clean joints of mortar and other foreign materials before applying sealant. Remove coatings from metal surfaces following sealant manufacturer's written instructions, before installing metal where possible, using solvent recommended by manufacturer of metal item.

Clean porous surfaces by bead or water blasting as required to provide a clean, sound base surface for sealant adhesion. Remove loose particles present or resulting from blast cleaning by blowing out joints with oil-free compressed air. Wash alkaline seepage from fresh concrete.

Clean non-porous surfaces either mechanically or chemically. Clean with solvent and wipe dry immediately. Do not allow solvent film to accumulate on surfaces.

Conform to instructions from sealant manufacturer where sealants are required to be applied over painted, lacquered or waterproofed surfaces, or surfaces which have been treated with water-repellant or other coatings.

EIFS: At areas of sealant joints, sealants shall not be applied less than 24 hours after completion of back-wrapping of the polymer modified system. Edges of insulation board shall be coated with reinforced base coat. Sealant shall not be allowed to come in contact with insulation board or reinforcing mesh.

INSTALLATION

Comply with sealant manufacturer's written instructions, as approved, for mixing, preparatory work, priming, application life and procedures, and protection of sealant work.

Prime joints before insertion of sealant back-up or joint filler material.

Roll backing material into joint to avoid lengthwise stretching. Do not twist, braid or puncture.

Sealant shall be bonded to the 2 opposite sides of joint only. Apply bond-breaker between sealant and back of joints where space for back-up material does not exist.

Joint spaces and surfaces shall be thoroughly dry before installation of sealant materials. Do not install sealant material during or after rain or fog. Provide maximum 3/8" sealant depth unless otherwise shown. Minimum joint width shall be 1/8" for metal to metal joints and maximum 3/4" width elsewhere unless otherwise shown. Apply sealant under sufficient pressure to fill voids. Finish exposed joints smooth and flush with adjoining surface unless recessed joints are

shown. Remove temporary masking as soon as joint is completed.

Install sealant in manner to provide uniform, continuous ribbons without gaps or air pockets, and with complete wetting of the joint surfaces equally on opposite sides. Fill joints to slightly concave surface just below adjacent surfaces.

Tool surfaces to form smooth, uniform surfaces with slightly concave surfaces. Finish joints straight, uniform and neat. Perform tooling before sealant films over.

Where horizontal joints occur between horizontal and vertical surfaces, fill joints to form a slight cove to prevent trapping moisture and dirt.

Parapet copings shall be double caulked at all joints exposed to weather.

Take precautions to prevent leakage or other malfunction at locations where different types of sealants meet.

Do not allow sealants or other compounds to overflow, spill or migrate into voids of adjacent construction.

CURING

Cure sealants in accordance with sealant manufacturer's printed instructions to obtain high early bond strength, internal cohesive strength and durability.

END OF SECTION

08 41 13 ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

QUALITY ASSURANCE:

Quality Standards:

In addition to code, provide aluminum framing system designed so that glass installations conform to ANSI Z97.1, as applicable, and with Federal Safety Standard 16 CFR 1201.

Performance Standards:

Provide framing and entrance construction so designed that, when installed and glazed, the construction conforms to following performance criteria:

Thermal Movement and Clearance:

Provide for thermal movement within a surface temperature range of +20 degrees F to +180 degrees F, with additional clearance allowed for erection tolerance, slab and beam deflections, and long term creep of the building structural frame.

Air Infiltration:

When system is tested according to ASTM E283, tested at 1.56 psf pressure differential, air infiltration at perimeter of operating doors shall not exceed 0.25 cubic feet per minute per foot of sash perimeter with air infiltration from all other sources, including fixed doors and windows, not exceeding 0.06 CFM per square foot of wall area.

Water Infiltration:

Water infiltration is defined by ASTM E331 as penetration of water into the plane of the innermost face of the test specimen. System design includes provisions to drain to exterior face of the wall any leakage of water occurring at joints and/or condensation taking place within wall system construction. indl

Static Pressure:

No water infiltration under static pressure when wall is tested per ASTM E331 at differential static pressure of 10 PSF (1.92" water column).

Dynamic Pressure:

No water infiltration under dynamic pressure when wall is tested per AAMA A501.1, with minimum 10 PSF pressure for paragraph 4.5.4 and minimum 100 MPH slip stream velocity.

Wind Load and Deflection:

The aluminum framing system shall be designed to withstand code required wind loadings without buckling, distortion, or distress, and with maximum deflection of 1/175 of the unsupported length, except minimum 20 pounds per square foot wind loading where code allows lesser load.

ACCEPTABLE MANUFACTURERS:

Kawneer Co., (714) 828-5178 FAX (714) 236-9666

United States Aluminum Corporation, (800) 766-6063 FAX (800) 866-6063

Efco (714) 693-0522 FAX (714) 693-3631

VistaWall P.O Box 630, 803 Airport Road, Terrell TX 75160, (214) 551-6100, 2157 Commerce Place, Hayward, CA 94545 (415) 784-1988.

Arch Amarlite, 1400 S.W. 6th Court, Suite F, Pompano Oh FL (800) 432-8132 FAX (305) 785-9775

MATERIALS:

Aluminum Extrusions: ASTM B221 Alloy GS 10A-T5, Alloy 6063-T5.

Fasteners: ASTM A164, aluminum or stainless steel. Permanent anchors may be steel provided they are fully isolated from contact with aluminum.

Glazing Gaskets: Flexible elastomeric extrusions.

Weatherstrips: Non-porous polymer.

Foam Tape: Norseal V980/V990, manufactured by Norton Performance Plastics Corporation (800) 724-0883, or equal.

FABRICATION

Members:

Provide complete as indicated and required, including glass setting bars, transom bars, trim, mullions, and door frames. Provide necessary setting accessories, including screws, fittings, and anchors.

Design joints and connections for flush watertight hairline fitting and to allow for structure and thermal movement and deflections without loss of glass edge clearance, grip, or watertight integrity.

Construction:

Provide aluminum members of section thickness and structural properties as required to meet structural properties and deflection limitations as specified. Do not increase section sizes without specific approval.

Provide additional bent plate or rolled steel internal stiffeners where necessary to meet deflection requirements.

Pre-coat stiffeners with heavy bituminous coating to electrically isolate from aluminum.

Conform glass edge bearings, laps, and clearances to code, but minimum 1/2" glass bite in any case for glass retained by metal stops.

Fasteners:

Place no fasteners on exposed surfaces unless approved on the shop drawings, exposed fasteners with flat Phillips head and finished to match adjoining surface.

Internal Gutters and Drainage:

Provide minimum 0.050" thick 5052 alloy internal aluminum flashings and gutters to drain leakage and condensation and leakage to exterior, coordinated with weep holes. Detail in shop drawings.

Drainage:

Provide inconspicuous weep holes or an equal method to ensure positive drainage of internal moisture or condensation to exterior, weep holes protected from blow-back with 45 PPI inch open cell reticulated foam filters compressed 50 percent to 60 percent of loose volume. Detail in shop drawings.

Slip Pads:

Provide teflon or equivalent non-combustible slip pads between moving parts at expansion connections, minimum 1/8" thick.

Miscellaneous Items:

Provide extruded aluminum drywall adapter trims, ceiling and wall trims, sills, covers, and like items as indicated or required for complete installations; fully detail in shop drawings.

Aluminum Entrance Doors:

Medium stile type with water-repellent treated mohair weatherstripping in aluminum retainers on four edges, bottom rail of height conforming to disabled access requirements of regulatory agencies.

Hardware Preparation:

Provide factory-applied concealed reinforcements for hardware in doors and frames, minimum 3/16" thick aluminum. Cut, mill, reinforce, drill, and tap aluminum for application of finish hardware.

ALUMINUM FINISH

Architectural Class I anodic coating, AA-M12 C22 A41, #14 Clear, unless otherwise indicated on drawings (Clear anodized). Sample to be submitted to Project Mgr., 12 inches (300mm) long in size, illustrating finished aluminum surface for approval.

INSTALLATION

Aluminum Isolation:

Isolate aluminum from dissimilar metals and materials other than non-magnetic stainless steel.

At metals, apply on both contacting surfaces a heavy brush coat of zinc chromate primer made with a synthetic resin vehicle, followed by two heavy brush coats of spar varnish based aluminum metal and masonry paint; or apply a heavy coat of alkali-resistant bituminous paint; or separate surfaces with non-absorptive exterior quality vinyl tape or gasket, or coat surfaces with two coats of a fluid-applied neoprene membrane material.

Coat both contact surfaces with alkali-resistant bituminous paint at concrete, masonry, plaster, tile, and like cementitious materials. Conceal isolation in finished work.

Caulking:

Provide caulking and sealants as shown and required to make work of this section watertight and properly finished, including joints between aluminum framing and adjoining work. Install sealant of selected or approved colors.

Erection:

Member or miter joints with hairline sealed joints. Securely anchor to the building structure. Set frames level, plumb and in true alignment. Construct completely waterproof assemblies.

Perimeter Sealing:

Install foam tape around perimeter of framing system. Install framing members to compress tape between 30 and 60 percent to achieve air and vapor seal. At irregularities in adjacent surfaces, provide additional layers of tape to obtain required compression.

Hardware:

Install finish hardware on entrance doors according to hardware manufacturer's instructions and installation templates, and adjust for correct operation. Set thresholds in sealant or compressible foam tape.

END OF SECTION

08 80 00 GLAZING

ACCEPTABLE MANUFACTURERS AND FABRICATORS

To maximum extent possible provide domestically manufactured and fabricated glass, and provide glass from one manufacturer. Specific types of glass specified or indicated shall be of manufacturers noted.

Pilkington LOF, 2800 28th Street, Suite 133, Santa Monica, CA 90405 (800) 522-9430.
FAX (310) 450-6433.

PPG Glass Technology, One PPG Place, 31N, Pittsburgh, PA 15272 (415) 434-2858 FAX (412) 434-3675.

Visteon Float Glass Operations, 17333 Federal Drive, Suite 230, Allen Park, MI 48101 (313) 322-0037.

GLASS MATERIALS:

Conform to ASTM C1036 and ASTM C1048, as applicable.

Float Glass: Type I, (transparent glass flat), Class 1 (clear), Quality q3, (glazing select), 1/4-inch thick unless otherwise shown or specified.

Tinted Float Glass: Type I, Class 2 (tinted heat absorbing and light reducing), quality q3, manufactured by PPG or LOF, color as selected, 1/4" thick unless otherwise indicated or specified.

Tinted Float Glass: Type I, Class 2 (tinted heat absorbing and light reducing), quality q3, manufactured by PPG or LOF, color as selected, 1/4" thick unless otherwise indicated or specified.

Tempered Glass:

Condition A, Type I or II, Class 1, Quality q3, Kind FT, match color of clear, reflective or tinted glass as applicable; fully thermal tempered, heat strengthening or chemical tempering is not acceptable.

Perform tempering by horizontal oscillating roller hearth or high speed roller hearth process.

Do not use processes making gripper or tong marks. Handle and size glass according to manufacturer's instructions

Tempered glass is an important part of the artistic effect of the building design.

Lights showing excessive distortion will not be permitted.

Glass shall conform to the standard or quality established by the approved full-size sample installations.

GLASS SETTING MATERIALS

Vinyl Glazing Channels:

Profile compatible with framing system and designed to accommodate glass of specified thickness, light grey in color. Use for dry glazing aluminum frames where indicated or where permitted.

Glazing Sealants:

For use at glazing perimeters, GE Silicones Silglaze II 2800, GE Silicones Silpruf, GE Silicones 1200 Silicone, and Dow Corning 999A.

For other joints, select an appropriate sealant for joint size, movement, and substrates; acceptable sealants are GE Silicones 1200, Dow Corning 732, GE Silicones Silpruf, Dow Corning 999A.

GLAZING

Perform glazing according to GANA GM. Use vinyl glazing channels installed in accordance with frame manufacturer's recommendations. Do not stretch channels. Miter corners.

PROTECTION AND CLEANING

Protect exterior glass from breakage immediately upon installation by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces.

Protect glass from contact with contaminating substances resulting from construction operations.

Remove and replace glass which is broken, chipped, cracked abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.

Wash glass on both faces not more than 4 days prior to date scheduled for final acceptance of project. Wash glass by method recommended by glass manufacturer. Do not use any harsh cleaning agents, caustics, abrasives, or acids for cleaning. Polish glass both sides and leave free of soiling, streaks, and labels.

END OF SECTION

09 29 00 GYPSUM BOARD

QUALITY ASSURANCE:

Finishes: Gypsum wallboard finish shall conform to requirements of GA 214-M, Level 4.

ACCEPTABLE MANUFACTURERS

Use products of one of the following manufacturers. All materials, as applicable, shall be products of one manufacturer. Products of USG are specified hereafter to establish standard of quality.

USG Corporation, 125 South Franklin St., P.O. Box 806278, Chicago, IL 60680 (800) 874-4968

Celotex Building Products
National Gypsum Co.
Georgia Pacific Corp.

MATERIALS:

Gypsum Wallboard: ASTM C36, Sheetrock Brand Firecode Type "X" or Firecode "C" Gypsum Panels, 5/8" thick, use moisture resistant board in all bathrooms.

Fasteners:

Screws for gypsum wallboard on metal framing: ASTM C954, corrosion-resistant self-tapping bugle-head spiral-threaded type, minimum 1" long, lengths to penetrate all supporting metal at least 3/8". Furnish specially hardened type screws for supports heavier than 25 gauge.

Screws for gypsum wallboard on wood framing: ASTM C954, Type W, corrosion-resistant, self-tapping bugle-head spiral-threaded type, 1-1/4" long for wood, lengths to penetrate all supporting construction at least 3/8". Furnish hardened type screws for metal supports heavier than 25 gauge.

Metal Trim and Corner Beads:

ASTM C1047, hot dip galvanized steel with taping flanges, as manufactured or recommended by gypsum wallboard manufacturer, corner beads at outside corners and "J" shaped trim members where abutting other materials. Trim manufactured by Flannery Inc., 300 Parkside Drive, San Fernando, CA 91340 (818) 837-7585 FAX (818) 837-1155 is acceptable.

Control Joints:

USG Control Joint No. 093, zinc alloy, V-shaped, 1/4" wide, 7/16" deep, with removable plastic tape protection.

Adhesive for Application of Wallboard to Wood Framing:

Miracle DSA-20 Structural Drywall Adhesive, or Tec Inc. "Max Bond TA-195", conforming to ASTM C 557.

Finishing Materials:

ASTM C475, joint tape, bedding compound, finishing compound, adhesive, and laminating compounds supplied by wallboard manufacturer.

Sealing Compound:

USG W/R Compound.

High Solids Primer:

USG Sheetrock "First Coat".

INSTALLATION OF GYPSUM WALLBOARD TO METAL FRAMING

Perform all wallboard installation and finishing according to ASTM C840 and the wallboard manufacturer's instructions. Do not install wallboard until building is weathertight.

Conform to fire-rating requirements, building code approvals, and requirements herein.

Temperature:

Maintain temperature between 55 degrees F. and 70 degrees F. within building during installation. Furnish ventilation to eliminate excessive moisture.

Fasteners:

Install screws so heads are below wallboard surface without breaking surface paper or stripping the steel framing member around the screw. Space screws according to code approvals.

Openings:

Accurately cut and fit the wallboard at openings. At door and other openings, cut wallboard to continue across area above opening head; do not cut wallboard to both jambs and fill in area over openings with separate pieces.

Make the dimension from the joint over head of an opening to jamb of openings 6" minimum. Stagger joints on opposite side of partition.

Place wallboard horizontally with the long dimension across the studs or in one-piece vertical heights, vertical joints centered on supports and staggered on walls so as not to occur on opposite sides of the same stud. Secure to each stud and track with screws keeping screws 3/8" from edges. Where required to accommodate deflection, or where required by building code, omit screws on top track.

JOINT TREATMENT AND FINISHING

Conform to GA 214-M and the following:

Apply tape bedding compound, tape, and finishing cement on joints in wallboard as required.

Apply joint cement and finishing cement over screw heads. Treat all inside corners with joint cement, tape, and finishing cement. Treat outside corners with corner beads and finishing cement.

Provide metal casing beads at all edges of gypsum wallboard which abut ceiling, wall, or column finish, and elsewhere as required, such as openings, offsets, etc. Make all exposed joints, trims, and attachments non-apparent following application of paint or other finishes; if the joints and fasteners are apparent, correct defects as directed with no additional contract cost.

Seal the raw edges of boards that have been cut to fit with sealing compound brushed on.

When entire installation is completed, correct and repair broken, dented, scratched, or damaged wallboard.

END OF SECTION

09 90 00 PAINTING AND COATING

COMPLIANCE WITH REGULATIONS

All materials shall comply with the current rules and regulations of the local air quality management district, with the rules regarding volatile organic compounds, and with FDA rules and regulations for dangerous materials in paint.

MATERIALS

Use the paint products of only one paint manufacturer unless otherwise specified or approved. In any case, primers, intermediate, and finish coats in each painting system must all be the products of the same manufacturer, including thinners and coloring agents, except for materials furnished with shop prime coat by other trades.

To the maximum extent feasible, factory mix paint materials to correct color, gloss, and consistency for application. Products of Sherwin Williams and Benjamin Moore are listed hereinafter.

WORKMANSHIP

Apply painting materials in accordance with manufacturer's instructions by brush or roller; spray painting is not allowed without specific approval in each case.

Apply each coat at the proper consistency, free of brush or roller marks, sags, runs, or other evidence of poor workmanship.

Do not lap paint on glass, hardware, and other surfaces not to be painted; apply masking as required.

Sand between enamel coats.

PREPARATION

Properly prepare surfaces to receive finishes.

EIFS

Clean to remove all dirt, loose residue and foreign materials. Fill hairline cracks with acrylic based patching material; report larger cracks for correction. Test and ensure EFS is dry and ready to receive the paint finish.

Shop Coated Metal

Degrease and clean of foreign matter. Clean and spot paint field connections, welds, soldered joints, burned, or abraded portions with same material used in shop coats. After complete hardening, sand entire surfaces for coat to follow.

Uncoated Ferrous Metal

Degrease and clean of dirt, rust, mill scale, and all other foreign matter using power tool rotary brushes to achieve a clean surface consistent with SSPC-SP3. Remove pits and welding slag, and clean surfaces to bright metal before priming. Apply metal primer not more than three hours after preparation.

Galvanized Metal

Eliminate contaminants and stabilize zinc film by solvent wiping or sweep blasting, as appropriate, followed by not less than one coat of wash prime, to provide suitable surface for finish painting. Allow to dry.

Solvent Wiping

Remove oil and grease with rags or brushes saturated in trisodium phosphate or similar alkaline detergent. For heavier soil, use MEK, or equivalent proprietary cleaner. Do not use vinegar or acetic acid.

Sweep Blasting

Use aluminum/magnesium silicate, limestone or other non-metallic blast media to expose pure zinc.

Wash Primer:

Spray apply one coat of specified wash primer after other preparation is complete, to thickness of 0.5 mils. Allow to dry 60 minutes, and apply top coating in not more than 4 hours. If this time is exceeded for any reason, reapply wash primer prior to applying finish paint.

Glue-Laminated Beams

Spot wash surfaces with solvent to remove grease and stains. Wipe down surfaces with damp cloths to remove dirt and dust. Seal knots, pitch streaks, and spray segments.

COATS

The number of paint coats specified to be applied are minimum. Apply additional coats if required to obtain complete hiding and approved results.

Ensure acceptable paint finishes of uniform color, free from cloudy or mottled areas and evident thinness on arrises. "Spot" or undercoat surfaces as necessary to produce such results. Tint each coat a slightly different shade of finish color to permit identification. Obtain approval of each coat before applying next coat; otherwise, apply an additional coat over entire surface.

MISCELLANEOUS PAINTING:

Color Coding:

In mechanical and electrical equipment rooms and spaces, paint all ducts, piping, conduit, equipment, and machinery, except such items having a complete factory finish, as specified for interior metal, colors as directed. Not more than 8 colors will be required.

Weatherstripping and Sound Seals:

Paint exposed metal surfaces to match the door frame, whether or not unfinished, furnished with factory prime coat, or factory treated for paint adhesion.

Doors:

Seal top and bottom edges after cleaning with coat of primer. Where the faces of the doors differ in color or finish, finish the edges to match the face visible when the door is open. Coat cutouts for hinges, edges of lockset holes and strikes same as for first coat.

END OF SECTION

31 00 00 EARTHWORK

Provide earthwork as required to complete the work, including excavation for foundations and utilities, backfilling, compaction, subgrade preparation for subsequent construction, and cleanup. Conform to requirements of Geotechnical Report. Work is subject to inspection of Soils Engineer.

Earthwork Materials:

Approved excavated or imported granular soil such as silty sand of the non-expansive type (that undergoes no undesirable volumetric change with changes in the moisture content) and containing not more than 20% by weight of material passing the No. 200 sieve, free from trash, roots, organic material, clay lumps, and rocks over 6" size.

Gravel Fill Material:

From approved source, 90% to 100% passing a 3/4" sieve, 0% to 10% passing a No. 4 sieve, and 0% to 3% passing a No. 100 sieve.

SITE CLEARING AND PREPARATION

Before starting grading operations, remove trash and strip all vegetation on the site, including roots.

EXCAVATION

Excavate to dimensions and elevations indicated on drawings, with additional space allowed as required for the installation and stripping of forms, and inspection of the various types of work, except where approval may be given to deposit certain miscellaneous concrete directly against earth banks. Avoid loosening of soils in bottoms or sides of excavations.

TRENCHING

Excavate trenches to widths required for proper laying of pipe, with banks as nearly vertical as practicable. Bring bottoms of trenches to the required depths, all accurately graded to provide uniform bearing on undisturbed soil for entire length of each section of pipe, except where it is necessary to excavate for pipe bells or for pipe bedding specified in other sections.

TRENCH BACKFILLING

Compact all backfill to at least 95% of maximum dry density where the trenches are located in paved areas or under building or structures. Take precautions in placing and compaction of backfill to avoid damaging pipes, ducts, conduits, and structures.

COMPACTION

Moisten or aerate all material to specified moisture content, then uniformly compact the fills and backfills in maximum 8" thick loose layers to 90% of the maximum dry density determined by ASTM D1557. This is the minimum compaction; average shall be at least 92%. Flooding or jetting is not allowed.

SUBGRADE PREPARATION FOR CONCRETE

Prepare subgrade for concrete items placed directly on earth by excavating, filling, and grading, and bring to optimum moisture content. Finish the subgrade within 3/8" tolerance when tested along a 10-foot straightedge in any direction at any location. Compact maintain moisture content until concrete is placed.

END OF SECTION



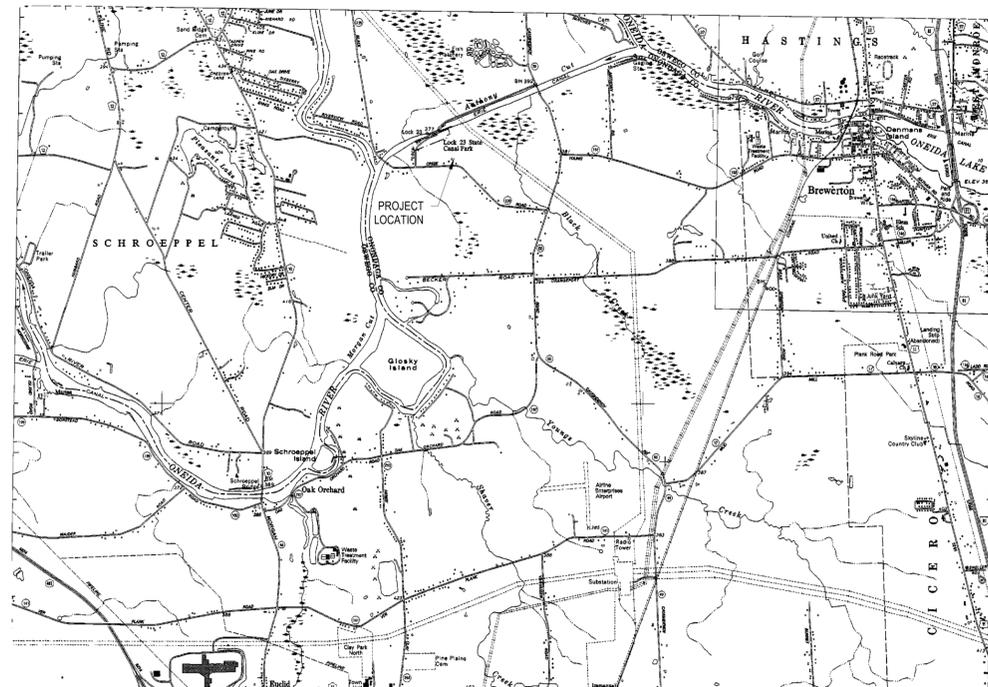
CONTRACT DRAWINGS FOR THE CONSTRUCTION OF GREEN EDUCATION CENTER

TOWN OF CLAY

**9604 BLACK CREEK ROAD
BREWERTON, NY 13029**

C&S PROJECT NO. 195.101.021

JUNE 29, 2022



LOCATION MAP

DRAWING LIST	
G-001	TITLE SHEET
SITE/CIVIL	
C-101	SITE PLAN
C-801	DETAILS
STRUCTURAL	
S-001	GENERAL NOTES & TYPICAL DETAILS
S-002	TYPICAL DETAILS
S-101	FOUNDATION PLAN
S-102	FLOOR PLAN
S-501	DETAILS
S-502	DETAILS
S-503	DETAILS
ARCHITECTURAL	
A-001	CODE REVIEW
A-101	FLOOR PLANS
A-102	REFLECTED CEILING AND ROOF PLANS
A-201	EXTERIOR ELEVATIONS
A-202	EXTERIOR ELEVATIONS
A-203	INTERIOR ELEVATIONS
A-301	BUILDING AND WALL SECTIONS
A-501	DETAILS
A-601	SCHEDULES AND DETAILS
PLUMBING	
P-001	NOTES, LEGEND & DETAILS
P-101	PLUMBING PLAN
MECHANICAL	
M-001	NOTES, LEGEND, SCHEDULES, DETAILS & SPECIFICATIONS
M-101	MECHANICAL FLOOR PLANS
ELECTRICAL	
E-001	ELECTRICAL NOTES, SYMBOLS, ABBREVIATIONS, AND SCHEDULES
E-101	ELECTRICAL FLOOR PLANS
E-102	ELECTRICAL CEILING PLANS
E-501	ELECTRICAL DETAILS



TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF THE PLANS AND SPECIFICATIONS FOR THIS PROJECT ARE IN COMPLIANCE WITH THE NEW YORK STATE ENERGY CONSERVATION CONSTRUCTION CODE AND THE BUILDING CODE OF NEW YORK STATE

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

G-001

GENERAL NOTES:

1. A TOPOGRAPHIC SURVEY WAS PROVIDED BY JACOBS LAND SURVEYING, DATED APRIL 4, 2022. NO ATTEMPT HAS BEEN MADE TO SHOW ALL EXISTING UTILITIES AND THE LOCATION OF THOSE SHOWN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE TRUE LOCATION BEFORE COMMENCING WORK. BEFORE ANY PIPE IS PLACED THE CONTRACTOR SHALL UNCOVER ALL UTILITIES AT PIPE CROSSINGS TO ENABLE THE ENGINEER TO VERIFY THAT THE PROPOSED PIPE WITH GRADES SHOWN ON THE PLANS IS NOT OBSTRUCTED BY EXISTING UTILITIES.
2. CONTRACTOR SHALL NOTIFY DIG SAFELY NEW YORK AT LEAST 72 HOURS PRIOR TO START OF WORK.
3. CONTRACTOR SHALL COORDINATE ALL WORK WITH UTILITY COMPANIES.
4. IN THE EVENT THAT THE CONTRACTOR DAMAGES ANY EXISTING UTILITIES, HE SHALL IMMEDIATELY NOTIFY THE OWNER AND THE AFFECTED UTILITIES REPRESENTATIVE OF SUCH DAMAGE. ANY DAMAGE SHALL PROMPTLY AND SATISFACTORILY BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES ENCOUNTERED IN THIS WORK. WHERE NECESSARY, THE CONTRACTOR SHALL PROVIDE TIMBER PLANK OR OTHER APPROVED MATERIALS AND SECURELY BRACE AND PROTECT THESE UTILITIES. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS ITEMS IN THE CONTRACT.
6. ALL UNSUITABLE SPOIL MATERIAL, SUCH AS CONCRETE AND ASPHALT AND EXCAVATED MATERIAL, SHALL BE DISPOSED OF A LOCATION DETERMINED BY THE TOWN.
7. ALL DISTURBED AREAS SHALL BE GRADED TO PROVIDE A SMOOTH MAINTAINABLE SURFACE AND ALLOW FOR POSITIVE DRAINAGE.
8. CONTRACTOR SHALL TOPSOIL (4" MIN.), SEED, FERTILIZE AND MULCH ALL DISTURBED GRASS AREAS.
9. IT WILL BE THE CONTRACTORS OBLIGATION AND RESPONSIBILITY TO USE METHODS AND EQUIPMENT WHICH WILL INSURE THE SATISFACTORY COMPLETION OF THE REQUIRED WORK WITHIN THE CONTRACT TIME ALLOWED.
10. THE CONTRACTOR MUST BE ACQUAINTED WITH THE DRAINAGE CHARACTERISTICS OF THE AREA SO THAT THEY WILL PROGRESS THEIR WORK EFFICIENTLY WITH FULL KNOWLEDGE OF THE POTENTIAL DRAINAGE PROBLEMS.
11. ALL EXISTING DRAINAGE SYSTEMS, INCLUDING DITCHES AND CULVERTS, WITHIN THE CONTRACT LIMITS SHALL BE CLEANED AND KEPT CLEAN AND FREE FLOWING FOR THE DURATION OF THE CONTRACT.
12. THE CONTRACTOR SHALL BE REQUIRED TO PROTECT HIS WORKERS AT ALL TIMES IN CONFORMANCE WITH APPLICABLE OSHA REGULATIONS.
13. THE CONTRACTOR'S STAGING AREA SHALL BE COORDINATED WITH THE OWNER PRIOR TO THE START OF WORK.

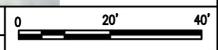
WATER LINE NOTE:

1. CONTRACTOR SHALL INSTALL A 2" SOLENOID VALVE. SOLENOID VALVE TO BE CIRCUITED TO THE HIGH LEVEL ALARM PANEL LOCATED AT THE HOLDING TANK. THE SOLENOID VALVE SHALL SHUT THE WATER SERVICE OFF IF THE HIGH LEVEL ALARM IS POWERED ON.



Jun 29, 2022 - 3:46pm - TOWN OF CLAY\195101 Town of Clay Town Board\Project Green\CADD\Sheet Files\195101021_C-101.dwg

- Sandy Bear Homes, LLC -
(Now or Formerly)
Liber 4992 / Page 664
Tax Parcel 38.0-1-16.4
(9608 Black Creek Road)



C&S Engineers, Inc.
499 Col. Eileen Collins Blvd.
Syracuse, New York 13212
Phone: 315-455-2000
Fax: 315-455-9667
www.cscos.com



**GREEN EDUCATION CENTER
TOWN OF CLAY
9604 BLACK CREEK ROAD
BREWERTON, NY 13029**

MARK	DATE	DESCRIPTION
REVISIONS		
	PROJECT NO:	195.101.021
	DATE:	JUNE 29, 2022
	DRAWN BY:	M. ZINGARO
	DESIGNED BY:	M. CHAMBERS
	CHECKED BY:	M. CHAMBERS

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

SITE, UTILITY, AND GRADING PLAN

C-101

PART I - DESIGN CRITERIA

- CODES AND REFERENCE STANDARDS: 2020 NEW YORK STATE BUILDING CODE, ASCE 7-16, 2018 NDS
- STRUCTURAL LOADING DESIGN DATA:
 - A. FLOOR LIVE LOAD:
 - FIRST FLOOR: 100 PSF, 2000 LBS
 - LANDING, STAIRS, RAMPS: 100 PSF, 300 LBS
 - B. FLOOR DEAD LOADS:
 - SUPERIMPOSED DL: 20 PSF
 - C. WIND LOAD (3-SEC. GUST):
 - ULTIMATE WIND SPEED: 115 MPH
 - RISK CATEGORY: II
 - EXPOSURE CATEGORY: C
 - INTERNAL PRESSURE COEFFICIENT: +0.18
 - WIND-BORNE DEBRIS REGION: NA
 - D. SNOW LOAD
 - GROUND SNOW LOAD: 50 PSF
 - FLAT-ROOF SNOW LOAD: 32 PSF
 - SNOW EXPOSURE FACTOR (Ce): 0.9
 - SNOW IMPORTANCE FACTOR (Is): 1.0
 - THERMAL FACTOR (Ct): 1.0
 - DRIFT LOADS CALCULATED PER ASCE 7-16
 - E. SEISMIC LOAD:
 - RISK CATEGORY: II
 - SEISMIC IMPORTANCE FACTOR: 1.25
 - SS: .017
 - S1: .014
 - SITE CLASS: D
 - Sds: .0157
 - Sd1: .084
 - SEISMIC DESIGN CATEGORY: B
 - ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE
 - BASIC SEISMIC FORCE-RESISTING SYSTEM: TIMBER FRAME
 - RESPONSE MODIFICATION COEFFICIENT, R: 6.5
 - SEISMIC RESPONSE COEFFICIENT, Cs: 0.0279
 - SEISMIC BASE SHEAR, V: 1.31 KIPS
- HANDRAIL ASSEMBLIES AND GUARDS SHALL BE DESIGNED FOR 50 PLF OR A CONCENTRATED LOAD OF 200 LBS LOCATED AT ANY POINT APPLIED IN ANY DIRECTION AT THE TOP AND TRANSFER THE LOAD TO THE SUPPORT STRUCTURE. THE LOADS NEED NOT TO ACT CONCURRENTLY.

GENERAL (THE FOLLOWING REQUIREMENTS TOGETHER WITH THE PROJECT PLANS AND SPECIFICATIONS SHALL APPLY TO THE STRUCTURES IN THIS CONTRACT.)

- THE CONTRACTOR IS RESPONSIBLE FOR THE SURVEY AND FIELD VERIFYING ALL EXISTING CONDITIONS.
- WORK ON STRUCTURAL DRAWINGS REPRESENTS FINAL CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRUCTURAL STABILITY OF ALL INTERMEDIATE CONDITIONS DURING CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE THE ARCHITECTURAL, PLUMBING, HVAC, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION NOT INDICATED ON THE STRUCTURAL DRAWINGS. SUCH INFORMATION INCLUDES, AS A MINIMUM, EMBEDDED SLEEVES AND INSERTS, MISCELLANEOUS DETAILS, SPECIAL FLOOR FINISHES, DOOR THRESHOLDS, SLOPES TO DRAINS, NAILERS, OPENINGS IN STRUCTURAL ELEMENTS, ETC.
- IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS, TIE-DOWNS, AND/OR SHORING MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
- IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROCEDURES. THE STRUCTURAL ENGINEER OF RECORD IS NOT RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION OR FOR RELATED SAFETY PROCEDURES.
- TYPICAL NOTES AND DETAILS SHOWN ON STRUCTURAL TYPICAL DETAILS SHALL BE APPLICABLE TO ALL PARTS OF THE STRUCTURAL WORK EXCEPT WHERE SPECIFICALLY REQUIRED OTHERWISE ON THE CONTRACT DOCUMENTS. DETAILS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO THOSE SHOWN FOR THE MOST NEARLY SIMILAR CONDITION ON THE DRAWINGS AS DETERMINED BY THE ENGINEER.
- DO NOT SCALE DRAWING DIMENSIONS. IN THE EVENT OF A GRID LINE DIMENSION CONFLICT, THE ARCHITECTURAL DRAWINGS SHALL GOVERN.
- THE CONTRACTOR SHALL SUBMIT COMPLETE SHOP DRAWINGS FOR ALL PARTS OF THE WORK INCLUDING DESCRIPTION OF DEMOLITION, TEMPORARY BRACING, CONSTRUCTION METHODS AND SEQUENCING, WHERE APPLICABLE NO PERFORMANCE OF WORK SHALL COMMENCE WITHOUT REVIEW OF THE SHOP DRAWINGS BY THE ENGINEER.
- FABRICATION PRIOR TO THE RECEIPT OF AN APPROVED SHOP DRAWINGS SHALL BE AT THE CONTRACTOR'S OWN RISK AND THAT INSTALLATION OF ANY WORK PRIOR TO RECEIPT OF AN APPROVED SHOP DRAWING SHALL BE STRICTLY PROHIBITED.
- FOR ELEVATIONS REFER TO THE PLAN SHEETS.
- DRILLING, CORING, SAW CUTTING AND ETC. INTO CONCRETE SHALL MEET THE LATEST OSHA REGULATIONS FOR SILICA DUST EXPOSURE.

PART II - EXCAVATION AND FILL

- ALL EXCAVATIONS SHALL BE DEWATERED TO MAINTAIN GROUNDWATER AT LEAST 24" BELOW FOOTING BEFORE PLACING OF CONCRETE.
- SLOPE THE EXTERIOR GRADE AWAY FROM THE STRUCTURE. REFER TO CIVIL PLANS FOR DETAILS.
- PROVIDE TEMPORARY OR PERMANENT SUPPORTS, SHORING, SHEETING OR BRACING SO THAT NO HORIZONTAL MOVEMENT OR VERTICAL SETTLEMENT OCCURS TO ADJACENT STRUCTURES, STREETS, SOILS OR UTILITIES ADJACENT TO OR WITHIN THE PROJECT SITE.
- BACKFILL SHALL BE PLACED IN COMPACTED LIFTS PER THE EARTHWORK SPECIFICATIONS.
- NO FOUNDATION CONCRETE SHALL BE PLACED IN WATER.
- DO NOT BACKFILL BEHIND FOUNDATION WALLS UNTIL THE FLOOR FRAMING AND SHEATHING IS INSTALLED.
- COMPONENTS OF ANY SUPPORT OF EXCAVATION SYSTEM SHALL REMAIN IN PLACE UNTIL ALL PERMANENT STRUCTURAL SYSTEMS AT AND BELOW GROUND ARE IN PLACE.

PART III - FOUNDATION

- MAXIMUM ALLOWABLE SOIL BEARING PRESSURE = 3000 PSF
- FOOTINGS TO BEAR ON NATURAL UNDISTURBED SOIL OR COMPACTED FILL TO EXHIBIT A DENSITY OF AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 1557 (MODIFIED PROCTOR).
- PERFORM SOIL COMPACTION TESTING, AT LEAST ONE TEST EVERY 100 FEET OF WALL FOOTING. PROVIDE A MINIMUM OF 4 SOIL COMPACTION TESTS AT EVERY BUILDING.

PART IV - CONCRETE

- CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ACI 301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
- STANDARDS:
 - DESIGN: ACI 318 - 2014
 - DETAILS: ACI 315 - 1999
 - MATERIALS: ACI 301 - 2010
- DESIGN STRENGTH:
 - SLAB ON GRADE: 4000 PSI COMPRESSIVE STRENGTH @ 28 DAYS, NORMAL WEIGHT CONCRETE
 - WALLS: 4000 PSI COMPRESSIVE STRENGTH @ 28 DAYS, NORMAL WEIGHT CONCRETE
 - FOUNDATIONS: 4000 PSI COMPRESSIVE STRENGTH @ 28 DAYS, NORMAL WEIGHT CONCRETE
- SUBMIT PROPOSED CONCRETE MIX DESIGN TO THE OWNER'S REPRESENTATIVE AND TESTING LABORATORY CONCURRENTLY FOR REVIEW AND APPROVAL.
- CONCRETE COVER OVER BARS:
 - CONCRETE DEPOSITED ON GROUND 3"
 - FORMED CONCRETE EXPOSED TO GROUND, WEATHER OR WATER 2"
 - WALLS & SLABS NOT DIRECTLY EXPOSED TO GROUND, WATER, OR WEATHER 1-1/2"
- CLEAN AND APPLY BONDING AGENT TO ALL EXISTING CONCRETE SURFACES TO RECEIVE NEW CONCRETE. ALL CONCRETE TO CONFORM WITH THE LATEST ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE. (ACI - 301)
- SECTIONS AND DETAILS MAY NOT SHOW ALL REQUIRED CONCRETE REINFORCEMENT. ADDITIONAL REINFORCEMENT MAY BE DESCRIBED IN SCHEDULES (IF APPLICABLE) AND NOTES.
- PROVIDE BAR SUPPORTS AND SPACERS IN ACCORDANCE WITH REQUIREMENTS OF ACI 315 UNLESS NOTED OTHERWISE.
- NOT ALL ITEMS EMBEDDED IN THE CONCRETE ARE SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE INSTALLATION OF ALL OPENINGS AND EMBEDDED ITEMS IN THE CONCRETE PERTAINING TO THE DIFFERENT TRADES AS SHOWN ON THEIR PERSPECTIVE DRAWINGS. SLEEVES, MECHANICAL OPENINGS, CONDUITS, PIPES, RECESSES, DEPRESSIONS, CURBS, AND ALL EMBEDDED ITEMS SHALL BE PROVIDED AS SHOWN ON THE ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS AND AS REQUIRED BY THE EQUIPMENT MANUFACTURERS.
- HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE POURS ARE PROHIBITED UNLESS AUTHORIZED BY ENGINEER.
- UNLESS OTHERWISE NOTED ON THE DRAWINGS, THE SIZE OF CONCRETE PLACEMENTS SHALL BE LIMITED AS FOLLOWS:
 - A. STRIP FOOTINGS AND WALLS: 60 FT (UNLESS INTERMEDIATE CONTROL JOINTS ARE PROVIDED)
 - B. SLABS ON GRADE: 30 FT MAX DIMENSION AND 900 SQ. FT. (UNLESS INTERMEDIATE CONTROL JOINTS ARE PROVIDED)
- PROVIDE 3/4" CHAMFER ON ALL EXPOSED CONCRETE EDGES U.N.O
- THROUGH PENETRATIONS FOR CONCRETE WALLS OR SLABS SHALL CONFORM TO STANDARD DETAIL DRAWINGS.

PART V - REINFORCING

- REINFORCING:
 - MESH: ASTM A-185 (FLAT SHEETS)
 - BARS: ASTM A-615 GRADE 60 - DEFORMED.
 - BARS: WELDABLE REINFORCING BARS TO CONFORM TO ASTM A-706 GRADE 60.
- SPLICES IN REINFORCEMENT: UNLESS OTHERWISE NOTED, ALL SPLICES AND ANCHORAGES SHALL BE PER ACI. STAGGER SPLICES WHEREVER POSSIBLE AND LOCATE SO AS NOT TO IMPAIR STRENGTH OF MEMBERS.
- REINFORCEMENT WORK OF DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318 (, ACI DETAILING MANUAL-2004 (SP 66) CRSI MANUAL OF STANDARD PRACTICE (MSP 2009), AND THE STRUCTURAL WELDING CODE- REINFORCING STEEL (AWS D1.1).
- PROVIDE AND SCHEDULE ON SHOP DRAWINGS THE NECESSARY ACCESSORIES TO HOLD ALL REINFORCEMENT SECURELY IN POSITION.
- WHERE CONTINUOUS REINFORCEMENT IS CALLED FOR , IT SHALL BE EXTENDED CONTINUOUSLY AROUND CORNERS AND LAPPED AT SPLICES OR AT DISCONTINUOUS ENDS. LAPS SHALL BE CLASS B TENSION LAP SPLICES UNLESS OTHERWISE NOTED.
- WHERE REINFORCEMENT IS NOT SHOWN ON DRAWINGS, PROVIDE REINFORCEMENT IN ACCORDANCE WITH APPLICABLE DETAILS AS DETERMINED BY THE ENGINEER. IN NO CASE SHALL THE REINFORCEMENT BE LESS THAN THE MINIMUM PERMITTED BY THE APPLICABLE CODES.
- WHERE REINFORCEMENT IS REQUIRED IN SECTION, REINFORCEMENT IS CONSIDERED TYPICAL WHEREVER THE SECTION APPLIES.
- REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.
- DOWELS SHALL MATCH BAR SIZES UNLESS OTHERWISE NOTED.
- WELDED WIRE FABRIC SHALL BE LAPPED 8 INCHES OR 1 1/2 SQUARES WHICHEVER IS LARGER AND SHALL BE WIRED TOGETHER.
- REINFORCEMENT SHALL NOT BE TACK WELDED. REINFORCING BARS TO BE WELDED SHALL CONFORM TO ASTM A706 Fy=60KSI.
- REINFORCEMENT INSTALLATION SHALL BE COMPLETED AT LEAST 24 HOURS BEFORE A CONCRETE PLACEMENT OR SHALL BE COORDINATED WITH THE OAR TO ENSURE PROPER TIME IS ALLOWED FOR THE INSPECTION OF THE REINFORCING. NOTIFY THE ENGINEER OF COMPLETION.
- ALL REINFORCEMENT SHALL BE SECURELY TIED IN PLACE AT THE POSITIONS SHOWN ON THE DRAWINGS BEFORE PLACING CONCRETE.
- UNLESS NOTED OTHERWISE, ALL BARS SHALL BE EMBEDDED TO A MINIMUM DEPTH (Ld or Ldh)

PART VI - SLAB ON GRADE PLACEMENT

- ALL SLABS SHALL BE PLACED ON 6" OF GRAVEL OR CRUSHED STONE CONFORMING TO NYSDOT SPECIFICATIONS FOR ITEM 304-2.02 TYPE 2 OR 4 COMPACTED TO 95% MODIFIED PROCTOR.
- THE DESIGN OF CONCRETE MIXES, LOCATING OF CONSTRUCTION JOINTS IN SLABS, STAGGERING OF POUR PLACEMENTS, LOCATION OF POUR STRIPS, AND PLACEMENT AND CURING PROCEDURES ARE TO BE PERFORMED BY THE CONTRACTOR IN A MANNER THAT WILL MINIMIZE SHRINKAGE CRACKING OF THE SLABS.
- PLACE INTERIOR SLABS ON VAPOR RETARDER (15 MIL. MIN UNO) WITH SOILS PREPARED PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL REPAIR ALL SHRINKAGE CRACKS DESIGNATED AS UNACCEPTABLE BY THE ENGINEER BY EPOXY INJECTION AT NO ADDITIONAL COST TO THE CONTRACT.
- REPAIR MATERIAL SHALL BE APPROPRIATE FOR THE APPLICATION AS RECOMMENDED BY THE MANUFACTURER. PRODUCTS SHALL BE BY SIKA CORPORATION, OR APPROVED EQUAL.

PART VII - WOOD TRUSSES

- DESIGN OF PLATE CONNECTED TRUSSES SHALL CONFORM TO NATIONAL DESIGN STANDARDS (NDS-2018). TRUSS PLATE INSTITUTE CRITERIA (TPI 1-2014). TRUSS FABRICATION SHALL COMPLY WITH TPI QUALITY CONTROL STANDARDS (QCM-77).
- TRUSS DESIGNS AND LAYOUTS SHALL BE SEALED BY A NEW YORK LICENSED PROFESSIONAL ENGINEER AND SUBMITTED TO ENGINEER FOR REVIEW PRIOR TO FABRICATION. SUBMITTAL SHALL CLEARLY INDICATE DESIGN LOADS, MEMBER STRESSES, LUMBER GRADES, SPLICE LOCATIONS, REQUIRED BLOCKING, BRIDGING, BRACING, PLACEMENT, PLACEMENT PROCEDURES, LOAD BEARING WALLS, TRUSS DESIGNATION, BUILDING NUMBER, AND NAME OF PROJECT. LOADING SHALL BE AS NOTED ON THE DRAWINGS.
- DURING CONSTRUCTION, TRUSSES SHALL BE ERECTED, BRACED, AND BLOCKED IN ACCORDANCE WITH COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING AND BRACING OF METAL PLATE CONNECTED WOOD TRUSSES (HIB-91) BY TPI. ALL TEMPORARY BRACING SHALL NOT BE REMOVED AND CONSIDERED PERMANENT UNLESS REMOVAL IS REQUIRED FOR COMPLETION OF WORK.
- PROVIDE PERMANENT 2X4 LATERAL "X" BRACING IN THE PLANE OF THE TRUSS WEBS AND FRAME AT A 45 DEGREE ANGLE. NAIL TO ACH CROSSING TRUSS WITH AT LEAST 2-16D NAILS. THE "X" BRACING SHALL ALIGN WITH THE BOTTOM CHORD LATERAL BRACING AND OCCUR AT EACH END OF THE BUILDING AT 25' INTERVALS.
- PROVIDE PRE-ENGINEERED TRUSS SHEAR BLOCKING BETWEEN TRUSSES AT ALL SHEAR WALL LOCATIONS. TRUSS SUPPLIER SHALL PROVIDE TRUSS SHEAR BLOCK TO TRUSS COMPONENT CONNECTION DETAIL. SHEAR BLOCK SHALL BE FULL HEIGHT OF TRUSS ASSEMBLY.

PART VIII - WOOD FRAMING

- ALL LUMBER SHALL BE PS 20, NEW AND UNDAMAGED GRADED LUMBER IN ACCORDANCE WITH NFPA GRADING RULES. FRAMING MEMBERS SHALL BE S4S UNLESS NOTED OTHERWISE. ALL WOOD BEARING ON CONCRETE OR MASONRY SHALL BE PRESSURE TREATED. ROUGH FRAMING (2X4 - 2X12) SHALL BE SOUTHERN PINE #2
- NAILS, SPIKES, AND STAPLES SHALL BE GALVANIZED FOR EXTERIOR LOCATIONS, HIGH HUMIDITY LOCATIONS, AND TREATED WOOD; PLAIN FINISH FOR OTHER INTERIOR LOCATIONS; SIZE AND TYPE TO SUIT APPLICATION TYPICAL NAILINGS SHALL BE WITH COMMON WIRE NAILS.
- BOLTS, NUTS, WASHERS, LAGS AND SCREWS SHALL BE MEDIUM CARBON STEEL; SIZE AND TYPE TO SUIT APPLICATION; GALVANIZED FOR EXTERIOR LOCATIONS; HIGH HUMIDITY LOCATIONS, AND TREATED WOOD; PLAIN FINISH FOR OTHER INTERIOR LOCATIONS.
- PLYWOOD SHEATHING CLIPS SHALL BE SIMPSON STRONG-TIE 18 GAGE GALVANIZED X PLYWOOD THICKNESS.
- SHORE FRAMING MATERIAL A MINIMUM OF 12" ABOVE THE GROUND IN A MANNER TO ALLOW FOR PROPER DRAINAGE, VENTILATION AND PROTECTION FROM THE WEATHER.

PART IX - STRUCTURAL STEEL

- STANDARDS:
 - DESIGN - AISC 360 - 2016
 - CONSTRUCTION - AISC 303, LATEST EDITION
 - BOLTED CONNECTIONS - LATEST EDITION OF AISC SPECIFICATIONS FOR STRUCTURAL JOINTS USING
 - ASTM A325 OR A490 BOLTS.
 - WELDED CONNECTIONS - AMERICAN WELDING SOCIETY (AWS) D1.1, LATEST EDITION
- WIDE FLANGE SECTIONS - ASTM A992 (Fy = 50 KSI)
- ROUND HOLLOW STRUCTURAL SECTIONS (HSS) - ASTM A500 GRADE C.
- ANGLES, PLATES AND BARS - ASTM A36
- ALL STRUCTURAL BOLTS SHALL BE ASTM A-325 TYPE N UNLESS OTHERWISE NOTED.
- ALL EMBEDDED STEEL ANCHOR BOLTS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST A.I.S.C. STANDARD SPECIFICATIONS AND SHALL BE ASTM F1554, GRADE 55, U.N.O.
- USE WELDED OR BOLTED SHOP CONNECTIONS AND BOLTED FIELD CONNECTIONS WHERE POSSIBLE.
- ALL WELDING SHALL CONFORM WITH THE LATEST EDITION OF AWS CODE. ALL WELDERS (SHOP & FIELD) SHALL BE AWS D1.1 CERTIFIED FOR THE TYPE OF WELDING BEING PERFORMED.
- ALL WELDING SHALL BE DONE USING E70XX ELECTRODES, U.N.O.
- ANCHOR BOLTS OR RODS SHALL BE BUILT INTO CONNECTING WORK PRESET BY TEMPLATES OR SIMILAR METHODS.
- MINIMUM CONNECTION BOLT DIAMETER IS 3/4 INCH. BEAM CONNECTIONS MUST HAVE AT LEAST TWO BOLTS.
- MINIMUM SIZE OF FILLET WELDS SHALL BE 1/4 INCH UNO.
- PROVIDE TEMPORARY ERECTION BRACING AND SUPPORTS TO HOLD THE STRUCTURAL STEEL FRAME SECURELY IN POSITION. BRACING SHALL NOT BE REMOVED UNTIL THE FLOOR FRAMING AND SHEATHING IS INSTALLED. THE STEEL FRAME SHALL BE CONSIDERED A NON SELF-SUPPORTING FRAME UNTIL ALL SLAB DIAPHRAGMS ARE IN PLACE
- STRUCTURAL STEEL EXPOSED TO THE WEATHER OR LOCATED IN A NONCONDITIONED SPACE, SHALL BE HOT DIPPED GALVANIZED.



C&S Engineers, Inc.
 499 Col. Eileen Collins Blvd.
 Syracuse, New York 13212
 Phone: 315-455-2000
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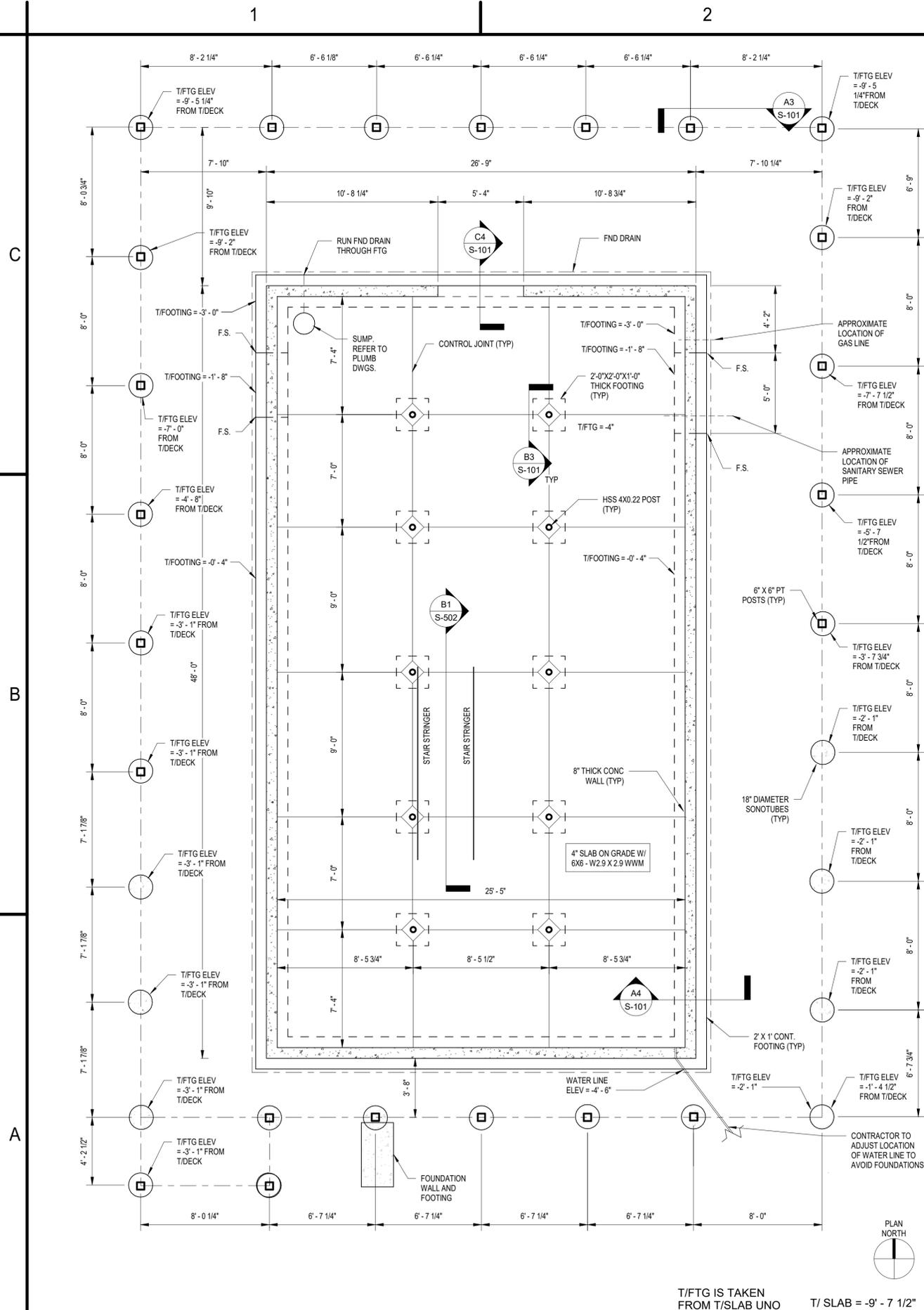


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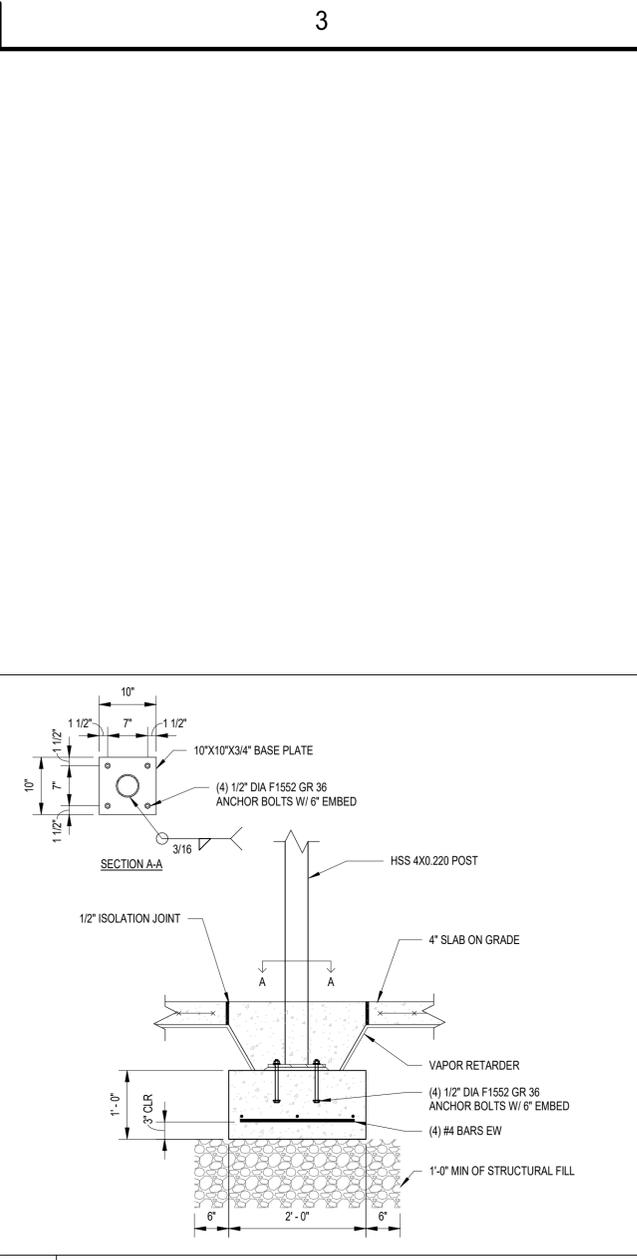
MARK	DATE	DESCRIPTION
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DESIGNED BY:	B. ZUHRIC, E.I.T.	
CHECKED BY:	M. DUCLOS, P.E.	
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GENERAL NOTES & TYPICAL DETAILS

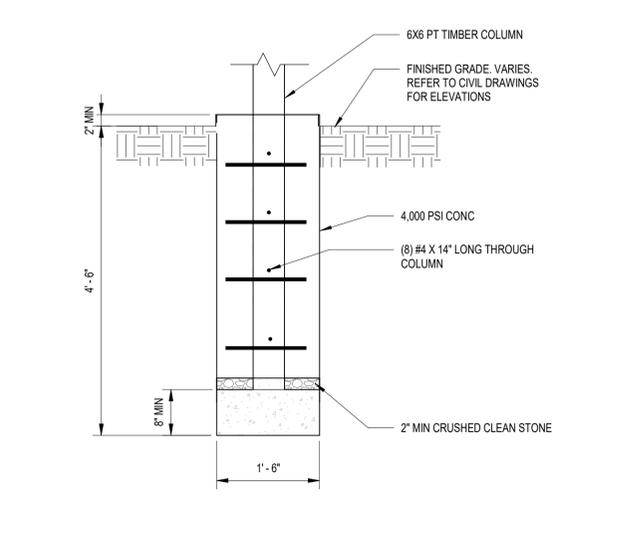
S-001



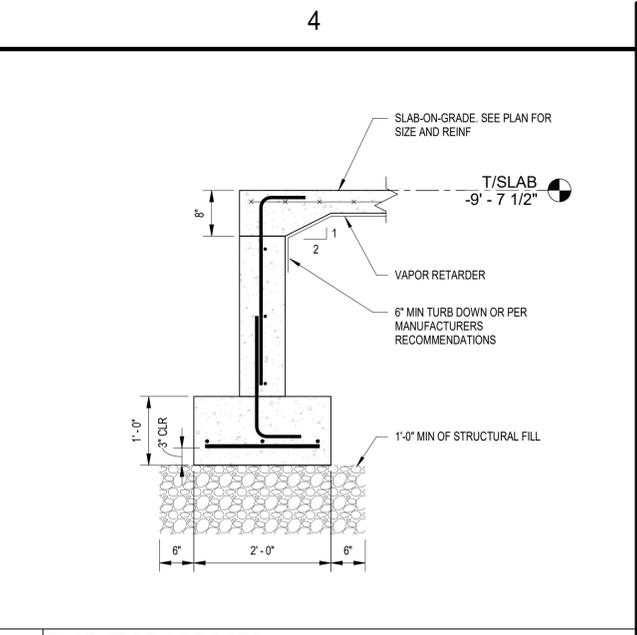
A1 FOUNDATION PLAN
SCALE: 1/4" = 1'-0"



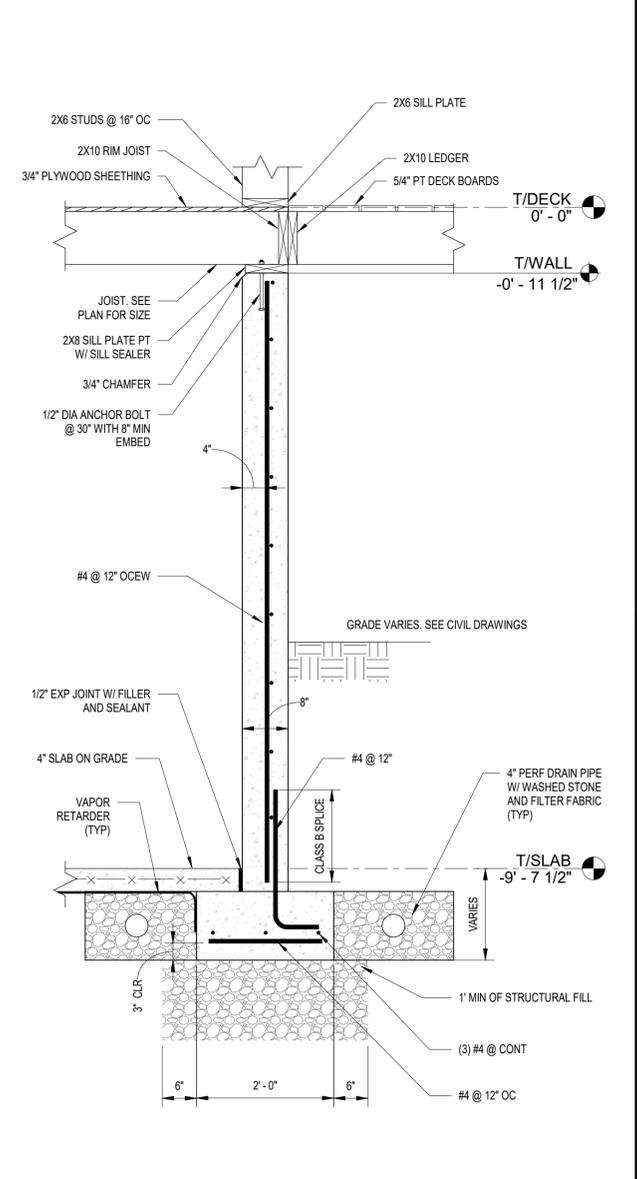
B3 BASEMENT POST AND FOUNDATION
SCALE: 3/4" = 1'-0"



A3 TYPICAL TIMBER POST DETAIL
SCALE: 3/4" = 1'-0"



C4 SLAB EDGE AT DOORS
SCALE: 3/4" = 1'-0"



A4 TYPICAL FOUNDATION WALL DETAIL
SCALE: 3/4" = 1'-0"



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Phone: 315-455-2000
Fax: 315-455-9667
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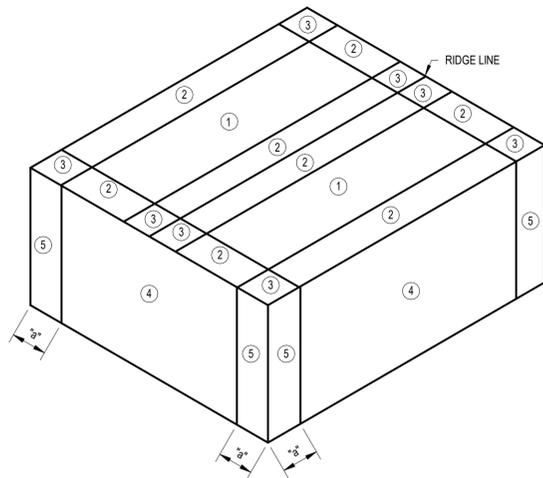
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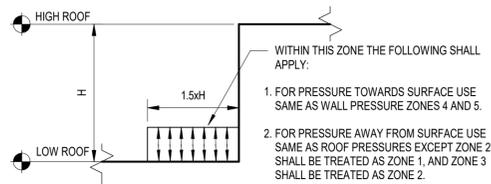
FOUNDATION PLAN

S-101



**MAINTENANCE SHOP
DESIGN WIND PRESSURES FOR EXTERIOR
COMPONENTS AND CLADDING MATERIALS**

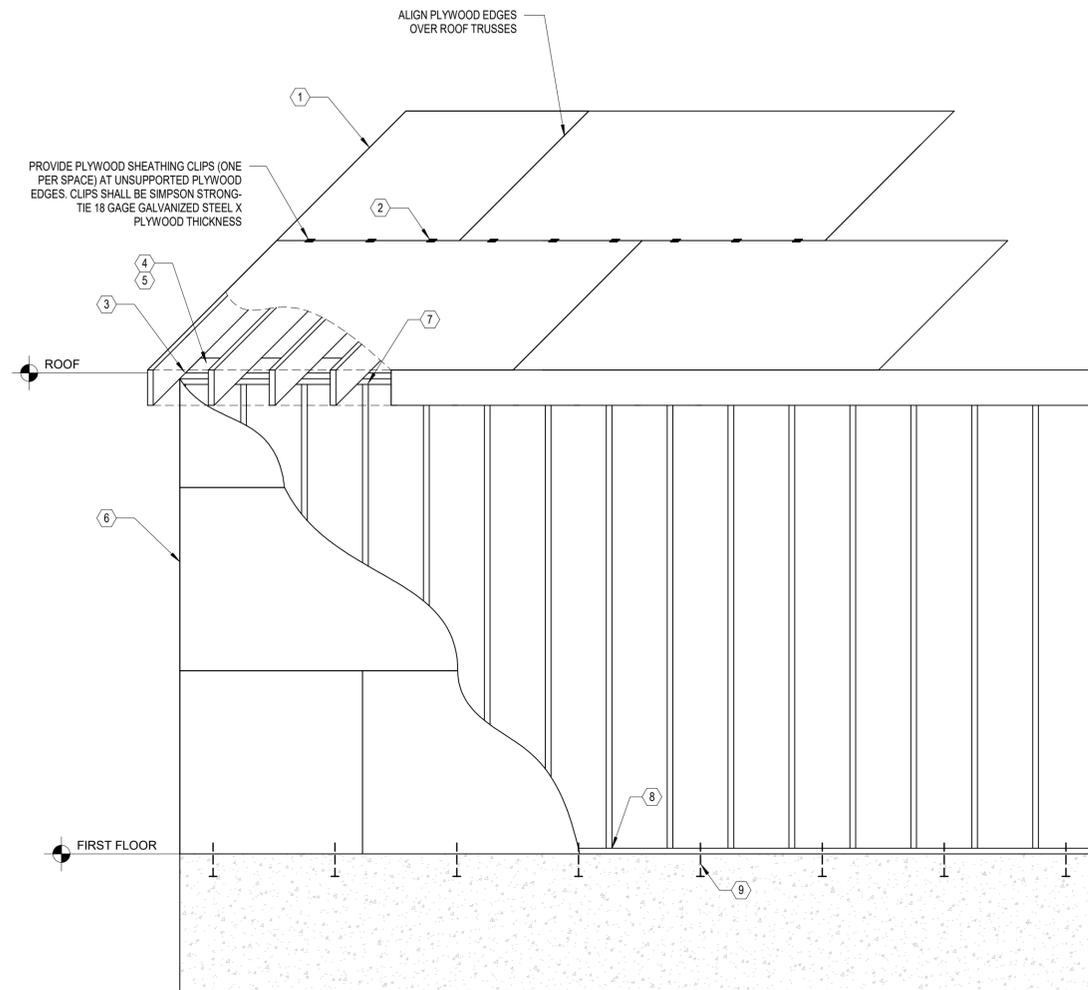
ROOF SLOPE	SURFACE	EFFECTIVE WIND AREA (SF)	WIND PRESSURE TOWARD SURFACE (+ PSF)	WIND PRESSURE AWAY FROM SURFACE (- PSF)
> 10°	ZONE 1 ROOF	10 20 50 100	19 17 15 13	29 28 27 27
	ZONE 2 ROOF EDGES	10 20 50 100	19 17 15 13	64 64 64 64
	ZONE 3 ROOF CORNERS	10 20 50 100	19 17 15 13	104 94 81 72
NA	ZONE 4 WALL	10 20 50 100 500	32 30 29 27 24	35 33 31 30 27
	ZONE 5 WALL CORNERS	10 20 50 100 500	32 30 29 27 24	43 40 36 33 27



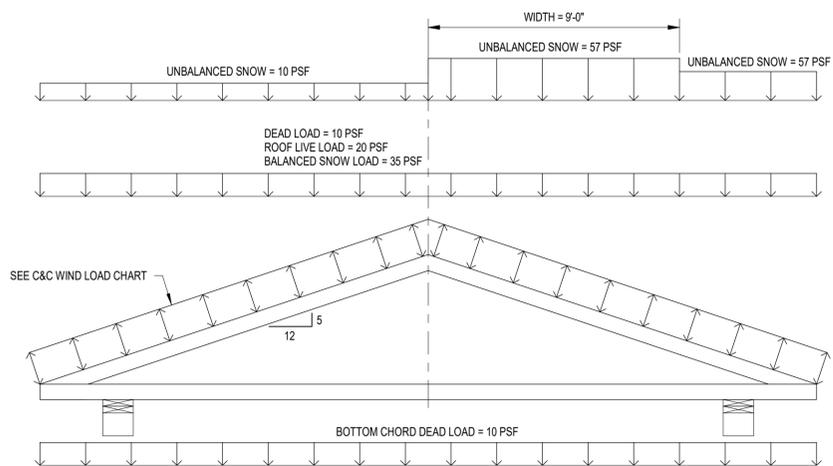
SECTION
ROOF STEP - COMPONENTS AND CLADDING
ROOF WIND PRESSURE ZONE DESIGNATIONS

COMPONENTS AND CLADDING WIND PRESSURE NOTES:

1. THE COMPONENTS AND CLADDING WIND LOAD PRESSURES IN THE TABLES ABOVE ARE BASED ON ASCE 7-2016. THE WIND PRESSURES ARE ULTIMATE LOAD PRESSURES. REFER TO THE GENERAL NOTES AND DESIGN DATA NOTES FOR WIND LOAD INFORMATION AND PARAMETERS.
2. THE PRESSURES IN THE TABLES ABOVE ARE TO BE USED FOR WIND LOAD CONTRIBUTION TO THE TOTAL LOAD APPLIED TO ANY COMPONENTS AND CLADDING MEMBER OR MATERIAL WHICH IS PART OF A ROOF OR EXTERIOR WALL ASSEMBLY.
3. REFER TO CHAPTER 16 OF THE 2015 IBC AND ASCE 7-2016 FOR DEFINITION OF TERMS.
4. CONFIGURATION OF END ZONES, EDGE STRIPS AND CORNERS SHALL BE PER ASCE 7-2016.
5. INTERPOLATION FOR EFFECTIVE WIND AREA BETWEEN 10 SF AND 100 SF FOR ROOFS, AND 10 SF AND 500 SF FOR WALLS IS PERMITTED.
6. PRESSURES ARE APPLIED NORMAL TO THE SURFACE OF THE COMPONENT OR CLADDING ELEMENT.
7. POSITIVE AND NEGATIVE PRESSURES ACT SIMULTANEOUSLY AT PARAPETS.
8. THE WIDTH OF EDGE STRIP (a) SHALL BE 10 PERCENT OF THE LEAST HORIZONTAL, OR 40 PERCENT OF THE EAVE HEIGHT, WHICHEVER IS LESS, BUT NOT LESS THAN EITHER 4 PERCENT OF THE LEAST HORIZONTAL DIMENSION OR 3 FEET.



B1 C&C WIND LOADS DIAGRAM
SCALE: 1/2" = 1'-0"



A1 TRUSS LOADING DIAGRAM
SCALE: 1/2" = 1'-0"

NOTE	BUILDING ELEMENTS		CONNECTION REQUIREMENTS
	ELEMENT A	ELEMENT B	
1	1/2 SHEATHING	ROOF TRUSSES	10D NAILS @ 6" OC AT PLYWOOD EDGE AND INTERMEDIATE SPOTS
2	1/2 SHEATHING	1/2 SHEATHING	(2) H-CLIPS / SPAN AT PLYWOOD EDGES
3	ROOF TRUSS	DOUBLE TOP PLATE	SIMPSON STRONG-TIE H2.5
4	DOUBLE TOP PLATE		FACE NAIL, 8D @ 16" OC MAX
5	DOUBLE TOP PLATE		OFFSET SPLICE BY 48" MIN. 8-16D FACE NAIL
6	3/4 SHEATHING	STUD	10D NAILS @ 6" OC AT PLYWOOD EDGE AND INTERMEDIATE SPOTS (INTERIOR AND EXTERIOR OF STUDS)
7	DOUBLE TOP PLATE	STUD	END NAIL, 2-16D
8	STUD	2X PRESSURE TREATED SILL PLATE	TOE NAIL, 4-8D
9	2X PRESSURE TREATED SILL PLATE	CONCRETE FOUNDATION	1/2" ANCHOR BOLTS @ 30" OC MAX

A3 CONNECTION SCHEDULE
SCALE: 1/2" = 1'-0"



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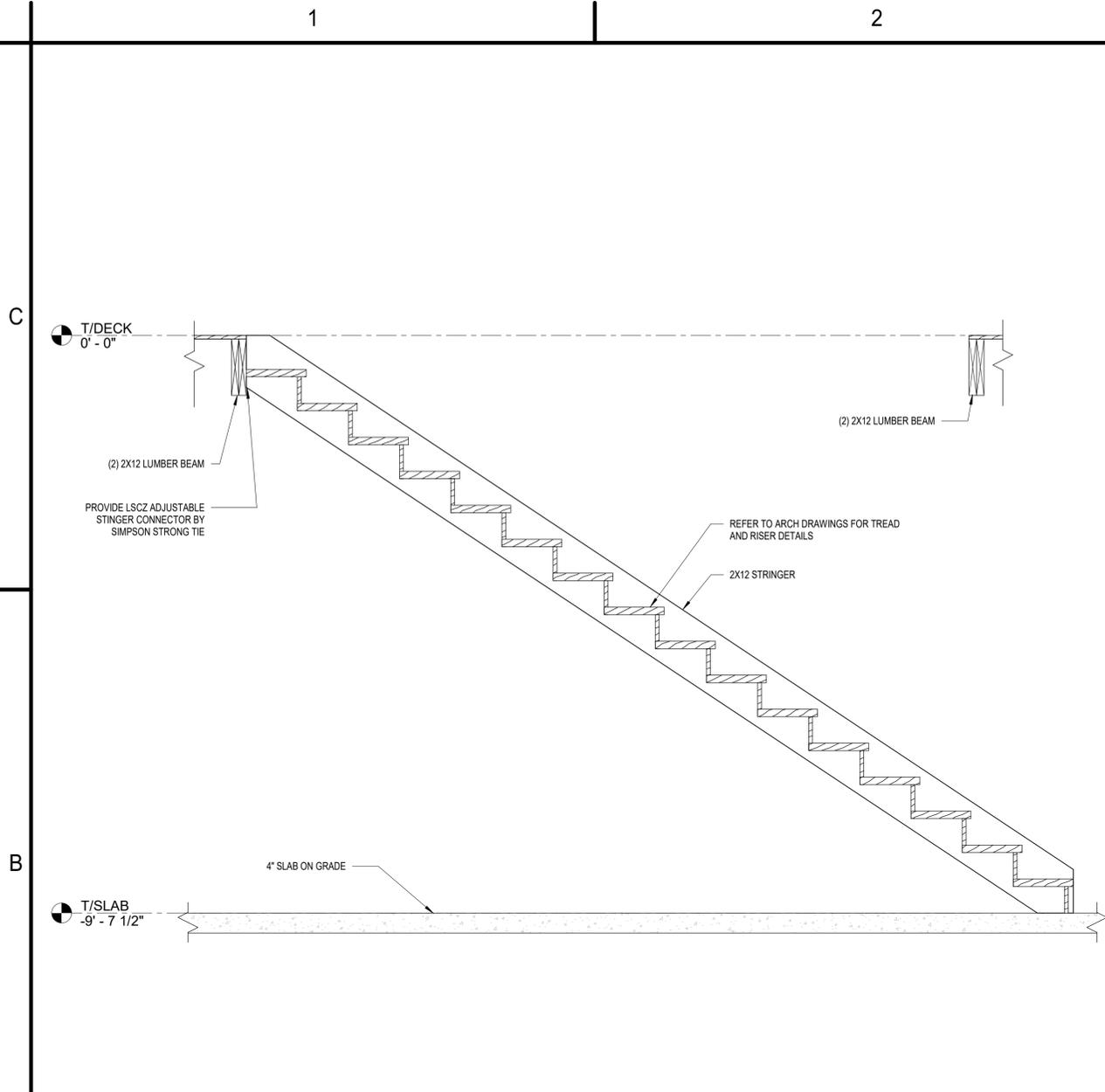
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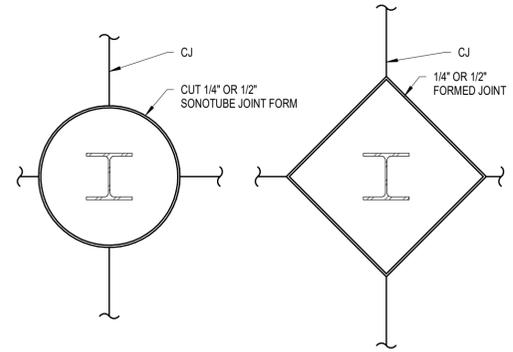
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DETAILS

S-501

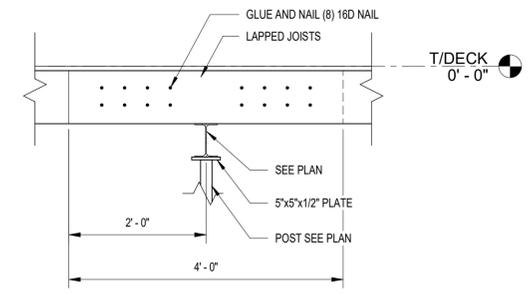


B1 STAIR SECTION DETAIL
SCALE: 3/4" = 1'-0"

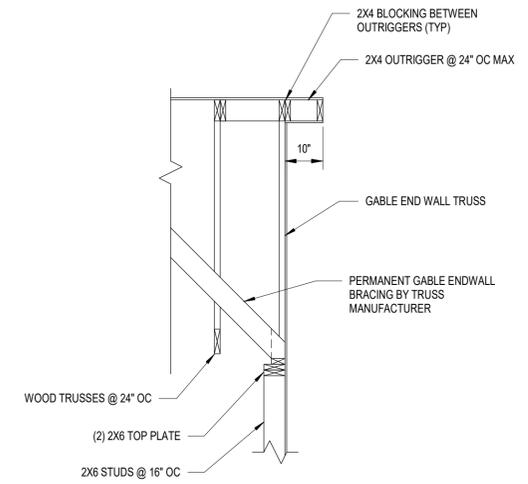


NOTE:
INSTALL JOINT FILLER AND SEALANT IN EXPOSED JOINTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

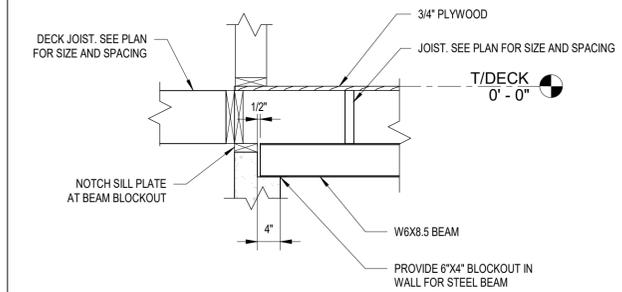
C3 TYP ISOLATION JOINT AT COLUMN
SCALE: 3/4" = 1'-0"



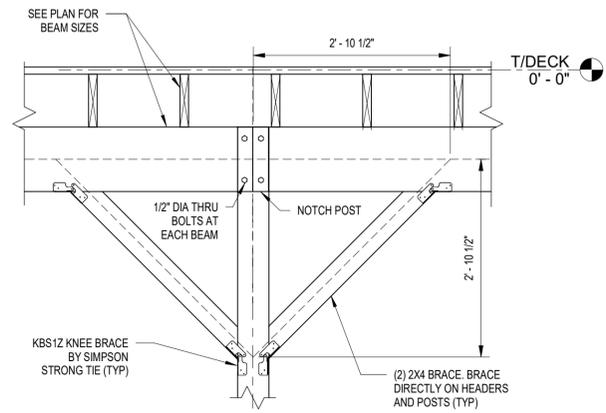
C4 STEEL BEAM TO WOOD FRAMING CONNECTION
SCALE: 3/4" = 1'-0"



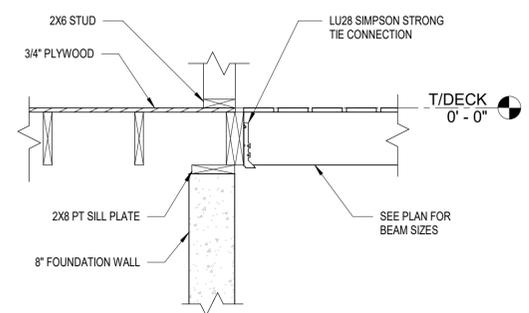
B3 GABLE END ROOF SECTION
SCALE: 1/2" = 1'-0"



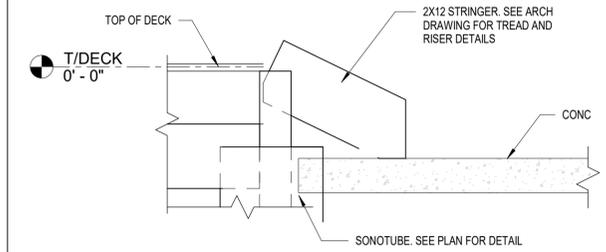
B4 TYP STEEL BEAM TO WALL CONNECTION
SCALE: 3/4" = 1'-0"



A2 DECK BRACING AND JOIST CONNECTION
SCALE: 3/4" = 1'-0"



A3 DECK BEAM TO WALL CONNECTION
SCALE: 3/4" = 1'-0"



A4 FRONT STAIR DETAIL
SCALE: 3/4" = 1'-0"



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DETAILS

S-502

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C

C

B

B

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A



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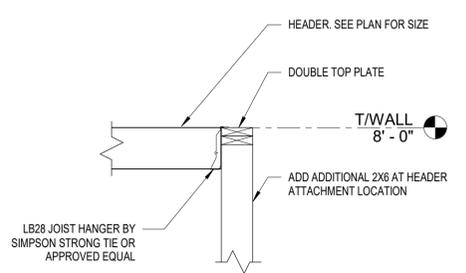
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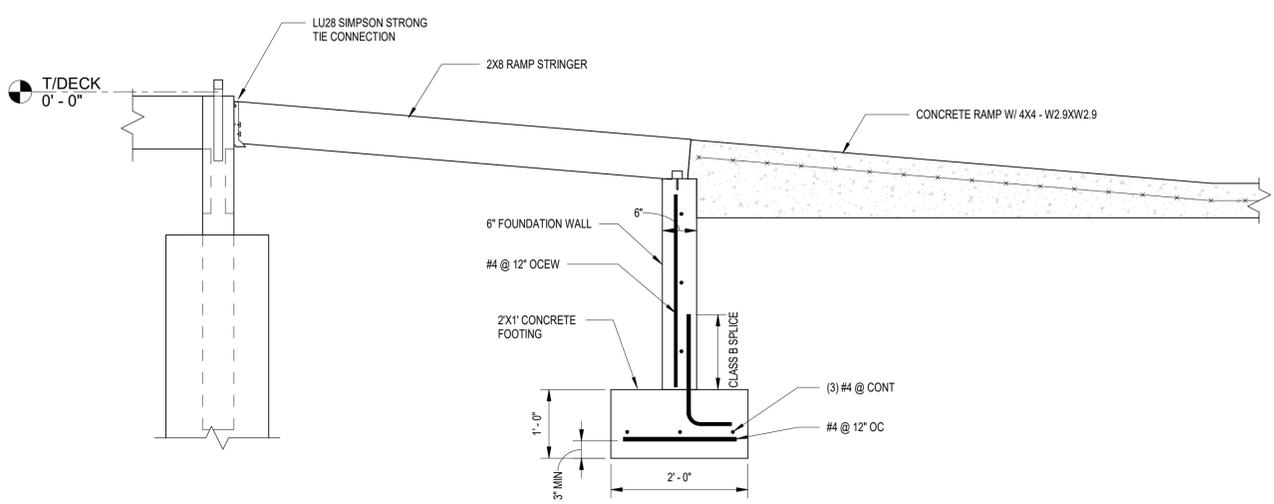
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S-503



A2 CANOPY HEADER ATTACHEMENT AT WALL
 SCALE: 3/4" = 1'-0"



A3 RAMP SECTION
 SCALE: 3/4" = 1'-0"

1

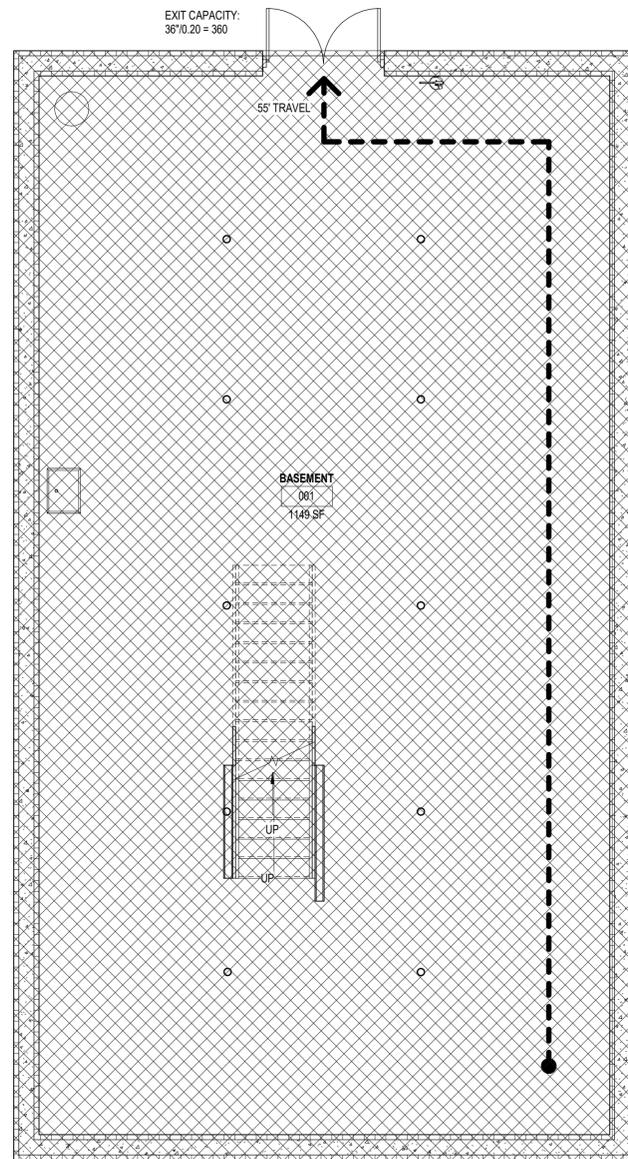
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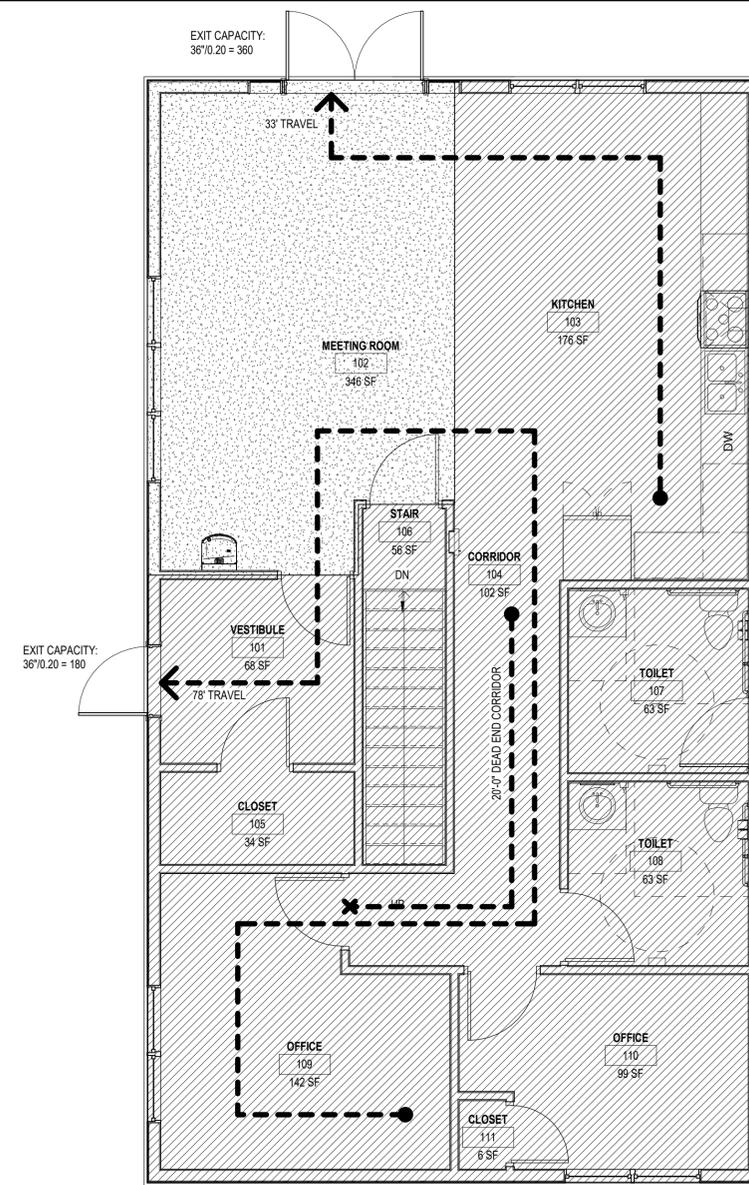
B



B1 BASEMENT CODE COMPLIANCE PLAN
SCALE: 1/4" = 1'-0"



B3 FIRST FLOOR CODE COMPLIANCE PLAN
SCALE: 1/4" = 1'-0"



C

B



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A

2020 BUILDING CODE OF NEW YORK STATE

CHAPTER 3 - Use and Occupancy Classification

- A. Classification & Use**
- 303.1.2 - Small assembly spaces with occupant loads of less than 50 persons shall be classified as a Group B occupancy
 - 304.1. (B) Business Group - Office

CHAPTER 5 - General Building Heights and Areas

A. General Height and Area Limitations

- Groups B occupancy, Type VB construction (Non-Sprinklered)
- 1. Building Height
 - Table 504.3 - Allowable Building Height in Feet Above Grade Plane
Max Height: 40 ft (24 ft Actual)
- 2. Number of Stories
 - Table 504.4 Maximum Stories Allowable Number of Stories Above Grade Plane
B: 2 (1 Actual)

CHAPTER 6 - Types of Construction

- 1. Table 601 - Fire-Resistance Rating Requirements for Building Elements, Type VB
 - Structural Frame: 0 hour
 - Bearing Walls: 0 hour
 - Non-Bearing Walls: 0 hour
 - Floor Construction: 0 hour
 - Roof Construction: 0 hour

CHAPTER 8 - Interior Finishes

- A. Interior Finishes**
- 1. Table 803.11, Interior Wall and Ceiling Finish Requirements by Occupancy
 - Group B, Non-Sprinklered
 - Exit enclosures and passageways: A
 - Corridors: B
 - Rooms and enclosed spaces: C

CHAPTER 9 - Fire Protection Systems

A. Automatic Sprinkler Systems

- 1. No requirements for Business occupancy.

CHAPTER 10 - Means of Egress

- A. Area Occupancy**
- 1. Table 1004.1.2, Maximum Floor Area Allowances per Occupant
 - Business Areas: 150 sf Gross
 - Assembly Unconcentrated: 15 sf Net
 - Storage/Mechanical: 300 sf Gross
 - 2. Number of Occupants
 - Business Areas: 1,015/150 = 7
 - Assembly Areas: 277/15 = 19
 - Storage Areas (Basement): 1,292/300 = 5
- B. Means of Egress**
- 1. 1005.3.2 Other Egress Components
 - Non-Sprinklered: 0.20 in per occupant

C. Number of Exits and Exit Access Doorways

- 1. Table 1006.2.1 Spaces with One Exit or Exit Access Doorway
 - B Occupancy, Occupant Load < 49 persons - Minimum 1 exits required, 75' maximum common path of travel.

D. Exit Access

- 1. Table 1017.2
 - B Occupancy: 200' maximum travel without sprinkler system

E. Corridors

- 1. Table 1020.1 Corridor Fire-Resistance Rating - Corridor Occupancy < 30 (4 actual), non-sprinklered building therefore no rating is required.
- 2. Table 1020.2 Corridor width
 - 36' for occupant load < 50 (48' min. provided)
- 3. 1020.4 Dead Ends
 - Length not to exceed 20 ft.

2015 PLUMBING CODE OF NEW YORK STATE

A. Fixtures, Faucets and Fixture Fittings (Chapter 4)

- 1. Table 403.1 - Minimum Number of Required Fixtures
 - Business Occupancy (B) - 31 Occupants/2 = 16 per gender
 - Water Closets
 - Male: 1 per 25 (first 50), 1 per 50 (50+) = 1
 - Female: 1 per 25 (first 50), 1 per 50 (50+) = 1
 - Lavatories
 - Male: 1 per 40 (first 80), 1 per 80 (80+) = 1
 - Female: 1 per 40 (first 80), 1 per 80 (80+) = 1
 - Bath/Shower: 0 Required
 - Drinking Fountain: 1 per 100 = 1 Required
 - Service Sink: 1 required

2020 ENERGY CODE OF NEW YORK STATE

A. Onondaga County - Climate Zone 5A

- 1. Table C402.1.3 Opaque Thermal Envelope Insulation Component Minimum Requirements
 - Slab on Grade Floor - Unheated: R-10 for 24 in. below
 - Walls, Below Grade: R-7.56
 - Mass Walls Above Grade: R-11.4d
 - Wood Framed Walls Above Grade: R-13 + Continuous R-3.8 or R-20
 - Attic and Other: R-38
 - Opaque Doors - Nonswinging: R-4.75
- 2. Table C402.4 Building Envelope Fenestration
 - Fixed Fenestration: U-Factor = 0.38
 - Operable Fenestration: U-Factor = 0.45
 - Entrance Doors: U-Factor = 0.77
 - SHGC < 0.2 = 0.38

LEGEND

- - - EXIT ACCESS TRAVEL DISTANCE PATH
- [Hatched Box] - BUSINESS OCCUPANT LOAD
- [Dotted Box] - ASSEMBLY OCCUPANT LOAD
- [Cross-hatched Box] - STORAGE OCCUPANT LOAD

NOTE:
ALL AREAS ARE BUSINESS OCCUPANCY

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A

CODE REVIEW

A-001

A1 CODE COMPLIANCE REVIEW
SCALE: NOT TO SCALE

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2

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4

C

B

A

C

B

A



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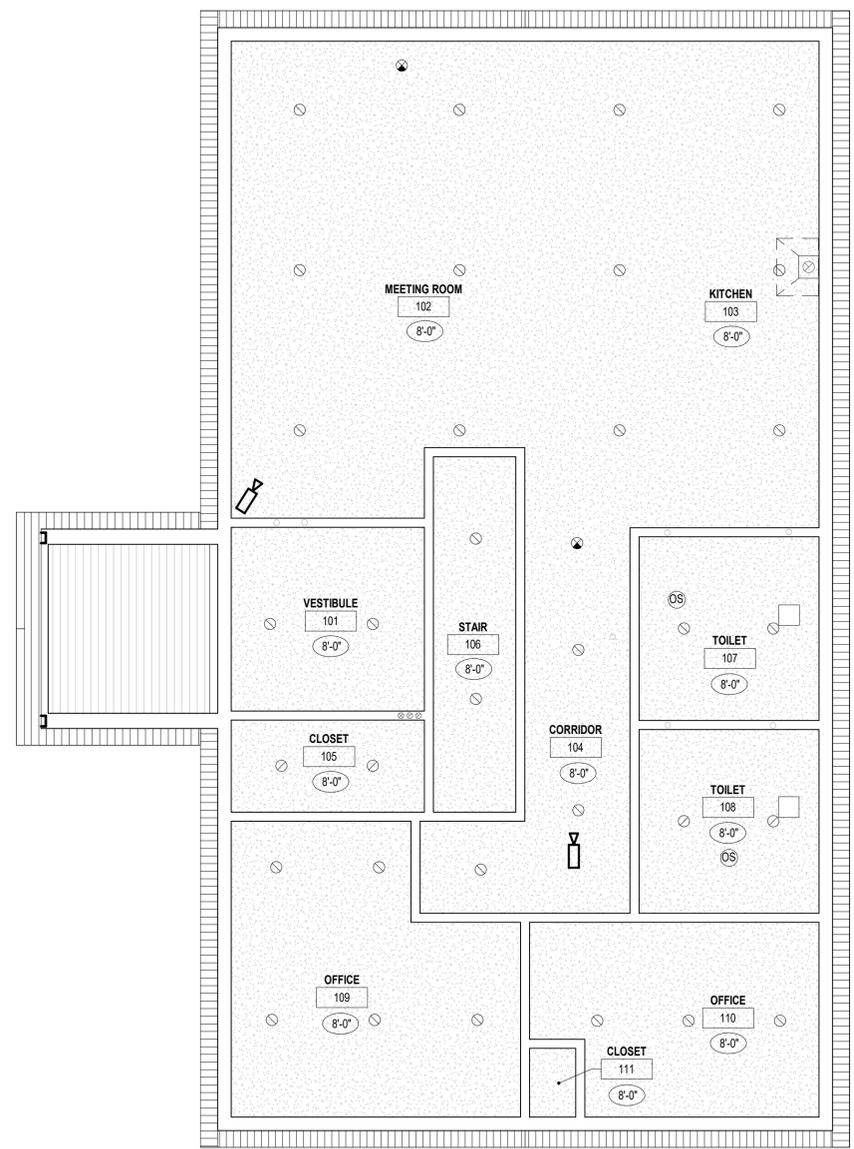
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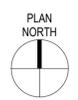
REFLECTED CEILING AND ROOF PLANS

A-102

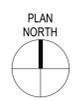
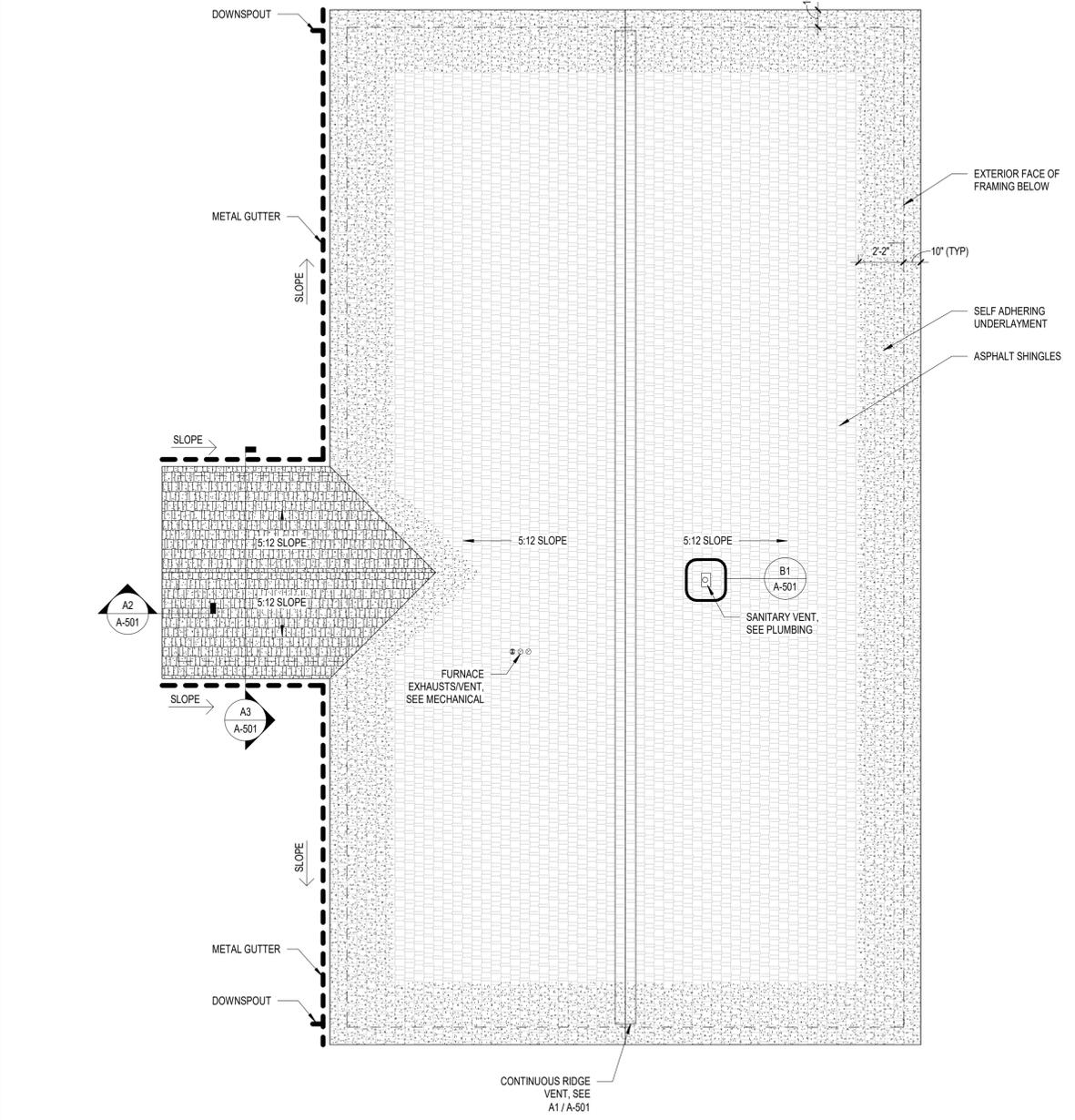
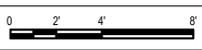


REFLECTED CEILING PLAN LEGEND

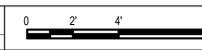
(X'-X")	CEILING HEIGHT
(Stippled)	GYP BD CEILING
(Horizontal lines)	VINYL SOFFIT
(Circle with dot)	DOWNLIGHT RECESSED CAN, SEE ELECTRICAL
(Circle with 'OS')	OCCUPANCY SENSOR, SEE ELECTRICAL
(Circle with 'X')	EXIT LUMINAIRE, SEE ELECTRICAL
(Square with 'X')	EXHAUST GRILLE, SEE MECHANICAL
(Square with 'SC')	SECURITY CAMERA, SEE ELECTRICAL



A1 REFLECTED CEILING PLAN
 SCALE: 1/4" = 1'-0"



A3 ROOF PLAN
 SCALE: 1/4" = 1'-0"



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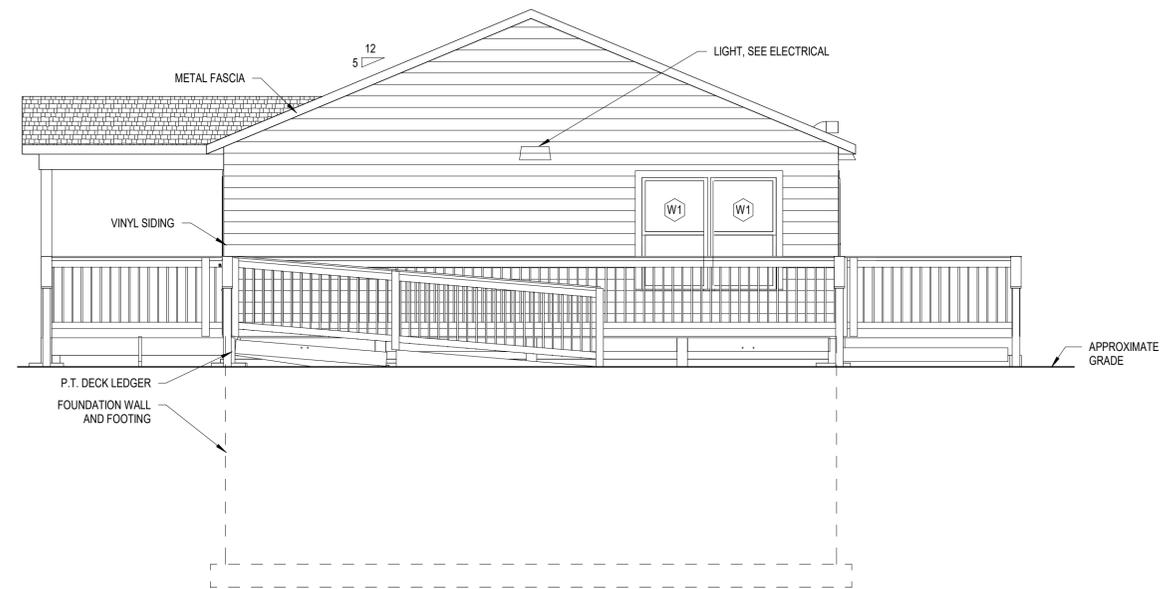
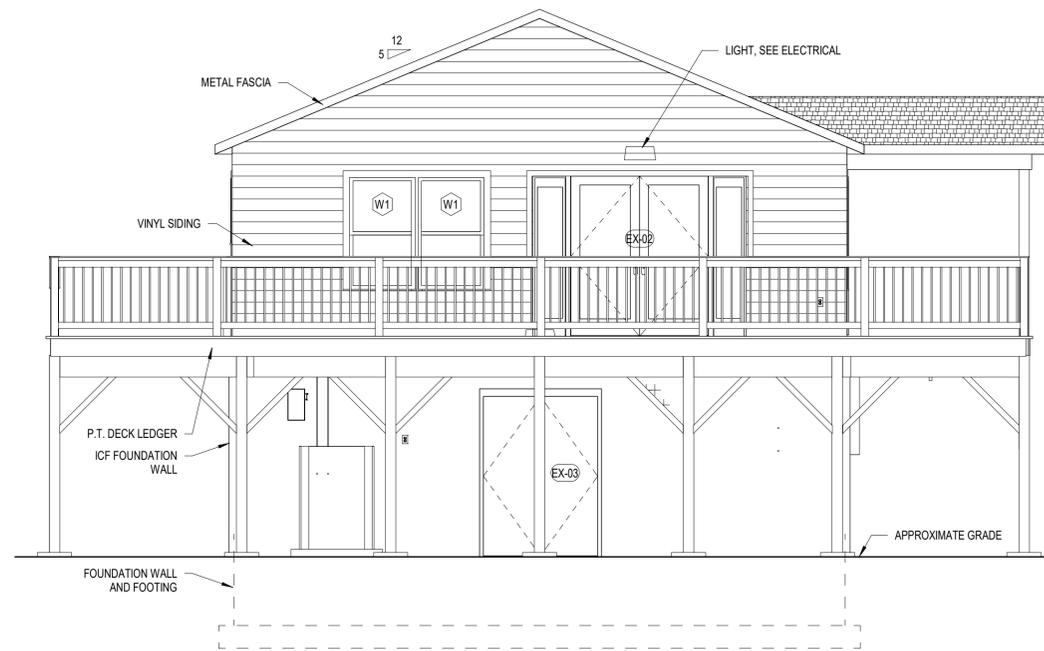
A



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B1 NORTH ELEVATION
SCALE: 1/4" = 1'-0"



B3 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



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EXTERIOR ELEVATIONS

A-201

1

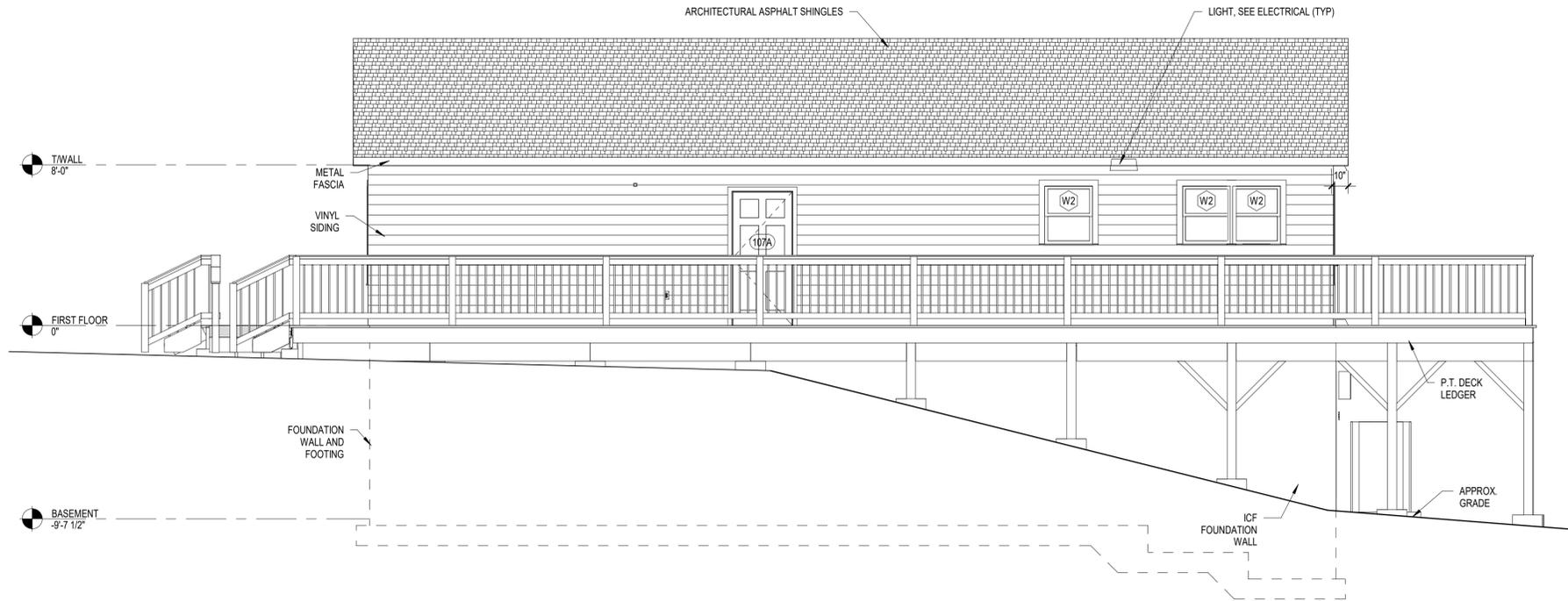
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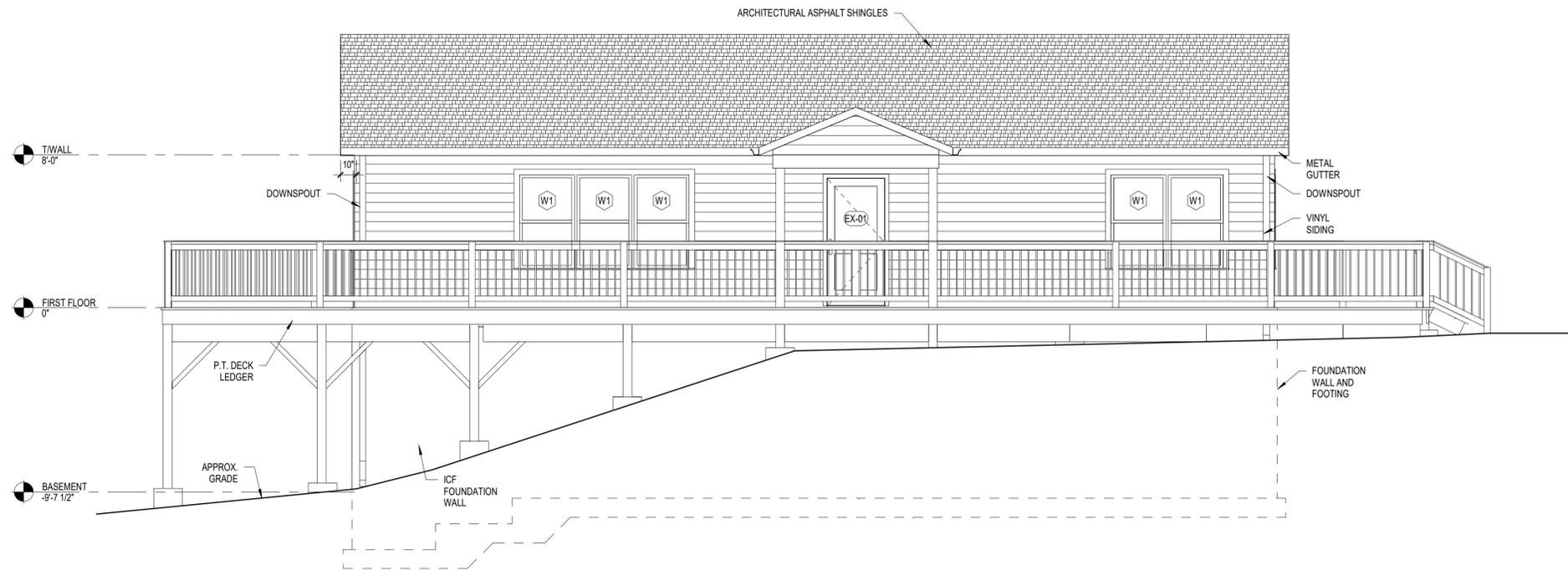
B1 EAST ELEVATION

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



B

B



A1 WEST ELEVATION

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



A

A

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2

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4



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EXTERIOR ELEVATIONS

A-202

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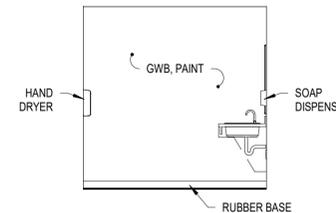
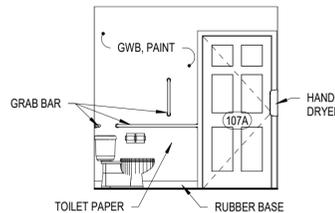
4

C

C

ACCESSORIES SCHEDULE		ROOM NUMBER	
ITEM		107	108
①	42" GRAB BAR	1	1
②	36" GRAB BAR	1	1
③	18" GRAB BAR	1	1
④	HAND DRYER	1	1
⑤	SOAP DISPENSER	1	1
⑥	TOILET PAPER HOLDER	1	1
⑦	MIRROR (CONTINUOUS, 3' H X 1'-6" W)	1	1

- GENERAL NOTES:
- SEE SHEET A-101 FOR KEYNOTE REFERENCES.
 - MOUNT ALL ACCESSORIES WITH FASTENERS AND ANCHORS AS RECOMMENDED BY THE MANUFACTURER.
 - MOUNT ALL ACCESSORIES AT ADA ACCESSIBLE HEIGHTS AND LOCATIONS AS RECOMMENDED BY THE MANUFACTURER.
 - ALL PIPING BELOW ALL SINKS TO BE COVERED WITH ACCESSIBILITY APPROVED INSULATION WITH PVC (WHITE) COVERS. USE PRODUCTS BY "TRU-BRO" OR APPROVED EQUIVALENT.



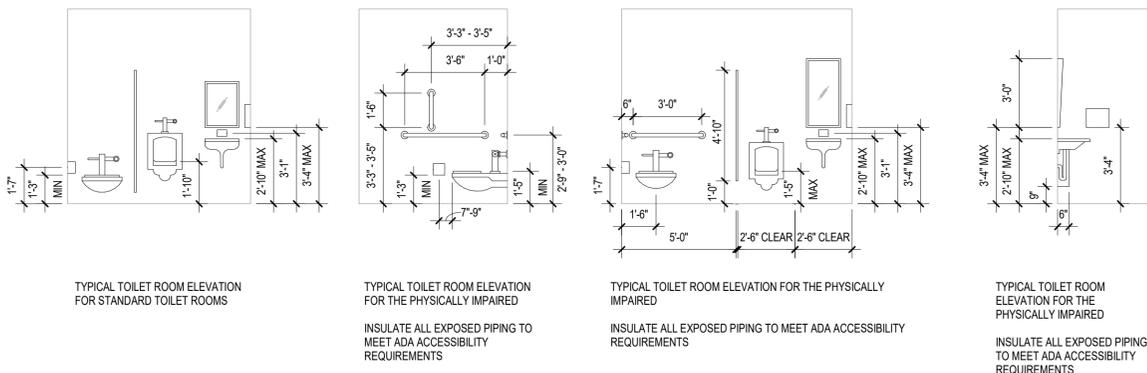
C2 ACCESSORY SCHEDULE
SCALE: 12" = 1'-0"

C3 TOILET ROOM EAST ELEVATION
SCALE: 1/4" = 1'-0"

C4 TOILET ROOM WEST ELEVATION
SCALE: 1/4" = 1'-0"

B

B



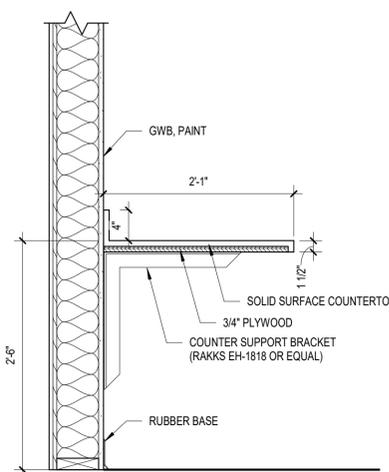
B1 TYPICAL PLUMBING FIXTURE MOUNTING HEIGHTS
SCALE: 1/4" = 1'-0"

B3 TOILET ROOM NORTH ELEVATION
SCALE: 1/4" = 1'-0"

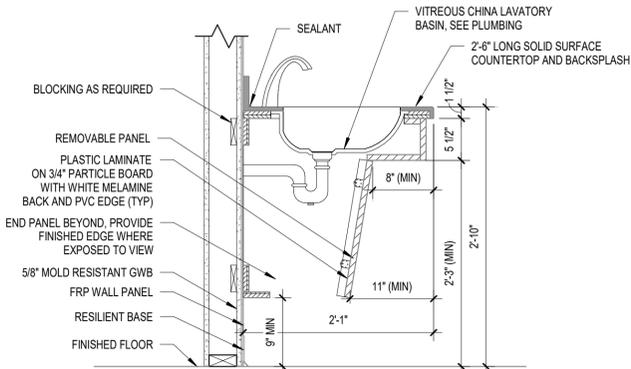
B4 TOILET ROOM SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

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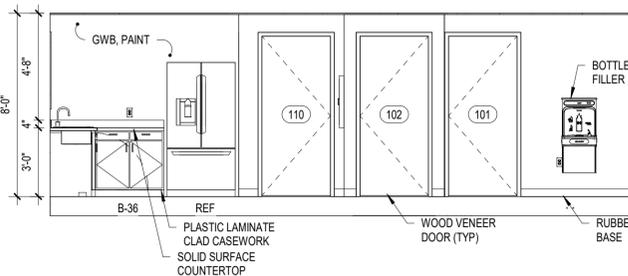
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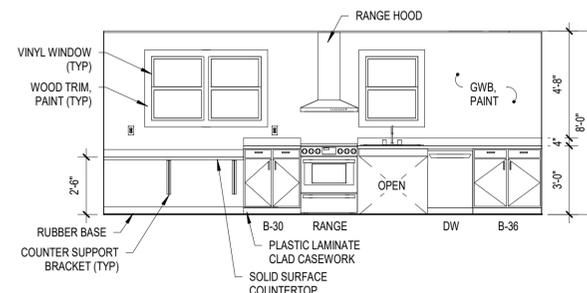
A1 WORK COUNTER DETAIL
SCALE: 1" = 1'-0"



A2 BATH COUNTER DETAIL
SCALE: 1" = 1'-0"



A3 KIT/MTG ROOM SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



A4 KITCHEN EAST ELEVATION
SCALE: 1/4" = 1'-0"

1

2

3

4



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INTERIOR ELEVATIONS

A-203

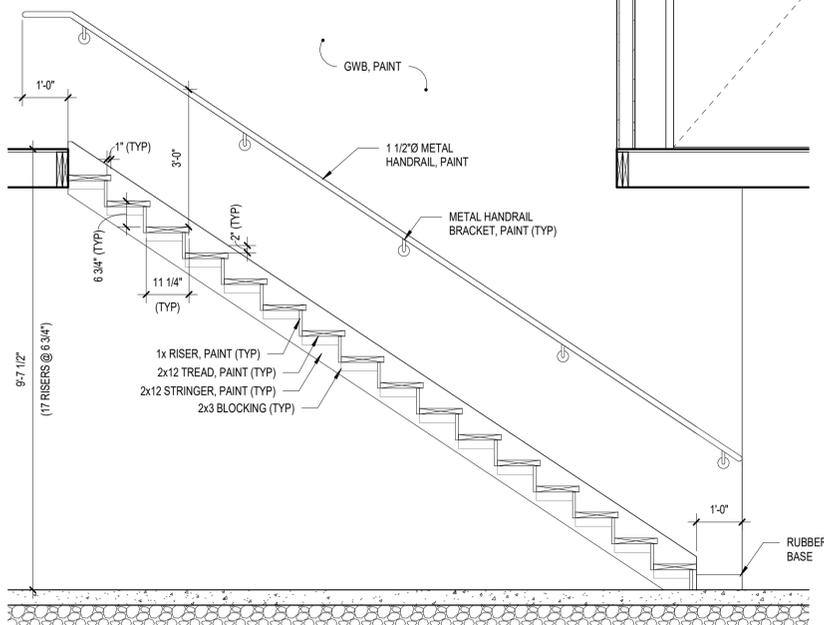
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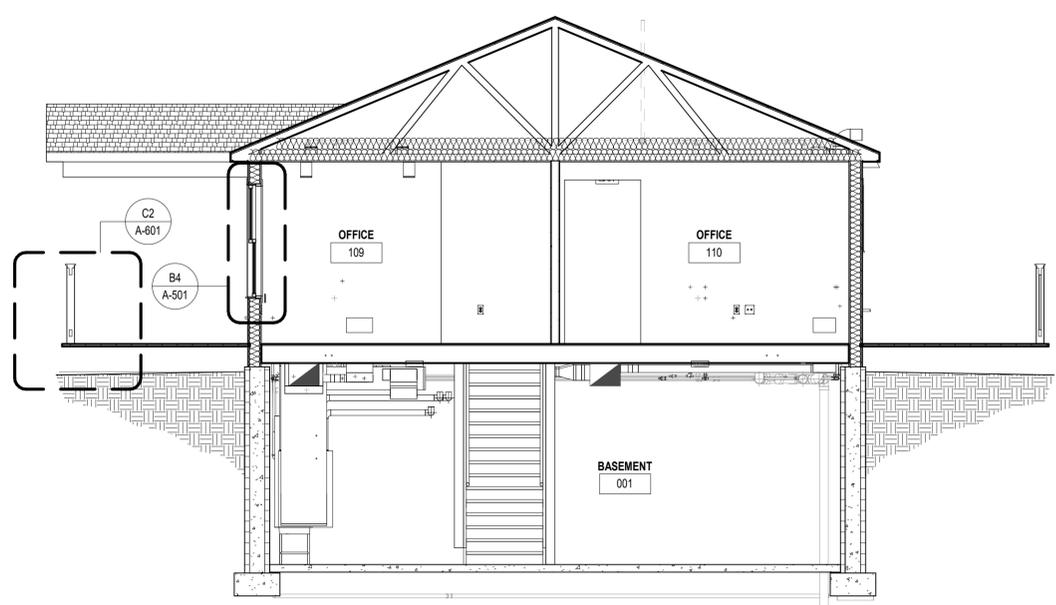
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C



C1 STAIR SECTION
SCALE: 1/2" = 1'-0"

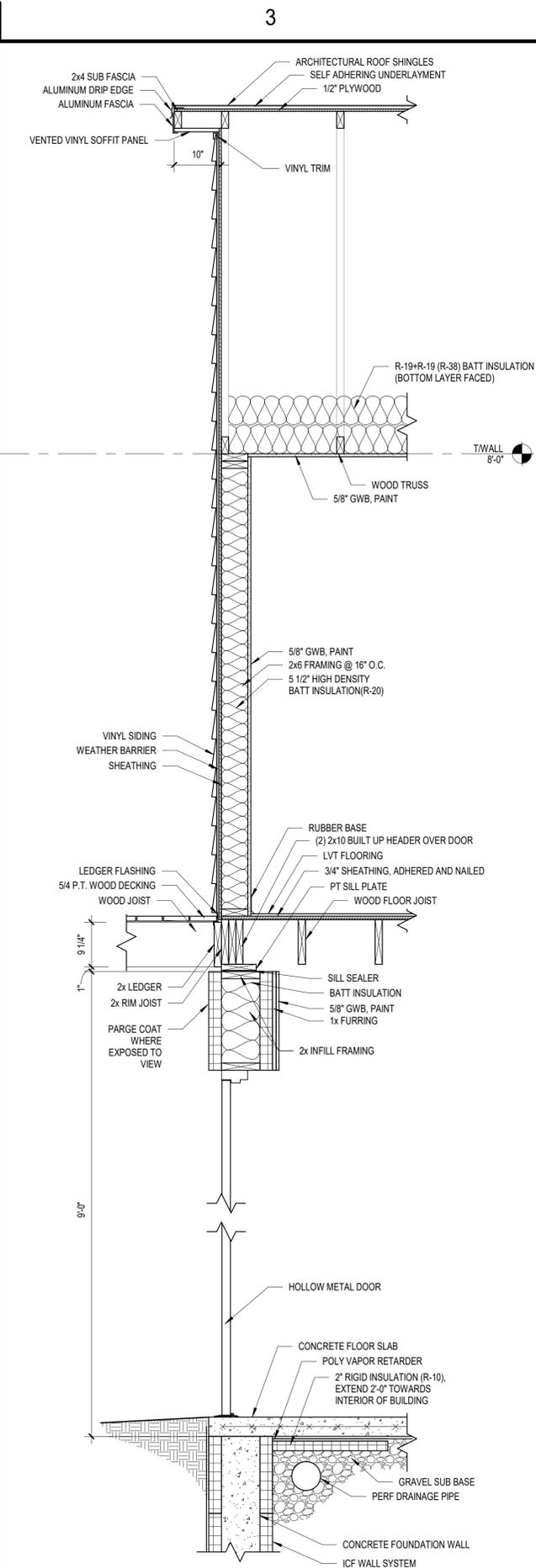
B



A1 BUILDING SECTION
SCALE: 1/4" = 1'-0"

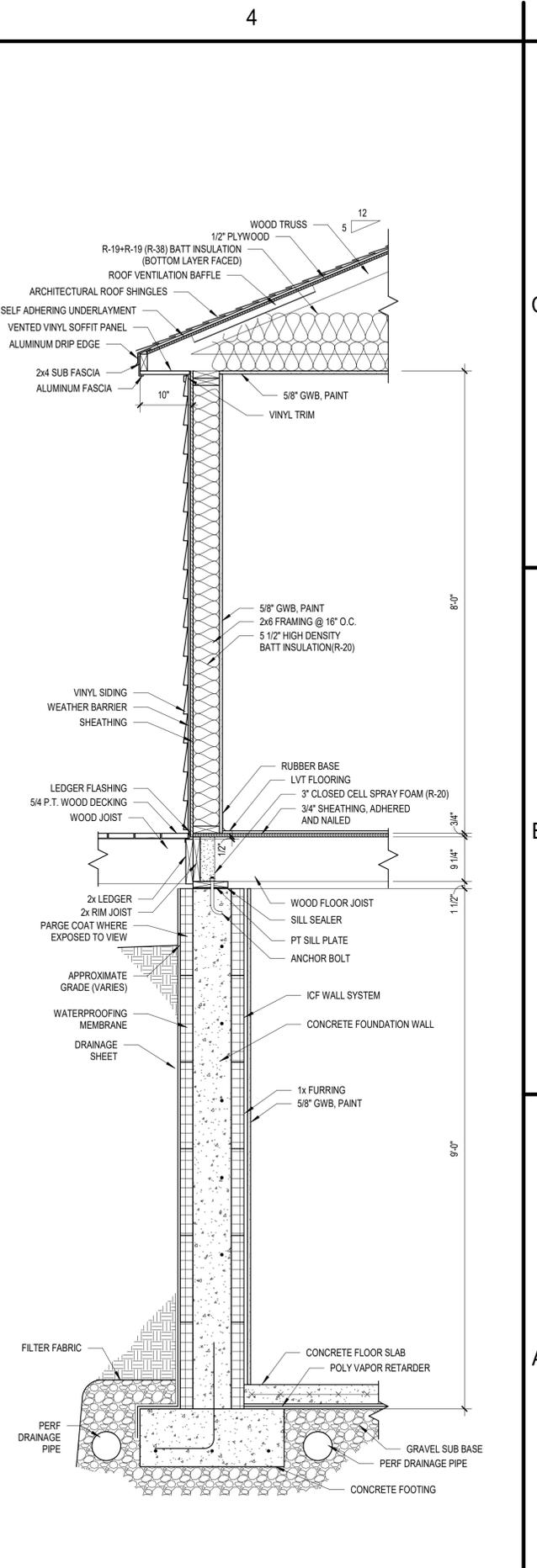
1

2



A3 TYPICAL GABLE WALL SECTION
SCALE: 3/4" = 1'-0"

3



A4 TYPICAL WALL SECTION
SCALE: 3/4" = 1'-0"

4



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Syracuse, New York 13212
Phone: 315-455-2000
Fax: 315-455-9667
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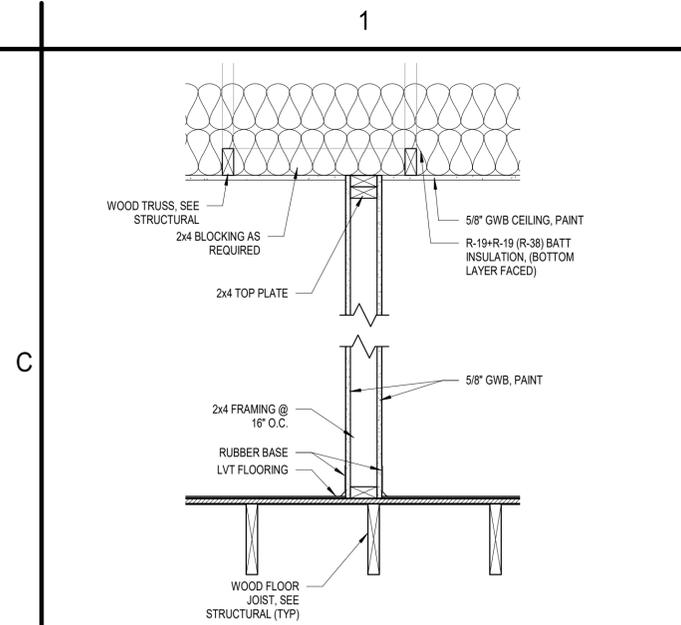
GREEN EDUCATION CENTER
TOWN OF CLAY
9604 BLACK CREEK ROAD
BREWERTON, NY 13029

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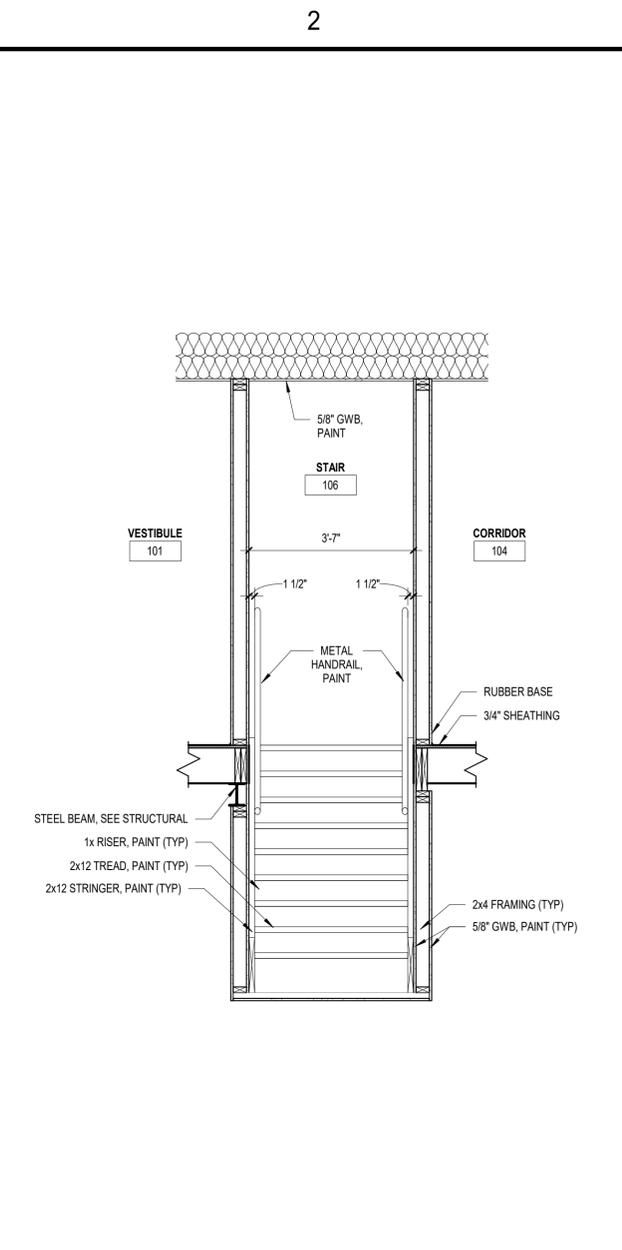
PROJECT NO: 195.101.021
DATE: JUNE 29, 2022
DRAWN BY: M.E. BARNES
DESIGNED BY: M.E. BARNES
CHECKED BY: M.W. LAMONTAGNE, AIA
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BUILDING AND WALL SECTIONS

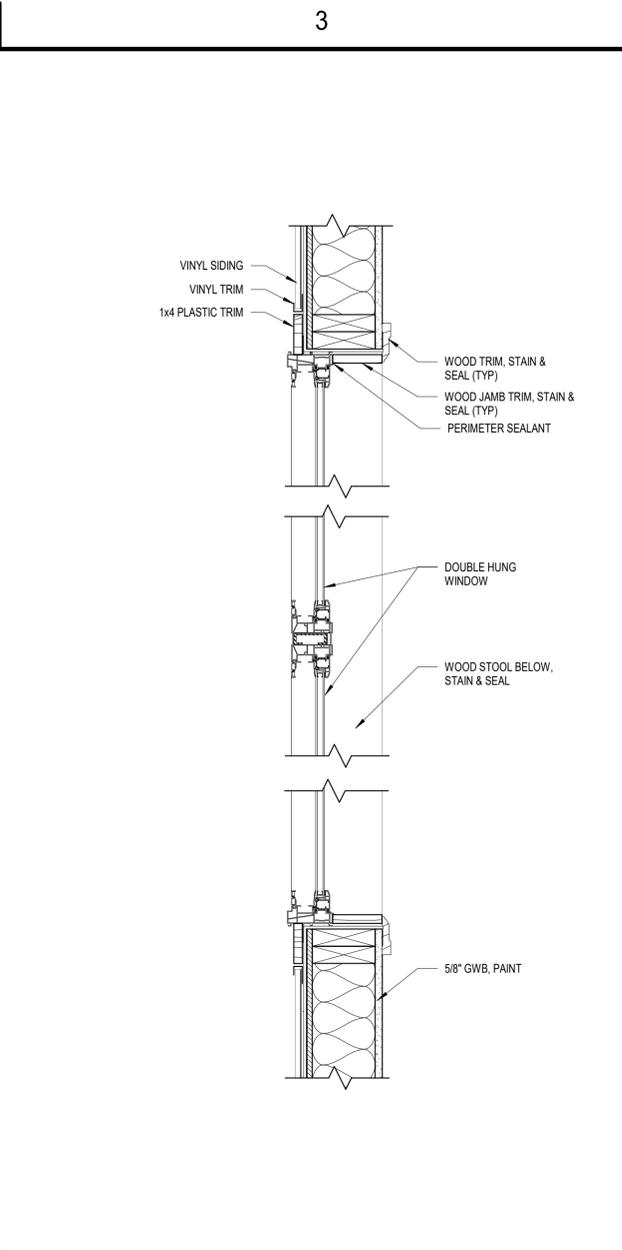
A-301



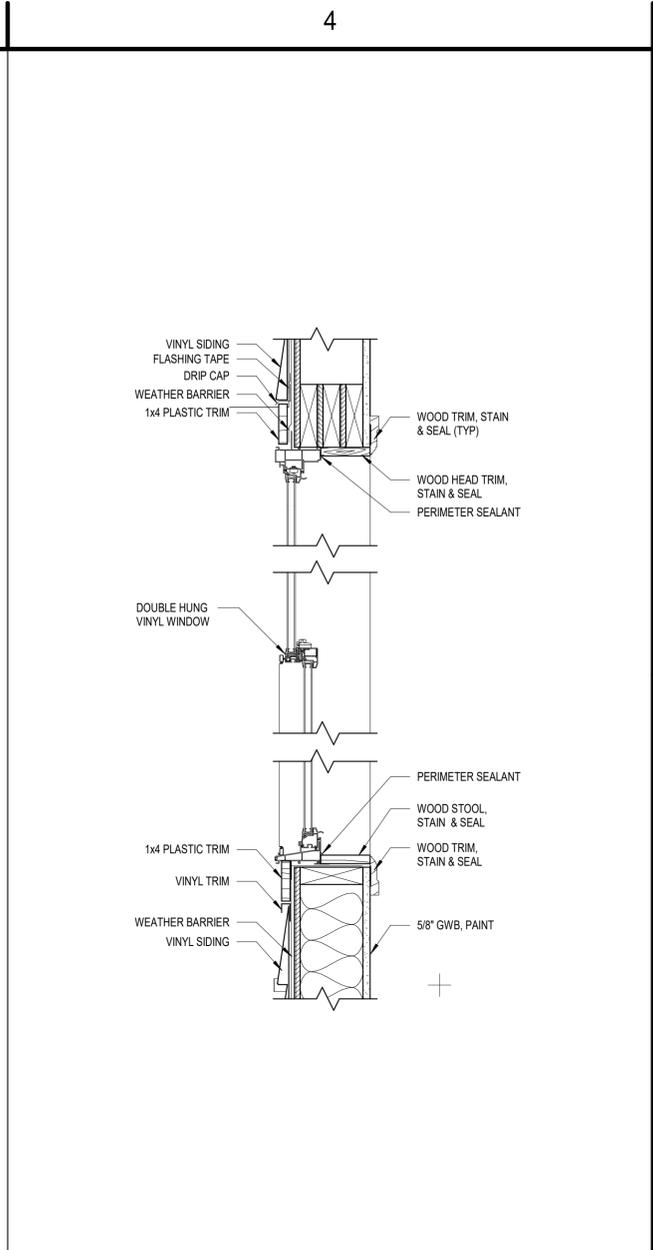
C1 TYPICAL INTERIOR PARTITION DETAIL
SCALE: 1" = 1'-0"



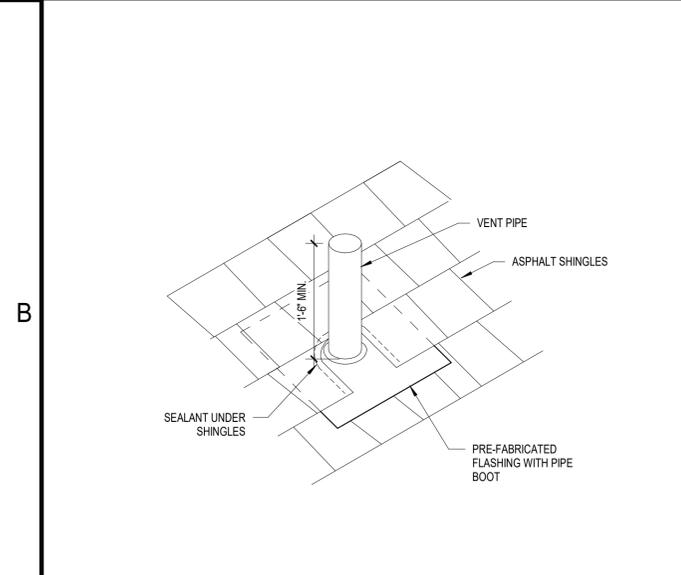
B2 STAIR DETAIL
SCALE: 1/2" = 1'-0"



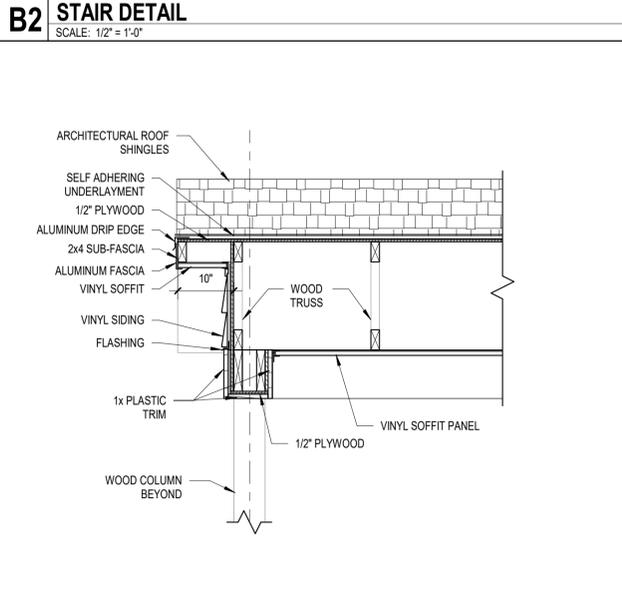
B3 TYPICAL WINDOW PLAN DETAIL
SCALE: 1 1/2" = 1'-0"



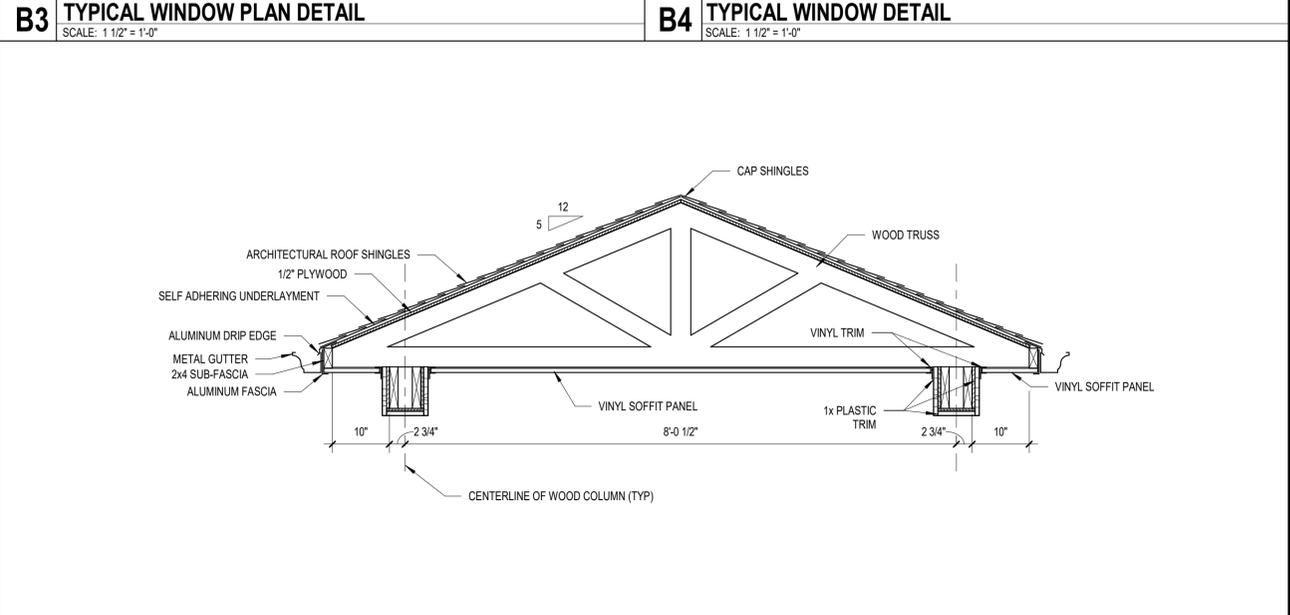
B4 TYPICAL WINDOW DETAIL
SCALE: 1 1/2" = 1'-0"



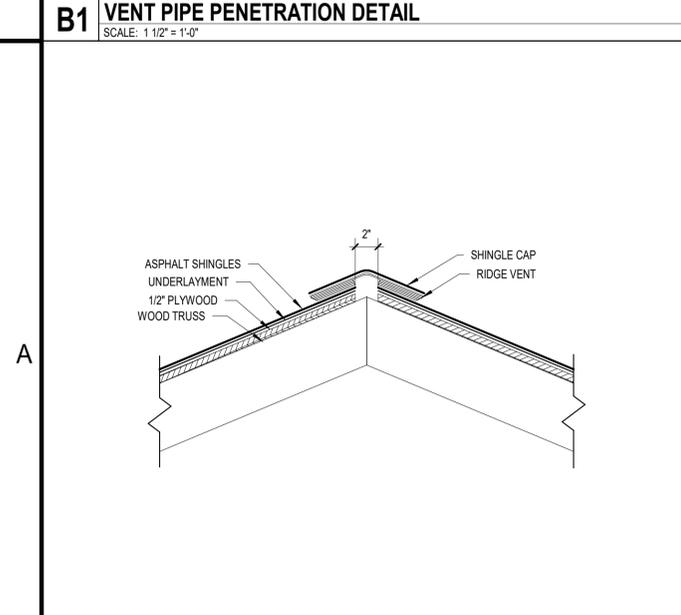
B1 VENT PIPE PENETRATION DETAIL
SCALE: 1 1/2" = 1'-0"



A2 PORCH ROOF GABLE DETAIL
SCALE: 3/4" = 1'-0"



A3 PORCH ROOF EAVE DETAIL
SCALE: 3/4" = 1'-0"



A1 RIDGE DETAIL
SCALE: 1 1/2" = 1'-0"



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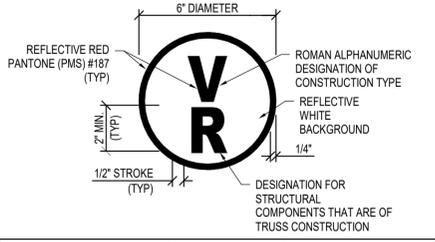


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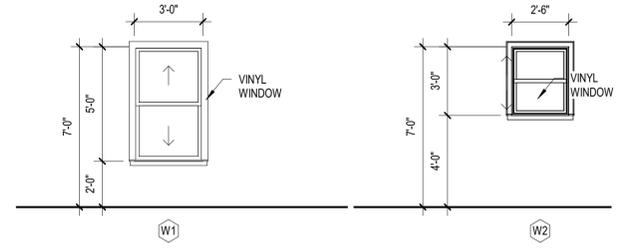
DETAILS

A-501



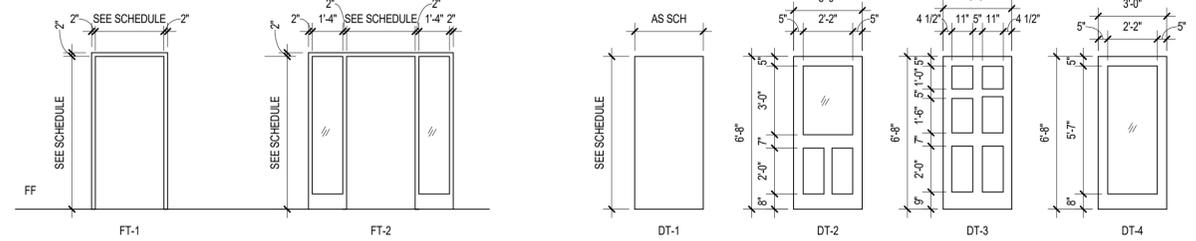
SIGN PLACEMENT SCHEDULE	
SIGN LOCATION	SIGN PLACEMENT
EXTERIOR BUILDING ENTRANCE DOORS	ATTACHED TO FACE OF BUILDING 12" HORIZONTALLY FROM DOOR JAMB AND 60" ABOVE THE ADJOINING WALKING SURFACE
EXTERIOR EXIT DISCHARGE DOORS	ATTACHED TO THE DOOR 12" HORIZONTALLY FROM THE LATCH SIDE OF THE DOOR JAMB AND 60" ABOVE THE ADJOINING WALKING SURFACE

C1 TRUSS IDENTIFICATION SIGN DETAIL
SCALE: 3" = 1'-0"



NOTE:
ALL GLAZING TO BE TEMPERED INSULATED GLASS

C2 WINDOW TYPES
SCALE: 1/4" = 1'-0"



NOTE:
ALL GLAZING TO BE TEMPERED INSULATED GLASS

C3 DOOR AND FRAME TYPES
SCALE: 1/4" = 1'-0"

DOOR SCHEDULE											
DOOR NO.	ROOM NO.	DOOR				FRAME			HARDWARE SET	FIRE RATING	NOTES
		TYPE	WIDTH	HEIGHT	MATERIAL	FINISH	TYPE	MATERIAL			
101	101	DT-1	3'-0"	7'-0"	WD	STN	FT-1	WD	STN	H-3	-
101A	101	DT-1	3'-0"	7'-0"	WD	STN	FT-1	WD	STN	H-3	-
102	102	DT-1	3'-0"	7'-0"	WD	STN	FT-1	WD	STN	H-3	-
107A	107	DT-3	3'-0"	6'-8"	STL	PT	FT-1	WD	PT	H-1	-
108	108	DT-1	3'-0"	7'-0"	STL	PT	FT-1	WD	PT	H-4	-
109	109	DT-1	3'-0"	7'-0"	WD	STN	FT-1	WD	STN	H-2	-
110	110	DT-1	3'-0"	7'-0"	WD	STN	FT-1	WD	STN	H-2	-
110A	110	DT-1	2'-6"	7'-0"	WD	STN	FT-1	WD	STN	H-3	-
EX-01	101	DT-2	3'-0"	6'-8"	STL	PT	FT-1	WD	PT	H-1	-
EX-02		DT-4	6'-0"	7'-0"	WD	ALUM	FT-2	WD	PT	H-5	-
EX-03		DT-1	5'-0"	7'-0"	STL	PT	FT-1	WD	PT	H-5	-

ABBREVIATIONS:
ALUM - ALUMINUM
CAMFA - CLEAR ANODIZED MILL FINISH ALUMINUM
EXIST - EXISTING
FF - FINISH FLOOR
GALV - GALVANIZED
HM - HOLLOW METAL
PR - PAIR
PT - PAINT
STN - STAIN
STL - STEEL

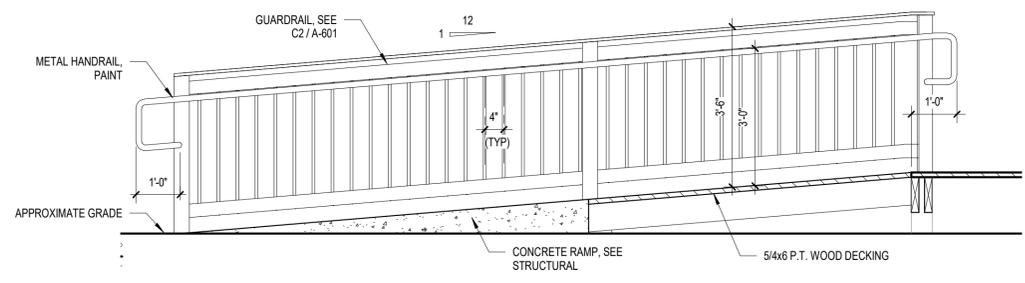
- HARDWARE SETS:**
- A. HARDWARE SET NO. H-1: MAIN BUILDING ENTRY
 - HINGES: 3 EA - ANSIBHMA A5112, 4-1/2" x 4-1/2" US32D(630).
 - DOOR CLOSER: 1 EA - ANSIBHMA C02011
 - LOCKSET: 1 EA - ANSIBHMA FUNCTION F84 LEVER TRIM US32D(630).
 - WEATHERSTRIPPING: ANSIBHMA ROY165
 - THRESHOLD: ANSIBHMA J32120
 - B. HARDWARE SET NO. H-2: OFFICE
 - HINGES: 3 EA - ANSIBHMA A5112, 4-1/2" x 4-1/2" US32D(630).
 - LOCKSET: 1 EA - ANSIBHMA FUNCTION F84 LEVER TRIM US32D(630).
 - WALL BUMPER: 1 EA - ANSIBHMA L02101 CONVEX TYPE US32D(630).
 - SILENCERS: 3EA - ANSIBHMA L03011
 - C. HARDWARE SET NO. H-3: BASEMENT, CLOSET AND VESTIBULE
 - HINGES: 3 EA - ANSIBHMA A5112, 4-1/2" x 4-1/2" US32D(630).
 - LOCKSET: 1 EA - ANSIBHMA FUNCTION F75 LEVER TRIM US32D(630).
 - WALL BUMPER: 1 EA - ANSIBHMA L02101 CONVEX TYPE US32D(630).
 - SILENCERS: 3EA - ANSIBHMA L03011
 - D. HARDWARE SET NO. H-4: TOILET
 - HINGES: 3 EA - ANSIBHMA A5112, 4-1/2" x 4-1/2" US32D(630).
 - LOCKSET: 1 EA - ANSIBHMA FUNCTION F76 LEVER TRIM US32D(630).
 - WALL BUMPER: 1 EA - ANSIBHMA L02101 CONVEX TYPE US32D(630).
 - SILENCERS: 3EA - ANSIBHMA L03011
 - E. HARDWARE SET NO. H-5: BUILDING ENTRY DOUBLE
 - HINGES: 6 EA - ANSIBHMA A5112, 4-1/2" x 4-1/2" US32D(630).
 - LOCKSET: 1 EA - ANSIBHMA FUNCTION F84 LEVER TRIM US32D(630).
 - OPERATING TRIM: DUMMY TRIM TO MATCH LOCKSET
 - WEATHERSTRIPPING: ANSIBHMA ROY165
 - THRESHOLD: ANSIBHMA J32120
 - FLUSH BOLTS: ANSIBHMA L04082 TYPE 25

B3 DOOR SCHEDULE
SCALE: NOT TO SCALE

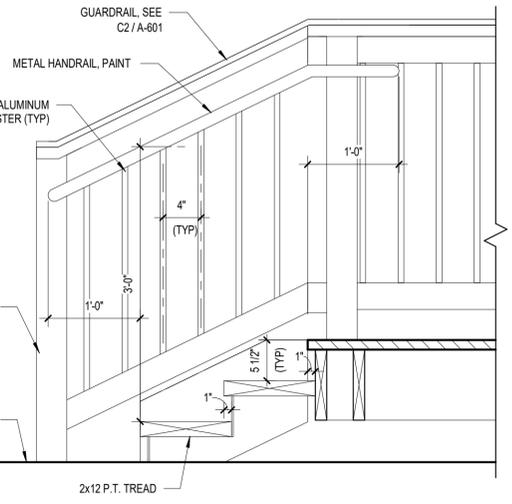
ROOM FINISH SCHEDULE									
ROOM NO.	ROOM NAME	FLOOR	BASE	WALLS (SUBSTRATE/FINISH)			CEILING		NOTES
				NORTH	SOUTH	EAST	WEST	SUBSTRATE/FINISH	
001	BASEMENT	CONC	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	OPEN STRUCTURE	VARIABLES
101	VESTIBULE	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"
102	MEETING ROOM	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"
103	KITCHEN	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"
104	CORRIDOR	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"
105	CLOSET	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"
106	STAIR	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"
107	TOILET	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"
108	TOILET	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"
109	OFFICE	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"
110	OFFICE	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"
111	CLOSET	LVT	RBR	GWB/PT	GWB/PT	GWB/PT	GWB/PT	GWB/PT	8'-0"

ABBREVIATIONS:
CONC - CONCRETE
CMU - CONCRETE MASONRY UNIT
GWB - GYPSUM WALL BOARD
LVT - LUXURY VINYL TILE
PT - PAINT
RBR - RUBBER

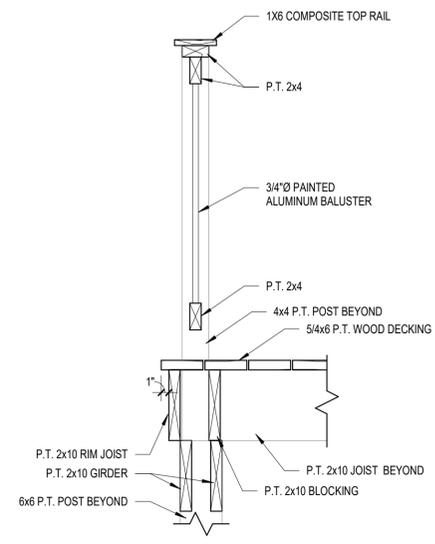
A3 ROOM FINISH SCHEDULE
SCALE: NOT TO SCALE



B1 RAMP SECTION
SCALE: 1/2" = 1'-0"



A1 EXTERIOR STAIR SECTION
SCALE: 1" = 1'-0"



C2 TYPICAL GUARD RAIL DETAIL
SCALE: 1" = 1'-0"



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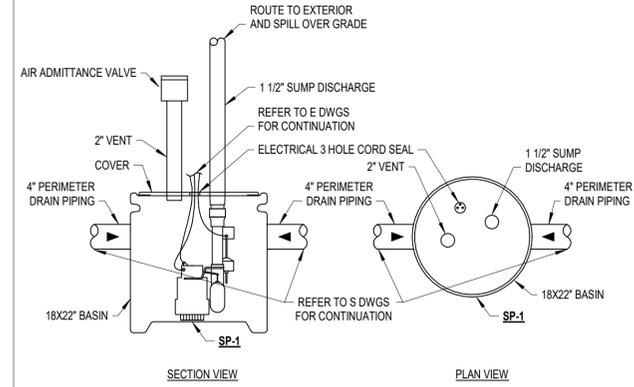
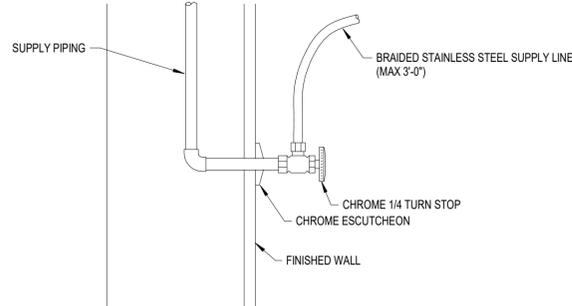
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SCHEDULES AND DETAILS

A-601

PLUMBING GENERAL:
 PIPING INSULATION - FIBERGLASS.
 SANITARY/VENT PIPING - CAST IRON OR PVC.
 DOMESTIC WATER PIPING - TYPE "L" COPPER TUBING.
 PROPANE GAS PIPING - SCHEDULE 40 BLACK STEEL.
 SUMP DISCHARGE PIPING - SCHEDULE 40 GALVANIZED STEEL OR PVC.
 BALL VALVE - BRONZE WITH STAINLESS STEEL BALL.
 GAS COCK - BRONZE BODY, TAPERED PLUG.
 AIR ADMITTANCE VALVE (AAV) - ASSE 1051 MANUFACTURED BY STUDOR OR EQUAL.
 FLOOR DRAIN (FD) - EQUAL TO ZURN ZN-415-S WITH IN LINE FLOOR DRAIN SEALER.
 HOSE BIBB (HB) - MANUFACTURED BY ACORN EQUAL.
 WALL HYDRANT (WH) - EQUAL TO J.R. SMITH FIGURE 55090T.
 WATER HEATER (DWH) - EQUAL TO A.O. SMITH MODEL GDC-40.
 EXPANSION TANK - EQUAL TO AMTROL MODEL ST-SC-DD.
 SUMP PUMP (SP-1) - PREASSEMBLED SUMP PUMP EQUAL TO ZOELLER 900-0001 SERIES MODEL 53 PUMP.

PLUMBING FIXTURES:
 WATERCLOSET (WC) - EQUAL TO AMERICAN STANDARD MODEL 2257.101 WITH MOEN MODEL 8311AC12 AND AMERICAN STANDARD MODEL 5901.100 SEAT.
 WATERCLOSET (WC-1) - SAME AS WC EXCEPT MOUNT AT HANDICAPPED HEIGHT.
 LAVATORY (LAV) - BASIN PROVIDED BY OTHERS. FAUCET EQUAL TO MOEN MODEL 8554AC, MODEL 104630 TRANSFORMER WITH WATTS MODEL LFMMV MIXING VALVE.
 SINK (SK) - EQUAL TO ELKAY MODEL LRAD332265PD WITH MOEN MODEL 8948 FAUCET, P-TRAP, SUPPLIES, ETC. EQUAL TO MCQUIRE.
 ELECTRIC WATER COOLER W/ BOTTLE FILLER (EWC) - EQUAL TO ELKAY MODEL LZSTL8WSSP WITH ZURN MODEL Z1225 CARRIER SUPPORT.
 LAUNDRY TUB (LT) - EQUAL TO FIAT MODEL TAT1.

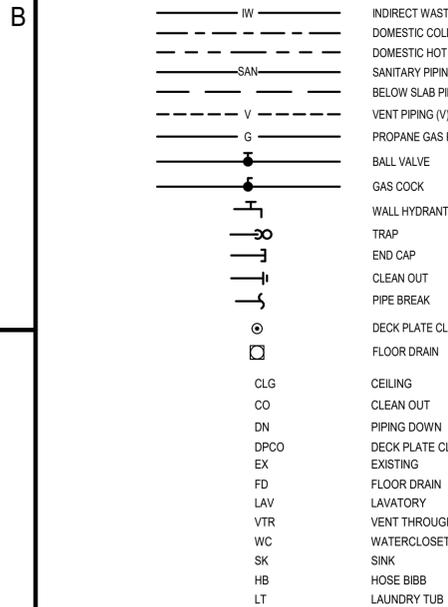


NOTE:
REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.

C1 PLUMBING SPECIFICATION
SCALE: NOT TO SCALE

C3 TYPICAL FIXTURE ROUGH IN
SCALE: NOT TO SCALE

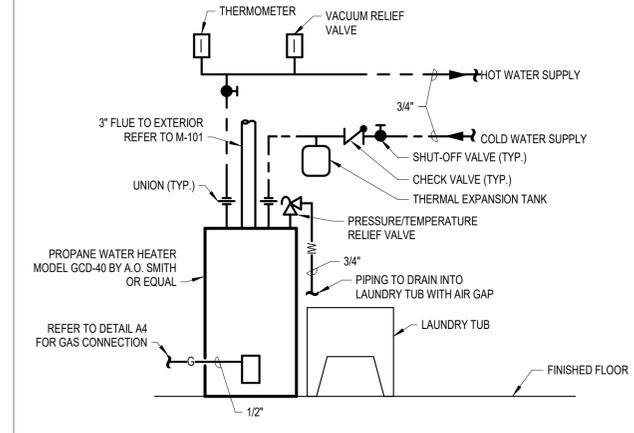
C4 SUMP PUMP DETAIL
SCALE: NOT TO SCALE



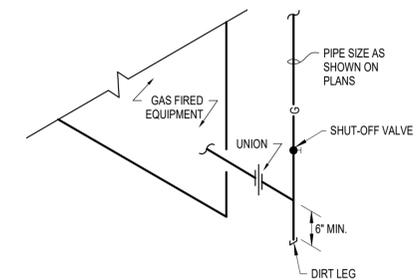
APPLICABLE CODES & STANDARDS
 A. ALL WORK OF THIS CONTRACT SHALL COMPLY WITH THE FOLLOWING CODES & STANDARDS, WHERE CONFLICTING DIRECTION AND/OR INFORMATION EXISTS, CONTRACTOR SHALL FOLLOW THE MOST STRINGENT.
 a. NEW YORK STATE EDUCATION DEPARTMENT
 b. 2020 NEW YORK STATE PLUMBING CODE
 c. AMERICAN SOCIETY OF PLUMBING ENGINEERS STANDARD PRACTICES

GENERAL PLUMBING NOTES
 A. ALL PIPE DIMENSIONS SHOWN ARE NOMINAL.
 B. CONTRACTOR SHALL FIELD-VERIFY ALL EXISTING CONDITIONS AND PIPE LOCATIONS PRIOR TO START OF THIS WORK. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD WITH ANY DISCREPANCIES FOUND IN THE FIELD.
 C. CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING REQUIRED TO INCORPORATE THE SCOPE HEREIN, UNLESS NOTED OR SHOWN OTHERWISE.
 D. ALL ITEMS WHETHER SCHEDULED OR NOT, SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS IN CONJUNCTION WITH INDUSTRY STANDARD PRACTICES, CONSISTENT WITH THE CODES REFERENCED ABOVE.
 E. CONTRACTOR SHALL PROVIDE AND INSTALL ALL SUPPORTS, HANGERS, BRACES, STRUTS, ETC WHETHER SHOWN OR NOT TO PROVIDE A COMPLETE, SAFE, AND DURABLE SYSTEM.
 F. CONTRACTOR SHALL COORDINATE THE WORK OF THIS CONTRACT WITH THAT OF OTHER TRADES AND EXISTING CONDITIONS ENCOUNTERED ONSITE.
 G. PIPE ROUTING & SPECIALTIES ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO SHOW EVERY RISE, DROP, TRANSITION, OR FITTING. THESE DRAWINGS ARE PROVIDED TO CONVEY DESIGN INTENT AND THE CONTRACTOR SHALL COORDINATE ALL FITTINGS, ELEVATION CHANGES, TRANSITIONS, ETC TO AVOID CONFLICT WITH THE WORK OF OTHER TRADES AND EXISTING CONDITIONS ENCOUNTERED ONSITE.

PLUMBING FIXTURE CONNECTION SCHEDULE				
FIXTURE	WASTE	VENT	COLD	HOT
WATERCLOSET (WC)	4"	2"	1"	---
WATERCLOSET (WC-1)	4"	2"	1"	---
LAVATORY (LAV)	1 1/2"	1 1/2"	1/2"	1/2"
SINK (SK)	1 1/2"	1 1/2"	1/2"	1/2"
ELECTRIC WATER COOLER (EWC)	1 1/2"	1 1/2"	1/2"	---
LAUNDRY TUB (LT)	1 1/2"	1 1/2"	1/2"	1/2"
DOMESTIC WATER HEATER (DWH)	---	---	3/4"	3/4"
WALL HYDRANT (WH), HOSE BIBB (HB)	---	---	1/2"	---
DISHWASHER (DW)	---	---	---	1/2"
FRIDGE ICE MACHINE	---	---	1/2"	---
FLOOR DRAIN (FD)	4"	---	---	---
SUMP PUMP (SP-1)	1 1/2"	2"	---	---



B4 PROPANE WATER HEATER DETAIL
SCALE: NOT TO SCALE



A1 PLUMBING LEGEND, ABBREVIATIONS, AND SYMBOLS
SCALE: NOT TO SCALE

A2 GENERAL NOTES
SCALE: NOT TO SCALE

A3 PLUMBING FIXTURE CONNECTION SCHEDULE
SCALE: NOT TO SCALE

A4 TYPICAL GAS CONNECTION
SCALE: NOT TO SCALE



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NOTES, LEGEND & DETAILS

P-001



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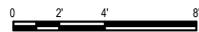
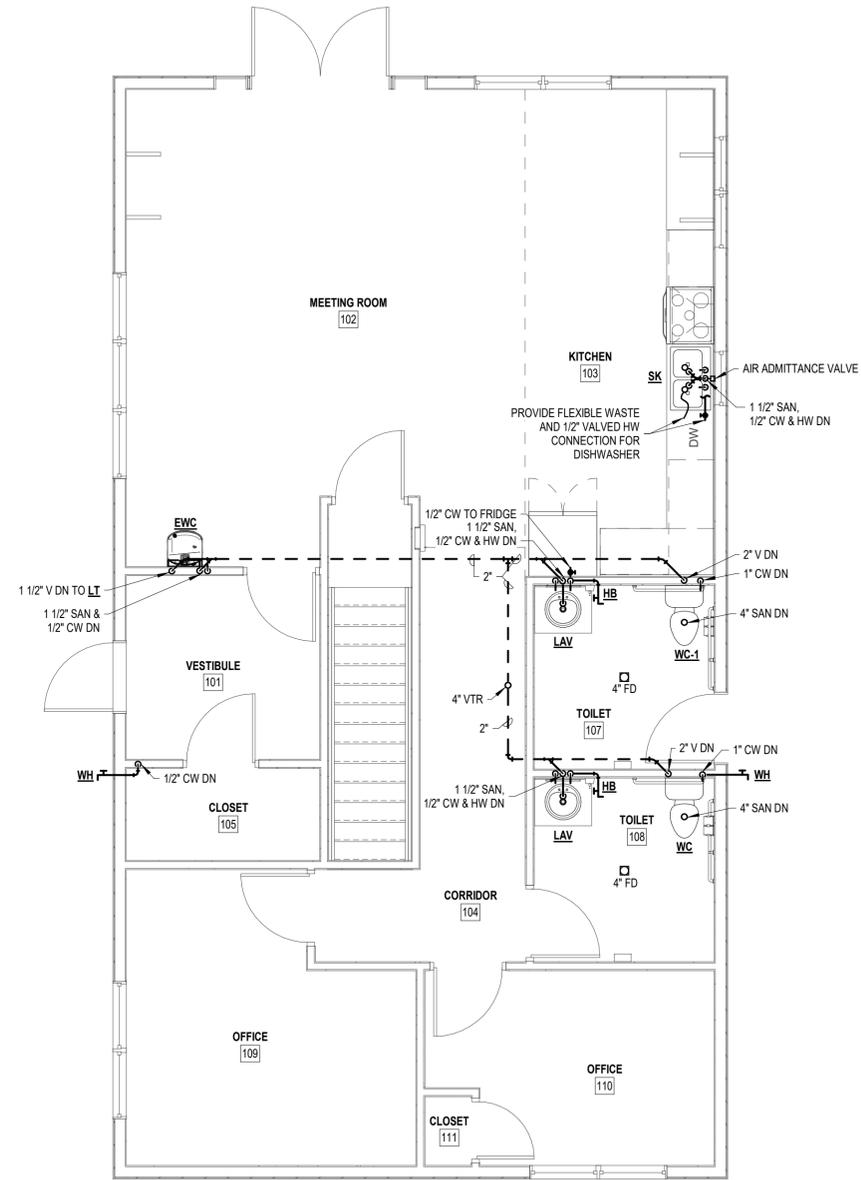
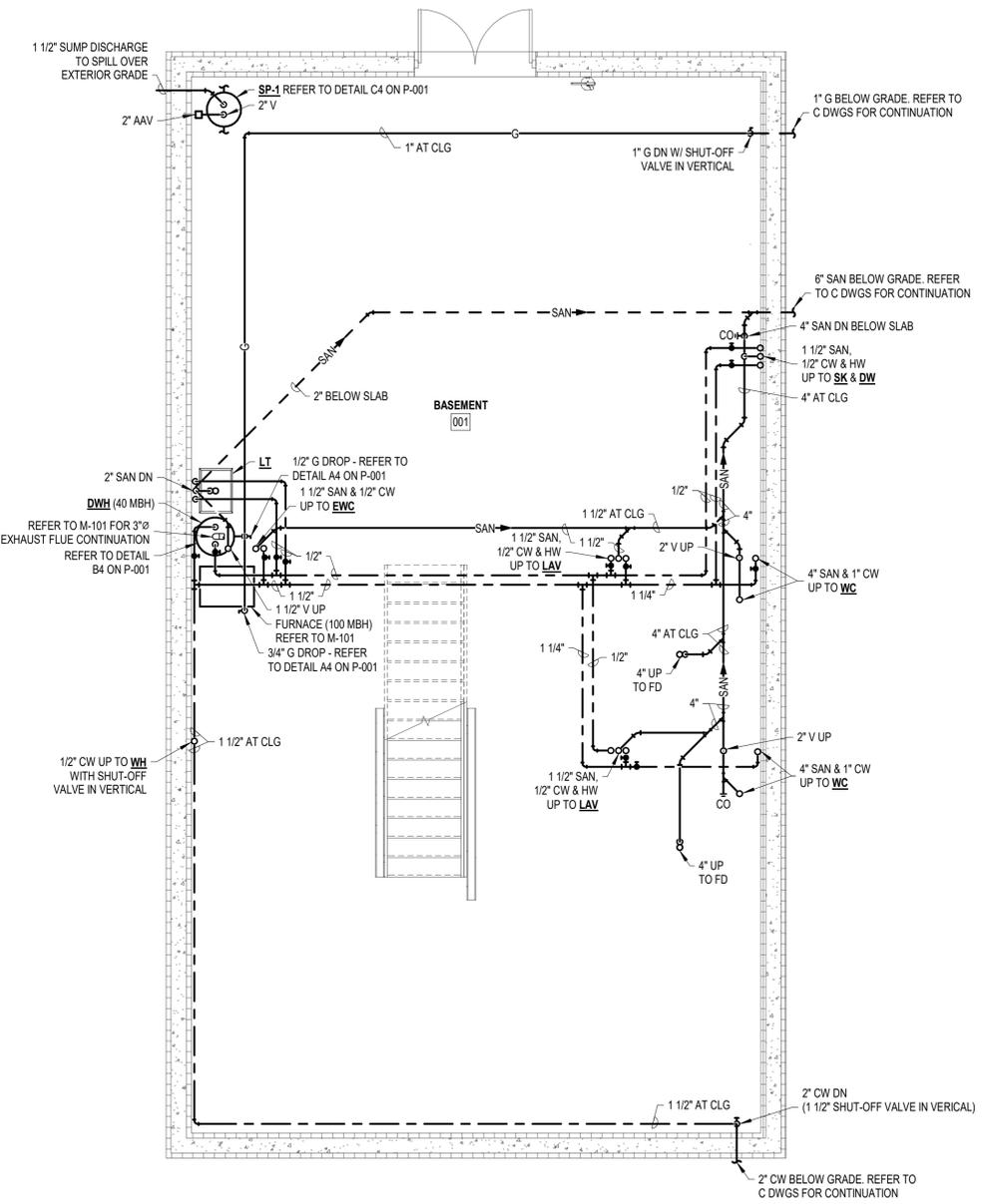
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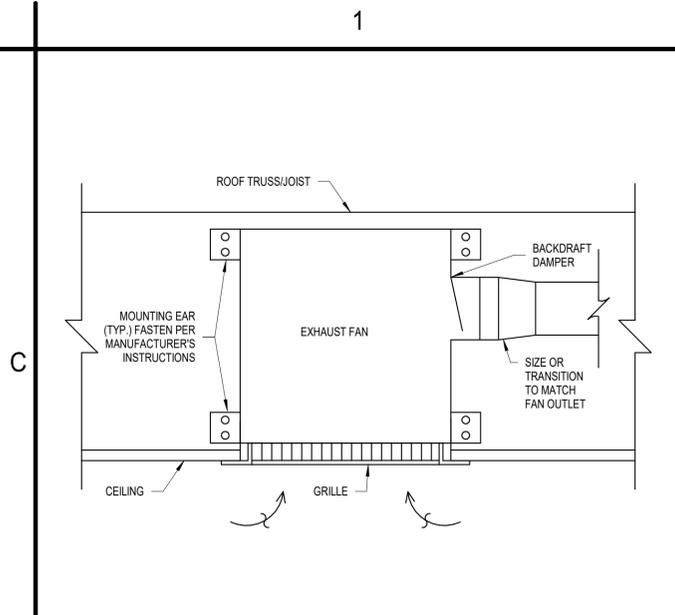
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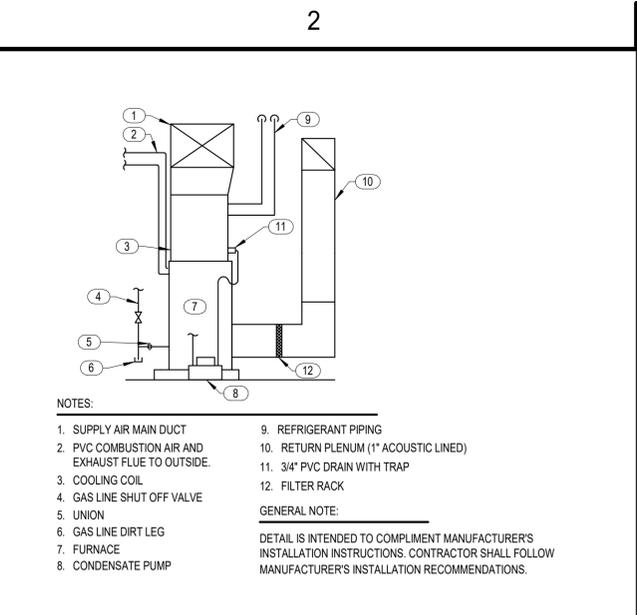
PLUMBING PLAN

P-101





C1 CEILING EXHAUST FAN DETAIL
SCALE: NOT TO SCALE



C2 FURNACE INSTALLATION DETAIL
SCALE: NOT TO SCALE

SHEETMETAL DUCTWORK:
- ALL DUCTWORK TO BE RIGID SHEETMETAL CONSTRUCTED FROM GALVANIZED SHEET STEEL IN ACCORDANCE WITH SMACNA LOW VELOCITY DUCT CONSTRUCTION STANDARDS. ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICE FOR ACHIEVING AIR TIGHT (5% LEAKAGE) AND NOISELESS (NO OBJECTIONABLE NOISE) SYSTEMS, CAPABLE OF PERFORMING EACH INDICATED SERVICE. FURNISH ALL REQUIRED DAMPERS, TRANSITIONS, CONNECTIONS TO AIR TERMINALS, AND OTHER ACCESSORIES NECESSARY FOR A COMPLETE OPERATING SYSTEM.

HANGERS & SUPPORTS:
- HANGER RODS FOR NONCORROSIVE ENVIRONMENTS: CADMIUM-PLATED STEEL RODS AND NUTS
- STRAP AND ROD SIZES: COMPLY WITH SMACNA'S "HAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," TABLE 5-1, "RECTANGULAR DUCT HANGERS MINIMUM SIZE," AND TABLE 5-2, "MINIMUM HANGER SIZES FOR ROUND DUCT."
- STEEL CABLES FOR GALVANIZED-STEEL DUCTS: GALVANIZED STEEL COMPLYING WITH ASTM A 603.
- STEEL CABLE END CONNECTIONS: CADMIUM-PLATED STEEL ASSEMBLIES WITH BRACKETS, SWIVEL, AND BOLTS DESIGNED FOR DUCT HANGER SERVICE, WITH AN AUTOMATIC-LOCKING AND CLAMPING DEVICE.
- DUCT ATTACHMENTS: SHEET METAL SCREWS, BLIND RIVETS, OR SELF-TAPPING METAL SCREWS, COMPATIBLE WITH DUCT MATERIALS.
- TRAPPEZ AND RISER SUPPORTS: GALVANIZED-STEEL SHAPES AND PLATES.
- HORIZONTAL PIPING HANGERS: ADJUSTABLE, STEEL CLEVIS HANGERS AT MAXIMUM 6 FEET SPACING.

DAMPERS:
- STANDARD LEAKAGE RATING, SUITABLE FOR HORIZONTAL OR VERTICAL APPLICATIONS.
- FRAMES: HAT-SHAPED, GALVANIZED-STEEL CHANNELS, 0.064-INCH MINIMUM THICKNESS, MITERED AND WELDED CORNERS. FLANGES FOR ATTACHING TO WALLS AND FLANGELESS FRAMES FOR INSTALLING IN DUCTS.
- BLADES: MULTIPLE OR SINGLE BLADE, PARALLEL- OR OPPOSED-BLADE DESIGN. STIFFEN DAMPER BLADES FOR STABILITY. GALVANIZED-STEEL, 0.064 INCH THICK.
- BLADE AXLES: GALVANIZED STEEL.
- BEARINGS: DAMPERS IN DUCTS WITH PRESSURE CLASSES OF 3-INCH WG OR LESS SHALL HAVE AXLES FULL LENGTH OF DAMPER BLADES AND BEARINGS AT BOTH ENDS OF OPERATING SHAFT.
- TIE BARS AND BRACKETS: GALVANIZED STEEL.

GRILLES, REGISTERS & DIFFUSERS:
TYPE S1 - SUPPLY REGISTER
- DESCRIPTION: HEAVY DUTY STEEL - RECTANGULAR FLOOR REGISTER WITH ADJUSTABLE MULTI-LOUVERED DAMPER, RECTANGULAR INLET COLLAR OF SUFFICIENT LENGTH FOR CONNECTING TO A RIGID DUCT.
- DIFFUSER SHALL INTEGRATE WITH ALL DUCT SIZES SHOWN ON PLANS WITHOUT AFFECTING FACE SIZE OR APPEARANCE.
- BORDER: PROVIDE APPROPRIATE BORDER TO ACCOMMODATE MOUNTING PER FLOOR TYPE.
- FINISH: BROWN.

TYPE S2 - SUPPLY REGISTER
- DESCRIPTION: STEEL - RECTANGULAR STAMPED STRAIGHT BLADE REGISTER WITH 1/8" FIN SPACING SET AT 45 DEGREES AND ADJUSTABLE MULTI-LOUVERED DAMPER, SURFACE MOUNTING HARDWARE FOR CONNECTING TO A RIGID DUCT.
- DIFFUSER SHALL INTEGRATE WITH ALL DUCT SIZES SHOWN ON PLANS WITHOUT AFFECTING FACE SIZE OR APPEARANCE.
- FINISH: WHITE.

TYPE S3 - SUPPLY DIFFUSER
- DESCRIPTION: STEEL - BASEBOARD DIFFUSER WITH FAN SHAPED FACE PATTERN, ADJUSTABLE DAMPER, SURFACE MOUNTING HARDWARE FOR CONNECTING TO A RIGID DUCT.
- DIFFUSER SHALL INTEGRATE WITH ALL DUCT SIZES SHOWN ON PLANS WITHOUT AFFECTING FACE SIZE OR APPEARANCE.
- FINISH: WHITE.

TYPE R1 - RETURN GRILLE
- DESCRIPTION: STEEL RETURN GRILLE - FIXED 40 DEGREE BLADES SPACED AT 1/2" ON CENTER. BLADES SHALL RUN PARALLEL TO LONG DIMENSION OF GRILLE.
- BORDER: STANDARD FLAT BORDER WITH COUNTER-SUNK SCREW MOUNTING SUITABLE TO FLUSH MOUNT.
- FINISH: BAKED WHITE ENAMEL.

REFRIGERANT PIPING:
- INDICATE REFRIGERANT PIPE SIZING AND REQUIRED ACCESSORIES AS PER MANUFACTURER'S RECOMMENDATIONS.
- COPPER TUBE: ASTM B 280, TYPE ACR.
- WROUGHT-COPPER FITTINGS, BRAZED-JOINT: ASME B16.50.
- WROUGHT-COPPER UNIONS: ASME B16.22.
- SOLDER-FILLER METALS: ASTM B 32. USE 95-5 TIN ANTIMONY OR ALLOY HB SOLDER TO JOIN COPPER SOCKET FITTINGS ON COPPER PIPE.

REFRIGERANT PIPING INSULATION:
- FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS.
- FLEXIBLE ELASTOMERIC: CLOSED-CELL, OR EXPANDED-RUBBER MATERIALS. COMPLY WITH ASTM C534/C534M, TYPE I.
- THICKNESS: 1/2 IN.

TESTING, ADJUSTING AND BALANCING:
- TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE COMPLETED BY AN INDEPENDENT CONTRACTOR WHO CURRENTLY LICENSED BY THE ASSOCIATED AIR BALANCING COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
- BALANCE AIR QUANTITIES TO WITHIN PLUS OR MINUS 10% OF THAT INDICATED ON THE DRAWINGS.

B3 HVAC SPECIFICATIONS
SCALE: NOT TO SCALE

CEILING EXHAUST FAN DETAIL:
- GALVANIZED-STEEL SHEET: 0.0239-INCH MINIMUM THICKNESS; ROUND TUBE CLOSED WITH WELDED LONGITUDINAL JOINT.
- GROUT: ASTM C 1107, GRADE B, NONSHRINK AND NONMETALLIC, DRY HYDRAULIC-CEMENT GROUT.

FURNACE:
- SELF-CONTAINED, PACKAGED, FACTORY ASSEMBLED, PRE-WIRED UNIT CONSISTING OF CABINET, DYNAMICALLY BALANCED SUPPLY FAN, STAINLESS STEEL, OR ALUMINIZED STEEL HEAT EXCHANGER, STAINLESS STEEL OR ALUMINIZED STEEL BURNER, AUTOMATIC FLUE VENT CONTROLS, AIR FILTER, REFRIGERANT COOLING COIL AND OUTDOOR PACKAGE CONTAINING COMPRESSOR, CONDENSER COIL AND CONDENSER FAN.
- MANUFACTURERS: TRANE, LENNOX, TRANE, RHEEM OR EQUAL.
- FURNACE CONFIGURATION: UP FLOW (OR COUNTER FLOW) TYPE AS REQUIRED WITH INDUCED DRAFT MOTOR FOR COMBUSTION GAS BURNER. UNIT SHALL BE AGA AND GAMA CERTIFIED. UNIT HEIGHT SHALL BE SHORT ENOUGH TO PERMIT INSTALLATION OF "A" TYPE COOLING COIL.
- SUPPLY FAN: CENTRIFUGAL TYPE, RESILIENTLY MOUNTED, WITH DIRECT DRIVE.
- MOTOR: ANSINEMA MG-1, 1750 RPM FOUR SPEED (HI, MED-HI, MED-LO, LO) MOTOR RESILIENTLY MOUNTED. A QUICK CONNECT BLOWER SPEED TERMINAL STRIP SHALL BE PROVIDED.
- GAS BURNER: ATMOSPHERIC TYPE WITH ADJUSTABLE COMBUSTION AIR SUPPLY, COMBINATION GAS VALVE AND PRESSURE REGULATOR INCORPORATING MANUAL SHUT-OFF, PILOT VALVE, AUTOMATIC 100 PERCENT SHUT-OFF AND INTERMITTENT ELECTRONIC PILOT IGNITION OR HOT SURFACE IGNITION AND DRAFT DIVERTER.
- AIR HANDLING: VOLUME FLOW RATE AS REQUIRED TO DELIVER THE AIR CONDITIONING CAPACITY SPECIFIED WITH A 20°F TEMPERATURE DIFFERENCE OR VOLUME FLOW RATE AS RECOMMENDED BY MANUFACTURER TO SUPPLY AIR CONDITIONING SPECIFIED AT UP TO 0.5 INCH WG EXTERNAL STATIC PRESSURE (DOES NOT INCLUDE AIR FILTER AND COOLING COIL LOSSES).
- INDUCED DRAFT BLOWER: INDUCED DRAFT BLOWER SHALL BE FACTORY INSTALLED FOR VENTING COMBUSTION PRODUCTS AND PURGING HEAT EXCHANGER.
- PRESSURE SWITCH CONTROL (PSC): THE PRESSURE SWITCH SHALL PREVENT THE UNIT TO OPERATE IN CASE OF BLOCKAGE OF COMBUSTION AIR, FLUE OUTLET OR CONDENSATE DRAIN.
- FILTERS: 2 INCH MERV 7.
- ADJUSTABLE THERMOSTAT: LOW VOLTAGE ELECTRONIC THERMOSTAT WITH DIGITAL DISPLAY TO CONTROL BURNER OPERATION, CONDENSING UNIT AND SUPPLY FAN TO MAINTAIN TEMPERATURE SETTING. CONTROLS MUST HAVE A SYSTEM SELECTOR SWITCH (HEAT-OFF-COOL) AND FAN CONTROL SWITCH (AUTO-ON). THERMOSTAT SHALL AUTOMATICALLY SWITCH FAN SPEED DEPENDENT ON MODE (COOLING/HEATING) OF OPERATION. ACCEPTABLE MANUFACTURERS: TRANE, HONEYWELL, WHITE-ROGERS, JOHNSON CONTROLS, OR EQUAL.
- COOLING COIL:
1. CASED COILS SUITABLE FOR FIELD MOUNTING ON EXISTING FURNACES. FACTORY ASSEMBLED, DIRECT EXPANSION UNIT CONSISTING OF COOLING COIL, DRAIN PAN ASSEMBLY WITH CONDENSATE DRAIN CONNECTION AND INSULATED CASING. UP FLOW, COUNTER FLOW OR HORIZONTAL TO ACCOMMODATE EXISTING CONDITIONS. CONTRACTOR SHALL VERIFY IN FIELD BEFORE PROCEEDING.
2. CONSTRUCTION: ALUMINUM FIN MECHANICALLY BONDED TO SEAMLESS COPPER TUBING, LEAK TESTED TO 300 PSI.
3. CASING: FACTORY SUPPLIED GALVANIZED STEEL WITH BAKED ENAMEL FINISH.
4. CONNECTIONS: COILS SHALL HAVE ONE LIQUID LINE CONNECTION, ONE SUCTION LINE AND TWO CONDENSATE CONNECTIONS.

CONDENSATE PUMP:
- MANUFACTURER AND MODEL: MILTON ROY COMPANY, HARTELL DIVISION MODEL KT-15X-1UL, LITTLE GIANT MODEL VOM-15ULS, OR EQUAL.
- CONSTRUCTED OF ABS PLASTIC, WHICH CAN DEVELOP 15 FEET OF HEAD, HAS AN AUXILIARY SAFETY SWITCH, IS UL RATED, OPERATES ON 115 VOLTS, AND HAS THERMAL OVERLOAD PROTECTION.

AIR COOLED CONDENSING UNIT:
- ACCEPTABLE MANUFACTURERS: TRANE, CARRIER, LENNOX, RHEEM OR APPROVED EQUAL.
- GENERAL: SHALL HAVE A SEASONAL ENERGY EFFICIENCY RATIO OF 13 SEER OR GREATER. MUST COME CHARGED FROM THE FACTORY FOR UP TO 25 FEET OF PIPING. THE UNIT SHALL BE DESIGNED TO OPERATE AT OUTDOOR AMBIENT TEMPERATURES AS HIGH AS 115°F. THE UNIT MUST BE UL LISTED FOR OUTDOOR APPLICATION AND AIR CERTIFIED.
- CASING: UNIT CASING TO BE CONSTRUCTED OF HEAVY GAUGE GALVANIZED STEEL AND PAINTED WITH WEATHER-RESISTANT POWDER PAINT.
- REFRIGERANT CONTROLS: REFRIGERATION SYSTEM CONTROLS TO INCLUDE A CONDENSER FAN AND COMPRESSOR CONTACTOR. HIGH AND LOW PRESSURE CONTROLS TO PROTECT THE COMPRESSOR.
- COMPRESSOR: COMPRESSOR SHALL HAVE A 5-YEAR LIMITED WARRANTY, INTERNAL OVER TEMPERATURE AND PRESSURE PROTECTION, TOTAL EPOXY DIPPED HERMETIC MOTOR WINDINGS. OTHER REQUIRED FEATURES ARE: ROTO LOCK SUCTION AND DISCHARGE REFRIGERANT CONNECTIONS, CENTRIFUGAL OIL PUMP, SPECIAL STEEL ALLOY VALVES IN VALVE PLATE ASSEMBLY, AND INTERNAL SPRING MOUNTS TO REDUCE VIBRATION AND NOISE.
- CONDENSER COIL: THE COIL IS TO BE CONTINUOUSLY WRAPPED, CORROSION RESISTANT ALL ALUMINUM WITH MINIMUM BRAZED JOINTS. THIS COIL IS 3/8 INCH O.D. SEAMLESS ALUMINUM CLIED TO A CONTINUOUS ALUMINUM FIN. THE COIL IS TO BE PROTECTED ON ALL FOUR SIDES BY LOUVERED PANELS AND HAS A 5-YEAR LIMITED WARRANTY.
- LOW AMBIENT COOLING: A REQUIRED COOLING CAPABILITY UP TO 55°F.
- A FACTORY INSTALLED LIQUID LINE DRYER IS REQUIRED.
- CONNECTIONS: ONE LIQUID LINE, ONE SUCTION LINE, CONTROL WIRING AND ONE POWER SUPPLY CONNECTION SHALL BE REQUIRED FOR EACH UNIT.
- REFRIGERANT: R-410A.
- SLABPAD: LENGTH AND WIDTH DIMENSIONS AS RECOMMENDED BY CONDENSER UNIT MANUFACTURER. CAST-IN-PLACE CONCRETE: 4 INCH THICKNESS (8 INCH PERIMETER RAUNCH) WITH 8X6 W/1.4XW/4 W/IF REINFORCING AT MIDPOINT ON 6 INCH COMPACTED GRAVEL BASE.

CEILING EXHAUST FAN:
- ACCEPTABLE MANUFACTURERS: GREENHECK, PENNBRAY, BROAN OR EQUAL.
- HOUSING: STEEL, LINED WITH ACOUSTICAL INSULATION.
- FAN WHEEL: CENTRIFUGAL WHEELS DIRECTLY MOUNTED ON MOTOR SHAFT. FAN SHROUDS, MOTOR, AND FAN WHEEL SHALL BE REMOVABLE FOR SERVICE.
- GRILLE: PAINTED ALUMINUM LOUVERED GRILLE WITH FLANGE ON INTAKE AND THUMBSCREW ATTACHMENT TO FAN HOUSING.
- ELECTRICAL REQUIREMENTS: JUNCTION BOX FOR ELECTRICAL CONNECTION ON HOUSING AND RECEPTACLE FOR MOTOR PLUG-IN.
- ACCESSORIES:
1. VARIABLE-SPEED CONTROLLER: SOLID-STATE CONTROL TO REDUCE SPEED FROM 100 TO LESS THAN 50 PERCENT.
2. MANUAL STARTER SWITCH: SINGLE-POLE ROCKER SWITCH ASSEMBLY WITH COVER AND PILOT LIGHT.
3. ISOLATION: RUBBER-IN SHEAR VIBRATION ISOLATORS.

A4 LEGEND
SCALE: NOT TO SCALE

AIR INLET AND OUTLET SCHEDULE							
TYPE	DESCRIPTION	SERVICE	FACE SIZE	MAX NC	MATERIAL	BASIS OF DESIGN LIMA	REMARKS
S1	REGISTER	SUPPLY	SEE DWG'S	30	STEEL	MODEL 830	-
S2	REGISTER	SUPPLY	SEE DWG'S	30	STEEL	MODEL 667	-
S3	REGISTER	SUPPLY	SEE DWG'S	30	STEEL	MODEL 470	-
R1	GRILLE	RETURN	SEE DWG'S	30	STEEL	MODEL 606H	FIXED LOUVER

ELECTRIC WALL HEATER SCHEDULE										
UNIT NO.	LOCATION	CAPACITY (BTUH)	CAPACITY (WATTS)	ENCLOSURE SIZE (H x W)	MOUNTING HEIGHT	ELECTRICAL			DESIGN BASIS Q-MARK	REMARKS
						MCA	VOLTS	PH		
WH-A	SEE PLANS	5,115	1,500	12 x 9	4"	7.2	208	1	CZ2048T	RECESSED MOUNT
WH-B	SEE PLANS	3,499	1,125	12 x 9	4"	5.4	208	1	CZ1548T	RECESSED MOUNT

FAN SCHEDULE											
UNIT NO.	LOCATION	SERVICE	TYPE	CFM	SP (IN WG)	MOTOR (RPM)	ELECTRICAL			BASIS OF DESIGN BROAN	REMARKS
							VOLTS	PHASE	HP / WATTS		
EF-A	SEE PLAN	TOILET EXHAUST	CEILING	80	0.25	1,750	115	1	26.9 W	AE500100CL	-

AIR COOLED CONDENSING UNIT SCHEDULE														
UNIT NO.	UNIT SERVED	REFRIGERANT TYPE	TOTAL CAPACITY (TONS)	COMPRESSOR		FAN		SEER	ELECTRICAL				BASIS OF DESIGN TRANE	REMARKS
				QTY	# OF STAGES	QTY	HP		VOLTS	PHASE	MCA	MOP		
ACCU-1	FURNACE F-1	R410A	4	2	2	1	1/3	20	208	1	26	40	XL2014TTZ0048	1, 2

NOTES:
1. LOCATE ON CONCRETE PAD.
2. SIZE REFRIGERANT LINES PER MANUFACTURERS RECOMMENDATIONS.

FURNACE SCHEDULE													
UNIT NO.	AREA SERVED	GAS HEATING		COOLING COIL - DX	TOTAL TONS	FAN			ELECTRICAL			BASIS OF DESIGN TRANE	REMARKS
		INPUT (MBH)	OUTPUT (MBH)			CFM	ESP (IN WG)	RPM	HP	VOLTS	PHASE		
F-1	MULTI-PURPOSE	100	95	4	1600	0.6	VARIABLE	1	115	1	20	XC 95M TUHM100 - UPFLOW	1

NOTES:
1. MOUNT ON 4" H CONCRETE PAD.
2. INCLUDE PROPANE CONVERSION KIT.
3. PROVIDE WITH 7 DAY PROGRAMMABLE THERMOSTAT.

A1 SCHEDULES
SCALE: NOT TO SCALE

- 1) ALL WORK SHALL CONFORM TO ALL APPLICABLE RULES, REGULATIONS AND CODES.
- 2) CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO DUCTWORK FABRICATION OR ANY OTHER HVAC WORK.
- 3) CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS.
- 4) CONTRACTOR SHALL PERFORM NECESSARY CUTTING AND PATCHING REQUIRED TO INCORPORATE WORK, UNLESS NOTED OR SHOWN OTHERWISE IN CONTRACT DOCUMENT.
- 5) CONTRACTOR SHALL BE RESPONSIBLE FOR SEALING ALL HVAC PENETRATIONS (PIPING, DUCTWORK, ETC.) WITH ACOUSTICAL SEALANT.
- 6) ITEMS OF SPECIFIC MANUFACTURERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE PRINTED INSTRUCTIONS AND/OR MANUFACTURERS REPRESENTATIVES DIRECTIONS.
- 7) CONTRACTOR TO INSTALL ALL NECESSARY STIFFENERS, BRACES, STRUTS, ETC., WHETHER SHOWN OR NOT, TO PROVIDE A COMPLETE, SAFE AND DURABLE SYSTEM.
- 8) DIMENSIONS SHOWN "AFF" INDICATE THE ACTUAL CLEAR DIMENSIONS FROM THE BOTTOM OF UNIT TO THE FINISHED FLOOR ELEVATION, UNLESS INDICATED OTHERWISE.
- 9) SUPPORT AND EQUIPMENT DETAILS MAY VARY TO SUIT EQUIPMENT AND PARTS SUPPLIED. ALL STEEL ANGLE JOINTS TO BE WELDED UNLESS OTHERWISE SHOWN. ALL DUCT DIMENSIONS SHALL BE SHOWN "SIDE SEEN" X "SIDE NOT SEEN".
- 10) PROVIDE FITTINGS, ELEVATION CHANGES, TRANSITIONS AND OFFSETS REQUIRED, WHETHER SHOWN OR NOT, TO AVOID CONFLICTS.
- 11) CONTRACTOR SHALL PROVIDE ALL CONTROL AND INTERLOCK WIRING REQUIRED OR SPECIFIED NOT PROVIDED BY ELECTRICAL IN ACCORDANCE WITH DIVISION 26 REQUIREMENTS.
- 12) CONTRACTOR SHALL COORDINATE WITH ELECTRICAL REGARDING THE RESPONSIBILITIES FOR SUPPLYING AND WIRING OF MECHANICAL RELATED DISCONNECT SWITCHES, STARTERS, FOR DETAILED REQUIREMENTS.
- 13) ALL INSTALLATIONS LOCATED IN AREAS NECESSARY TO ACCESS EQUIPMENT SHALL BE POSITIONED TO ALLOW THE MAXIMUM POSSIBLE CLEARANCE.

A3 GENERAL CONSTRUCTION NOTES
SCALE: NOT TO SCALE

AAD AUTOMATIC AIR DAMPER	TSP TOTAL STATIC PRESSURE
AFF ABOVE FINISHED FLOOR	TYP TYPICAL
BHP BRAKE HORSE POWER	V VOLT
BTUH BRITISH THERMAL UNIT PER HOUR	VD VOLUME DAMPER
CFM CUBIC FEET PER MINUTE	WB WET BULB TEMPERATURE
CO CLEANOUT	Ⓢ PROGRAMMABLE THERMOSTAT
COND CONDENSATE	→ DIRECTION OF AIRFLOW
DB DRY BULB TEMPERATURE	□ SQUARE TO ROUND DUCT TRANSITION
DIA DIAMETER	⊥ SQUARE MAIN TO ROUND BRANCH TAKE-OFF
DN DOWN	FC FLEXIBLE DUCT CONNECTOR
DX DIRECT EXPANSION	ESP EXTERNAL STATIC PRESSURE
EAT ENTERING AIR TEMPERATURE	(E) EXISTING
EDB ENTERING DRY BULB TEMPERATURE	EF EXHAUST FAN
EFF EFFICIENCY	'F FAHRENHEIT
ESP EXTERNAL STATIC PRESSURE	FPM FEET PER MINUTE
(E) EXISTING	HP HORSEPOWER
EF EXHAUST FAN	KW KILOWATT
'F FAHRENHEIT	LAT LEAVING AIR TEMPERATURE
FPM FEET PER MINUTE	LWB LEAVING WET BULB
HP HORSEPOWER	MAX MAXIMUM
KW KILOWATT	MBH 1000 BTUH
LAT LEAVING AIR TEMPERATURE	MCA MINIMUM CIRCUIT AMPACITY
LWB LEAVING WET BULB	MINV MINIMUM
MAX MAXIMUM	MOP MAXIMUM OVERCURRENT PROTECTION
MBH 1000 BTUH	MFRG MANUFACTURER
MCA MINIMUM CIRCUIT AMPACITY	OA OUTSIDE AIR
MINV MINIMUM	PH PHASE
MOP MAXIMUM OVERCURRENT PROTECTION	RA RETURN AIR
MFRG MANUFACTURER	RPM REVOLUTION PER MINUTE
OA OUTSIDE AIR	SP STATIC PRESSURE
PH PHASE	
RA RETURN AIR	
RPM REVOLUTION PER MINUTE	
SP STATIC PRESSURE	

REGISTERS & DIFFUSERS
NECK SIZE
60 XX 0
(4) TYPE
CFM
QTY.

A4 LEGEND
SCALE: NOT TO SCALE



C&S Engineers, Inc.
499 Col. Eileen Collins Blvd.
Syracuse, New York 13212
Phone: 315-455-2000
Fax: 315-455-9667
www.cscos.com



GREEN EDUCATION CENTER
TOWN OF CLAY
9604 BLACK CREEK ROAD
BREWERTON, NY 13029

MARK	DATE	DESCRIPTION
REVISIONS		

PROJECT NO: 195.101.021
DATE: JUNE 29, 2022
DRAWN BY: P. FLOOD
DESIGNED BY: P. FLOOD
CHECKED BY: L. MERRY
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

NOTES, LEGEND, SCHEDULES, DETAILS & SPECIFICATIONS

M-001

1

2

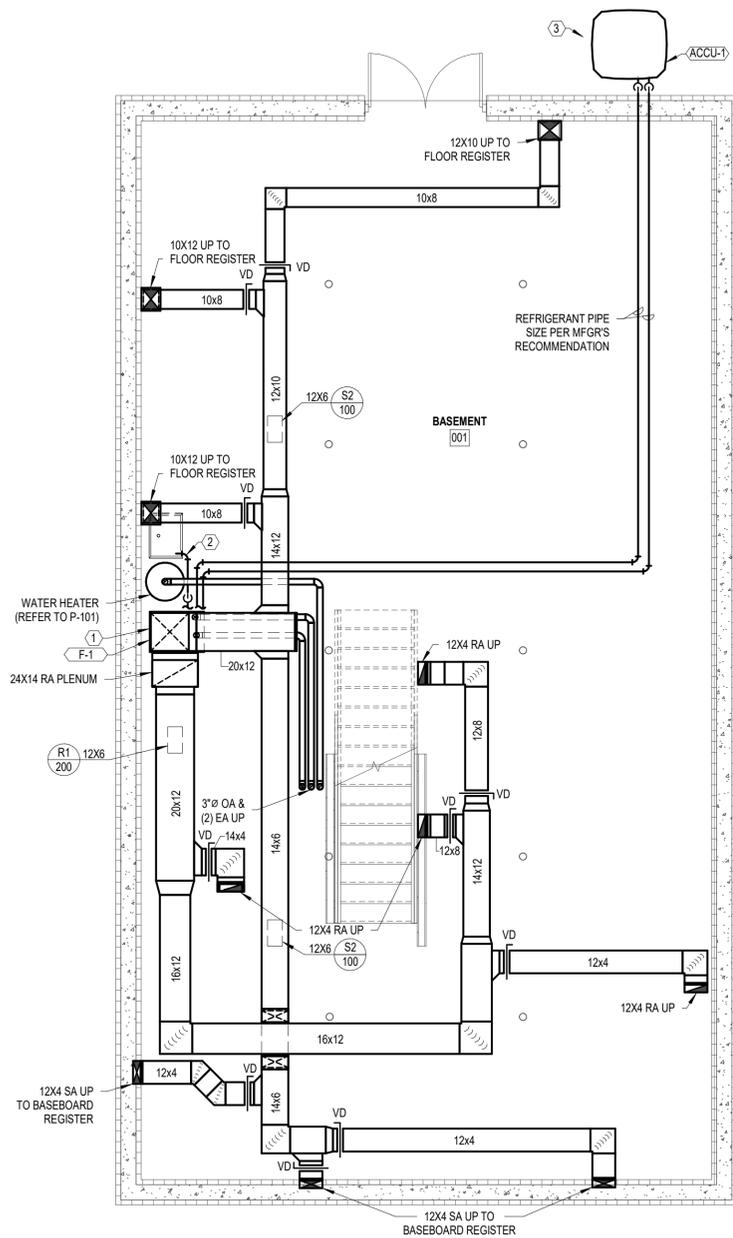
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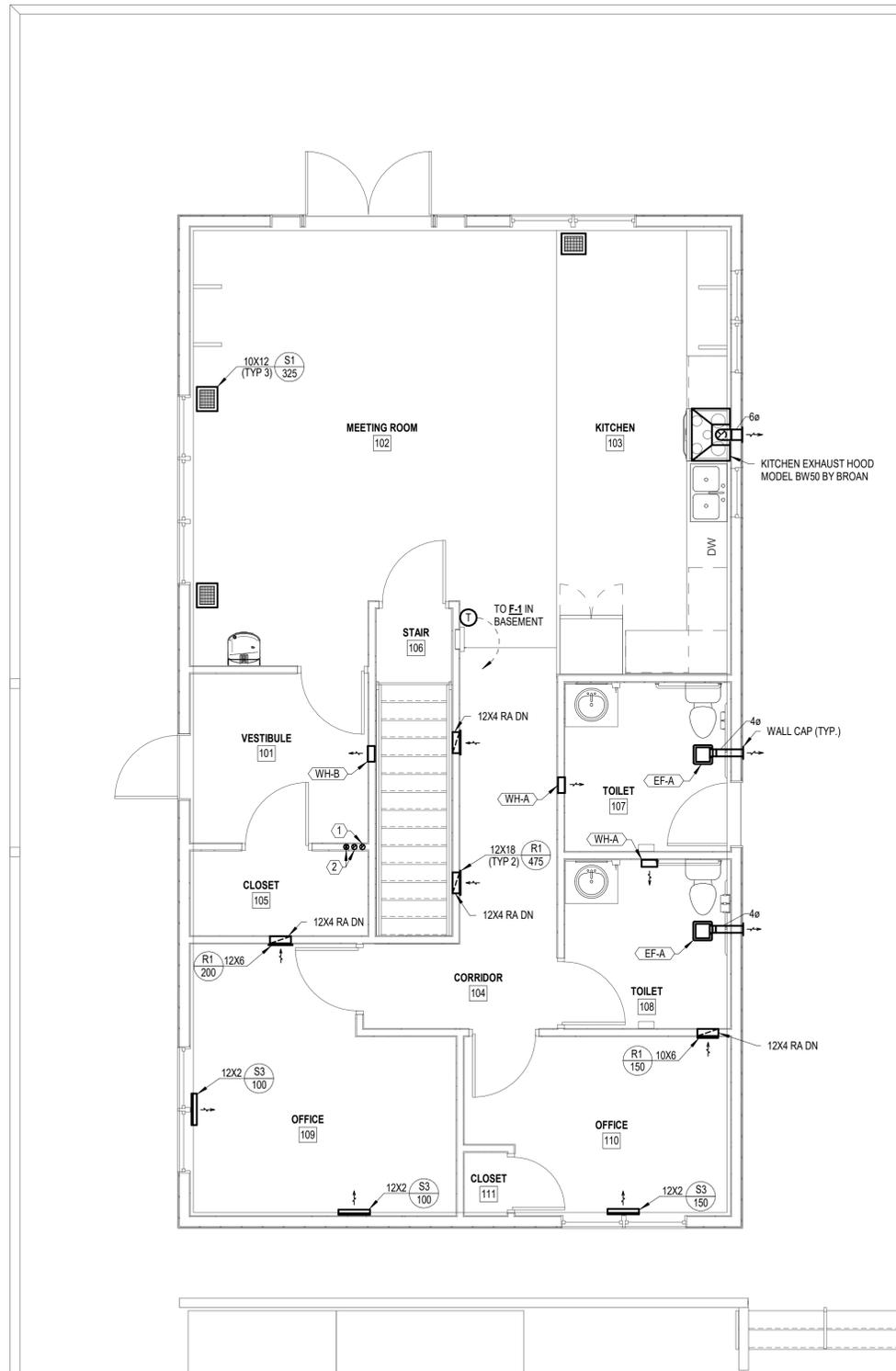


BASEMENT KEYED NOTES

- ① LOCATE FURNACE F-1 ON 4" CONCRETE PAD.
- ② 1" CONDENSATE TO FURNACE CONDENSATE PUMP. TERMINATE PUMPED CONDENSATE LINE TO SPILL OVER LAUNDRY TUB.
- ③ LOCATE CONDENSING UNIT ACCU-1 ON 4" CONCRETE PAD.



A1 BASEMENT PLAN
SCALE: 1/4" = 1'-0"



FIRST FLOOR KEYED NOTES

- ① 3" EXHAUST FLUE FROM WATER HEATER UP THRU ROOF. TERMINATE OUTDOORS PER MFG'S RECOMMENDATIONS.
- ② 3" OUTSIDE AIR INLET AND 3" EXHAUST FLUE FROM FURNACE UP THRU ROOF. TERMINATE OUTDOORS PER MFG'S RECOMMENDATIONS.



A3 FIRST FLOOR HVAC
SCALE: 1/4" = 1'-0"



C&S Engineers, Inc.
 499 Col. Eileen Collins Blvd.
 Syracuse, New York 13212
 Phone: 315-455-2000
 Fax: 315-455-9667
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MECHANICAL FLOOR PLANS

M-101

MASTER LUMINAIRE SCHEDULE						
FIXTURE DESIGNATION	URL	VOLTAGE	WATTAGE	MOUNTING	REMARKS	
A1	6" RECESSED CAN, 2000 LUMENS, 4000K COLOR TEMP, CLEAR REFLECTOR, WIDE DISTRIBUTION, SEMI-SPECULAR FINISH, DIMMING CAPABILITY, GOTHAM EVO SERIES OR APPROVED EQUAL	120V	20 W	RECESSED	PROVIDE FIXTURES DESIGNATED WITH 'EM' WITH 10-WATT BATTERY PACKS	
B	4' LINEAR SURFACE MOUNTED FIXTURE, 3200 LUMENS, 4000K COLOR TEMP, DIMMING CAPABILITY, FROST ACRYLIC LENS, METALUX WSNLED SERIES OR APPROVED EQUAL	120 V	20 W	RECESSED	PROVIDE FIXTURES DESIGNATED WITH 'EM' WITH 7-WATT BATTERY PACKS	
C	6" RECESSED CAN, 2000 LUMENS, 4000K COLOR TEMP, CLEAR REFLECTOR, WIDE DISTRIBUTION, 3/16" CLEAR POLYCARBONATE LENS, VANDAL RESISTANT, DIMMING CAPABILITY, GOTHAM EVO 6 SERIES	120 V	20 W	RECESSED		
D	6" RECESSED CAN, 1000 LUMENS, 4000K COLOR TEMP, DIMMING CAPABILITY, GOTHAM EVO SERIES OR APPROVED EQUAL	120V	10 W	RECESSED		
EX	EXIT SIGN, RED LETTERING, INTEGRAL SELF TEST, MAINTENANCE FREE NICKEL-CADMIUM BATTERY, SURE-LITES EUX SERIES OR APPROVED EQUAL	120V	1.2 W	SURFACE		
F	WALL MOUNTED EXTERIOR LED, 3500 LUMENS, TYPE II DISTRIBUTION, 4000K COLOR TEMP, INTEGRAL PHOTOCELL, MCGRAW IMPACT ELITE SERIES OR APPROVED EQUAL	120V	25 W	WALL	PROVIDE FIXTURES DESIGNATED WITH 'EM' WITH COLD WEATHER RATED BATTERY PACK	

- ALL ELECTRICAL WORK SHALL CONFORM TO ALL STATE, LOCAL, AND NATIONAL ELECTRICAL CODES.
- ELECTRICAL CHARACTERISTICS SHALL BE VERIFIED WITH EQUIPMENT MANUFACTURER.
- ITEMS OF SPECIFIC MANUFACTURERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS AND/OR MANUFACTURER'S REPRESENTATIVE'S DIRECTIONS.
- THE CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS AND DIMENSIONS SHOWN ON DRAWINGS
- ALL CONDUIT AND WIRING SCHEDULES SHALL BE VERIFIED BEFORE INSTALLATION.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL EQUIPMENT WITH OTHER CONTRACTORS.
- ALL AREAS DISTURBED BY WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN ORIGINAL AS DETERMINED BY THE ENGINEER.
- THE CONTRACTOR SHALL PROVIDE RACEWAYS, WIRING, AND CONNECTIONS FOR ALL CONTROL CIRCUITS AND INTERLOCK.
- ALL ELECTRICAL CONDUIT AND CONDUCTORS DISCONNECTED AND NOT TO BE REUSED SHALL BE REMOVED.
- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS BEFORE STARTING WORK. IF ONLY A PORTION OF AN EXISTING CIRCUIT IS BEING REMOVED FOR DEMOLITION, CONTINUITY SHALL BE MAINTAINED TO THE REST OF THE REMAINING CIRCUIT.
- ALL BRANCH CIRCUIT CONDUCTORS SHALL BE #12AWG UNLESS OTHERWISE SHOWN.
- ALL BRANCH CIRCUITS SHALL CONSIST OF 2 CONDUCTORS PLUS GROUND, UNLESS OTHERWISE SHOWN.

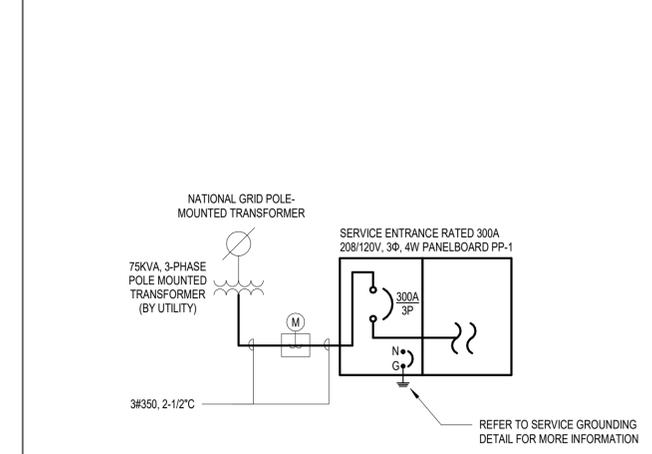
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C4 ELECTRICAL GENERAL NOTES
 SCALE: NOT TO SCALE

A	AMPERE	L	LENGTH, LONG
ACCU	AIR COOLED CONDENSING UNIT	MCB	MAIN CIRCUIT BREAKER
AFB	ABOVE FINISHED FLOOR	N/A	NOT APPLICABLE
AFG	ABOVE FINISHED GRADE	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASS.
AIC	AMPERE INTERRUPTING CAPACITY	NFPA	NATIONAL FIRE PROTECTION ASS.
AU	AT UNIT	NTS	NOT TO SCALE
BC	BARE COPPER	P	POLE
BFG	BELOW FINISHED GRADE	PNL	PANEL
C	CONDUIT	PVC	POLYVINYL CHLORIDE
CA	CABLE	REM	REMARKS
CAT5E	CATEGORY-5E	RGS	RIGID GALVANIZED STEEL
CDT	CONDUIT COMMUNICATION	SPECS	SPECIFICATIONS
COMM	COMMUNICATION	TEL	TELEPHONE
D	DEEP DISCONNECT	TYP	TYPICAL
DISC	DISCONNECT	V	VOLT
EMT	ELECTRICAL METALLIC TUBING	VFD	VARIABLE FREQUENCY DRIVE
EQUIP	EQUIPMENT	W	WATT, WIRE, WIDE
EXIST	EXISTING	WP	WEATHERPROOF
FA	FIRE ALARM	XFMR	TRANSFORMER
FACP	FIRE ALARM CONTROL PANEL		
FLA	FULL LOAD AMPERES		
GFI	GROUND FAULT INTERRUPT		
GND	GROUND		
IMC	INTERMEDIATE METAL CONDUIT		
JB	JUNCTION BOX		
KA	KILOAMP		
KV	KILOVOLT		
KVA	KILOVOLT AMPERES		
KW	KILOWATT		

B4 ABBREVIATIONS
 SCALE: NOT TO SCALE



C

C

PANEL SCHEDULE PP-1

BUS SIZE: 300 A
 VOLTS: 120/208 Wye
 PHASE: 3
 WIRE: 4
 POLES: 42

MAIN TYPE: MCB
 MAIN BREAKER: 300 A
 GND. BAR TYPE: TIN-PLATED...
 SC RATING: 22KAIC
 ENCLOSURE: TYPE 1

INSTALLATION: SURFACE
 LOCATION: BASEMENT

NOTES: SERVICE ENTRANCE RATED

CIRCUIT DESCRIPTION	WIRE SIZE	CDT.	CB. AMPS	Poles	CKT	A	B	C	CKT	Poles	CB. AMPS	CDT.	WIRE SIZE	CIRCUIT DESCRIPTION
EF-1A	1-#12, 1-#12, 1-#12	1/2"	20 A	1	1				2	1	20 A	1/2"	1-#12, 1-#12, 1-#12	MEETING ROOM 102 RECEPTACLES
EF-2A	1-#12, 1-#12, 1-#12	1/2"	20 A	1	3				4	1	20 A	1/2"	1-#12, 1-#12, 1-#12	KITCHEN 103 COUNTERTOP RECEPTACLES
KITCHEN 103 COUNTERTOP RECEPTACLES	1-#12, 1-#12, 1-#12	1/2"	20 A	1	5				6	1	20 A	1/2"	1-#12, 1-#12, 1-#12	BASEMENT RECEPTACLES
TOILET 107/108 RECEPTACLES	1-#12, 1-#12, 1-#12	1/2"	20 A	1	7				8	1	20 A	1/2"	1-#12, 1-#12, 1-#12	KITCHEN 103 DISHWASHER
MEETING 102 RECEPTACLES	1-#12, 1-#12, 1-#12	1/2"	20 A	1	9				10	1	20 A	1/2"	1-#12, 1-#12, 1-#12	RM 101/104 RECEPTACLES
REFRIGERATOR RECEPTACLE	1-#12, 1-#12, 1-#12	1/2"	20 A	1	11				12	2	40 A	3/4"	2-#8, 1-#10	ACCU-1
WH-A(1)	2-#10, 1-#10	3/4"	30 A	2	13				14					
					15				16					
OFFICE 110 RECEPTACLES	1-#12, 1-#12, 1-#12	1/2"	20 A	1	17				18					WH-A(2)
BASEMENT RECEPTACLES	1-#12, 1-#12, 1-#12	1/2"	20 A	1	19				20	1	20 A	1/2"	1-#12, 1-#12, 1-#12	BASEMENT LIGHTING
KITCHEN 103 OVEN	1-#12, 1-#12, 1-#12	1/2"	20 A	1	21				22	1	20 A	1/2"	1-#12, 1-#12, 1-#12	OFFICE 109 RECEPTACLES
EXIT SIGNS	1-#12, 1-#12, 1-#12	1/2"	20 A	1	23				24	1	20 A	1/2"	1-#12, 1-#12, 1-#12	1ST FLOOR LIGHTING
MEETING ROOM LIGHTING	1-#12, 1-#12, 1-#12	1/2"	20 A	1	25				26	1	20 A	1/2"	1-#12, 1-#12, 1-#12	IT EQUIPMENT
SECURITY TERMINAL	1-#12, 1-#12, 1-#12	1/2"	20 A	1	27				28	1	20 A	1/2"	1-#12, 1-#12, 1-#12	EXTERIOR LIGHTING
F-1	1-#12, 1-#12, 1-#12	1/2"	20 A	1	29				30					
SP-1	1-#12, 1-#12, 1-#12	1/2"	20 A	1	31				32	2	20 A	1/2"	2-#12, 1-#12	WH-B
HOLDING TANK POWER	1-#12, 1-#12, 1-#12	1"	20 A	1	33				34	1	20 A	1/2"	1-#12, 1-#12, 1-#12	EXHAUST HOOD (EH)
SPARE	--	--	20 A	1	35				36	1	20 A	--	--	SPARE
SPARE	--	--	20 A	1	37				38	1	20 A	--	--	SPARE
SPARE	--	--	20 A	1	39				40	1	20 A	--	--	SPARE
SPARE	--	--	20 A	1	41				42	1	20 A	--	--	SPARE

B

B

PLAN SYMBOLS

	DUPLEX RECEPTACLE, MOUNT AT 18" AFF UNLESS NOTATION INDICATES OTHERWISE. AC = ABOVE COUNTER GFI = GROUND FAULT CIRCUIT INTERRUPTER WP = GFI WITH WEATHERPROOF COVER
	SPECIAL RECEPTACLE
	SINGLE POLE SWITCH, UNLESS NOTATION INDICATES OTHERWISE. OS = OCCUPANCY SENSOR D = DIMMER SWITCH M = MANUAL MOTOR STARTER
	CEILING MOUNTED DOME CAMERA
	WALL MOUNTED CAMERA
	NON FUSED DISCONNECT SWITCH
	JUNCTION BOX
	ELECTRICAL CONNECTION
	PANEL BOARD, REFER TO PANEL BOARD SCHEDULE
	BRANCH CIRCUIT HOME RUN WITH CIRCUIT NUMBER SEE PANEL SCHEDULES FOR DETAILS
	1'X4' LUMINAIRE, LETTER DENOTES TYPE, SEE LUMINAIRE SCHEDULE
	2'X2' LUMINAIRE, LETTER DENOTES TYPE, SEE LUMINAIRE SCHEDULE
	RECESSED DOWN LIGHT, LETTER DENOTES TYPE, SEE LUMINAIRE SCHEDULE
	CEILING MOUNTED OCCUPANCY SENSOR
	EXIT LUMINAIRE, SHADED AREA DENOTES FACE, LETTER DENOTES TYPE
	DATA OUTLET, PROVIDE ONE (1) CAT6 CABLE, MOUNT 18" AFF

A3 PLAN SYMBOLS
 SCALE: NOT TO SCALE

A4 ONE-LINE DIAGRAM
 SCALE: NOT TO SCALE

GREEN EDUCATION CENTER
TOWN OF CLAY
9604 BLACK CREEK ROAD
BREWERTON, NY 13029

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REVISIONS		
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DATE:	JUNE 29, 2022	
DRAWN BY:	R. GLEASON, P.E.	
DESIGNED BY:	R. GLEASON, P.E.	
CHECKED BY:	R. GLEASON, P.E.	
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ELECTRICAL NOTES, SYMBOLS, ABBREVIATIONS, AND SCHEDULES

E-001

1

2

3

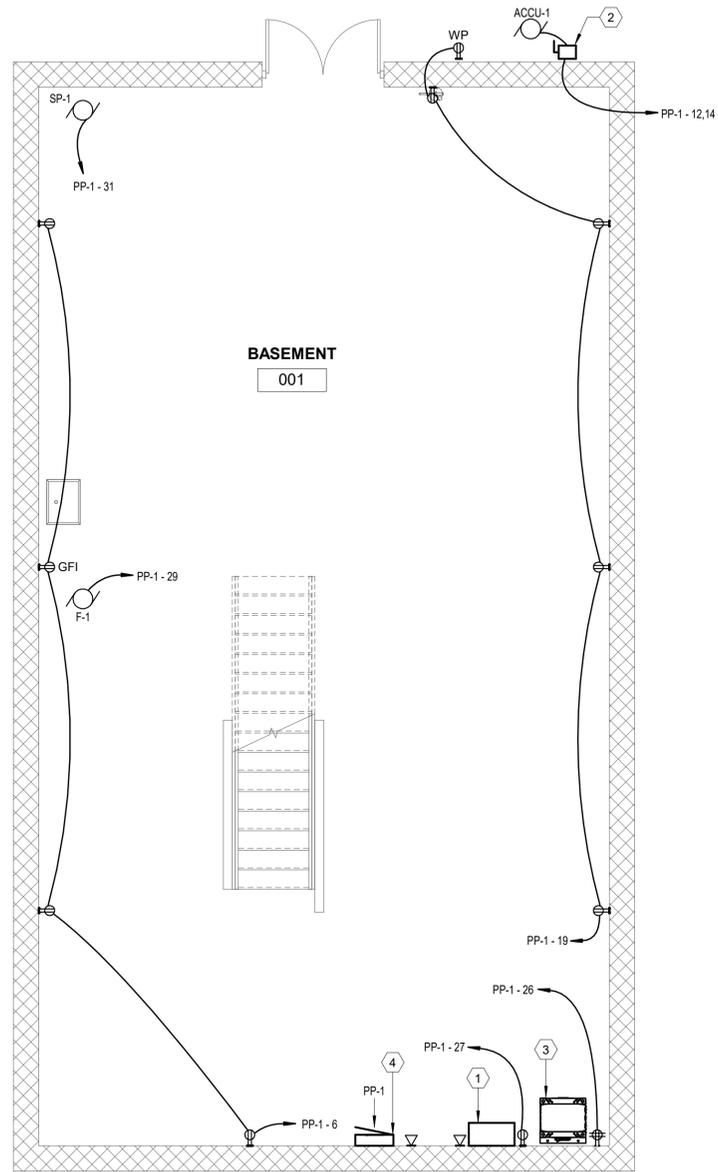
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KEYED NOTES:

- ① PROVIDE SECURITY TERMINAL, WISENET WRT-P-3100W SERIES OR APPROVED EQUAL. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ② PROVIDE NEMA 3R 60A-2P NON-FUSED DISCONNECT SWITCH.
- ③ PROVIDE DATA RACK WITH 24 PORT NETWORK SWITCH.
- ④ PROVIDE 120V CIRCUIT WITH CONDUIT AND WIRING FROM PANEL PP-1 TO HOLDING TANK PANEL. HOLDING TANK PANEL LOCATION SHOWN ON DWG. C-101.

KEYED NOTES:

- ① PROVIDE DUPLEX RECEPTACLE BELOW COUNTER FOR DISHWASHER CONNECTION.

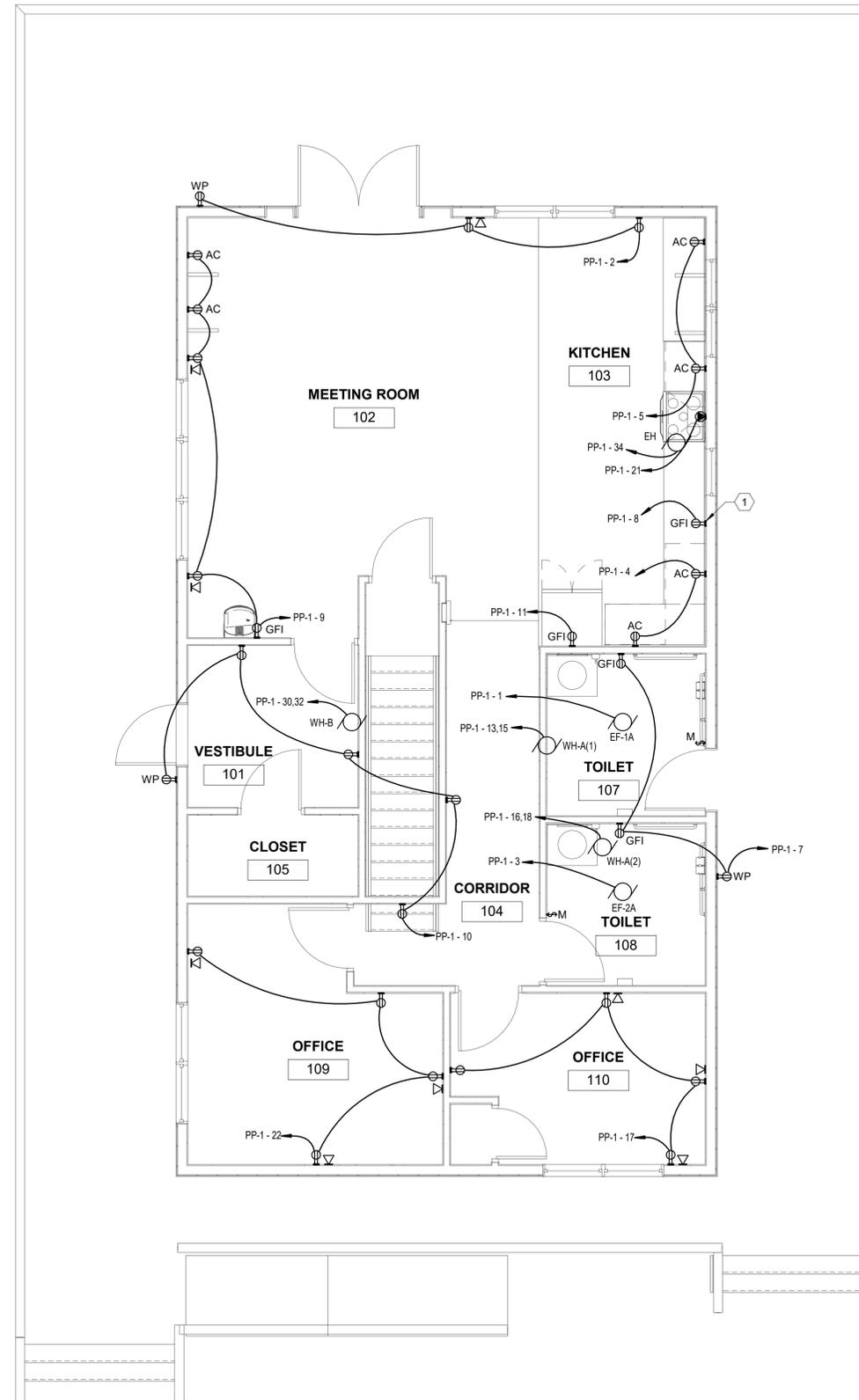


A1 ELECTRICAL FLOOR PLAN - BASEMENT

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

A3 ELECTRICAL FLOOR PLAN - FIRST FLOOR

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



C&S Engineers, Inc.
 499 Col. Eileen Collins Blvd.
 Syracuse, New York 13212
 Phone: 315-455-2000
 Fax: 315-455-9667
 www.cscos.com



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ELECTRICAL FLOOR PLANS

E-101

1

2

3

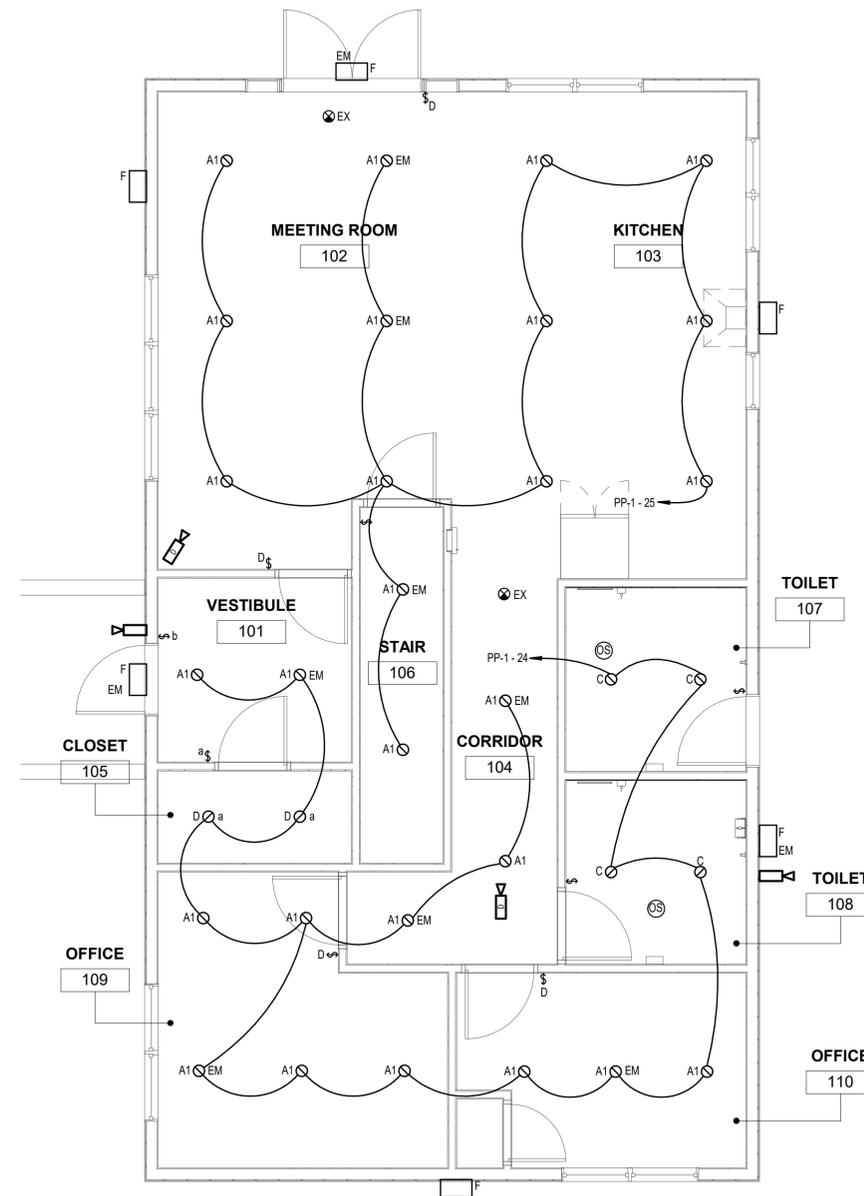
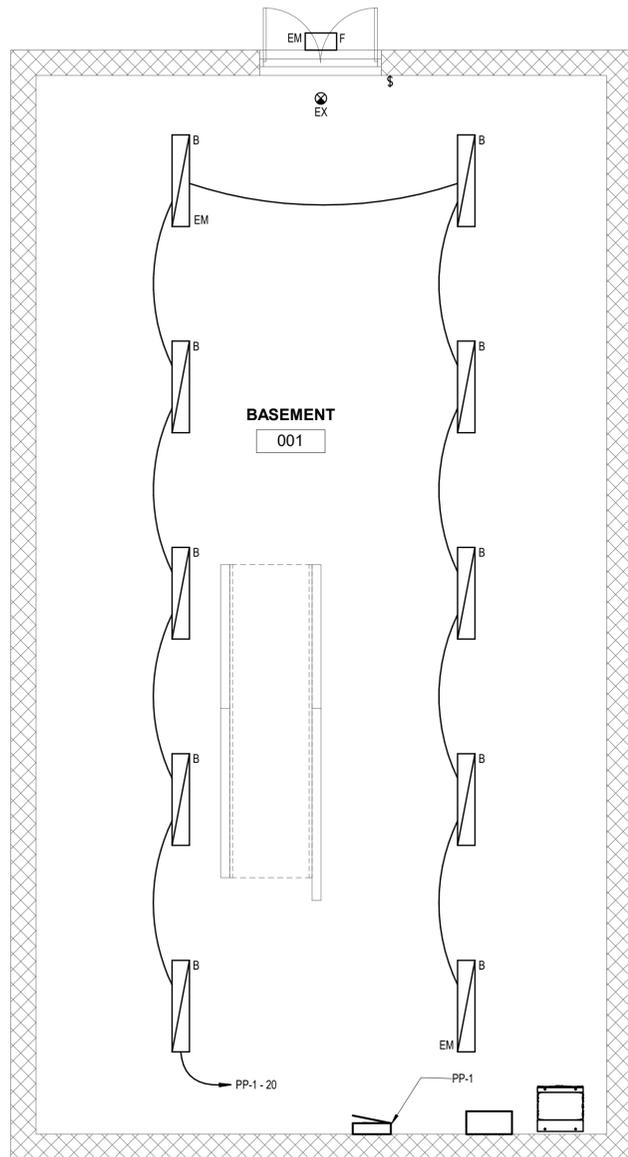
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GENERAL NOTES:

- A. CIRCUIT EXIT SIGNS TOGETHER USING 2#12, 1#12G, IN 1/2" C TO A 20A-1P CIRCUIT BREAKER IN PANEL PP-1.

GENERAL NOTES:

- A. CIRCUIT EXIT SIGNS TOGETHER USING 2#12, 1#12G, IN 1/2" C TO A 20A-1P CIRCUIT BREAKER IN PANEL PP-1.
- B. CIRCUIT EXTERIOR LIGHTS TOGETHER USING 2#12, 1#12G, IN 1/2" C TO A 20A-1P CIRCUIT BREAKER IN PANEL PP-1.



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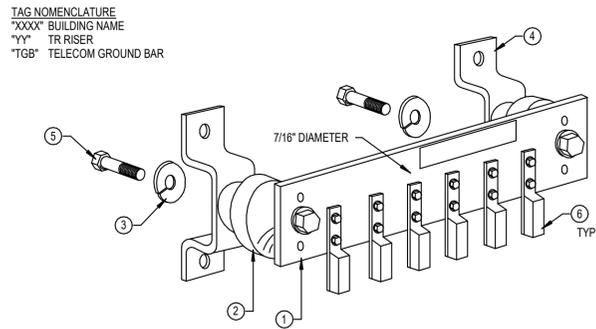
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**ELECTRICAL CEILING
 PLANS**

E-102

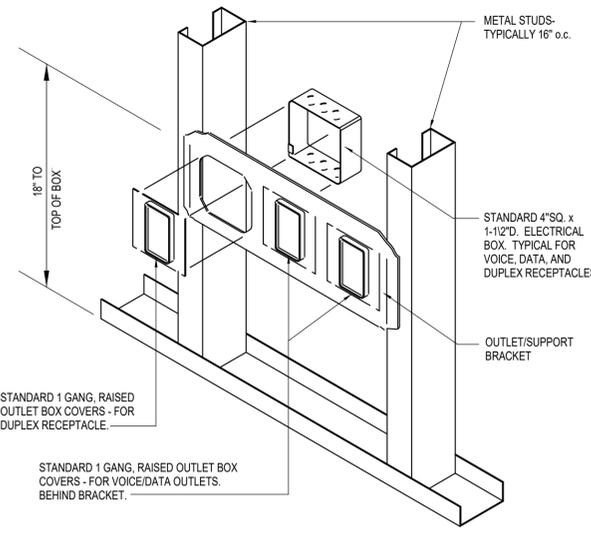
A1 ELECTRICAL CEILING PLAN - BASEMENT
 SCALE: 1/4" = 1'-0"

A3 ELECTRICAL CEILING PLAN - FIRST FLOOR
 SCALE: 1/4" = 1'-0"



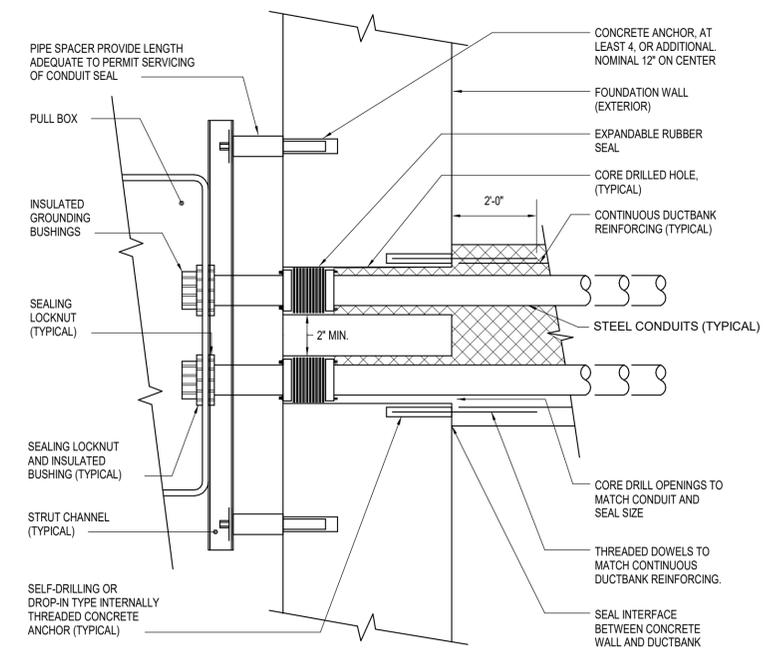
- KEYED NOTES:**
- 1 INSULATED COPPER GROUND BAR, 1/4"x4"x10" OR 1/4"x4"x20" NEWTON INSTRUMENT COMPANY #00305 SERIES OR EQUAL. HOLE CENTERS TO MATCH NEMA LUG CONFIGURATION.
 - 2 INSULATORS, NEWTON INSTRUMENT COMPANY CATEGORY NUMBER 3061-4 OR EQUAL.
 - 3 5/8" LOCK WASHERS, NEWTON INSTRUMENT COMPANY CATEGORY NUMBER 3015-8 OR EQUAL.
 - 4 WALL MOUNTING BRACKET, NEWTON INSTRUMENT COMPANY CATEGORY NUMBER A-6056 OR EQUAL.
 - 5 5/8"x11"x1" H.H.C.S. BOLTS, NEWTON INSTRUMENT COMPANY CATEGORY NUMBER 3012-1 OR EQUAL.
 - 6 LONG BARREL COMPRESSION LUG. PROVIDE A MINIMUM OF 6 LUGS PER TGB. DRILL AND TAP AS REQUIRED.

C1 TELECOMMUNICATIONS GROUND BAR
SCALE: NOT TO SCALE



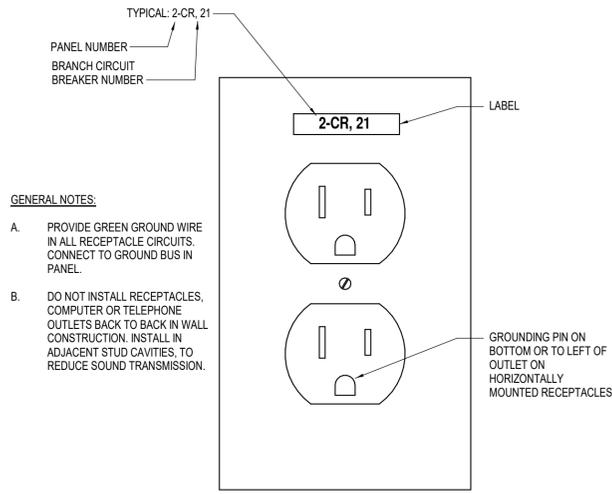
- GENERAL NOTES:**
- A. FOR BACK-TO-BACK OUTLET LOCATIONS IN ADJOINING ROOMS, STAGGER DUPLEX RECEPTACLE LOCATION TO ADJACENT CAVITIES IN WALL.
 - B. FROM EACH VOICE & DATA OUTLET LOCATION, PROVIDE 3/4" MIN. SIZE EMT RACEWAY. LARGER IF REQUIRED FOR CABLE/CONNECTOR. CONCEALED IN WALL CONSTRUCTION TO NEAREST ACCESSIBLE CEILING SPACE.

B2 INSTALLATION AT SIDE-BY-SIDE OUTLETS
SCALE: NOT TO SCALE



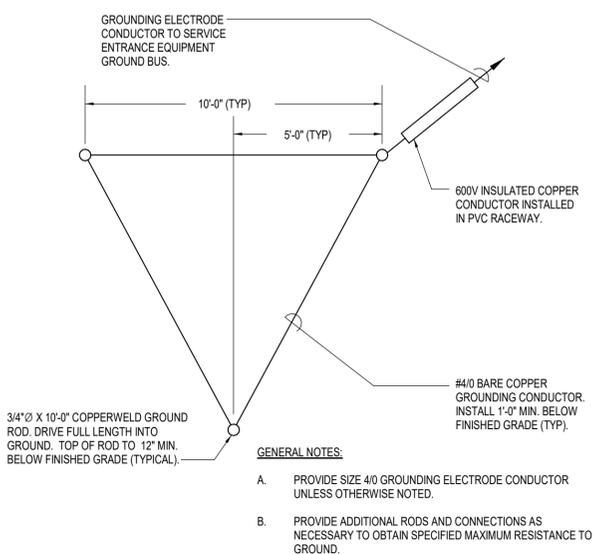
- GENERAL NOTES:**
- A. WHERE PVC CONDUIT IS USED IN DUCTLINE, CONVERT TO STEEL CONDUIT USING APPROPRIATED ADAPTER FITTING WITH 5'-0" OF WALL. PROVIDE GROUNDING AT EACH END OF STEEL PIPE.
 - B. 9/32" HOLES FOR LUG CONNECTIONS.

B3 CONDUIT ENTRANCE BELOW GRADE
SCALE: NOT TO SCALE



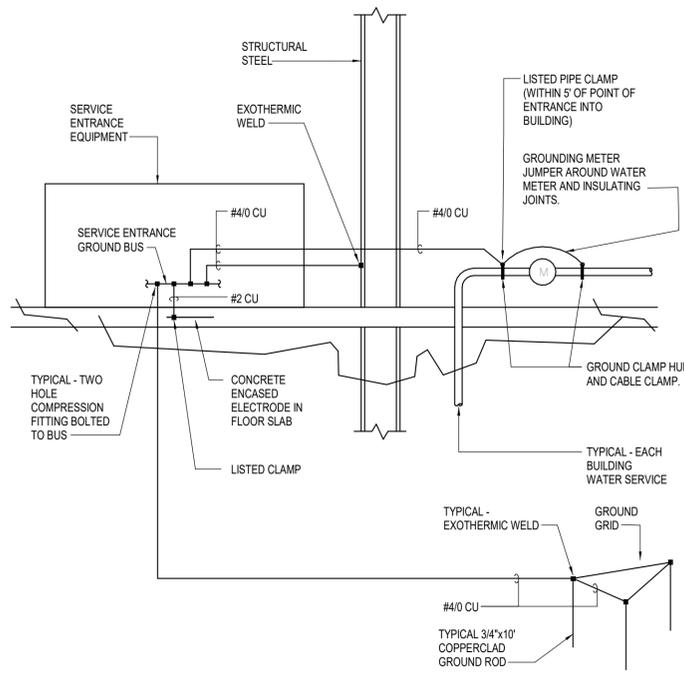
- GENERAL NOTES:**
- A. PROVIDE GREEN GROUND WIRE IN ALL RECEPTACLE CIRCUITS. CONNECT TO GROUND BUS IN PANEL.
 - B. DO NOT INSTALL RECEPTACLES, COMPUTER OR TELEPHONE OUTLETS BACK TO BACK IN WALL CONSTRUCTION. INSTALL IN ADJACENT STUD CAVITIES, TO REDUCE SOUND TRANSMISSION.

B1 RECEPTACLE PLATE LABEL
SCALE: NOT TO SCALE



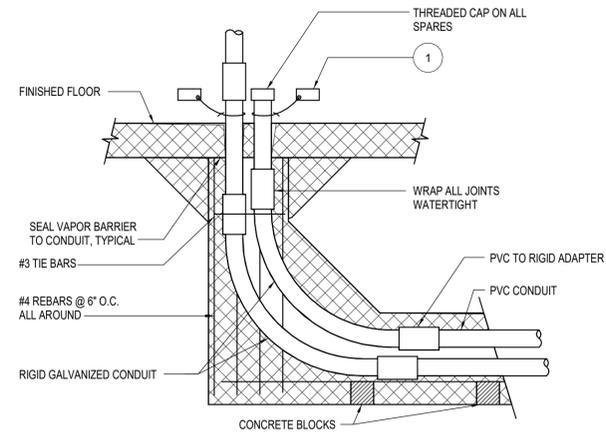
- GENERAL NOTES:**
- A. PROVIDE SIZE #40 GROUNDING ELECTRODE CONDUCTOR UNLESS OTHERWISE NOTED.
 - B. PROVIDE ADDITIONAL RODS AND CONNECTIONS AS NECESSARY TO OBTAIN SPECIFIED MAXIMUM RESISTANCE TO GROUND.

A1 GROUND TRIAD
SCALE: NOT TO SCALE



- GENERAL NOTES:**
- A. TYPICAL FOR ALL SERVICE ENTRANCE EQUIPMENT.

A2 SERVICE ENTRANCE GROUNDING
SCALE: NOT TO SCALE



- KEYED NOTES:**
- 1 AFFIX ENGRAVED PLASTIC NAMEPLATE INDICATING CONDUIT NUMBER OR CIRCUIT IDENTIFICATION AT EACH CONDUIT STUB-UP. ATTACH WITH NYLON CABLE TIE.

A3 CONDUIT ENTRANCE THROUGH SLAB
SCALE: NOT TO SCALE

C&S COMPANIES
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Syracuse, New York 13212
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ELECTRICAL DETAILS

E-501