BATH TOWNSHIP ZONING

Summit County, Ohio

3864 West Bath Road - P.O. Box 1188 - Bath, Ohio - 44210-1188
Phone: 330.666.4007 - Fax: 330.666.0305
www.bathtownship.org

CONDITIONAL USE APPLICATION

For office use only:	ARC File No.:		BZA File No.:	
Associated permits:				

Applicant Data

Name: MATT SCHWARZ

Company Name: PENINSULA ARCHITECTS

Address: 1775 MAIN ST. PENINSULA, OH 44264

Telephone No.: (330) 657-2800 Email: MSCHWARZ@PA-ARCHITECTS.COM

Property Data

Zoning District: (circle one) R-1 (R-2) R-3 R-4 B-1 B-2 B-3 B-4 B-5

Corner Lot: ☐ Yes ☑ No Note: Corner lots are required to meet the front setback on both streets.

Property Address: 4400 EVERETT RD. Parcel No.: 040 6032

Allotment Name: _____ Lot No.: _____

Owner(s): BATH TOWNSHIP TRUSTEES

Owner Address: 3864 W. BATH RD. AKRON, OH 44333

Telephone No.: (330) 666-4007

Conditional Use(s) Requested

Below list the specific section of the Zoning Resolution referencing the conditional use being sought as well as a description of each use. The Zoning Resolution is available online at www.bathtownship.org through the zoning link.

1. Section: 503-N Description: PARKS, PLAYGROUNDS, AND GOLF COURSES - TRANSITION A PORTION OF THE NFP FROM PASSIVE TO ACTIVE USE FOR A TOWNSHIP MEETING / EVENT SPACE

2. Section: _____ Description: _____

Contiguous Property Owners

The Township will notify all property owners within a 300' buffer of the parcel in question.

Required Materials:

1. Six (6) copies of site plan and plans along with a digital copy (ex: .pdf) of site plan and plans (11 x 17 preferred). The site plan must show the following:
   - ❑ A North arrow and scale
   - ❑ Existing structures and dimensions
   - ❑ Driveway and road access locations (existing and/or proposed)
   - ❑ Proposed structure(s) and dimensions
   - ❑ All setbacks
   - ❑ Roads
   - ❑ Lot dimensions
   - ❑ Easements and details
   - ❑ Septic system and well location (if applicable)
   - ❑ Indicate the location of lakes, ponds, wetlands, ravines, or other unusual topography
   - ❑ Riparian Corridor(s) must be clearly indicated on all lots containing applicable watercourses

   All slopes greater than 18% must be indicated on a two (2) foot contour interval map with the contours extending at least 100 feet beyond the lot lines.

2. If applicable, six (6) copies of the building/construction plans along with a digital copy (ex: .pdf) showing major details including height data must be submitted with the application (11 x 17 preferred).

3. A statement supported by substantiating evidence regarding the requirements enumerated in Article 3, Section 309:

   (1) The use is a conditional use, permitted with approval by the BZA, in the district where the subject lot is located;
   (2) The use is in accordance with the objectives of the Bath Township Comprehensive Plan and zoning resolution; and
   (3) The conditional use will not substantially and/or permanently injure the appropriate use of neighboring properties and will serve the public convenience and welfare.
   (4) The BZA shall also consider the following as applicable to the subject application:
   (A) The comparative size, floor area and mass of the proposed structure(s) in relationship to adjacent structures and buildings in the surrounding properties and neighborhood;
   (B) The frequency and duration of various indoor and outdoor activities and special events and the impact of these activities on the surrounding area;
   (C) The number of transit movements generated by the proposed use and relationship to the amount of traffic on abutting streets and on minor streets in the surrounding neighborhood;
   (D) The capacity of adjacent streets to handle increased traffic in terms of traffic volume;
   (E) The added noise level created by activities associated with the proposed use and the impact of the ambient noise level of the surrounding area and neighborhood;
   (F) The requirements for public services where the demands of the proposed use are in excess of the individual demand of adjacent land uses in terms of police and fire protection, and the presence of any potential fire or other hazards created by the proposed use;
   (G) The general appearance of the neighborhood will not be adversely affected by the location of the proposed use on the parcel;
   (H) The impact of night lighting in terms of intensity and duration and frequency of use as it impacts adjacent properties and in terms of presence in the neighborhood;
   (I) The impact of the landscaping of the proposed use in terms of maintained landscaped areas versus areas to remain in a natural state, and the openness of landscape versus the use of buffers and screens;
   (J) The impact of a significant amount of hard-surfaced areas for building, sidewalks, drives, parking areas and service areas in terms of noise transfer, water runoff and heat generation;
   (K) The potential for the proposed use to remain in existence for a reasonable period of time and not become vacant or unused. Consideration should also be given to unusual single purpose structures or components of a more temporary nature; and
   (L) Any other physical or operational feature or characteristic that may affect the public health, safety and welfare.

4. Applicant shall state a reasonable time to complete development plans or proposed structure.

5. The recommendations of the Appearance Review Commission if applicable.

6. Digital copy of all required documents (i.e. email .pdf file).

Applicant Certification

Applicant Signature: _____ Date: _____

Fee – due at time of application (make check payable to *Bath Township Trustees*)

- for residential applications – two hundred and fifty dollars ($250.00)
- for commercial/business applications – three hundred and fifty dollars ($350.00)

For Office Use Only

Appearance Review Commission File No.: ARC - - _____

Board of Zoning Appeals File No.: BZA - - _____

Hearing Date: _____ Public Notice Date: _____

Published In: _____ Abutting Property Owners Notification Date: _____

☐ Approved ☐ Approved with Conditions ☐ Denied

Comments: _____

_____

Zoning Inspector Signature: _____ Date: _____

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Summit County, Ohio

3864 West Bath Road - P.O. Box 1188 - Bath, Ohio - 44210-1188
Phone: 330.666.4007 - Fax: 330.666.0305
www.bathtownship.org

ZONING VARIANCE APPLICATION

For office use only:	ARC File No.:		BZA File No.:
Associated permits:			

Applicant Data

Name: MATT SCHWARZ

Company Name: PENINSULA ARCHITECTS

Address: 1775 MAIN ST. PENINSULA, OH 44264

Telephone No.: (330) 657-2800 Email: MSCHWARZ@PA-ARCHITECTS.COM

Property Data

Zoning District: (circle one) R-1 (R-2) R-3 R-4 B-1 B-2 B-3 B-4 B-5

Corner Lot: ☐ Yes ☑ No Note: Corner lots are required to meet the front setback on both streets.

Property Address: 4400 EVERETT RD. Parcel No.: 0406032

Allotment Name: _____ Lot No.: _____

Owner(s): BATH TOWNSHIP TRUSTEES

Owner Address: 3864 W. BATH RD. AKRON, OH 44333

Telephone No.: (330) 666-4007

Variance(s) Requested

Below list the specific section from the Zoning Resolution from which the variance is being sought along with a description of each variance. The Zoning Resolution is available online at www.bathtownship.org through the zoning link.

1. Section: 503-N(1) Description: REDUCTION IN THE MINIMUM SETBACK FROM ALL LOT LINES.

2. Section: _____ Description: _____

3. Section: _____ Description: _____

4. Section: _____ Description: _____

Contiguous Property Owners

The Township will notify all property owners within a 300' buffer of the parcel in question.

Required Site Plan Data and Architectural/Construction Drawings

1. Six (6) copies of site plan and plans along with a digital copy (ex: .pdf) of site plan and plans (11 x 17 preferred). The site plan must show the following:
   - ❑ A North arrow and scale
   - ❑ Existing structures and dimensions
   - ❑ Driveway and road access locations (existing and/or proposed)
   - ❑ Proposed structure(s) and dimensions
   - ❑ All setbacks
   - ❑ Roads
   - ❑ Lot dimensions
   - ❑ Easements and details
   - ❑ Septic system and well location (if applicable)
   - ❑ Indicate the location of lakes, ponds, wetlands, ravines, or other unusual topography
   - ❑ Riparian Corridor(s) must be clearly indicated on all lots containing applicable watercourses
   - ❑ All slopes greater than 18% must be indicated on a two (2) foot contour interval map with the contours extending at least 100 feet beyond the lot lines

2. If applicable, Six (6) copies of the building/construction plans along with a digital copy (ex: .pdf) showing major details including height data must be submitted with the application (11 x 17 preferred).

3. The "Bath Township Area Variance Supplemental Form" shall be filled out completely for each variance requested.

4. Digital copy of all required documents (i.e. emailed .pdf file)

Applicant Certification

Applicant Signature: _____ Date: _____

Fee – due at time of application (make check payable to *Bath Township Trustees*)

- for residential applications – two hundred and fifty dollars ($250.00)
- for commercial/business applications – three hundred and fifty dollars ($350.00)
- for major subdivisions or use variances – five hundred dollars ($500.00)

For Office Use Only

Appearance Review Commission File No.: ARC - -

Board of Zoning Appeals File No.: BZA - -

Hearing Date: _____ Public Notice Date: _____

Published In: _____ Abutting Property Owners Notification Date: _____

❑ Approved ❑ Approved with Conditions ❑ Denied

Comments: _____

_____

Zoning Inspector Signature: _____ Date: _____

BATH TOWNSHIP AREA VARIANCE SUPPLEMENTAL FORM

PROJECT OVERVIEW

Provide an overview of the project:

BATH TOWNSHIP IS PROPOSING TO RENOVATE THE EXISTING BARN ON THE SITE FOR MEETING / EVENT SPACE AND TO ADD A STAND ALONE RESTROOM UNIT.

PRACTICAL DIFFICULTIES

The following factors shall be considered and weighed by the BZA to determine practical difficulty. If a factor is not applicable, please note that factor as "Not Applicable":

A. Explain special conditions or circumstances that exist which are peculiar to your land or structure involved and which are not applicable generally to other lands or structures in the same Zoning District. (Examples of this are: exceptional irregularity, narrowness, shallowness or steepness of the lot, or adjacency to nonconforming and inharmonious uses, structures or conditions):

THE BARN FOOTPRINT IS CURRENTLY WITHIN THE 100' SETBACK

B. Explain how the property in question would not yield a reasonable return on investment or there could not be any beneficial use of the property without the variance.

TOWNSHIP IS SEEKING POTENTIAL ADDITIONAL INCOME STREAM FROM RENTALS

C. Explain whether the variance is substantial or not:

THE SETBACK IS CURRENTLY WITHIN THE MINIMUM SIDE YARD.

D. Explain whether the essential character of the neighborhood would be substantially altered or if adjoining properties would suffer a substantial detriment as a result of the variance.

THE GOAL IS TO TRY AND MAINTAIN THE EXISTING CHARACTER OF THE PARK

E. Explain whether the variance would adversely affect the delivery of governmental services (e.g., water, sewer, garbage, fire, street services,).

N/A

F. Did the applicant purchase the property with or without knowledge of the applicable zoning restriction?

TOWNSHIP RECIEVED THE PROPERTY THROUGH A GRANT WITH THE INTENTION TO UTILIZE THE BUILDINGS IN THE FUTURE.

G. Explain whether the special conditions or circumstances (listed in response to question A above) were a result of actions of the applicant or prior owners.

H. Demonstrate whether the applicant's predicament feasibly can be resolved through a method other than a variance (e.g., a zone-conforming but unworkable example, or by minimizing the variance).

THE TOWNSHIP IS PROPOSING TO RENOVATE THE EXISTING BARN IN THE EXISTING LOCATION.

I. Explain whether the spirit and intent behind the zoning requirement would be observed and/or substantial justice done by granting the variance.

THE INTENT HAS BEEN TO PRESERVE THE PROPERTY AND LIMIT DEVELOPMENT. BY RECIEVING THE SITE THROUGH A GRANT WE HAVE CURBED FUTURE DEVELOPMENT OF THE 76 ACRES

**No single factor listed above may control, and not all factors may be applicable in each case. Each case shall be determined on its own facts.*

NORTH FORK PRESERVE BARN RENOVATION



ARCHITECT

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P: 330.657.2800

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CONTACT: ZACH BINGHAM

CIVIL

LEWIS LAND PROFESSIONALS
8691 WADSWORTH ROAD, SUITE 100
WADSWORTH, OHIO 44281
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CONTACT: KYLE SALISBURY

MECHANICAL, ELECTRICAL, PLUMBING

DENK ASSOCIATES
503 EAST 200TH STREET
CLEVELAND, OH 44119
P: 216.531.8880

CONTACT: CARLO VALLETTA

ABBREVIATIONS

ABV	ABOVE
A/C	AIR CONDITIONING
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
AHJ	AUTHORITY HAVING JURISDICTION
ALUM	ALUMINUM
APPROX.	APPROXIMATELY
ARCH	ARCHITECTURAL
ASPH	ASPHALT
BD	BOARD
BLDG	BUILDING
BOTT	BOTTOM OF
BRG	BEARING
BOTT	BOTTOM
BTW	BETWEEN
CF	CUBIC FEET
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CO	CLEAN OUT
CONT	CONTINUOUS
DBL	DOUBLE
DEPT	DEPARTMENT
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
DWG	DRAWING
EA	EACH
ELEC	ELECTRICAL
EQ	EQUAL
EXH	EXHAUST
EXST	EXISTING
EXP	EXPOSED
EXT	EXTERIOR
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FIN.	FINISHED
FLR	FLOOR
FT	FOOT
FTG	FOOTING
FUR	FURRING
GALV	GALVANIZED
GA	GAUGE
GC	GENERAL CONTRACTOR
GYP. BD.	GYPSUM BOARD
GYP	GYPSUM
HC	HOLLOW CORE
HDWR.	HARDWARE
HM	HOLLOW METAL
HVAC	HEATING, VENTILATION, AIR COND.
HT	HEIGHT
INSUL	INSULATION
JST	JOIST
LAM	LAMINATED
LF	LINEAR FOOT
MAS	MASONRY
MATL	MATERIAL
MAX.	MAXIMUM
MECH	MECHANICAL
MFG.	MANUFACTURER
MIN.	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTD	MOUNTED
MTL	METAL
NOM	NOMINAL
NTS	NOT TO SCALE
O/	OVER
O.C.	ON CENTER
OPN	OPENING
PREFAB	PREFABRICATED
PLYWD	PLYWOOD
P. LAM	PLASTIC LAMINATE
PR	PAIR
PSI	POUNDS PER SQUARE INCH
REF	REFERENCE
RM	ROOM
RO	ROUGH OPENING
REQ	REQUIRED
SC	SOLID CORE
SECT	SECTION
SIM.	SIMILAR
STRUC	STRUCTURAL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
W/	WITH
WWF	WELDED WIRE FABRIC

SYMBOLS

DETAIL

EXTERIOR ELEVATION

BUILDING SECTION

INTERIOR ELEVATION

WALL SECTION

CENTERLINE

GRID

KEYNOTE

DOOR TAG

WINDOW TAG

SPOT ELEVATION

MATERIALS LEGEND

DIMENSIONAL LUMBER
PLYWOOD
FINISH WOOD
GYPSUM BOARD
BRICK
EARTH
STONE VENEER
BLOCKING
GRAVEL
CONCRETE
CONCRETE BLOCK
STEEL
RIGID INSULATION
SPRAY FOAM INSULATION
MINERAL WOOL INSULATION
METAL DECK

PROJECT GENERAL NOTES

THE CONTRACTOR WILL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, PERMITS, TAXES, AND INSURANCE NECESSARY TO COMPLETE THE WORK INDICATED AND/ OR IMPLIED IN THE CONSTRUCTION DOCUMENTS UNLESS NOTED OTHERWISE AND WILL COORDINATE THE WORK RESPONSIBILITIES OF ALL SUBCONTRACTORS. ALL LABOR AND MATERIALS TO CARRY OUT FULLY THE INTENTIONS OF THE PLANS AND SPECIFICATIONS ARE PART OF THE CONTRACT, WHETHER OR NOT SPECIFICALLY DOCUMENTED.

ALL WORK WILL CONFORM TO THE CURRENT OHIO BUILDING, MECHANICAL & PLUMBING CODES, AS WELL AS THE CURRENT NATIONAL BOARD OF FIRE UNDERWRITERS AND ALL OTHER APPLICABLE CITY CODES, LOCAL LAWS, AND AUTHORITIES HAVING JURISDICTION. CODE STANDARDS AND PUBLICATIONS OF PRIVATE AND PUBLIC BODIES MENTIONED WITHIN THE SPECIFICATIONS OR ON THE DRAWINGS, WILL BE CONSIDERED TO BE THOSE IN FORCE AT THE TIME OF THE CONTRACT AWARD.

THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL CONTROLLED INSPECTIONS AND ANY TECHNICAL TESTING REQUIRED FOR CONTROLLED INSPECTIONS AS STIPULATED BY ALL APPLICABLE CODES.

ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT WILL BE NEW AND FREE OF DEFECTS AND WILL BE SUPPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED, AND CONDITIONED AS DIRECTED BY THE RESPECTIVE MANUFACTURERS, UNLESS SPECIFIED OTHERWISE.

THE CONTRACTOR WILL NOTIFY THE ARCHITECT OF ANY ERRORS, OMISSIONS, CONFLICTS, OR AMBIGUITIES IN AND BETWEEN THE DRAWINGS AND THE SPECIFICATIONS PRIOR TO PROCEEDING WITH THE WORK. IF SUCH NOTICE IS NOT FURNISHED TO THE ARCHITECT, THE CONTRACTOR WILL BE DEEMED TO HAVE INSPECTED THE DRAWINGS AND SPECIFICATIONS AND TO HAVE FOUND THEM IN PROPER FORM FOR EXECUTION.

THE CONTRACTOR REPRESENTS THAT HE HAS HAD ADEQUATE ACCESS TO THE JOB SITE AND BUILDING AREA IN WHICH THE WORK IS TO BE PERFORMED, THAT HE HAS SATISFIED HIMSELF AT TO THE NATURE AND LOCATION OF WORK, INCLUDING ANY OBSTRUCTIONS, SCOPE OF WORK, ACTUAL LEVELS, THE EQUIPMENT AND FACILITIES NEEDED PRELIMINARY TO AND DURING THE EXECUTION OF THE WORK AND ALL OTHER MATTERS, WHICH CAN IN ANY WAYAFFECT THE WORK OR THE COST THEREOF UNDER THIS CONTRACT, AND THAT HE HAS STUDIED THE CONTRACT DOCUMENTS AND ALL OTHER DOCUMENTS PERTAINING TO THE INSTALLATION OF OTHER TRADES WHICH MAY INFLUENCE HIS WORK.

THE CONTRACTOR WILL ASSUME FULL RESPONSIBILITY, INCLUDING RESPONSIBILITY FOR ALL RELATED COSTS FOR ANY AND ALL WORK DONE WITHOUT THE APPROVAL OF THE ARCHITECT IF SUCH WORK IS IN CONFLICT WITH THE CONTRACT, DRAWINGS, OR SPECIFICATIONS.

THE OWNER WILL ESTABLISH THE LIMITS OF THE CONSTRUCTION SITE IN ADDITION TO ANY CONTRACT LIMIT LINES SHOWN IN THE DRAWINGS. THE CONTRACTOR WILL CONTINUE HIS OPERATIONS WITHIN THESE LIMITS, UNLESS UPON WRITTEN REQUEST AND REPLY, A VARIANCE IS AGREED TO BY THE OWNER. THE CONTRACTOR WILL BE RESPONSIBLE FOR TRESPASS ON AND/ OR DAMAGE TO OTHER PROPERTY BY ANY OF HIS EMPLOYEES OR HIS SUBCONTRACTOR'S EMPLOYEES.

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE SAFE WORKING CONDITIONS AT THE SITE. THE ARCHITECT AND OWNER WILL NOT BE DEEMED TO HAVE ANY RESPONSIBILITY OR LIABILITY IN CONNECTION HEREWITH.

CONSTRUCTION OPERATIONS WILL NOT INVOLVE INTERRUPTION OF HEATING, WATER, ELECTRICAL, OR OTHER SERVICES TO ANY PORTION OF THE BUILDING OUTSIDE THE LIMITS OF THE CONSTRUCTION SITE.

THE CONTRACTOR WILL BE RESPONSIBLE FOR CORRECTING ANY DEFICIENCIES CUASED BY DEFECTIVE OR ILL TIMED WORK AT NO ADDITIONAL COST TO THE OWNER.

NO SUBSTITUTIONS ARE PERMITTED EXCEPT WHERE THE TERM "APPROVED EQUAL" APPEARS. ALL SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE ARCHITECT. THE CONTRACTOR IS TO SUBMIT SAMPLES OR CATALOG CUTS OF ALL VISIBLE MATERIALS AND EQUIPMENT FOR THE ARCHITECT'S APPROVAL PRIOR TO INSTALLATION.

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Peninsula
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PROGRESS NOT FOR CONSTRUCTION
3/10/2025

PROJECT TEAM

ARCHITECT:
PENINSULA ARCHITECTS
330.657.2800

CIVIL ENGINEER:
LEWIS LAND PROFESSIONALS
Civil Engineering & Land Surveying
330.335.8232

STRUCTURAL ENGINEER:
TTR Engineers
330.733.8332

MEP ENGINEER:
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CONSULTING ENGINEERS
216.531.8880

BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION
4400 EVERETT ROAD, AKRON, OH 44333

PROJECT # 2324

ISSUE:

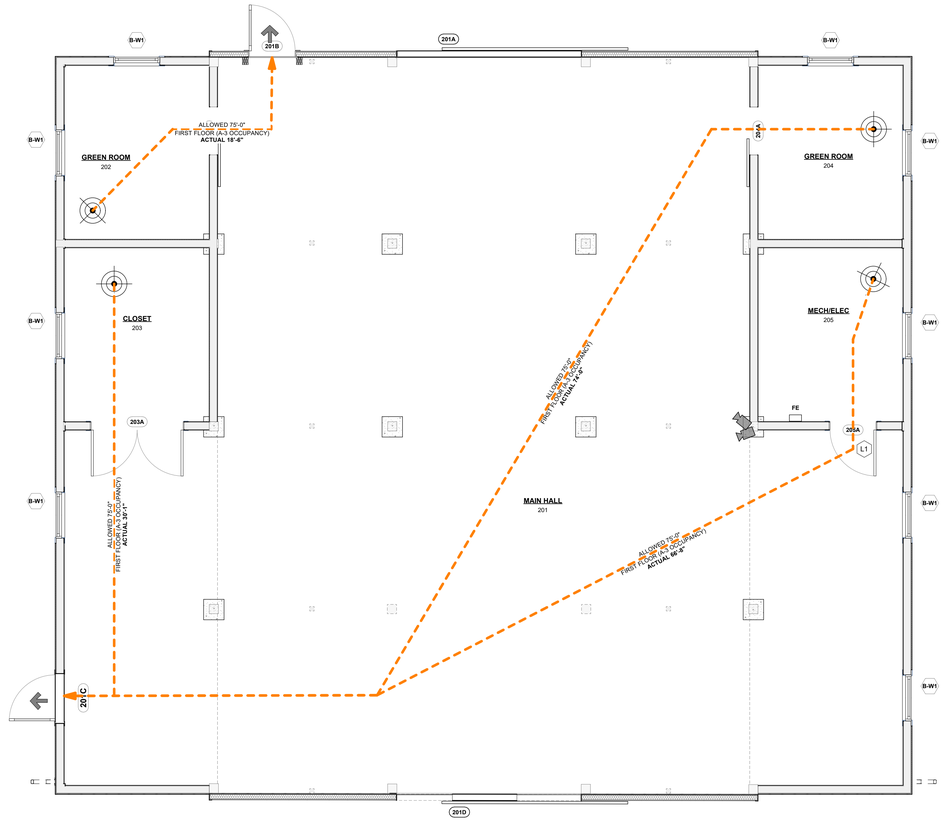
SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

COVER

G10.1

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1 BARN LIFE SAFETY PLAN

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

0 2" 4" 8"

CODE INFORMATION

APPLICABLE CODES

BUILDING:	2024 OHIO BUILDING CODE (IBC 2024)
MECHANICAL:	2024 OHIO MECHANICAL CODE (IMC 2021)
PLUMBING:	2024 OHIO PLUMBING CODE (IPC 2021)
ELECTRICAL:	2023 NATIONAL ELECTRICAL CODE (NFPA 70-23)
FIRE:	2017 OHIO FIRE CODE (IFC 2021)
ENERGY:	2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC-21) OR ASHRAE 90.1 2019
ACCESSIBILITY:	STANDARDS FOR ACCESSIBLE DESIGN (ICC A117.1-09 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES)
FIRE:	2021 OHIO FIRE CODE (IFC 21)

PROJECT SUMMARY:

OBC CHAPTER 3 | USE & CLASSIFICATION

SECTION 303.4 A-3 ASSEMBLY

OBC CHAPTER 5 | GENERAL BUILDING HEIGHTS & AREAS

ALLOWABLE HEIGHT AND STORIES:
TABLES 504.3 AND 504.4: **(NONSPRINKLERED)**
A-3: **1 STORIES, 60'-0"**

ACTUAL:
HEIGHT: 1 STORY, 32'-2"

AREA:
TABLE 506.2: **(NS, NONSPRINKLERED SINGLE-STORY)**
A-3: **6,000** SF

ACTUAL:
FIRST FLOOR: 2,708 SF

OBC CHAPTER 6 | TYPES OF CONSTRUCTION

SECTION 602 CONSTRUCTION TYPE: TYPE 5-B

TYPE 5B CONSTRUCTION IS THAT TYPE OF CONTRUCTION IN WHICH THE STRUCTURAL ELEMENTS, EXTERIOR WALLS, AND INTERIOR WALLS ARE OF ANY MATERIALS PERMITTED BY THIS CODE.

OBC CHAPTER 8 | INTERIOR FINISHES

WALL AND CEILING FINISHES REQUIRED PER TABLE 803.11

OBC CHAPTER 10 | MEANS OF EGRESS

SECTION 1017.2: EXIT ACCESS TRAVEL DISTANCE FOR OCCUPANCY A-3 IS 200'-0" FOR BUILDINGS EQUIPPED WITHOUT AN AUTOMATIC SPRINKLER SYSTEM

SECTION 1020.4: WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQUIRED, THE EXIT ACCESS SHALL BE ARRANGED SUCH THAT THERE ARE NOT DEAD END CORRIDORS MORE THAN 20'-0" IN LENGTH

TABLE 1004.5:

MAXIMUM FLOOR AREA ALLOWANCES PER OCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR
ASSEMBLY WITHOUT FIXED SEATS:	
CONCENTRATED (CHAIRS ONLY - NOT FIXED)	7 NET
STANDING SPACE	5 NET
UNCONCENTRATED (TABLES AND CHAIRS)	15 NET

OCCUPANCY SCHEDULE

ID	ROOM NAME	GROSS AREA	NET AREA	FUNCTION	CALCULATED OCCUPANT LOAD	ACT OCCUPA
201	MAIN HALL	2,189	1,750	ASSEMBLY	145	9
202	GREEN ROOM	112	83	ASSEMBLY	6	4
203	CLOSET	112		ACCESSORY STORAGE	1	0
204	GREEN ROOM	104	83	ASSEMBLY	6	4
205	MECH/ELEC	107		ACCESSORY EQUIPMENT	1	1
		2,624 ft²				9

LIFE SAFETY PLAN CODED NOTES

NOTE: ALL CODED NOTES MAY NOT OCCUR ON EVERY SHEET

L1 PROVIDE SIGNAGE INDICATING AUTHORIZED PERSONNEL ONLY.

LIFE SAFETY WALL LEGEND

FIRE EXTINGUISHER: VERIFY LOCATIONS OF FIRE EXTINGUISHERS WITH LOCAL FIRE DEPARTMENT OFFICIAL AND REFER TO SPECIFICATIONS FOR TYPE INFORMATION AND ADDITIONAL DETAILS.

LIFE SAFETY PLAN SYMBOLS

EXIT

W = ACTUAL CLEAR WIDTH OF LIMITING COMPONENT (INCHES).
X = OCCUPANTS USING EXIT
Y = EXIT CAPACITY
Z = EGRESS WIDTH PER OCCUPANT (INCHES/OCCUPANT)

MOST REMOTE POINT, TO DETERMINE EXIT ACCESS TRAVEL DISTANCE

FEC FIRE EXTINGUISHER CABINET

FA FIRE ALARM PULL STATION

F FIRE ALARM VISUAL/STROBE

F FIRE ALARM AUDIO AND VISUAL

FAP FIRE ALARM REMOTE ANNUNCIATOR

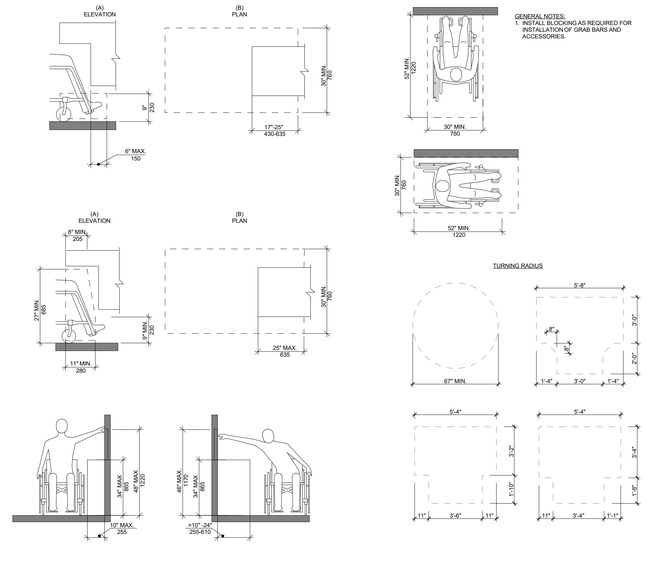
SECURITY CAMERA WITH 360 DEGREE LENSE

OCCUPANCY SIGNAGE

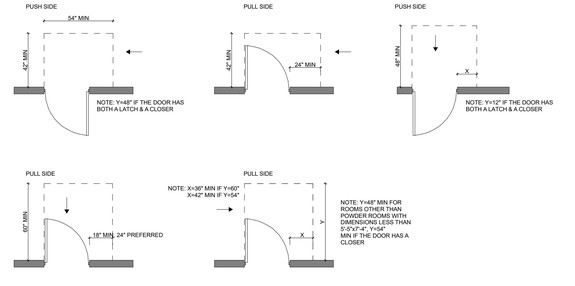


NOTE: "XX" TO BE REPLACED WITH INDICATED OCCUPANCY CAPACITY PER OCCUPANCY SCHEDULE ON G1.01. WHERE OCCUPANCY NUMBERS ARE TO BE POSTED IN ROOMS ADJACENT AND OPEN TO ANOTHER ROOM, COMBINED OCCUPANCY FOR CONNECTED SPACES MAY BE POSTED AT ALL REQUIRED LOCATIONS. INDICATED NUMBER NOT TO EXCEED SUM OF INDIVIDUAL ROOMS INDICATED PER OCCUPANCY SCHEDULE.

TYPICAL ADA DETAILS (ICC A117.1-2009)



MANEUVERING CLEARANCES AT MANUAL SWING DOORS (ADA 404.2.4.1)



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BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION

4400 EVERETT ROAD, AKRON, OH 44333

N

PROJECT # 2324

ISSUE:

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FINAL REVIEW	03-07-2025

CODE, LIFE SAFETY

G10.2

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Plotted: Monday, March 10, 2025

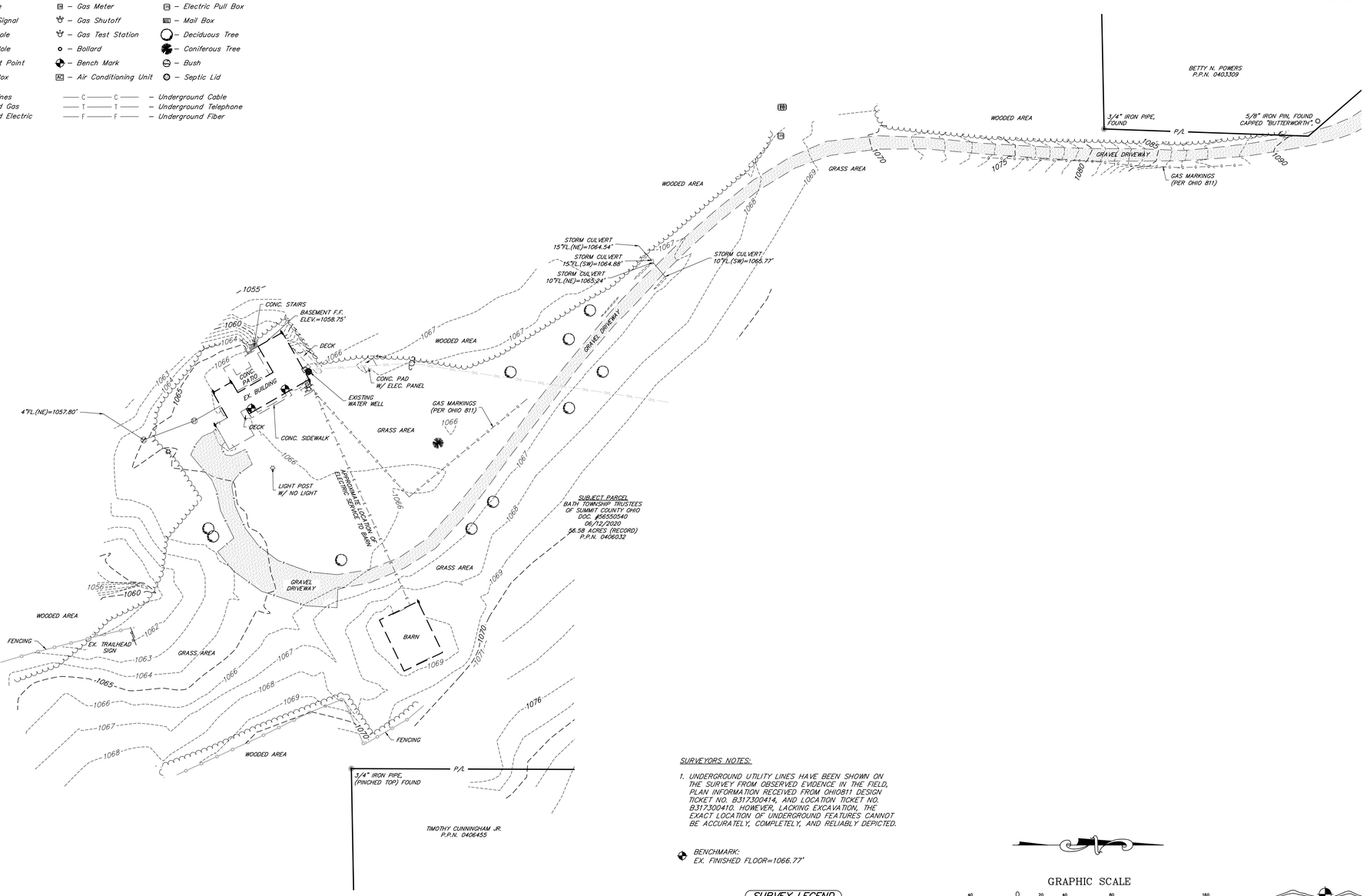
EXISTING CONDITIONS SURVEY

Situated in the Township of Bath,
County of Summit, State of Ohio, and known
as being part of Bath Township Lot 4

4400 Everett Road
P.P.N. 0406032

TOPOGRAPHIC LEGEND

- Hydrant
- Water Valve
- Water Shutoff
- Water Meter Pit
- Well
- Roof Drain
- Storm Manhole
- Inlet Basin
- Catch Basin
- Yard Drain
- Light Pole
- Flood Light
- Sign
- Telephone Manhole
- Guy Wire
- Traffic Signal
- Utility Pole
- Signal Pole
- Soil Test Point
- Signal Box
- Sanitary Manhole
- Cleanout
- Gas Line Marker
- Gas Valve
- Gas Meter
- Gas Shutoff
- Gas Test Station
- Bollard
- Bench Mark
- Air Conditioning Unit
- Telephone Pedestal
- Transformer
- Cable Pedestal
- Electric Meter
- Electric Pull Box
- Mail Box
- Deciduous Tree
- Coniferous Tree
- Bush
- Septic Lid
- OHL — OHL — Overhead Lines
- G — G — Underground Gas
- E — E — Underground Electric
- C — C — Underground Cable
- T — T — Underground Telephone
- F — F — Underground Fiber



SURVEYORS NOTES:

1. *UNDERGROUND UTILITY LINES HAVE BEEN SHOWN ON THE SURVEY FROM OBSERVED EVIDENCE IN THE FIELD, PLAN INFORMATION RECEIVED FROM OHIO811 DESIGN TICKET NO. B317300414, AND LOCATION TICKET NO. B317300410. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED.*

BENCHMARK:
EX. FINISHED FLOOR=1066.77'

SURVEY LEGEND

- ○ — Iron Pin Found & Described
- ◉ — Iron Pipe Found & Described

Fnd. (F) — Found
Usd. (U) — Used
(P) — Plat
Surv. (S) — Record Survey
Rec. (R) — Record Deed
R/W — Right of Way
C/L — Centerline
P/L — Property Line

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

The "Basis of Bearings" for this survey is ***Grid North*** *of the NAD83 (2011), Ohio State Plane, North Zone as established by GPS Observation.*

Lewis Land Professionals, Inc. has made no investigation or independent search for easements of record, encumbrances, restrictive covenants, ownership title evidence, or any other facts that an accurate and current title search may disclose.

Lewis Land Professionals, Inc.
Civil Engineering & Surveying
8691 Wadsworth Rd. Suite 100 Wadsworth, Ohio 44281
Phone: (330) 335-8232
www.landprosinc.com

SURVEY DATE: JUNE 2023
SHEET 1 OF 1

PROJ. No. 23-169 DRAWING NAME 23-169.dwg

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BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION

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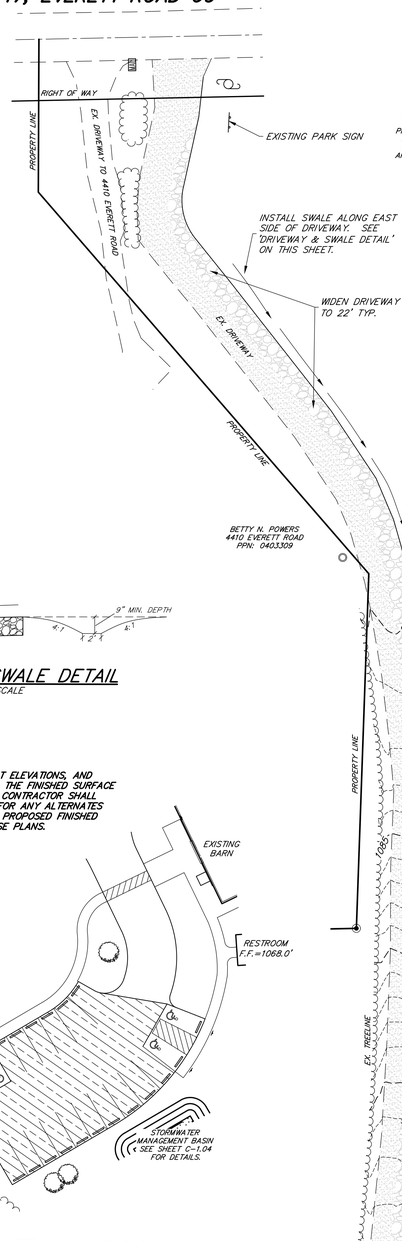
EXISTING CONDITIONS

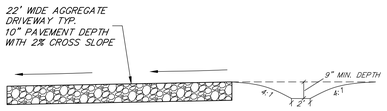
C10.1

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C.H. 47, EVERETT ROAD 60'

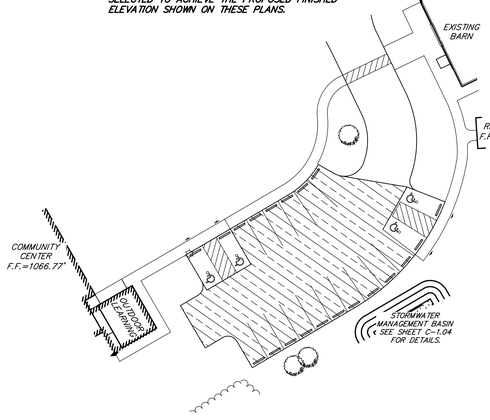




DRIVEWAY & SWALE DETAIL

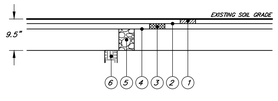
NOT TO SCALE

NOTE:
PROPOSED CONTOURS, SPOT ELEVATIONS, AND CATCH BASIN RIMS ARE TO THE FINISHED SURFACE OF PROPOSED PAVEMENT. CONTRACTOR SHALL GRADE SITE ACCORDINGLY FOR ANY ALTERNATES SELECTED TO ACHIEVE THE PROPOSED FINISHED ELEVATION SHOWN ON THESE PLANS.



ALTERNATE C-2 PLAN

SCALE: 1" = 30'



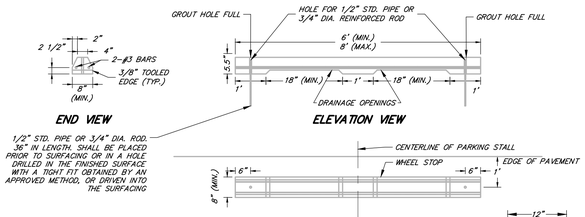
MATERIAL

1. 1.5" ODOT ITEM 441 TYPE 1 ASPHALTIC CONCRETE, SURFACE COURSE
2. ODOT ITEM 407 TACK COAT APPLIED AT 0.05 GALLONS PER SQUARE YARD
3. 2" ODOT ITEM 441 TYPE 2 ASPHALTIC CONCRETE, INTERMEDIATE COURSE
4. ODOT ITEM 407 TACK COAT APPLIED AT 0.05 GALLONS PER SQUARE YARD
5. INSTALL 6" OF COMPACTED ODOT 304 AGGREGATE BASE
6. RE-GRADE AND COMPACT EXISTING SUBGRADE

ALTERNATE C-2
ASPHALT PAVEMENT DETAIL

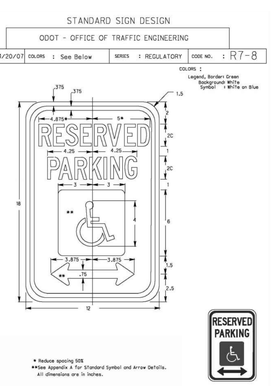
NOT TO SCALE

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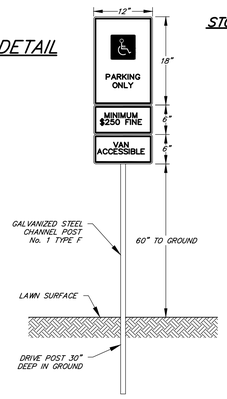
PRECAST CONCRETE WHEEL STOP DETAIL

NOT TO SCALE



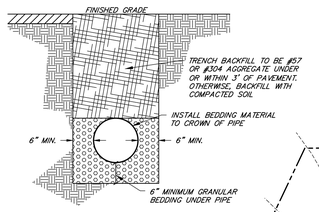
HANDICAP SIGN DETAIL

NOT TO SCALE



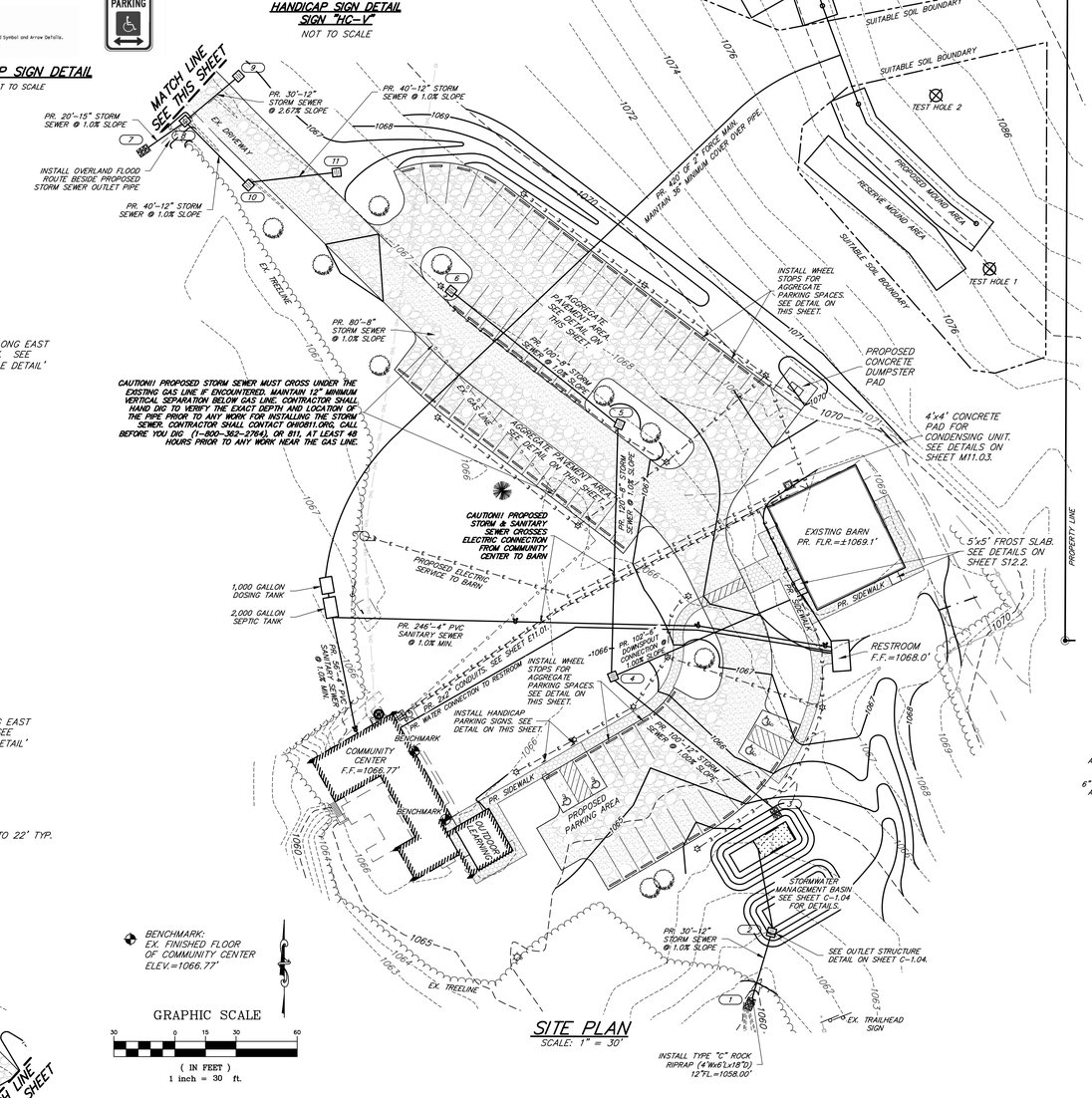
HANDICAP SIGN DETAIL
SIGN "HC-V"

NOT TO SCALE



STORM SEWER TRENCH DETAIL

NOT TO SCALE



SITE PLAN

SCALE: 1" = 30'

STORM SEWER SCHEDULE

1. INSTALL TYPE "C" ROCK RIPRAP (4'Wx8'Lx18"D) 12"FL=1058.00'
2. INSTALL ODOT 2-2B CATCH BASIN RIM=x' 4"FL=x' 12"FL=x'
3. INSTALL TYPE "C" ROCK RIPRAP (4'Wx8'Lx18"D) 12"FL=1060.30'
4. INSTALL ODOT 2-2B CATCH BASIN RIM=1065.00' 6"FL(E)=1061.80' 8"FL(N)=1061.63' 12"FL(S)=1061.30'
5. INSTALL ODOT 2-2B CATCH BASIN RIM=1066.00' 8"FL=1062.83'
6. INSTALL ODOT 2-2B CATCH BASIN RIM=1066.00' 8"FL=1063.83'
7. INSTALL TYPE "C" ROCK RIPRAP (4'Wx6'Lx18"D) 15"FL=1062.25'
8. INSTALL ODOT 2-2B CATCH BASIN RIM=1066.00' 12"FL=1062.70' 15"FL=1062.45'
9. INSTALL ODOT 2-2B CATCH BASIN RIM=1066.00' 12"FL=1063.50'
10. INSTALL ODOT 2-2B CATCH BASIN RIM=1066.00' 12"FL=1063.10'
11. INSTALL ODOT 2-2B CATCH BASIN RIM=1066.00' 12"FL=1063.50'

PAVEMENT LEGEND

- – EXISTING AGGREGATE PAVEMENT
- – PROPOSED AGGREGATE PAVEMENT (32,621 SQ. FT.)
- – CONCRETE ADA PARKING PAD & DUMPSTER PAD (1,280 SQ. FT.)
- – PROPOSED CONCRETE SIDEWALK (3,027 SQ. FT.)
- – ALTERNATE C-2: ASPHALT PAVEMENT (5,913 SQ. FT.)

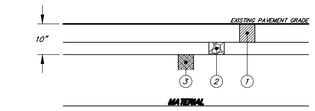
AREA QUANTITIES SHOWN ARE APPROXIMATE.

PARKING SPACES

4 ADA HANDICAP ACCESSIBLE SPACES

63 AGGREGATE SPACES

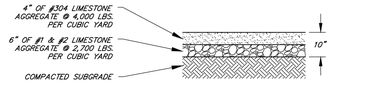
67 TOTAL SPACES PROVIDED



1. 6" ODOT ITEM 452 CONCRETE PAVEMENT, TYPE I OR II PORTLAND CEMENT
2. 4" ODOT ITEM 304 CRUSHED LIMESTONE AGGREGATE BASE
3. COMPACTED SUBGRADE

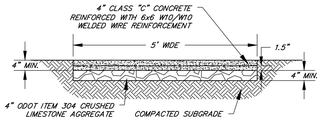
CONCRETE PAVEMENT DETAIL

NOT TO SCALE



AGGREGATE PAVEMENT DETAIL

NOT TO SCALE



CONCRETE SIDEWALK DETAIL

NOT TO SCALE

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BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION

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PROJECT # 2324

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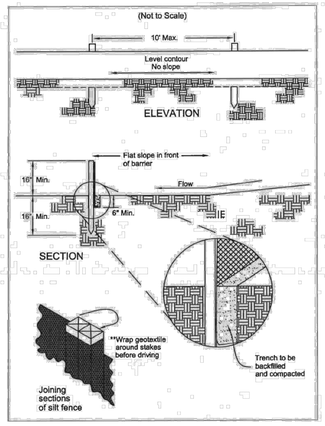
CIVIL SITE PLAN

C11.1

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Printed: Monday, March 10, 2025

Specifications
for
Silt Fence



Specifications
for
Silt Fence

1. Silt fence shall be constructed before upslope land disturbance begins.
2. All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry small concentrated flows to the silt fence are dissipated along its length.
3. Ends of the silt fences shall be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
4. Silt fence shall be placed on the flattest area available.
5. Where possible, vegetation shall be preserved for 5 feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
6. The height of the silt fence shall be a minimum of 16 inches above the original ground surface.
7. The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequately uniform trench depth.
8. The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6-inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
9. Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6-in. overlap prior to driving into the ground, (see details).
10. Maintenance—Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be performed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 3) other practices shall be installed.

    Sediment deposits shall be routinely removed when the deposit reaches approximately one-half of the height of the silt fence.

    Silt fences shall be inspected after each rainfall and at least daily during a prolonged rainfall. The location of existing silt fence shall be reviewed daily to ensure its proper location and effectiveness. If damaged, the silt fence shall be repaired immediately.

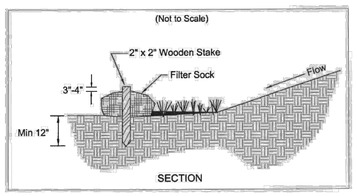
Criteria for silt fence materials

1. Fence post – The length shall be a minimum of 32 inches. Wood posts will be 2-by-2-in. nominal dimensioned hardwood of sound quality. They shall be free of knots, splits and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
2. Silt fence fabric – See chart below.

Table 6.3.2 Minimum criteria for Silt Fence Fabric (ODOT, 2002)

FABRIC PROPERTIES	VALUES	TEST METHOD
Minimum Tensile Strength	120 lbs. (535 N)	ASTM D 4632
Maximum Elongation at 60 lbs	50%	ASTM D 4632
Minimum Puncture Strength	50 lbs (220 N)	ASTM D 4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D 4533
Apparent Opening Size	≤ 0.84 mm	ASTM D 4751
Minimum Permittivity	1X10-2 sec.-1	ASTM D 4491
UV Exposure Strength Retention	70%	ASTM G 4355

Specifications
for
Filter Sock



1. Materials – Compost used for filter socks shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. They shall be derived from a well-decomposed source of organic matter and consist of a particles ranging from 3/8" to 2".
2. Filter Socks shall be 3 or 5 mil continuous, tubular, HDPE 3/8" knitted mesh netting material, filled with compost passing the above specifications for compost products.

INSTALLATION:

3. Filter socks will be placed on a level line across slopes, generally parallel to the base of the slope or other affected area. On slopes approaching 2:1, additional socks shall be provided at the top and as needed midslope.
4. Filter socks intended to be left as a permanent filter or part of the natural landscape, shall be seeded at the time of installation for establishment of permanent vegetation.
5. Filter Socks are not to be used in concentrated flow situations or in runoff channels.

MAINTENANCE:

6. Routinely inspect filter socks after each significant rain, maintaining filter socks in a functional condition at all times.
7. Remove sediments collected at the base of the filter socks when they reach 1/3 of the exposed height of the practice.
8. Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
9. Removal – Filter socks will be dispersed on site when no longer required in such as way as to facilitate and not obstruct seedings.

Specifications
for
Temporary Seeding

Table 7.8.1 Temporary Seeding Species Selection

Seeding Dates	Species	Lb./1000 ft2	Lb/Acre
March 1 to August 15	Oats	3	128 (4 Bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Ryegrass	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	55
	Perennial Ryegrass	3.25	142
	Creeping Red Fescue	0.4	17
	Kentucky Bluegrass	0.4	17
	Oats	3	128 (3 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
August 16th to November	Rye	3	112 (2 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Wheat	3	120 (2 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Rye	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	40
	Perennial Ryegrass	3.25	40
	Creeping Red Fescue	0.4	40
	Kentucky Bluegrass	0.4	
November 1 to Feb. 29	Use mulch only or dormant seeding		

Note: Other approved species may be substituted.

1. Structural erosion and sediment control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 21 days or greater. These idle areas shall be seeded within 7 days after grading.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. Temporary seeding should not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments—Temporary vegetation seeding rates shall establish adequate stands of vegetation, which may require the use of soil amendments. Base rates for lime and fertilizer shall be used.
5. Seeding Method—Seed shall be applied uniformly with a cyclone spreader, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site and the seeding shall be done immediately and without interruption.

Specifications
for
Temporary Seeding

Mulching Temporary Seeding

1. Applications of temporary seeding shall include mulch, which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates on favorable, very flat soil conditions may not need mulch to achieve adequate stabilization.

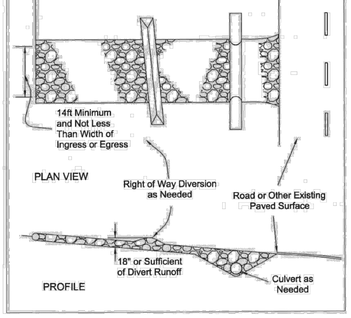
2. Materials:

- Straw—If straw is used, it shall be unrotted small-grain straw applied at a rate of 2 tons per acre or 90 lbs./ 1,000 sq. ft. (2-3 bales)
- Hydroseeders—If wood cellulose fiber is used, it shall be used at 2000 lbs./ ac. or 46 lb./ 1,000-sq.-ft.
- Other—Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 ton/ ac.

3. Straw Mulch shall be anchored immediately to minimize loss by wind or water. Anchoring methods:

- Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but left to a length of approximately 6 inches.
- Mulch Netting—Netting shall be used according to the manufacturers recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
- Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates specified by the manufacturer.
- Wood-Cellulose Fiber—Wood-cellulose fiber binder shall be applied at a net dry wt. of 750 lb./ac. The wood-cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb. / 100 gal.

Specifications
for
Construction Entrance



1. Stone Size—ODOT # 2 (1.5-2.5 inch) stone shall be used, or recycled concrete equivalent.
2. Length—The Construction entrance shall be as long as required to stabilize high traffic areas but not less than 70 ft. (exception: apply 30 ft. minimum to single residence lots).
3. Thickness -The stone layer shall be at least 6 inches thick for light duty entrances or at least 10 inches for heavy duty use.
4. Width -The entrance shall be at least 14 feet wide, but not less than the full width at points where ingress or egress occurs.
5. Geotextile -A geotextile shall be laid over the entire area prior to placing stone. It shall be composed of strong rot-proof polymeric fibers and meet the following specifications:

Figure 7.4.1

Geotextile Specification for Construction Entrance	
Minimum Tensile Strength	200 lbs.
Minimum Puncture Strength	80 psi.
Minimum Tear Strength	50 lbs.
Minimum Burst Strength	320 psi.
Minimum Elongation	20%
Equivalent Opening Size	EOS < 0.6 mm.
Permittivity	1x10-3 cm/sec.

6. Timing—The construction entrance shall be installed as soon as is practicable before major grading activities.
7. Culvert -A pipe or culvert shall be constructed under the entrance if needed to prevent surface water from flowing across the entrance or to prevent runoff from being directed out onto paved surfaces.
8. Water Bar -A water bar shall be constructed as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.
9. Maintenance -Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately. Removal shall be accomplished by scraping or sweeping.
10. Construction entrances shall not be relied upon to remove mud from vehicles and prevent off-site tracking. Vehicles that enter and leave the construction-site shall be restricted from muddy areas.
11. Removal—the entrance shall remain in place until the disturbed area is stabilized or replaced with a permanent roadway or entrance.

Specifications
for
Permanent Seeding

Site Preparation

1. Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
3. Topsoil shall be applied where needed to establish vegetation.

Seedbed Preparation

1. Lime—Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
2. Fertilizer—Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above-specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

Dormant Seedings

1. Seedings should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
2. The following methods may be used for "Dormant Seeding":

3. Straw and Mulch Anchoring Methods

Straw mulch shall be anchored immediately to minimize loss by wind or water.

- Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
- Mulch Netting—Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
- Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates specified by the manufacturer.
- Asphalt Emulsion—Asphalt shall be applied as recommended by the manufacture or at the rate of 160 gallons per acre.
- From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
- From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
- Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
- Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

Mulching

1. Mulch material shall be applied immediately after seeding. Dormant seeding shall be mulched. 100% of the ground surface shall be covered with an approved material.
2. Materials
- Straw—If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons per acre or 90 pounds (two to three bales) per 1,000-sq. ft. The mulch shall be spread uniformly by hand or mechanically applied so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.
- Hydroseeders—If wood cellulose fiber is used, it shall be applied at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
- Other—Other acceptable mulches include rolled erosion control mattings or blankets applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.

Table 7.10.2 Permanent Seeding

Seed Mix	Seeding Rate Lbs./acre	Seeding Rate Lbs./1,000 Sq. Feet	Notes:
General Use			
Creeping Red Fescue	20-40	1/2-1	For close mowing & for waterways with <2.0 ft/sec velocity
Domestic Ryegrass	10-20	1/4-1/2	
Kentucky Bluegrass	20-40	1/2-1	
Tall Fescue	40-50	1-1 1/4	
Turf-type (dwarf) Fescue	80	2 1/4	
Steep Banks or Cut Slopes			
Tall Fescue	40-50	1-1 1/4	
Crown Vetch	10-20	1/4-1/2	Do not seed later than August
Tall Fescue	20-30	1/2-3/4	
Flat Pea	20-25	1/2-3/4	Do not seed later than August
Tall Fescue	20-30	1/2-3/4	
Road Ditches and Swales			
Tall Fescue	40-50	1-1 1/4	
Turf-type (Dwarf) Fescue, Kentucky Bluegrass	90 5	2 1/4 0.1	
Lawns			
Kentucky Bluegrass	100-120	2	
Perennial Ryegrass		2	
Kentucky Bluegrass Creeping Red Fescue	100-120	2 1-1/2	For shaded areas

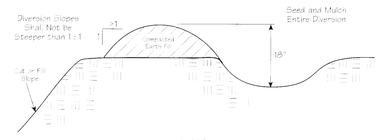
Note: Other approved seed species may be substituted.

Specifications
for
Mulching

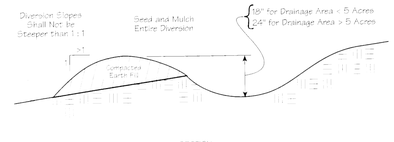
1. Mulch and other appropriate vegetative practices shall be applied to disturbed areas within 7 days of grading if the area is to remain dormant (undisturbed) for more than 21 days or on areas and portions of the site which can be brought to final grade.
2. Mulch shall consist of one of the following:
- Straw - Straw shall be unrotted small grain straw applied at the rate of 2 tons/ac. or 90 lb./1,000 sq. ft. (two to three bales). The straw mulch shall be spread uniformly by hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 sq.ft. sections and place two 45-lb. bales of straw in each section.
- Hydroseeders - Wood cellulose fiber should be used at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
- Other - Acceptable mulches include mulch mattings and rolled erosion control products applied according to manufacturer's recommendations or wood mulch/chips applied at 10-20 tons/ac.

3. Mulch Anchoring - Mulch shall be anchored immediately to minimize loss by wind or runoff. The following are acceptable methods for anchoring mulch.
- Mechanical - Use a disk, crimper, or similar type tool set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but be left generally longer than 6 inches.
- Mulch Nettings - Use according to the manufacturer's recommendations, following all placement and anchoring requirements. Use in areas of water concentration and steep slopes to hold mulch in place.
- Synthetic Binders - For straw mulch, synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equal may be used at rates recommended by the manufacturer. All applications of Synthetic Binders must be conducted in such a manner where there is no contact with waters of the state.
- Wood Cellulose Fiber - Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 lb./acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb./100 gal. of wood cellulose fiber.

Specifications
for
Temporary Diversion Above Steep Slopes



Specifications
for
Temporary Diversion



Specifications for Temporary Diversion

1. Diversion shall be compacted by traversing with tracked earth—moving equipment.

2. Diversions shall not be breached or lowered to allow construction traffic to cross; instead the top width may be made wider and side slopes made flatter than specified above.

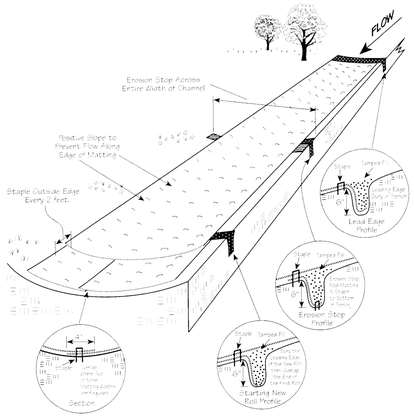
3. Diversions shall be stabilized with vegetation and check dams or the following treatments:

Temporary Diversion Stabilization Treatment

Diversion Slope	*< 2 ac.*	*2 – 5 ac.*	*5 – 10 ac.*
0–3%	*Seed and Straw*	*Seed and Straw*	*Seed and Straw*
3–5%	*Seed and Straw*	*Seed and Straw*	*Matting*
5–8%	*Seed and Straw*	*Matting*	*Matting*
8–20%	*Seed and Straw*	*Matting*	*Engineered*

Note: Diversions with steeper slopes or greater drainage areas are beyond the scope of this standard and must be designed for stability. Seed, straw and matting used shall meet the Specifications for Temporary Seeding, Mulching and Matting.

Specifications
for
Matting



Specifications for Matting

1. Material — Excelsior matting shall be 48 in. wide and weigh on average of 0.75 lb./sq. yd. or greater. Jute matting shall be 48 in. wide and weigh an average of 1.2 lb./yd or greater. Matting made of other material and providing equal or greater stabilization than the above may be substituted.

2. Site Preparation—After the site has been shaped and graded, a seedbed shall be prepared that is relatively free of foreign material, clods or rocks that are greater that 1.5 in. in diameter. The site shall be prepared to ensure that the matting has good soil contact and the matting will not "bridge" or "tent" over obstructions.

3. Matting shall be held in place as recommended by the manufacturer as adequate for the site conditions or with sod staples. Sod staples are U-shaped wire staples used for fastening sod, jute or excelsior matting and other erosion-control materials to the soil surface. Sod staples shall be No. 11 gauge or heavier and be 6–10 in. in length. In loose or sandy soils longer staples shall be used.

4. Planting—Lime and fertilizer shall be used according to the recommendation of a soil test or the seeding plan. Seed according to the matting manufacturer's recommendations; or, for excelsior matting, seed area to be protected before installation; or, when using jute matting, apply half the seed before and half the seed after installation.

5. Matting shall be installed as specified by the manufacturer as appropriate for the site conditions or the following procedure may be used:

** After the site is prepared and erosion stops are installed, start laying the mat from the top of the slope or channel and unroll the matting allowing 4–in. overlaps at the edges.*

** Secure the matting by burying the top ends in a trench 6 in. deep and staple the folded ends to the bottom of the trench. Backfill and tamp firmly to the established grade.*

** Staple matting every 12 in. across the width beginning at the edges and every 2 ft. in rows the entire length of the matting. Every other row of staples running the length of the matting should be staggered.*

** To join two rolls together, cut a trench to anchor the end of the new roll and secure it the same as the top roll. Overlap the end of the previous roll 18 in. over the new roll. Continue to staple as described above.*

** When using excelsior matting, the plastic netting shall be on top of the good soil contact and the matting will not "bridge" or "tent" over obstructions.*

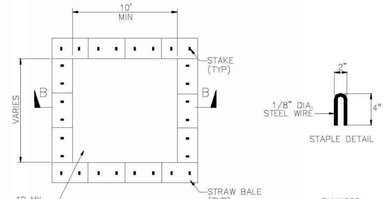
6. Erosion stops shall be used where recommended by the matting manufacturer and on areas specified where high–erosion potential may cause undermining and gullies to form beneath the matting.

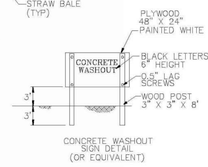
** Erosion stops shall be made of strips of matting placed in narrow trenches 6–12 in. deep that cover the full cross section of the channel. They shall be spaced according to the manufacturer's recommendations or by the following: —3 ft. down the channel from each point of entry of concentrated flow; —at points where change in gradient or direction of channel occurs, and —on long slopes at spacing from 20–100 ft. depending upon the erodibility of the soil, velocity and volume of flow.*

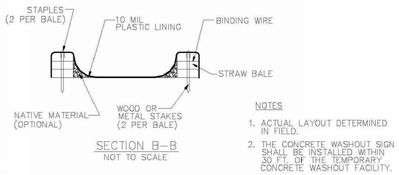
** Erosion stops shall extend beyond the channel liner to the full design width of the channel, this will check any rills that might form outside or along the edge of the channel lining.*

** Erosion stops shall be constructed with 6 in. deep trench, stapled to the bottom of the trench, backfilled and tamped firmly to conform with the cross section of the channel.*

** If seeding has been done prior to installation of erosion stops, reseed disturbed areas prior to placement of channel liner.*







NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

CONCRETE WASHOUT DETAIL
NOT TO SCALE

Storm Water Pollution Prevention Notes

1. THIS CONTRACT DRAWING DOCUMENT SHALL BE MADE AVAILABLE ON–SITE AT ALL TIMES AND PRESENTED UPON REQUEST. ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE REQUESTED BY THE FIELD INSPECTOR AT ANYTIME.

2. ALL EROSION AND SEDIMENT CONTROL PRACTICES SPECIFIED ON THIS PLAN SHALL CONFORM WITH DETAILS AND SPECIFICATIONS OUTLINED IN THE OHIO DEPARTMENT OF NATURAL RESOURCES BOOKLET, "RAINWATER AND LAND DEVELOPMENT".

3. SILT FENCE AND SEDIMENT PITS SHALL BE USED AROUND ALL NEW STORM INLETS TO CONTROL SOIL EROSION.

4. EROSION CONTROL MEASURES MUST BE PROVIDED AROUND ALL DIRT STOCKPILES AND OTHER TEMPORARILY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.

5. IF UNFORESEEN EROSION IS ENCOUNTERED DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES SHALL BE PROVIDED, AS DIRECTED BY THE ENGINEER, OR SOIL AND WATER REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.

6. TEMPORARY SEDIMENTATION AND EROSION CONTROL MEASURES MUST BE INSPECTED AND LOGGED BY A LICENSED INSPECTOR WEEKLY AND AFTER RAIN EVENTS.

7. ALL UTILITY COMPANIES MUST COMPLY WITH ALL STORM WATER POLLUTION PREVENTION MEASURES AS DEFINED ON THIS STORM WATER POLLUTION PREVENTION PLANS.

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PROGRESS
NOT FOR
CONSTRUCTION
3/10/2025

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BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION

4400 EVERETT ROAD, AKRON, OH 44333

PROJECT # 2324

ISSUE:

SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

EROSION CONTROL DETAILS

C12.1

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GENERAL NOTES

A. GENERAL

1. THIS STRUCTURE WAS DESIGNED IN ACCORDANCE WITH STATE OF OHIO BUILDING CODE (O.B.C.), 2024 EDITION.
2. ALL CONSTRUCTION SHALL CONFORM TO THE OHIO BUILDING CODE AND TO OSHA STANDARDS. WORK STRUCTURAL DRAWINGS WITH ARCHITECTURAL, MECHANICAL DRAWINGS, AND CIVIL DRAWINGS.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS AND FOR SAFETY CONDITIONS AT THE SITE.
4. TEMPORARY BRACING OF THE STRUCTURE, TRUSSES, COLUMNS, BEAMS, WALLS, ETC. DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. TEMPORARY BRACING OF THE STRUCTURE SHALL REMAIN IN PLACE UNTIL ALL LATERAL FORCE RESISTING ELEMENTS ARE INSTALLED (INCLUDING WALL AND ROOF SHEATHING). CONTRACTOR SHALL DESIGN AND COORDINATE LOCATIONS OF TEMPORARY BRACING WITH OTHER CONTRACTORS.
5. LIFTING MEANS AND METHODS ARE BY THE CONTRACTOR. THE CONTRACTOR SHALL RETAIN QUALIFIED RIGGING AND LIFTING PROFESSIONALS TO PERFORM ALL LIFTING OPERATIONS AND SHALL BE RESPONSIBLE FOR ALL TEMPORARY SUPPORT AND BRACING OF THE STRUCTURE. CONTRACTOR IS TO FIELD VERIFY AND COORDINATE ALL FINAL FOUNDATION DIMENSIONS AND IS RESPONSIBLE FOR ALL COORDINATION REQUIRED TO PLACE THE BARN ON THE NEW FOUNDATIONS.
6. CONSTRUCTION LOADS SHALL NOT EXCEED DESIGN LIVE LOADS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DESIGN REQUIRED TO SUPPORT CONSTRUCTION EQUIPMENT USED IN CONSTRUCTING THIS PROJECT. SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR.
7. FOUNDATION CONTRACTOR SHALL COORDINATE AND SCHEDULE WORK WITH MECHANICAL AND ELECTRICAL CONTRACTORS REGARDING ITEMS CONCEALED BY OR EMBEDDED IN FOUNDATIONS, WALLS OR FLOOR SLABS.
8. PRINCIPAL OPENINGS THROUGH THE FRAMING ARE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL COORDINATE THE STRUCTURAL AND MECHANICAL DRAWINGS FOR THE REQUIRED OPENINGS AND SHALL VERIFY SIZE AND LOCATION OF ALL OPENINGS WITH THE MECHANICAL CONTRACTOR.
9. DO NOT SCALE DRAWINGS
10. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IF THE WEIGHTS OF MECHANICAL UNITS ETC. ARE DIFFERENT FROM THE WEIGHTS POSTED ON THE DESIGN DRAWINGS. DISCREPANCIES SHALL BE RESOLVED BEFORE PROCEEDING WITH CONSTRUCTION.
11. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN DRAWINGS.
12. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
    - SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS, EXCEPT AS NOTED.
    - SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR NON-BEARING PARTITIONS.
    - SIZE AND LOCATION OF ALL CONCRETE CURBS, FLOOR DRAINS, SLOPES, DEPRESSED AREAS, CHANGES IN LEVEL, CHAMFER, GROOVES, INSERTS, ETC.
    - SIZE AND LOCATION OF FLOOR AND ROOF OPENINGS, EXCEPT AS SHOWN.
    - FLOOR AND ROOF FINISHES.
    - DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
    - LIMITS OF DRAFT STOPPING IN THE ATTIC SPACE

DESIGN LOAD INFORMATION:

DEAD LOAD

1. ROOF	= 20 PSF

ROOF LIVE LOADS

1. LIVE LOAD	= 20 PSF

ROOF SNOW LOAD

1. GROUND SNOW LOAD (Pg)	= 20.00 PSF
2. FLAT ROOF SNOW LOAD (Pf)	= 20.00 PSF
3. SNOW EXPOSURE FACTOR (Ce)	= 1.0
4. SNOW LOAD IMPORTANCE FACTOR (I)	= 1.0
5. THERMAL FACTOR, Ct	= 1.0
6. TOTAL DESIGN SNOW LOAD	= 20 PSF + DRIFTING

WIND LOAD

1. ULTIMATE DESIGN WIND SPEED, Vult (3 SECOND GUST)	= 106 MPH
2. NOMINAL DESIGN WIND SPEED, Vasd	= 85 MPH
3. WIND IMPORTANCE FACTOR (Iw) = 1.0, OCCUPANCY CATEGORY	= II
4. WIND EXPOSURE	= C
5. INTERNAL PRESSURE COEFFICIENT	= ±0.18

COMPONENTS AND CLADDING WIND DESIGN PRESSURES - SEE TABLES BELOW

WALL COMPONENTS AND CLADDING (ULTIMATE) (PSF)									
EFFECTIVE AREA (SQ. FT.)									
INTERIOR ZONE					EXTERIOR ZONE (13'-6" WIDE)				
10	20	50	100	500	10	20	50	100	500
25.7	24.6	23.3	22.2	19.8	31.7	29.5	26.8	24.6	19.8

ROOF UPLIFT - COMPONENTS AND CLADDING (ULTIMATE) (PSF)								
ZONE	EFFECTIVE AREA (SQ. FT.)							
	GROSS				NET (ROOF JOISTS)			
	10	20	50	100	10	20	50	100
CORNER (13'-6")	-43.5	-38.9	-32.7	-28.1	-38.8	-33.9	-27.7	-23.1
PERIMETER (13'-6")	-43.5	-38.9	-32.7	-28.1	-38.8	-33.9	-27.7	-23.1
INTERIOR	-25.9	-25.3	-24.4	-23.7	-20.9	-20.3	-19.4	-18.7

EARTHQUAKE DESIGN DATA

1. SEISMIC USE GROUP	= II
2. SEISMIC IMPORTANCE FACTOR (IE)	= 1.00
3. MAPPED SPECTRAL RESPONSE ACCELERATIONS,	Ss=14.9%, S1=6.4%
4. SITE CLASS	= D
5. SPECTRAL RESPONSE COEFFICIENTS,	Sds=0.133, Sd1= 0.103
6. SEISMIC DESIGN CATEGORY	= B
7. BASIC SEISMIC-FORCE-RESISTING SYSTEM:	
-LIGHT FRAMED WALL w/SHEAR PANELS	
-ALL OTHER MATERIALS	
8. DESIGN BASE SHEAR	=0.024W
9. SEISMIC RESPONSE COEFFICIENT (Cs)	= 0.024
10. RESPONSE MODIFICATION FACTOR (R)	= 6.5
11. V = (Sds)(W)(IE)/R (SIMPLIFIED ANALYSIS PROCEDURE)	

B. FOUNDATIONS

1. ALL FOUNDATIONS SHALL BEAR ON UNDISTURBED SOIL WITH AN ASSUMED BEARING CAPACITY OF 1500 PSF. FOOTINGS SHALL BE POURED THE SAME DAY THEY ARE EXCAVATED. FOOTINGS MAY BE POURED INTO EARTH-FORMED TRENCHES IF THE SOIL CONDITIONS PERMIT.
2. COMPACT BACKFILL OVER FOOTINGS AND BENEATH SLABS ON GRADE TO AT LEAST 98% OF ITS STANDARD PROCTOR MAXIMUM DRY DENSITY PER ASTM D-698 ±2.0% MOISTURE CONTENT. STRUCTURAL FILL UNDER FOOTINGS SHALL EXTEND OUTSIDE A FOOTING A MINIMUM OF ⅔ THE DEPTH OF COMPACTION. ALL FILL SHALL BE TESTED FOR IN-PLACE DENSITY TO ASSURE THAT THE COMPACTION RECOMMENDATIONS ARE ATTAINED.
3. FOOTING ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE AND SHALL BE FIELD ADJUSTED IF REQUIRED.
4. A SOILS TESTING LABORATORY SHALL BE RETAINED BY THE OWNER TO PROVIDE CONSTRUCTION REVIEW TO INSURE CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS DURING THE EXCAVATION, BACKFILL, AND FOUNDATION PHASES OF THE PROJECT. IT SHALL BE THE RESPONSIBILITY OF THE SOILS TESTING LABORATORY TO: DETERMINE TOPSOIL AND EXCAVATION STRIPPING DEPTH; INSPECT ALL SUBSOIL EXPOSED DURING STRIPPING, SITE GRADING, AND EXCAVATION OPERATIONS; APPROVE FILL MATERIALS, PERFORM DENSITY TESTS OF FILLS TO INSURE PLACEMENT PER SPECIFICATION REQUIREMENTS; INSPECT FOUNDATION BEARING SURFACES.
5. NOTIFY STRUCTURAL ENGINEER OF ANY UNUSUAL SOIL CONDITIONS THAT ARE IN VARIANCE WITH THE GEOTECHNICAL REPORT.

C. CONCRETE AND REINFORCING STEEL

1. ALL CONCRETE SHALL CONFORM TO THE FOLLOWING REFERENCED STANDARDS:
   ACI 318-19: BUILDING CODE REQUIREMENT FOR REINFORCED CONCRETE.
   ACI 315: DETAILS AND DETAILING OF CONCRETE REINFORCEMENT.
   ACI 305: RECOMMENDED PRACTICES FOR HOT WEATHER CONCRETING.
   ACI 306: RECOMMENDED PRACTICES FOR COLD WEATHER CONCRETING.
2. ALL CAST-IN-PLACE INTERIOR SLAB CONCRETE AND ALL INTERIOR CONCRETE NOT OTHERWISE IDENTIFIED SHALL BE 3500 PSI (W/C RATIO = 0.55) AT 28 DAYS WITHOUT AIR ENTRAINMENT AND WITH THE APPROPRIATE CURE SEALER.
3. CAST-IN-PLACE CONCRETE FOR SPREAD AND WALL FOOTINGS SHALL BE 3000 PSI (W/C RATIO = 0.50) AT 28 DAYS.
4. ALL CAST-IN-PLACE EXTERIOR SLAB CONCRETE AND ALL EXTERIOR CONCRETE NOT OTHERWISE IDENTIFIED SHALL BE 4000 PSI (W/C RATIO = 0.50) AT 28 DAYS WITH AIR ENTRAINMENT (6% ±1%).
5. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A-615 GRADE-60.
6. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. ONLY FLAT SHEETS SHALL BE USED.
7. ALL WELDED WIRE FABRIC SPLICES SHALL BE NOT LESS THAN (2) SPACINGS OF CROSS WIRES OR 6", WHICHEVER IS GREATER.
8. CORNER BARS SHALL BE PROVIDED TO MATCH HORIZONTAL WALL AND FOOTING REINFORCEMENT AT ALL CORNERS. LAP BARS 30 BAR DIAMETERS OR A MINIMUM OF 1'-0".
9. PROVIDE A 3/4"X45° CHAMFER ON ALL EXPOSED EDGES OF CONCRETE.
10. A CURING COMPOUND IS TO BE APPLIED TO THE CONCRETE AFTER FINISHING.
11. ALL ALUMINUM IN CONTACT WITH CONCRETE OR DISSIMILAR METALS SHALL BE COATED WITH TWO COATS COAL TAR EPOXY, APPROVED BY THE ARCHITECT, UNLESS OTHERWISE NOTED.
12. ALL CONCRETE SHALL BE PLACED WITHOUT HORIZONTAL CONSTRUCTION JOINTS, EXCEPT WHERE SPECIFICALLY NOTED. HORIZONTAL REINFORCEMENT SHALL BE CONTINUOUS THROUGH VERTICAL CONSTRUCTION JOINTS.
13. SEE ARCHITECTURAL DRAWINGS FOR CONCRETE FINISHES, MASONRY ANCHORS, AND FOR MISCELLANEOUS EMBEDDED PLATES, BOLTS, ANCHORS, ANGLES, ETC.
14. ALL HOOKS SHOWN ON DRAWINGS SHALL BE STANDARDS HOOKS PER ACI STANDARD

MINIMUM LAP SPLICE (CLASS B)
(Fy = GRADE 60, NON-COATED BARS). SPLICE REINFORCING WHERE INDICATED ON THE DRAWINGS OR ON THE SHOP DRAWINGS. ALL SPLICES SHALL BE CLASS 'B' AS DEFINED IN ACI 318. IF SPLICE LENGTH IS NOT GIVEN ON THE DRAWINGS, PROVIDE LAP SPLICE LENGTHS (IN INCHES) AS FOLLOWS.

3000 PSI CONCRETE

BAR SIZE	TYPICAL	TOP
#3	22"	28"
#4	29"	37"
#5	36"	47"
#6	43"	56"
#7	63"	81"
#8	72"	93"

4000 PSI CONCRETE

BAR SIZE	TYPICAL	TOP
#3	19"	24"
#4	25"	32"
#5	31"	40"
#6	37"	48"
#7	54"	70"
#8	62"	80"
#9	70"	91"

1. WHEN LAPPING TWO DIFFERENT SIZE BARS, USE THE LAP DIMENSION OF THE LARGER BAR OR THE TENSION LAP SPLICE OF SMALLER BAR. USE WHICHEVER DIMENSION IS LARGER.
2. LAP LENGTHS ASSUME CLEAR SPACING BETWEEN BARS OF 2 BAR DIAMETERS, AND A MINIMUM COVER OF 1 BAR DIAMETER. FOR DEVELOPMENT LENGTHS, DIVIDE "TYPICAL DIMENSIONS" BY 1.3.
3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 1'-0" OF FRESH CONCRETE BELOW.

TYPICAL REINFORCING BAR CLEARANCE TABLE

LOCATION	CLEARANCE
(a) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
(b) SLABS ON GRADE (WELDED WIRE FABRIC)	‡ SLAB THICKNESS FROM TOP OF SLAB
(c) CONCRETE EXPOSED TO EARTH OR WEATHER	
-NO. 6 THRU NO. 18 BARS	2"
-NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER	1½"
(d) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:	
SLABS, WALLS, JOISTS	
-NO. 14 & NO. 18 BARS	1½"
-NO. 11 BAR AND SMALLER	¾"
BEAMS, COLUMNS	
-PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS	1½"

D. MASONRY

1. ALL DESIGN, MATERIALS, LABOR AND CONSTRUCTION OF THE MASONRY SHALL CONFORM TO THE BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (TMS 402-16) AND THE SPECIFICATION FOR MASONRY STRUCTURES (TMS 602-16).
2. ALL BRICK AND CONCRETE MASONRY AND CONSTRUCTION SHALL COMPLY WITH THE RECOMMENDATIONS OF BRICK INDUSTRY ASSOCIATION AND THE NATIONAL CONCRETE MASONRY ASSOCIATION AND MINIMUM REQUIREMENTS ESTABLISHED AS REFERENCED IN THE APPLICABLE BUILDING CODE.
3. ALL HOLLOW CONCRETE BLOCK SHALL CONFORM TO ASTM C-90 WITH A NET COMPRESSIVE STRENGTH OF 2000 PSI.
4. MORTAR SHALL BE ASTM C 270, TYPE "S", SPECIFIED BY PROPORTION WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI.
5. AGGREGATE FOR MORTAR SHALL BE ASTM C 144. AGGREGATE FOR GROUT ASTM C404.
6. ALL MASONRY GROUT SHALL CONFORM TO ASTM C 476, SPECIFIED BY PROPORTION, AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,000 P.S.I. (⅜" MAX. AGGREGATE SIZE).
7. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A-615 GRADE-60. WELDING OF REINFORCING STEEL SHALL CONFORM TO ANSI/AWS D1.4-11.
8. ALL CORES WITH REINFORCEMENT SHALL BE FILLED SOLID WITH GROUT.
9. CONTINUOUS WIRE JOINT REINFORCING SHALL BE GALVANIZED FABRICATED UNITS WITH 9 GAGE SIDE RODS AND 9 GAGE CROSS RODS FABRICATED FROM COLD-DRAWN STEEL WIRE COMPLYING WITH ASTM A82. USE TRUSS TYPE AT NON-VERTICALLY REINFORCED WALLS AND LADDER TYPE AT VERTICALLY REINFORCED WALLS. PREFABRICATED CORNERS & TEES SHALL BE USED FOR ALL INTERSECTING WALLS.
10. ALL INTERSECTING MASONRY WALLS AND PILASTERS SHALL BE IN RUNNING BOND WITH AT LEAST 50% OF THE MASONRY UNITS INTERLOCKING AT THE INTERFACE.
11. LAY MASONRY UNITS WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS. BED WEBS IN MORTAR IN STARTING COURSE ON FOOTING AND IN ALL COURSES OF COLUMN AND PILASTERS, AND WHERE ADJACENT TO CELLS OR CAVITIES TO BE REINFORCED OR FILLED WITH CONCRETE OR GROUT.
12. MISCELLANEOUS:
    ..a. CONSOLIDATE GROUT BY MECHANICAL VIBRATION AT TIME OF PLACEMENT AND RECONSOLIDATE BY MECHANICAL VIBRATION AFTER THE INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.
    ..b. MAX. GROUT POUR HEIGHT SHALL BE AS PER PAGE S-77(TABLE 6) OF TMS 402-16.
    ..c. CORRECT LOCATION OF THE VERTICAL REINFORCING STEEL MUST BE MAINTAINED BY THE USE OF VERTICAL BAR POSITIONERS PLACED AT THE TOP OF 1st COURSE AND COURSE BELOW TOP OF WALL W/ A MAXIMUM OF 6'-0" BETWEEN POSITIONERS.
    ..d. FILL CORE SOLID AROUND ANCHOR BOLTS, EMBEDDED STEEL AND REINFORCING.
    ..e. PROVIDE JOINT REINFORCING AT 16" EXCEPT AS NOTED. BOND BEAM REINFORCEMENT SHALL BE STOPPED EITHER SIDE OF VERTICAL CONTROL JOINTS.
    ..f. PROVIDE 100% SOLID BEARING, MINIMUM 3 COURSES (24") UNDER BEAMS AND WIDE FLANGE LINTELS, 1 COURSE (8") UNDER ANGLE LINTELS AND STEEL LINTELS UNLESS DETAILED OTHERWISE.
    ..g. LAP ALL SPLICES AS FOLLOWS:
        #3 - 16"
        #4 - 24"
        #5 - 28"
        #6 - 40"
        #7 - 46"

E. WOOD FRAMING

1. QUALITY AND CONSTRUCTION OF WOOD FRAMING MEMBERS AND THEIR FASTENERS FOR LOAD SUPPORTING PURPOSES NOT OTHERWISE INDICATED ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH THE OHIO BUILDING CODE.
2. ALL WOOD SHALL CONFORM TO THE NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION, NDS (2018 EDITION) AND THE 2024 OHIO BUILDING CODE CHAPTER 23.
3. TREATED BOTTOM PLATES WHERE THERE IS CONTACT WITH MASONRY.
4. JOISTS, RAFTERS, STUDS & HEADERS-(SPF, NO.1/NO.2, DOUGLAS FIR OR SOUTHERN PINE), DESIGN VALUES SHALL EQUAL OR EXCEED THE FOLLOWING:
   ..a. Fb: 875 P.S.I.
   ..b. Fv: 135 P.S.I.
   ..c. E: 1,400,000 P.S.I.
5. NAILING OF ALL FRAMING MEMBERS SHALL MEET THE RECOMMENDED NAILING SCHEDULE (TABLE 2304.10.2) CONTAINED IN THE OBC, CHAPTER 23.
6. ERECTION PLANS FOR ALL TRUSSES SHALL BE SUBMITTED FOR REVIEW WITH SHOP DRAWINGS PRIOR TO FABRICATION. ERECTION PLANS SHALL INCLUDE HOW AND WHERE THE PERMANENT BRIDGING WILL BE INSTALLED. SHOP DRAWINGS SHALL BE SEALED BY A PROFESSIONAL ENGINEER OF OHIO REGISTRATION. TEMPORARY AND PERMANENT BRIDGING AND BRACING OF WOOD ROOF AND FLOOR TRUSSES SHALL BE IN ACCORDANCE WITH THE TRUSS INSTITUTE, INC. TEMPORARY BRIDGING SHALL BE FURNISHED AS REQUIRED TO MAINTAIN TRUSS STABILITY, SPACING AND TO PREVENT BUCKLING DURING ERECTION. LIVE LOAD DEFLECTION FOR FLOOR TRUSSES IS LIMITED TO L/480 AND TOTAL LOAD DEFLECTION L/360.
7. PRE-ENGINEERED WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE TRUSS PLATE INSTITUTE'S NATIONAL DESIGN STANDARD FOR METAL-PLATE CONNECTED WOOD TRUSS CONSTRUCTION (ANSI/TPI-1 LATEST EDITION). TRUSSES SHALL BE DESIGNED AND MANUFACTURED BY AN AUTHORIZED MEMBER OF THE WOOD TRUSS COUNCIL OF AMERICA (WTCA). TRUSS DESIGN SHALL CONFORM TO SPECIFIED CODES, ALLOWABLE STRESS INCREASES, DEFLECTION LIMITATIONS, AND OTHER APPLICABLE CRITERIA OF THE GOVERNING CODE.
8. CONNECT ROOF TRUSSES TO TOP PLATE WITH A SIMPSON "HI" TIE UNLESS NOTED OTHERWISE.
9. NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED UNLESS SPECIFICALLY SHOWN, NOTED OR APPROVED.
10. SHEATHING:
    EXTERIOR WALL SHEATHING: 40/20 APA RATED ½" PLYWOOD ROOF SHEATHING EXPOSURE 1.
    24/16 APA RATED ⅜" PLYWOOD WALL SHEATHING EXPOSURE 1.
    ALL SHEATHING TO BE NAILED WITH 8d COMMON NAILS AT 6" ON CENTER AT PANEL EDGES AND 12" ON CENTER AT INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE. PROVIDE SOLID BLOCKING TO MATCH WALL STUD SIZE AT ALL FREE EDGES OF WALL SHEATHING AND NAIL w/ 8d COMMON NAILS AT 6" O.C.
11. BOLTS HOLES SHALL BE 1/16" MAXIMUM LARGER THAN THE BOLT SIZE. RE-TIGHTEN ALL NUTS PRIOR TO CLOSING IN.
12. 2x2x3/16 PLATE WASHERS SHALL BE USED UNDER BOLT HEADS AND NUTS AGAINST WOOD.
13. SERVICE CONDITION - DRY WITH MOISTURE CONTENT AT OR BELOW 19% IN SERVICE.
14. CONTRACTOR SHALL COORDINATE TRUSS LAYOUT FOR OPENINGS AND PENETRATIONS REQUIRED BY OTHER TRADES INCLUDING FOR PLUMBING, HVAC, ELECTRICAL, ROOF ACCESS HATCHES, CHASES, ETC.
15. DRYWALL CLIPS OR 2X LADDER BLOCKING AT 24" O/C SHALL BE USED AT CORNER FRAMING AND INTERIOR WALL INTERSECTIONS

F. SUBMITTALS

1. THE GENERAL CONTRACTOR SHALL SUBMIT FOR ENGINEER REVIEW SHOP DRAWINGS FOR THE FOLLOWING ITEMS:

   CONCRETE DESIGN MIX

ITEMS MARKED (*) SHALL HAVE SHOP DRAWINGS SEALED BY A REGISTERED ENGINEER IN THE STATE WHERE THE PROJECT IS LOCATED. ITEMS MARKED (^) SHALL HAVE CALCULATIONS PREPARED BY A REGISTERED ENGINEER.

2. ALL SHOP DRAWINGS MUST BE REVIEWED AND SEALED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL.
3. CONTRACTOR SHALL SUBMIT ELECTRONIC COPIES (E.G. PDFS) OF ALL SHOP DRAWINGS SPECIFIED TO BE RETURNED BY THE ENGINEER.
4. THE OMISSION FROM THE SHOP DRAWINGS OF ANY MATERIAL REQUIRED BY THE CONTRACT DOCUMENTS TO BE FURNISHED SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF FURNISHING AND INSTALLING SUCH MATERIALS, REGARDLESS OF WHETHER THE SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED.
5. SUBMIT TWO COPIES OF MANUFACTURER'S LITERATURE FOR ALL MATERIALS AND PRODUCTS USED IN CONSTRUCTION ON THE PROJECT.
6. THE USE OF REPRODUCTIONS OF THESE CONTRACT DOCUMENTS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREIN AS CORRECT, AND OBLIGATE HIMSELF TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS THAT MAY OCCUR HEREIN.

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PROGRESS NOT FOR CONSTRUCTION
3/10/2025

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BATH TOWNSHIP
1826

NORTH FORK PRESERVE BARN RENOVATION
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PROJECT # 2324

ISSUE:

SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

GENERAL NOTES

S10.1

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Power Notes March 15, 2023

SPECIAL INSPECTIONS

1. SPECIAL INSPECTION IS TO BE PROVIDED IN ADDITION TO THE INSPECTIONS CONDUCTED BY THE DEPARTMENT OF BUILDING SAFETY AND SHALL NOT BE CONSTRUED TO RELIEVE THE OWNER OR HIS AUTHORIZED AGENT FROM REQUESTING THE PERIODIC AND CALLED INSPECTIONS REQUIRED BY THE BUILDING CODE. SPECIAL INSPECTION SHALL BE PAID BY OWNER.

REQUIRED SPECIAL INSPECTIONS

1. IN ADDITION TO THE REGULAR INSPECTIONS, THE FOLLOWING ITEMS WILL ALSO REQUIRE SPECIAL INSPECTION ACCORDANCE WITH THE BUILDING CODE.

   A. STRUCTURAL STEEL ELEMENTS OF BUILDINGS AND STRUCTURES AS REQUIRED BY OBC SECTION 1705.2 AND TABLE 1705.2.3, EXCEPT AS ALLOWED IN OBC SECTION 1704.2.

   B. CONCRETE CONSTRUCTION AS REQUIRED BY OBC SECTION 1705.3 AND TABLE 1705.3, EXCEPT AS ALLOWED IN OBC SECTION 1704.2.

   C. MASONRY CONSTRUCTION AS REQUIRED BY OBC SECTION 1705.4, LEVEL 1 SPECIAL INSPECTION, EXCEPT ALLOWED IN OBC SECTION 1704.2.

   D. SPECIAL INSPECTION FOR EXISTING SITE SOIL CONDITIONS. DURING SITE PREPARATION AND FILL PLACEMENT, TO ENSURE LOAD-BEARING REQUIREMENTS IN COMPLIANCE WITH OBC SECTION 1705.6 EXCEPT AS ALLOWED IN OBC SECTION 1704.2.

   E. SPRAYED FIRE-RESISTANT MATERIALS AS REQUIRED BY SECTION 1705.15.

   F. EFIS SYSTEM AS PER SECTION 1705.17.

   G. SPECIAL CASES AS DEEMED NECESSARY BY BUILDING OFFICIAL IN COMPLIANCE WITH OBC SECTION 1705.1.1.

2. SPECIAL INSPECTOR SHALL MEET THE QUALIFICATIONS AS STATED IN THE BUILDING CODE AND SHALL PERFORM THE DUTIES AND RESPONSIBILITIES AS OUTLINED IN THE BUILDING CODE.

3. SPECIAL INSPECTION SHALL MEET THE REQUIREMENTS OF OBC SECTION 1704. SPECIAL INSPECTORS(S) SHALL BE HIRED BY THE OWNER TO PERFORM THE REQUIRED SPECIAL INSPECTIONS. THE NAMES OF PERSONS OR FIRMS WHO ARE TO PERFORM THE SPECIAL INSPECTIONS SHALL BE FORWARDED TO THE BUILDING OFFICIAL FOR APPROVAL. THE SPECIAL INSPECTOR(S) SHALL COMPLETE AND SUBMIT ALL FORMS REQUIRED BY THE BUILDING DEPARTMENT HAVING JURISDICTION.

4. THE SPECIAL INSPECTOR(S) SHALL:

   A. OBSERVE THE WORK ASSIGNED FOR CONFORMANCE TO THE APPROVED DRAWING AND SPECIFICATIONS.

   B. FURNISH INSPECTION REPORTS TO THE ENGINEER OF RECORD AND BUILDING DEPARTMENT. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. THEN IF NOT CORRECTED, TO THE ENGINEER AND THE BUILDING DEPARTMENT.

   C. SUBMIT TO THE ENGINEER OF RECORD AND THE BUILDING DEPARTMENT A SIGNED FINAL REPORT STATING THAT THE WORK WAS IN CONFORMANCE WITH THE APPROVED DRAWINGS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE OBC.

5. SPECIAL INSPECTION NOTES:

   A. CONTINUOUS SPECIAL INSPECTION IS ALWAYS REQUIRED DURING THE PERFORMANCE OF THE WORK UNLESS SPECIFICALLY NOTED BELOW.

   B. WHERE FABRICATION OF STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES IS BEING PERFORMED ON THE PREMISES OF A FABRICATOR'S SHOP. CONTINUOUS SPECIAL INSPECTION IS REQUIRED DURING THE PERFORMANCE OF THE WORK EXCEPT AS ALLOWED IN OBC SECTION 1704.2.5.1 AND UNLESS SPECIFICALLY NOTED BELOW.

   C. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE SPECIAL INSPECTOR(S) WITH ADVANCE NOTICE, NO LESS THAN ONE WORKING DAY, OF THE INITIATION OF ANY WORK REQUIRED TO HAVE SPECIAL INSPECTIONS. ALL WORK PERFORMED WITHOUT REQUIRED SPECIAL INSPECTION WILL BE SUBJECT TO REMOVAL.

STRUCTURAL SPECIAL INSPECTION SCHEDULE: SOILS

VERIFICATION AND INSPECTION TASK	APPLICABLE TO THIS PROJECT?	FREQUENCY		REFERENCED STANDARD	CODE REFERENCE
		CONTINUOUS	PERIODIC		
VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	X	-	X	-	1704.7
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	X	-	X	-	1704.7
PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS.	X	-	X	-	1704.7
DURING FILL PLACEMENT, VERIFY USE OF PROPER MATERIALS AND PROCEDURES IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT. VERIFY DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL.	X	X	-	-	1704.7
PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	X	-	X	-	1704.7

STRUCTURAL SPECIAL INSPECTION SCHEDULE: CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION TASK	APPLICABLE TO THIS PROJECT?	FREQUENCY		REFERENCED STANDARD	CODE REFERENCE
		CONTINUOUS	PERIODIC		
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	X	-	X	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	-
2. REINFORCING BAR WELDING:	-	-	-	AWS D1.4 ACI 318: 26.6.4	-
a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	-	-	X		
b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM $\frac{5}{16}$"	-	-	X		
c. INSPECT ALL OTHER WELDS	-	X	-		
3. INSPECT ANCHORS CAST IN CONCRETE	X	-	X	ACI 318 Ch. 17.8.2	-
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS	-	-	-	-	-
a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	-	X	-	ACI 318 Ch. 17.8.2.4	-
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	X	-	X	ACI 318 Ch. 17.8.2	-
5. VERIFY USE OF REQUIRED DESIGN MIX.	X	X	-	ACI 318 Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	X	-	ASTM C31, C172 ACI 318: 26.5, 26.12	-
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	X	-	ACI 318 Ch. 26.5.3-26.5.5	-
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	X	-	X	ACI 318 Ch. 26.5.3-26.5.5	-
9. INSPECT PRESTRESSED CONCRETE FOR:	-	-	-	ACI 318 Ch. 26.10	-
a. APPLICATION OF PRESTESSING FORCES	-	X	-		
b. GROUTING OF BONDED PRESTRESSING TENDONS	-	X	-		
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	-	-	X	ACI 318 Ch. 26.9	-
11. FOR PRECAST CONCRETE DIAPHRAGM CONNECTIONS OR REINFORCEMENT AT JOINTS CLASSIFIED AS MODERATE OR HIGH DEFORMABILITY ELEMENTS (MDE OR HDE) IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E, OR F, INSPECT SUCH CONNECTIONS AND REINFORCEMENT IN THE FIELD FOR:	-	-	-	ACI 318 Ch. 26.13.1.3	-
A. INSTALLATION OF THE EMBEDDED PARTS	-	X	-	ACI 318 Ch. 26.13.1.3	-
B. COMPLETION OF THE CONTINUITY OF REINFORCEMENT ACROSS JOINTS	-	X	-		
C. COMPLETION OF CONNECTIONS IN THE FIELD	-	X	-		
12. INSPECT INSTALLATION TOLLERANCES OF PRECAST CONCRETE DIAPHRAGM CONNECTIONS FOR COMPLIANCE WITH ACI 550.5	-	-	X	ACI 318 Ch. 26.13.1.3	-
13. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	-	-	X	ACI 318 Ch. 26.11.2	-
14. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	X	-	X	ACI 318 Ch. 26.11.1.2(b)	-

REQUIRED VERIFICATION & INSPECTION OF WOOD FRAMING

APPLICABLE TO THIS PROJECT	VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC
X	1. VERIFY LUMBER GRADE - VISUAL	--	X
X	2. SHEAR WALL NAILING PATTERNS - VISUAL	--	X
X	3. LIGHT GAGE METAL CONNECTIONS - VISUAL	--	X
X	4. SHEAR WALL HOLD DOWN ANCHORS - VISUAL	X	--

MINIMUM VERIFICATION REQUIREMENTS

MINIMUM VERIFICATION	REQUIRED FOR QUALITY ASSURANCE			TMS 602
	LEVEL 1	LEVEL 2	LEVEL 3	
1. PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS.	X	X	X	ART. 1.5
2. PRIOR TO CONSTRUCTION, VERIFICATION OF f'_m AND f'_{AAC} EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE.	-	X	X	ART. 1.4 B
3. DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE.	-	X	X	ART. 1.5, 1.6.3
2. DURING CONSTRUCTION, VERIFICATION OF f'_m AND f'_{AAC} FOR EVERY 5,000 SQ. FT. (465 SQ. M)	-	-	X	ART. 1.4 B
3. DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR, PRESTRESSING GROUT, ANDGROUT OTHER THAN SELF-CONSOLIDATING GROUT.	-	-	X	ART. 1.4 B

STRUCTURAL SPECIAL INSPECTION SCHEDULE: MASONRY CONSTRUCTION

VERIFICATION AND INSPECTION TASK	APPLICABLE TO THIS PROJECT?	FREQUENCY[A]			TMS 402	TMS 602
		LEVEL 1	LEVEL 2	LEVEL 3		
4. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:						
A. PROPORTIONS OF SITE PREPARED MORTAR	-	-	P	P		ART. 2.1, 2.6 A, 2.6 C
B. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES.	-	-	P	P		ART. 2.4 B, 2.4 H
C. GRADE, TYPE, AND SIZE OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES.	X	-	P	P		ART. 3.4, 3.6 A
D. PRESTRESSING TECHNIQUE.	-	-	P	P		ART. 3.6 B
E. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	-	-	C[B]/P[C]	C		ART. 2.1 C.1
F. SAMPLE PANEL CONSTRUCTION	-	-	P	C		ART. 1.6 D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:						
A. GROUT SPACE	X	-	P	C		ART. 3.2 D, 3.2 F
B. PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES	-	-	P	P	SEC. 10.8, 10.9	ART. 2.4, 3.6
C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	X	-	P	C	SEC. 6.1, 6.3.1, 6.3.6, 6.3.7	ART. 3.2 E, 3.4
D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	-	-	P	P		ART. 2.6 B, 2.4 G.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:						
A. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	X	-	P	P		ART. 1.5
B. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	X	-	P	P		ART. 3.3 B
C. SIZE AND LOCATION OF STRUCTURAL MEMBERS	X	-	P	P		ART. 3.3 F
D. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	X	-	P	C	SEC. 1.2.1(e), 6.2.1, 6.3.1	
E. WELDING OF REINFORCEMENT	-	-	C	C	SEC. 6.1.6.1.2	
F. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40° F (4.4° C)) OR HOT WEATHER (TEMPERATURE ABOVE 90° F (32.2° C))	-	-	P	P		ART. 1.8 C, 1.8 D
G. APPLICATION AND MEASURING OF PRESTRESSING FORCE	-	-	C	C		ART. 3.6 B
H. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	-	-	C	C		ART. 3.5, 3.6 C
I. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	-	-	C[B]/P[C]	C		ART. 3.3 B.9, 3.3 F.1.b
4. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	-	-	P	C		ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4

(A) FREQUENCY REFERS TO THE FREQUENCY OF INSPECTION, WHICH MAY BE CONTIUOUS DURING THE LISTED TASK OR PERIODICALLY DURING THE LISTED TASK, AS DEFINED IN THE TABLE.
- = NOT REQUIRED, P = PERIODIC, C= CONTINUOUS

(B) REQUIRED FOR THE FIRST 5000 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY

(C) REQUIRED AFTER THE FIRST 5000 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY

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BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION
4400 EVERETT ROAD, AKRON, OH 44333

PROJECT # 2324

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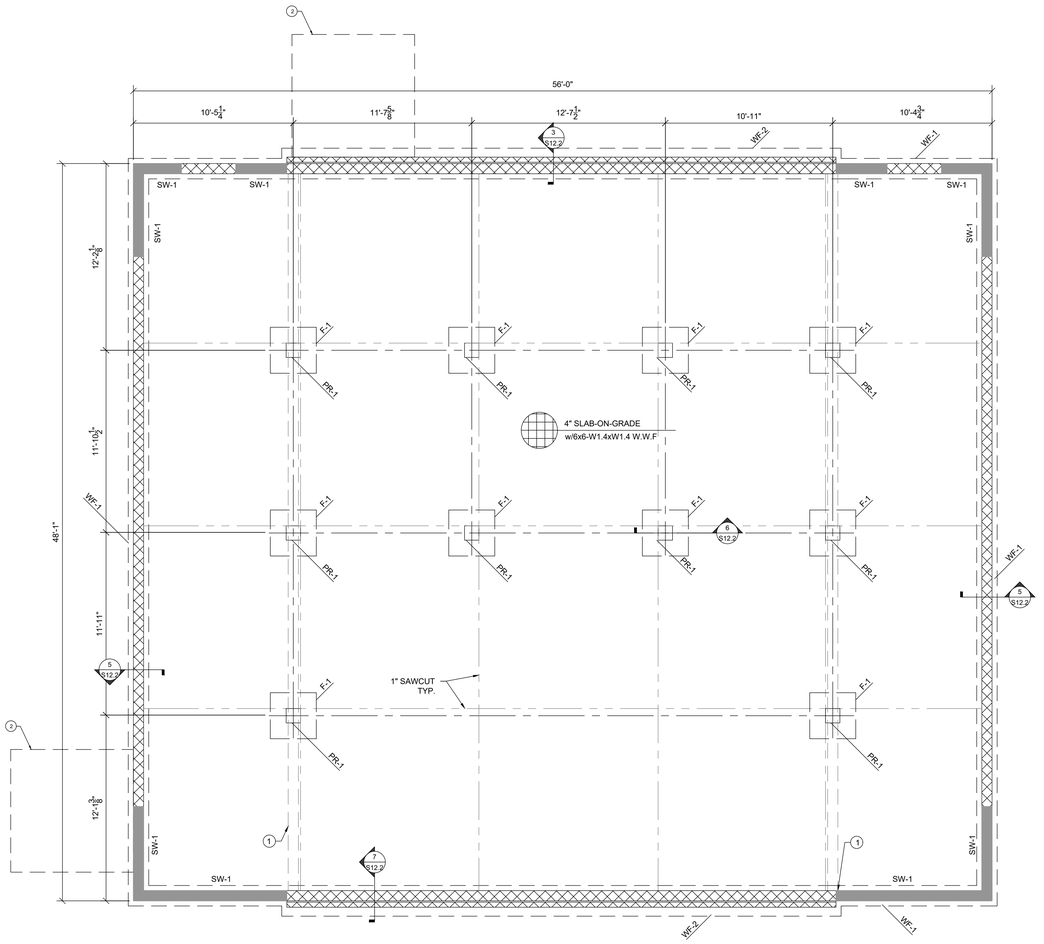
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SPECIAL INSPECTIONS

S10.2

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1 FOUNDATION PLAN
S11.1 1/4" = 1'-0"

FOOTING SCHEDULE				
MARK	SIZE			REINFORCEMENT
	L	W	T	
WF-1	-	1'-4"	1'-0"	(3) #4 CONT.
WF-2	-	2'-0"	1'-0"	(3)#4 CONT.
F-1	3'-0"	3'-0"	1'-0"	(4) #4 EW

PIER SCHEDULE			
MARK	TYPE	SIZE	REINF.
PR-1	SANDSTONE	1'-4"x1'-4"x2'-4"	(1)#4 DOWEL

FOUNDATION NOTES:

1. CONTRACTOR SHALL COORDINATE ALL DIMENSIONS AND ELEVATIONS w/ ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
2. DIMENSIONS SHOWN ARE TO OUTSIDE FACE OF MASONRY
3. FOR ADDITIONAL INFORMATION AND REQUIREMENTS, SEE TYPICAL DETAILS AND GENERAL NOTES.
4. SAWCUT JOINTS IN SLAB-ON-GRADE SHALL BE MADE AFTER CONCRETE HAS TAKEN INITIAL SET BEFORE CONCRETE SHRINKAGE STRESSES ARE INCURRED. SAWCUTS SHALL BE PLACE @ MAX. 12'-0" o/c SPACING.
5. ELEVATIONS MEASURED FROM FINISHED FLOOR = 0'-0"
6. CONTRACTOR TO FIELD VERIFY DIMENSIONS. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING NECESSARY FOR RAISING AND SETTING BARN ON NEW FOUNDATIONS. CONTRACTOR RESPONSIBLE FOR RAISING STRUCTURE SHALL COORDINATE WITH FOUNDATION CONTRACTOR ON ALL FINAL DIMENSIONS

(1) EXISTING FOOTING AND FOUNDATION WALL MAY REMAIN IN PLACE BELOW LEVEL OF COMPACTED BACKFILL FOR SLAB.

(2) INDICATES LOCATION OF NEW FROST SLAB.

TOP OF INT. FTG = -0" -8" UNO
TOP OF PIER = +1" -8" UNO
TOP OF EXT. FTG = -3" -0" UNO

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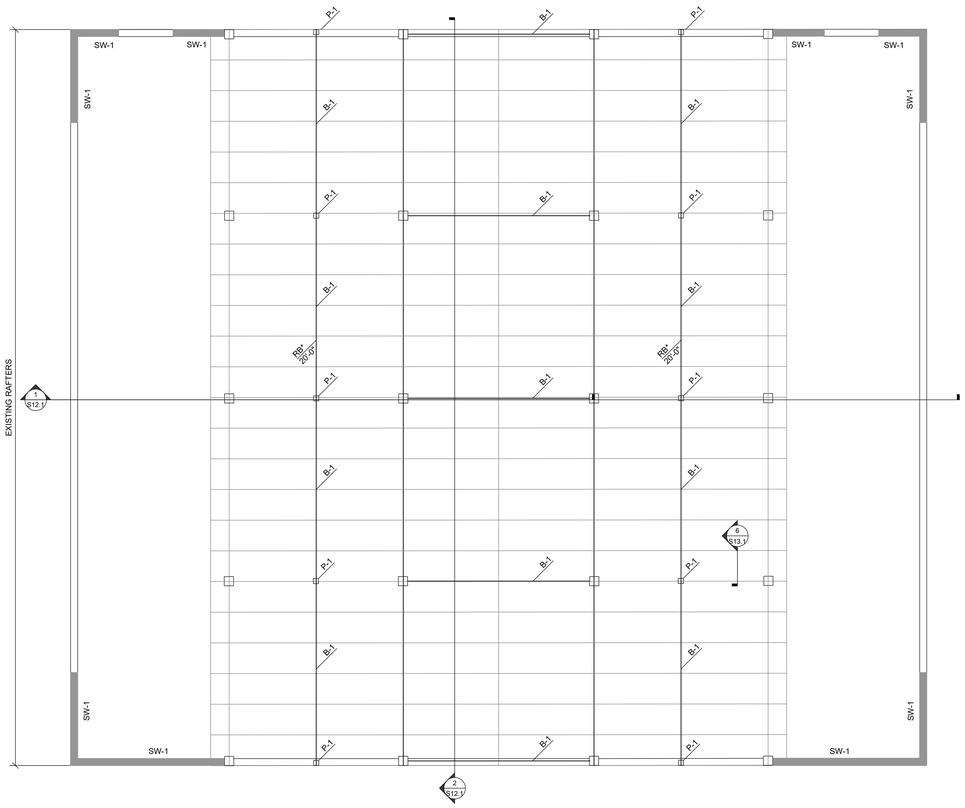
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FOUNDATION PLAN

S11.1

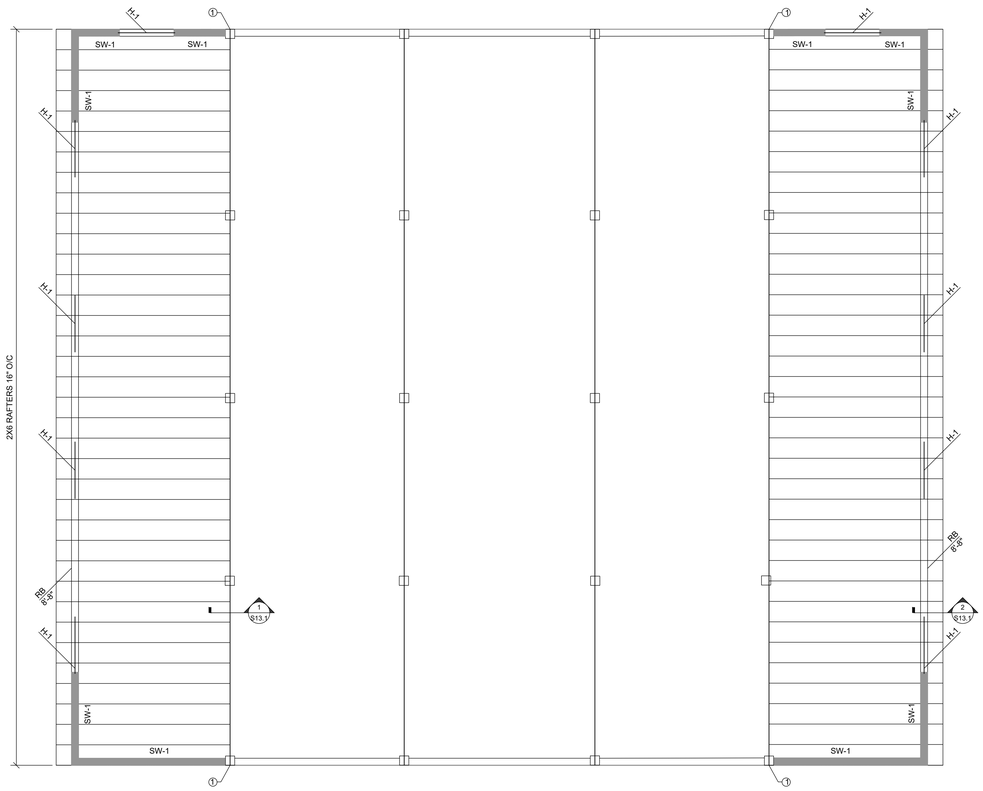
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1 S11.2 UPPER ROOF FRAMING PLAN

1/4" = 1'-0"



2 S11.2 LOWER ROOF FRAMING PLAN

1/4" = 1'-0"

POST SCHEDULE	
MARK	SIZE
P-1	4X4

BEAM SCHEDULE	
MARK	SIZE
B-1	4X8

HEADER SCHEDULE			
MARK	HEADER SIZE	JACK STUDS	KING STUDS
H-1	(3)-2x6	1	1

FRAMING NOTES:

1. SEE S10.1 & S10.2 FOR STRUCTURAL NOTES & SPECIAL INSPECTIONS
2. COORDINATE ALL OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
3. SEE S12.1, S12.2 & S13.1 FOR TYPICAL DETAILS & SECTIONS.
4. PROVIDE SIMPSON H1 TIE ON ALL RAFTERS TO PREVENT WIND UPLIFT.
5. SEE ARCHITECTURAL DRAWINGS FOR ROOF ELEVATIONS AND SLOPES.
6. ELEVATIONS MEASURED FROM FINISHED FLOOR = 0'-0". DIMS MARKED * TO BE FIELD VERIFIED BY CONTRACTOR
7. EXISTING 4X8 TIMBERS WHICH ARE TO BE REMOVED DURING DEMOLITION MAY BE SALVAGED AND RE-USED. RE-USED TIMBERS MUST BE FREE OF STRUCTURAL DEFECTS OR DAMAGE.

RB = RAFTER BEARING ELEVATION

① STRAP SHEAR WALL TO EXISTING BARN, SEE DTL 10/S13.1

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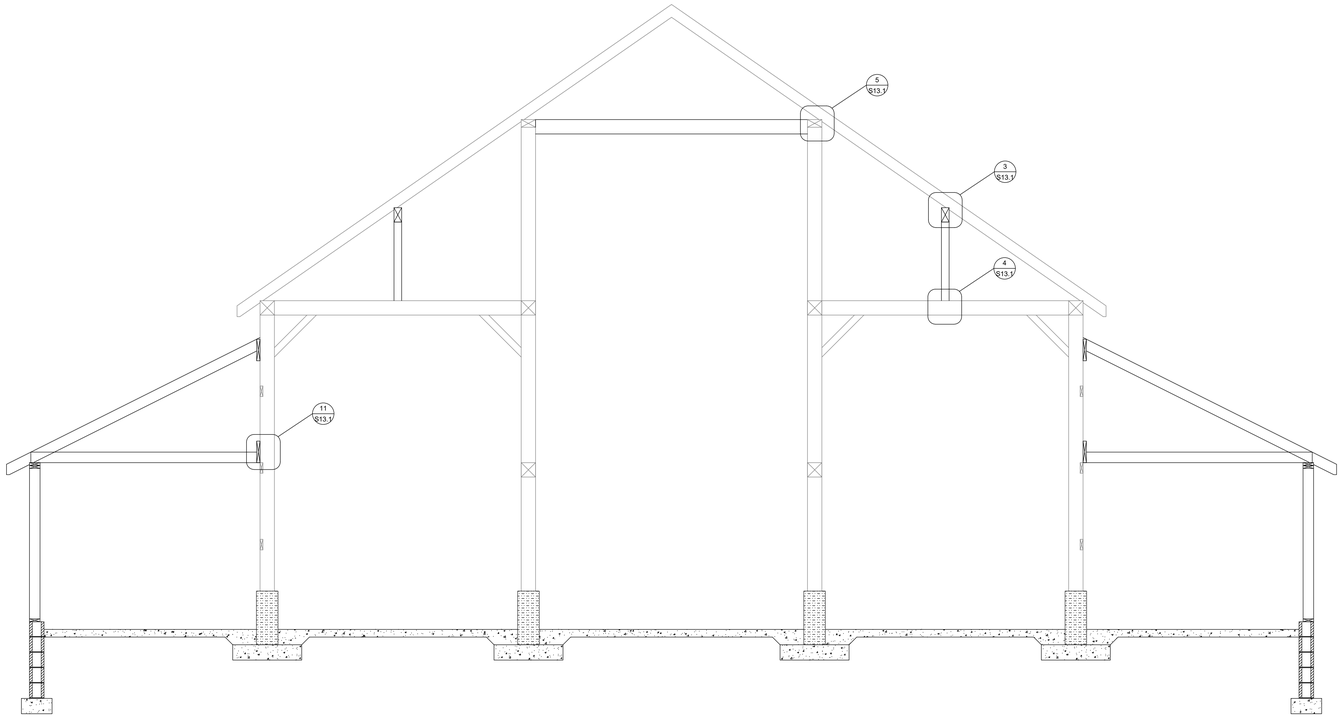
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ROOF FRAMING PLANS

S11.2

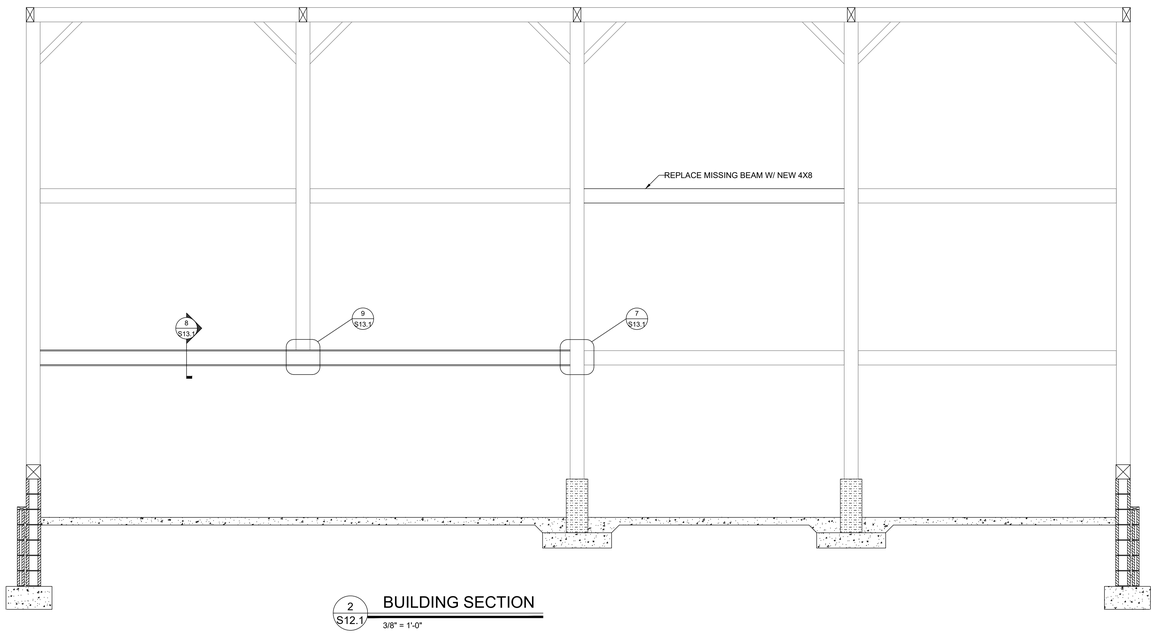
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1 S12.1 BUILDING SECTION

3/8" = 1'-0"



2 S12.1 BUILDING SECTION

3/8" = 1'-0"

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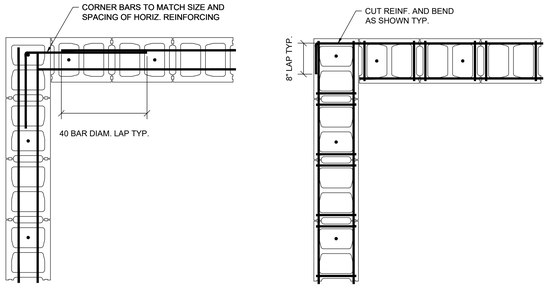
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BUILDING SECTIONS

S12.1

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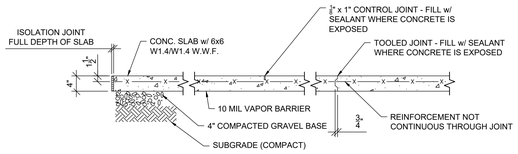
TWO LAYER REINFORCING

LADDER-TYPE JOINT REINFORCEMENT

TYPICAL CORNER REINFORCING FOR MASONRY WALLS

1 S12.2 PLAN DETAIL

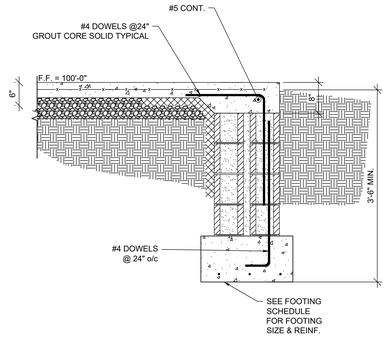
3/4" = 1'-0"



2 S12.2 4" SLAB JOINT DETAILS

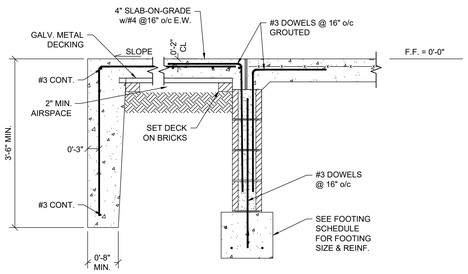
3/4" = 1'-0"

NOTES:
1. CONSTRUCTION JOINTS SHALL BE LOCATED AT THE END OF ANY SINGLE POUR.
2. CONSTRUCTION JOINT MAY REPLACE A CONTROL JOINT.
3. PROVIDE ISOLATION JOINTS AT THE FACE OF ALL COLUMNS, WALLS, PIERS AND ADJACENT CONSTRUCTION.
4. SPACING OF CONTROL JOINTS SHALL BE BETWEEN 8' TO 12' o/c. SEE PLAN.



3 S12.2 SECTION AT OVERHEAD DOOR

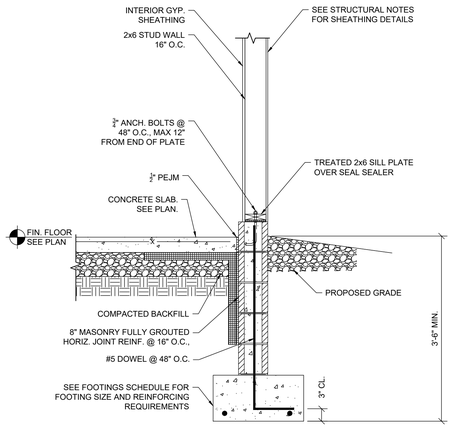
3/4" = 1'-0"



4 S12.2 FROST SLAB DETAIL

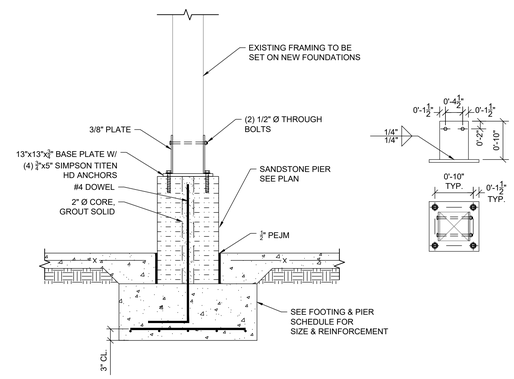
3/4" = 1'-0"

SEE ARCHITECTURAL PLAN FOR EXACT DIMENSIONS OF FROST SLAB.



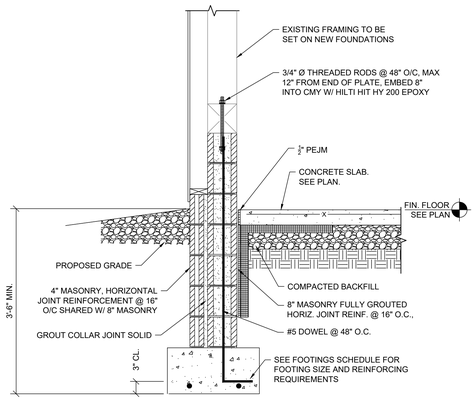
5 S12.2 FOUNDATION SECTION

3/4" = 1'-0"



6 S12.2 PIER SECTION

3/4" = 1'-0"



7 S12.2 FOUNDATION SECTION

3/4" = 1'-0"

SHEAR WALL SCHEDULE

MARK	LEVEL	SHEATHING							END STUDS	HOLD DOWN/FLOOR TIES				
		THICKNESS	TYPE	SIDE	BLOCKED	FASTENERS	EDGE SPACING	FIELD SPACING		LEVEL	TYPE	FASTENERS	ANCHOR ROD	EMBEDMENT
SW-1	1	7/16"	PLYWOOD	ONE	YES	8d NAILS	4" o/c	12" o/c	(2)-2x	1	HD3B	(2) 5/8" Ø BOLTS	5/8"	8"

NOTES:
- EXTERIOR SHEATHING IS 7/16" PLYWOOD SHEATHING.
- SHEATHING REQUIREMENTS ARE FOR STRUCTURAL ONLY. SEE ARCHITECTURAL FOR COMPLETE WALL ASSEMBLY
- SHEATHING AND GYP BOARD MUST BE ATTACHED DIRECTLY TO STUDS
- ALL EDGES OF PANELS MUST BE ON THE SAME STUD AS ADJACENT PANEL
- END JOINTS OF PANELS SHALL NOT OCCUR AT THE SAME STUD (STAGGER PANELS)
- MAXIMUM STUD SPACING SHALL BE 16" o/c
- HOLD DOWNS ARE BY SIMPSON COMPANY OR EQUAL. HOLDDOWN STUD FASTENERS ARE SIMPSON PROPRIETARY FASTENERS.
- FASTENERS ALONG THE EDGES IN SHEAR PANELS SHALL BE PLACED IN FROM PANEL EDGES NOT LESS THAN 3/8" INCHES
- PANELS LESS THAN 12 INCHES WIDE SHALL NOT BE USED. UNLESS NOTED, ALL SHEATHING EDGES SHALL BE ATTACHED TO FRAMING MEMBERS OR BLOCKING.
- BOUNDARY STUDS AT THE END OF THE SHEAR WALLS SHALL BE ATTACHED PER THE MINIMUM NAILING REQUIREMENTS
- THE WIDTH OF THE NAILED FACE OF FRAMING MEMBERS AND BLOCKING SHALL BE 2" NOMINAL OR GREATER.
- BLOCKING AND FRAMING MEMBERS SHALL BE 3" NOMINAL AND NAILING SHALL BE STAGGERED AT THE FOLLOWING CONDITIONS:
  - --- NAIL SPACING OF 2" ON CENTER AT ADJOING PANEL EDGES IS SPECIFIED
  - --- 10d COMMON NAILS HAVING PENETRATION INTO FRAMING MEMBERS AND BLOCKING OF MORE THAN 1-1/2" ARE SPECIFIED AT 3" ON CENTER OR LESS AT PANEL EDGES

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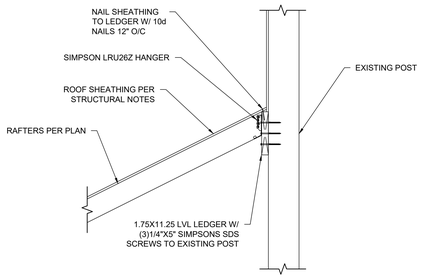
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FOUNDATION DETAILS

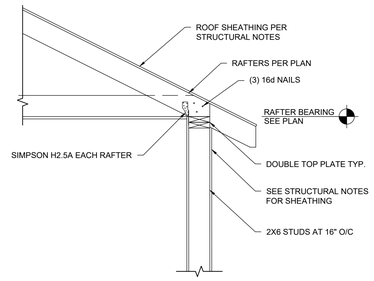
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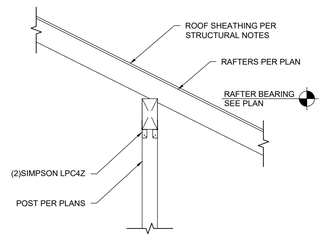
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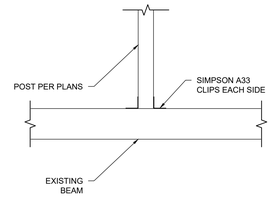
1 S13.1 FRAMING DETAIL
3/4" = 1'-0"



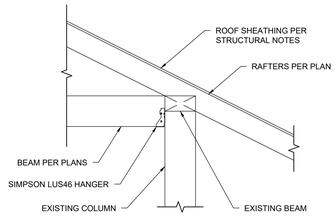
2 S13.1 FRAMING DETAIL
3/4" = 1'-0"



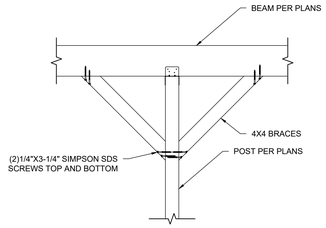
3 S13.1 FRAMING DETAIL
3/4" = 1'-0"



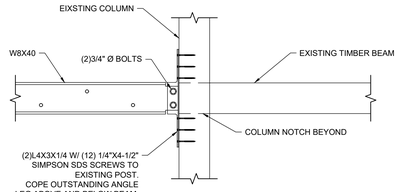
4 S13.1 FRAMING DETAIL
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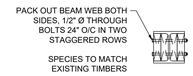
5 S13.1 FRAMING DETAIL
3/4" = 1'-0"



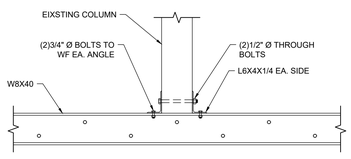
6 S13.1 FRAMING DETAIL
3/4" = 1'-0"



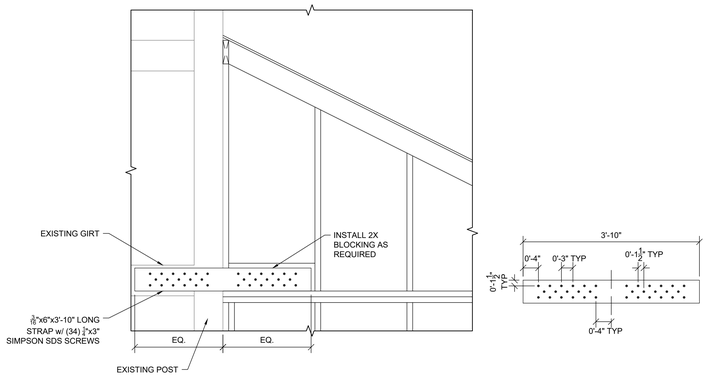
7 S13.1 FRAMING DETAIL
3/4" = 1'-0"



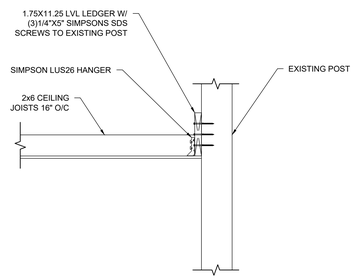
8 S13.1 FRAMING DETAIL
3/4" = 1'-0"



9 S13.1 FRAMING DETAIL
3/4" = 1'-0"



10 S13.1 FRAMING DETAIL
3/4" = 1'-0"



11 S13.1 FRAMING DETAIL
3/4" = 1'-0"

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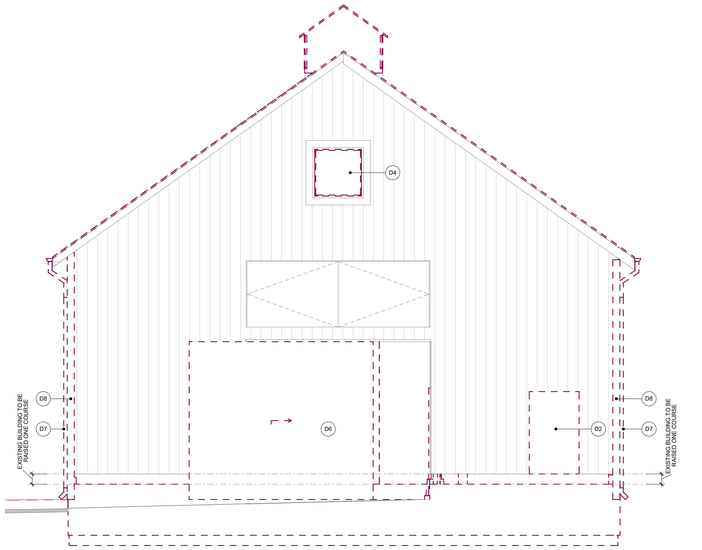
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FRAMING DETAILS

S13.1

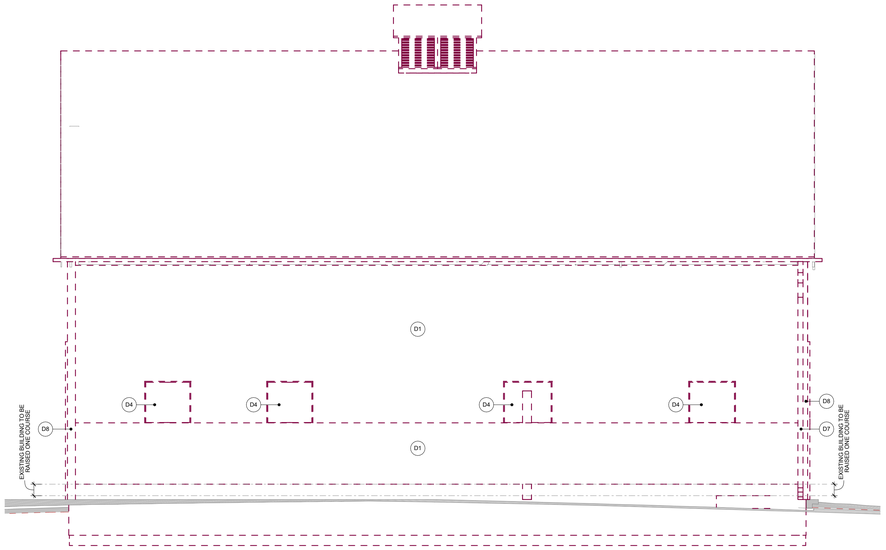
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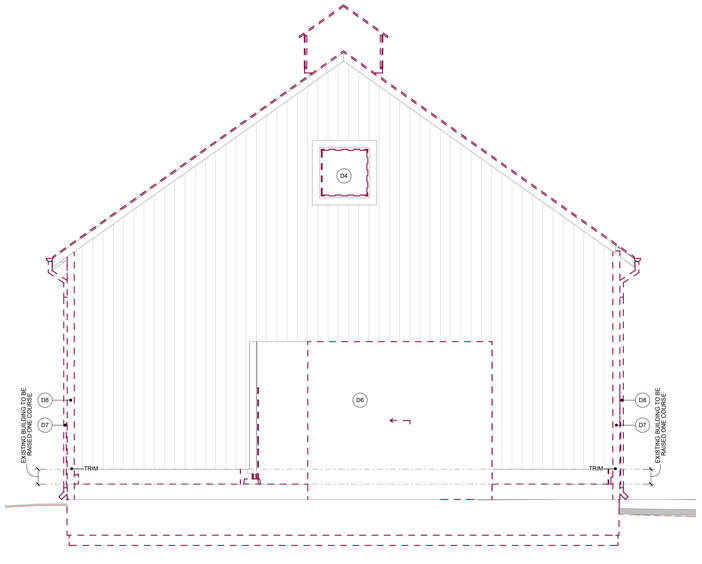
1 WEST DEMOLITION ELEVATION (FRONT OF BARN)

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



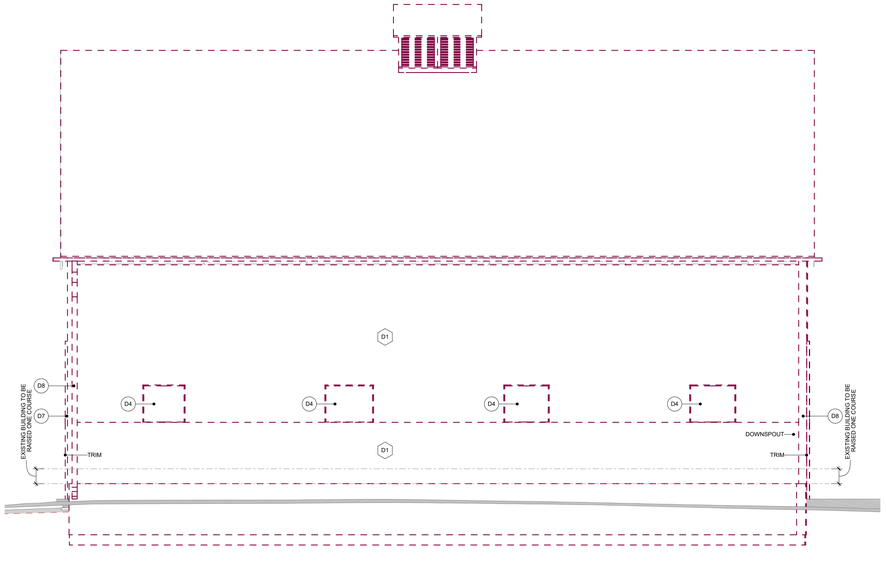
2 NORTH DEMOLITION ELEVATION (SIDE OF BARN)

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



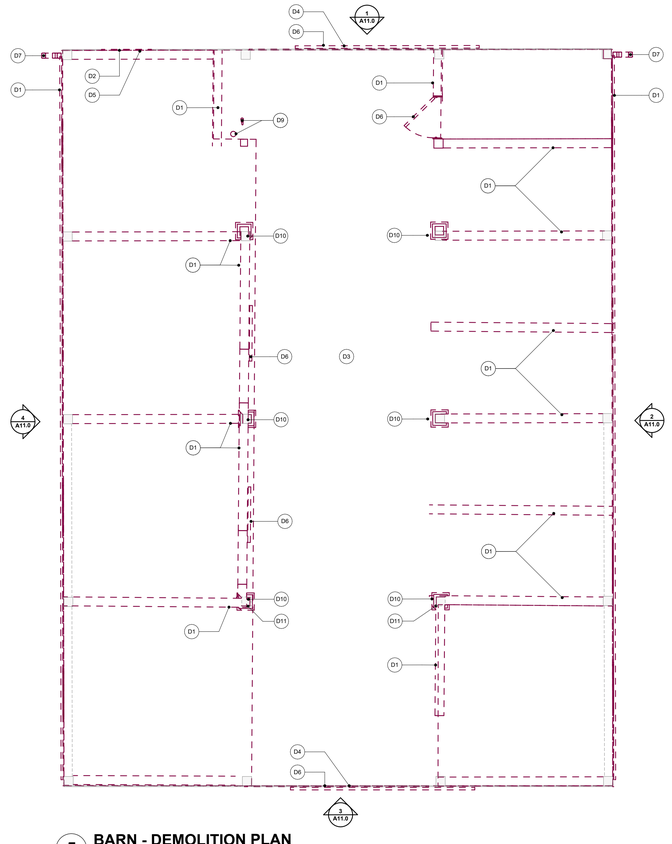
3 EAST DEMOLITION ELEVATION (BACK OF BARN)

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



4 SOUTH DEMOLITION ELEVATION (SIDE OF BARN)

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



5 BARN - DEMOLITION PLAN

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

DEMOLITION GENERAL NOTES

1. **THE BUILDING IS TO BE LIFTED OFF THE EXISTING FOUNDATION. REMOVE EXISTING FOUNDATION WALLS AND FOOTER. ADJUST TIMBER FRAME AND WALLS TO SQUARE THE BUILDING. USE ADJUSTED FRAME/WALLS TO ESTABLISH FINAL LAYOUT OF NEW FOUNDATION.**
2. IN DEMOLITION AREAS, REMOVE ALL MISCELLANEOUS ITEMS ON WALLS.
3. FILL AND LEVEL ALL HOLES IN FLOORS AND WALLS AFTER REMOVAL OR ADDITION OF PIPES, CONDUITS, AND OTHER PENETRATING ITEMS.
4. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR REQUIRED DEMOLITION AND RELATED WORK.
5. TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO ADJACENT AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE INCURRED.
6. ALL DEMOLITION ACTIVITIES SHALL BE COORDINATE WITH THE OWNER.
7. PATCHALL EXISTING ADJACENT INTERIOR FINISHES TO REMAIN AS UNDISTURBED BY THE DEMOLITION TO MATCH ADJACENT SURFACES.
8. ALL DEMOLISHED ITEMS ARE TO REMAIN THE PROPERTY OF THE OWNER AT THEIR DISCRETION.
9. ALL STRUCTURAL MEMBERS ARE TO REMAIN AND BE PROTECTED UNLESS OTHERWISE NOTED. SOFTSODA BLAST AND PREPARE FOR NEW PAINT.
10. NOTIFY ARCHITECT PRIOR TO DEMOLITION IF ITEM INDICATED TO BE REMOVED IS SUSPECTED TO BE A STRUCTURAL ELEMENT.
11. ALL EXISTING SIDING IS TO SOFTSODA BLASTED AND PREPARED FOR NEW PAINT.
12. REMOVE ALL EXISTING FIXTURES AND FINISHES, COORDINATE WITH OWNER AND SALVAGE FOR REUSE.
13. REMOVE EXISTING FLOOR AND ALL ASSOCIATED PLUMBING EQUIPMENT COMPLETELY. PREP AND CLEAN AREA TO RECEIVE NEW FLOORING.
14. REMOVE ALL EXISTING CONDUIT AND LIGHT FIXTURES.
15. REMOVE ENTIRE WALL TO UNDERSIDE OF DECK UNLESS NOTED OTHERWISE.
16. THE EXISTING METAL ROOF IS TO BE REMOVED AND SALVAGED FOR REINSTALLATION. PROVIDE SIPS OVER EXISTING RAFTERS.

DEMOLITION CODED NOTES

NOTE: NOT ALL CODED NOTES OCCUR EVERY SHEET

- D1 REMOVE WALL IN ITS ENTIRETY. REMOVAL OF WALL SHALL BE DONE IN SUCH MANNER AS TO NOT DAMAGE EXISTING, ADJOINING WALLS.
- D2 REMOVE PORTION OF WALL TO ACCOMODATE NEW DOOR OR CASED OPENING. REFER TO PLANS AND DOOR SCHEDULE FOR ADDITIONAL INFORMATION.
- D3 EXAMINE EXISTING CONDITION OF BEAMS, PATCH WOOD WITH WOOD PUTTY, SAND, AND STAIN BEAMS.
- D4 REMOVE WINDOW IN ITS ENTIRETY.
- D5 REMOVE SIDING TO EXISTING POST. SALVAGE FOR REUSE. REMOVE SECONDARY HORIZONTAL FRAMING
- D6 REMOVE DOOR, FRAME AND ANCHORS IN THEIR ENTIRETY. THE REMOVAL OF DOOR, FRAME AND ANCHORS SHALL BE DONE IN SUCH MANNER AS TO NOT DAMAGE EXISTING, ADJOINING WALLS. PREP AND CLEAN EXISTING WALL OPENING FOR NEW DOOR OR WINDOW INSTALLATION OR FILL TO MATCH EXISTING.
- D7 REMOVE EXISTING DOWNSPOUTS
- D8 REMOVE EXISTING TRIM
- D9 REMOVE EXISTING YARD HYRDRANT AND ASSOCIATED PLUMBING.
- D10 REMOVE EXISTING STONE COLUMN BASE AND FOUNDATION. PREP ARE FOR NEW FOOTING AND STONE BASE. REFER TO STRUCTRUAL DRAWINGS
- D11 COLUMN TO BE CUT, REFER TO STRUCTURAL DRAWINGS

DEMOLITION LEGEND

EXISTING TO REMAIN

ELEMENTS TO BE REMOVED

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BATH TOWNSHIP 1826

NORTH FORK PRESERVE BARN RENOVATION

4400 EVERETT ROAD, AKRON, OH 44333

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PROJECT # 2324

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DEMOLITION DRAWINGS

A11.0

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FOUNDATION PLAN GENERAL NOTES

REFER TO STRUCTURAL DRAWINGS FOR FOOTING AND PIER SCHEDULES

SUBSTITUTION CHART:

LVL SIZE	WF STEEL SIZE
(2) 9.2" LVL	W10 x 15
(2) 14" LVL	W12 x 16
(2) 16" LVL	W14 x 22
(2) 18" LVL	W16 x 26
(3) 12" LVL	W10 x 17
(3) 14" LVL	W12 x 16
(3) 16" LVL	W14 x 22
(3) 18" LVL	W16 x 26
(2) 16" LVL W/ 1/2" PL	W16 x 26
(2) 16" LVL W/ (2) 1/2" PL	W16 x 40

GENERAL NOTES

BLOCK WEBS SOLID AT BEARING WALL LOCATIONS ABOVE

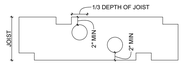
CONTRACTOR TO EXTEND ALL POSTS DOWN TO SOUND FOUNDATION. INSTALL FULL DEPTH SOLID BLOCKING AT ALL POINT LOAD LOCATIONS

ALL FOOTINGS TO EXTEND DOWN TO FROST LEVEL MIN.

INDICATES LOCATION OF POINT LOAD ABOVE

INDICATES LOCATION OF BEARING WALL ABOVE

COORDINATE EXACT LOCATIONS OF FLOOR DRAIN WITH MECH.CONTRACTOR



SECTION 502.8
NOTCHES IN THE TOP OR BOTTOM OF JOISTS SHALL NOT EXCEED ONE-SIXTH THE DEPTH OF THE JOIST AND SHALL NOT BE LOCATED IN THE MIDDLE THIRD OF THE SPAN, WHERE JOISTS ARE NOTCHED ON THE ENDS FOR A LEDGER, THE NOTCH SHALL NOT EXCEED ONE-FOURTH THE JOISTS DEPTH. CANTILEVERED JOISTS SHALL NOT BE NOTCHED UNLESS THE REDUCED SECTION PROPERTIES AND LUMBER DEFECTS ARE CONSIDERED IN THE DESIGN.
HOLES DRILLED OR BORED IN JOISTS SHALL NOT BE WITHIN 2 INCHES OF THE TOP OR BOTTOM OR THE JOISTS AND THEIR DIAMETER SHALL NOT EXCEED ONE-THIRD THE DEPTH OF THE JOIST.

SECTION 602.6
ANY STUD IN AN EXTERIOR BEARING PARTITION MAY BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25% OF ITS WIDTH. STUDS IN NON-BEARING PARTITIONS MAY BE NOTCHED TO A DEPTH NOT TO EXCEED 40% OF A SINGLE STUD WIDTH. ANY STUD MAY BE BORED OR DRILLED, PROVIDED THAT THE DIAMETER OF THE RESULTING HOLES IS NO GREATER THAN 40% OF THE STUD WIDTH, THE EDGE OF THE HOLE IS NO CLOSER THAN 5/8 INCH TO THE EDGE OF THE STUD, AND THE HOLE IS NOT LOCATED IN THE SAME SECTION AS A CUT OR NOTCH.

FLOOR PLAN GENERAL NOTES

1. ALL INTERIOR WALLS SHALL BE 6" WOOD STUD WITH (1) LAYER 5/8" GYPSUM BOARD ON BOTH SIDES UNLESS NOTED OTHERWISE. .
2. ARCHITECTURAL GROUND FLOOR FINISH ELEVATION = 0'-0".
3. VERIFY DIMENSIONS AND CONDITIONS IN FIELD. WHEN DIMENSIONS AND/OR CONDITIONS AS INDICATED ON DRAWINGS CONFLICT WITH ACTUAL, CONTACT ARCHITECT FOR CLARIFICATION.
4. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING, DEMOLITION, AND NEW CONSTRUCTION.
5. PROVIDE DOUBLE TOP TRACK DEFLECTION JOINT AT ALL WALLS WHICH EXTEND TO UNDERSIDE OF ROOF DECK ABOVE.
6. COORDINATE LOCATION OF EQUIPMENT AND PENETRATIONS WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS.
7. SEE EXTERIOR ELEVATIONS FOR IDENTIFICATION OF WINDOW TYPES AND SIZES.
8. HINGE SIDE OF DOOR JAMB LOCATED IN METAL STUD WALLS TO BE 4" FROM ADJACENT PERPENDICULAR WALLS, UNO.
9. ALL DOORS ARE DIMENSIONED TO THE CENTER LINE OF THE ROUGH OPENING.
10. VERIFY LOCATIONS OF FIRE EXTINGUISHERS WITH LOCAL FIRE DEPARTMENT OFFICIAL AND ARCHITECT PRIOR TO PLACEMENT. ALL EXTINGUISHERS TO BE RECESSED CABINET MOUNTED TYPE, UNO.
11. PROVIDE LEVEL SURFACES AND PREP FLOOR TO RECEIVE SCHEDULED FINISH

FLOOR PLAN CODED NOTES

NOTE: NOT ALL CODED NOTES OCCUR EVERY SHEET

1. PROVIDE NEW FROST SLAB IN FRONT OF EXTERIOR DOOR, REFER TO STRUCTURAL DRAWINGS
2. HOOK MOUNTED FIRE EXTINGUISHER

INTERIOR STUD WALL SYMBOL KEY

A1

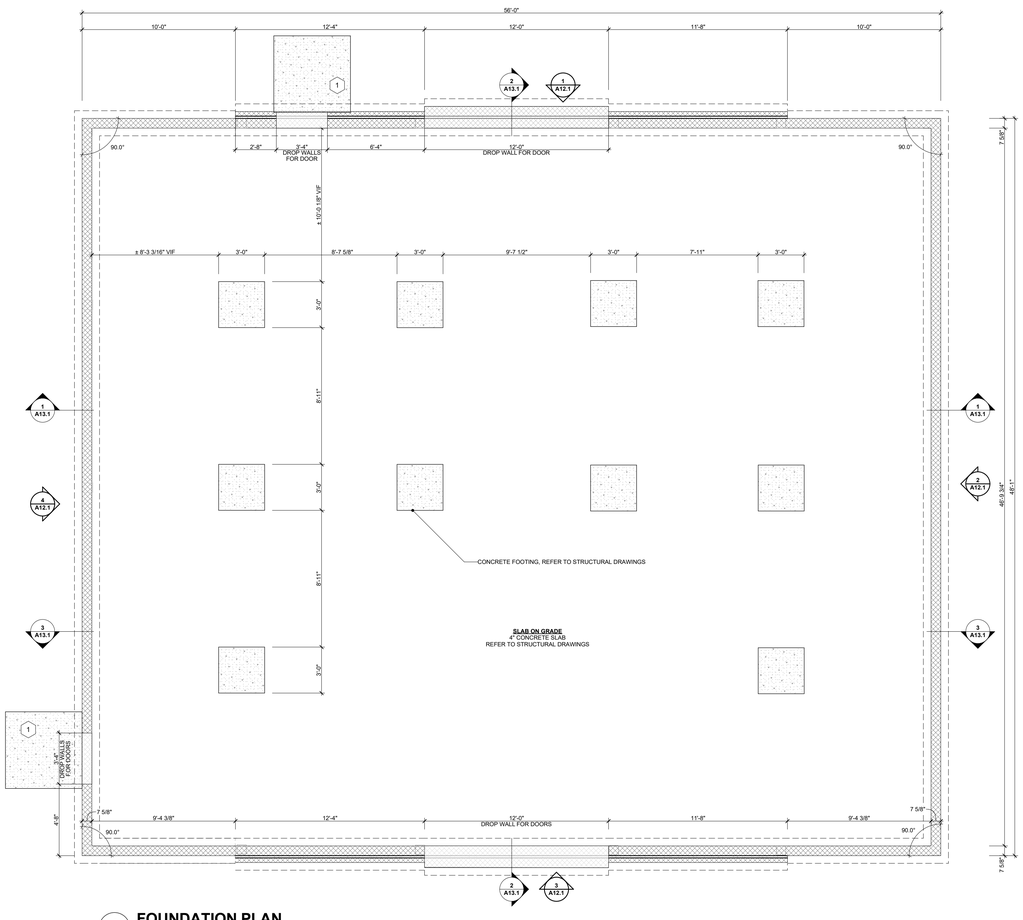
GYP. BOARD CONFIGURATION

1 - GYP. BOARD FULL HEIGHT, BOTH SIDES
2 - GYP. BOARD FULL HEIGHT, ONE SIDE
3 - 1/2" CEMENT BACKER BOARD

STUD WIDTH / TYPE DESIGNATION

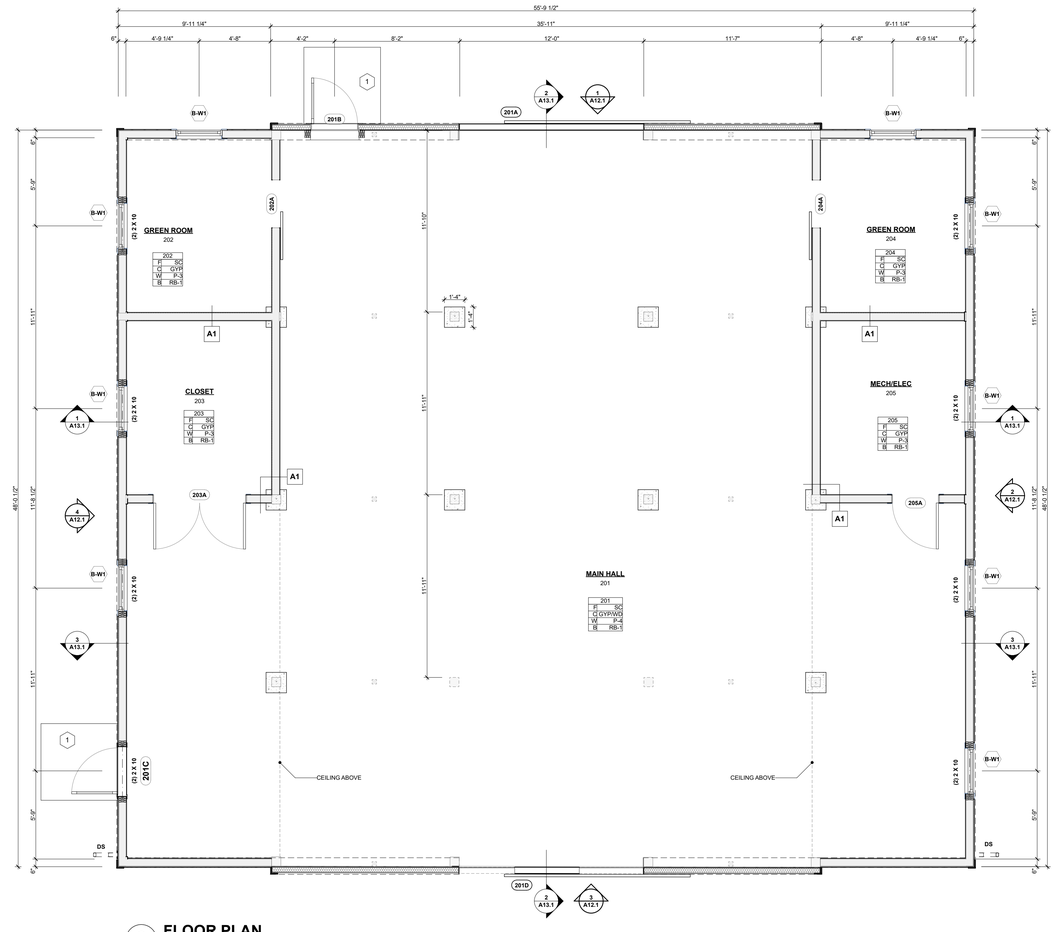
A = 5 1/2" / WD
B = 3 1/2" / WD
C = 1 1/2" / WD
D = 7 1/4" / WD
E = 9 1/4" / WD
F = 11 1/4" / WD
G = RESERVED
H = RESERVED

TYPES:
WD DIMENSIONAL LUMBER
ST STRUCTURAL STUDS



1 FOUNDATION PLAN

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



2 FLOOR PLAN

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

FINISH PLAN LEGEND

ROOM NAME

	NUMBER	
FLOOR	F	WD-1
CEILING	C	WD-1
WALL	W	WD-1
BASE	B	WD-1

FINISH PLAN GENERAL NOTES

1. APPROPRIATE TRANSITIONS TO BE PROVIDED AT EVERY LOCATION WHERE FLOOR FINISHES OF A DIFFERENT MATERIAL MEET. REFER TO SPECIFICATIONS FOR PROFILES. WHEN MATERIALS TRANSITION BETWEEN ROOMS, SEAM TO OCCUR ON CENTERLINE OF DOOR.
2. REFER TO REFLECTED CEILING PLAN FOR CEILING ACCENTS THAT DIFFER FROM FIELD INDICATED.
3. ALL UNFINISHED INSTALLED ELEMENTS INCLUDING BUT NOT LIMITED TO GRILL COVERS, FIRE EXTINGUISHER CABINETS AND METAL SUPPORTS TO BE PAINTED TO MATCH THE SURFACE ON WHICH THEY ARE MOUNTED UNLESS PROHIBITED BY MANUFACTURER. REFER TO MANUFACTURER'S SPECIFICATIONS.
4. PAINT SHEEN TO BE AS FOLLOWS FOR EACH SURFACE U.N.O.: PAINT ON CEILINGS AND SOFFITS TO BE FLAT. WALLS TO RECEIVE EGGSHELL/ SATIN. DOOR FRAMES TO RECEIVE SEMI-GLOSS. FOR OTHER SURFACES REFER TO FINISH SCHEDULE AND SPECIFICATIONS.
5. WALL AND CEILING FINISH IN ROOMS SHALL BE NOT LESS THAN CLASS C FLAME SPREAD (76-200) AND SMOKE DEVELOPMENT (0-450)
6. ALL INTERIOR WOOD TRIM TO BE POPLAR OR APPROVED EQUAL. SEE FINISH SCHEDULE FOR LOCATIONS

   WINDOW: 4" FLAT STOCK, PAINTED
7. CEILINGS AND SOFFITS TO BE SMOOTH FINISH AND PAINTED

FINISH SCHEDULE

FLOORING:

SEALED CONCRETE (SC) - COLOR TO BE SELECTED BY ARCHITECT

WALL:

PAINT (P-3)
MANUFACTURER: SHERWIN WILLIAMS
COLOR: TBD
SHEEN: TBD

PAINT (P-4)
MANUFACTURER: SHERWIN WILLIAMS
COLOR: TBD
SHEEN: TBD

DOOR AND HARDWARE GENERAL NOTES

1. FINAL HARDWARE SCHEDULE TO BE PROVIDED BY CONTRACTOR'S DOOR HARDWARE SUPPLIER AND APPROVED BY OWNER AND ARCHITECT.
2. FINAL LOCKSET FUNCTION AND KEYING SHALL BE COORDINATED WITH THE OWNER BY THE DOOR HARDWARE SUPPLIER. PROVIDE SUB AND GRAND MASTER LEVEL KEYING AND 4 KEYS FOR EACH LOCKSET.
3. ALL PASSAGE SETS, PRIVACY SETS AND LOCKSETS SHALL SHALL BE ANSI/ BHMA GRADE 1 COMMERCIAL WITH ADA COMPLIANT LEVER HARDWARE. ALL LOCKSETS SHALL BE THE PRODUCTS OF A SINGLE MANUFACTURER. ALL DOOR LOCKS SHALL ALLOW EGRESS WITHOUT THE USE OF A KEY AND BY MEANS OF A SINGLE OPERATION.
4. FURNISH NON-RISING TYPE PINS ON OUT SWINGING DOORS SCHEDULED TO RECEIVE LOCKSETS.
5. FINISH DOORS AND FRAMES WITH PAINT OR STAIN AS INDICATED (COLOR AS SELECTED BY OWNER) ALL SIDES.
6. PROVIDE WALL OR FLOOR MOUNTED STOP AS APPROPRIATE FOR EACH DOOR.
7. DOOR CLOSER CONFIGURATION SHALL BE IDENTIFIED AND COORDINATED BY THE DOOR HARDWARE SUPPLIER. ADJUST ALL CLOSER TO ADA 5 LBS. MAX. PULL FORCE.
8. PROVIDE SAFETY GLAZING IN THE FOLLOWING LOCATIONS PER OBC 2406.3:
   1) FIXED AND OPERABLE PANELS OF SWINGING DOORS
   2) PANELS ADJACENT TO DOORS WHERE NEAREST EXPOSED EDGE OF GLAZING IS WITHIN 24" ARC OF EITHER VERTICAL EDGE OF DOOR IN A CLOSED POSITION
   3) PANELS LARGER THAN 9 SF
   4) BOTTOM EDGE OF GLAZING IS LESS THAN 18" ABOVE THE FLOOR
   5) PANELS WITHIN 36" HORIZONTALLY OF A WALKING SURFACE
   6) PANELS WITHIN 36" HORIZONTALLY AND LESS THAN 60" ABOVE WALKING SURFACE OF STAIR
   7) PANELS WITHIN 60" HORIZONTALLY AND LESS THAN 60" ABOVE THE NOSE OF THE BOTTOM STAIR TREAD
9. HARDWARE AND ACCESSORIES TO BE BLACK FINISH OR EQUIVALENT.
10. ALL INTERIOR DOORS TO BE 1 3/4" SOLID CORE WOOD DOORS.

DOOR HARDWARE SETS

ENTRY
- LOCK LEVER HANDSET
- PANIC DEVICE (CONCEALED ROD FOR PAIRS)
- CLOSER
- BALL BEARING HINGES
- WALL STOP
- WEATHERSTRIPPING
- REPLACEABLE SWEEP
- ADA ALUMINUM THRESHOLD

STOREROOM
- LOCK LEVER HANDSET
- CYLINDER LOCK - STOREROOM
- BALL BEARING HINGES
- WALL STOP

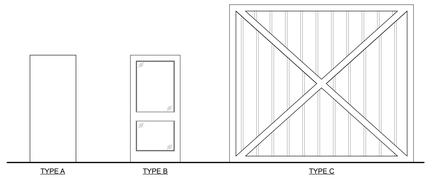
INTERIOR BARN DOOR
- MODERN RECTANGULAR BARN DOOR PRIVACY LOCK. BASIS OF DESIGN: EMTEK 222201US19, COLOR: FLAT BLACK

EXTERIOR BARN DOOR
- HASP AND PADLOCK. BASIS OF DESIGN: JQK DOOR HASP LOCK, 5 INCH 304 STAINLESS STEEL SAFETY PACKLOCK CLASP THICKNESS 1.0M, MATTE BLACK, DL130-PB
- GALVANIZED WALL MOUNT SLIDING DOOR BOX RAIL TRACK WITH CLIP ON ALUMINUM FASCIA
- STEEL BARN DOOR STAY ROLLER
- ALUMINUM DOOR SWEEP BRUSH

DOOR SCHEDULE

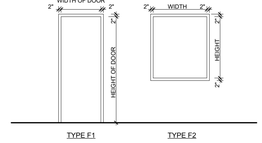
ID	ROOM NAME	DOOR LEAF NOMINAL WIDTH	DOOR LEAF NOMINAL HEIGHT	DOOR LEAF MATERIAL	DOOR LEAF PANEL TYPE	DOOR LEAF FINISH	OPERATION	REMARKS
201A	MAIN HALL	4	3	SC WOOD	C	PNT	EXTERIOR BARN	VERIFY OPENING SIZE IN FIELD
201B	MAIN HALL	1	2	ALUM / GLASS	B	PF	ENTRY	
201C	MAIN HALL	1	2	ALUM / GLASS	B	PF	ENTRY	
201D	MAIN HALL	4	3	SC WOOD	C	PNT	EXTERIOR BARN	VERIFY OPENING SIZE IN FIELD
202A	GREEN ROOM	1	2	SC WOOD	A	PF	INTERIOR BARN	
203A	CLOSET	2	2	SC WOOD	A	PNT	STOREROOM	
204A	GREEN ROOM	1	2	SC WOOD	A	PNT	INTERIOR BARN	
205A	MECH/ELEC	1	2	SC WOOD	A	PNT	STOREROOM	

DOOR PANEL TYPE



TYPE A TYPE B TYPE C

DOOR FRAME TYPE



TYPE F1 TYPE F2

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BATH TOWNSHIP
1818

NORTH FORK PRESERVE BARN RENOVATION

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PLANS

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ELECTRICAL INFORMATION LEGEND

- SINGLE POLE LIGHT SWITCH
- 3 4 — MULTIPLE POLE LIGHT SWITCH
- R — RECESSED CAN LIGHT/ SQUARE FIXTURE
- S — SURFACE MOUNT FIXTURE
- WS — WALL SCONCE
- EXT — EXTERIOR WALL MOUNTED FIXTURE
- SD — SMOKE DETECTOR
- E — DUPLEX RECEPTACLE
- WP — WEATHERPROOF DUPLEX RECEPTACLE
- EXHAUST FAN
- SMALL CHANDLIER
- LARGE CHANDLIER
- LARGE CEILING FAN
- CAMERA

CEILING TYPE LEGEND

EXISTING CEILING TO REMAIN

PAINTED GYPSUM BOARD CEILING

CEILING PLAN NOTES

OUTLET SPACING & LOCATIONS
APPLIANCE RECEPTACLE OUTLETS FOR SPECIFIC APPLIANCES SHALL BE INSTALLED WITHIN 6 FT OF THE INTENDED LOCATION OF THE APPLIANCE.
RECEPTACLE OUTLETS SHALL BE INSTALLED SO THAT NO POINT ALONG THE WALL LINE IS MORE THAN 24 INCHES MEASURED HORIZONTALLY FROM A RECEPTACLE OUTLET IN THAT SPACE.

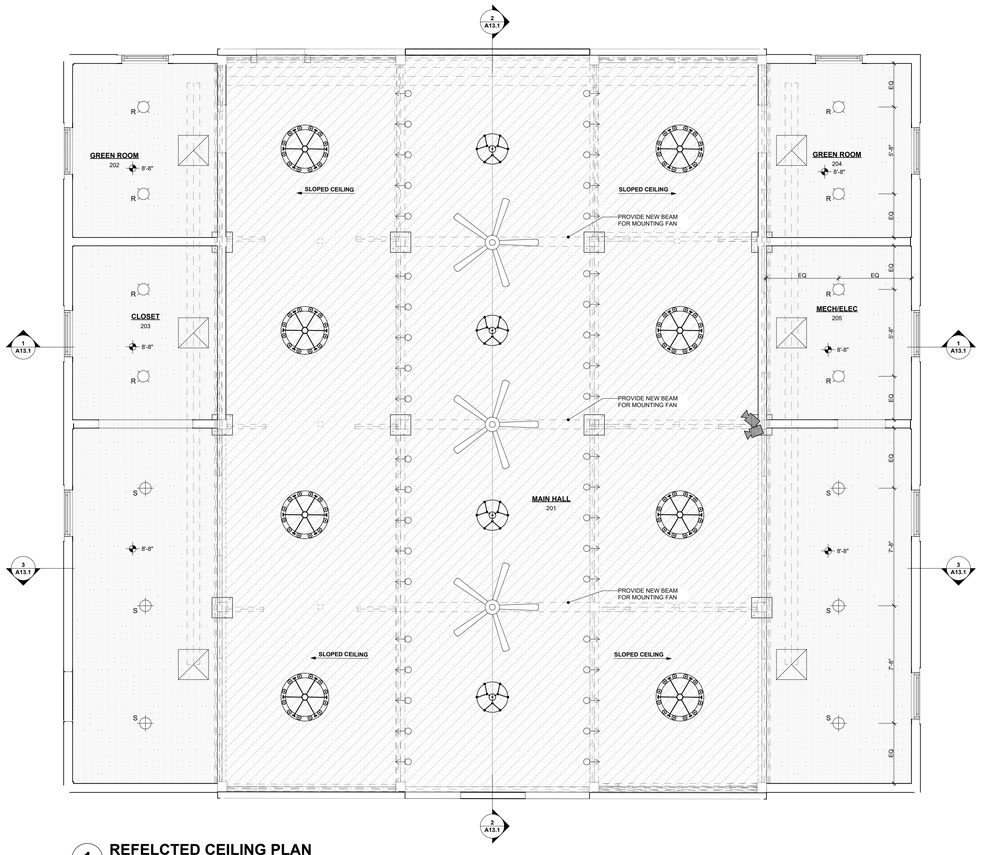
PER NEC 210.8, THE FOLLOWING LOCATIONS SHALL HAVE GROUND-FAULT CIRCUIT INTERRUPTER PROTECTION: 1) BATHROOMS, 2) GARAGES & ACCESSORY BUILDINGS THAT THAVE A FLOOR LOCATED AT OR BELOW GRADE LEVEL NOT INTENDED AS HABITABLE ROOMS AND LIMITED TO STORAGE AREAS, WORK AREAS, AND AREAS OF SIMILAR USE, 3) OUTDOORS 4) CRAWL SPACES 5) BASEMENTS 6) KITCHENS, 7) SINKS 8) BOATHOUSES, 9) BATHTUBS OR SHOWER STALLS, 10) LAUNDRY AREAS. FOR ADDITIONAL ELECTRICAL INFORMATION CONSULT NEC.

VERIFY LOCATION, NUMBER, AND SWITCHING OF FIXTURES WITH OWNER

LIGHTING LAYOUT FOR REFERENCE ONLY,LIGHTING LAYOUT TO BE FINALIZED PRIOR TO INSTALLATION

CEILING PLAN NOTES

1. CEILING MOUNTED FIXTURES INCLUDING, BUT NOT LIMITED TO, LIGHTS, DIFFUSERS, EXIT SIGNS FIRE ALARM STROBES, SMOKE DETECTORS TO BE CENTERED IN AREA IN WHICH THEY OCCUR UNLESS NOTED OTHERWISE.
2. EXIT SIGNS INDICATED ABOVE EGRESS DOORS TO BE LOCATED ON CENTERLINE OF DOOR SWING.
3. ARCHITECTURAL REFLECTED CEILING PLAN DISPLAYS GENERAL LOCATION AND LAYOUT SCHEME OF CEILING AND CEILING MOUNTED FIXTURES. CONSULTANT DRAWINGS SHOULD BE UTILIZED FOR FIXTURE TYPE AND QUANTITIES. WHERE MINOR DISCREPANCIES EXIST BETWEEN ARCHITECTURAL AND CONSULTANT DOCUMENTS RELATING TO LOCATION OF CEILING MOUNTED ITEMS, ARCHITECTURAL REFLECTED CEILING PLAN SHOULD GOVERN. FOR MAJOR DISCREPANCIES (GREATER THAN 2'), NOTIFY ARCHITECT PRIOR TO PROCEEDING WITH WORK. FINAL LOCATION TO BE VERIFIED PRIOR TO INSTALLATION.
4. ALL GYPSUM BOARD CEILINGS AND SOFFITS SHALL BE PAINTED UNLESS NOTED OTHERWISE. REFERENCE FINISH DRAWING AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. EXISTING LIGHT FIXTURES TO BE REMOVED. PATCHAND REPAIR AREAS AFFECTED BY CONSTRUCTION.
6. PATCHAND REPAIR EXISTING BEAM IN LOCATION WHERE EXISTING LIGHT FIXTURE WAS REMOVED.
7. PATCHAND REPAIR EXISTING BEAM IN LOCATIONS WHERE EXISTING CROSS JOIST WAS REMOVED.
8. PAINT EXISTING BEAMS, COLOR TO BE SELECTED BY ARCHITECT.



1 **REFELCTED CEILING PLAN**
SCALE: 1/4" = 1'-0"

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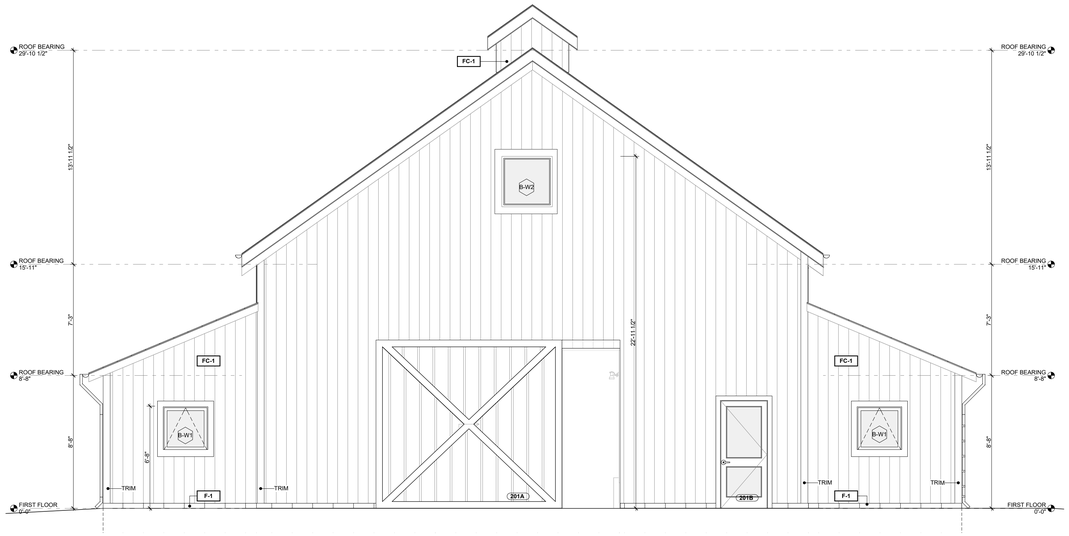
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REFLECTED CEILING PLAN

A11.2

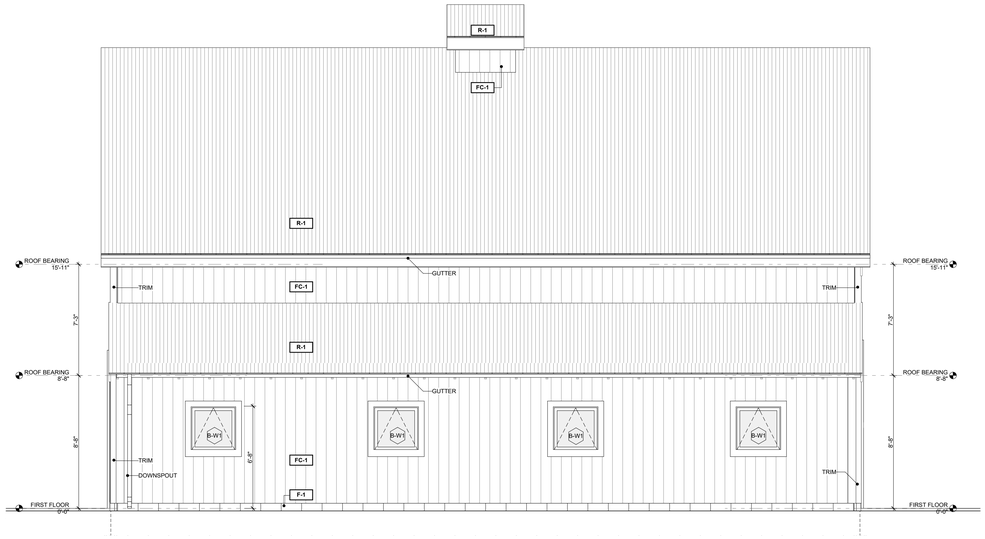
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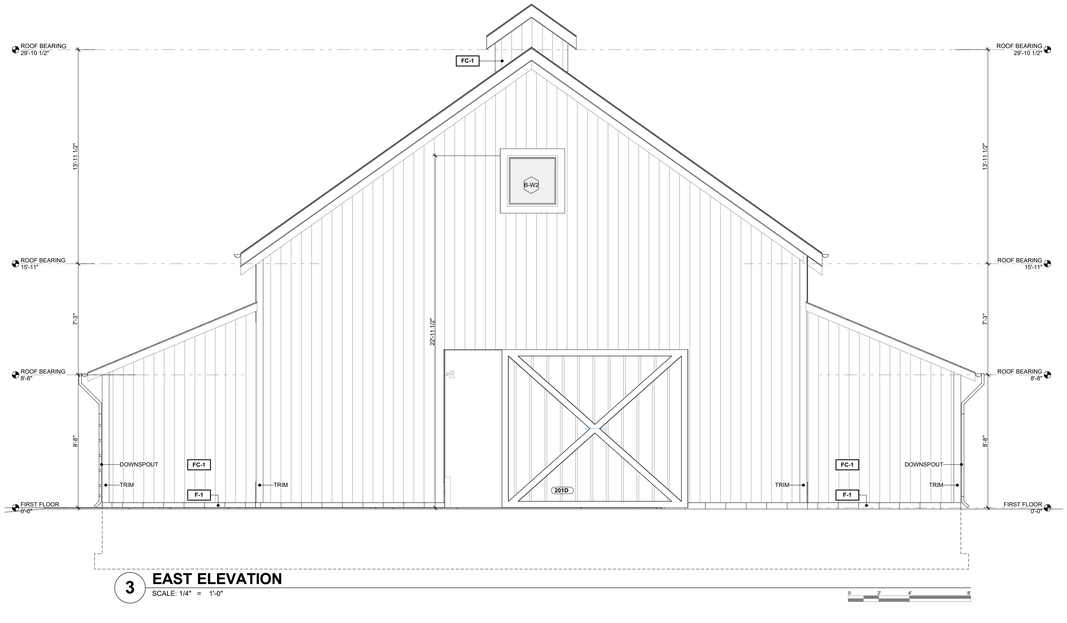
1 WEST ELEVATION

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



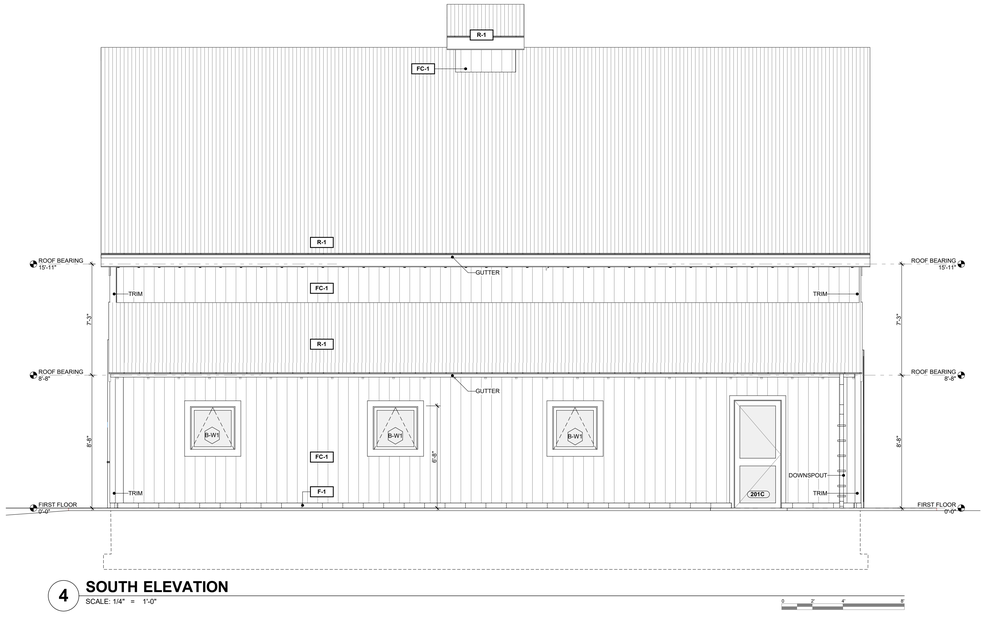
2 NORTH ELEVATION

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



3 EAST ELEVATION

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



4 SOUTH ELEVATION

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

MATERIAL SCHEDULE

ALL MATERIAL ASSEMBLIES LISTED BELOW TO OCCUR OVER THE FOLLOWING UNLESS NOTED OTHERWISE:

O/ WEATHER BARRIER
O/ 7/16" EXTERIOR GRADE OSB SHEATHING
O/ 2X6 STUDS W/ R-19 KRAFT FACED BATT INSULATION

F-1
SMOOTH FACED CMU FOUNDATION WALLS.

FC-1 - FIBER CEMENT SIDING
FIBER CEMENT LAP SIDING TO BE JAMES HARDIE SHEET (BOARD AND BATTEN) SIDING OR APPROVED EQUAL. REFER TO EXTERIOR ELEVATIONS AND WALL SECTIONS FOR EXPOSURE WIDTHS. SIDING IS TO BE PAINTED. COORDINATE FINAL COLOR WITH ARCHITECT AND OWNER.

R-1 - STANDING SEAM METAL ROOF
METAL STANDING SEAM ROOF
O/MANUFACTURER'S RECOMMENDED UNDERLAYMENT
O/ 15/32" APA RATED EXTERIOR GRADE SHEATHING.
ICE GUARD SHOULD BE INSTALLED AT ALL EAVES AND VALLEYS, UP 72", AND WRAPPED OVER THE FACE OF ALL FASCIAS.

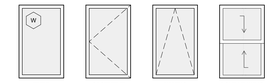
EXTERIOR ELEVATION GENERAL NOTES

ALL FIBER CEMENT EXTERIOR TRIM TO BE AZEK OR BORAL, PAINTED, OR APPROVED EQUAL.

ALL ROOF PENETRATIONS TO BE COORDINATED WITH ARCHITECT PRIOR TO INSTALLTION.

GUTTER PROFILES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING

WINDOW LEGEND



FIXED | CASEMENT | AWNING | DOUBLE HUNG

WINDOW HEAD GIVEN ABOVE FIRST AND SECOND FLOOR, CONFIRM WINDOW QUANTITIES WITH ELEVATIONS.

**** WINDOW COUNT PROVIDED FOR GENERAL REFERENCE AND VERIFICATION ONLY. CONTRACTOR TO VERIFY TOTAL NUMBER OF WINDOWS WITH DOCUMENTS.**

WINDOW SCHEDULE

ID	W x H	REMARKS
B-W1	1×1	
B-W2	1×1	

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PROGRESS NOT FOR CONSTRUCTION
3/10/2025

PROJECT TEAM

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216.531.8880

BATH TOWNSHIP 1826

NORTH FORK PRESERVE BARN RENOVATION

4400 EVERETT ROAD, AKRON, OH 44333

PROJECT # 2324

ISSUE:

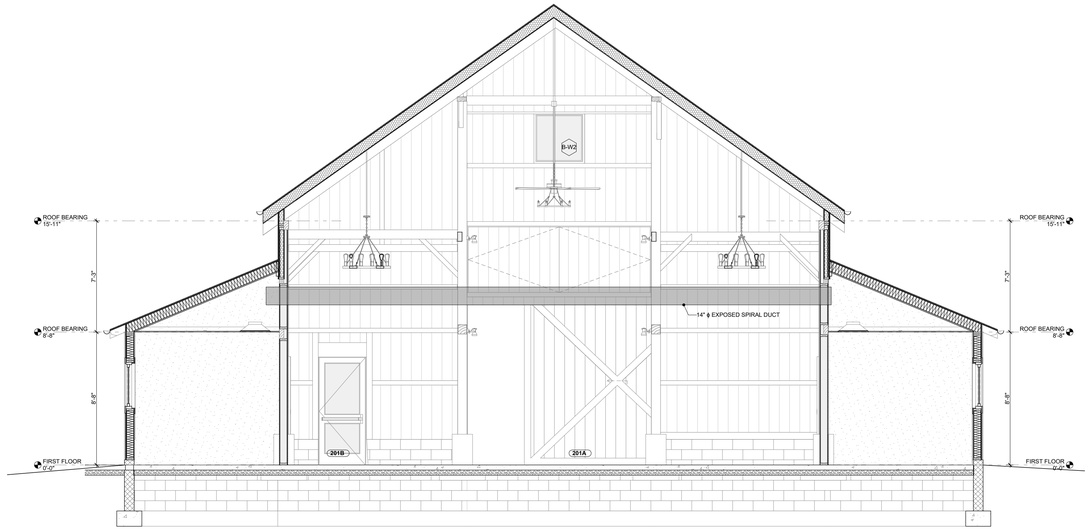
SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

EXTERIOR ELEVATIONS

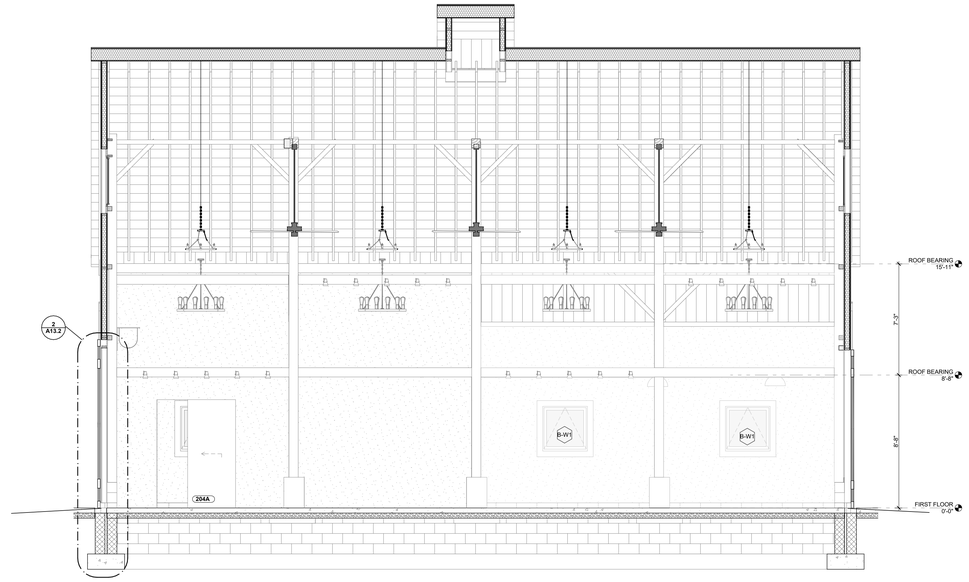
A12.1

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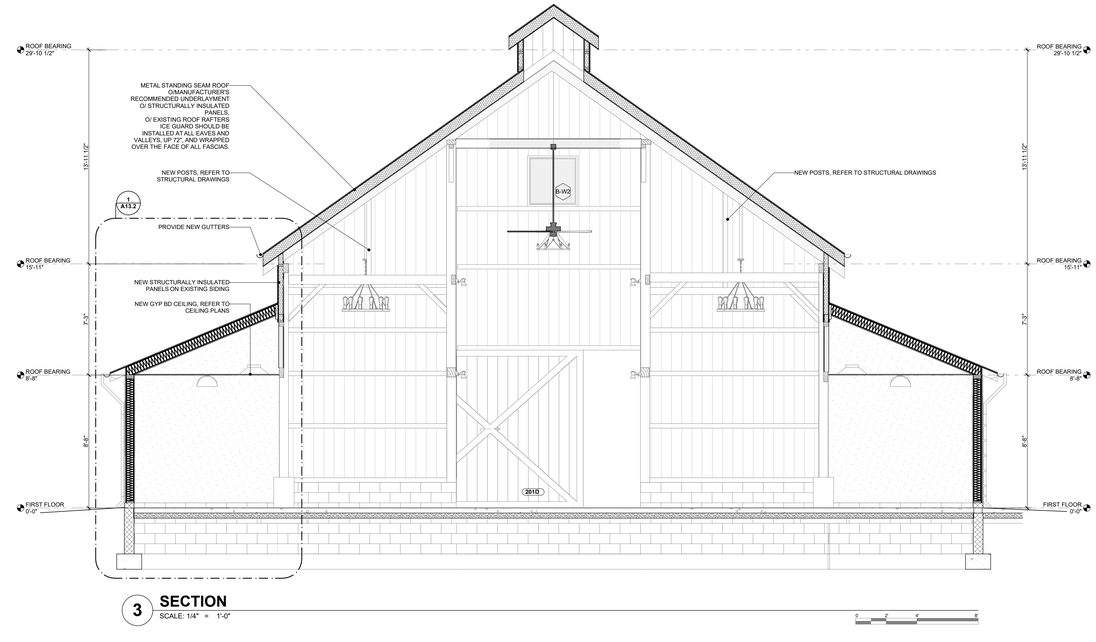
Printed: Monday, March 03, 2025



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



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



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

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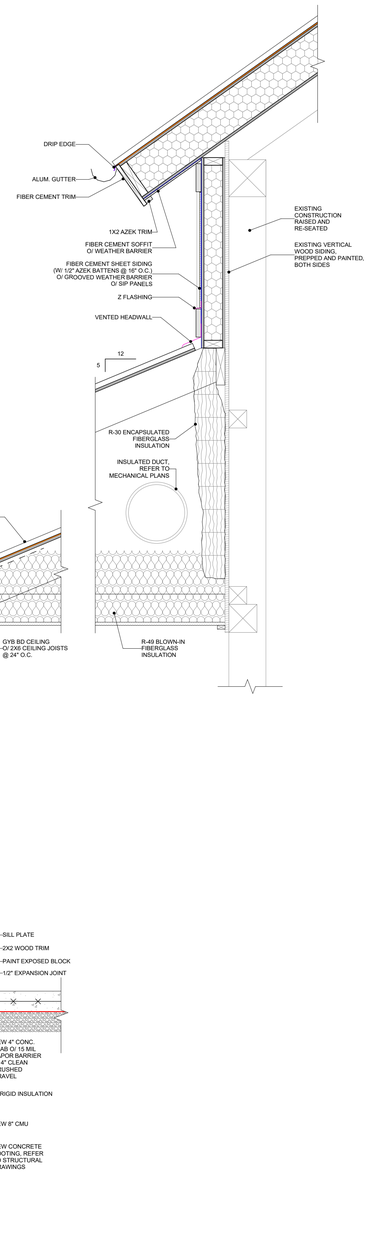
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BUILDING SECTIONS

A13.1

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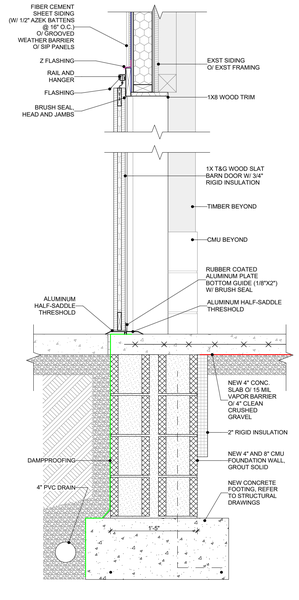
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TYPICAL FOUNDATION WALLS @ ADDITIONS

1 WALL SECTION

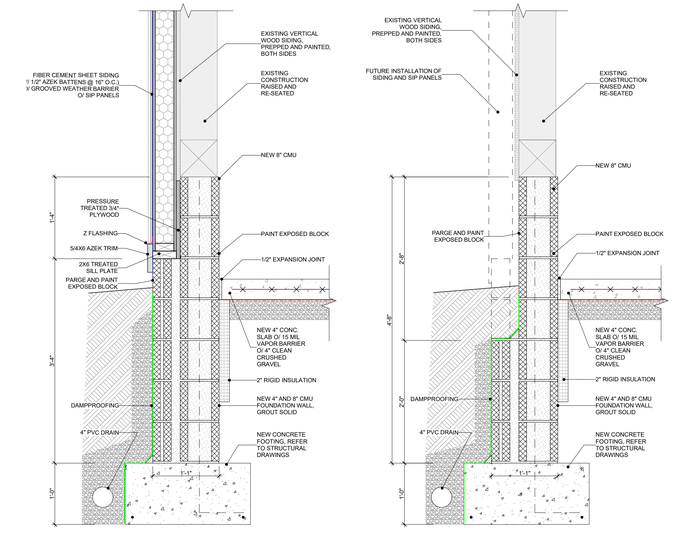
SCALE: 1" = 1'-0"



NEW FOUNDATION WALLS AT BARN DOOR OPENINGS

2 WALL SECTION

SCALE: 1" = 1'-0"



NEW FOUNDATION WALLS AT EXISTING GABLE ENDS

DEDUCT ALT: NEW FOUNDATION WALLS AT EXISTING GABLE ENDS

3 WALL SECTIONS

SCALE: 1" = 1'-0"

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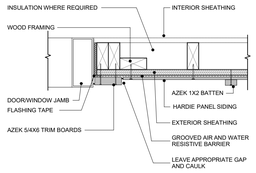
WALL SECTIONS

A13.2

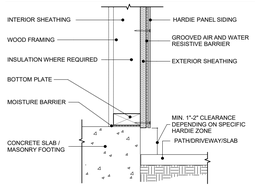
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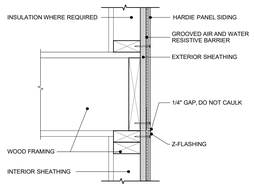
DOOR/WINDOW JAMB



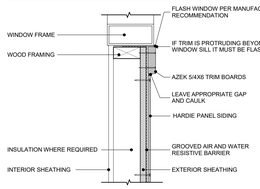
HARDSCAPE CLEARANCES, DECKS, PORCHES, PATIOS, WALKWAYS, ROOFS, ETC.



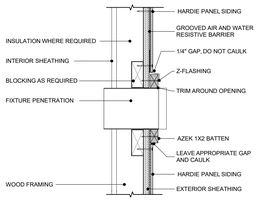
HORIZONTAL JOINT



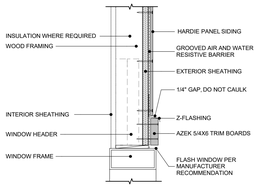
WINDOW SILL



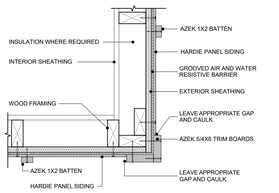
FIXTURE PENETRATION



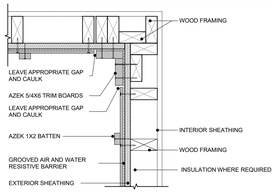
WINDOW/DOOR HEAD



OUTSIDE CORNER



INSIDE CORNER



1 TYPICAL SIDING DETAILS

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

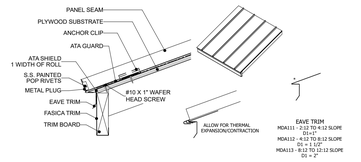
0 6" 12" 18"

BASIS OF DESIGN:

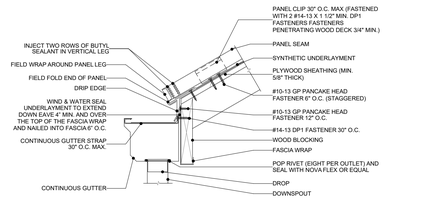
ATAS INTERNATIONAL "DUTCH SEAM" - ALUMINUM

A. THICKNESS: 0.040 ALUMINUM
B. WIDTH: 15"
C. SEAM HEIGHT: 1 1/2"
D. TEXTURE: SMOOTH (NO STIFFENING RIBS)
E. MINIMUM SLOPE: 2:12

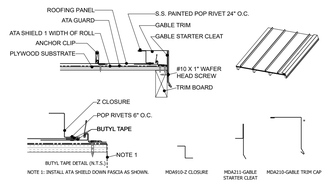
EAVE



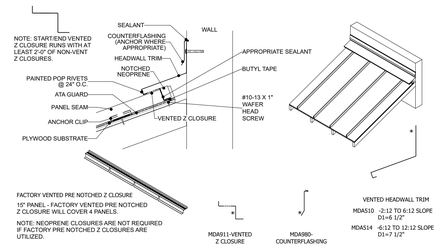
EAVE W/ GUTTER



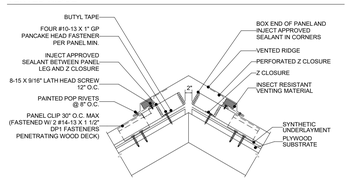
GABLE



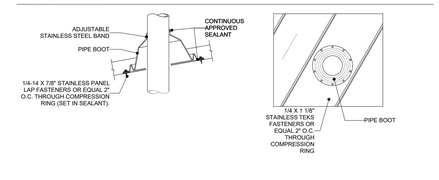
VENTED HEADWALL



VENTED RIDGE



PIPE PENETRATION



2 TYPICAL METAL ROOF DETAILS

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

0 6" 12" 18"

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BATH TOWNSHIP SINCE 1818

NORTH FORK PRESERVE BARN RENOVATION

4400 EVERETT ROAD, AKRON, OH 44333

PROJECT # 2324

ISSUE:

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DETAILS

A13.3

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GENERAL CONDITIONS

1.01 GENERAL PROVISIONS

A. Provisions of instructions to bidders, general conditions, supplementary conditions, alternates, addendae, and specifications for associated trades are a part of this specification. contractors and subcontractors shall examine all items that will affect work under this division.
B. Contractors shall provide all labor, equipment, supplies services, and shall perform all work complete and in strict accordance with specifications and applicable drawings. Any deviations shall be clearly defined and itemized in accordance with these specifications.
C. Contractors are instructed to read carefully specifications for all parts of the work, which may include architectural, electrical, mechanical, plumbing, fire protection, civil, structural and all other drawings as well as specifications for all divisions that are a part of the contract documents.
D. All items of labor, material, and equipment not specifically mentioned herein or shown on the plan, but are incidental to, or required for the complete installation and proper operation of the work, shall be furnished as if called for in detail by the specifications or drawings.

1.02 PERMITS, CODES, INSPECTIONS, AND TESTS

A. Contractor shall secure and pay for all permits and inspections required for the prosecution of the work. All permits and certificates of inspection and approval signed by the controlling building department shall become property of the owner.
B. Drawings indicate minimum design requirements. national, state, and local codes shall be followed. The Contractor shall include the cost of satisfying such codes and standards in the bid.

1.03 SITE VISIT

A. Contractor shall visit the site of the work and become familiar with all conditions affecting the work. Submission of a proposal/bid shall presuppose knowledge of all such conditions and no additional compensation shall be allowed where extra labor or materials are required because of ignorance of these conditions.

2.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Provide and pay for all materials, labor, services, equipment, licenses, taxes, and other items necessary for the execution, installation and completion of the work indicated in the contract documents.
B. The work involves construction of a maintenance building using post frame / pole building construction with metal siding and roofing.

2.02 CONTRACT METHOD

A. Construction of the work under single prime contracts for general trades, with plumbing, heating and ventilating, and electrical as subcontractors to the prime.

2.03 CONTRACTOR'S DUTIES

A. Except as specifically noted, provide and pay for:
   1. Labor, materials, and equipment.
   2. Tools, construction equipment and machinery.
   3. Water, heat, and utilities including electrical power required for construction.
   4. Other facilities and services necessary for proper execution and completion of work.
B. The Contractor shall obtain and pay for all permits required by law for the execution of this work unless noted otherwise.
C. The Contractor shall also obtain and pay for certificates, inspections and other legal fees required, both permanent and temporary, including electrical and highway permits.
D. The Contractor shall also obtain and pay for material testing as indicated in the contract documents. this may include, but is not limited to concrete and soils testing, and structural steel framing inspection and testing.
E. The Contractor shall provide engineered drawings for the post frame / pole building structure, including but not limited to:
   1. post sizes, types, and layout
   2. roof trusses, purlins
   3. post footings / foundations
   4. cross bracing, shear connections

2.04 COORDINATION

A. The General Trades Contractor shall act as project expediter for all subcontracts and shall prepare and monitor the project schedule.
B. Coordinate work for the various sections of specifications to ensure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.
C. Verify that the characteristics of elements of interrelated operating equipment are compatible; coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
D. Coordinate space requirements and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing shown for pipes, ducts and conduits, as closely as practicable; make runs parallel with liner of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

2.05 REFERENCE STANDARDS

A. For products specified by association or trade standards, comply with requirements of the standards, except when more rigid requirements are specified or required by applicable codes.
B. The date of the standard is that which was in effect as of the bid date, unless a specific date is indicated.
C. Obtain copies of standards when required by contract documents. Maintain copy at job site during progress of the specific work.

2.06 CONSTRUCTION TIME

A. Start Date and Substantial Completion of the Work (to be certified by the Architect) shall be agreed to by the Owner and Contractor. Any materials/equipment obtained before the official start date must be stored off-site by the contractor.

2.07 CONTRACTOR'S USE OF PREMISES

A. Contractor shall assume full responsibility for protection and safekeeping of products under this contract stored on the site.
B. Contractor shall move any stored products, under contractor's control, which interfere with operations of the owner.
C. Contractor shall, at his option, obtain and pay for the use of additional storage or work areas needed for operations.

2.08 SPECIAL REQUIREMENTS

A. Fire protection: Provide and maintain an adequate number of hand fire extinguishers at convenient and appropriate locations during construction. Avoid all accumulations of flammable debris by removing rubbish promptly. take all other precautions necessary to prevent fire. Supervise closely the storage of paint materials and other combustible products.
B. Accident prevention and safety: Comply with all applicable laws, ordinances, rules, regulations and orders of governing authorities having jurisdiction for the safety of persons and property to protect them from damage, injury or loss. Erect and maintain, as required by conditions and progress of the work, all necessary safeguards for safety and protection, including fences, railings, barricades, lighting, posting of danger signs and other warnings against hazards. Where prevention of construction accidents is not regulated by code or ordinance, comply with AGC's "Manual of Accident Prevention in Construction." Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the project. All scaffolds shall be built in accordance with all requirements of local state, and federal laws and regulations.

2.09 EXAMINATION

A. Existing conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the work.
   1.Before construction, verify the location and points of connection of utility services.
B. Existing utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the work.
   1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
   2. Furnish location data for work related to project that must be performed by public utilities serving project site.
C. Acceptance of conditions: Examine substrates, areas, and conditions, with installer or applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
   4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the work indicates acceptance of surfaces and conditions.

2.10 PREPARATION

A. Existing utility information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
B. Field measurements: Take field measurements as required to fit the work properly. Recheck measurements before installing each product. Where portions of the work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. coordinate fabrication schedule with construction progress to avoid delaying the work.
C. Space requirements: Verify space requirements and dimensions of items shown diagrammatically on drawings.
D. Review of contract documents and field conditions: Immediately on discovery of the need for clarification of the contract documents, submit a request for information to owner and architect. Include a detailed description of problem encountered, together with recommendations for changing the contract document.

2.11 PROJECT SUPERINTENDENT RESPONSIBILITIES

A. Coordinate the work of the contractor and the subcontractors for the work of all trades.
B. Coordinate the schedules of the contractor, the subcontractors and suppliers of materials and equipment.
C. Verify timely deliveries of products for installation by the trades.
D. Verify that labor and materials are adequate to maintain schedules.
E. Conduct conferences and maintain communications with subcontractors, suppliers, and other concerned parties as necessary to:
   1. Maintain coordination and schedules.
   2. Resolve matters in dispute.
F. Participate in project meetings.
G. Report progress of work.
H. Recommend needed changes in schedules.
I. Assist in compiling and assembling project record information.
J. Observe required testing. Maintain a record of tests including:
   1. Testing agency and name of inspector.
   2. Subcontractor.
   3. Date and time of testing.
   4. Type of test, and results.
   5. Retesting required.
K. Verify that subcontractors maintain accurate record documents.
L. Attend all punch list inspections.

3.01 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

A. Prior to submittal, review for compliance with Contract Documents. Contractor shall stamp submittals approving them for materials, fit and coordination, prior to submission to Owner.
B. Check field dimensions and clearance dimensions.
C. Check relation to available space.
D. Check anchor bolt settings.
E. Review the effect of any changes on the work of other contracts or trades.
F. Check compatibility with equipment and work of other trades.
G. Identify details by reference to sheet and detail numbers shown on Contract Drawings.
H. Submit the number required for use by the Contractor plus three (3) copies for the Architect/Owner/Engineer. The Contractor has the option to provide submittals electronically. In this case, reviewed submittals will be returned in the same manner.
I. Provide physical samples of sufficient size to illustrate functional characteristics of material and full range of color, texture, and/or pattern.
J. Certified Test Reports: Before delivery of materials and equipment, certified copies of the reports of all tests listed in the technical sections shall be submitted and approved. The testing shall have been performed in a laboratory meeting the requirements specified herein. Unless otherwise specified the tests shall have been performed within three years of submittal of the reports for approval. Test reports shall be accompanied by the certificate from the manufacturer certifying that the material and equipment proposed to be supplied is of the same type, quality, manufacturer, and make as that tested.
K. Manufacturer's Certificates of Conformance or Compliance: Manufacturer's certification furnished by the Contractor on items of materials and equipment incorporated into the work will be accepted only when this method will assure full compliance with the provisions of the Contract, as determined by the Architect. Pre-printed certifications will not be acceptable. All certifications shall be in the original. The original of all manufacturer's certifications shall name the appropriate item of equipment or material, specification, standard, or other document specified as controlling the quality of that item and shall bear a statement that the item certified or copies of test data upon which the certifications are based. All certificates shall be signed by the manufacturer's official authorized to sign certificates of conformance or compliance.
L. Laboratory Reports: Reports shall cite the contract requirements, the test or analysis procedures used, the actual test results, and include a statement that the item tested or analyzed conforms or fails to conform to the specification requirements. All test reports shall be signed by a representative of the testing laboratory authorized to sign certified test reports.
M. Schedule submissions at least 14 days before the date that reviewed submittals will be needed; give special consideration to time constraints required by "long lead" items or equipment.
N. Architect's duties:
   1. Review for design concept and for coordination with Contract Documents.
   2. Review of separate item does not constitute review of an assembly in which item functions.

3.02 QUALITY CONTROL

A. The Contractor shall maintain an adequate inspection system and perform such inspections and tests as will assure that the work performed under the Contract conforms to the Contract Documents and shall maintain and make available to the Architect adequate records of such inspections and tests.
B. Factory Tests: Tests made on various products and component parts prior to shipment to the job site, including but not limited to such items as transformer, boilers, air conditioning equipment, electrical equipment, and precast concrete.
C. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. 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.
   1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
   2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
   3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
   4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
   5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

3.03 SPECIAL TESTS AND INSPECTIONS

A.Contractor will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as indicated in individual Specification Sections, and as follows:
   1. Notify Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
   2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
   3. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
   4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
   5. Retesting and reinspecting corrected work.

4.01 PRODUCT REQUIREMENTS

A.Where a specific manufacturer's product is named, it is done to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other manufacturers.
B.Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

4.02 COMPARABLE PRODUCTS

A. Voluntarily submitted products differing from, but comparable to, those named in the contract documents shall being submitted during bidding in the space allocated on the Bid Form. Attach list of additional items if necessary. The Owner will request additional information for comparable products, if necessary, and accept or reject substitutions at their discretion.
B. Conditions: Architect will consider Contractor's request for comparable product 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:
   1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
   2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
   3. Evidence that proposed product provides specified warranty.
   4. The proposed product will result in either a no-cost or deduct change order.
   5. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
   6. Samples, if requested.

5.01 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
B. Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

5.02 INSTALLATION

A.General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
B.Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

5.03 PROGRESS CLEANING

A.General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
B. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
C. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
D. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
E. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
G. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
H. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

5.04 STARTING AND ADJUSTING

A.Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
D. Manufacturer's Field Service: If factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with sections 3.02 and 3.03.

5.05 PROTECTION OF INSTALLED CONSTRUCTION

A.Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
B. Comply with manufacturer's written instructions for temperature and relative humidity.

5.06 CORRECTION OF THE WORK

A.Repair or remove and replace defective construction. Restore damaged substrates and finishes.
   1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
B.Restore permanent facilities used during construction to their specified condition.
C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

5.07 FINAL CLEANING

A. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
   1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
   3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
   4. Remove tools, construction equipment, machinery, and surplus material from Project site.
   5. Remove snow and ice to provide safe access to building.
   6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   7. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   8. Sweep concrete floors broom clean in unoccupied spaces.
   9. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
   10. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
   11. Remove labels that are not permanent.
   12. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration. (Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.)
   13. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
   14. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
   15. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
   16. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
   17. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
   18. Leave Project clean and ready for occupancy.

6.01 CLOSEOUT SUBMITTALS

A.Format: Submit operations and maintenance manuals in the following format:
   1. PDF electronic file. Assemble each manual into a composite electronically-indexed file. Submit on digital media acceptable to Owner.
      a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically-linked table of contents at beginning of each manual or maintenance directory.
      b. Enable inserted reviewer comments on draft submittals.
   2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect will return two copies.
B.Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect and Engineer will return copy with comments.
   1. Correct or modify each manual to comply with Architect's and Engineer's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Agent's comments and prior to commencing demonstration and training.
C. 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.
D. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
E. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
F.Manufacturers' Data: Where manuals contain manufacturers' standard printed data, 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.
G. 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.
H. Record on a set of "As-Built" prints any deviations from Design Drawings. Deliver this set to the Owner before submitting request for final payment. The "As-Built" prints shall be an accurate depiction of the Project as completed.
I. Do not use original project record documents as part of operation and maintenance manuals.

SECTION 01 50 00 – TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY
   A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.3 WASTE DISPOSAL FACILITIES (DUMPSTERS)
   A. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Waste Disposal Facilities shall be provided for the Work of all Contracts.

1.4 FIRE EXTINGUISHERS
   1.1 Provide portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

1.5 PROJECT SIGNS
   A. Identification Signs: Provide Project identification signs when indicated on Drawings.
   B. Temporary Signs: Provide other signs as indicated and as required to inform public and bidding or prospective tenants of each quality-control service.
   C. Provide temporary, directional signs for construction personnel and visitors.
   D. Maintain and touchup signs so they are legible at all times.
   E. Unauthorized signs are not permitted.

1.6 ELECTRIC POWER - USE OF EXISTING FACILITY POWER
   A. Use of Owner's existing electric power service will be permitted. Provide connections and extensions of services as required for construction operations. Clean and maintain electric power service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
      1. Usage Charges: to be paid by the Owner.
      2. Provide temporary power stands or pedestals for use by all Contracts. Stands shall have multiple 110v-120v outlets and circuits. Each Contract requiring power greater than 110v-120v power shall provide this at their own expense.
      3. Coordinate with the Owner prior to the commencement of work, regarding which existing panels and circuits are to be used for temporary power and lighting.

1.7 TEMPORARY ELECTRIC POWER
   A. Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
      1. All fees, permits, connection charges, utility company equipment, usage charges, etc. are to be paid by the Contract responsible for providing the temporary electric power service.

1.8 TEMPORARY LIGHTING
   A. Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
      1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
      2. In existing facilities where the construction activities may occur over a series of phases, temporarily relocate directional egress signage and lighting to direct building occupants and construction personnel away from hazards or dead-end pathways created by the construction activities. Coordinate the temporary relocation of egress signage with the authority having jurisdiction.

1.9 WATER SERVICE – USE OF EXISTING FACILITY WATER SERVICE
   A. Use of the Owner's existing domestic water service will be permitted. Provide connections and extensions of services as required for construction operations. Clean and maintain water service in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
      1. Usage Charges to be paid by the Owner.
      2. Each contract is responsible for its own hoses, nozzles, etc.

1.10 TEMPORARY WATER SERVICE
   A. Install water service and distribution piping in sizes and pressures adequate for construction. Water materials down sewers or into waterways will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
   B. Furnish water as required for construction and cleaning of site. Water may be used from the existing water service, subject to limitations established by the Owner. Each Contract is responsible for providing the temporary water service.

1.11 SANITARY FACILITIES – USE OF EXISTING FACILITY RESTROOMS
   A. Provide restroom facilities on-site.

1.12 PROTECTION OF FINISHES
   A. Provide surface protection material to protect existing and new flooring, walls, ceiling, etc. surfaces.
      1. The Project Coordinator shall be responsible for the protection of all floor finishes installed as new construction, as it pertains to this project.
      2. Each Contract shall be responsible for the protection of all finishes, unless noted otherwise. Finishes may include but not be limited to: existing flooring and new/existing (walls, ceilings, countertops, furniture, equipment, etc.).

1.13 SECURITY ENCLOSURE AND LOCKUP
   A. Install temporary enclosure around partially completed areas of construction.

1.14 BARRICADES, WARNING SIGNS AND LIGHTS
   A. Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

1.15 PROTECTION OF EXISTING FACILITIES
   A. Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
   B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.0 SUMMARY
   A. Extent of concrete work is indicated on the drawings.

1.01 SECTION INCLUDES
   A. Concrete formwork.
   B. Floors and slabs on grade.
   C. Concrete foundations and anchor bolts.
   D. Concrete reinforcement.
   E. Miscellaneous concrete elements, including equipment pads, equipment pits, light pole bases, flagpole bases, thrust blocks, and manholes.
   F. Concrete curing.

1.02 RELATED REQUIREMENTS
   A. Division 07 – Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS
   A. ACI 117 - Specification for Tolerances for Concrete Construction and Materials; 2010 (Re-approved 2015).
   B. ACI 211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.
   C. ACI 301 - Specifications for Concrete Construction; 2020.
   D. ACI 302.1R - Guide to Concrete Floor and Slab Construction; 2015.
   E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
   F. ACI 305R - Guide to Hot Weather Concreting; 2020.
   G. ACI 306R - Guide to Cold Weather Concreting; 2016.
   H. ACI 308R - Guide to External Curing of Concrete; 2016.
   I. ACI 318 - Building Code Requirements for Structural Concrete; 2019 (Reapproved 2022).
   J. ACI 347R - Guide to Formwork for Concrete; 2014 (Reapproved 2021).
   K. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
   L. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
   M. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.
   N. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2021.
   O. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2022a.
   P. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.
   Q. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
   R. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2016.
   S. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
   T. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.
   U. ASTM C476 - Standard Specification for Grout for Masonry; 2022.
   V. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019, with Editorial Revision (2022).
   W. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2022.
   X. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2020.
   Y. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2018.
   Z. ASTM E154/E154M - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover; 2008a (Reapproved 2019).
   AA. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2018a.
   AB. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2018a.

1.04 SUBMITTALS
   A. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
      1. For curing compounds, provide data on methods of removal in the event of incompatibility with floor covering adhesives.
      2. For membrane-forming, moisture emission-reducing, curing and sealing compound, provide manufacturer's installation instructions.
   B. Mix Design: Submit proposed concrete mix design.
      1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
      2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.
      3. Indicate proposed mix design complies with fiber reinforcing manufacturer's written recommendations.
      4. Indicate proposed mix design complies with admixture manufacturer's written recommendations.
      5. Indicate proposed mix design complies with expansive component manufacturer's written recommendations.
   C. Test Reports: Submit a report for each test or series of tests specified.

1.05 QUALITY ASSURANCE
   A. Perform work of this section in accordance with ACI 301 and ACI 318.
      1. Maintain one copy of each document on site.
   B. Follow recommendations of ACI 305R when concreting during hot weather.
   C. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK
   A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
   B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
      1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
      2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
      3. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT MATERIALS
   A. Reinforcing Steel (Bar): ASTM A615/A615M, Grade 60 (60,000 psi).
      1. Type: new billet steel bars.
      2. Finish: Unfinished, unless otherwise indicated.
   B. Reinforcing Steel (Welded Wire Fabric): ASTM A1064
      1. Type: Flat Sheets
      2. Finish: Unfinished, unless otherwise indicated.
      3. Placement: Installed on top of chairs.
   C. Reinforcement Accessories:
      1. Tie Wire: Annealed, minimum 16-gauge, 0.0508 inch.
      2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.03 CONCRETE MATERIALS
   A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
      1. Acquire cement for the entire project from one source.
      2. Minimum of 75% of Cementitious material by Weight.
   B. Fine and Coarse Aggregates: ASTM C33/C33M.
   C. Fly Ash: ASTM C618, Class C or F.
      1. Maximum 20% of Cementitious material by weight.
      2. Fly Ash is not permitted in mixes for flat horizontal exposed surfaces.
   D. Ground Granulated Blast Furnace Slag is only permitted in concrete mixes that will not be exposed.
   E. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.
   F. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES
   A. General Use of Admixtures shall be in accordance with the following.
      1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
      2. All admixtures shall be sourced from one manufacturer and the combination of those admixtures shall be approved by the manufacturer
      3. Approved manufactures are Euclid Chemical, www.euclidchemical.com/#sle and Sika USA, https://usa.sika.com and any other manufacture of equal or better quality that is approved in writing by the architect.
   B. Air Entrainment Admixture: ASTM C260/C260M.
      a. Euclid Chemical Company; EUCON AEA-92S
      b. Sika USA; Sika Air-260
   C. High Range Water Reducing: ASTM C494/C494M Type A & F
      a. Euclid Chemical Company; EUCON 1037
      b. Sika USA; Sikamment 610
   D. Concrete Retarder Admixture: ASTM C494/C494M Type B & D.
      a. Euclid Chemical Company; Eon Retarder 75
      b. Sika USA; Sika Plastiment
   E. Concrete Accelerating Admixture: ASTM C494/C494M Type C & E.
      a. Euclid Chemical Company; ACCELGUARD 80
      b. Sika USA; Sika Set NC
   F. Water Reducing Admixture: ASTM C494/C494M Type A & D.
      a. Euclid Chemical Company; EUCON NW
      b. Sika USA; Sika Plastocrete-10N
   G. Shrinkage Reducing Admixture: ASTM C494/C494M, Type S.
      a. Euclid Chemical Company; EUCON SRA Floor:
      b. Sika USA; SikaControl-75

2.05 CURING MATERIALS
   A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
      1. Products:
         a. Dayton Superior Corporation; AquaFilm: www.daytonsuperior.com
         b. Euclid Chemical Company; EUCOBAR: www.euclidchemical.com
         c. Kaufman Products, Inc; VaporAid: www.kaufmanproducts.net.
         d. Nox-Crete Inc; Monofilm: www.nox-crete.com
         e. SpecChem, L

pallets, dunnage, or other supports and spacers. Protect members and packaged materials from corrosion and deterioration.

PART 2 PRODUCTS

2.01 MATERIALS

A. Steel Angles and Plates: ASTM A36/A36M.
B. Steel W Shapes and Tees: ASTM A992/A992M.
C. Cold-Formed Structural Tubing: ASTM A500/A500M, Grade B.
D. High-Strength Structural Bolts, Nuts, and Washers: ASTM A325, with matching compatible ASTM A563/A563M nuts and ASTM F436/F436M washers.
E. Tension Control Bolts: Twist-off type; ASTM F3125/F3125M.
F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
G. Grout: ASTM C1107/C1107M, Non-shrink, premixed grout consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch.
   2. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch.
   3. Height Change, Plastic State; when tested according to ASTM C827/C827M:
      a. Maximum : Plus 4 percent.
      b. Minimum : Plus 1 percent.
H. Touch-Up Primer for Galvanized Surfaces: Fabricator's standard zinc rich paint, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

A. Shop to fabricate to greatest extent possible.
B. Continuously seal joined members by continuous, uniform welds. Grind exposed welds surfaces to a smooth finish.
C. Fabricate connections for bolt, nut, and washer connectors.
D. Remove weld spatter, slivers, and similar surface discontinuities.
E. Remove blemishes and surface irregularities resulting from temporary braces or fixtures by filling or grinding, before cleaning, treating, and galvanizing.

2.03 FINISH

A. Prepare structural component surfaces in accordance with SSPC-SP 3.
B. Galvanize structural steel members to comply with ASTM A123/A123M. Provide minimum 1.7 oz/sq ft galvanized coating.

2.04 SOURCE QUALITY CONTROL

A. Welded Connections: Visually inspect all shop-welded connections, document, and record results.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.02 ERECTION

A. Erect structural steel in compliance with AISC 303.
B. Allow for erection loads and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.
C. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with RCSC (HSBOLT) "Specification for Structural Joints Using High-Strength Bolts".
D. Do not field cut or alter structural members without approval of Architect.
E. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for non-shrink grout. Trowel grouted surfaces to a smooth finish, splaying neatly to 45 degrees.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 1/4 inch per story, non-cumulative.
B. Maximum Offset from True Alignment: 1/4 inch.

3.04 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Division 01 - Quality Requirements.
B. Welded Connections: Visually inspect all field-welded connections, document, and record results.

SECTION 06 10 00 – ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.
B. Exposed timber structural framing.
C. Non-structural dimension lumber framing.
D. Preservative treated wood materials.

1.02 RELATED REQUIREMENTS

A. Section 061500 - Wood Decking.

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.
B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
C. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2016.
D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.
E. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2018, with Errata (2019).
F. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
G. NELMA (SGR) - Standard Grading Rules for Northeastern Lumber; 2021.
H. PS 20 - American Softwood Lumber Standard; 2021.
I. WWPA G-5 - Western Lumber Grading Rules; 2021.

1.04 SUBMITTALS

A. See Division 01 - Administrative Requirements for submittal procedures.
B. Product Data: Provide technical data on wood preservative materials and application instructions.
C. Samples: For rough carpentry members that will be exposed to view, submit two samples, 6by12 inch in size illustrating wood grain, color, and general appearance.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.06 WARRANTY

A. See Division 01 - Closeout Submittals for additional warranty requirements.
B. Correct defective work within a See Arch Specs-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species:
      a. Exposed Framing: Douglas Fir-Larch, unless otherwise indicated.
      b. Concealed Framing: SPF, SYP, or Doug Fir, unless otherwise indicated.
   2. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
   3. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER

A. Grading Agency: Western Wood Products Association; WWPA G-5.
B. Sizes: Nominal sizes as indicated on drawings, S4S.
C. Moisture Content: S-dry or MC19.
D. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
   1. Species: Allowed under grading rules.
   2. Species:
      a. Exposed Framing: Douglas Fir-Larch, unless otherwise indicated.
      b. Concealed Framing: SPF, SYP, or Doug Fir, unless otherwise indicated.
   3. Grade: No. 1 and Better.
E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
B. Die-Stamped Connectors: Hot dipped galvanized steel, sized to suit framing conditions.
   1. For contact with preservative treated wood or other wood products locations, provide minimum G185 galvanizing complying with ASTM A653/A653M.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.
B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including shims, bracing, and blocking.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
B. Make provisions for temporary construction loads and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
C. Install structural members full length without splices unless otherwise specifically detailed.
D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes, AWC (WFCM) Wood Frame Construction Manual, and 2017 OBC.
E. Install horizontal spanning members with crown edge up and not less than 3 inches of bearing at each end.
F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
G. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

3.05 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
B. Allow preservative to dry prior to erecting members.

3.06 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.
B. Variation from Plane, Other than Floors: 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.07 FIELD QUALITY CONTROL

A. See Division 01 - Quality Requirements for additional requirements.

3.08 CLEANING

A. Waste Disposal: See Division 01 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.
C. Prevent sawdust and wood shavings from entering the storm drainage system.

3.09 SCHEDULES

A. Roof Beams: Doug Fir, No. 1 Grade.

SECTION 06 12 16 - STRUCTURAL INSULATED PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Structural insulated panels (SIPs) with expanded polystyrene core.

1.2 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry.
B. Section 06 16 00 - Sheathing.
C. Section 07 46 46 – Fiber Cement Siding.

1.3 REFERENCES

A. ASTM International
   1. ASTM C 203 - Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
   2. ASTM C 272 - Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.
   3. ASTM C 273 - Standard Test Method for Shear Properties of Sandwich Core Materials.
   4. ASTM C 297 - Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions.
   5. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
   6. ASTM D 1621 - Standard Test Method for Compressive Properties Of Rigid Cellular Plastics.
   7. ASTM D 1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics.
   8. ASTM D 1623 - Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
   9. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
   10. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
   11. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
B. Underwriters Laboratories, Inc: UL 723 - Test for Surface Burning Characteristics of Building Materials
C. The Engineered Wood Association: APA PRP-108 - Performance Standards and Qualification Policies for Structural-Use Panels.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00.
B. Product Data: Manufacturer's data sheets on each product; manufacturer-specific installation instructions for SIP system, including preparation instructions and recommendations, and storage and handling requirements and recommendations.
C. Shop Drawings: Submit shop drawings for SIPs showing layout, elevations, SIP details, product components and accessories. SIP installation drawing shall be reviewed by and sealed by a registered professional engineer qualified to perform such work. Deviations from standard detail and load design values shall be calculated and signed and sealed by a registered professional engineer.
D. Samples: Submit 12 inch by 12 inch (305 mm by 305 mm) sample panel.
E. SIP Code Compliance Report: Submit manufacturer's ICC-ES evaluation report for the International Building Code.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Installer shall be experienced in performing work of this section and shall specialize in installation of work similar to that required for this project. All work shall be performed in accordance with the manufacturer's installation manuals, and in accordance with manufacturer's panel layout drawings when supplied.
B. Source Limitations: Obtain all SIPs from one manufacturer, through one source. Accessories shall be acceptable to the SIP manufacturer.
C. Field Measurements: Provide field measurements of structure to SIPs manufacturer prior to fabrication of panels. Coordinate fabrication schedule to comply with project schedule requirements.
D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Erect panels in area designated by Architect.
   2. Do not proceed with remaining work until workmanship is approved by Architect.
   3. Correct mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Ordering: Comply with SIP manufacturer ordering instructions and coordinate lead time requirements to avoid construction delays.
B. Delivery: Deliver materials from SIP manufacturer with identification labels or markings intact.
C. Unloading: Off-load SIPs from delivery vehicle using method which will not damage SIPs, and as acceptable to the manufacturer.
D. Storage: SIPS shall be fully supported using wood stickers, placed in level storage, and prevented from contact with the ground. Stickers shall be placed as recommended by manufacturer.
E. Protection: SIPs shall remain in the manufacturer's protective wrap until needed for installation. Unused panels will be rewrapped and/or covered with a suitable covering that will prevent exposure to rain, snow, water, sunlight, dirt, mud, and any foreign matter that may affect SIP performance.
F. Subsequent Construction: Coordinate installation of subsequent construction to avoid exposure of SIPs to rain, snow, high moisture, and ultraviolet light and as recommended by the manufacturer.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer to the greatest extent practical. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

A. Panel manufacturer will provide lamination warranty documents for building Owner acceptance and execution upon completion. Manufacturer's standard forms shall be submitted.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: The Murus Company, Inc.
B. Subject to compliance requirements, products may be supplied by other manufacturers, including but not limited to the following:
   1. Greenix Panel
   2. ICS Eco SIPs
   3. Thermocore

2.2 STRUCTURAL INSULATED PANELS

A. Murus EPS Structural Insulated Panel (SIP) with Expanded Polystyrene Core: A stress skin panel manufactured by a pressure lamination process complying with the following:
   1. Panel Type: MURUS OSB-2100EPS Structural Insulated Panel, OSB/EPS Foam Core/OSB panel.
   2. Panel Type: MURUS NB-2100EPS Insulated Panel, OSB/EPS Foam Core.
   3. Thermal Characteristics: 4-1/2 inches (114 mm) thick SIP with R-15.
   4. Thermal Characteristics: 8-1/4 inches (210 mm) thick SIP with R-29.
   5. Expanded Polystyrene Core: Minimum of .95 pcf (15 kg/cu m) insulation meeting manufacturer's quality standards and the following. Insulation manufacturer shall provide confirmation of Third Party Certification.
      a. K Factor: .26, ASTM C 518.
      b. Compressive Strength: 10 psi, ASTM D 1621.
      c. Flexural Strength: 25 psi min, ASTM C 203.
      d. Tensile Strength: 28 psi min, ASTM C 297.
      e. Shear Strength: 16 psi min, ASTM C 273.
      f. Shear Modulus: 440 psi min, ASTM C 273.
      g. Modulus of Elasticity: 915 psi min, ASTM C 203.
      h. WVTI/Perm Inches: 5.0 max, ASTM E 96.
      i. Water Absorption (by volume): 4% max, ASTM C 272.
      j. Maximum Service Temperature: 165 degrees F.
      k. Foam Fire Rating: Class 1, ASTM E 84.
      l. Flame Spread: <25, ASTM E 84.
      m. Smoke Developed: <450, ASTM E 84.
      n. Transverse Load: ASTM E 72.
      o. Combined Axial and Bending: ASTM E 72.
   6. OSB: APA performance rating mark shall be identified on the panel, with an Exposure 1 durability rating; minimum physical properties shall be tested and described in APA PRP-108 or NIST PS 2. 7/16 inch (11 mm) thickness unless noted otherwise.
   7. Adhesives: Manufacturer-approved one part urethane laminating adhesive having an in-use temperature range of - 40 degree F to +250 degree F (-40 degree C to 121 degree C).
   8. Wiring Chases: If indicated or required, shall be cut into the panel during the manufacturing process.
   9. Sizes: As indicated. Murus NEOPOR SIPs are available in widths of 4 feet or 8 feet by lengths of 8 feet to 24 feet (1219 mm or 2438 mm by 1219 mm to 7315 mm).

2.3 ACCESSORIES

A. Fasteners: Galvanized ring shank panel nails, or panel screws, as specified by panel manufacturer, for attachment of panel to frames, roofs, and corners. All fasteners to be sized and provided by manufacturer and installed per manufacturer's requirements. Do not use common fasteners.
B. Foam Sealant: Compatible with all components of the panel and adjacent materials, provided by manufacturer.
C. Construction Adhesive for Installing Dimensional Lumber: Supplied by contractor, acceptable to manufacturer.
D. Dimensional Lumber: SPF #2 kiln-dried or better, or pre-engineered equivalent.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until foundation or slab have been properly prepared.
B. If supporting framing and level line are the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.
B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Installation shall be in strict accordance with manufacturer's published instructions, details, and the drawings that are part of the contract documents for this project. Conflicts between these documents shall be resolved in writing prior to start of construction.

3.4 PROTECTION

A. Protect installed products until completion of project.
B. When storing panels, do not allow them to come into contact with the ground. Stored panels shall remain dry and in the manufacturer's original packaging. Do not allow panels to be stored in an unsupported manner.
C. Roof panels shall be fully protected from weather by roofing materials or other means to provide temporary protection at the end of the day, or when rain or snow is imminent.
D. Remove and replace insulated wall or roof panels which have become excessively wet or damaged before proceeding with installation of additional panels or other work.

SECTION 06 16 00 - SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes: Plywood sheathing.

1.2 SUBMITTALS

B. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
   2. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
   3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

C. Evaluation Reports: For the following, from ICC-ES:
   1. Wood-preservative-treated plywood.

1.3 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering it with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

A. Plywood: Either DOC PS 1 or DOC PS 2 unless otherwise indicated.
B. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
C. Factory mark panels to indicate compliance with applicable standard.

2.2 PLYWOOD SHEATHING

A. Plywood Wall and Parapet Sheathing: Either DOC PS 1 or DOC PS 2, Exposure 1, Fire Retardant Treated, Exterior sheathing.
   1. Span Rating: Not less than 24/0.
   2. Nominal Thickness: As indicated on Drawings, but not less than 1/2 inch.

2.3 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
   1. For sheathing, provide fasteners with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.
   2. For plywood sheathing, provide fasteners of Type 304 stainless steel.
B. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES-AC70.
C. Screws for Fastening Plywood Sheathing to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
D. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached.
   1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C 1002.
   2. For steel framing from 0.033 to 0.112 inch thick, use screws that comply with ASTM C 954.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between corner bracing or between studs.
B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.
C. Securely attach to substrate by fasteners as indicated, complying with the following:
   1. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
   2. ICC-ES evaluation report for fastener.
D. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 PLYWOOD SHEATHING INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
B. Fastening Methods: Fasten panels as indicated below:
   1. Wall, Parapet and Soffit Sheathing:
      a. Screw to cold-formed metal framing.
      b. Space panels 1/8 inch apart at edges and ends.

SECTION 06 20 20 - INTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Standing and running trim.
   2. Paneling.

1.2 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.
B. Samples: For each type of trim, molding, or paneling indicated.
C. Finishes: Physical samples of stain color and finish sheen (to match existing) for all transparent and semi-transparent finishes.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review.
B. Hardwood Plywood
C. Hardboard: AHA A135.4.
D. MDF: ANSI A208.2, Grade 130, made with binder containing no urea-formaldehyde resin.
E. Particleboard: ANSI A208.1, Grade M-2, made with binder containing no urea-formaldehyde resin.
F. Melamine-Faced Particleboard: Particleboard complying with ANSI A208.1, Grade M-2, finished on both faces with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

2.2 STANDING AND RUNNING TRIM

A. Moldings/Trim for Transparent Finish (Stain or Clear Finish): Clear (better than FAS)
   1. Species: Douglas fir or Pine (as required to match existing)
   2. Maximum Moisture Content: 15 percent.
B. Moldings for Opaque Finish (Painted): Made to patterns included in WMMPA WM 12.
   1. Moldings grade: WMMPA WM 4, P-grade.
      a. Species: pine or poplar.
      b. Maximum Moisture Content: 15 percent.

2.3 PLYWOOD PANELING

A. "A" grade face hardwood veneer panels
   1. Face species: Birch
   2. Thickness: 1/4" thickness (or as required to match existing conditions).

2.4 MISCELLANEOUS MATERIALS

A. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue.
   1. Use wood glue that has a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installing interior finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours.

3.2 INSTALLATION, GENERAL

A. Install interior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
   1. Scribe and cut interior finish carpentry to fit adjoining work.
   2. Countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.
   3. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining interior finish carpentry with 1/32-inch (0.8-mm) maximum offset.
   4. Install stairs with no more than 3/16-inch (4.7-mm) variation between adjacent treads and risers and with no more than 3/8-inch (9.5-mm) variation between largest and smallest treads and risers within each flight.

3.3 STANDING AND RUNNING TRIM INSTALLATION

A. Install trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 2 inches long except where necessary.
   1. Use scarf joints for end-to-end joints.
   2. Stagger end joints in adjacent and related members.
B. Coordinate selection and placement of trim pieces to minimize waste of material. Where practical, select pieces that can be installed to provide continuous runs without splices.
C. Wood Cabinets for Transparent Finish:
   1. Grain Direction: Vertically for drawer fronts, doors, and fixed panels.
   2. Matching of Veneer Leaves: Book or Slip match.
   3. Semiexposed Surfaces Other Than Drawer Bodies: Same species and cut indicated for exposed surfaces or compatible species to that indicated for exposed surfaces, stained to match.
   4. Drawer Sides and Backs: Solid hardwood lumber.
   5. Drawer Bottoms: Hardwood plywood.
   6. Provide dust panels of 1/4-inch plywood or tempered hardboard above compartments and drawers, unless located directly under tops.

2.5 SHOP FINISHING

A. Finish architectural woodwork at fabrication shop. Defer only final touchup, cleaning, and polishing until after installation.
B. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling.
C. Transparent Finish:
   1. Grade: Premium.
   2. Finish System: Acrylic lacquer or Conversion varnish.
   3. Staining: Match approved sample for color.
   4. Wash Coat for Stained Finish: Apply a wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.

PART 6 - EXECUTION

3.1 INSTALLATION

A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas. Examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.
B. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
C. Install woodwork level, plumb, true, and straight to a tolerance of 1/8 inch in 96 inches. Shim as required with concealed shims.
D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching fine finish if transparent finish is indicated.
F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide uniform reveal operation.
   1. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into wood framing, blocking, or hanging strips.
G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."

SECTION 07 21 00 - INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Perimeter wall and under slab insulation.
   2. Concealed building insulation.
   3. Vapor retarders and accessories.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.
B. Samples for Verification: Full-size units for each type of exposed insulation indicated.
C. Product test reports.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84 for surface-burning characteristics and other methods indicated with product, by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

PART 2 - PRODUCTS

3.1 FOAM-PLASTIC BOARD INSULATION

A. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, 1.60 lb/cu. ft., with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively:
   1. Provide thickness and thermal resistance value indicated on the Drawings.
   2. Provide compressive strength for applications as indicated on the Drawings: 15 psi minimum in walls and roof; 25 psi minimum under slabs.

3.2 GLASS-FIBER BLANKET INSULATION

A. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
B. Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (blankets with reflective membrane facing), Class A (membrane-faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene vapor-retarder membrane on 1 face.
C. Where glass-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt or roll form with thermal resistances indicated:
   1. 3-1/2 inches thick with a thermal resistance of 15 deg F x h x sq. ft./Btu at 75 deg F.
   2. 5-1/2 inches thick with a thermal resistance of 21 deg F x h x sq. ft./Btu at 75 deg F.
   3. 9-1/2 inches thick with a thermal resistance of 28 deg F x h x sq. ft./Btu at 75 deg F.
   4. 10-1/4 inches thick with a thermal resistance of 38 deg F x h x sq. ft./Btu at 75 deg F

D. Auxiliary Insulation Materials
   1. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by insulation manufacturers for sealing joints and penetrations in vapor-retarder facings.
   2. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.
   3. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide cross ventilation between insulated attic spaces and vented eaves.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
   1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
   2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provision has been made for flashings and penetrations through asphalt shingles.
B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
B. Single-Layer Felt Underlayment: Install on roof deck parallel with and starting at the eaves. Lap sides a minimum of 2 inches over underlying course. Lap ends a minimum of 4 inches. Stagger end laps between succeeding courses at least 72 inches. Fasten with felt underlayment nails.
   1. Install felt underlayment on roof deck not covered by self-adhering sheet underlayment. Lap sides of felt over self-adhering sheet underlayment not less than 3 inches in direction to shed water. Lap ends of felt not less than 6 inches over self-adhering sheet underlayment.
   2. Install fasteners at no more than 36 inch o.c.
C. Synthetic Underlayment: Install on roof deck not covered by self-adhering sheet underlayment. Install parallel with and starting at the eaves. Lap sides and ends and tops as recommended in writing by manufacturer. Stagger end laps between succeeding courses at interval recommended in writing by manufacturer. Fasten according to manufacturer's written instructions. Cover underlayment within period recommended in writing by manufacturer.
D. Self-Adhering Sheet Underlayment: Install, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install at locations indicated below and on Drawings, lapped in direction to shed water. Lap sides not less than 3-1/2 inches. Lap ends not less than 6 inches staggered 24 inches between courses. Roll laps with roller. Cover underlayment within seven days.
   1. Prime concrete and masonry surfaces to receive self-adhering sheet underlayment.
   2. Eaves: Extend from edges of eaves 36 inches beyond interior face of exterior wall.
   3. Rakes: Extend from edges of rake 36 inches beyond interior face of exterior wall.
   4. Valleys: Extend from lowest to highest point 30 inches on each side.
   5. Hips: Extend 18 inches on each side.
   6. Ridges: Extend 36 inches on each side without obstructing continuous ridge vent slot.
   7. Sidewalls: Extend beyond sidewall 18 inches, and return vertically against sidewall not less than 4 inches.
   8. Dormers, Chimneys, Skylights, and Other Roof-Penetrating Elements: Extend beyond penetrations 18 inches, and return vertically against penetrating element not less than 4 inches.
   9. Roof Slope Transitions: Extend 18 inches on each roof slope.
E. Concealed, Closed-Cut Valley Lining: Comply with NRCA's recommendations. Install a 36-inch- wide strip of self-adhering underlayment centered in valley. Fasten to roof deck with felt underlayment nails.
   1. Lap roof-deck felt or synthetic underlayment over valley felt underlayment at least 6 inches.
   2. Install a 36-inch- wide strip of granular-surfaced valley lining centered in valley, with granular- surface face up. Lap ends of strips at least 12 inches in direction to shed water, and seal with asphalt roofing cement. Fasten to roof deck with roofing nails.

3.3 METAL FLASHING INSTALLATION

A. General: Install metal flashings and other sheet metal to comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."
   1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."
B. Apron Flashings: Extend lower flange over and beyond each side of downslope asphalt shingles and up the vertical surface.
C. Step Flashings: Install with a headlap of 2 inches and extend over the underlying asphalt shingle and up the vertical surface. Fasten to roof deck only.
D. Cricket and Backer Flashings: Install against the roof-penetrating element extending concealed flange beneath upslope asphalt shingles and beyond each side.
E. Rake Drip Edges: Install rake drip edge flashings over underlayment and fasten to roof sheathing.
F. Eave Drip Edges: Install eave drip edge flashings below underlayment and fasten to roof sheathing.
G. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

3.4 ASPHALT SHINGLE INSTALLATION

A. General: Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."
B. Install starter strip along lowest roof edge, consisting of an asphalt shingle strip at least 7 inches wide with self-sealing strip face up at roof edge.
   1. Extend asphalt shingles 3/4 inch over fascias at eaves and rakes.
   2. Install starter strip along rake edge.
C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
D. Fasten asphalt shingle strips with a minimum of five roofing nails located according to manufacturer's written instructions.
   1. Where roof slope exceeds 21:12, seal asphalt shingles with asphalt roofing cement spots after fastening with additional roofing nails.
   2. Where roof slope is less than 4:12, seal asphalt shingles with asphalt roofing cement spots.
   3. When ambient temperature during installation is below 50 deg F, seal asphalt shingles with asphalt roofing cement spots.
E. Closed-Cut Valleys: Extend asphalt shingle strips from one side of valley 12 inches beyond center of valley. Use one-piece shingle strips without joints in valley. Fasten with extra nail in upper end of shingle. Install asphalt shingle courses from other side of valley and cut back to a straight line 2 inches short of valley centerline. Trim upper concealed corners of cut-back shingle strips.
   1. Do not nail asphalt shingles within 6 inches of valley center.
   2. Set trimmed, concealed-corner asphalt shingles in a 3-inch- wide bed of asphalt roofing cement.
F. Ridge Vents: Install continuous ridge vents over asphalt shingles according to manufacturer's written instruction. Fasten with roofing nails of sufficient length to penetrate sheathing.
G.

2.4 METAL ROOF PANEL ACCESSORIES
A. General: Provide complete metal panel assembly incorporating trim, copings, fasciae, gutters and downspouts, and miscellaneous flashings, in (manufacturer's standard profiles] [profiles as indicated]. Provide required fasteners, closure strips, and sealants as indicated in manufacturer's written instructions.
B. Flashing and Trim: Match material, thickness, and finish of metal panel face sheet.
C. Panel Fasteners: Self-tapping screws and other acceptable corrosion-resistant fasteners recommended by metal panel manufacturer. Where exposed fasteners cannot be avoided, supply fasteners with EPDM or neoprene gaskets, with heads matching color of metal panels by means of factory-applied coating.
D. Joint Sealers: Manufacturer's standard or recommended liquid and preformed sealers and tapes, and as follows:
1. Tape Sealers: Manufacturer's standard non-curing butyl tape, AAMA 809.2.
2. Concealed Joint Sealant: Non-curing butyl, AAMA 809.2.
E. Steel Sheet Miscellaneous Framing Components: ASTM C 645, with ASTM A 653/A 653M, G60 (Z180) hot-dip galvanized zinc coating.
F. Metal Accessories: Approved by metal panel manufacturer. Refer to [Section 07 72 00] "Metal Accessories" for materials for metal accessories.

2.5 SNOW RETENTION SYSTEMS
1.1 Basis of Design Product: S-5 ColorGard bar type snow guard
1. Bar and color insert shall match metal roof.
2. CorruBracket attachments

2.6 FABRICATION
A. General: Provide factory fabricated and finished metal panels and accessories meeting performance requirements, indicated profiles, and structural requirements.
B. Fabricate metal panel joints configured to accept sealant providing weathertight seal and preventing metal-to-metal contact and minimizing noise resulting from thermal movement.
C. Form panels in continuous lengths for full length of detailed runs, except where otherwise indicated on approved shop drawings.
D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's written instructions, approved shop drawings, and project drawings. Form from materials matching metal panel substrate.

2.7 FINISHES
A. Two coat coil applied, baked on full strength (70% resin, PVF2) fluorocarbon coating consisting of a nominal 0.25 mil dry film thickness primer, and a nominal dry film thickness of 0.7 -0.8 mil color coat for a total 0.9 to 1.1 mil total system dry film thickness. Finish to be selected from manufacturer's standard color selection. The back side of the material should be 0.25 mil primer and a 0.25 mil polyester wash coat.
1. Metal Panel Color:
a. Selected from full range of manufacturer's standard colors.
2. Metal Related Trim/Accessories Color:
a. Selected from full range of manufacturer's standard colors.

2.8 RELATED MATERIALS
A. General: Coordinate use of related materials:
1. Underlayment as recommended by manufacturer.
2. Tongue and Groove Deck: Refer to Division 6 Rough Carpentry
3. Sealants: Refer to Division 7 Joint Sealants

2.9 SOURCE QUALITY
A. Source Quality: Obtain metal panel products from a single manufacturer.
B. Quality Control: Obtain metal panels, trim and other accessories from a manufacturer capable of providing on-site technical support and installation assistance.

PART 3 EXECUTION
3.1 MANUFACTURER'S INSTRUCTIONS
A. Compliance: Comply with manufacturer's product data, recommendations and installation instructions for substrate verification, preparation requirements and installation.
1. Strippable Film: Remove manufacturer's protective film, if any, from surfaces of metal panels.
B. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
1. Verification of Conditions:
a. Panel support systems are ready for construction activities of this section and within specified tolerances.
b. Rough-in utilities are in correct locations.
2. Installer's Examination:
a. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
b. Transmit installer's report to Architect within 24 hours of receipt.
c. Delay construction activities of this section until unacceptable conditions have been corrected.
d. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.2 PREPARATION
A. Coordination: Coordinate metal panel work with other trades to provide a noncorrosive and leak-free metal installation.
1. Install substrate in accordance with manufacturer's recommendations.
2. Coordinate work, with installation of other associated work, to ensure quality application.
3. Coordinate work with installation of associated metal flashings and building walls.
4. Coordinate work to minimize foot traffic and construction activity on installed finished surfaces.
5. Dissimilar Metals: Prevent galvanic action of dissimilar metals.

3.3 INSTALLATION
A. General: Install metal panels to profiles, patterns and drainage indicated and required for leak-free performance. Provide for structural and thermal movement of work. Seal joints for leak-free metal installation.
1. Shim or otherwise plumb substrates receiving metal panels.
2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws.
3. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
4. Locate and space fasteners in uniform vertical and horizontal alignment.
5. Install flashing and trim as metal panel work proceeds.
6. Install continuous length panels if at all possible. If splices are required, locate panel splices over, but not attached to, structural supports and only with prior Architect approval.
7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws.
8. Fasten flashings and trim around openings and similar elements with self-tapping screws.
9. Fix panels at location depicted on reviewed shop drawings.
10. Allow for required panel clearance at penetrations for thermal movement.
11. Sealant-Type Joints: Provide sealant-type joint where indicated. Form joints to conceal sealant. Comply with Division 7 Joint Sealants Section for sealant installation.
B. Metal Installation:
1. Install metal panels plumb, true and in correct alignment with structural framing, in accordance with shop drawings and manufacturer's printed installation instructions.
2. Install metal panels using non-corroding fasteners color-matched to panel.
3. Install trim using concealed fasteners where possible; sight-exposed non-corroding fasteners color-matched to trim are permitted on vertical surfaces only.
C. Installation Tolerances:
1. Variation from Plumb: Maximum 1/8" (3.2 mm) in 20 feet (6.096 m).
2. Variation from Level: Maximum 1/8" (3.2 mm) in 20 feet (6.096 m).
3. Variation from True Plane: Maximum 1/8" (3.2 mm) in 20 feet (6.096 m).
D. Underlayment Installation
1. Underlayment to be supplied by metal panel manufacturer.
2. Self-adhered High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 40 mils thick adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.
3. Thermal Stability: Stable after testing at 240 degree F; ASTM D1970.
4. Low-Temperature Flexibility: Passes after testing at minus 20 degree F; ASTM D1970.
5. Apply over the entire metal roof surface.
E. Flashing and Trim Installation: Comply with performance requirements, manufacturer's written installation instructions, and the SMACNA "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and install units to true level. Install work with laps, joints, and seams that will be permanently watertight.

3.4 FIELD QUALITY REQUIREMENTS
A. Site Tests: (Post-Installation Testing): Owner reserves right to perform post-installation testing of installed metal panel installation.

3.5 CLEANING
A. Cleaning: Remove temporary coverings and protection of adjacent work areas.
B. Repair or replace damaged installed products.
C. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance.
D. Remove construction debris from project site and legally dispose of debris.
E. Remove strippable coating and perform dry wipe-down cleaning of panels as erected.

3.6 PROTECTION
A. Protection: Protect installed product's finish surfaces from damage during construction:
1. Protect installed products from damage by subsequent construction activities.
2. Replace products having damage other than minor finish damage.
3. Repair products having minor damage to finish in accordance with panel Manufacturer's recommendations.
4. Architect shall be sole judge of acceptability of repair to damaged finishes; replace products having rejected repairs

SECTION 07 46 46 - FIBER CEMENT SIDING

PART 1 - GENERAL
1.1 SUMMARY
A. Section includes fiber-cement siding, soffit, and accessories.
1.2 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Samples: For siding including related accessories.
C. Qualification Data: For qualified siding Installer.
H. Warranty: Sample of special warranty.
1.3 QUALITY ASSURANCE
A. Labeling: Provide fiber-cement siding that is tested and labeled according to ASTM C 1186 by a qualified testing agency acceptable to authorities having jurisdiction.
B. Source Limitations: Obtain each type, color, and texture of siding, including related accessories, from single source from single manufacturer.
C. Preinstallation Conference: Conduct conference at project site.
1.4 WARRANTY
A. Special Warranty: Standard form in which manufacturer agrees to repair or replace siding that fail(s) in materials or workmanship within specified warranty period.
1. Warranty Period: 30 years from date of Substantial Completion.
1.5 EXTRA MATERIALS
A. Furnish extra materials that products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Furnish full lengths of siding including related accessories, in a quantity equal to 2 percent of amount installed.

PART 2 - PRODUCTS
2.1 FIBER-CEMENT SIDING
A. General: ASTM C 1186, Type A, Grade II, fiber-cement board, noncombustible when tested according to ASTM E 136; with a flame-spread index of 25 or less when tested according to ASTM E 84.
1. Pattern: Battens as indicated on plans.
2. Panel: 48-inch minimum wide sheets with smooth texture.
3. Factory Priming and Paint: Manufacturer's standard primer and finish. Field apply final coat of paint. Caulk and paint any exposed nail heads.
2.2 ACCESSORIES
A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.
1. Provide accessories made from same material as siding unless otherwise indicated.
B. Aluminum Accessories: Where aluminum accessories are indicated, provide accessories complying with AAMA 1402.
1. Texture: Smooth
2. Nominal Thickness: 0.024 inch (0.6 mm)
3. Finish: Manufacturer's standard
C. Flashing: Provide aluminum flashing at window and door heads and where indicated.
1. Finish for Aluminum Flashing: Siliconized polyester coating, color to be selected.
D. Fasteners:
1. For fastening fiber cement, use hot-dip galvanized or stainless-steel fasteners as approved by manufacturer.
E. Weather Barriers:
1. Non-woven, non-perforated, weather barrier with engineered vertical surface pattern to promote drainage
2. Performance Characteristics:
a. Air Penetration: Less than 0.004 cfm/ft2 at 75 Pa, when tested in accordance with ASTM E2178.
b. Water Vapor Transmission: Less than 20 perms, when tested in accordance with ASTM E96.
c. Water Penetration Resistance: Greater than 200 cm when tested in accordance with AATCC Test Method 127.
d. Basis Weight: 2.1 oz/yd2, when tested in accordance with TAPPI Test Method T-410.
e. Air Resistance: Greater than 300 seconds, when tested in accordance with TAPPI Test Method T-460.
f. Tensile Strength: Greater than 24 lbs/in., when tested in accordance with ASTM D882, Method A.
g. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84.
3. Tape, fasteners, flashing, and sealants as recommended by manufacturer.

PART 3 - EXECUTION
3.1 EXAMINATION
A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of siding and related accessories.
B. Proceed with installation only after unsatisfactory conditions have been corrected.
3.2 INSTALLATION
A. General: Comply with siding manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
1. Do not install damaged components.
2. Center nails in elongated nailing slots without binding siding to allow for thermal movement.
B. Install fiber-cement siding and related accessories.
1. Install fasteners no more than 24 inches (600 mm) o.c.
C. Install joint sealants to produce weathertight installation.
3.3 ADJUSTING AND CLEANING
A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.

SECTION 07 62 00 - ROOF FLASHING AND TRIM

PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Gutters and downspouts.
2. Metal trim including wall and roof interface flashing, flat roof flashing and trim, and other miscellaneous trim.
1.2 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Samples: For each type of exposed finish required and for each type of accessory including partitions, gutter hangers and snowguards.
1.3 QUALITY ASSURANCE
A. Installer Qualifications: Approved by manufacturer to install warranted roof system.
B. Preinstallation Conference: Conduct conference at Project site.
1.4 WARRANTY
A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace metal roof panel assemblies that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Ten years from date of Substantial Completion.
B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal roof panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
1. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS
2.1 ACCESSORIES
A. Roof Flashing and Trim: Aluminum (or formed from same material as metal roof panels), in thickness as shown on approved shop drawings. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim has same finish system as adjacent metal roof panels.
B. Gutters: Aluminum or formed from same material as metal roof panels. Standard shapes to match existing with end pieces, outlet tubes, and other special pieces as required for a complete installation (or as indicated on the Drawings). Furnish gutter supports spaced a maximum of 24 inches o.c., fabricated from same metal as gutters.
C. Downspout Discharge: Aluminum: 3 inch X 4 inch. Include elbows, transitions and other special pieces as required for a complete installation.
2.2 OTHER FLASHING AND TRIM
A. Aluminum Sheet: ASTM B 209 alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.
B. Finish for selected sheet material:
1. Surface: Smooth, flat finish.
2. Exposed Coil-Coated Finish:
a. 2-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat.
3. Concealed Finish: Manufacturer's standard white or light-colored acrylic or polyester backer finish.

PART 3 - EXECUTION
3.1 INSTALLATION
A. Comply with SMACNA's "Architectural Sheet Metal Manual." Allow for thermal expansion; set true to line and level. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.
B. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
C. Fabricate nonmoving seams in sheet metal with flat-lock seams. For aluminum, form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
D. Aluminum Flashing and Trim: Coat back side of aluminum flashing and trim with bituminous coating where it will contact wood, ferrous metal, or cementitious construction.
E. Separate dissimilar metals with a bituminous coating or polymer-modified, bituminous sheet underlayment.

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
1.2 SUBMITTALS
A. Product Data: For each joint-sealant product indicated.
B. Samples: For each kind and color of joint sealant required.
C. Joint-Sealant Schedule: Include the following information:
1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.
D. Product test reports.
1.3 WARRANTY
A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS
2.1 SILICONE JOINT SEALANTS
A. Mildew-Resistant, Acid-Curing Silicone Joint Sealant: ASTM C 920.
1. Type: Single component (S).
2. Grade: Nonsag (NS).
2.2 URETHANE JOINT SEALANTS
A. Urethane Joint Sealant: ASTM C 920.
1. Type: Single component (S).
2. Grade: nonsag (NS).
3. Class: 100/50,
2.3 LATEX JOINT SEALANTS
A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.
2.4 JOINT SEALANT BACKING
A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.
2.5 MISCELLANEOUS MATERIALS
A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION
3.1 PREPARATION
A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
3.2 INSTALLATION
A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
F. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 JOINT-SEALANT SCHEDULE
A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
a. Construction and control joints in cast-in-place concrete.
b. Control and expansion joints in unit masonry.
c. Joints in exterior siding and trim.
d. Joints between different materials listed above.
e. Perimeter joints between materials listed above and frames of doors windows and louvers.
f. Other joints as indicated.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
B. Joint-Sealant Application: Interior and Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
a. Joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings where indicated.
c. Perimeter joints between interior wall surfaces and frames of interior doors windows and trim.
d. Other joints as indicated.
2. Joint Sealant: Latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors or to be painted.
C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Sealant Location:
a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.
c. Other joints as indicated.
2. Joint Sealant: Silicone.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL
1.1 SUMMARY
A. Section includes hollow-metal work.
1.2 DEFINITIONS
A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM- HMMA 803 or SDI A250.8.
1.3 COORDINATION
A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
1.4 SUBMITTALS
A. Product Data: For each type of product.
1. Include construction details, material descriptions, core descriptions, and finishes.
B. Shop Drawings: Include the following:
1. Elevations of each door type.
2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.
7. Details of accessories.
C. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.
1.5 DELIVERY, STORAGE, AND HANDLING
A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
B. Provide additional protection to prevent damage to factory-finished units.
C. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
D. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch-high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS
2.1 MANUFACTURERS
A. Manufacturers may include, but are not limited to, the following:
1. Amweld International, LLC.
2. Ceco Door Products.
3. Karpen Steel Custom Doors & Frames.
4. Pioneer Industries, Inc.
5. Republic Doors and Frames.
6. Steelcraft.
B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.
2.2 EXTERIOR HOLLOW-METAL DOORS AND FRAMES
A. Construct exterior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware mortise depths, tolerances, and clearances, and as specified.
B. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3.
1. Physical Performance: Level A according to SDI A250.4.
2. Doors:
a. Type: As indicated in the Door and Frame Schedule.
b. Thickness: 1-3/4 inches
c. Face: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
d. Edge Construction: Model 1, Full Flush.
e. Core: Polyurethane or polyisocyanurate.
1) Thermal-Rated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than 2.1 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.
3. Frames:
a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
b. Construction: Full profile welded.
4. Exposed Finish: Prime.
2.3 FRAME ANCHORS
A. Jamb Anchors:
1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2.4 MATERIALS
A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
F. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke- developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
2.5 FABRICATION
A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
B. Hollow-Metal Doors:
1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
2. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches.
3. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets.
4. Bottom Edge Closures: Close bottom edges of doors with end closures or channels of same material as face sheets.
5. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
2. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
3. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
4. Jamb Anchors: Provide number and spacing of anchors as follows:
a. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
1) Four anchors per jamb from 60 to 90 inches high.
5. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.
E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
2.6 STEEL FINISHES
A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION
3.1 EXAMINATION
A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
C. Proceed with installation only after unsatisfactory conditions have been corrected.
3.2 PREPARATION
A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
3.3 INSTALLATION
A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.
B. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
a. Install door silencers in frames before grouting.
b. Remove temporary braces necessary for installation only after frames have been properly set and secured.
c. Check plumb, square, and twist of frames as walls are construct.
d. Shim as necessary to comply with installation tolerances.
e. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
a. Floor anchors may be set with power-actuated fasteners instead of post-installed expansion anchors if so indicated and approved on Shop Drawings.
3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
4. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Steel Doors:
a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
b. At Bottom of Door: 3/4 inch plus or minus 1/32 inch.
3.4 ADJUSTING AND CLEANING
A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
B. Remove grout and other bonding material from hollow-metal work immediately after installation.
C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 - GENERAL
1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
1.2 SUMMARY
A. Section Includes:
1. Solid-core doors with wood-veneer faces.
2. Factory finishing flush wood doors.
B. Related Sections:
1. Division 08 Section "Door Hardware" for hardware.
2. Division 08 Section "Glazing" for glass view panels in flush wood doors.
1.3 SUBMITTALS
A. Product Data: For each type of door indicated. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.
B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
1. Indicate dimensions and locations of mortises and holes for hardware.
2. Indicate dimensions and locations of cutouts.
3. Indicate requirements for veneer matching.
4. Indicate doors to be factory finished and finish requirements.
5. Indicate fire-protection ratings for fire-rated doors.
C. Samples for Verification:
1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.
D. Warranty: Sample of special warranty.
1.4 QUALITY ASSURANCE
A. Source Limitations: Obtain flush wood doors and wood paneling from single manufacturer.
B. Quality Standard: In addition to requirements specified, comply with AWI's "Architectural Woodwork Quality Standards Illustrated."
1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.
C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252.
1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
D. Preinstallation Conference: Conduct conference at Project site.
1.5 DELIVERY, STORAGE, AND HANDLING
A. Comply with requirements of referenced standard and manufacturer's written instructions.
B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic wrap.
C. Mark each door on top and bottom rail with opening number used on Shop Drawings.
1.6 PROJECT CONDITIONS
A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.
1.7 WARRANTY
A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS
2.1 MANUFACTURERS
A. Basis of Design: Subject to compliance with requirements, provide Master Flush Doors by Eggers Industries or comparable products by one of the following:
1. Graham.
2. VT Industries.
3. Marshfield Door Systems, Inc.
4. Oshkosh Wood Doors.
2.2 DOOR CONSTRUCTION, GENERAL
A. Particleboard-Core Doors:
1. Particleboard: ANSI A208.1, Grade LD-2.
2. Blocking: Provide wood blocking in particleboard-core doors as follows:
a. 5-inch top-rail blocking, in doors indicated to have closers.
b. 5-inch bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
c. 5-inch midrail blocking, in doors indicated to have exit devices.
B. Structural-Composite-Lumber-Core Doors:
1. Structural Composite Lumber: WDMA I.S.10.
2. Provide at doors with full glass lite, and where required to maintain warranty with indicated cutouts.
2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH
A. Interior Solid-Core Doors:
1. Grade: Custom (Grade A faces).
2. Species: Birch, rift cut.
3. Cut: Plain sliced (flat sliced).
4. Match between Veneer Leaves: Book match.
5. Assembly of Veneer Leaves on Door Faces: Running match.
6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
7. Door Edges: Minimum ¼ inch solid lumber, same species as faces or a compatible species. No veneer edges except rated doors with concealed intumescent seals.
8. Core: Particleboard.
9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering.
2.4 LIGHT FRAMES
A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads as follows unless otherwise indicated.
1. Wood Species: Species compatible with door faces.
2. Profile: Flush rectangular beads.
3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips approved for such use.
B. Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of 0.048-inch- thick, cold-rolled steel sheet; factory primed for paint finish; and approved for use in doors of fire-protection rating indicated.
2.5 FABRICATION
A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referen

4. Quantity: In addition to one extra key blank for each lock, provide three cylinder change keys and five master keys.

2.9 OPERATING TRIM
A. Standard: BHMA A156.6.
B. Materials: Fabricate from stainless steel, unless otherwise indicated.

2.10 CLOSERS
A. Accessibility Requirements: Comply with the following maximum opening-force requirements:
1. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
2. Sliding or Folding Doors: 5 lbf applied parallel to door at latch.
3. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
B. Door Closers for Means of Egress Doors: Comply with NFPA 101. Door closers shall not require more than 30 lbf to set door in motion and not more than 15 lbf to open door to minimum required width.
C. Size of Units: Unless otherwise indicated, comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
D. Surface Closers: BHMA A156.4, Grade 1. Provide type of arm required for closer to be located on non-public side of door, unless otherwise indicated.
1. Available Manufacturers:
a. Corbin Russwin Architectural Hardware
b. DORMA Architectural Hardware
c. LCN Closers
d. Norton Door Controls
e. Rixson Specialty Door Controls
f. SARGENT Manufacturing Company
g. Yale Commercial Locks and Hardware

2.11 PROTECTIVE TRIM UNITS (KICK and PUSH PLATES)
A. Size: 1-1/2 inches less than door width on push side and 1/2 inch less than door width on pull side, by height specified in door hardware sets.
B. Metal Protective Trim Units: BHMA A156.6; beveled top and 2 sides; fabricated from the following material:
1. Material: 0.050-inch- thick stainless steel.

2.12 STOPS AND HOLDERS
A. Stops and Bumpers: BHMA A156.16, Grade 1.
1. Provide floor stops for doors unless wall or other type stops are scheduled or indicated. Do not mount floor stops where they will impede traffic. Where floor or wall stops are not appropriate, provide overhead holders.
B. Silencers for Door Frames: BHMA A156.16, Grade 1; neoprene or rubber; fabricated for drilled-in application to frame.

2.13 DOOR GASKETING
A. Standard: BHMA A156.22.
B. General: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.
1. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
2. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
3. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.
C. Smoke-Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke-control ratings indicated, based on testing according to UL 1784.
1. Provide smoke-labeled gasketing on 20-minute-rated doors and on smoke-labeled doors.
D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated, based on testing according to ASTM E 1408.
E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
F. Gasketing Materials: ASTM D 2000 and AAMA 701/702.

2.14 THRESHOLDS
A. Standard: BHMA A156.21.
B. Accessibility Requirements: Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.
C. Thresholds for Means of Egress Doors: Comply with NFPA 101. Maximum 1/2 inch high.

2.15 MISCELLANEOUS DOOR HARDWARE
A. Auxiliary Hardware: BHMA A156.16, Grade 1.

2.16 FABRICATION
A. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18. Do not furnish manufacturer's standard materials or forming methods if different from specified standard.
B. Fasteners: Provide screws according to commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
1. Comply with NFPA 80 for fasteners of door hardware in fire-rated applications.
C. Finishes: BHMA A156.18. All finishes shall be black unless noted otherwise.

PART 3 - EXECUTION

3.1 INSTALLATION
A. Mounting Heights: Mount door hardware units at heights indicated as follows unless otherwise indicated or required to comply with governing regulations.
1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
C. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
D. Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
2. Door Closers: Unless otherwise required by authorities having jurisdiction, adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

3.2 DOOR HARDWARE SETS
A. The door hardware sets are described in the hardware schedule on the Drawings. The hardware supplier shall develop a complete hardware schedule that fully describes the actual model, manufacturer, finish and other options and selections as required for a complete door hardware installation for each scheduled door.
B. Finishes: All finishes shall be antique brass or rubbed bronze, as selected by Architect form manufacturer's full range of finish options.
C. Provide cushioned wall of floor mount door stop (to suit door location) for each door leaf.

SECTION 08 80 00 - GLAZING

PART 1 - GENERAL

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

1.2 SUMMARY
A. Section includes glazing for products specified in other Sections where glazing requirements are specified by reference to this Section:
1. Windows.
2. Doors.

1.3 DEFINITIONS
A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
C. IBC: International Building Code.

1.4 COORDINATION
A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.5 PERFORMANCE REQUIREMENTS

1.6 SUBMITTALS
A. Product Data: For each glass product and glazing material indicated.
B. Glass Samples: For each type of glass product other than clear monolithic vision glass, 12 inches square.
C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
D. Product Certificates: For glass.
E. Product Test Reports: For insulating glass and glazing sealants, for tests performed by a qualified testing agency.
a. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
F. Preconstruction adhesion and compatibility test report.
G. Sample Warranties: For special warranties

1.7 QUALITY ASSURANCE
A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
1. GANA Publications
2. AAMA Publications
3. IGMA/IGMAC Publications
B. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or the manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
C. Insulated glass products are to be permanently marked either on spacers or at least one insulating unit component with appropriate certification label of Insulating Glass Certification Council (IGCC).

1.8 PRECONSTRUCTION TESTING
A. Preconstruction Adhesion and Compatibility Testing: For insulated or laminated glass types installed with glazing sealants, test each glass product, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.
a. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
b. Use ASTM C 1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
c. Test no fewer than eight samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
d. Schedule enough time for testing and analyzing results to prevent delaying the Work.
e. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including the use of specially formulated primers.

1.9 DELIEVERY, STORAGE, AND HANDLING
A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.10 FIELD CONDITIONS
A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
a. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

1.11 WARRANTY
A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
a. Warranty Period: 10 years from date of Substantial Completion.
B. Manufacturer's Special Warranty for Laminated Glass: Manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.
a. Warranty Period: Five years from date of Substantial Completion.
C. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
a. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS
A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the criteria noted.
a. Provide fully tempered glass in insulated units where required for safety glazing.
C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E 1300.
a. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7, based on heights above grade indicated on Drawings.
i. Wind Design Data: As indicated on Drawings.
b. Design Snow Loads: As indicated on Drawings.
c. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less.
d. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.
D. Safety Glazing: Where safety glazing is indicated and required, provide glazing that complies with 16 CFR 1201, Category II.
a. Provide safety glazing in all hazardous locations as defined and listed in the Ohio Building Code OBC 2016, Section 2406. The following is a general list of required safety glazing locations., it is not meant to be inclusive of all required locations:
i. Glazing in swinging doors
ii. Glazing in sliding doors
iii. Glazing in panels adjacent to door openings within 24 inches of the opening edge up to 60 inches above the floor.
iv. Glazing in panels with all of the following: bottom edge below 18 inches above the floor, top edge 36 inches above the floor, walking surface within 36 inches of the panel and overall area of panel is greater than 9 square feet.
E. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
a. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
b. For laminated-glass lites, properties are based on products of construction indicated.
c. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
d. U-Factors: Center-of-glass value, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
e. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
f. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.2 GLASS PRODUCTS, GENERAL
A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
B. Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.

2.3 LAMINATED GLASS
A. Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
1. Construction: Laminate glass with polyvinyl butyl interlayer or cast-in-place and cured-transparent-resin interlayer to comply with interlayer manufacturer's written recommendations.
2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
3. Interlayer Color: Clear unless otherwise indicated.

2.4 INSULATING GLASS
A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.
1. Sealing System: Dual seal.
2. Spacer: Manufacturer's standard spacer material and construction.

2.5 GLAZING GASKETS
A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
1. Neoprene complying with ASTM C 864.
2. EPDM complying with ASTM C 864.
3. Silicone complying with ASTM C 1115.
4. Thermoplastic polyolefin rubber complying with ASTM C 1115.
B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene EPDM silicone or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

2.6 GLAZING SEALANTS
A. General:
1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. Colors of Exposed Glazing Sealants: Selected by Architect from manufacturer's full range.
B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.
a. Subject to compliance with requirements provide one of the following:
i. Dow Corning Corporation; 795.
ii. GE Silicones; SilPruf, SCS2000.
iii. Pecora Corporation; 895NST.
b. Color: To Be Selected

2.7 GLAZING TAPES
A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800.
B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.8 MISCELLANEOUS GLAZING MATERIALS
A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
B. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
C. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
D. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
E. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.
F. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

2.9 MONOLITHIC-GLASS TYPES
A. Glass Type : Clear float glass.
1. Thickness: 6.0 mm.
2. Provide safety glazing using laminated or tempered glass and labeling at doors, sidelites and other locations required by code.

2.10 FABRICATION OF GLAZING UNITS
A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.
C. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION
A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. Effective sealing between joints of glass-framing members.
B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION
A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL
A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
G. Provide spacers for glass lites where length plus width is larger than 50 inches.
a. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
b. Provide 1/8 inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
J. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
K. Where wedge-shaped gaskets are driven into one side of channel to pressureize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subject to movement.
L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING
A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
D. Place joints in tapes at corners only with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
E. Do not remove release paper from tape until right before each glazing unit is installed.
F. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

3.5 GASKET GLAZING (DRY)
A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
E. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)
A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 CLEANING AND PROTECTION
A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.
B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

SECTION 09 29 00 - GYPSUM BOARD

PART 1 - GENERAL

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

1.2 SUMMARY
A. This Section includes the following:
1. Interior gypsum board.
B. Related Requirements include the following:
1. Division 06 Section "Sheathing" for gypsum sheathing.
2. Division 09 Section "Tiling" for tiling backing panels.

1.3 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Samples: For the following products:
1. Aluminum Trim: Full-size Sample in 12-inch- long length for each trim accessory indicated.

1.4 STORAGE AND HANDLING
A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

PROJECT CONDITIONS

1.5 A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
B. Do not install interior products until installation areas are enclosed and conditioned.
C. Do not install panels that are wet, moisture damaged, or mold damaged.
1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS
A. Sound Control Partitions: For sound-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL
A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD
A. General: ASTM C 1396/C 1396M.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. CertainTeed Corporation.
b. Continental Building Products, LLC.
c. Georgia-Pacific Building Products.
d. National Gypsum Company.
e. USG Corporation.
B. Gypsum Wallboard:
1. Regular Type: For vertical surfaces unless indicated otherwise.
a. Thickness: Refer to wall type schedule on drawings.
b. Long Edges: Tapered.
2. Type X: Where indicated or required for fire resistance rated assemblies.
a. Thickness: 5/8 inch.
b. Long Edges: Tapered.
3. Ceiling Type: Manufactured to have more sag resistance than regular-type gypsum board.
a. Thickness: 1/2 inch.
b. Long Edges: Tapered.
4. Moisture- and Mold-Resistant Type: With moisture- and mold-resistant core and surfaces.
a. Core: 5/8 inch, Type X.
b. Long Edges: Tapered.
c. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.4 TRIM ACCESSORIES
A. Interior Trim: ASTM C 1047.
1. Material: Galvanized or aluminum-coated steel sheet.
2. Shapes:
a. Cornerbead.
b. LC-Bead: J-shaped; exposed long flange receives joint compound.
c. L-Bead: L-shaped; exposed long flange receives joint compound.
d. U-Bead: U-shaped; exposed short flange does not receive joint compound.
e. Expansion (control) joint.
f. Curved-Edge Cornerbead: With notched or flexible flanges.
B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
a. Fry Reglet Corp.
b. Gordon, Inc.
c. Pittcon Industries.
2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.5 JOINT TREATMENT MATERIALS
A. General: Comply with ASTM C 475/C 475M.
B. Joint Tape:
1. Interior Gypsum Board: Paper.
2. Tile Backing Panels: As recommended by panel manufacturer.
C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for subsequent coats.
1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
3. Fill Coat: For second coat, use setting-type, sandable topping or drying-type, all-purpose compound.
4. Finish Coat: For third coat, use setting-type, sandable topping or drying-type, all-purpose compound.
5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound or drying-type, all-purpose compound.
a. High-build interior coating product designed for application by airless sprayer may be used instead of skim coat to produce Level 5 finish.
D. Joint Compound for Tile Backing Panels:
1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.

2.6 AUXILIARY MATERIALS
A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
D. Sound-Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
E. Acoustical Sealant: As specified in Division 07 Section "Joint Sealants."
F. Thermal Insulation: As specified in Division 07 Section "Thermal Insulation."

PART 3 - EXECUTION

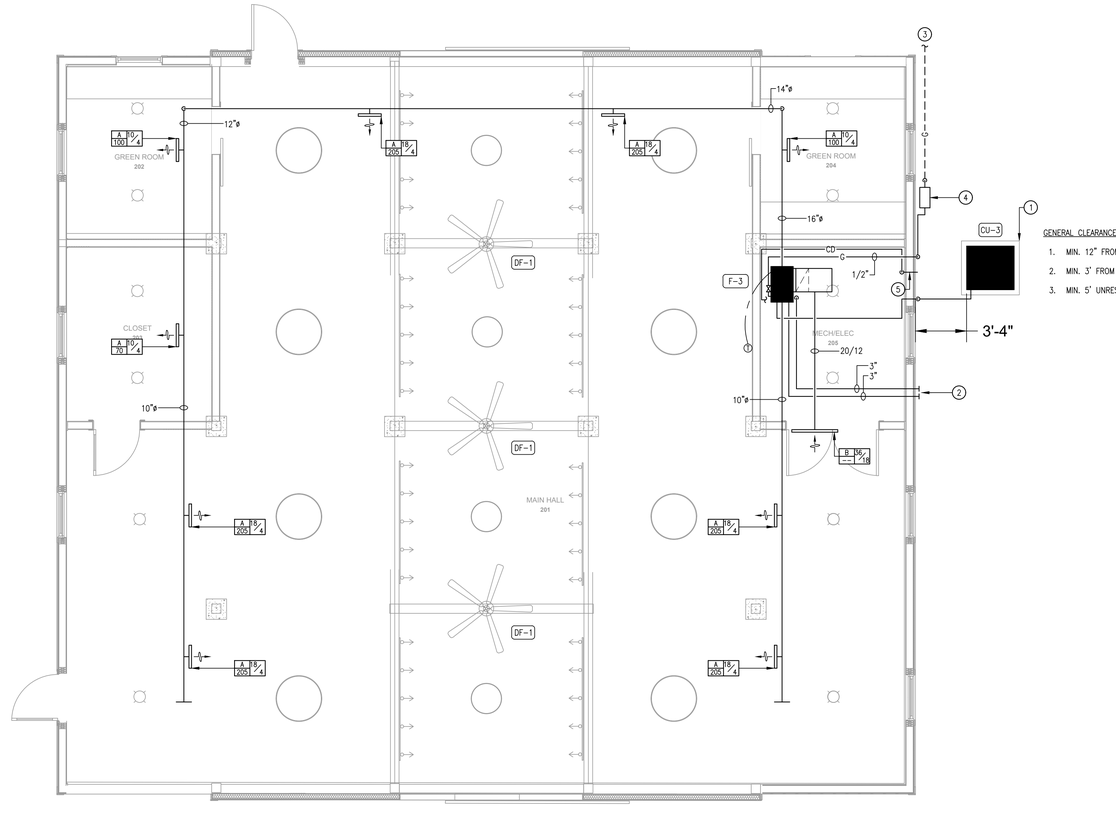
3.1 EXAMINATION
A. Examine areas and substrates, with Installer present, including welded hollow-metal frames and support framing, for compliance with requirements and other conditions affecting performance of the Work.
B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
C. Proceed with installation only with unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL
A. Comply with ASTM C 840.
B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
D. Install panels off of base floor substrate. Provide 1/8 inch to 1/4 inch high maximum space at floor.
E. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
F. Form control and expansion joints with space between edges of adjoining gypsum panels. Each board should be supported by separate framing members.
1. Install control joints in accordance with the manufacturer's recommendations and where shown on the drawings, in addition to the following:
a. Locate joints at points of maximum stress and/or at points of natural weak planes, such as at openings, juncture of dissimilar materials, and at re-entrant corners.
b. Locate joints in interior walls directly over building control and expansion joints.
c. Install control joints where partition abuts structural elements and dissimilar construction.
d. Locate joints in ceilings with a maximum of 50' between joints and a maximum of 2500 sq. ft. per undivided panel and where wings of "L", "U", and "T" shaped areas are joined.
e. Locate joints in interior partitions and walls without openings, with a maximum spacing of thirty feet (30') between joints.
G. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
1. Fit gypsum panels around ducts, pipes, and conduits and install required sealant.
2. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
H. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
I. Sound Control Partitions and STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD
A. Single-Layer Application:
1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
B. Multilayer Application:
1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints 1 framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.
C. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.
D. Wall Terminations:
1. Fire Rated Assemblies: Where walls are indicated as a fire rated assembly, terminate top of wall per designated UL assembly.
2. Non-Rated Assemblies: Where non-rated walls are indicated to extend to the underside of the deck, terminate top of wall as follows;
a. Do not utilize fire rated sealants in non-rated assemblies.
b. All side terminations are to be installed to prohibit visible gaps. Extend gypsum board tight to terminating item or extend gypsum board to within ½ inch and provide acoustical sealant.
E. Wall Penetrations: At all penetrations including but not limited to ducts, pipes, conduit, and wires/cables.
1. Fire Rated Assemblies: Where walls are indicated as a fire rated assembly, install materials to meet the designated UL assembly.
2. Smoke Partitions: Intent is to prohibit all visible gaps in wall system.
a. Install gypsum board to within ½ inch of penetrating item and provide acoustical sealant to prohibit all visible gaps through wall. Utilize backer material (mineral wool) for sealant back up.
b. Do not utilize fire rated sealants in smoke partitions.
3. Non-Rated Assemblies:
a. Install gypsum board to within ½ inch of penetrating item and provide acoustic sealant to prohibit all visible gaps through wall. Utilize backer material (mineral wool) for sealant back up.
b. Do not utilize fire rated sealants in non-rated assemblies.

3.4 APPLYING TILE BACKING PANELS
A. Glass-Mat, Water-Resistant Backing Panel: Comply with manufacturer's written installation instructions and install where indicated. Install with 1/4-inch gap where panels abut other construction or penetrations.
B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.5 INSTALLING TRIM ACCESSORIES
A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
B. Control Joints: Install control joints at locations indicated on Drawings according to ASTM C 840 and in specific locations approved by Architect for visual effect.
C. Interior Trim: Install in the following locations:
1. Cornerbead: Use at outside corners.
2. Bullnose Bead:



1 BARN MECHANICAL PLAN

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

1' 2' 4' 8'

CODED NOTES:

1. SET CONDENSING UNIT ON 4" CONCRETE PAD.
2. DIRECT VENT FURNACE FLUE AND INTAKE.
3. NEW NATURAL GAS SERVICE LINE FROM SITE.
4. PROVIDE NEW NATURAL GAS METER SET.
5. 3/4" CONDENSATE PIPE SHALL BE DAYLIGHTED.

Peninsula

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PROGRESS NOT FOR CONSTRUCTION

3/10/2025

PROJECT TEAM

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MEP ENGINEER:
DENK ASSOCIATES
216.531.8880

BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION

4400 EVERETT ROAD, AKRON, OH 44333

PROJECT # 2324

ISSUE:

SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

BARN MECHANICAL PLAN

M11.1

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ABBREVIATIONS

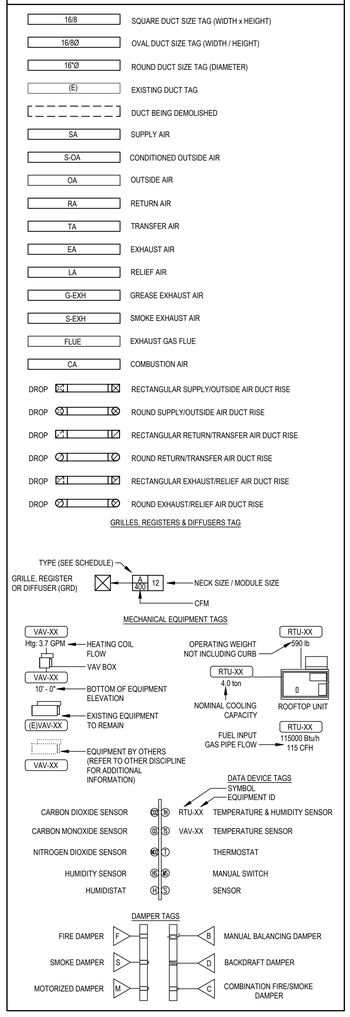
Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	MA	MIXED AIR
AD	AREA DRAIN	MAX	MAXIMUM
ADD	ADDENDUM	MBH	ONE THOUSAND BTU PER HOUR
AFF	ABOVE FINISHED FLOOR	MCF	ONE THOUSAND CUBIC FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MUA	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R	DUCT RISER
E/A	EXHAUST AIR	R/A	RETURN AIR
EXIST	EXISTING	RCP	RADIANT CEILING PANEL
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	REC	RECESSED
FD	FLOOR DRAIN	RED	REDUCER
FD	FIRE DAMPER	RH	RELATIVE HUMIDITY
FDV	FIRE DEPARTMENT VALVE	RL/A	RELIEF AIR
FL	FLOOR	RM	ROOM
FO	FUEL OIL	RPM	REVOLUTIONS PER MINUTE
FOV	FUEL OIL VENT	RW	RAIN WATER
FOR	FUEL OIL RETURN	SF	SQUARE FOOT
FOS	FUEL OIL SUPPLY	S/A	SUPPLY AIR
FPM	FEET PER MINUTE	SAN	SANITARY
FS	FLOOR SINK	SF	SQUARE FOOT
FT	FOOT/FEET	SD	SMOKE DAMPER
FTR	FIN TUBE RADIATION	SM	SURFACE MOUNT
GAL	GALLON	SP	STANDPIPE
GC	GENERAL CONTRACTOR	SP	STATIC PRESSURE
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TDR	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	VAC	VACUUM
ID	INDIRECT	V	VENT
IN	INCH	VAV	VARIABLE AIR VOLUME
INV	INVERT	VENT	VENTILATION
LB	POUND	VTR	VENT THROUGH ROOF
LB/HR	POUNDS PER HOUR	W	WASTE
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT

HVAC GENERAL NOTES

HVAC GENERAL NOTES:

1. ALL MECHANICAL EQUIPMENT AND INSTALLATIONS SHALL CONFORM WITH THE REQUIREMENTS OF THE OHIO BUILDING CODE, OHIO MECHANICAL CODE, OHIO PLUMBING CODE, THE STATE ENERGY CODE, NFPA 90A, 101, AND ALL APPLICABLE CODES AND ORDINANCES.
2. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS PRIOR TO ORDERING EQUIPMENT OR SUBMITTING SHOP DRAWINGS, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN THEREIN.
3. ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH DISCONNECT SWITCHES AT EACH PIECE OF EQUIPMENT. COORDINATE SWITCH TYPE (FUSED OR NON-FUSED) WITH EQUIPMENT CHARACTERISTICS, MANUFACTURER'S RECOMMENDATIONS AND ELECTRICAL DRAWINGS. MECHANICAL CONTRACTOR SHALL PURCHASE ALL DISCONNECTS.
4. ALL REQUIRED CONTROL WIRING NOT SHOWN ON THE ELECTRICAL DRAWINGS SHALL BE INCLUDED AS PART OF THE MECHANICAL WORK.
5. UNLESS NOTED OTHERWISE, STARTERS, SMOKE DETECTORS, TRANSFORMERS, CONTROLS AND CONTROL WIRING REQUIRED FOR ALL MECHANICAL SYSTEMS SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
6. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
7. DUCT SHALL BE SIZED AT 0.1"/100 FT STATIC PRESSURE DROP WHERE A SIZE IS NOT NOTED ON DRAWINGS. FLEXIBLE DUCTWORK SHALL BE INSTALLED AS STRAIGHT AS POSSIBLE, AND SHALL BE ROUTED AND SUPPORTED WITHOUT FORMING CRIMPS OR OTHER AIR FLOW RESTRICTIONS. PROVIDE SQUARE TO ROUND ADAPTERS OR BOOTS TO CONNECT TO AIR DEVICE NECK WHEN REQUIRED.
8. ROUND AND FLEXIBLE DUCTWORK SHALL BE CONNECTED TO MAIN DUCTS WITH SPIN-IN FITTINGS WITH BALANCING DAMPERS.
9. ALL WORK SHALL BE COORDINATED AND PERFORMED WITH PRIOR APPROVAL FROM THE OWNER TO SUIT HIS OPERATING CONDITIONS.
10. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL EQUIPMENT, DUCTWORK, ETC. TO FIT WITHIN THE SPACE ALLOWED BY THE ARCHITECTURAL AND STRUCTURAL CONDITIONS. CUTTING OR OTHERWISE ALTERING ANY STRUCTURAL MEMBERS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ARCHITECT. IN GENERAL, DUCTWORK SHALL BE ROUTED AS HIGH AS POSSIBLE. PROVIDE ALL OFFSETS REQUIRED TO MAINTAIN ARCHITECTURAL CEILING HEIGHTS AND OPEN SPACE CLEARANCES. THIS INCLUDES ANY OFFSETS NOT SPECIFICALLY SHOWN ON THE DRAWINGS. OFFSETS SHOWN ARE DIAGRAMMATIC AND ARE NOT MEANT TO INDICATE THE ONLY OFFSETS REQUIRED.
11. MOUNT THERMOSTATS 4' - 4" AFF UNLESS NOTED OTHERWISE. PROVIDE SPACE TEMPERATURE SENSORS FOR THERMOSTATS LOCATED IN CORRIDORS.
12. LOCATIONS OF GRILLES, REGISTERS, & DIFFUSERS SHOWN ON THE DRAWINGS ARE APPROXIMATE. COORDINATE EXACT LOCATIONS WITH LIGHTS, CEILING GRID, ETC.
13. PROVIDE ACCESS PANELS IN NON-ACCESSIBLE CEILINGS AND IN WALL STRUCTURE TO ALLOW ADEQUATE ROOM FOR MAINTENANCE OF EQUIPMENT AND BALANCING OF SYSTEM.
14. ACCESS DOORS IN CEILINGS/WALLS SHALL BE A MINIMUM OF 12X12, HINGED, AND FIRE RATED TO MATCH CEILING/WALL RATING. DUCT ACCESS DOORS SHALL BE DOUBLE WALL IF INSTALLED ON SUPPLY DUCT, AND PROVIDED WITH THUMB LATCHES FOR AN AIR TIGHT FIT.
15. PROVIDE MVDs AT TAKE-OFFS, WHERE ACCESSIBLE CEILING (LAY-IN) IS PROVIDED, OF RUNOUTS TO DIFFUSERS AND WHERE SHOWN ON PLANS. WHERE BALANCING DAMPERS ARE ALSO PROVIDED AT THE SUPPLY GRILLE/DIFFUSER (SEE SCHEDULE), BALANCE THE SYSTEM WITH THE DAMPER AT THE TAKE-OFF (NOT AT GRILLE). GRILLE DAMPER SHOULD BE 100% OPEN AFTER TEST AND BALANCE.
16. DUCT ROUTING, OFFSETS AND LOCATIONS ARE DIAGRAMMATIC. EXACT LOCATIONS, ELEVATIONS, AND OFFSETS SHALL BE DETERMINED FROM COORDINATION DRAWINGS PRODUCED FROM A COMPOSITE OF ARCHITECTURAL, STRUCTURAL AND OTHER TRADE'S DRAWINGS. ROUTE DUCT HIGH AS POSSIBLE. SEE SPECIFICATIONS FOR COMPLETE MULTI TRADE COORDINATION DRAWING REQUIREMENTS.
17. PROVIDE FIRE DAMPERS AND FIRE/SMOKE DAMPERS IN RATED WALLS AS REQUIRED BY THE OHIO BUILDING CODE AND OHIO MECHANICAL CODE.

HVAC SYMBOLS



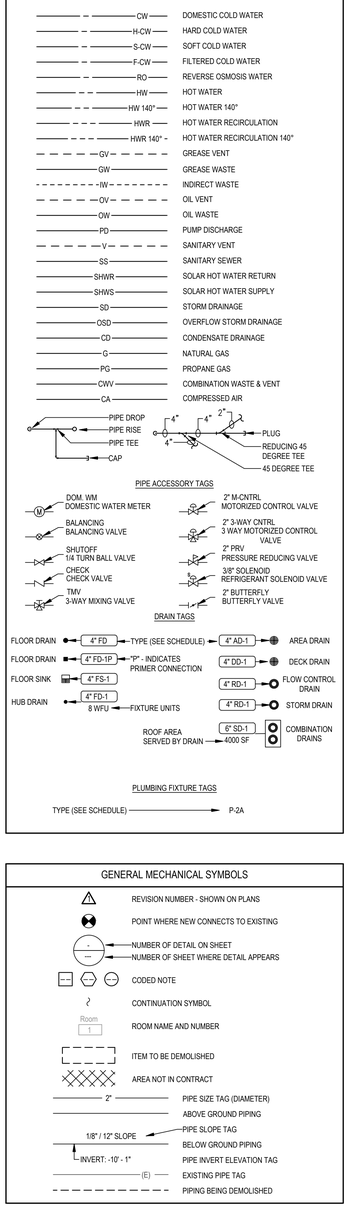
EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	EWH	ELECTRIC WATER HEATER
ACC	AIR COOLED CONDENSER	FCU	FAN COIL UNIT
ACCU	AIR COOLING CONDENSING UNIT	FP	FIRE PUMP
AHU	AIR HANDLING UNIT	GI	GREASE INTERCEPTOR
AS	AIR SEPARATOR	GRV	GRAVITY ROOF VENTILATOR
B	BOILER	HWP	HEATING WATER PUMP
CH	CHILLER	HX	HEAT EXCHANGER
CT	COOLING TOWER	HRU	HEAT RECOVERY UNIT
CUH	CABINET UNIT HEATER	PRV	POWER ROOF VENTILATOR
CWP	CONDENSER WATER PUMP	RE	RETURN/EXHAUST FAN
CHWP	CHILLED WATER PUMP	RTU	ROOFTOP UNIT
DBP	DOMESTIC WATER BOOSTER PUMP	SEP	SEWAGE EJECTOR PUMP
DC	DUCT MOUNTED COIL	SF	SUPPLY FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	WH	WATER HEATER
ET	EXPANSION TANK		

* NOTE *

ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET.THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

PLUMBING PIPING SYMBOLS



GENERAL MECHANICAL SYMBOLS

FURNACE AND CONDENSING UNIT SCHEDULE

		INDOOR													OUTDOOR					
		FAN				COOLING			HEATING			ELECTRICAL				ELECTRICAL				
MARK	SERVICE	CFM	OA	ESP	HP	TOTAL	SENSIBLE	SEER	INPUT MBH	OUTPUT MBH	EFFICIENCY	VOLTAGE	MCA	MOCP	MANUFACTURER MODEL	MARK	VOLTAGE	MCA	MOCP	MANUFACTURER MODEL	REMARKS
F-3	BARN	--	N/A	--	--	--	--	--	--	--	96%	--	--	--	TRANE --	CU-3	--	--	--	TRANE --	1-5.

REMARKS:
1. EC, MULTISPEED FAN MOTOR.
2. DIRECT VENT APPLIANCE WITH CPVC VENT.
3. ONE STAGE HEATING.
4. GALVANIZED STEEL CABINET.
5. SELF-DIAGNOSTIC INTEGRATED FURNACE CONTROL BOARD.

NOTE: EQUIVALENT UNITS BY CARRIER, LENNOX, YORK.

DESTRATIFICATION FAN SCHEDULE

MARK	LOCATION	BLADE SWEEP	ELECTRICAL	POWER	RPM	MANUFACTURER MODEL	REMARKS
DF-1	BARN	8'	120V-1Ø	1 HP	156 RPM	HUNTER XP HVLS	1, 2, 3

REMARKS:
1. 104 LBS. HANGING WEIGHT.
2. BRUSHLESS MOTOR.
3. SERIES 500 CONTROLLER (1 CONTROLLER FOR ALL 3 FANS). INSTALLED BY THE EC.

GRILLE & DIFFUSER SCHEDULE

MARK	MANUFACTURER MODEL	DAMPER NUMBER	FRAME/ BORDER	CFM	MODULE SIZE	PATTERN	FINISH	REMARKS
A	PRICE SDG	--	DUCT MOUNTED	AS NOTED	AS NOTED	FIXED DEFLECTION	WHITE	--
B	PRICE 530	--	SURFACE	--	AS NOTED	--	WHITE	--

NOTE: EQUIVALENT BY TITUS, KRUEGER.

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PROJECT # 2324

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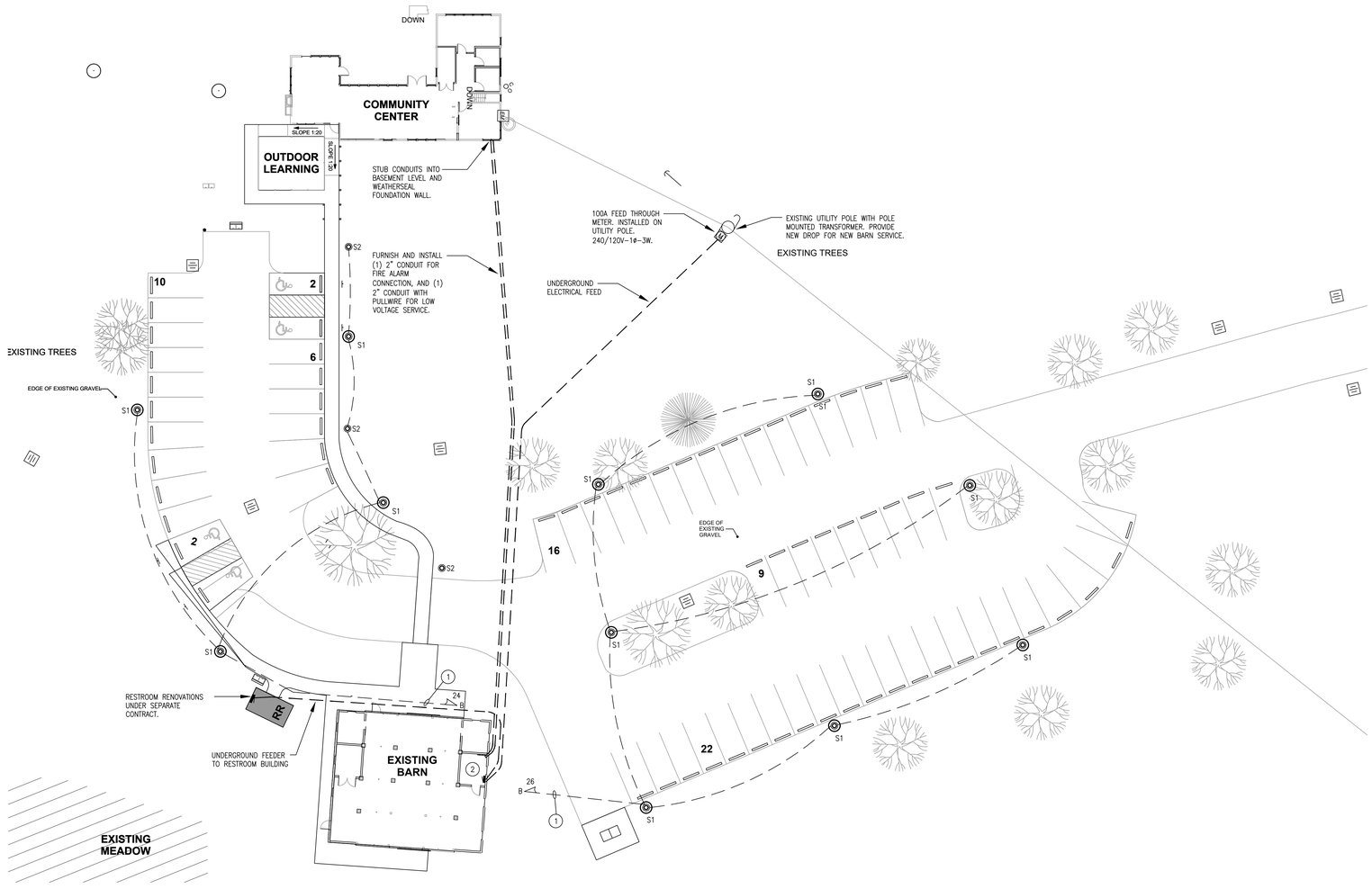
SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

MECHANICAL LEGENDS AND SPECIFICATIONS

M12.1

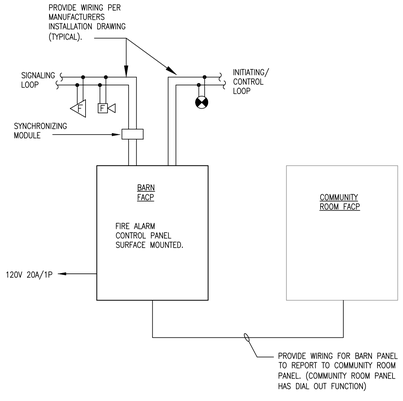
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1 ELECTRICAL SITE PLAN
Scale: 1" = 20'

1' 2' 4' 8'



ADDRESSABLE FIRE ALARM SYSTEM RISER
SCALE: NONE

FIRE ALARM SYSTEM GENERAL NOTES:

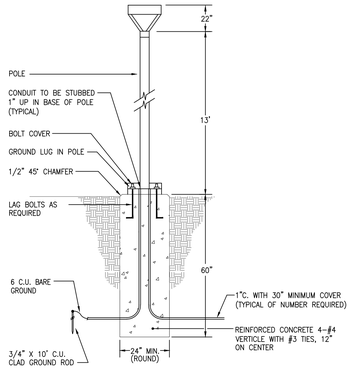
1. THIS RISER REPRESENTS A TYPICAL SYSTEM AND IS NOT INTENDED FOR INSTALLATION. SYSTEM SUPPLIER SHALL PROVIDE INSTALLATION DRAWINGS AND SCHEMATIC WIRING DIAGRAMS. EXACT SYSTEM REQUIREMENTS SHALL BE COORDINATED WITH THE SYSTEM SUPPLIER. SYSTEM INSTALLER SHALL BE NICET CERTIFIED, IF REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
2. SYSTEM SUPPLIER SHALL SUPERVISE INSTALLATION, PROGRAM AND TEST SYSTEM AND INSTRUCT OWNER ON SYSTEM OPERATION.
3. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT.
4. ALL CONTROL CABINETS SHALL BE GROUNDED PER NEC REQUIREMENTS AND PER SPECIFICATIONS.
5. FIRE ALARM SYSTEM DESIGNER SHALL BE RESPONSIBLE FOR ALL SHOP DRAWINGS, COORDINATION WITH OTHER TRADES AND INSTALLATION. SUBMIT PLANS FOR CITY TO REVIEW. PLANS SHALL INCLUDE DEVICE LOCATIONS ON SCALED FLOOR PLANS, WIRING INFORMATION AND DIAGRAMS, AND BATTERY CALCULATIONS.
6. ALL STROBES SHALL BE SYNCHRONIZED WITHIN LINE OF SIGHT. COORDINATE SCOPE IN THE FIELD AND WITH THE GENERAL CONTRACTOR.
7. FIRE ALARM SYSTEM SHALL BE THE SAME MANUFACTURER AS THE COMMUNITY CENTER.

ELECTRICAL SITE PLAN CODED NOTES:

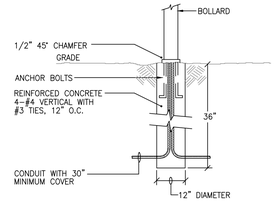
1. 2#10, 1#10G, 3/4" PVC CONDUIT. 18" BELOW GRADE MINIMUM. ROUTE THROUGH SITE LIGHTING TIMECLOCK.
2. PROVIDE 2 CIRCUIT TIMECLOCK WITH PHOTOCELL FOR PARKING LOT LIGHTING CIRCUITS. PHOTOCELL ON/TIMECLOCK OFF. SYSTEM SHALL BE CAPABLE OF INDEPENDENT TIME SETTINGS FOR EACH CIRCUIT.

SITE LIGHTING FIXTURE SCHEDULE

TYPE	WATTAGE		DESCRIPTION	CATALOG #
	LAMP	FIXTURE		
S1	LED 3000K 9000L	80W	LED ROUND POST TOP FIXTURE MOUNTED ON 13' ROUND STEEL POLE	E-CONOLIGHT C-LITE #C-AR-A-PTA-59L-SCCT-UL-BZ POLE: RSS-13
S2	LED 3000K 4000L	37W	LED 36" TALL BOLLARD WITH 8" ROUND BASE AND DOME TOP	E-CONOLIGHT C-LITE #C-BD-GRRD-DOME-SSL-SCCT-UL-BZ



TYPE "S1" POLE BASE DETAIL
SCALE: NONE



TYPE "S2" BOLLARD BASE DETAIL
SCALE: NONE

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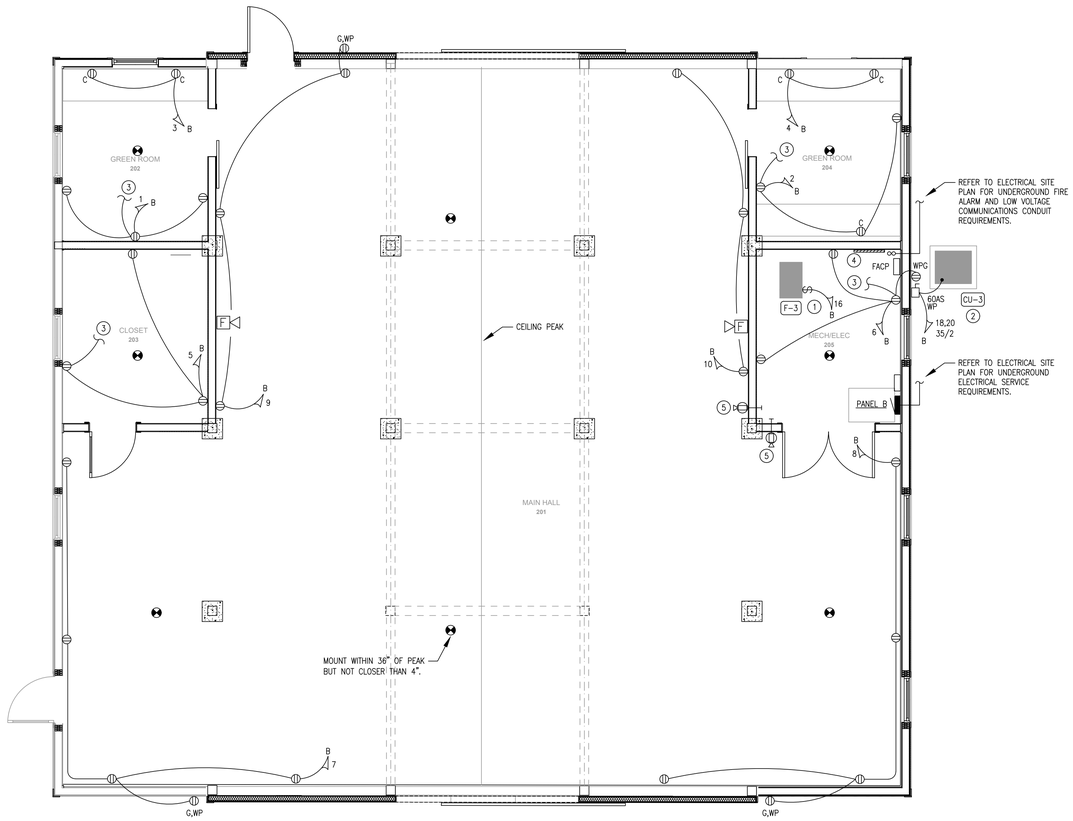
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ELECTRICAL SITE PLAN

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Printed: Monday, March 10, 2025



1 BARN POWER PLAN

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

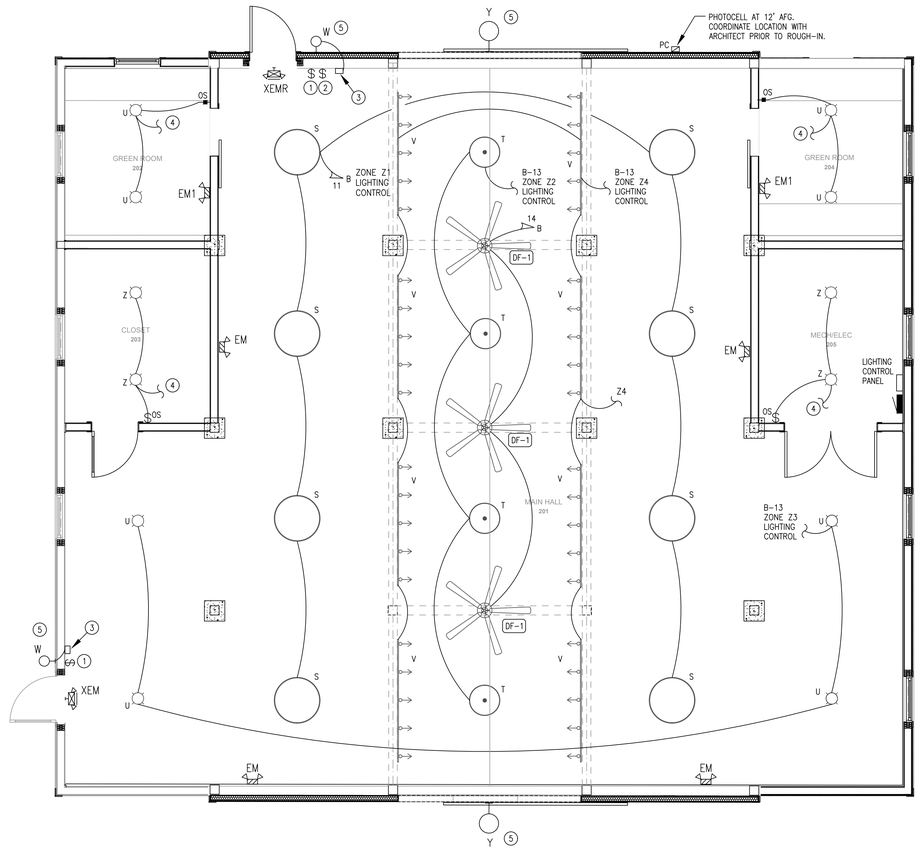
1' 2' 4' 8'

BARN POWER GENERAL NOTES:

1. ALL CONDUIT AND WIRING SHALL BE INSTALLED CONCEALLED IN NEW WALLS AMD CEILING. COORDINATE ANY LOCATIONS THAT MAY REQUIRE SURFACE CONDUIT WITH THE ARCHITECT.

BARN POWER PLAN CODED NOTES:

1. FURNACE: 1.3 KW, 120V–1ø
2. CONDENSING UNIT: 6.0 KW, 240V–1ø. WIRE WITH 2#8, 1#10G, 3/4" CONDUIT.
3. EXTEND BRANCH CIRCUIT TO ROOM LIGHTING FIXTURES.
4. FURNISH AND INSTALL 2' X 4' X 3/4" THICK FIRE RATED PLYWOOD BACKBOARD FOR LOW VOLTAGE EQUIPMENT
5. PROVIDE MOUNTING DEVICE BOX AND 3/4" CONDUIT ABOVE THE CEILING TO THE LOW VOLTAGE BACK BOARD. COORDINATE MOUNTING HEIGHT AND BOX REQUIREMENTS WITH SECURITY CAMERA INSTALLER.



2 BARN LIGHTING PLAN

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

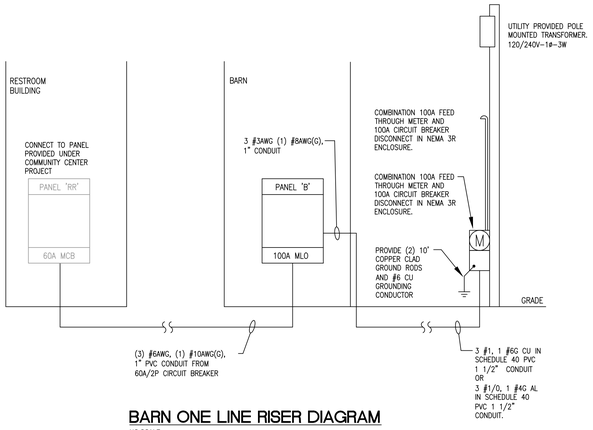
1' 2' 4' 8'

BARN LIGHTING GENERAL NOTES:

1. ALL CONDUIT AND WIRING SHALL BE INSTALLED CONCEALLED IN NEW CEILING. PROVIDE SURFACE CONDUIT FOR TRACK LIGHTING AND FANS SURFACE MOUNTED TO THE WOOD BEAMS.

BARN LIGHTING PLAN CODED NOTES:

1. 6 BUTTON SCENE CONTROLLER.
2. FAN CONTROLLER, PROVIDED BY THE MC, INSTALLED AND WIRED BY THE EC. PROVIDE CATEGORY 5 CABLE FROM CONTROLLER, DAISY CHAINED TO EACH FAN.
3. REMOTE MOUNTED EMERGENCY BATTERY PACK. PROVIDE BRANCH CIRCUIT WIRING AHEAD OF LIGHTING CONTROL (PHOTOCELL) FOR SENSING CIRCUIT.
4. EXTEND ROOM RECEPTACLE BRANCH CIRCUIT.
5. CIRCUIT EXTERIOR LIGHTING TO PANEL B, CIRCUIT #12 THROUGH LINE VOLTAGE PHOTOCELL FOR DUSK TO DAWN OPERATION.



BARN ONE LINE RISER DIAGRAM

NO SCALE

NEW PANELBOARD "B" SCHEDULE

VOLTAGE: 120/240V-1PH-3W MAINS 100A/2P MCB MOUNTING SURFACE REMARKS:
BUS SIZE: 100 AMP TOTAL LOAD 25.2 KVA

No.	SERVES	LOAD (KVA) LTG	RCPT	MTR	A/C	HTG	MISC	BRKR TRIP	P	A	B	PH	P	BRKR TRIP	LOAD (KVA) MISC	HTG	A/C	MTR	RCPT	LTG	SERVES	No.
1	RM 202 RECEPT/LTG	0.1	0.6					20	1			1	1	20					0.6	0.1	RM 204 RECEPT/LTG	2
3	RM 202 RECEPT		0.4					20	1			1	1	20					0.4		RM 204 RECEPT	4
5	RM 203 RECEPT/LTG	0.1	0.6					20	1			1	1	20					0.6	0.1	RM 205 RECEPT/LTG	6
7	RM 201 SE RECEPT		1.2					20	1			1	1	20					1.2		RM 201 NE RECEPT	8
9	RM 201 SW RECEPT		0.8					20	1			1	1	20					0.6		RM 201 NW RECEPT	10
11	TYPE S LTG	1.2						20	1			1	1	20						0.1	EXTERIOR LIGHTING	12
13	TYPE T, U & V LTG	1.0						20	1			1	1	20	0.6						FANS	14
15	FIRE ALARM						0.4	20	1			1	1	20			1.3				FURNANCE	16
17	SPARE							20	1			2	1	35			3.0				CU-1	18
19	SPARE							20	1				1				3.0					20
21	SPARE							20	1			1	-	-							SPACE	22
23	SPACE							-	-				-	-						0.6	SITE LIGHTING	24
25	SPACE							-	-				-	-						0.6	SITE LIGHTING	26
27	SPACE							-	-			2	1	60	3.0						RESTROOM BUILDING	28
29	SPACE							-	-				1		3.0							30
															7.0	0.0	7.3	0.0	7.0	3.9	CONNECTED KVA	25.2
																					DEMAND KVA	24.0

LIGHTING CONTROL SCHEDULE

ZONE	DESCRIPTION	DIMMING	WATTAGE	PANEL/CKT
Z1	TYPE 'S'	TRIAC DIMMING	1152W	B – 11
Z2	TYPE 'T'	TRIAC DIMMING	384W	B – 13
Z3	TYPE 'U'	TRIAC DIMMING	960W	B – 15
Z4	TYPE 'V'	TRIAC DIMMING	100W	B – 13

1. SYSTEM SHALL BE CAPABLE OF PRESET SCENES
2. PROGRAM 6 BUTTON SCENE CONTROLLERS FOR ALL ON/ALL OFF AND 4 PRE-SET SCENES. PROVIDE ON SITE PROGRAMMING WITH OWNER FOR 4 DESIRED SCENE SETTING.
3. PROVIDE OWNER TRAINING ON SYSTEM USE AND PROGRAMMING.

LIGHTING FIXTURE SCHEDULE

TYPE	WATTAGE LAMP	WATTAGE FIXTURE	DESCRIPTION	CATALOG #
S	(12) E26 LED 2800K ST64 STYLE	144W	36" DIAMETER 12–LIGHT FARMHOUSE CHANDELIER WITH BLACK FINISH. CHAIN MOUNTED TO 12"–6" AFF TO BOTTOM OF THE FIXTURE. PROVIDE (8) 100 WATT LED EQUIVALENT EDISON STYLE ST64 LAMPS.	BED BATH & BEYOND.COM #37288514
T	(8) E26 LED 2800K ST64 STYLE	96W	24" DIAMETER 8–LIGHT FARMHOUSE CHANDELIER WITH BLACK FINISH. CHAIN MOUNTED TO 12"–6" AFF TO BOTTOM OF THE FIXTURE. PROVIDE (8) 100 WATT LED EQUIVALENT EDISON STYLE ST64 LAMPS.	BED BATH & BEYOND.COM #44630705
U	(3) E26 LED 2800K ST64 STYLE	36	DECORATIVE 10" DIAMETER SURFACE MOUNTED LIGHT FIXTURE WITH GLASS SHADE AND DECORATIVE BLACK STEEL HOUSING	BED BATH & BEYOND.COM #41647907
V	LED 2800K 900L/ HEAD	50W	8' TRACK SINGLE CIRCUIT WITH (5) TRACK HEADS INDICATED. INSTALL ON VERTICAL SIDE OF BEAM. PROVIDE WITH IN–FEED, END CAP, AND ALL MOUNTING ACCESSORIES.	WAC LIGHTING TRACK: H–BK–8' HEAD: H–5010–CS–BK
W	LED 2800K 1250L	10W	10" DIAMETER LED GOOSENECK RLM WALL SCONCE WITH BLACK SHADE AND DEDICATED LED	HI LITE H–15010–91/HL–D–91/DCC/WGR–118–10LED427WBCM
Y	LED 2800K 3000L	23W	SAME AS TYPE W, EXCEPT 16" DIAMETER AND HIGHER OUTPUT.	HI LITE H–15116–91/HL–D–91/DCC/WGR–118–23LED427WBCM
Z	LED 2800K 1100L	11W	LED 6" SURFACE MOUNT DOWNLIGHT.	PRESCOLITE LBSES–6RD–CS9–WH
EM	LED	6W	HIGH CAPACITY 2 HEAD EMERGENCY LIGHTING UNIT WITH INTEGRAL BATTERY AND CHARGER MOUNTED AT 15' AFF	DUAL LITE EVHC6–WH
EM1	LED	3W	2 HEAD EMERGENCY LIGHTING UNIT WITH INTEGRAL BATTERY AND CHARGER MOUNTED AT 8' AFF	DUAL LITE EV2
XEM	LED	3W	LED UNIVERSAL MOUNT EXIT SIGN WITH WHITE HOUSING AND RED LETTERS AND INTEGRAL DUAL HEADS	DUAL–LITE EVC–URW

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BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION

4400 EVERETT ROAD, AKRON, OH 44333

PROJECT # 2324

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BARN ELECTRICAL PLAN

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ELECTRICAL SPECIFICATIONS

SECTION 16010

PART 1 – GENERAL

1.01 GENERAL

A. The provisions of the Instructions to Bidders, General Conditions, Supplementary Conditions, Alternates, Addenda, and Division 1 are a part of this Specification. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. Contractors and Sub-contractors shall examine same as well as other Divisions of the Specifications which affect work under this Division.

B. Material or labor which is not indicated on the Drawings or Specifications, but which is obviously necessary to complete the work (and is usually included in similar work), shall be provided. Drawings and Specifications are to be considered as supplementing each other. Work specified but not indicated, or indicated but not specified, shall be provided as though mentioned in both Specifications and Drawings.

C. These Specifications establish quality standards of materials and equipment to be provided. Specific items are identified by Manufacturer, Trade Name or Catalog Designation. The Contractor shall submit his base bid price based upon specified equipment described herein and as detailed on drawings and associated contract documents

D. Definitions

1. "Contractor" as used within the Electrical Specifications shall refer to the Electrical Contractor.

2. "Equal" or "Equivalent" shall be understood to mean of the same quantity, size, number, value, degree, intensity and the items are similar in all respects. The Engineer will make the final decision of acceptance of these items.

3. "Contract Documents" shall be understood to encompass drawings and specifications for architectural, structural, civil, mechanical, electrical and all other pertinent disciplines.

4. "Provide" shall be interpreted to mean the Contractor shall furnish all labor, materials, equipment and supplies including tests and inspections necessary to install, connect, apply, erect, construct, and place in operating condition.

5. "Furnish" shall be interpreted to mean the Contractor shall supply and deliver to the job site specified material, equipment, and supplies.

6. "Install" shall be interpreted to mean assembling, placing, erecting, wiring and to make fully operational.

E. The Contractor shall furnish all materials and do all work in accordance with these specifications, and any supplementary documents provided by the Architect. The work shall include everything shown on the drawings and/or required by the specifications as interpreted by the Architect, regardless of where such information is indicated (Architectural, HVAC, Plumbing, Fire Protection, etc.). All work and materials furnished and installed shall be new and of the best quality and workmanship. The Contractor shall cooperate with the Architect so that no error or discrepancy in the Contract Documents shall cause defective materials to be used or poor workmanship to be performed.

F. Visit the site of the work and become familiar with conditions affecting the installation. The contractor shall ascertain the location of existing structures, utilities, equipment, etc. that may affect contract work and advise the engineer no later than five (5) working days prior to bid due date. Submission of a proposal shall presuppose knowledge of such conditions and no additional compensation shall be allowed where extra labor or materials are required because of ignorance of these conditions.

G. The contractor shall advise the architect and/or engineer of any code violations occurring in the Contract Documents prior to award of contract. In case of conflict between the Contract Documents and the requirements of any Code or Authorities having jurisdiction, the most stringent requirements of the aforementioned shall govern.

1.02 WORK INCLUDES

A. Include all labor, material, equipment, services, permits and certificates of inspection necessary for the proper completion of all electrical work. Items omitted, but necessary to make the electrical system complete and workable, shall be understood to form part of the work.

B. It is the purpose of the Electrical Drawings to indicate the approximate location of all equipment, outlets, etc. Ascertain exact locations and arrange work accordingly. The right is reserved to effect reasonable changes in the location of outlets up to the time of roughing-in with out additional cost to the Owner. Changes in location of outlets or equipment necessitated by interference with the work of other trades shall be made only with the consent of the Architect's or Owner's representative and at no additional cost.

C. Work shall include, but not be limited to, the following general systems and equipment:

Lighting and controls
Power and lighting conduit/wiring
Receptacles
Panelboards
Disconnect switches
Fire alarm system
New utility service and power distribution system
Extension/modification of the existing power distribution system
Temporary lighting and power distribution equipment for construction
Telecommunications conduit system complete with pull wires
Connections to Owner furnished equipment

D. All materials and workmanship shall comply with all applicable Codes, Specifications, Local and State Ordinances, Industry Standards, and Utility Company regulations and latest editions. In case of difference between Building Codes, State Laws, Local Ordinances, and the Contract Documents, the Contractor shall promptly notify the Architect in writing of any such difference.

E. The Electrical Design is based on the National Electrical Code. Work shall be installed in accordance with the provisions of the code as interpreted by the local board having jurisdiction, as well as any further modifications or regulations of local or state authorities. The Contractor shall include in his bid the cost of providing materials and equipment necessary to satisfy local or regional codes.

F. Provisions of the latest revisions to the Federal Occupational Safety and Health Act (OSHA) shall be satisfied.

G. Secure and pay for all permits and inspections required electrical work. Turn over all certificates of approval, by governing agencies, to the Architect for transmittal to Owner before payment is made for the work.

H. Give the proper authorities notices as required by law relative to the work in his charge. Comply with the regulations regarding temporary enclosures, obstructions or excavations and pay all legal fees involved.

I. The Electrical Contractor shall provide temporary electrical services adequate in size and characteristics, for use by all trades on site during project construction.

1.03 TESTS & DEMONSTRATION OF SYSTEMS

A. After installation but prior to energization, perform tests for grounds, short circuits and proper function. Faults in the installation shall be corrected.

B. Insulation resistance tests shall be made on the electrical system with not less than 1000V D.C. for 30 seconds using an approved megohmeter (Biddle Megger or equal). Also, complete resistance/continuity tests on the grounding system.

C. The Contractor shall torque down all accessible bolts and perform rotation tests for all distribution and utilization equipment

D. At each test site, the Contractor shall provide any test control power necessary to perform these tests.

E. Conduct such tests and adjustments of the equipment as required by the Architect as necessary to verify performance requirements. Submit data to the Architect.

F. Before final payment, demonstrate to the Owner's satisfaction the proper operation of each of the systems comprising this Contract.

G. Instruct the Owner's maintenance personnel in the operation and maintenance of all electrical equipment and controls.

1.04 CLEANING AND FINISHING

A. After all tests have been completed, clean all equipment leaving everything in working order at the completion of this work.

B. All debris created by the execution of this work shall be removed.

1.05 CUTTING, PATCHING AND PAINTING

A. Avoid cutting into the work of others by using sleeves, inserts, chases and similar items necessary for the installation.

B. Except where otherwise specified or noted on drawings, do all cutting and patching of the building as required to install sleeves, inserts, conduits and electrical equipment. Patching shall be done by mechanics skilled in the various trades. Work shall match the general construction work. All cutting shall be done in a manner to retain the structural integrity of the unit being cut. Where existing equipment is removed or relocated, patch to match the existing building finishes (walls, ceilings, floors, etc.).

C. Painting shall be provided under other Divisions of this Specification unless otherwise specified.

1.06 COORDINATION WITH OTHER TRADES

A. The Contract Drawings are diagrammatic only intending to show general runs and locations of conduit, equipment, terminals and specialties and not necessarily showing all required offsets, details and accessories and equipment to be connected. Take all field measurements necessary and assume responsibility for their accuracy. All work shall be accurately laid out with other Trades to avoid conflicts and to obtain a neat and workmanlike installation that will afford maximum accessibility for operation, maintenance and headroom.

B. Keep fully informed of the progress of the general construction. Install work that is to be concealed within the building construction in sufficient time to secure proper location without delay to the work of other trades. All conduit and outlet boxes concealed in masonry construction shall be installed during wall construction. Attend electrical work during the progress of building–in to prevent misalignments and damages to the electrical work.

C. The Contractor shall be responsible for coordinating with other trades (mechanical, plumbing, etc.), and shall verify any equipment and device voltage, phase and ampacity specifications. They shall furnish and install all necessary wiring, protective devices, etc., as recommended by the manufacturer and as required for the correct and proper operation of the installed equipment.

D. Examine the work of other trades when their work comes in contact with or is covered by this work. Do not attach to, cover up, or finish against any defective work, or install work in a manner which will prevent proper installation of the work of other trades.

E. All outlets, switches and receptacles shall be centered with regard to paneling, trim equipment, etc., and shall line up with either bottom or top of masonry courses.

F. Locate all electrical equipment, devices, equipment, etc. in the field in conjunction with drawings and building engineer. Coordinate routing of all feeders, conduit runs, pullboxes, etc. to avoid conflicts with existing ductwork, plumbing, and structural components.

1.07 GUARANTEE AND WORKMANSHIP

A. All materials and workmanship provided under the contract shall carry the standard warranty against all defects in material and workmanship. Any fault due to defective or improper material, equipment, workmanship or design which may develop shall be made good, forthwith, by and at the expense of the Contractor for the work under his Contract, including all other damage done to areas, materials and other systems resulting from this failure.

B. Manufacturers shall provide their standard guarantees for work under the Electrical Trades. However, such guarantees shall be in addition to and not in lieu of all other liabilities that the manufacturer and the Contractor may have by law or by other provisions of the Contract Documents

C. Workmanship shall be in accordance with the best practices of the trade. Journeymen electricians under the supervision of a competent foreman shall install electrical work

1.08 SUBMITTALS

A. Submit drawings and wiring diagrams in accordance with Division 1 on all items of equipment provided for review by the Engineer. These shall include, but not be limited to, the following:

Lighting and controls
Disconnect switches
Panelboards and transformer
Fire alarm devices

B. The submittals will be reviewed only for general compliance and not for dimensions, quantities, etc. The submittals that are returned shall be used for procurement. The responsibility of correct procurement remains solely with the Contractor. The submittal review shall not relieve the Contractor of responsibility for errors or omissions and deviations from the contract requirements.

C. The Contractor shall insure submittals bear the Contractors' dated approval stamp and indicate all options. If the submittal shows variations from the requirements of the contract documents, for any reason, the Contractor shall make specific mention of such variation in his letter of transmittal. The Contractor shall note in red on the submittal any change in design or dimension on the item submitted including changes made by the manufacturer that may differ from catalog information.

D. Acceptance or rejection of the proposed substitutions shall be subject to approval by the Architect and Engineer. If requested, the Contractor shall submit (at their cost) inspection samples of both the specified and the proposed substitute items for review by the Engineer.

E. Contractor further agrees that if deviations, discrepancies, or conflicts between shop drawing submittals and the contract documents in the form of design drawings and specifications are discovered either prior to or after shop drawing submittals are processed by the Engineer, the design drawings and specifications shall control and shall be followed.

1.09 RECORD DRAWINGS

A. Each Contractor or Sub–contractor for Electrical work shall keep one complete set of the contract working drawings on the job site on which he shall record any deviations or changes from such contract drawings made during construction.

B. These Drawings shall be kept clean and undamaged, and shall not be used for any purpose other than recording deviations from working drawings and exact locations of concealed work.

1.10 LAYOUT DRAWINGS

A. Layouts for conduit runs, floor holes and sleeves must be made to coordinate with the General Contractor, Mechanical Contractors, Plumbing Contractor and all other trades and reviewed by the Architect.

1.11 OPERATING, MAINTENANCE AND SERVICE MANUALS

A. The Contractor shall thoroughly instruct the representative of the Owner, to the complete satisfaction of the Architect, in the proper operation of all systems and equipment provided by him. The Contractor shall make arrangements, via the Architect, as to whom the instructions are to be given in the operation of the basic and auxiliary systems and the period of time in which they are to be given. The Architect shall be completely satisfied that the representative of the Owner has been thoroughly and completely instructed in the proper operation of all systems and equipment before final payment is made. If the Architect determines that complete and thorough instructions have not been given by the Contractor to the Owner's representative, then the Contractor shall be directed by the Architect to provide whatever instructions are necessary until the intent of this paragraph of the specification has been complied with.

B. Deliver to the Owner all keys, special tools and appurtenances for proper operation and maintenance of the equipment. Provide complete bound set of operating and maintenance instructions for all electrical equipment and controls.

PART 2 – PRODUCTS

2.01 EQUIPMENT AND MATERIALS

A. Equipment and materials used on this job shall be new, U.L. labeled, and O.S.H.A. approved.

B. Equipment and materials shall be protected and be the responsibility of this Contractor until formally accepted by the Owner.

C. Material and equipment built into the work for which examination service is provided shall bear the Underwriter's Label.

D. Materials and equipment provided under this Contract shall be new and of the quality herein specified. Each class of materials shall be of the same type and make throughout the building.

E. All manufacturers of electrical equipment shall demonstrate to the satisfaction of the Contractor and Engineer that their equipment will function properly under the conditions of use as indicated on the drawings and as specified herein. Dimensions, weights, operating characteristics and all other related appurtenances should be verified before submittal of shop drawings.

F. All equipment of one type (such as cable, panelboards, wiring devices, etc.) shall be the product of one manufacturer.

G. Fire Stopping

1. In addition to the requirements specified herein, refer to Division 1 Specifications for fire stopping guidelines.

2. All openings in fire rated floors, shafts, and walls accommodating penetrating items such as cables, conduits, raceways, cable trays, or busways shall be fire stopped.

a. Provide fire stopping for steel electrical outlet boxes that exceed 16 square inches in area and/or when the aggregate surface of the boxes exceeds 100 square inches in any 100 square foot of wall area. In addition, provide fire stopping for steel electrical outlet boxes on opposite sides of the wall that are not separated by a horizontal distance of 24 inches.

b. Provide fire stopping where a penetration occurs through a structural floor or roof and a space would otherwise remain open between the surface of the penetration and the edge of the adjoining structural floor or roof.

c. Provide fire stopping to completely fill spaces around penetrations where penetrations occur at fire rated shafts and walls of hollow–type construction.

3. The installation of fire stopping materials shall conform to the latest Fire Resistance Directory as published by U.L.

4. Fire stopping shall be performed by a contractor trained or approved by the fire stopping manufacturer. Equipment used shall be in accordance with the fire stopping manufacturer's written installation instructions.

5. Acceptable Manufacturers: Specified Technologies, Inc.; Tremco, Inc.; 3M; and Hilti.

PART 3 – EXECUTION

3.01 EQUIPMENT CONNECTIONS

A. Serve and connect equipment being installed during the construction period, but provide facilities only for serving equipment that will be moved in, set and connected later by the Owner. Provide cords and caps where required and fusetron fuses in switches left for future equipment connections.

3.02 SERVICE SHUTDOWNS

A. Prior to any isolation of systems, shutdowns or demolition the Contractor shall provide necessary investigation and notify the Facilities Engineering/Maintenance personnel of work to be performed so as to avoid any detrimental shutdown of systems to adjacent spaces.

B. Maintain existing electrical systems in service until the new systems are complete and ready for service. Disable the systems only to make switchovers and connections. Any service shutdowns that may be required shall be scheduled with and approved by the Owner. All shutdowns shall be scheduled with and approved by the Owner. A minimum of a one–week notice shall be given prior to any service shutdown. No additional compensation shall be allowed for these shutdown periods even though overtime work may be required.

END OF SECTION

SECTION 16020 – ELECTRICAL DEMOLITION

PART 1 – GENERAL

1.01 WORK INCLUDES

A. The information indicated on the Demolition Drawings is a composite of information obtained from readily observable field conditions and/or existing drawings. The Demolition Drawings may not show every existing receptacle, luminaire, switch, conduit, etc and shall therefor be considered diagrammatic. Field verification of all existing devices and systems will be required to be made by the Contractor prior to commencement of work. Note that electrical or electronic circuit tracers were not used to verify these plans.

B. Include all costs and labor, materials, equipment, services, and permits necessary for completion of the demolition work. Provide protection for all personnel and adjacent areas before, during, and after execution of the demolition work.

C. Electrical equipment indicated on the Demolition Drawings is shown to indicate the extent of demolition only, and is not intended to be a record drawing of the existing conditions. The Drawings and Specifications establish the minimum standards for workmanship and materials.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Provide materials and equipment for completion of the demolition work as described within the Specifications and on the Drawings.

PART 3 – EXECUTION

3.01 GENERAL DEMOLITION WORK

A. The Contractor shall remove and/or relocate all of the existing electrical work made necessary because of project alterations as indicated or implied on the Contract Documents of all trades. All existing electrical equipment and systems not affected by these changes shall remain and shall be protected whether shown on the Drawings or not. The Contractor shall maintain existing circuit continuity as described in the Specifications and on the Drawings, or as required for continued operation of the electrical equipment and systems.

B. Where required, resupport existing conduits and cabling above ceilings being removed. Electrically disconnect equipment to be removed at the point of power supply. Remove conduit and wiring from equipment to be removed complete to the point of power supply. Existing panelboards being modified/utilized shall be provided with new typewritten directories to reflect any changes made through this demolition.

C. All wiring (Branch Circuit, Fire alarm, etc.) that is to be demolished shall be removed completely back to source including all conduit, supports, conductors, etc. Do not abandon any materials above ceilings or in walls. The associated circuit breakers shall be turned off and marked as spare if not reused for the new construction.

D. Where building systems or circuits are interrupted because of the demolition work, they shall be rerouted or relocated, modified and reconnected to provide a continuous system.

E. All cutting, patching, finishing, etc., for removal and relocating electrical equipment shall be included as part of the Electrical Work unless otherwise noted. All damage caused by the demolition work shall be properly patched with suitable materials to match existing surfaces. All abandoned electrical conduits or other openings made by removal of existing electrical components shall be fire stopped with approved U.L. rated mineral wool and/or fire caulk. U.L. approved fire stop method/material shall match the existing and/or new rated assembly.

F. All equipment to be salvaged by the Owner shall be carefully removed and securely stored on site by the Contractor for salvage by the Owner. All other materials, equipment and debris shall become the property of the Contractor and shall be removed from the site.

G. Where existing electrical equipment is indicated on the Drawings to remain, the existing wiring shall remain, along with the related conduit system, unless otherwise shown or noted on the Drawings. Clean, repair, and refurbish existing materials and equipment that are to remain.

H. In all cases where existing branch circuit conduit and wiring is to be re–used or extended within the remodeled area, the Contractor shall test for grounding continuity and shall test the existing branch circuit wiring as though new, in accordance with the testing procedures outlined elsewhere n these Specifications.

I. Existing flush outlet boxes may be reused if at proper height, location and in good condition. Existing concealed raceways may be reused if in good condition.

J. Cap existing empty conduits and plug open knockouts in existing electrical equipment.

K. In all existing or new areas specified or shown to be painted, the Contractor shall remove all electrical items as required including but not limited to luminaires, device plates, devices, etc. Reinstall after completion of painting. Any item not removed and painted over shall be suitably cleaned or replaced with a new item by the Contractor.

END OF SECTION

SECTION 16050 – BASIC MATERIALS AND METHODS

PART 1 – GENERAL

1.01 GENERAL

A. Work Includes

Conduits
Wire and Cable
Wiring Devices
Supporting Devices

B. Related Work Specified Elsewhere

Section 16010 – General Electrical Provisions
Section 16060 – Grounding and Bonding

C. Products

1. Material and equipment built into the work for which examination service is provided shall bear the Underwriter's Label.

2. Materials and equipment provided under this Contract shall be new and of the quality herein specified. Each class of materials shall be of the same type and make throughout the building.

PART 2 – PRODUCTS AND EXECUTION

2.01 CONDUITS

A. Materials

1. Conduit shall be rigid galvanized or intermediate grade in exterior masonry walls; masonry walls below grade; concrete floors, walls or slabs; damp or wet locations; or exposed below 8 feet above finished floor. Use P.V.C. in ground applications. All other interior conduits may be EMT or MC as approved by the NEC.

2. Rigid conduit fittings shall be threaded fittings. Rigid conduit couplings and hubs to have no less than five (5) threads of conduit engaged and screwed up tight.

3. All conduits that pass through the roof shall be in pipe portals.

4. All conduits that cross expansion joints shall have expansion seismic couplings.

5. All conduits that are indicated on the drawings to be run exposed on the building roof shall be supplied with pipe roller supports.

6. Exterior underground conduit shall be P.V.C. schedule 40, and must be encased in 6" of concrete under drives or roadways. The transition to rigid conduit must be made before the conduit enters the building.

B. Execution

1. Conduits shall be continuous and be secured to all boxes in a manner that each system shall be electrically continuous from point of service to all outlets. Terminals of all conduits shall be provided with locknuts and bushings. Plug ends of each conduit with an approved cap or disc to prevent the entrance of foreign materials during construction.

2. Conduits run in floor slab or concrete work shall have a minimum of one (1") inch of concrete cover and clean threads.

3. All conduit terminating in sheet steel enclosures shall have double locknuts and a bushing. Locknuts shall be a type which will "bite" into the metal of the box. All bushings shall be of the insulating type.

4. Conduit shall be run concealed in finished areas. The routing of all surface mounted/exposed conduit in finished areas shall be coordinated with, and shall be approved by the architect prior to installation.

5. Where conduits passing through openings are exposed in finished rooms, finishes of filling materials shall match and be flush with adjoining floor, ceiling and wall finishes

6. Conduits shall not be run on the exterior of the building or on the roof unless specifically indicated on the drawings. The routing of such conduits shall be approved by the Architect.

7. Homeruns to panels shall be 3/4" minimum.

8. Conduit in ground floor shall be run under the slab, but may not be run in slag.

9. Exterior underground conduits shall be 30" below grade, minimum.

10. Conduit passing through exterior walls for entry into building and floors below grade shall be made watertight with caulking compound and pipe sleeves with wall collar extending 8" all around the conduit. Collar shall be 1/8" thick steel welded to sleeve. Coordinate material requirements with the Contractor. Underground joints shall be sealed.

11. Where conduits pass through masonry or concrete walls, foundations or floors, the Electrical Contractor shall set such sleeves as are necessary for passage of the conduits. Sleeves shall be of sufficient size to provide air space around the conduit passing through for fireproofing. The Electrical Contractor shall be responsible for the exact location of sleeves provided under his Contract.

12. Conduit supporting systems shall be attached to the deck, slab, or structural framing only and not to any other appurtenances at the ceiling such as mechanical ducts, pipes and suspended ceiling hanger wires or framing members.

13. Conduits or other raceway systems that penetrate fire or smoke rated walls, ceilings, decks, partitions, etc. shall be constructed so as to maintain the integrity of the fire or smoke rated areas.

14. A separate ground must be run in all P.V.C. conduit. Conduit size shall be increased to accept ground when required. Vertical transitions shall be made with rigid steel ells.

2.02 WIRE AND CABLE

A. Materials

1. Wire and cable for lighting feeders shall be 600 volt type THHN/THWN or XHHW copper. Aluminum wiring is an acceptable alternate for feeders 100 amperes or larger.

2. Wire and cable for power and lighting branch circuits shall be TW/UF copper for #8 and smaller and THHW or XHHW copper for #6 and larger. Wire sizes shall be based on the 60°C ampacities for wire sizes #14 through #1AWG, and 75°C ampacities for wire sizes #1/0 AWG and larger.

3. Minimum wire size for power and lighting circuits shall be #12. Wire sizes #12 and smaller shall be solid. Wire sizes #10 and larger shall be stranded.

4. Where size is not indicated, Conductor size #12 minimum shall be used for circuits less than 120 feet and size #10 minimum shall be used for circuits greater than 120 feet.

5. Joints in #10 and smaller wire shall be made with Minnesota Mining and Manufacturing Co. insulated "Scotch Locks", Ideal Co. "Wing_Nut", T & B Co. "Piggy" connectors, or with mechanically crimped sleeves as manufactured by T & B Co., or Ideal Co. Connector sleeves shall be insulated with pressure sensitive electrical tape equal to Minnesota Mining and Manufacturing Co. Scotch No. 33 "plus" or Raychem Corp. heat shrinkable tape.

6. Joints in #8 and larger shall be made with pressure type mechanical connectors and insulated with electrical tape to 150% of the insulating value of the conductor insulation.

7. Color code wire and cable for circuits as called for in the National Electric Code.

8. All mechanical wire & cable terminations shall be torque–tightened with torque wrench or torque screwdriver to manufacturer's recommended torque values.

2.03 WIRING DEVICES

A. Materials

1. Local light switches shall be back and side wired, 20 ampere, 120/277 volts, AC Specification Grade. The following manufacturers indicated are acceptable: Hubbell, Legrand, Leviton, Bryant.

2. Convenience outlets for 120 volt general use shall be duplex 20 ampere, 125 volt, 3 wire, grounding type. The top shall be of high impact thermoplastic such as nylon. The strap shall be heavy duty steel that wraps around the device. Ground contacts shall be brass and riveted to the strap. Automatic ground clip shall be provided. Manufacturers and their catalog numbers listed are acceptable.

Hubbell	Legrand	Leviton	Bryant
5362	5362	5362	5362

3. All switch and convenience outlet plates shall be smooth finish, UV–resistant thermoplastic material such as nylon to suit outlets provided. To insure uniform color, plates and devices shall be of one manufacturer. In unfinished areas, use of cadmium plated round corner steel cover plates is permitted.

4. All 15– and 20–ampere, 120–volt nonlocking type receptacles in the areas specified in NEC 406.12(1) through (7) shall be listed tamper resistant.

5. Ground fault circuit interrupter (G.F.C.I.) receptacles, where required by local code, shall be Hubbell #AFGF15TR.

6. Weatherproof receptacles shall be Hubbell #HBL5262WR duplex outlet with Hubbell #HBL5221 polycarbonate gray plate, box mount.

B. Execution

1. Provide receptacles and switches as indicated. Colors of device and plates shall be selected by the Architect. Verify before installation.

2. Adjacent devices shall be mounted in ganged boxes.

3. Junction boxes shall not be installed above gypboard ceilings, due to inaccessibility.

2.04 DISCONNECT SWITCHES

A. Disconnect switches, unfused or fused, single throw, shall be installed where indicated on the Drawings and/or where required by Code. Switches shall be heavy duty for indoors or outdoors as required and manufactured by Square D, General Electric, Siemens or Cutler–Hammer.

B. If double lugging or oversized wires are required, provide a wireway or splice box.

C. The means of disconnect/control for all equipment and disconnects shall be installed in a readily accessible location and shall have proper working space as defined in NEC Article 100 and 110.

2.05 SUPPORTING DEVICES

A. All hardware, supports, hangers, angle iron, channels, rods, clamps necessary to install electrical equipment and lighting fixtures shall be supplied to suit conditions and application. The use of perforated straps will not be permitted.

B. Supporting devices shall be galvanized or aluminum material.

2.06 EQUIPMENT MOUNTING

A. All equipment mounted on exterior walls shall be attached to 3/4" plywood boards furred out 1" from wall. Provide painting of plywood boards _ finish as selected by the Architect.

2.07 EXCAVATION, CONCRETE AND BACKFILL

A. Provide all excavation, concrete and backfill required for electrical work exclusively. All concrete work shall be in accordance with the requirements of The State of Ohio.

2.08 PADS, FOUNDATIONS AND ENCLOSURES

A. Provide pads, foundations, and enclosures required for electrical equipment. All floor mounted or exterior equipment is to be on 4" concrete pads unless otherwise indicated.

B. Exterior concrete shall be thouroseated.

C. Pads for Utility Company transformers: follow Utility Company requirements.

END OF SECTION

SECTION 16400 – SERVICE AND DISTRIBUTION

PART 1 – GENERAL

1.01 GENERAL

A. Work Includes:

Grounding
Branch Circuit Panelboards
Transformers

B. Related Work Specified Elsewhere

Section 16010 – General Electrical Provisions
Section 16050 – Basic Electrical Materials and Methods
Section 16400 – Power Distribution Equipment

1.02 GROUNDING

A. Ground all conduits, cabinets, motors, panels and other exposed non–current carrying metal parts of electrical equipment in accordance with all provisions and local National Electric Code and local codes.

B. Ground all conduits by means of grounding bushings on terminations at panelboards with an installed #12 conductor to grounding bus

C. The preferred method of grounding to earth is by an underground water piping system, if available, supplemented by the use of driven rods. Ground rods shall be copper–weld not less than 3/4" in diameter and ten (10) feet long.

D. Grounding of the electrical system shall be by means of an insulated grounding conductor installed with circuit conductors in all conduits. Grounding conductors shall be sized in accordance with N.E.C. 250.95 and shall run from grounding bus of serving panel to ground bus of served panel, grounding screw of receptacles, lighting fixture housings, light switch outlet boxes or metal enclosures of served equipment.

E. Install bonding jumpers across all buildings, expansion joints, and across conduit expansion fittings

F. Conductors for grounding system shall be soft or medium hard drawn, stranded, bare copper except where otherwise noted.

4. All conductors #8AWG and smaller shall be insulated

PART 2 – PRODUCTS AND EXECUTION

2.01 CIRCUIT BREAKER PANELBOARDS

A. Materials

1. Panelboards shall be of the dead front safety type. Bus bars shall have anti–turn solderless lug connections for attaching feeders. Where two or three–pole breakers are required, they shall be common trip. Panelboards shall be Square D, Siemens, General Electric, or equivalent.

2. Name Plates

a. Provide nameplates on all equipment of the type listed in the following schedule: Panel boards, Safety Switches

b. Lettering shall include name of equipment, horsepower, voltage rating and service designation.

c. Name plates shall be laminated phenolic with a black surface and white core. Nameplates may be attached to wall adjacent to equipment if area for attachment is too small. Identification with a Dymo–type instrument is not permissible.

d. Nameplates on panel boards recessed in walls in finished areas may be on inside of door.

e. Nameplates on panel boards, distribution panels, etc., in unfinished areas should be on exterior trim near top.

3. All branch circuit panelboards shall be circuit breaker type with provisions for bolt–on type circuit breakers.

4. Circuit breakers shall be bolt on type, 10,000 ampere symmetrical short circuit capacity minimum unless otherwise shown on the drawings.

5. Branch Circuit Identification:

a. Identification of branch circuits shall be typewritten on directory cards furnished with all panels and placed in the cardholder on the door. Descriptions shall list type of load and location (i.e., RCPT–RM 101/102). Spare circuits shall be left blank for future identification.

A. Execution

1. Panels shall be mounted so that the top is at 6'–0" above floor.

2. A glazed directory frame shall be provided inside the door and shall be of sufficient size to give description of each circuit. Typed directory cards shall be provided listing each circuit served.

3. Provide new directory cards in existing panels modified due to the contract work.

2.02 TRANSFORMERS

A. Transformers shall be dry type, 115 deg. centigrade rise, with four 2–1/2% full capacity taps (two above – two below normal voltage) for 30 KVA and below. 150 deg. centigrade rise, with six 2–1/1% full capacity taps (two above – four below normal voltage) above 30 KVA. Transformer sound levels shall not exceed NEMA Standards. Provide all mounting platforms for wall or truss mounted transformers as required. Primary and secondary connections shall be made with flexible conduit. Transformers shall be as manufactured by Square D, General Electric, Siemens, Acme, or Hevi–Duty.

B. All transformers indicated to be supported from the structure shall be supported by Unistrut frame.

PART 3 – EXECUTION

3.01 GROUNDING

A. All connections of ground conductors to bus bars, structural members, pipes, or fences and splices of ground conductors shall be made by exothermic welds except where otherwise noted. All connections to bar lugs shall be exothermic weld or compression type. Bolted type connection of ground conductors may only be made where terminal lugs or blocks have been furnished and installed in equipment by the manufacturer.

B. The resistance to ground for the entire grounding system shall not exceed 25 ohms under normal dry conditions.

C. Tests of grounding resistance shall not be made within 24 hours after a rainfall. If after testing the system, it is found that the resistance to obsolute earth exceeds 15 ohms, the Contractor shall install the necessary number of ground rods to reduce the resistance to less than 15 ohms. These tests shall be conducted in the presence of the local Electrical Inspector. The test results shall be submitted to the Owner/Engineer.

END OF SECTION

SECTION 16500 – LIGHTING

PART 1 – GENERAL

1.01 GENERAL

A. Work Includes

Interior Lighting
Exterior Lighting

PART 2 – PRODUCTS AND EXECUTION

2.01 EXECUTION

A. Light fixtures (luminaire) shall be as specified on the lighting fixture schedule as indicated on the drawings. Where fixture types are indicated as a manufacturer's series, the contractor shall provide the correct trim, mounting hardware, lengths, etc., to complete the installation as indicated on the electrical/architectural drawings.

B. All fixtures shall be securely supported with approved hangers. Fixtures shall be supported from structural ceiling or structural supports, not suspended ceiling supports, independent of ceiling material. Fixtures shall be secured per IBC, state and local seismic requirements. Surface mounted fixtures must have additional ceiling support as acceptable by the Architect.

END OF SECTION

SECTION 16700 – COMMUNICATIONS

PART 1 – GENERAL

1.01 GENERAL

A. Work Includes:

Telephone/data conduit system and junction boxes

B. Related Work Specified Elsewhere

Section 16010 – General Electrical Provisions
Section 16050 – Basic Electrical Materials And Methods

PART 2 – PRODUCTS AND EXECUTION

2.01 DESCRIPTION

A. The Contractor shall provide a complete system of telephone/data cabinets, outlet boxes, conduit and miscellaneous fittings and materials to provide a complete data raceway system. Data equipment, terminals, cable and the associated labor shall be furnished and installed by low voltage contractor under a separate agreement with the Owner. All work shall be provided in accordance with the requirements of the local telecommunications company and as indicated on the drawings.

B. Execution

1. All conduits required for telephone/data outlets as shown on the drawings shall be provided complete with pull wires. Conduit shall be 3/4" minimum and the complete system shall conform with the telephone company requirements. Provide empty conduits with appropriately sized pull strings from each outlet to conduit stub above ceiling space.

2. All low voltage and system cabling located above ceilings shall be properly rated for the application. Without exception, all cabling shall be hung from bridal type rings or placed in cable tray by the E.C. in exposed ceiling areas. All cabling shall be run in conduit to the nearest accessible ceiling location.

3. The E.C. shall coordinate the exact location of all device boxes for security system, conduit for low voltage cable and 120V power for card readers/sensors with the Owner's security system vendor prior to rough–in.

4. Coordinate communications cabling, routing, mounting boxes, and terminations with the Owner, Architect and Owner's communications consultant prior to rough–in.

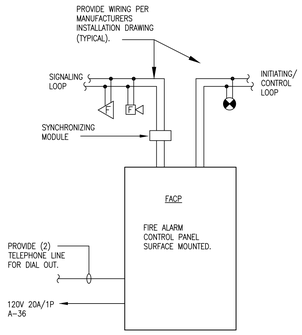
END OF SECTION

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION
3 / A	INDICATES HOMERUN [2#12AWG,1#12AWG(G)–3/4"C] TO PANEL "A" CIRCUIT 3
– – – – –	UNDER FLOOR/UNDERGROUND BRANCH CIRCUIT WIRING
$	SWITCH – SINGLE POLE – MOUNTED AT 48" A.F.F. OS – DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH
	LINE VOLTAGE, DIMMER WITH OCCUPANCY SENSOR MOUNTED AT 48" AFF. SENSORSWITCH #WSXPDT D OR EQUAL.
	DUPLEX RECEPTACLE – MOUNTED AT 18" A.F.F. VERIFY EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH–IN. G – G.F.C.I. TYPE C – MOUNTED 7" ABOVE COUNTERTOP WPC – WEATHERPROOF WHILE IN USE METAL COVER, AND G.F.C.I. TYPE RECEPTACLE MOUNTED AT 24" ABOVE GRADE
	DUPLEX RECEPTACLE – MOUNTED AT 48" A.F.F.
	DOUBLE DUPLEX (QUADPLEX) RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE – SEE PLANS FOR DESCRIPTIONS
	JUNCTION BOX – MOUNTING HEIGHT/LOCATION AS INDICATED
	CIRCUIT BREAKER PANELBOARD
	EXHAUST FAN – SINGLE PHASE MOTOR, U.O.N.
	UNFUSED DISCONNECT SWITCH
	FIRE ALARM PULL STATION WITH AUDIBLE SAFETY GUARD – MOUNTED AT 48" A.F.F.
	FIRE ALARM SYSTEM HORN/STROBE WITH FLASHING STROBE LIGHT – MOUNTED AT 80" A.F.F.
	FIRE ALARM SYSTEM SMOKE DETECTOR
R.E.X.	REMOVE EXISTING DEVICE AND WIRING COMPLETE BACK TO SOURCE
N.E.X.	NEW DEVICE IN EXISTING WALL
R.R.	EXISTING DEVICE LOCATION TO REMAIN. REMOVE EXISTING DEVICE AND WIRING AND REPLACE WITH NEW
PC	LINE VOLTAGE PHOTOCELL – SPST. TORK # 2129A OR EQUAL
	SECURITY SYSTEM CLOSED CIRCUIT CAMERA BY OTHERS. PROVIDE JUNCTION BOX FOR MOUNTING AND CONDUIT STUB FOR WIRING.

GENERAL ELECTRICAL NOTES:

1. ALL WIRING SHALL BE IN CONDUIT, SIZE AND TYPE SUITABLE FOR THE CONDITIONS.
2. EQUIPMENT ABOVE CEILINGS SHALL BE PLENUM–RATED.
3. COORDINATE/VERIFY EXACT LOCATIONS OF ALL EQUIPMENT PRIOR TO ROUGH–IN OF OUTLETS.
4. WIRE SIZES SHALL BE BASED ON THE 60°C. AMPACITIES FOR WIRE SIZES No. 14–1 A.W.G., AND 75°C. AMPACITIES FOR WIRE SIZES #1/0 A.W.G. AND LARGER, UNLESS OTHERWISE NOTED.
5. REFER TO MECHANICAL PLANS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT WITH THE MECHANICAL CONTRACTOR AND LOCATE DISCONNECT SWITCHES IN ACCORDANCE WITH THE N.E.C. THE EXACT ELECTRICAL REQUIREMENTS SHALL BE VERIFIED IN THE FIELD WITH THE EQUIPMENT NAMEPLATE DATA. THE CONTRACTOR SHALL MAKE APPROPRIATE ADJUSTMENTS TO WIRE AND FUSE SIZES IN ACCORDANCE WITH THE NAMEPLATE DATA.
6. ALL BRANCH CIRCUITS AND FEEDERS SHALL CONTAIN INSULATED GROUNDING CONDUCTOR IN ACCORDANCE WITH THE SPECIFICATIONS.
7. UTILIZATION OF THE PHRASE "PROVIDED BY" WITHIN THE CONTEXT OF THESE DOCUMENTS SHALL EXPLICITLY REPRESENT "FURNISHED AND INSTALLED BY".
8. THE ROUTING OF ALL SURFACE MOUNTED/EXPOSED CONDUIT IN FINISHED AREAS (OR WHERE NOTED ON THE DRAWINGS) SHALL BE COORD

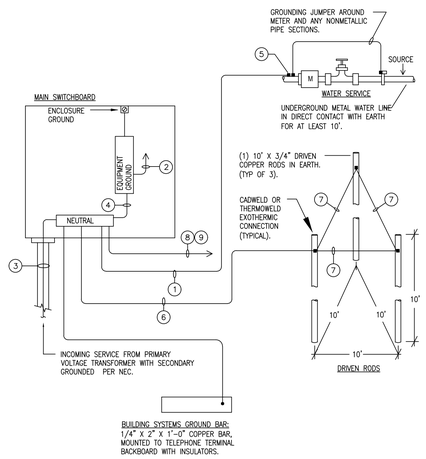


ADDRESSABLE FIRE ALARM SYSTEM RISER

SCALE: NONE

FIRE ALARM SYSTEM GENERAL NOTES:

1. THIS RISER REPRESENTS A TYPICAL SYSTEM AND IS NOT INTENDED FOR INSTALLATION. SYSTEM SUPPLIER SHALL PROVIDE INSTALLATION DRAWINGS AND SCHEMATIC WIRING DIAGRAMS. EXACT SYSTEM REQUIREMENTS SHALL BE COORDINATED WITH THE SYSTEM SUPPLIER. SYSTEM INSTALLER SHALL BE NICET CERTIFIED, IF REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
2. SYSTEM SUPPLIER SHALL SUPERVISE INSTALLATION, PROGRAM AND TEST SYSTEM AND INSTRUCT OWNER ON SYSTEM OPERATION.
3. ALL FIRE ALARM WIRING SHALL BE PLENUM RATED. EXPOSED FIRE ALARM WIRING, 10'-0" AFF AND BELOW, SHALL BE INSTALLED IN CONDUIT TO ABOVE ACCESSIBLE CEILING SPACE OR STRUCTURE.
4. ALL CONTROL CABINETS SHALL BE GROUNDED PER NEC REQUIREMENTS AND PER SPECIFICATIONS.
5. FIRE ALARM SYSTEM DESIGNER SHALL BE RESPONSIBLE FOR ALL SHOP DRAWINGS, COORDINATION WITH OTHER TRADES AND INSTALLATION. SUBMIT PLANS FOR CITY TO REVIEW. PLANS SHALL INCLUDE DEVICE LOCATIONS ON SCALED FLOOR PLANS, WIRING INFORMATION AND DIAGRAMS, AND BATTERY CALCULATIONS.
6. ALL STROBES SHALL BE SYNCHRONIZED WITHIN LINE OF SIGHT. COORDINATE SCOPE IN THE FIELD AND WITH THE GENERAL CONTRACTOR.

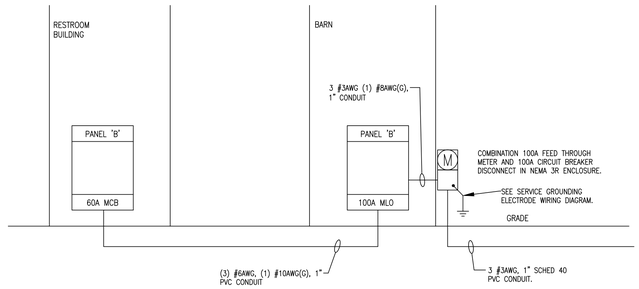


SERVICE GROUNDING ELECTRODE WIRING DIAGRAM

SCALE: NONE

GROUNDING DIAGRAM NOTES:

1. THE GROUNDING ELECTRODE CONDUCTORS SHALL BE SIZED PER TABLE 250.66 OF THE NEC. THE CONDUCTOR SHALL BE CONNECTED TO AN APPROVED GROUNDING ELECTRODE.
2. GROUND CONDUCTORS TO OTHER POINTS AND EQUIPMENT, AS REQUIRED BY NEC ARTICLE 250.
3. SERVICE ENTRANCE PHASE CONDUCTORS WITH GROUNDED (NEUTRAL) CONDUCTOR.
4. MAIN BONDING JUMPER SHALL BE SIZED PER TABLE 250.66 OF THE NEC.
5. INTERIOR METAL WATER PIPING CONNECTIONS SHALL BE MADE WITHIN 5' OF BUILDING ENTRANCE PER NEC 250.52(A)(1)
6. GROUND ROD ELECTRODE – PROVIDE #4 AWG COPPER GROUNDING ELECTRODE CONDUCTOR, PER NEC 250.66(A).
7. BONDING CONDUCTOR SHALL BE SIZED PER TABLE 250.66 OF THE NEC.
8. METAL WATER PIPING AND STRUCTURAL STEEL NOT INTENTIONALLY GROUNDED SHALL BE BONDED PER NEC 250.104 AND NEC TABLE 250.66.
9. OTHER METAL PIPING (GAS, ETC.) SHALL BE BONDED PER NEC 250.104 AND NEC TABLE 250.122.



BARN ONE LINE RISER DIAGRAM

NO SCALE

NEW PANELBOARD "B" SCHEDULE

VOLTAGE: 120/240V-1PH-3W MAINS 200A MLO MOUNTING SURFACE REMARKS:
BUS SIZE: 200 AMP TOTAL LOAD 11.5 KVA

No.	SERVES	LOAD (KVA) LTG	RCPT	MTR	A/C	HTG	MISC	BRKR TRIP	PH P	A	B	P	BRKR TRIP	LOAD (KVA) MISC	HTG	A/C	MTR	RCPT	LTG	SERVES	No.
1	RM 202 RECEPT/LTG	0.1	0.6					20	1			1	20					0.6	0.1	RM 204 RECEPT/LTG	2
3	RM 202 RECEPT		0.4					20	1			1	20					0.4		RM 204 RECEPT	4
5	RM 203 RECEPT/LTG	0.1	0.6					20	1			1	20					0.6	0.1	RM 205 RECEPT/LTG	6
7	RM 201 SE RECEPT		1.2					20	1			1	20					1.2		RM 201 NE RECEPT	8
9	RM 201 SW RECEPT		0.8					20	1			1	20					0.6		RM 201 NW RECEPT	10
11	TYPE S LTG	1.2						-	-			1	20					0.8		RM 201 COLUMN RECEPT	12
13	TYPE T & U LTG	0.5						-	-			-	-	0.6						FANS	14
15	TYPE V LTG	1.0						-	-			-	-								16
17								-	-			-	-								18
19								-	-			-	-								20
21								-	-			-	-								22
23								-	-			-	-								24
25								-	-			-	-								26
27								-	-			-	-								28
29								-	-			-	-								30
31								-	-			-	-								32
33								-	-			-	-								34
35								-	-			-	-								36
37								-	-			-	-								38
39								-	-			-	-								40
41								-	-			-	-								42
														0.6	0.0	0.0	0.0	7.8	3.1	CONNECTED KVA	11.5
																				DEMAND KVA	12.3

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NORTH FORK PRESERVE BARN RENOVATION

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PROJECT # 2324

ISSUE:

SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

ELECTRICAL ONE LINE SCHEDULES AND DETAILS

E12.2

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NORTH FORK PRESERVE BARN RENOVATION



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ABBREVIATIONS

ABV	ABOVE
A/C	AIR CONDITIONING
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
AHJ	AUTHORITY HAVING JURISDICTION
ALUM	ALUMINUM
APPROX.	APPROXIMATELY
ARCH	ARCHITECTURAL
ASPH	ASPHALT
BD	BOARD
BLDG	BUILDING
BOTT	BOTTOM OF
BRG	BEARING
BOTT	BOTTOM
BTW	BETWEEN
CF	CUBIC FEET
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CO	CLEAN OUT
CONT	CONTINUOUS
DBL	DOUBLE
DEPT	DEPARTMENT
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
DWG	DRAWING
EA	EACH
ELEC	ELECTRICAL
EQ	EQUAL
EXH	EXHAUST
EXST	EXISTING
EXP	EXPOSED
EXT	EXTERIOR
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FIN.	FINISHED
FLR	FLOOR
FT	FOOT
FTG	FOOTING
FUR	FURRING
GALV	GALVANIZED
GA	GAUGE
GC	GENERAL CONTRACTOR
GYP. BD.	GYPSUM BOARD
GYP	GYPSUM
HC	HOLLOW CORE
HDWR.	HARDWARE
HM	HOLLOW METAL
HVAC	HEATING, VENTILATION, AIR COND.
HT	HEIGHT
INSUL	INSULATION
JST	JOIST
LAM	LAMINATED
LF	LINEAR FOOT
MAS	MASONRY
MATL	MATERIAL
MAX.	MAXIMUM
MECH	MECHANICAL
MFG.	MANUFACTURER
MIN.	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTD	MOUNTED
MTL	METAL
NOM	NOMINAL
NTS	NOT TO SCALE
O/	OVER
O.C.	ON CENTER
OPN	OPENING
PREFAB	PREFABRICATED
PLYWD	PLYWOOD
P LAM	PLASTIC LAMINATE
PR	PAIR
PSI	POUNDS PER SQUARE INCH
REF	REFERENCE
RM	ROOM
RO	ROUGH OPENING
REQ	REQUIRED
SC	SOLID CORE
SECT	SECTION
SIM.	SIMILAR
STRUC	STRUCTURAL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
W	WITH
WWF	WELDED WIRE FABRIC

SYMBOLS

DETAIL

EXTERIOR ELEVATION

BUILDING SECTION

INTERIOR ELEVATION

WALL SECTION

CENTERLINE

GRID

KEYNOTE

DOOR TAG

WINDOW TAG

SPOT ELEVATION

MATERIALS LEGEND

DIMENSIONAL LUMBER
PLYWOOD
FINISH WOOD
GYPSUM BOARD
BRICK
EARTH
STONE VENEER
BLOCKING
GRAVEL
CONCRETE
CONCRETE BLOCK
STEEL
RIGID INSULATION
SPRAY FOAM INSULATION
MINERAL WOOL INSULATION
METAL DECK

PROJECT GENERAL NOTES

THE CONTRACTOR WILL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, PERMITS, TAXES, AND INSURANCE NECESSARY TO COMPLETE THE WORK INDICATED AND/ OR IMPLIED IN THE CONSTRUCTION DOCUMENTS UNLESS NOTED OTHERWISE AND WILL COORDINATE THE WORK RESPONSIBILITIES OF ALL SUBCONTRACTORS. ALL LABOR AND MATERIALS TO CARRY OUT FULLY THE INTENTIONS OF THE PLANS AND SPECIFICATIONS ARE PART OF THE CONTRACT, WHETHER OR NOT SPECIFICALLY DOCUMENTED.

ALL WORK WILL CONFORM TO THE CURRENT OHIO BUILDING, MECHANICAL & PLUMBING CODES, AS WELL AS THE CURRENT NATIONAL BOARD OF FIRE UNDERWRITERS AND ALL OTHER APPLICABLE CITY CODES, LOCAL LAWS, AND AUTHORITIES HAVING JURISDICTION. CODE STANDARDS AND PUBLICATIONS OF PRIVATE AND PUBLIC BODIES MENTIONED WITHIN THE SPECIFICATIONS OR ON THE DRAWINGS, WILL BE CONSIDERED TO BE THOSE IN FORCE AT THE TIME OF THE CONTRACT AWARD.

THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL CONTROLLED INSPECTIONS AND ANY TECHNICAL TESTING REQUIRED FOR CONTROLLED INSPECTIONS AS STIPULATED BY ALL APPLICABLE CODES.

ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT WILL BE NEW AND FREE OF DEFECTS AND WILL BE SUPPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED, AND CONDITIONED AS DIRECTED BY THE RESPECTIVE MANUFACTURERS, UNLESS SPECIFIED OTHERWISE.

THE CONTRACTOR WILL NOTIFY THE ARCHITECT OF ANY ERRORS, OMISSIONS, CONFLICTS, OR AMBIGUITIES IN AND BETWEEN THE DRAWINGS AND THE SPECIFICATIONS PRIOR TO PROCEEDING WITH THE WORK. IF SUCH NOTICE IS NOT FURNISHED TO THE ARCHITECT, THE CONTRACTOR WILL BE DEEMED TO HAVE INSPECTED THE DRAWINGS AND SPECIFICATIONS AND TO HAVE FOUND THEM IN PROPER FORM FOR EXECUTION.

THE CONTRACTOR REPRESENTS THAT HE HAS HAD ADEQUATE ACCESS TO THE JOB SITE AND BUILDING AREA IN WHICH THE WORK IS TO BE PERFORMED, THAT HE HAS SATISFIED HIMSELF AT TO THE NATURE AND LOCATION OF WORK, INCLUDING ANY OBSTRUCTIONS, SCOPE OF WORK, ACTUAL LEVELS, THE EQUIPMENT AND FACILITIES NEEDED PRELIMINARY TO AND DURING THE EXECUTION OF THE WORK AND ALL OTHER MATTERS, WHICH CAN IN ANY WAY AFFECT THE WORK OR THE COST THEREOF UNDER THIS CONTRACT, AND THAT HE HAS STUDIED THE CONTRACT DOCUMENTS AND ALL OTHER DOCUMENTS PERTAINING TO THE INSTALLATION OF OTHER TRADES WHICH MAY INFLUENCE HIS WORK.

THE CONTRACTOR WILL ASSUME FULL RESPONSIBILITY, INCLUDING RESPONSIBILITY FOR ALL RELATED COSTS FOR ANY AND ALL WORK DONE WITHOUT THE APPROVAL OF THE ARCHITECT IF SUCH WORK IS IN CONFLICT WITH THE CONTRACT, DRAWINGS, OR SPECIFICATIONS.

THE OWNER WILL ESTABLISH THE LIMITS OF THE CONSTRUCTION SITE IN ADDITION TO ANY CONTRACT LIMIT LINES SHOWN IN THE DRAWINGS. THE CONTRACTOR WILL CONTINUE HIS OPERATIONS WITHIN THESE LIMITS, UNLESS UPON WRITTEN REQUEST AND REPLY, A VARIANCE IS AGREED TO BY THE OWNER. THE CONTRACTOR WILL BE RESPONSIBLE FOR TRESPASS ON AND/ OR DAMAGE TO OTHER PROPERTY BY ANY OF HIS EMPLOYEES OR HIS SUBCONTRACTOR'S EMPLOYEES.

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE SAFE WORKING CONDITIONS AT THE SITE. THE ARCHITECT AND OWNER WILL NOT BE DEEMED TO HAVE ANY RESPONSIBILITY OR LIABILITY IN CONNECTION HEREWITH.

CONSTRUCTION OPERATIONS WILL NOT INVOLVE INTERRUPTION OF HEATING, WATER, ELECTRICAL, OR OTHER SERVICES TO ANY PORTION OF THE BUILDING OUTSIDE THE LIMITS OF THE CONSTRUCTION SITE.

THE CONTRACTOR WILL BE RESPONSIBLE FOR CORRECTING ANY DEFICIENCIES CUASED BY DEFECTIVE OR ILL TIMED WORK AT NO ADDITIONAL COST TO THE OWNER.

NO SUBSTITUTIONS ARE PERMITTED EXCEPT WHERE THE TERM "APPROVED EQUAL" APPEARS. ALL SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE ARCHITECT. THE CONTRACTOR IS TO SUBMIT SAMPLES OR CATALOG CUTS OF ALL VISIBLE MATERIALS AND EQUIPMENT FOR THE ARCHITECT'S APPROVAL PRIOR TO INSTALLATION.

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E12.2	ELECTRICAL ONE LINE SCHEDULES AND DETAILS

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PROJECT # 2324

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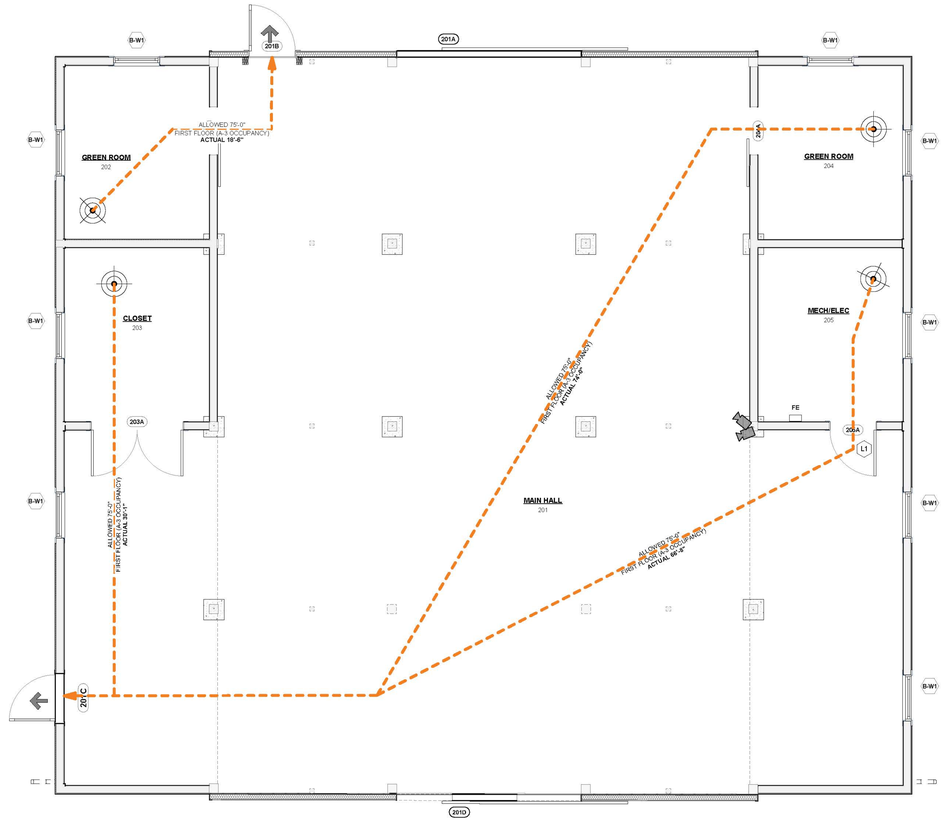
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COVER

G10.1

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1 BARN LIFE SAFETY PLAN

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

0 2" 4" 8"

CODE INFORMATION

APPLICABLE CODES

BUILDING:	2024 OHIO BUILDING CODE (IBC 2024)
MECHANICAL:	2024 OHIO MECHANICAL CODE (IMC 2021)
PLUMBING:	2024 OHIO PLUMBING CODE (IPC 2021)
ELECTRICAL:	2023 NATIONAL ELECTRICAL CODE (NFPA 70-23)
FIRE:	2017 OHIO FIRE CODE (IFC 2021)
ENERGY:	2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC-21) OR ASHRAE 90.1 2019
ACCESSIBILITY:	STANDARDS FOR ACCESSIBLE DESIGN (ICC A117.1-09 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES)
FIRE:	2021 OHIO FIRE CODE (IFC 21)

PROJECT SUMMARY:

OBC CHAPTER 3 | USE & CLASSIFICATION

SECTION 303.4 **A-3 ASSEMBLY**

OBC CHAPTER 5 | GENERAL BUILDING HEIGHTS & AREAS

ALLOWABLE HEIGHT AND STORIES:
TABLES 504.3 AND 504.4 **(NONSPRINKLERED)**
A-3: 1 STORIES, 60'-0"

ACTUAL:
HEIGHT: 1 STORY, 32'-2"

AREA:
TABLE 506.2 **(NS, NONSPRINKLERED SINGLE-STORY)**
A-3: **6,000** SF

ACTUAL:
FIRST FLOOR: 2,708 SF

OBC CHAPTER 6 | TYPES OF CONSTRUCTION

SECTION 602 CONSTRUCTION TYPE: TYPE 5-B

TYPE 5B CONSTRUCTION IS THAT TYPE OF CONTRUCTION IN WHICH THE STRUCTURAL ELEMENTS, EXTERIOR WALLS, AND INTERIOR WALLS ARE OF ANY MATERIALS PERMITTED BY THIS CODE.

OBC CHAPTER 8 | INTERIOR FINISHES

WALL AND CEILING FINISHES REQUIRED PER TABLE 803.11

OBC CHAPTER 10 | MEANS OF EGRESS

SECTION 1017.2 EXIT ACCESS TRAVEL DISTANCE FOR OCCUPANCY A-3 IS 200'-0" FOR BUILDINGS EQUIPPED WITHOUT AN AUTOMATIC SPRINKLER SYSTEM

SECTION 1020.4 WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQUIRED, THE EXIT ACCESS SHALL BE ARRANGED SUCH THAT THERE ARE NOT DEAD END CORRIDORS MORE THAN 20'-0" IN LENGTH

TABLE 1004.5
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR
ASSEMBLY WITHOUT FIXED SEATS:	
CONCENTRATED (CHAIRS ONLY - NOT FIXED)	7 NET
STANDING SPACE	5 NET
UNCONCENTRATED (TABLES AND CHAIRS)	15 NET

OCCUPANCY SCHEDULE

ID	ROOM NAME	GROSS AREA	NET AREA	FUNCTION	CALCULATED OCCUPANT LOAD	ACT OCCUPA
201	MAIN HALL	2,189	1,750	ASSEMBLY	145	9
202	GREEN ROOM	112	83	ASSEMBLY	6	4
203	CLOSET	112		ACCESSORY STORAGE	1	0
204	GREEN ROOM	104	83	ASSEMBLY	6	4
205	MECH/ELEC	107		ACCESSORY EQUIPMENT	1	1
		2,624 ft²				9

LIFE SAFETY PLAN CODED NOTES

NOTE: ALL CODED NOTES MAY NOT OCCUR ON EVERY SHEET

L1 PROVIDE SIGNAGE INDICATING AUTHORIZED PERSONNEL ONLY.

LIFE SAFETY WALL LEGEND

FIRE EXTINGUISHER: VERIFY LOCATIONS OF FIRE EXTINGUISHERS WITH LOCAL FIRE DEPARTMENT OFFICIAL AND REFER TO SPECIFICATIONS FOR TYPE INFORMATION AND ADDITIONAL DETAILS

LIFE SAFETY PLAN SYMBOLS

EXIT

W = ACTUAL CLEAR WIDTH OF LIMITING COMPONENT (INCHES).
X = OCCUPANTS USING EXIT
Y = EXIT CAPACITY
Z = EGRESS WIDTH PER OCCUPANT (INCHES/OCCUPANT)

MOST REMOTE POINT TO DETERMINE EXIT ACCESS TRAVEL DISTANCE

FEC FIRE EXTINGUISHER CABINET

FA FIRE ALARM PULL STATION

F FIRE ALARM VISUAL/STROBE

FV FIRE ALARM AUDIO AND VISUAL

FAP FIRE ALARM REMOTE ANNUNCIATOR

SECURITY CAMERA WITH 360 DEGREE LENSE

OCCUPANCY SIGNAGE

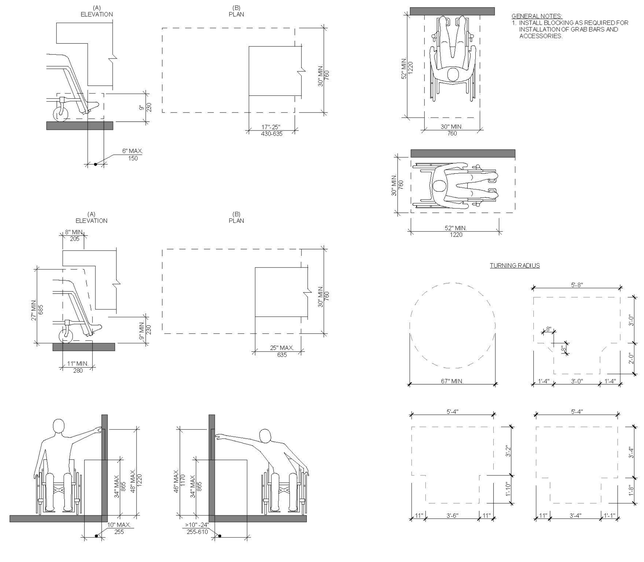
8"

XX OCCUPANTS — 3/4" TEXT
MAXIMUM OCCUPANCY — 1/2" TEXT

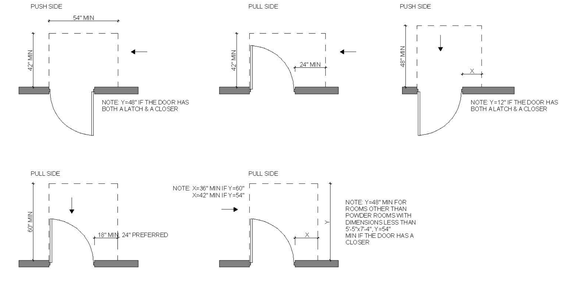
5"

NOTE: "XX" TO BE REPLACED WITH INDICATED OCCUPANCY CAPACITY PER OCCUPANCY SCHEDULE ON 01.01, WHERE OCCUPANCY NUMBERS ARE TO BE POSTED IN ROOMS ADJACENT AND OPEN TO ANOTHER ROOM, COMBINED OCCUPANCY FOR CONNECTED SPACES MAY BE POSTED AT ALL REQUIRED LOCATIONS. INDICATED NUMBER NOT TO EXCEED SUM OF INDIVIDUAL ROOMS INDICATED PER OCCUPANCY SCHEDULE

TYPICAL ADA DETAILS (ICC A117.1-2009)



MANEUVERING CLEARANCES AT MANUAL SWING DOORS (ADA 404.2.4.1)



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PROGRESS NOT FOR CONSTRUCTION
3/10/2025

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NORTH FORK PRESERVE BARN RENOVATION

4400 EVERETT ROAD, AKRON, OH 44333

N

PROJECT # 2324

ISSUE:

SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

CODE, LIFE SAFETY

G10.2

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Plotted: Monday, March 10, 2025

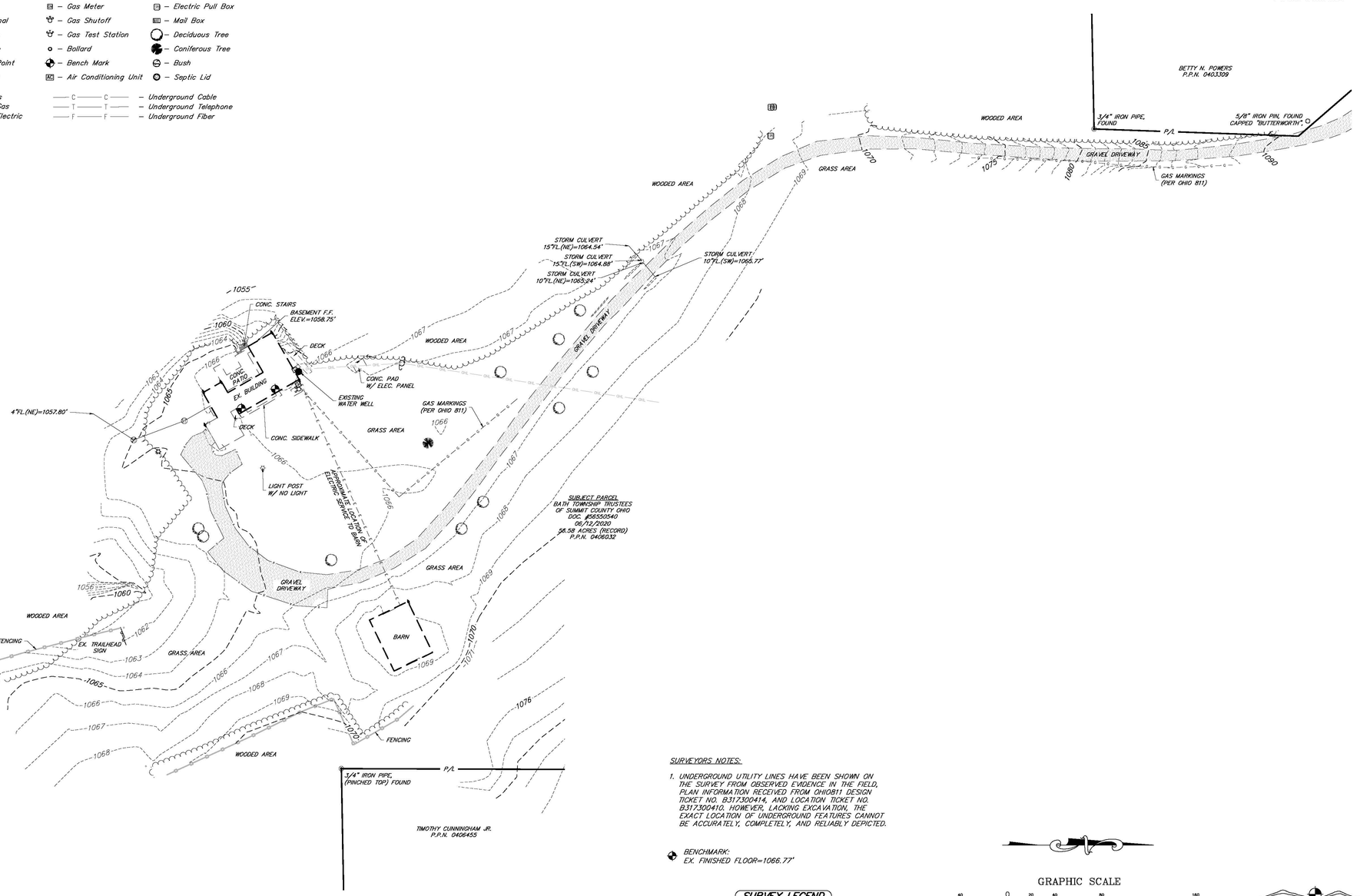
EXISTING CONDITIONS SURVEY

Situated in the Township of Bath, County of Summit, State of Ohio, and known as being part of Bath Township Lot 4

4400 Everett Road
P.P.N. 0406032

TOPOGRAPHIC LEGEND

- Hydrant
- Water Valve
- Water Shutoff
- Water Meter Pit
- Well
- Roof Drain
- Storm Manhole
- Inlet Basin
- Catch Basin
- Yard Drain
- Light Pole
- Flood Light
- Sign
- Telephone Manhole
- Guy Wire
- Traffic Signal
- Utility Pole
- Signal Pole
- Soil Test Point
- Signal Box
- Sanitary Manhole
- Cleanout
- Gas Line Marker
- Gas Valve
- Gas Meter
- Gas Shutoff
- Gas Test Station
- Bollard
- Bench Mark
- Air Conditioning Unit
- Telephone Pedestal
- Transformer
- Cable Pedestal
- Electric Meter
- Electric Pull Box
- Mail Box
- Deciduous Tree
- Coniferous Tree
- Bush
- Septic Lid
- OHL — OHL — Overhead Lines
- G — G — Underground Gas
- E — E — Underground Electric
- C — C — Underground Cable
- T — T — Underground Telephone
- F — F — Underground Fiber



Lewis Land Professionals, Inc. has made no investigation or independent search for easements of record, encumbrances, restrictive covenants, ownership title evidence, or any other facts that an accurate and current title search may disclose.

SURVEYORS NOTES:

1. UNDERGROUND UTILITY LINES HAVE BEEN SHOWN ON THE SURVEY FROM OBSERVED EVIDENCE IN THE FIELD, PLAN INFORMATION RECEIVED FROM OHIO811 DESIGN TICKET NO. B317300414, AND LOCATION TICKET NO. B317300410. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED.

BENCHMARK:
EX. FINISHED FLOOR=1066.77'

SURVEY LEGEND

- ○ — Iron Pin Found & Described
- ◉ — Iron Pipe Found & Described

Fnd. (F) — Found
Usd. (U) — Used
(P) — Plat
Surv. (S) — Record Survey
Rec. (R) — Record Deed
R/W — Right of Way
C/L — Centerline
P/L — Property Line

GRAPHIC SCALE

40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

The "Basis of Bearings" for this survey is ***Grid North*** *of the NAD83 (2011), Ohio State Plane, North Zone as established by GPS Observation.*

Lewis Land Professionals, Inc.
Civil Engineering & Surveying
8691 Wadsworth Rd. Suite 100 Wadsworth, Ohio 44281
Phone: (330) 335-8232
www.landprosinc.com

SURVEY DATE: JUNE 2023
SHEET 1 OF 1

PROJ. No. 23-169 DRAWING NAME: 23-169.dwg

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BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION

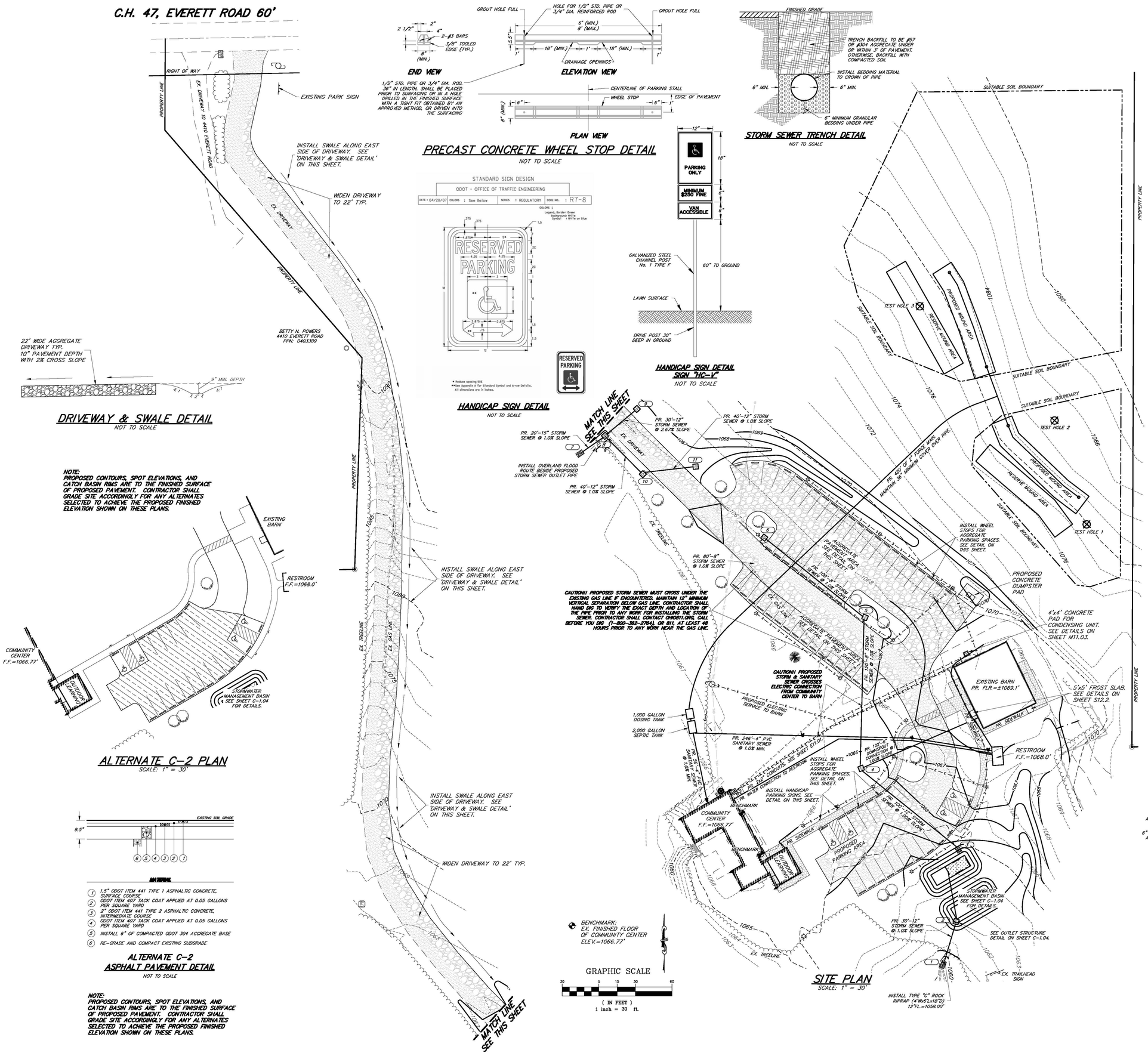
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ISSUE:	
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DD REVIEW	02-04-2025
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EXISTING CONDITIONS

C10.1

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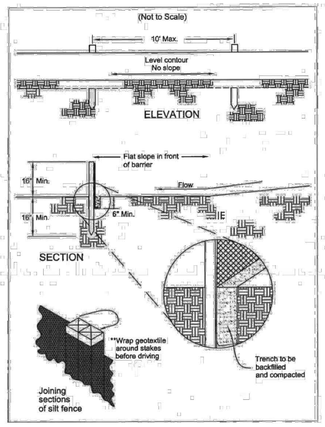
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FINAL REVIEW	03-07-2025

CIVIL SITE PLAN

C11.1

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Specifications
for
Silt Fence



Specifications
for
Silt Fence

1. Silt fence shall be constructed before upslope land disturbance begins.
2. All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry small concentrated flows to the silt fence are dissipated along its length.
3. Ends of the silt fences shall be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
4. Silt fence shall be placed on the flattest area available.
5. Where possible, vegetation shall be preserved for 5 feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
6. The height of the silt fence shall be a minimum of 16 inches above the original ground surface.
7. The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequately uniform trench depth.
8. The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6-inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
9. Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6-in. overlap prior to driving into the ground, (see details).
10. Maintenance—Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be performed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 3) other practices shall be installed.

    Sediment deposits shall be routinely removed when the deposit reaches approximately one-half of the height of the silt fence.

    Silt fences shall be inspected after each rainfall and at least daily during a prolonged rainfall. The location of existing silt fence shall be reviewed daily to ensure its proper location and effectiveness. If damaged, the silt fence shall be repaired immediately.

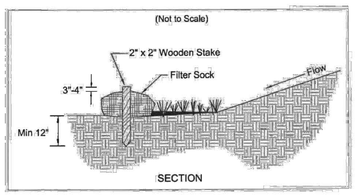
    Criteria for silt fence materials

    1. Fence post—The length shall be a minimum of 32 inches. Wood posts will be 2-by-2-in. nominal dimensioned hardwood of sound quality. They shall be free of knots, splits and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
    2. Silt fence fabric – See chart below.

Table 6.3.2 Minimum criteria for Silt Fence Fabric (ODOT, 2002)

FABRIC PROPERTIES	VALUES	TEST METHOD
Minimum Tensile Strength	120 lbs. (535 N)	ASTM D 4632
Maximum Elongation at 60 lbs	50%	ASTM D 4632
Minimum Puncture Strength	50 lbs (220 N)	ASTM D 4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D 4533
Apparent Opening Size	< 0.84 mm	ASTM D 4751
Minimum Permittivity	1X10-2 sec.-1	ASTM D 4491
UV Exposure Strength Retention	70%	ASTM G 4355

Specifications
for
Filter Sock



1. Materials – Compost used for filter socks shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. They shall be derived from a well-decomposed source of organic matter and consist of a particles ranging from 3/8" to 2".
2. Filter Socks shall be 3 or 5 mil continuous, tubular, HDPE 3/8" knitted mesh netting material, filled with compost passing the above specifications for compost products.

INSTALLATION:

3. Filter socks will be placed on a level line across slopes; generally parallel to the base of the slope or other affected area. On slopes approaching 2:1, additional socks shall be provided at the top and as needed mid-slope.
4. Filter socks intended to be left as a permanent filter or part of the natural landscape, shall be seeded at the time of installation for establishment of permanent vegetation.
5. Filter Socks are not to be used in concentrated flow situations or in runoff channels.

MAINTENANCE:

6. Routinely inspect filter socks after each significant rain, maintaining filter socks in a functional condition at all times.
7. Remove sediments collected at the base of the filter socks when they reach 1/3 of the exposed height of the practice.
8. Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
9. Removal – Filter socks will be disposed on site when no longer required in such as way as to facilitate and not obstruct seedings.

Specifications
for
Temporary Seeding

Table 7.8.1 Temporary Seeding Species Selection

Seeding Dates	Species	Lb./1000 ft2	Lb/Acre
March 1 to August 15	Oats	3	128 (4 Bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Ryegrass	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	55
	Perennial Ryegrass	3.25	142
	Creeping Red Fescue	0.4	17
	Kentucky Bluegrass	0.4	17
	Oats	3	128 (3 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
August 16th to November	Rye	3	112 (2 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Wheat	3	120 (2 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Rye	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	40
	Perennial Ryegrass	3.25	40
	Creeping Red Fescue	0.4	40
	Kentucky Bluegrass	0.4	
November 1 to Feb. 29	Use mulch only or dormant seeding		

Note: Other approved species may be substituted.

1. Structural erosion and sediment control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 21 days or greater. These idle areas shall be seeded within 7 days after grading.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. Temporary seeding should not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments—Temporary vegetation seeding rates shall establish adequate stands of vegetation, which may require the use of soil amendments. Base rates for lime and fertilizer shall be used.
5. Seeding Method—Seed shall be applied uniformly with a cyclone spreader, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site and the seeding shall be done immediately and without interruption.

Specifications
for
Temporary Seeding

Mulching Temporary Seeding

1. Applications of temporary seeding shall include mulch, which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates on favorable, very flat soil conditions may not need mulch to achieve adequate stabilization.

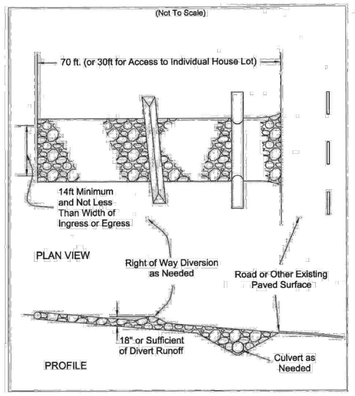
2. Materials:

- Straw—If straw is used, it shall be unrotted small-grain straw applied at a rate of 2 tons per acre or 90 lbs./ 1,000 sq. ft. (2-3 bales).
- Hydroseeders—If wood cellulose fiber is used, it shall be used at 2000 lbs./ ac. or 46 lb./ 1,000-sq.-ft.
- Other—Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 ton/ ac.

3. Straw Mulch shall be anchored immediately to minimize loss by wind or water. Anchoring methods:

- Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but left to a length of approximately 6 inches.
- Mulch Netting—Netting shall be used according to the manufacturers recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
- Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates recommended by the manufacturer.
- Wood-Cellulose Fiber—Wood-cellulose fiber binder shall be applied at a net dry wt. of 750 lb./ac. The wood-cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb. / 100 gal.

Specifications
for
Construction Entrance



1. Stone Size—ODOT # 2 (1.5-2.5 inch) stone shall be used, or recycled concrete equivalent.
2. Length—The Construction entrance shall be as long as required to stabilize high traffic areas but not less than 70 ft. (exception: apply 30 ft. minimum to single residence lots).
3. Thickness -The stone layer shall be at least 6 inches thick for light duty entrances or at least 10 inches for heavy duty use.
4. Width -The entrance shall be at least 14 feet wide, but not less than the full width at points where ingress or egress occurs.
5. Geotextile -A geotextile shall be laid over the entire area prior to placing stone. It shall be composed of strong rot-proof polymeric fibers and meet the following specifications:

Figure 7.4.1

Geotextile Specification for Construction Entrance	
Minimum Tensile Strength	200 lbs.
Minimum Puncture Strength	80 psi.
Minimum Tear Strength	50 lbs.
Minimum Burst Strength	320 psi.
Minimum Elongation	20%
Equivalent Opening Size	EOS < 0.6 mm.
Permeability	1 x10-3 cm/sec.

6. Timing—The construction entrance shall be installed as soon as is practicable before major grading activities.
7. Culvert -A pipe or culvert shall be constructed under the entrance if needed to prevent surface water from flowing across the entrance or to prevent runoff from being directed out onto paved surfaces.
8. Water Bar -A water bar shall be constructed as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.
9. Maintenance -Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately. Removal shall be accomplished by scraping or sweeping.
10. Construction entrances shall not be relied upon to remove mud from vehicles and prevent off-site tracking. Vehicles that enter and leave the construction-site shall be restricted from muddy areas.
11. Removal—the entrance shall remain in place until the disturbed area is stabilized or replaced with a permanent roadway or entrance.

Specifications
for
Permanent Seeding

Site Preparation

1. Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
3. Topsoil shall be applied where needed to establish vegetation.

Seedbed Preparation

1. Lime—Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
2. Fertilizer—Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above-specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

Dormant Seedings

1. Seedings should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
2. The following methods may be used for "Dormant Seeding":

3. Straw and Mulch Anchoring Methods

Straw mulch shall be anchored immediately to minimize loss by wind or water.

- Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
- Mulch Netting—Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
- Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates specified by the manufacturer.
- Asphalt Emulsion—Asphalt shall be applied as recommended by the manufacture or at the rate of 160 gallons per acre.

- From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
- From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
- Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
- Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

Mulching

1. Mulch material shall be applied immediately after seeding. Dormant seeding shall be mulched. 100% of the ground surface shall be covered with an approved material.
2. Materials
- Straw—If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons per acre or 90 pounds (two to three bales) per 1,000-sq. ft. The mulch shall be spread uniformly by hand or mechanically applied so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.
- Hydroseeders—If wood cellulose fiber is used, it shall be applied at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
- Other—Other acceptable mulches include rolled erosion control mattings or blankets applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.

Table 7.10.2 Permanent Seeding

Seed Mix:	Seeding Rate: Lbs./acre	Lbs./1,000 Sq. Feet	Notes:
General Use			
Creeping Red Fescue Domestic Ryegrass Kentucky Bluegrass	20-40 10-20 20-40	1/2-1 1/4-1/2 1/2-1	For close mowing & for waterways with <2.0 ft/sec velocity
Tall Fescue	40-50	1-1 1/4	
Turf-type (dwarf) Fescue	90	2 1/4	
Steep Banks or Cut Slopes			
Tall Fescue	40-50	1-1 1/4	
Crown Vetch Tall Fescue	10-20 20-30	1/4-1/2 1/2-3/4	Do not seed later than August
Flat Pea Tall Fescue	20-25 20-30	1/2-3/4 1/2-3/4	Do not seed later than August
Road Ditches and Swales			
Tall Fescue	40-50	1-1 1/4	
Turf-type (Dwarf) Fescue Kentucky Bluegrass	90 5	2 1/4 0.1	
Lawns			
Kentucky Bluegrass Perennial Ryegrass	100-120	2 2	
Kentucky Bluegrass Creeping Red Fescue	100-120	2 1-1/2	For shaded areas

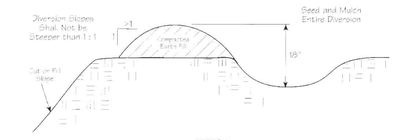
Note: Other approved seed species may be substituted.

Specifications
for
Mulching

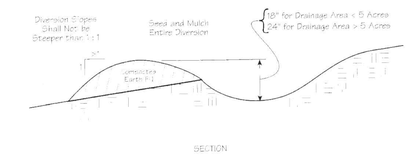
1. Mulch and other appropriate vegetative practices shall be applied to disturbed areas within 7 days of grading if the area is to remain dormant (undisturbed) for more than 21 days or on areas and portions of the site which can be brought to final grade.
2. Mulch shall consist of one of the following:
- Straw - Straw shall be unrotted small grain straw applied at the rate of 2 tons/ac. or 90 lb./1,000 sq. ft. (two to three bales). The straw mulch shall be spread uniformly by hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 sq.ft. sections and place two 45-lb. bales of straw in each section.
- Hydroseeders - Wood cellulose fiber should be used at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
- Other - Acceptable mulches include mulch mattings and rolled erosion control products applied according to manufacturer's recommendations or wood mulch/chips applied at 10-20 tons/ac.

3. Mulch Anchoring - Mulch shall be anchored immediately to minimize loss by wind or runoff. The following are acceptable methods for anchoring mulch.
- Mechanical - Use a disk, crimper, or similar type tool set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but be left generally longer than 6 inches.
- Mulch Nettings - Use according to the manufacturer's recommendations, following all placement and anchoring requirements. Use in areas of water concentration and steep slopes to hold mulch in place.
- Synthetic Binders - For straw mulch, synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equal may be used at rates recommended by the manufacturer. All applications of Synthetic Binders must be conducted in such a manner where there is no contact with waters of the state.
- Wood Cellulose Fiber - Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 lb./acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb./100 gal. of wood cellulose fiber.

Specifications
for
Temporary Diversion Above Steep Slopes



Specifications
for
Temporary Diversion



Specifications for Temporary Diversion

1. Diversion shall be compacted by traversing with tracked earth--moving equipment.

2. Diversions shall not be breached or lowered to allow construction traffic to cross; instead the top width may be made wider and side slopes made flatter than specified above.

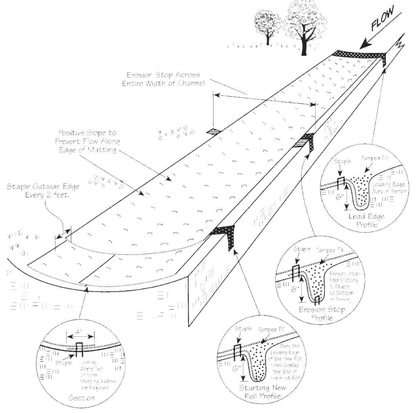
3. Diversions shall be stabilized with vegetation and check dams or the following treatments:

Temporary Diversion Stabilization Treatment

Diversion Slope	*< 2 ac.*	*2 – 5 ac.*	*5 – 10 ac.*
0–3%	*Seed and Straw*	*Seed and Straw*	*Seed and Straw*
3–5%	*Seed and Straw*	*Seed and Straw*	*Matting*
5–8%	*Seed and Straw*	*Matting*	*Matting*
8–20%	*Seed and Straw*	*Matting*	*Engineered*

Note: Diversions with steeper slopes or greater drainage areas are beyond the scope of this standard and must be designed for stability. Seed, straw and matting used shall meet the Specifications for Temporary Seeding, Mulching and Matting.

Specifications
for
Matting



Specifications for Matting

1. Material -- Excelsior matting shall be 48 in. wide and weigh on average of 0.75 lb./sq. yd. or greater. Jute matting shall be 48 in. wide and weigh on average of 1.2 lb./yd or greater. Matting made of other material and providing equal or greater stabilization than the above may be substituted.

2. Site Preparation--After the site has been shaped and graded, a seedbed shall be prepared that is relatively free of foreign material, clods or rocks that are greater that 1.5 in. in diameter. The site shall be prepared to ensure that the matting has good soil contact and the matting will not "bridge" or "tent" over obstructions.

3. Matting shall be held in place as recommended by the manufacturer as adequate for the site conditions or with sod staples. Sod staples are U-shaped wire staples used for fastening sod, jute or excelsior matting and other erosion-control materials to the soil surface. Sod staples shall be No. 11 gauge or heavier and be 6--10 in. in length. In loose or sandy soils longer staples shall be used.

4. Planting--Lime and fertilizer shall be used according to the recommendation of a soil test or the seeding plan. Seed according to the matting manufacturer's recommendations; or, for excelsior matting, seed area to be protected before installation; or, when using jute matting, apply half the seed before and half the seed after installation.

5. Matting shall be installed as specified by the manufacturer as appropriate for the site conditions or the following procedure may be used:

** After the site is prepared and erosion stops are installed, start laying the mat from the top of the slope or channel and unroll the matting allowing 4--in. overlaps at the edges.*

** Secure the matting by burying the top ends in a trench 6 in. deep and staple the folded ends to the bottom of the trench. Backfill and tamp firmly to the established grade.*

** Staple matting every 12 in. across the width beginning at the edges and every 2 ft. in rows the entire length of the matting. Every other row of staples running the length of the matting should be staggered.*

** To join two rolls together, cut a trench to anchor the end of the new roll and secure it the same as the top roll. Overlap the end of the previous roll 18 in. over the new roll. Continue to staple as described above.*

** When using excelsior matting, the plastic netting shall be on top of the good soil contact and the matting will not "bridge" or "tent" over obstructions.*

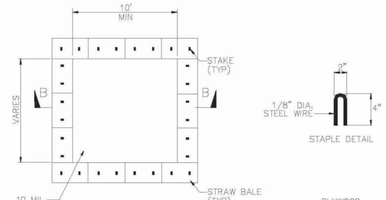
6. Erosion stops shall be used where recommended by the matting manufacturer and on areas specified where high--erosion potential may cause undermining and gullies to form beneath the matting.

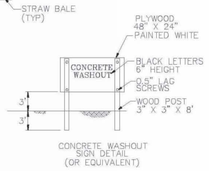
** Erosion stops shall be made of strips of matting placed in narrow trenches 6--12 in. deep that cover the full cross section of the channel. They shall be spaced according to the manufacturer's recommendations or by the following: --3 ft. down the channel from each point of entry of concentrated flow; --at points where change in gradient or direction of channel occurs, and --on long slopes at spacing from 20--100 ft. depending upon the erodibility of the soil, velocity and volume of flow.*

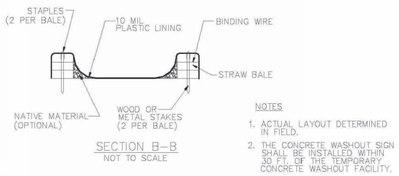
** Erosion stops shall extend beyond the channel liner to the full design width of the channel, this will check any rills that might form outside or along the edge of the channel lining.*

** Erosion stops shall be constructed with 6 in. deep trench, stapled to the bottom of the trench, backfilled and tamped firmly to conform with the cross section of the channel.*

** If seeding has been done prior to installation of erosion stops, reseed disturbed areas prior to placement of channel liner.*







NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

CONCRETE WASHOUT DETAIL
NOT TO SCALE

Storm Water Pollution Prevention Notes

1. THIS CONTRACT DRAWING DOCUMENT SHALL BE MADE AVAILABLE ON--SITE AT ALL TIMES AND PRESENTED UPON REQUEST. ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE REQUESTED BY THE FIELD INSPECTOR AT ANYTIME.

2. ALL EROSION AND SEDIMENT CONTROL PRACTICES SPECIFIED ON THIS PLAN SHALL CONFORM WITH DETAILS AND SPECIFICATIONS OUTLINED IN THE OHIO DEPARTMENT OF NATURAL RESOURCES BOOKLET, "RAINWATER AND LAND DEVELOPMENT".

3. SILT FENCE AND SEDIMENT PITS SHALL BE USED AROUND ALL NEW STORM INLETS TO CONTROL SOIL EROSION.

4. EROSION CONTROL MEASURES MUST BE PROVIDED AROUND ALL DIRT STOCKPILES AND OTHER TEMPORARILY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.

5. IF UNFORESEEN EROSION IS ENCOUNTERED DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES SHALL BE PROVIDED, AS DIRECTED BY THE ENGINEER, OR SOIL AND WATER REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.

6. TEMPORARY SEDIMENTATION AND EROSION CONTROL MEASURES MUST BE INSPECTED AND LOGGED BY A LICENSED INSPECTOR WEEKLY AND AFTER RAIN EVENTS.

7. ALL UTILITY COMPANIES MUST COMPLY WITH ALL STORM WATER POLLUTION PREVENTION MEASURES AS DEFINED ON THIS STORM WATER POLLUTION PREVENTION PLANS.

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PROGRESS NOT FOR CONSTRUCTION
3/10/2025

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BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION
4400 EVERETT ROAD, AKRON, OH 44333

PROJECT # 2324

ISSUE:

SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

EROSION CONTROL DETAILS

C12.1

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Plotted: Monday, March 10, 2025

GENERAL NOTES

A. GENERAL

1. THIS STRUCTURE WAS DESIGNED IN ACCORDANCE WITH STATE OF OHIO BUILDING CODE (O.B.C.), 2024 EDITION.
2. ALL CONSTRUCTION SHALL CONFORM TO THE OHIO BUILDING CODE AND TO OSHA STANDARDS. WORK STRUCTURAL DRAWINGS WITH ARCHITECTURAL, MECHANICAL DRAWINGS, AND CIVIL DRAWINGS.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS AND FOR SAFETY CONDITIONS AT THE SITE.
4. TEMPORARY BRACING OF THE STRUCTURE, TRUSSES, COLUMNS, BEAMS, WALLS, ETC. DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. TEMPORARY BRACING OF THE STRUCTURE SHALL REMAIN IN PLACE UNTIL ALL LATERAL FORCE RESISTING ELEMENTS ARE INSTALLED (INCLUDING WALL AND ROOF SHEATHING). CONTRACTOR SHALL DESIGN AND COORDINATE LOCATIONS OF TEMPORARY BRACING WITH OTHER CONTRACTORS.
5. LIFTING MEANS AND METHODS ARE BY THE CONTRACTOR. THE CONTRACTOR SHALL RETAIN QUALIFIED RIGGING AND LIFTING PROFESSIONALS TO PERFORM ALL LIFTING OPERATIONS AND SHALL BE RESPONSIBLE FOR ALL TEMPORARY SUPPORT AND BRACING OF THE STRUCTURE. CONTRACTOR IS TO FIELD VERIFY AND COORDINATE ALL FINAL FOUNDATION DIMENSIONS AND IS RESPONSIBLE FOR ALL COORDINATION REQUIRED TO PLACE THE BARN ON THE NEW FOUNDATIONS.
6. CONSTRUCTION LOADS SHALL NOT EXCEED DESIGN LIVE LOADS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DESIGN REQUIRED TO SUPPORT CONSTRUCTION EQUIPMENT USED IN CONSTRUCTING THIS PROJECT. SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR.
7. FOUNDATION CONTRACTOR SHALL COORDINATE AND SCHEDULE WORK WITH MECHANICAL AND ELECTRICAL CONTRACTORS REGARDING ITEMS CONCEALED BY OR EMBEDDED IN FOUNDATIONS, WALLS OR FLOOR SLABS.
8. PRINCIPAL OPENINGS THROUGH THE FRAMING ARE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL COORDINATE THE STRUCTURAL AND MECHANICAL DRAWINGS FOR THE REQUIRED OPENINGS AND SHALL VERIFY SIZE AND LOCATION OF ALL OPENINGS WITH THE MECHANICAL CONTRACTOR.
9. DO NOT SCALE DRAWINGS
10. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IF THE WEIGHTS OF MECHANICAL UNITS ETC. ARE DIFFERENT FROM THE WEIGHTS POSTED ON THE DESIGN DRAWINGS. DISCREPANCIES SHALL BE RESOLVED BEFORE PROCEEDING WITH CONSTRUCTION.
11. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN DRAWINGS.
12. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
    - SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS, EXCEPT AS NOTED.
    - SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR NON-BEARING PARTITIONS.
    - SIZE AND LOCATION OF ALL CONCRETE CURBS, FLOOR DRAINS, SLOPES, DEPRESSED AREAS, CHANGES IN LEVEL, CHAMFER, GROOVES, INSERTS, ETC.
    - SIZE AND LOCATION OF FLOOR AND ROOF OPENINGS, EXCEPT AS SHOWN.
    - FLOOR AND ROOF FINISHES.
    - DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
    - LIMITS OF DRAFT STOPPING IN THE ATTIC SPACE

DESIGN LOAD INFORMATION:

DEAD LOAD

1. ROOF	= 20 PSF

ROOF LIVE LOADS

1. LIVE LOAD	= 20 PSF

ROOF SNOW LOAD

1. GROUND SNOW LOAD (Pg)	= 20.00 PSF
2. FLAT ROOF SNOW LOAD (Pf)	= 20.00 PSF
3. SNOW EXPOSURE FACTOR (Ce)	= 1.0
4. SNOW LOAD IMPORTANCE FACTOR (I)	= 1.0
5. THERMAL FACTOR, Ct	= 1.0
6. TOTAL DESIGN SNOW LOAD	= 20 PSF + DRIFTING

WIND LOAD

1. ULTIMATE DESIGN WIND SPEED, Vult (3 SECOND GUST)	= 106 MPH
2. NOMINAL DESIGN WIND SPEED, Vasd	= 85 MPH
3. WIND IMPORTANCE FACTOR (Iw) = 1.0, OCCUPANCY CATEGORY	= II
4. WIND EXPOSURE	= C
5. INTERNAL PRESSURE COEFFICIENT	= ±0.18

COMPONENTS AND CLADDING WIND DESIGN PRESSURES - SEE TABLES BELOW

WALL COMPONENTS AND CLADDING (ULTIMATE) (PSF)									
EFFECTIVE AREA (SQ. FT.)									
INTERIOR ZONE					EXTERIOR ZONE (13'-6" WIDE)				
10	20	50	100	500	10	20	50	100	500
25.7	24.6	23.3	22.2	19.8	31.7	29.5	26.8	24.6	19.8

ROOF UPLIFT - COMPONENTS AND CLADDING (ULTIMATE) (PSF)								
ZONE	EFFECTIVE AREA (SQ. FT.)							
	GROSS				NET (ROOF JOISTS)			
	10	20	50	100	10	20	50	100
CORNER (13'-6")	-43.5	-38.9	-32.7	-28.1	-38.8	-33.9	-27.7	-23.1
PERIMETER (13'-6")	-43.5	-38.9	-32.7	-28.1	-38.8	-33.9	-27.7	-23.1
INTERIOR	-25.9	-25.3	-24.4	-23.7	-20.9	-20.3	-19.4	-18.7

EARTHQUAKE DESIGN DATA

1. SEISMIC USE GROUP	= II
2. SEISMIC IMPORTANCE FACTOR (IE)	= 1.00
3. MAPPED SPECTRAL RESPONSE ACCELERATIONS,	Ss=14.9%, S1=6.4%
4. SITE CLASS	= D
5. SPECTRAL RESPONSE COEFFICIENTS,	Sds=0.133, Sd1= 0.103
6. SEISMIC DESIGN CATEGORY	= B
7. BASIC SEISMIC-FORCE-RESISTING SYSTEM:	
-LIGHT FRAMED WALL w/SHEAR PANELS	
-ALL OTHER MATERIALS	
8. DESIGN BASE SHEAR	=0.024W
9. SEISMIC RESPONSE COEFFICIENT (Cs)	= 0.024
10. RESPONSE MODIFICATION FACTOR (R)	= 6.5
11. V = (Sds)(W)(IE)/R (SIMPLIFIED ANALYSIS PROCEDURE)	

B. FOUNDATIONS

1. ALL FOUNDATIONS SHALL BEAR ON UNDISTURBED SOIL WITH AN ASSUMED BEARING CAPACITY OF 1500 PSF. FOOTINGS SHALL BE POURED THE SAME DAY THEY ARE EXCAVATED. FOOTINGS MAY BE POURED INTO EARTH-FORMED TRENCHES IF THE SOIL CONDITIONS PERMIT.
2. COMPACT BACKFILL OVER FOOTINGS AND BENEATH SLABS ON GRADE TO AT LEAST 98% OF ITS STANDARD PROCTOR MAXIMUM DRY DENSITY PER ASTM D-698 ±2.0% MOISTURE CONTENT. STRUCTURAL FILL UNDER FOOTINGS SHALL EXTEND OUTSIDE A FOOTING A MINIMUM OF ½ THE DEPTH OF COMPACTION. ALL FILL SHALL BE TESTED FOR IN-PLACE DENSITY TO ASSURE THAT THE COMPACTION RECOMMENDATIONS ARE ATTAINED.
3. FOOTING ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE AND SHALL BE FIELD ADJUSTED IF REQUIRED.
4. A SOILS TESTING LABORATORY SHALL BE RETAINED BY THE OWNER TO PROVIDE CONSTRUCTION REVIEW TO INSURE CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS DURING THE EXCAVATION, BACKFILL, AND FOUNDATION PHASES OF THE PROJECT. IT SHALL BE THE RESPONSIBILITY OF THE SOILS TESTING LABORATORY TO: DETERMINE TOPSOIL AND EXCAVATION STRIPPING DEPTH; INSPECT ALL SUBSOIL EXPOSED DURING STRIPPING, SITE GRADING, AND EXCAVATION OPERATIONS; APPROVE FILL MATERIALS, PERFORM DENSITY TESTS OF FILLS TO INSURE PLACEMENT PER SPECIFICATION REQUIREMENTS; INSPECT FOUNDATION BEARING SURFACES.
5. NOTIFY STRUCTURAL ENGINEER OF ANY UNUSUAL SOIL CONDITIONS THAT ARE IN VARIANCE WITH THE GEOTECHNICAL REPORT.

C. CONCRETE AND REINFORCING STEEL

1. ALL CONCRETE SHALL CONFORM TO THE FOLLOWING REFERENCED STANDARDS:
   ACI 318-19: BUILDING CODE REQUIREMENT FOR REINFORCED CONCRETE.
   ACI 315: DETAILS AND DETAILING OF CONCRETE REINFORCEMENT.
   ACI 305: RECOMMENDED PRACTICES FOR HOT WEATHER CONCRETING.
   ACI 306: RECOMMENDED PRACTICES FOR COLD WEATHER CONCRETING.
2. ALL CAST-IN-PLACE INTERIOR SLAB CONCRETE AND ALL INTERIOR CONCRETE NOT OTHERWISE IDENTIFIED SHALL BE 3500 PSI (W/C RATIO = 0.55) AT 28 DAYS WITHOUT AIR ENTRAINMENT AND WITH THE APPROPRIATE CURE SEALER.
3. CAST-IN-PLACE CONCRETE FOR SPREAD AND WALL FOOTINGS SHALL BE 3000 PSI (W/C RATIO = 0.50) AT 28 DAYS.
4. ALL CAST-IN-PLACE EXTERIOR SLAB CONCRETE AND ALL EXTERIOR CONCRETE NOT OTHERWISE IDENTIFIED SHALL BE 4000 PSI (W/C RATIO = 0.50) AT 28 DAYS WITH AIR ENTRAINMENT (6% ±1%).
5. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A-615 GRADE-60.
6. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. ONLY FLAT SHEETS SHALL BE USED.
7. ALL WELDED WIRE FABRIC SPLICES SHALL BE NOT LESS THAN (2) SPACINGS OF CROSS WIRES OR 6", WHICHEVER IS GREATER.
8. CORNER BARS SHALL BE PROVIDED TO MATCH HORIZONTAL WALL AND FOOTING REINFORCEMENT AT ALL CORNERS. LAP BARS 30 BAR DIAMETERS OR A MINIMUM OF 1'-0".
9. PROVIDE A 3/4"X45° CHAMFER ON ALL EXPOSED EDGES OF CONCRETE.
10. A CURING COMPOUND IS TO BE APPLIED TO THE CONCRETE AFTER FINISHING.
11. ALL ALUMINUM IN CONTACT WITH CONCRETE OR DISSIMILAR METALS SHALL BE COATED WITH TWO COATS COAL TAR EPOXY, APPROVED BY THE ARCHITECT, UNLESS OTHERWISE NOTED.
12. ALL CONCRETE SHALL BE PLACED WITHOUT HORIZONTAL CONSTRUCTION JOINTS, EXCEPT WHERE SPECIFICALLY NOTED. HORIZONTAL REINFORCEMENT SHALL BE CONTINUOUS THROUGH VERTICAL CONSTRUCTION JOINTS.
13. SEE ARCHITECTURAL DRAWINGS FOR CONCRETE FINISHES, MASONRY ANCHORS, AND FOR MISCELLANEOUS EMBEDDED PLATES, BOLTS, ANCHORS, ANGLES, ETC.
14. ALL HOOKS SHOWN ON DRAWINGS SHALL BE STANDARDS HOOKS PER ACI STANDARD

MINIMUM LAP SPLICE (CLASS B)
(Fy = GRADE 60, NON-COATED BARS). SPLICE REINFORCING WHERE INDICATED ON THE DRAWINGS OR ON THE SHOP DRAWINGS. ALL SPLICES SHALL BE CLASS 'B' AS DEFINED IN ACI 318. IF SPLICE LENGTH IS NOT GIVEN ON THE DRAWINGS, PROVIDE LAP SPLICE LENGTHS (IN INCHES) AS FOLLOWS.

3000 PSI CONCRETE

BAR SIZE	TYPICAL	TOP
#3	22"	28"
#4	29"	37"
#5	36"	47"
#6	43"	56"
#7	63"	81"
#8	72"	93"

4000 PSI CONCRETE

BAR SIZE	TYPICAL	TOP
#3	19"	24"
#4	25"	32"
#5	31"	40"
#6	37"	48"
#7	54"	70"
#8	62"	80"
#9	70"	91"

1. WHEN LAPPING TWO DIFFERENT SIZE BARS, USE THE LAP DIMENSION OF THE LARGER BAR OR THE TENSION LAP SPLICE OF SMALLER BAR. USE WHICHEVER DIMENSION IS LARGER.
2. LAP LENGTHS ASSUME CLEAR SPACING BETWEEN BARS OF 2 BAR DIAMETERS, AND A MINIMUM COVER OF 1 BAR DIAMETER. FOR DEVELOPMENT LENGTHS, DIVIDE "TYPICAL DIMENSIONS" BY 1.3.
3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 1'-0" OF FRESH CONCRETE BELOW.

TYPICAL REINFORCING BAR CLEARANCE TABLE

LOCATION	CLEARANCE
(a) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
(b) SLABS ON GRADE (WELDED WIRE FABRIC)	‡ SLAB THICKNESS FROM TOP OF SLAB
(c) CONCRETE EXPOSED TO EARTH OR WEATHER	
-NO. 6 THRU NO. 18 BARS	2"
-NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER	1½"
(d) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:	
SLABS, WALLS, JOISTS	
-NO. 14 & NO. 18 BARS	1½"
-NO. 11 BAR AND SMALLER	¾"
BEAMS, COLUMNS	
-PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS	1½"

D. MASONRY

1. ALL DESIGN, MATERIALS, LABOR AND CONSTRUCTION OF THE MASONRY SHALL CONFORM TO THE BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (TMS 402-16) AND THE SPECIFICATION FOR MASONRY STRUCTURES (TMS 602-16).
2. ALL BRICK AND CONCRETE MASONRY AND CONSTRUCTION SHALL COMPLY WITH THE RECOMMENDATIONS OF BRICK INDUSTRY ASSOCIATION AND THE NATIONAL CONCRETE MASONRY ASSOCIATION AND MINIMUM REQUIREMENTS ESTABLISHED AS REFERENCED IN THE APPLICABLE BUILDING CODE.
3. ALL HOLLOW CONCRETE BLOCK SHALL CONFORM TO ASTM C-90 WITH A NET COMPRESSIVE STRENGTH OF 2000 PSI.
4. MORTAR SHALL BE ASTM C 270, TYPE "S", SPECIFIED BY PROPORTION WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI.
5. AGGREGATE FOR MORTAR SHALL BE ASTM C 144. AGGREGATE FOR GROUT ASTM C404.
6. ALL MASONRY GROUT SHALL CONFORM TO ASTM C 476, SPECIFIED BY PROPORTION, AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,000 P.S.I. (⅜" MAX. AGGREGATE SIZE).
7. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A-615 GRADE-60. WELDING OF REINFORCING STEEL SHALL CONFORM TO ANSI/AWS D1.4-11.
8. ALL CORES WITH REINFORCEMENT SHALL BE FILLED SOLID WITH GROUT.
9. CONTINUOUS WIRE JOINT REINFORCING SHALL BE GALVANIZED FABRICATED UNITS WITH 9 GAGE SIDE RODS AND 9 GAGE CROSS RODS FABRICATED FROM COLD-DRAWN STEEL WIRE COMPLYING WITH ASTM A82. USE TRUSS TYPE AT NON-VERTICALLY REINFORCED WALLS AND LADDER TYPE AT VERTICALLY REINFORCED WALLS. PREFABRICATED CORNERS & TEES SHALL BE USED FOR ALL INTERSECTING WALLS.
10. ALL INTERSECTING MASONRY WALLS AND PILASTERS SHALL BE IN RUNNING BOND WITH AT LEAST 50% OF THE MASONRY UNITS INTERLOCKING AT THE INTERFACE.
11. LAY MASONRY UNITS WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS. BED WEBS IN MORTAR IN STARTING COURSE ON FOOTING AND IN ALL COURSES OF COLUMN AND PILASTERS, AND WHERE ADJACENT TO CELLS OR CAVITIES TO BE REINFORCED OR FILLED WITH CONCRETE OR GROUT.
12. MISCELLANEOUS:
    ..a. CONSOLIDATE GROUT BY MECHANICAL VIBRATION AT TIME OF PLACEMENT AND RECONSOLIDATE BY MECHANICAL VIBRATION AFTER THE INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.
    ..b. MAX. GROUT POUR HEIGHT SHALL BE AS PER PAGE S-77(TABLE 6) OF TMS 402-16.
    ..c. CORRECT LOCATION OF THE VERTICAL REINFORCING STEEL MUST BE MAINTAINED BY THE USE OF VERTICAL BAR POSITIONERS PLACED AT THE TOP OF 1st COURSE AND COURSE BELOW TOP OF WALL W/ A MAXIMUM OF 6'-0" BETWEEN POSITIONERS.
    ..d. FILL CORE SOLID AROUND ANCHOR BOLTS, EMBEDDED STEEL AND REINFORCING.
    ..e. PROVIDE JOINT REINFORCING AT 16" EXCEPT AS NOTED. BOND BEAM REINFORCEMENT SHALL BE STOPPED EITHER SIDE OF VERTICAL CONTROL JOINTS.
    ..f. PROVIDE 100% SOLID BEARING, MINIMUM 3 COURSES (24") UNDER BEAMS AND WIDE FLANGE LINTELS, 1 COURSE (8") UNDER ANGLE LINTELS AND STEEL LINTELS UNLESS DETAILED OTHERWISE.
    ..g. LAP ALL SPLICES AS FOLLOWS:
        #3 - 16"
        #4 - 24"
        #5 - 28"
        #6 - 40"
        #7 - 46"

E. WOOD FRAMING

1. QUALITY AND CONSTRUCTION OF WOOD FRAMING MEMBERS AND THEIR FASTENERS FOR LOAD SUPPORTING PURPOSES NOT OTHERWISE INDICATED ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH THE OHIO BUILDING CODE.
2. ALL WOOD SHALL CONFORM TO THE NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION, NDS (2018 EDITION) AND THE 2024 OHIO BUILDING CODE CHAPTER 23.
3. TREATED BOTTOM PLATES WHERE THERE IS CONTACT WITH MASONRY.
4. JOISTS, RAFTERS, STUDS & HEADERS-(SPF, NO.1/NO.2, DOUGLAS FIR OR SOUTHERN PINE), DESIGN VALUES SHALL EQUAL OR EXCEED THE FOLLOWING:
   ..a. Fb: 875 P.S.I.
   ..b. Fv: 135 P.S.I.
   ..c. E: 1,400,000 P.S.I.
5. NAILING OF ALL FRAMING MEMBERS SHALL MEET THE RECOMMENDED NAILING SCHEDULE (TABLE 2304.10.2) CONTAINED IN THE OBC, CHAPTER 23.
6. ERECTION PLANS FOR ALL TRUSSES SHALL BE SUBMITTED FOR REVIEW WITH SHOP DRAWINGS PRIOR TO FABRICATION. ERECTION PLANS SHALL INCLUDE HOW AND WHERE THE PERMANENT BRIDGING WILL BE INSTALLED. SHOP DRAWINGS SHALL BE SEALED BY A PROFESSIONAL ENGINEER OF OHIO REGISTRATION. TEMPORARY AND PERMANENT BRIDGING AND BRACING OF WOOD ROOF AND FLOOR TRUSSES SHALL BE IN ACCORDANCE WITH THE TRUSS INSTITUTE, INC. TEMPORARY BRIDGING SHALL BE FURNISHED AS REQUIRED TO MAINTAIN TRUSS STABILITY, SPACING AND TO PREVENT BUCKLING DURING ERECTION. LIVE LOAD DEFLECTION FOR FLOOR TRUSSES IS LIMITED TO L/480 AND TOTAL LOAD DEFLECTION L/360.
7. PRE-ENGINEERED WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE TRUSS PLATE INSTITUTE'S NATIONAL DESIGN STANDARD FOR METAL-PLATE CONNECTED WOOD TRUSS CONSTRUCTION (ANSI/TPI-1 LATEST EDITION). TRUSSES SHALL BE DESIGNED AND MANUFACTURED BY AN AUTHORIZED MEMBER OF THE WOOD TRUSS COUNCIL OF AMERICA (WTCA). TRUSS DESIGN SHALL CONFORM TO SPECIFIED CODES, ALLOWABLE STRESS INCREASES, DEFLECTION LIMITATIONS, AND OTHER APPLICABLE CRITERIA OF THE GOVERNING CODE.
8. CONNECT ROOF TRUSSES TO TOP PLATE WITH A SIMPSON "HI" TIE UNLESS NOTED OTHERWISE.
9. NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED UNLESS SPECIFICALLY SHOWN, NOTED OR APPROVED.
10. SHEATHING:
    EXTERIOR WALL SHEATHING: 40/20 APA RATED ½" PLYWOOD ROOF SHEATHING EXPOSURE 1.
    24/16 APA RATED ⅜" PLYWOOD WALL SHEATHING EXPOSURE 1.
    ALL SHEATHING TO BE NAILED WITH 8d COMMON NAILS AT 6" ON CENTER AT PANEL EDGES AND 12" ON CENTER AT INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE. PROVIDE SOLID BLOCKING TO MATCH WALL STUD SIZE AT ALL FREE EDGES OF WALL SHEATHING AND NAIL w/ 8d COMMON NAILS AT 6" O.C.
11. BOLTS HOLES SHALL BE 1/16" MAXIMUM LARGER THAN THE BOLT SIZE. RE-TIGHTEN ALL NUTS PRIOR TO CLOSING IN.
12. 2x2x5/16 PLATE WASHERS SHALL BE USED UNDER BOLT HEADS AND NUTS AGAINST WOOD.
13. SERVICE CONDITION - DRY WITH MOISTURE CONTENT AT OR BELOW 19% IN SERVICE.
14. CONTRACTOR SHALL COORDINATE TRUSS LAYOUT FOR OPENINGS AND PENETRATIONS REQUIRED BY OTHER TRADES INCLUDING FOR PLUMBING, HVAC, ELECTRICAL, ROOF ACCESS HATCHES, CHASES, ETC.
15. DRYWALL CLIPS OR 2X LADDER BLOCKING AT 24" O/C SHALL BE USED AT CORNER FRAMING AND INTERIOR WALL INTERSECTIONS

F. SUBMITTALS

1. THE GENERAL CONTRACTOR SHALL SUBMIT FOR ENGINEER REVIEW SHOP DRAWINGS FOR THE FOLLOWING ITEMS:

   CONCRETE DESIGN MIX

ITEMS MARKED (*) SHALL HAVE SHOP DRAWINGS SEALED BY A REGISTERED ENGINEER IN THE STATE WHERE THE PROJECT IS LOCATED. ITEMS MARKED (^) SHALL HAVE CALCULATIONS PREPARED BY A REGISTERED ENGINEER.

2. ALL SHOP DRAWINGS MUST BE REVIEWED AND SEALED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL.
3. CONTRACTOR SHALL SUBMIT ELECTRONIC COPIES (E.G. PDFS) OF ALL SHOP DRAWINGS SPECIFIED TO BE RETURNED BY THE ENGINEER.
4. THE OMISSION FROM THE SHOP DRAWINGS OF ANY MATERIAL REQUIRED BY THE CONTRACT DOCUMENTS TO BE FURNISHED SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF FURNISHING AND INSTALLING SUCH MATERIALS, REGARDLESS OF WHETHER THE SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED.
5. SUBMIT TWO COPIES OF MANUFACTURER'S LITERATURE FOR ALL MATERIALS AND PRODUCTS USED IN CONSTRUCTION ON THE PROJECT.
6. THE USE OF REPRODUCTIONS OF THESE CONTRACT DOCUMENTS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREIN AS CORRECT, AND OBLIGATE HIMSELF TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS THAT MAY OCCUR HEREIN.

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3/10/2025

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BATH TOWNSHIP

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PROJECT # 2324

ISSUE:

SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

GENERAL NOTES

S10.1

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SPECIAL INSPECTIONS

1. SPECIAL INSPECTION IS TO BE PROVIDED IN ADDITION TO THE INSPECTIONS CONDUCTED BY THE DEPARTMENT OF BUILDING SAFETY AND SHALL NOT BE CONSTRUED TO RELIEVE THE OWNER OR HIS AUTHORIZED AGENT FROM REQUESTING THE PERIODIC AND CALLED INSPECTIONS REQUIRED BY THE BUILDING CODE. SPECIAL INSPECTION SHALL BE PAID BY OWNER.

REQUIRED SPECIAL INSPECTIONS

1. IN ADDITION TO THE REGULAR INSPECTIONS, THE FOLLOWING ITEMS WILL ALSO REQUIRE SPECIAL INSPECTION ACCORDANCE WITH THE BUILDING CODE.

   A. STRUCTURAL STEEL ELEMENTS OF BUILDINGS AND STRUCTURES AS REQUIRED BY OBC SECTION 1705.2 AND TABLE 1705.2.3, EXCEPT AS ALLOWED IN OBC SECTION 1704.2.

   B. CONCRETE CONSTRUCTION AS REQUIRED BY OBC SECTION 1705.3 AND TABLE 1705.3, EXCEPT AS ALLOWED IN OBC SECTION 1704.2.

   C. MASONRY CONSTRUCTION AS REQUIRED BY OBC SECTION 1705.4, LEVEL 1 SPECIAL INSPECTION, EXCEPT ALLOWED IN OBC SECTION 1704.2.

   D. SPECIAL INSPECTION FOR EXISTING SITE SOIL CONDITIONS. DURING SITE PREPARATION AND FILL PLACEMENT, TO ENSURE LOAD-BEARING REQUIREMENTS IN COMPLIANCE WITH OBC SECTION 1705.6 EXCEPT AS ALLOWED IN OBC SECTION 1704.2.

   E. SPRAYED FIRE-RESISTANT MATERIALS AS REQUIRED BY SECTION 1705.15.

   F. EFIS SYSTEM AS PER SECTION 1705.17.

   G. SPECIAL CASES AS DEEMED NECESSARY BY BUILDING OFFICIAL IN COMPLIANCE WITH OBC SECTION 1705.1.1.

2. SPECIAL INSPECTOR SHALL MEET THE QUALIFICATIONS AS STATED IN THE BUILDING CODE AND SHALL PERFORM THE DUTIES AND RESPONSIBILITIES AS OUTLINED IN THE BUILDING CODE.

3. SPECIAL INSPECTION SHALL MEET THE REQUIREMENTS OF OBC SECTION 1704. SPECIAL INSPECTORS(S) SHALL BE HIRED BY THE OWNER TO PERFORM THE REQUIRED SPECIAL INSPECTIONS. THE NAMES OF PERSONS OR FIRMS WHO ARE TO PERFORM THE SPECIAL INSPECTIONS SHALL BE FORWARDED TO THE BUILDING OFFICIAL FOR APPROVAL. THE SPECIAL INSPECTOR(S) SHALL COMPLETE AND SUBMIT ALL FORMS REQUIRED BY THE BUILDING DEPARTMENT HAVING JURISDICTION.

4. THE SPECIAL INSPECTOR(S) SHALL:

   A. OBSERVE THE WORK ASSIGNED FOR CONFORMANCE TO THE APPROVED DRAWING AND SPECIFICATIONS.

   B. FURNISH INSPECTION REPORTS TO THE ENGINEER OF RECORD AND BUILDING DEPARTMENT. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. THEN IF NOT CORRECTED, TO THE ENGINEER AND THE BUILDING DEPARTMENT.

   C. SUBMIT TO THE ENGINEER OF RECORD AND THE BUILDING DEPARTMENT A SIGNED FINAL REPORT STATING THAT THE WORK WAS IN CONFORMANCE WITH THE APPROVED DRAWINGS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE OBC.

5. SPECIAL INSPECTION NOTES:

   A. CONTINUOUS SPECIAL INSPECTION IS ALWAYS REQUIRED DURING THE PERFORMANCE OF THE WORK UNLESS SPECIFICALLY NOTED BELOW.

   B. WHERE FABRICATION OF STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES IS BEING PERFORMED ON THE PREMISES OF A FABRICATOR'S SHOP. CONTINUOUS SPECIAL INSPECTION IS REQUIRED DURING THE PERFORMANCE OF THE WORK EXCEPT AS ALLOWED IN OBC SECTION 1704.2.5.1 AND UNLESS SPECIFICALLY NOTED BELOW.

   C. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE SPECIAL INSPECTOR(S) WITH ADVANCE NOTICE, NO LESS THAN ONE WORKING DAY, OF THE INITIATION OF ANY WORK REQUIRED TO HAVE SPECIAL INSPECTIONS. ALL WORK PERFORMED WITHOUT REQUIRED SPECIAL INSPECTION WILL BE SUBJECT TO REMOVAL.

STRUCTURAL SPECIAL INSPECTION SCHEDULE: SOILS

VERIFICATION AND INSPECTION TASK	APPLICABLE TO THIS PROJECT?	FREQUENCY		REFERENCED STANDARD	CODE REFERENCE
		CONTINUOUS	PERIODIC		
VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	X	-	X	-	1704.7
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	X	-	X	-	1704.7
PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS.	X	-	X	-	1704.7
DURING FILL PLACEMENT, VERIFY USE OF PROPER MATERIALS AND PROCEDURES IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT. VERIFY DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL.	X	X	-	-	1704.7
PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	X	-	X	-	1704.7

STRUCTURAL SPECIAL INSPECTION SCHEDULE: CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION TASK	APPLICABLE TO THIS PROJECT?	FREQUENCY		REFERENCED STANDARD	CODE REFERENCE
		CONTINUOUS	PERIODIC		
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	X	-	X	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	-
2. REINFORCING BAR WELDING:	-	-	-	AWS D1.4 ACI 318: 26.6.4	-
a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	-	-	X		
b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM $\frac{5}{16}$"	-	-	X		
c. INSPECT ALL OTHER WELDS	-	X	-		
3. INSPECT ANCHORS CAST IN CONCRETE	X	-	X	ACI 318 Ch. 17.8.2	-
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS	-	-	-	-	-
a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	-	X	-	ACI 318 Ch. 17.8.2.4	-
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	X	-	X	ACI 318 Ch. 17.8.2	-
5. VERIFY USE OF REQUIRED DESIGN MIX.	X	X	-	ACI 318 Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	X	-	ASTM C31, C172 ACI 318: 26.5, 26.12	-
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	X	-	ACI 318 Ch. 26.5.3-26.5.5	-
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	X	-	X	ACI 318 Ch. 26.5.3-26.5.5	-
9. INSPECT PRESTRESSED CONCRETE FOR:	-	-	-	ACI 318 Ch. 26.10	-
a. APPLICATION OF PRESTESSING FORCES	-	X	-		
b. GROUTING OF BONDED PRESTRESSING TENDONS	-	X	-		
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	-	-	X	ACI 318 Ch. 26.9	-
11. FOR PRECAST CONCRETE DIAPHRAGM CONNECTIONS OR REINFORCEMENT AT JOINTS CLASSIFIED AS MODERATE OR HIGH DEFORMABILITY ELEMENTS (MDE OR HDE) IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E, OR F, INSPECT SUCH CONNECTIONS AND REINFORCEMENT IN THE FIELD FOR:	-	-	-	ACI 318 Ch. 26.13.1.3	-
A. INSTALLATION OF THE EMBEDDED PARTS	-	X	-	ACI 318 Ch. 26.13.1.3	-
B. COMPLETION OF THE CONTINUITY OF REINFORCEMENT ACROSS JOINTS	-	X	-		
C. COMPLETION OF CONNECTIONS IN THE FIELD	-	X	-		
12. INSPECT INSTALLATION TOLLERANCES OF PRECAST CONCRETE DIAPHRAGM CONNECTIONS FOR COMPLIANCE WITH ACI 550.5	-	-	X	ACI 318 Ch. 26.13.1.3	-
13. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	-	-	X	ACI 318 Ch. 26.11.2	-
14. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	X	-	X	ACI 318 Ch. 26.11.1.2(b)	-

REQUIRED VERIFICATION & INSPECTION OF WOOD FRAMING

APPLICABLE TO THIS PROJECT	VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC
X	1. VERIFY LUMBER GRADE - VISUAL	--	X
X	2. SHEAR WALL NAILING PATTERNS - VISUAL	--	X
X	3. LIGHT GAGE METAL CONNECTIONS - VISUAL	--	X
X	4. SHEAR WALL HOLD DOWN ANCHORS - VISUAL	X	--

MINIMUM VERIFICATION REQUIREMENTS

MINIMUM VERIFICATION	REQUIRED FOR QUALITY ASSURANCE			TMS 602
	LEVEL 1	LEVEL 2	LEVEL 3	
1. PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS.	X	X	X	ART. 1.5
2. PRIOR TO CONSTRUCTION, VERIFICATION OF f'_m AND f'_{AAC} EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE.	-	X	X	ART. 1.4 B
3. DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE.	-	X	X	ART. 1.5, 1.6.3
2. DURING CONSTRUCTION, VERIFICATION OF f'_m AND f'_{AAC} FOR EVERY 5,000 SQ. FT. (465 SQ. M)	-	-	X	ART. 1.4 B
3. DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR, PRESTRESSING GROUT, ANDGROUT OTHER THAN SELF-CONSOLIDATING GROUT.	-	-	X	ART. 1.4 B

STRUCTURAL SPECIAL INSPECTION SCHEDULE: MASONRY CONSTRUCTION

VERIFICATION AND INSPECTION TASK	APPLICABLE TO THIS PROJECT?	FREQUENCY[A]			TMS 402	TMS 602
		LEVEL 1	LEVEL 2	LEVEL 3		
4. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:						
A. PROPORTIONS OF SITE PREPARED MORTAR	-	-	P	P		ART. 2.1, 2.6 A, 2.6 C
B. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES.	-	-	P	P		ART. 2.4 B, 2.4 H
C. GRADE, TYPE, AND SIZE OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES.	X	-	P	P		ART. 3.4, 3.6 A
D. PRESTRESSING TECHNIQUE.	-	-	P	P		ART. 3.6 B
E. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	-	-	C[B]/P[C]	C		ART. 2.1 C.1
F. SAMPLE PANEL CONSTRUCTION	-	-	P	C		ART. 1.6 D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE.						
A. GROUT SPACE	X	-	P	C		ART. 3.2 D, 3.2 F
B. PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES	-	-	P	P	SEC. 10.8, 10.9	ART. 2.4, 3.6
C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	X	-	P	C	SEC. 6.1, 6.3.1, 6.3.6, 6.3.7	ART. 3.2 E, 3.4
D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	-	-	P	P		ART. 2.6 B, 2.4 G.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:						
A. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	X	-	P	P		ART. 1.5
B. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	X	-	P	P		ART. 3.3 B
C. SIZE AND LOCATION OF STRUCTURAL MEMBERS	X	-	P	P		ART. 3.3 F
D. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	X	-	P	C	SEC. 1.2.1(e), 6.2.1, 6.3.1	
E. WELDING OF REINFORCEMENT	-	-	C	C	SEC. 6.1.6.1.2	
F. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40° F (4.4° C)) OR HOT WEATHER (TEMPERATURE ABOVE 90° F (32.2° C))	-	-	P	P		ART. 1.8 C, 1.8 D
G. APPLICATION AND MEASURING OF PRESTRESSING FORCE	-	-	C	C		ART. 3.6 B
H. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	-	-	C	C		ART. 3.5, 3.6 C
I. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	-	-	C[B]/P[C]	C		ART. 3.3 B.9, 3.3 F.1.b
4. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	-	-	P	C		ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4

(A) FREQUENCY REFERS TO THE FREQUENCY OF INSPECTION, WHICH MAY BE CONTIUOUS DURING THE LISTED TASK OR PERIODICALLY DURING THE LISTED TASK, AS DEFINED IN THE TABLE.
- = NOT REQUIRED, P = PERIODIC, C= CONTINUOUS

(B) REQUIRED FOR THE FIRST 5000 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY

(C) REQUIRED AFTER THE FIRST 5000 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY

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BATH TOWNSHIP

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4400 EVERETT ROAD, AKRON, OH 44333

PROJECT # 2324

ISSUE:

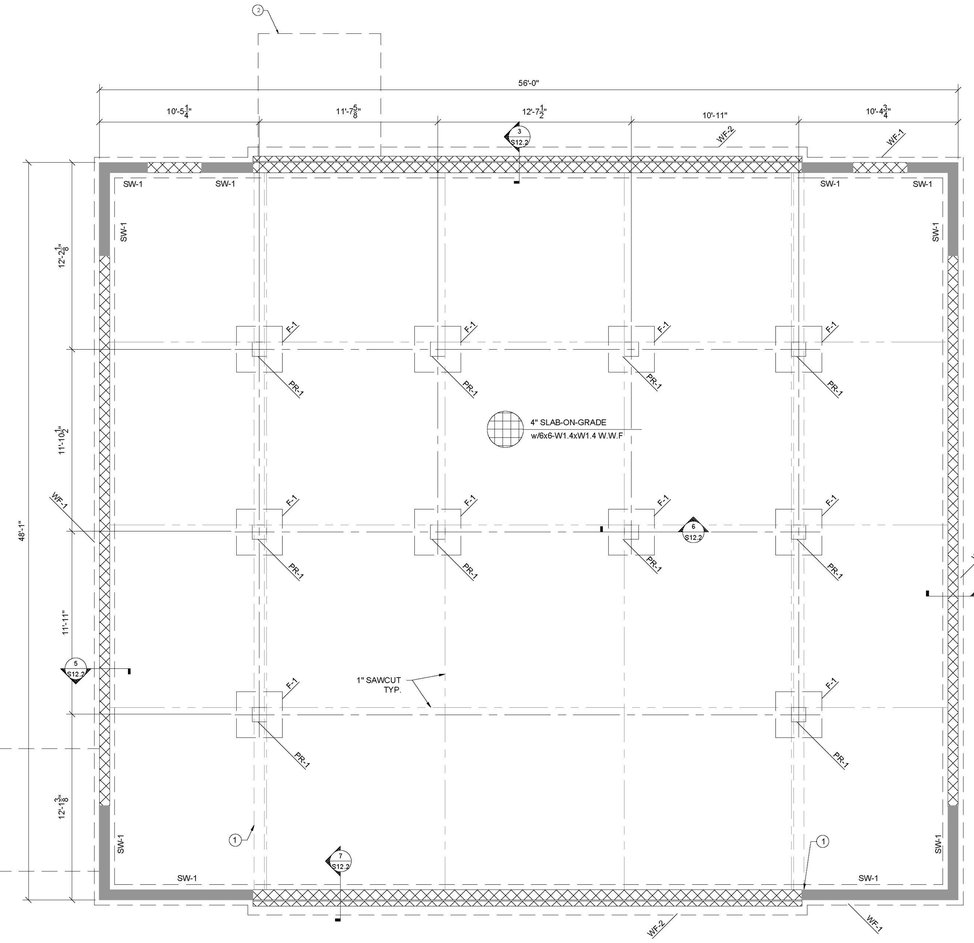
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SPECIAL INSPECTIONS

S10.2

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1 FOUNDATION PLAN
S11.1 — 1/4" = 1'-0"

FOOTING SCHEDULE				
MARK	SIZE			REINFORCEMENT
	L	W	T	
WF-1	-	1'-4"	1'-0"	(3) #4 CONT.
WF-2	-	2'-0"	1'-0"	(3)#4 CONT.
F-1	3'-0"	3'-0"	1'-0"	(4) #4 EW

PIER SCHEDULE			
MARK	TYPE	SIZE	REINF.
PR-1	SANDSTONE	1'-4"x1'-4"x2'-4"	(1)#4 DOWEL

FOUNDATION NOTES:

1. CONTRACTOR SHALL COORDINATE ALL DIMENSIONS AND ELEVATIONS w/ ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
2. DIMENSIONS SHOWN ARE TO OUTSIDE FACE OF MASONRY
3. FOR ADDITIONAL INFORMATION AND REQUIREMENTS, SEE TYPICAL DETAILS AND GENERAL NOTES.
4. SAWCUT JOINTS IN SLAB-ON-GRADE SHALL BE MADE AFTER CONCRETE HAS TAKEN INITIAL SET BEFORE CONCRETE SHRINKAGE STRESSES ARE INCURRED. SAWCUTS SHALL BE PLACE @ MAX. 12'-0" o/c SPACING.
5. ELEVATIONS MEASURED FROM FINISHED FLOOR = 0'-0"
6. CONTRACTOR TO FIELD VERIFY DIMENSIONS. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING NECESSARY FOR RAISING AND SETTING BARN ON NEW FOUNDATIONS. CONTRACTOR RESPONSIBLE FOR RAISING STRUCTURE SHALL COORDINATE WITH FOUNDATION CONTRACTOR ON ALL FINAL DIMENSIONS

(1) EXISTING FOOTING AND FOUNDATION WALL MAY REMAIN IN PLACE BELOW LEVEL OF COMPACTED BACKFILL FOR SLAB.

(2) INDICATES LOCATION OF NEW FROST SLAB.

TOP OF INT. FTG = -0'-8" UNO
TOP OF PIER = +1'-8" UNO
TOP OF EXT. FTG = -3'-0" UNO

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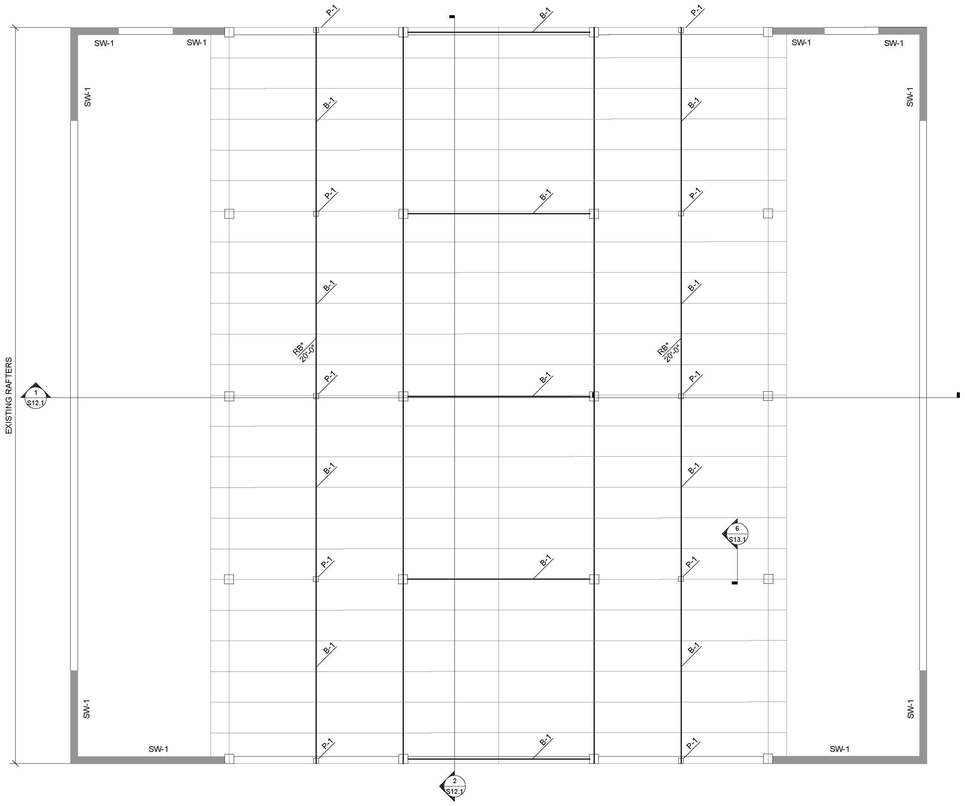
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DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

FOUNDATION PLAN

S11.1

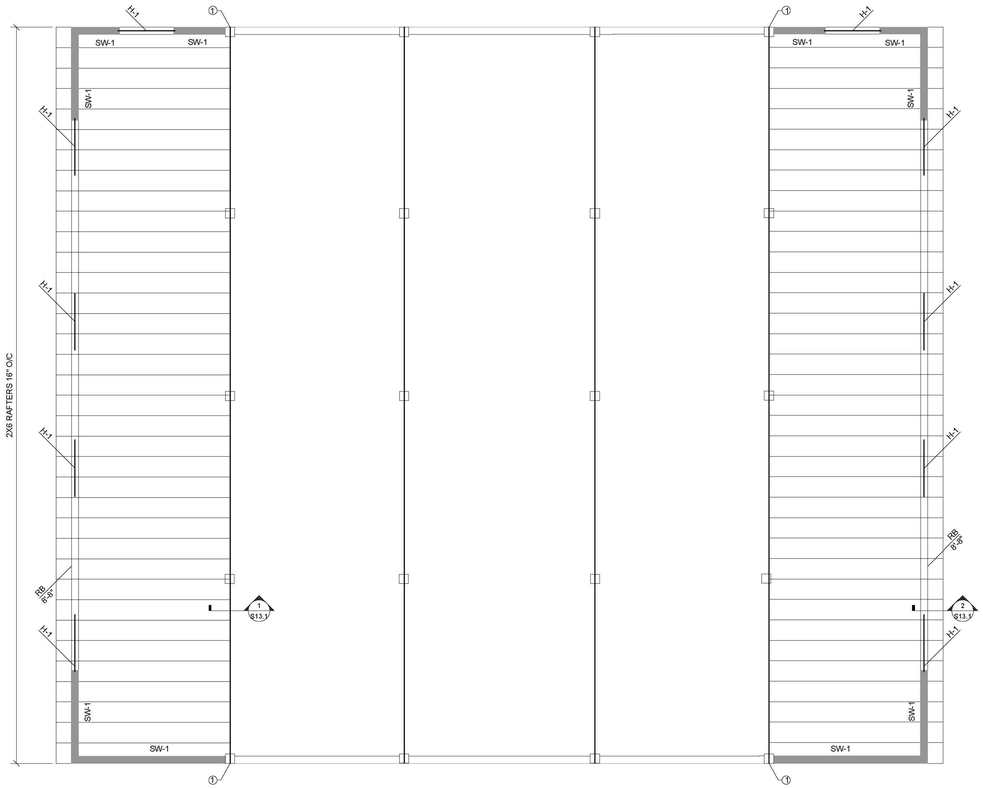
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1 S11.2 UPPER ROOF FRAMING PLAN

1/4" = 1'-0"



2 S11.2 LOWER ROOF FRAMING PLAN

1/4" = 1'-0"

POST SCHEDULE	
MARK	SIZE
P-1	4X4

BEAM SCHEDULE	
MARK	SIZE
B-1	4X8

HEADER SCHEDULE			
MARK	HEADER SIZE	JACK STUDS	KING STUDS
H-1	(3)-2x6	1	1

FRAMING NOTES:

1. SEE S10.1 & S10.2 FOR STRUCTURAL NOTES & SPECIAL INSPECTIONS
2. COORDINATE ALL OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
3. SEE S12.1, S12.2 & S13.1 FOR TYPICAL DETAILS & SECTIONS.
4. PROVIDE SIMPSON H1 TIE ON ALL RAFTERS TO PREVENT WIND UPLIFT.
5. SEE ARCHITECTURAL DRAWINGS FOR ROOF ELEVATIONS AND SLOPES.
6. ELEVATIONS MEASURED FROM FINISHED FLOOR = 0'-0". DIMS MARKED * TO BE FIELD VERIFIED BY CONTRACTOR
7. EXISTING 4X8 TIMBERS WHICH ARE TO BE REMOVED DURING DEMOLITION MAY BE SALVAGED AND RE-USED. RE-USED TIMBERS MUST BE FREE OF STRUCTURAL DEFECTS OR DAMAGE.

RB = RAFTER BEARING ELEVATION

① STRAP SHEAR WALL TO EXISTING BARN, SEE DTL 10/S13.1

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BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION

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PROJECT # 2324

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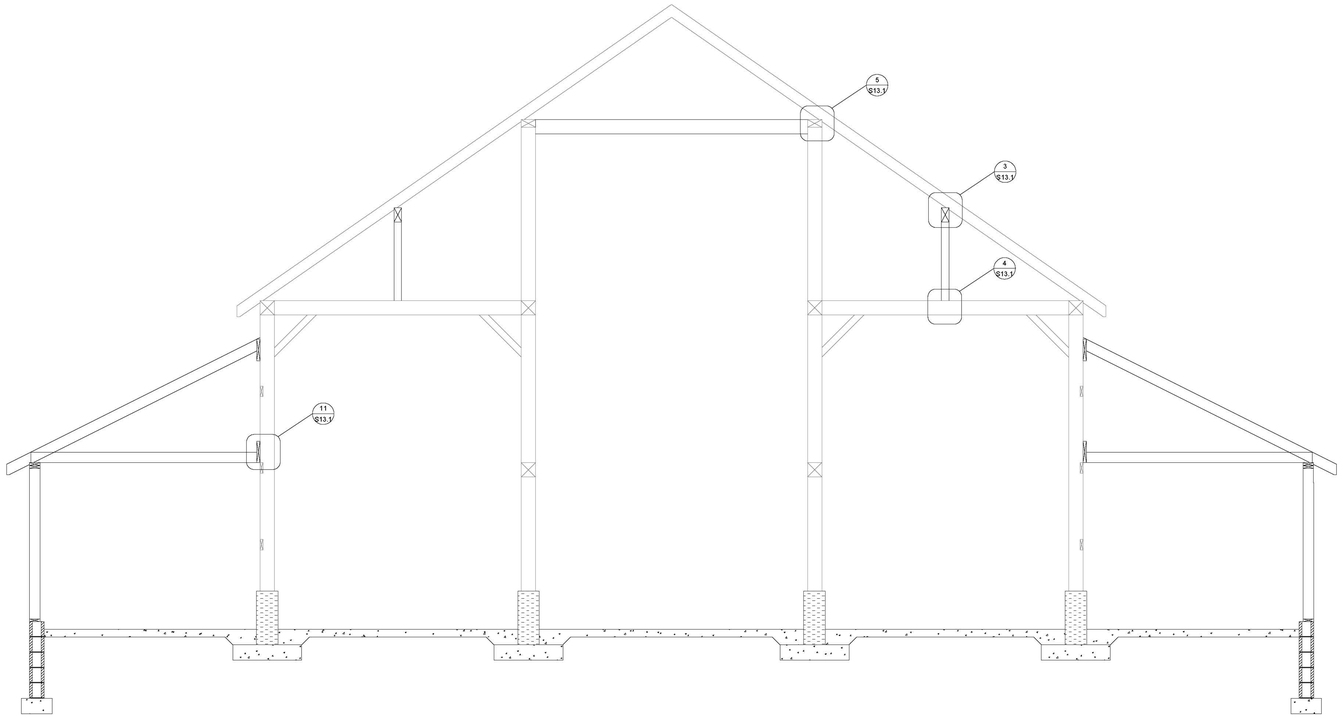
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ROOF FRAMING PLANS

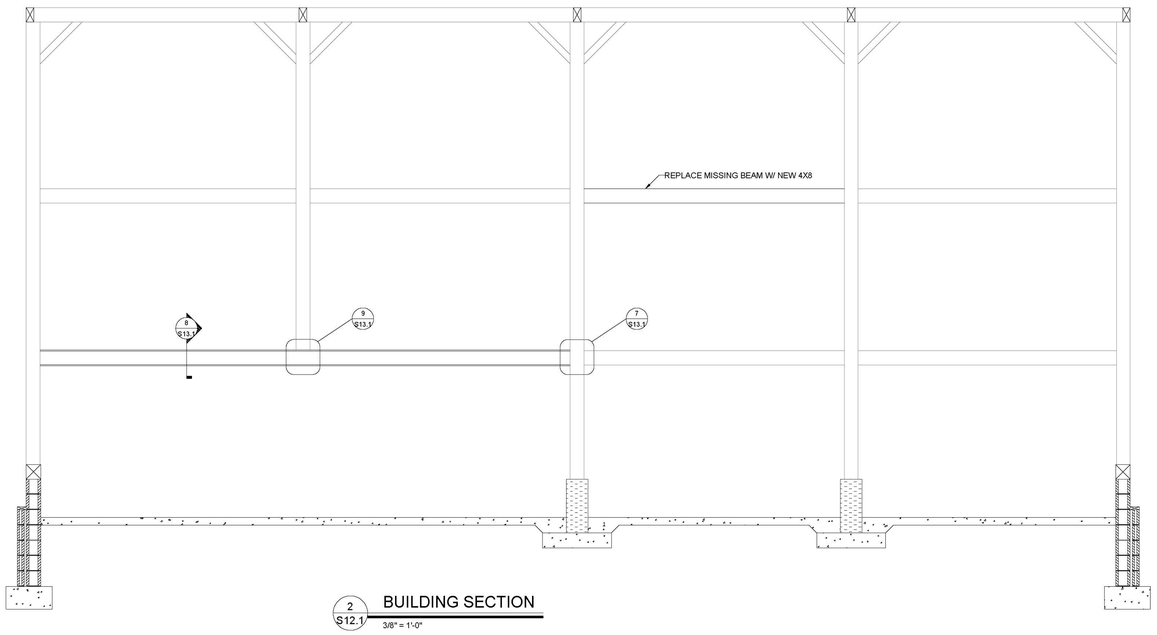
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1 S12.1 BUILDING SECTION
3/8" = 1'-0"



2 S12.1 BUILDING SECTION
3/8" = 1'-0"

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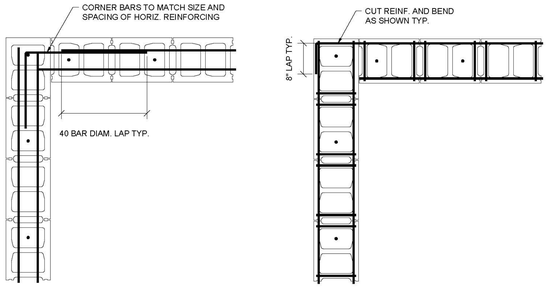
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BUILDING SECTIONS

S12.1

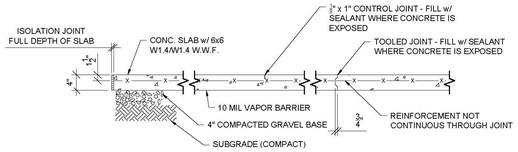
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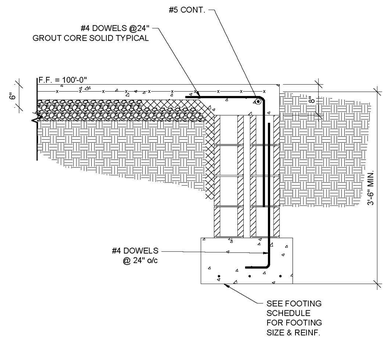
TYPICAL CORNER REINFORCING FOR MASONRY WALLS

1 S12.2 PLAN DETAIL
3/4" = 1'-0"

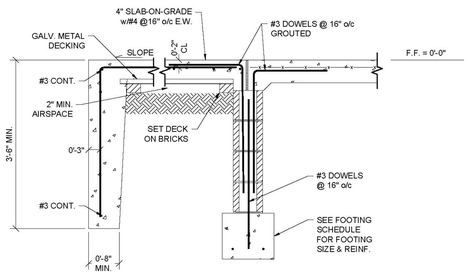


2 S12.2 4" SLAB JOINT DETAILS
3/4" = 1'-0"

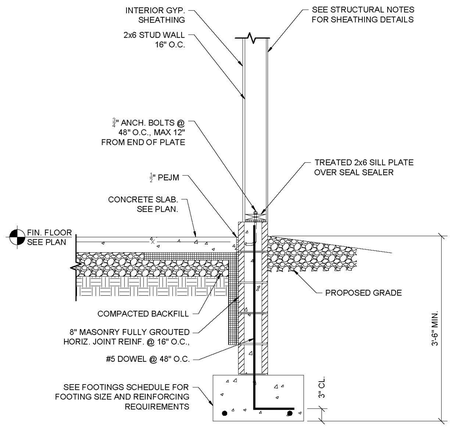
NOTES:
1. CONSTRUCTION JOINTS SHALL BE LOCATED AT THE END OF ANY SINGLE POUR.
2. CONSTRUCTION JOINT MAY REPLACE A CONTROL JOINT.
3. PROVIDE ISOLATION JOINTS AT THE FACE OF ALL COLUMNS, WALLS, PIERS AND ADJACENT CONSTRUCTION.
4. SPACING OF CONTROL JOINTS SHALL BE BETWEEN 8' TO 12' o/c. SEE PLAN.



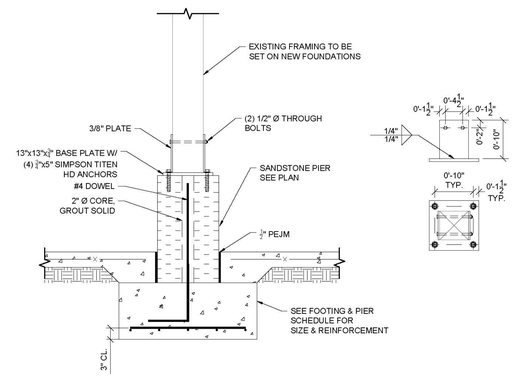
3 S12.2 SECTION AT OVERHEAD DOOR
3/4" = 1'-0"



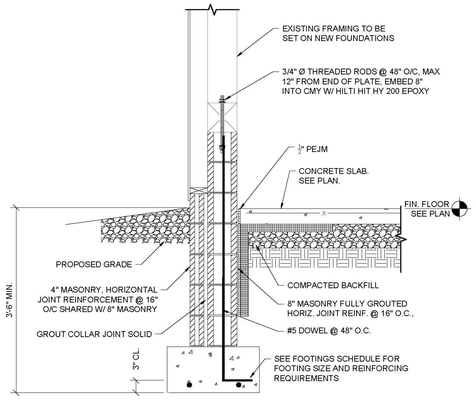
4 S12.2 FROST SLAB DETAIL
3/4" = 1'-0"
SEE ARCHITECTURAL PLAN FOR EXACT DIMENSIONS OF FROST SLAB.



5 S12.2 FOUNDATION SECTION
3/4" = 1'-0"



6 S12.2 PIER SECTION
3/4" = 1'-0"



7 S12.2 FOUNDATION SECTION
3/4" = 1'-0"

SHEAR WALL SCHEDULE

MARK	LEVEL	SHEATHING							END STUDS	HOLD DOWN/FLOOR TIES				
		THICKNESS	TYPE	SIDE	BLOCKED	FASTENERS	EDGE SPACING	FIELD SPACING		LEVEL	TYPE	FASTENERS	ANCHOR ROD	EMBEDMENT
SW-1	1	7/16"	PLYWOOD	ONE	YES	8d NAILS	4" o/c	12" o/c	(2)-2x	1	HD3B	(2)⅝" Ø BOLTS	5/8"	8"

NOTES:
- EXTERIOR SHEATHING IS ½" PLYWOOD SHEATHING.
- SHEATHING REQUIREMENTS ARE FOR STRUCTURAL ONLY. SEE ARCHITECTURAL FOR COMPLETE WALL ASSEMBLY
- SHEATHING AND GYP BOARD MUST BE ATTACHED DIRECTLY TO STUDS
- ALL EDGES OF PANELS MUST BE ON THE SAME STUD AS ADJACENT PANEL
- END JOINTS OF PANELS SHALL NOT OCCUR AT THE SAME STUD (STAGGER PANELS)
- MAXIMUM STUD SPACING SHALL BE 16" o/c
- HOLD DOWNS ARE BY SIMPSON COMPANY OR EQUAL. HOLDDOWN STUD FASTENERS ARE SIMPSON PROPRIETARY FASTENERS.
- FASTENERS ALONG THE EDGES IN SHEAR PANELS SHALL BE PLACED IN FROM PANEL EDGES NOT LESS THAN ¾" INCHES
- PANELS LESS THAN 12 INCHES WIDE SHALL NOT BE USED. UNLESS NOTED, ALL SHEATHING EDGES SHALL BE ATTACHED TO FRAMING MEMBERS OR BLOCKING.
- BOUNDARY STUDS AT THE END OF THE SHEAR WALLS SHALL BE ATTACHED PER THE MINIMUM NAILING REQUIREMENTS
- THE WIDTH OF THE NAILED FACE OF FRAMING MEMBERS AND BLOCKING SHALL BE 2" NOMINAL OR GREATER
- BLOCKING AND FRAMING MEMBERS SHALL BE 3" NOMINAL AND NAILING SHALL BE STAGGERED AT THE FOLLOWING CONDITIONS:
  - --- NAIL SPACING OF 2" ON CENTER AT ADJOING PANEL EDGES IS SPECIFIED
  - --- 10d COMMON NAILS HAVING PENETRATION INTO FRAMING MEMBERS AND BLOCKING OF MORE THAN 1-1/2" ARE SPECIFIED AT 3" ON CENTER OR LESS AT PANEL EDGES

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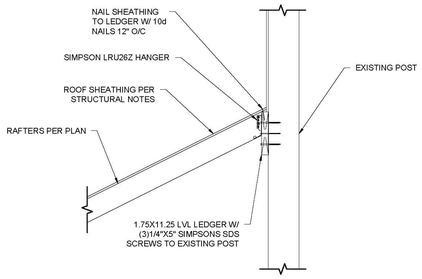
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FOUNDATION DETAILS

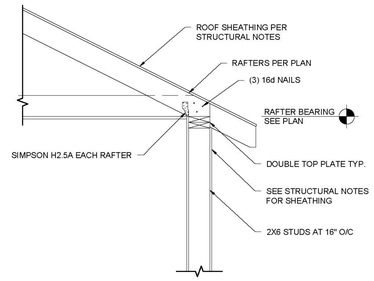
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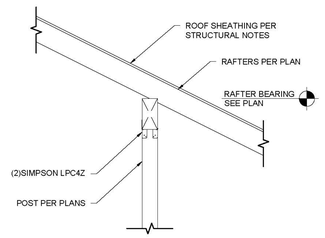
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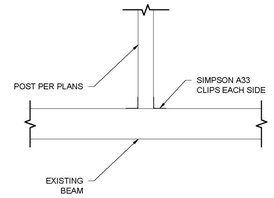
1 S13.1 FRAMING DETAIL
3/4" = 1'-0"



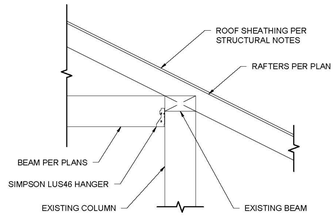
2 S13.1 FRAMING DETAIL
3/4" = 1'-0"



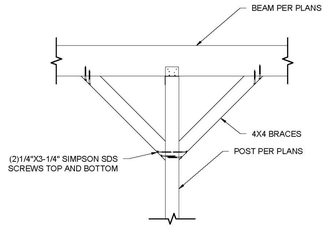
3 S13.1 FRAMING DETAIL
3/4" = 1'-0"



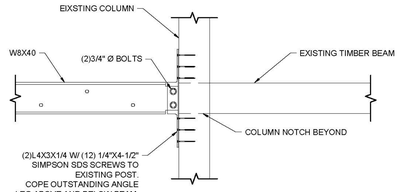
4 S13.1 FRAMING DETAIL
3/4" = 1'-0"



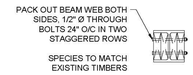
5 S13.1 FRAMING DETAIL
3/4" = 1'-0"



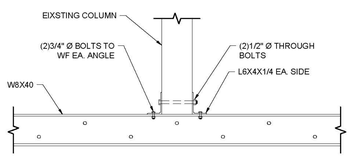
6 S13.1 FRAMING DETAIL
3/4" = 1'-0"



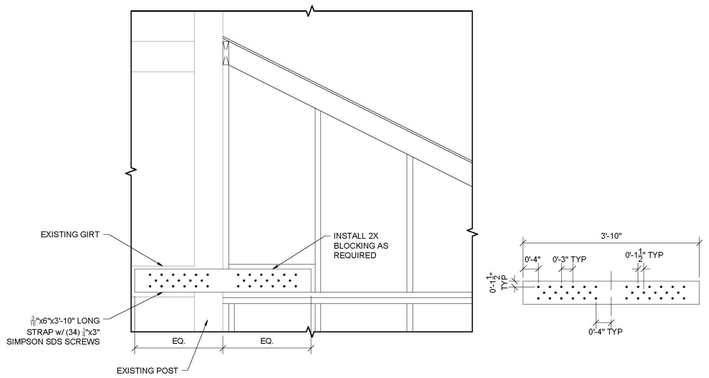
7 S13.1 FRAMING DETAIL
3/4" = 1'-0"



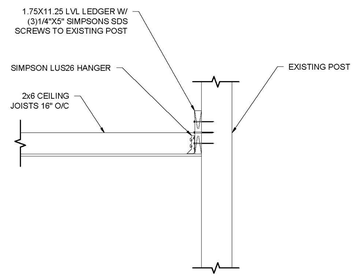
8 S13.1 FRAMING DETAIL
3/4" = 1'-0"



9 S13.1 FRAMING DETAIL
3/4" = 1'-0"



10 S13.1 FRAMING DETAIL
3/4" = 1'-0"



11 S13.1 FRAMING DETAIL
3/4" = 1'-0"

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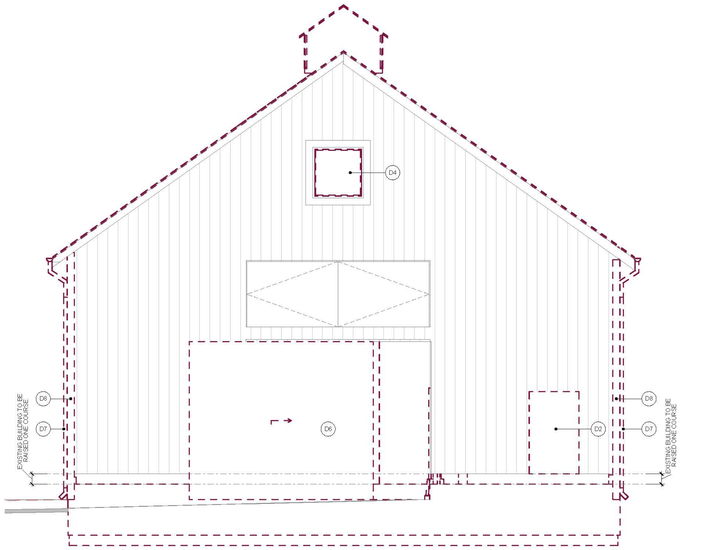
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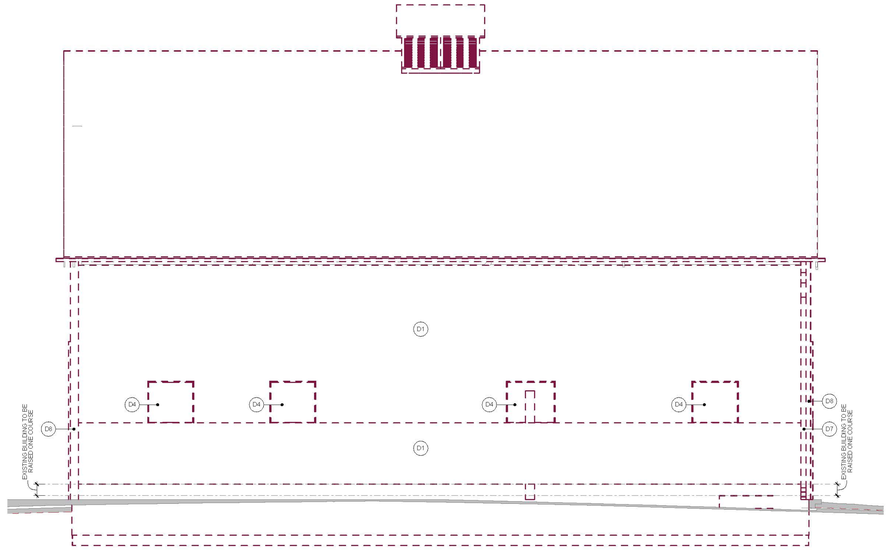
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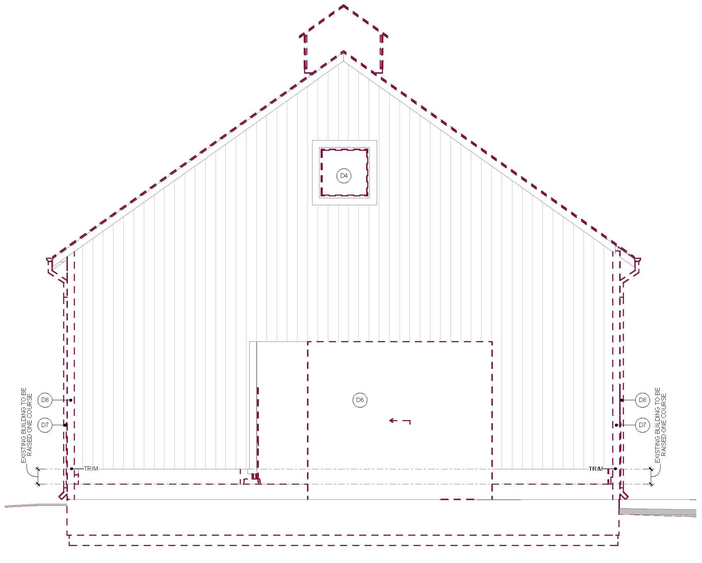
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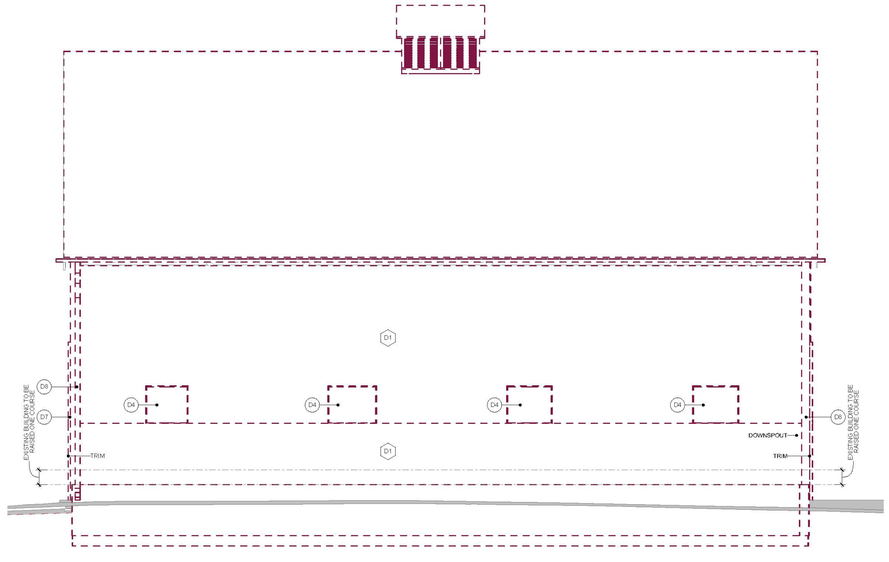
1 WEST DEMOLITION ELEVATION (FRONT OF BARN)
SCALE: 1/4" = 1'-0"



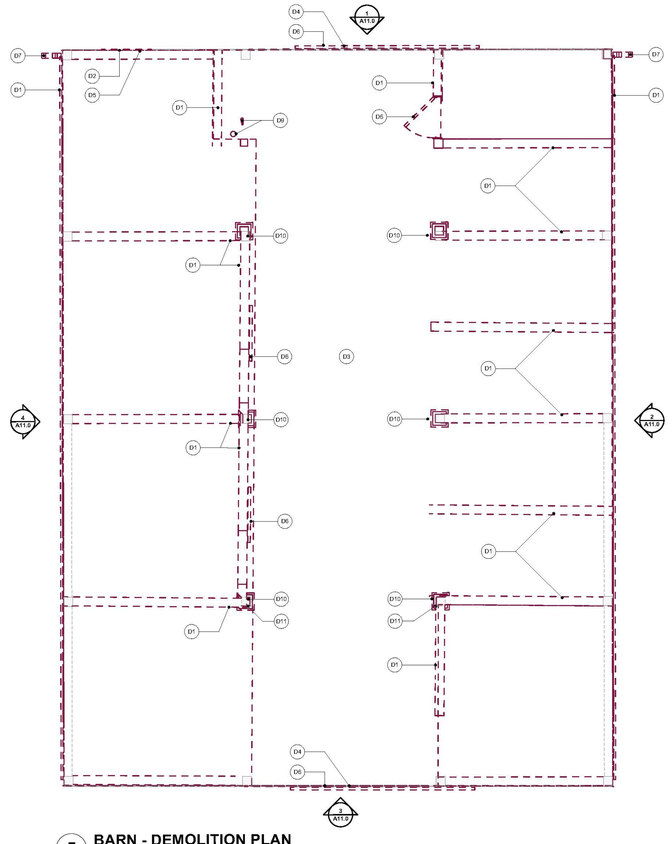
2 NORTH DEMOLITION ELEVATION (SIDE OF BARN)
SCALE: 1/4" = 1'-0"



3 EAST DEMOLITION ELEVATION (BACK OF BARN)
SCALE: 1/4" = 1'-0"



4 SOUTH DEMOLITION ELEVATION (SIDE OF BARN)
SCALE: 1/4" = 1'-0"



5 BARN - DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

DEMOLITION GENERAL NOTES

1. **THE BUILDING IS TO BE LIFTED OFF THE EXISTING FOUNDATION. REMOVE EXISTING FOUNDATION WALLS AND FOOTER. ADJUST TIMBER FRAME AND WALLS TO SQUARE THE BUILDING. USE ADJUSTED FRAME/WALLS TO ESTABLISH FINAL LAYOUT OF NEW FOUNDATION.**
2. IN DEMOLITION AREAS, REMOVE ALL MISCELLANEOUS ITEMS ON WALLS.
3. FILL AND LEVEL ALL HOLES IN FLOORS AND WALLS AFTER REMOVAL OR ADDITION OF PIPES, CONDUITS, AND OTHER PENETRATING ITEMS.
4. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR REQUIRED DEMOLITION AND RELATED WORK.
5. TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO ADJACENT AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE INCURRED.
6. ALL DEMOLITION ACTIVITIES SHALL BE COORDINATE WITH THE OWNER.
7. PATCH ALL EXISTING ADJACENT INTERIOR FINISHES TO REMAIN AS UNDISTURBED BY THE DEMOLITION TO MATCH ADJACENT SURFACES.
8. ALL DEMOLISHED ITEMS ARE TO REMAIN THE PROPERTY OF THE OWNER AT THEIR DISCRETION.
9. ALL STRUCTURAL MEMBERS ARE TO REMAIN AND BE PROTECTED UNLESS OTHERWISE NOTED. SOFTISODA BLAST AND PREPARE FOR NEW PAINT.
10. NOTIFY ARCHITECT PRIOR TO DEMOLITION IF ITEM INDICATED TO BE REMOVED IS SUSPECTED TO BE A STRUCTURAL ELEMENT.
11. ALL EXISTING SIDING IS TO SOFT/SODA BLASTED AND PREPARED FOR NEW PAINT.
12. REMOVE ALL EXISTING FIXTURES AND FINISHES, COORDINATE WITH OWNER AND SALVAGE FOR REUSE.
13. REMOVE EXISTING FLOOR AND ALL ASSOCIATED PLUMBING EQUIPMENT COMPLETELY. PREP AND CLEAN AREA TO RECEIVE NEW FLOORING.
14. REMOVE ALL EXISTING CONDUIT AND LIGHT FIXTURES.
15. REMOVE ENTIRE WALL TO UNDERSIDE OF DECK UNLESS NOTED OTHERWISE.
16. THE EXISTING METAL ROOF IS TO BE REMOVED AND SALVAGED FOR REINSTALLATION. PROVIDE SIPS OVER EXISTING RAFTERS.

DEMOLITION CODED NOTES

NOTE: NOT ALL CODED NOTES OCCUR EVERY SHEET

- D1 REMOVE WALL IN ITS ENTIRETY. REMOVAL OF WALL SHALL BE DONE IN SUCH MANNER AS TO NOT DAMAGE EXISTING, ADJOINING WALLS.
- D2 REMOVE PORTION OF WALL TO ACCOMODATE NEW DOOR OR CASED OPENING. REFER TO PLANS AND DOOR SCHEDULE FOR ADDITIONAL INFORMATION.
- D3 EXAMINE EXISTING CONDITION OF BEAMS, PATCH/WOOD WITH WOOD PUTTY, SAND, AND STAIN BEAMS.
- D4 REMOVE WINDOW IN ITS ENTIRETY.
- D5 REMOVE SIDING TO EXISTING POST. SALVAGE FOR REUSE. REMOVE SECONDARY HORIZONTAL FRAMING
- D6 REMOVE DOOR, FRAME AND ANCHORS IN THEIR ENTIRETY. THE REMOVAL OF DOOR, FRAME AND ANCHORS SHALL BE DONE IN SUCH MANNER AS TO NOT DAMAGE EXISTING, ADJOINING WALLS. PREP AND CLEAN EXISTING WALL OPENING FOR NEW DOOR OR WINDOW INSTALLATION OR FILL TO MATCH EXISTING.
- D7 REMOVE EXISTING DOWNSPOUTS
- D8 REMOVE EXISTING TRIM
- D9 REMOVE EXISTING YARD HYRDRANT AND ASSOCIATED PLUMBING.
- D10 REMOVE EXISTING STONE COLUMN BASE AND FOUNDATION. PREP ARE FOR NEW FOOTING AND STONE BASE. REFER TO STRUCTRUAL DRAWINGS
- D11 COLUMN TO BE CUT, REFER TO STRUCTURAL DRAWINGS

DEMOLITION LEGEND

- EXISTING TO REMAIN
- ELEMENTS TO BE REMOVED

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BATH TOWNSHIP 1826

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DEMOLITION DRAWINGS

A11.0

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FOUNDATION PLAN GENERAL NOTES

REFER TO STRUCTURAL DRAWINGS FOR FOOTING AND PIER SCHEDULES

SUBSTITUTION CHART:

LVL SIZE	WF STEEL SIZE
(2) 1'2" LVL	W10 x 15
(2) 1'4" LVL	W12 x 16
(2) 1'6" LVL	W14 x 22
(2) 1'8" LVL	W16 x 26
(3) 1'2" LVL	W10 x 17
(3) 1'4" LVL	W12 x 16
(3) 1'6" LVL	W14 x 22
(3) 1'8" LVL	W16 x 26
(2) 1'6" LVL W/ 1/2" PL	W18 x 26
(2) 1'6" LVL W/ (2) 1/2" PL	W16 x 40

GENERAL NOTES

BLOCK WEBS SOLID AT BEARING WALL LOCATIONS ABOVE

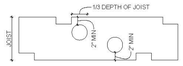
CONTRACTOR TO EXTEND ALL POSTS DOWN TO SOUND FOUNDATION, INSTALL FULL DEPTH SOLID BLOCKING AT ALL POINT LOAD LOCATIONS

ALL FOOTINGS TO EXTEND DOWN TO FROST LEVEL MIN.

INDICATES LOCATION OF POINT LOAD ABOVE

INDICATES LOCATION OF BEARING WALL ABOVE

COORDINATE EXACT LOCATIONS OF FLOOR DRAIN WITH MECH CONTRACTOR



SECTION 502.8
NOTCHES IN THE TOP OR BOTTOM OF JOISTS SHALL NOT EXCEED ONE-SIXTH THE DEPTH OF THE JOIST AND SHALL NOT BE LOCATED IN THE MIDDLE THIRD OF THE SPAN. WHERE JOISTS ARE NOTCHED ON THE ENDS FOR A LEDGER, THE NOTCH SHALL NOT EXCEED ONE-FOURTH THE JOIST'S DEPTH. CANTILEVERED JOISTS SHALL NOT BE NOTCHED UNLESS THE REDUCED SECTION PROPERTIES AND LUMBER DEFECTS ARE CONSIDERED IN THE DESIGN.
HOLES DRILLED OR BORED IN JOISTS SHALL NOT BE WITHIN 2 INCHES OF THE TOP OR BOTTOM OR THE JOISTS AND THEIR DIAMETER SHALL NOT EXCEED ONE-THIRD THE DEPTH OF THE JOIST.

SECTION 602.6
ANY STUD IN AN EXTERIOR BEARING PARTITION MAY BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25% OF ITS WIDTH. STUDS IN NON-BEARING PARTITIONS MAY BE NOTCHED TO A DEPTH NOT TO EXCEED 40% OF A SINGLE STUD WIDTH. ANY STUD MAY BE BORED OR DRILLED, PROVIDED THAT THE DIAMETER OF THE RESULTING HOLES IS NO GREATER THAN 40% OF THE STUD WIDTH, THE EDGE OF THE HOLE IS NO CLOSER THAN 5/8 INCH TO THE EDGE OF THE STUD, AND THE HOLE IS NOT LOCATED IN THE SAME SECTION AS A CUT OR NOTCH.

FLOOR PLAN GENERAL NOTES

1. ALL INTERIOR WALLS SHALL BE 6" WOOD STUD WITH (1) LAYER 5/8" GYPSUM BOARD ON BOTH SIDES UNLESS NOTED OTHERWISE.
2. ARCHITECTURAL GROUND FLOOR FINISH ELEVATION = 0'-0".
3. VERIFY DIMENSIONS AND CONDITIONS IN FIELD. WHEN DIMENSIONS AND/OR CONDITIONS AS INDICATED ON DRAWINGS CONFLICT WITH ACTUAL, CONTACT ARCHITECT FOR CLARIFICATION.
4. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING, DEMOLITION, AND NEW CONSTRUCTION.
5. PROVIDE DOUBLE TOP TRACK DEFLECTION JOINT AT ALL WALLS WHICH EXTEND TO UNDERSIDE OF ROOF DECK ABOVE.
6. COORDINATE LOCATION OF EQUIPMENT AND PENETRATIONS WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS.
7. SEE EXTERIOR ELEVATIONS FOR IDENTIFICATION OF WINDOW TYPES AND SIZES.
8. HINGE SIDE OF DOOR JAMB LOCATED IN METAL STUD WALLS TO BE 4" FROM ADJACENT PERPENDICULAR WALLS, UNO.
9. ALL DOORS ARE DIMENSIONED TO THE CENTER LINE OF THE ROUGH OPENING.
10. VERIFY LOCATIONS OF FIRE EXTINGUISHERS WITH LOCAL FIRE DEPARTMENT OFFICIAL AND ARCHITECT PRIOR TO PLACEMENT. ALL EXTINGUISHERS TO BE RECESSED CABINET MOUNTED TYPE, UNO.
11. PROVIDE LEVEL SURFACES AND PREP FLOOR TO RECEIVE SCHEDULED FINISH

FLOOR PLAN CODED NOTES

NOTE: NOT ALL CODED NOTES OCCUR EVERY SHEET

1. PROVIDE NEW FROST SLAB IN FRONT OF EXTERIOR DOOR, REFER TO STRUCTURAL DRAWINGS
2. HOOK MOUNTED FIRE EXTINGUISHER

INTERIOR STUD WALL SYMBOL KEY

A1

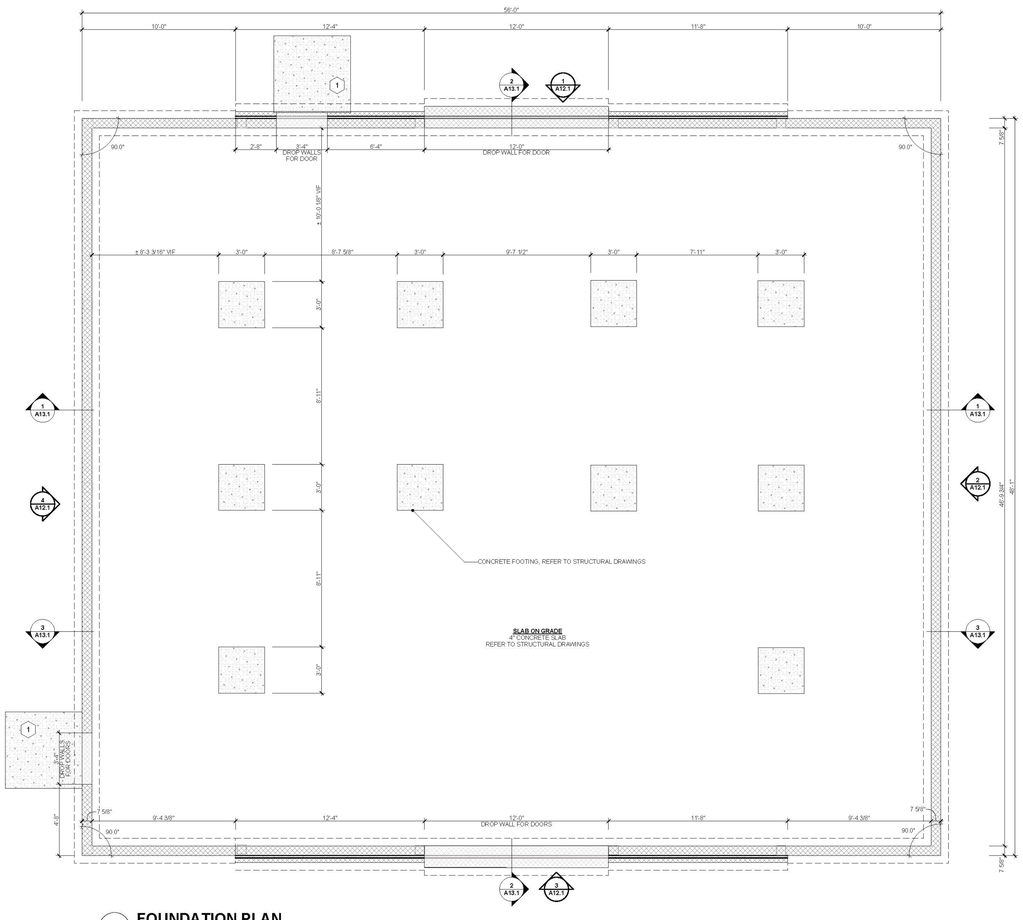
GYP. BOARD CONFIGURATION

1 - GYP. BOARD FULL HEIGHT, BOTH SIDES
2 - GYP. BOARD FULL HEIGHT, ONE SIDE
3 - 1/2" CEMENT BACKER BOARD

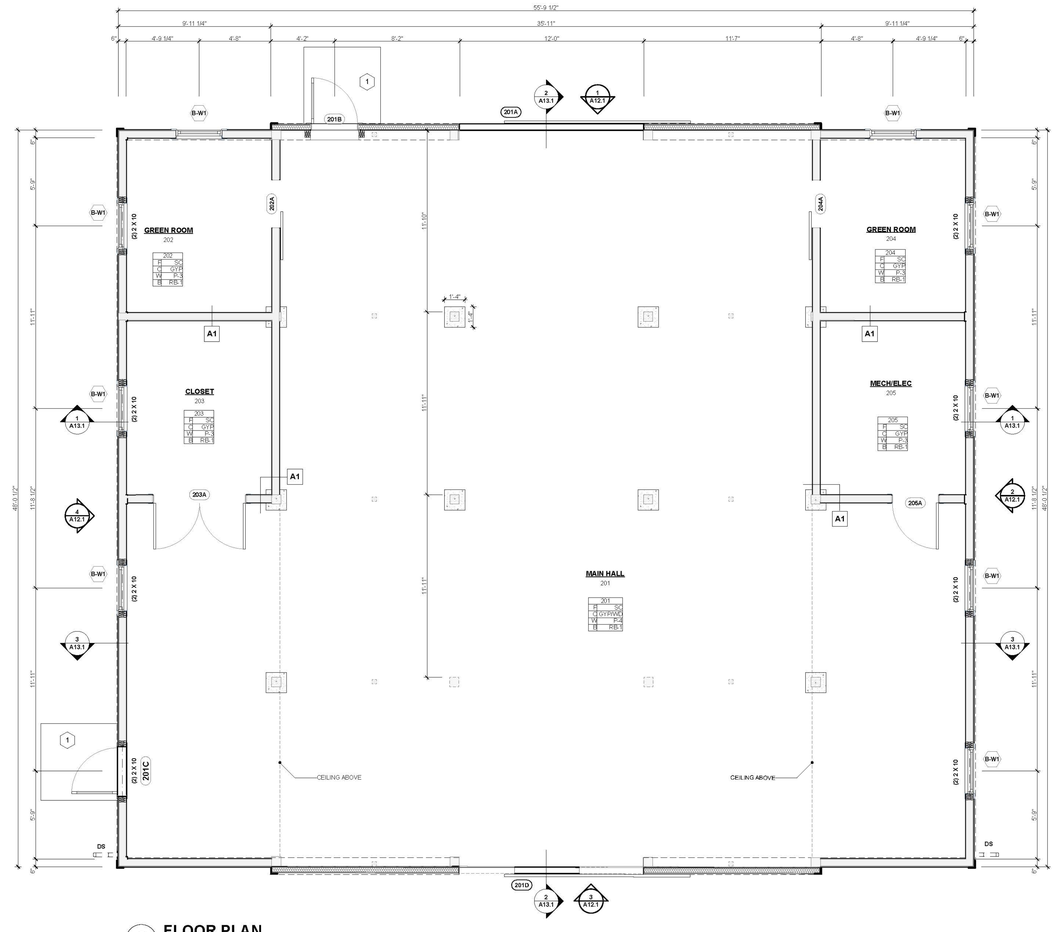
STUD WIDTH / TYPE DESIGNATION

A = 5 1/2" / WD	**E** = 9 1/4" / WD
B = 3 1/2" / WD	**F** = 11 1/4" / WD
C = 7 1/2" / WD	**G** = RESERVED
D = 7 1/4" / WD	**H** = RESERVED

TYPES:
WD DIMENSIONAL LUMBER
ST STRUCTURAL STUDS



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



2 FLOOR PLAN
SCALE: 1/4" = 1'-0"

FINISH PLAN LEGEND

ROOM NAME

	NUMBER	
FLOOR	F	WD-1
CEILING	C	WD-1
WALL	W	WD-1
BASE	B	WD-1

FINISH PLAN GENERAL NOTES

1. APPROPRIATE TRANSITIONS TO BE PROVIDED AT EVERY LOCATION WHERE FLOOR FINISHES OF A DIFFERENT MATERIAL MEET. REFER TO SPECIFICATIONS FOR PROFILES. WHEN MATERIALS TRANSITION BETWEEN ROOMS, SEAM TO OCCUR ON CENTERLINE OF DOOR.
2. REFER TO REFLECTED CEILING PLAN FOR CEILING ACCENTS THAT DIFFER FROM FIELD INDICATED.
3. ALL UNFINISHED INSTALLED ELEMENTS INCLUDING BUT NOT LIMITED TO GRILL COVERS, FIRE EXTINGUISHER CABINETS AND METAL SUPPORTS TO BE PAINTED TO MATCH THE SURFACE ON WHICH THEY ARE MOUNTED UNLESS PROHIBITED BY MANUFACTURER. REFER TO MANUFACTURER'S SPECIFICATIONS.
4. PAINT SHEEN TO BE AS FOLLOWS FOR EACH SURFACE U.N.O.: PAINT ON CEILINGS AND SOFFITS TO BE FLAT. WALLS TO RECEIVE EGGSHELL SATIN. DOOR FRAMES TO RECEIVE SEMI-GLOSS. FOR OTHER SURFACES REFER TO FINISH SCHEDULE AND SPECIFICATIONS.
5. WALL AND CEILING FINISH IN ROOMS SHALL BE NOT LESS THAN CLASS C FLAME SPREAD (76-200) AND SMOKE DEVELOPMENT (0-450)
6. ALL INTERIOR WOOD TRIM TO BE POPLAR OR APPROVED EQUAL. SEE FINISH SCHEDULE FOR LOCATIONS.

   WINDOW: 4" FLAT STOCK, PAINTED
7. CEILINGS AND SOFFITS TO BE SMOOTH FINISH AND PAINTED

FINISH SCHEDULE

FLOORING:

SEALED CONCRETE (SC) - COLOR TO BE SELECTED BY ARCHITECT

WALL:

PAINT (P-3)
MANUFACTURER: SHERWIN WILLIAMS
COLOR: TBD
SHEEN: TBD

PAINT (P-4)
MANUFACTURER: SHERWIN WILLIAMS
COLOR: TBD
SHEEN: TBD

DOOR AND HARDWARE GENERAL NOTES

1. FINAL HARDWARE SCHEDULE TO BE PROVIDED BY CONTRACTOR'S DOOR HARDWARE SUPPLIER AND APPROVED BY OWNER AND ARCHITECT.
2. FINAL LOCKSET FUNCTION AND KEYING SHALL BE COORDINATED WITH THE OWNER BY THE DOOR HARDWARE SUPPLIER. PROVIDE SUB AND GRAND MASTER LEVEL KEYING AND 4 KEYS FOR EACH LOCKSET.
3. ALL PASSAGE SETS, PRIVACY SETS AND LOCKSETS SHALL SHALL BE ANSI/ BHMA GRADE 1 COMMERCIAL WITH ADA COMPLIANT LEVER HARDWARE. ALL LOCKSETS SHALL BE THE PRODUCTS OF A SINGLE MANUFACTURER. ALL DOOR LOCKS SHALL ALLOW EGRESS WITHOUT THE USE OF A KEY AND BY MEANS OF A SINGLE OPERATION.
4. FURNISH NON-RISING TYPE PINS ON OUT SWINGING DOORS SCHEDULED TO RECEIVE LOCKSETS.
5. FINISH DOORS AND FRAMES WITH PAINT OR STAIN AS INDICATED (COLOR AS SELECTED BY OWNER) ALL SIDES.
6. PROVIDE WALL OR FLOOR MOUNTED STOP AS APPROPRIATE FOR EACH DOOR.
7. DOOR CLOSER CONFIGURATION SHALL BE IDENTIFIED AND COORDINATED BY THE DOOR HARDWARE SUPPLIER. ADJUST ALL CLOSER TO ADA 5 LBS. MAX. PULL FORCE
8. PROVIDE SAFETY GLAZING IN THE FOLLOWING LOCATIONS PER OBC 2406.3.
   1) FIXED AND OPERABLE PANELS OF SWINGING DOORS
   2) PANELS ADJACENT TO DOORS WHERE NEAREST EXPOSED EDGE OF GLAZING IS WITHIN 24" ARC OF EITHER VERTICAL EDGE OF DOOR IN A CLOSED POSITION
   3) PANELS LARGER THAN 9 SF
   4) BOTTOM EDGE OF GLAZING IS LESS THAN 18" ABOVE THE FLOOR
   5) PANELS WITHIN 36" HORIZONTALLY OF A WALKING SURFACE
   6) PANELS WITHIN 36" HORIZONTALLY AND LESS THAN 60" ABOVE WALKING SURFACE OF STAIR
   7) PANELS WITHIN 60" HORIZONTALLY AND LESS THAN 60" ABOVE THE NOSE OF THE BOTTOM STAIR TREAD
9. HARDWARE AND ACCESSORIES TO BE BLACK FINISH OR EQUIVALENT.
10. ALL INTERIOR DOORS TO BE 1 3/4" SOLID CORE WOOD DOORS.

DOOR HARDWARE SETS

ENTRY
- LOCK LEVER HANDSET
- PANIC DEVICE (CONCEALED ROD FOR PAIRS)
- CLOSER
- BALL BEARING HINGES
- WALL STOP
- WEATHERSTRIPPING
- REPLACEABLE SWEEP
- ADA ALUMINUM THRESHOLD

STOREROOM
- LOCK LEVER HANDSET
- CYLINDER LOCK - STOREROOM
- BALL BEARING HINGES
- WALL STOP

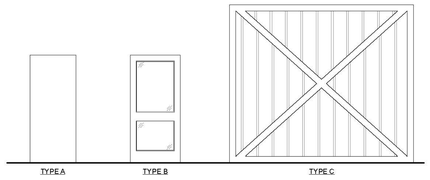
INTERIOR BARN DOOR
- MODERN RECTANGULAR BARN DOOR PRIVACY LOCK; BASIS OF DESIGN: EMTEK 222201US19, COLOR: FLAT BLACK

EXTERIOR BARN DOOR
- HASP AND PADLOCK; BASIS OF DESIGN: JQK DOOR HASP LOCK, 5 INCH 304 STAINLESS STEEL SAFETY PACHLOCK CLASP THICKNESS 1.9M, MATTE BLACK, DL150-PB
- GALVANIZED WALL MOUNT SLIDING DOOR BOX RAIL TRACK WITH CLIP ON ALUMINUM FASCIA
- STEEL BARN DOOR STAY ROLLER
- ALUMINUM DOOR SWEEP BRUSH

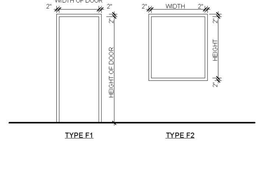
DOOR SCHEDULE

ID	ROOM NAME	DOOR LEAF					OPERATION	REMARKS
		NOMINAL WIDTH	NOMINAL HEIGHT	MATERIAL	PANEL TYPE	FINISH		
201A	MAIN HALL	4	3	SC WOOD	C	PNT	EXTERIOR BARN	VERIFY OPENING SIZE IN FIELD
201B	MAIN HALL	1	2	ALUM / GLASS	B	PF	ENTRY	
201C	MAIN HALL	1	2	ALUM / GLASS	B	PF	ENTRY	
201D	MAIN HALL	4	3	SC WOOD	C	PNT	EXTERIOR BARN	VERIFY OPENING SIZE IN FIELD
202A	GREEN ROOM	1	2	SC WOOD	A	PF	INTERIOR BARN	
203A	CLOSET	2	2	SC WOOD	A	PNT	STOREROOM	
204A	GREEN ROOM	1	2	SC WOOD	A	PNT	INTERIOR BARN	
205A	MECH/ELEC	1	2	SC WOOD	A	PNT	STOREROOM	

DOOR PANEL TYPE



DOOR FRAME TYPE



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NORTH FORK PRESERVE BARN RENOVATION

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PLANS

A11.1

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ELECTRICAL INFORMATION LEGEND

- SINGLE POLE LIGHT SWITCH
- 3 4 — MULTIPLE POLE LIGHT SWITCH
- R — RECESSED CAN LIGHT/ SQUARE FIXTURE
- S — SURFACE MOUNT FIXTURE
- WS — WALL SCONCE
- EXT — EXTERIOR WALL MOUNTED FIXTURE
- SD — SMOKE DETECTOR
- E — DUPLEX RECEPTACLE
- WP — WEATHERPROOF DUPLEX RECEPTACLE
- EXHAUST FAN
- SMALL CHANDLIER
- LARGE CHANDLIER
- LARGE CEILING FAN
- CAMERA

CEILING TYPE LEGEND

EXISTING CEILING TO REMAIN

PAINTED GYPSUM BOARD CEILING

CEILING PLAN NOTES

OUTLET SPACING & LOCATIONS
APPLIANCE RECEPTACLE OUTLETS FOR SPECIFIC APPLIANCES SHALL BE INSTALLED WITHIN 6 FT OF THE INTENDED LOCATION OF THE APPLIANCE.
RECEPTACLE OUTLETS SHALL BE INSTALLED SO THAT NO POINT ALONG THE WALL LINE IS MORE THAN 24 INCHES MEASURED HORIZONTALLY FROM A RECEPTACLE OUTLET IN THAT SPACE.

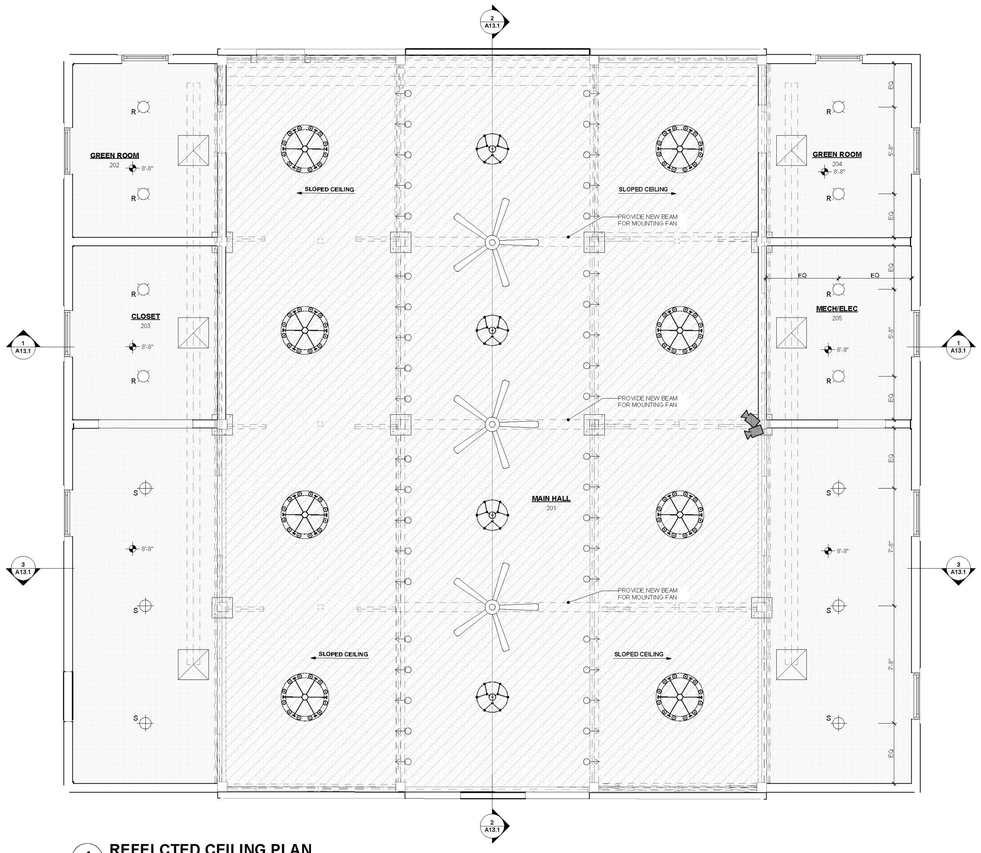
PER NEC 210.8, THE FOLLOWING LOCATIONS SHALL HAVE GROUND-FAULT CIRCUIT INTERRUPTER PROTECTION: 1) BATHROOMS, 2) GARAGES & ACCESSORY BUILDINGS THAT THAVE A FLOOR LOCATED AT OR BELOW GRADE LEVEL NOT INTENDED AS HABITABLE ROOMS AND LIMITED TO STORAGE AREAS, WORK AREAS, AND AREAS OF SIMILAR USE, 3) OUTDOORS 4) CRAWL SPACES 5) BASEMENTS 6) KITCHENS, 7) SINKS 8) BOATHOUSES, 9) BATHTUBS OR SHOWER STALLS, 10) LAUNDRY AREAS. FOR ADDITIONAL ELECTRICAL INFORMATION CONSULT NEC.

VERIFY LOCATION, NUMBER, AND SWITCHING OF FIXTURES WITH OWNER

LIGHTING LAYOUT FOR REFERENCE ONLY, LIGHTING LAYOUT TO BE FINALIZED PRIOR TO INSTALLATION

CEILING PLAN NOTES

1. CEILING MOUNTED FIXTURES INCLUDING, BUT NOT LIMITED TO, LIGHTS, DIFFUSERS, EXIT SIGNS FIRE ALARM STROBES, SMOKE DETECTORS TO BE CENTERED IN AREA IN WHICH THEY OCCUR UNLESS NOTED OTHERWISE.
2. EXIT SIGNS INDICATED ABOVE EGRESS DOORS TO BE LOCATED ON CENTERLINE OF DOOR SWING.
3. ARCHITECTURAL REFLECTED CEILING PLAN DISPLAYS GENERAL LOCATION AND LAYOUT SCHEME OF CEILING AND CEILING MOUNTED FIXTURES. CONSULTANT DRAWINGS SHOULD BE UTILIZED FOR FIXTURE TYPE AND QUANTITIES. WHERE MINOR DISCREPANCIES EXIST BETWEEN ARCHITECTURAL AND CONSULTANT DOCUMENTS RELATING TO LOCATION OF CEILING MOUNTED ITEMS, ARCHITECTURAL REFLECTED CEILING PLAN SHOULD GOVERN. FOR MAJOR DISCREPANCIES (GREATER THAN 2), NOTIFY ARCHITECT PRIOR TO PROCEEDING WITH WORK. FINAL LOCATION TO BE VERIFIED PRIOR TO INSTALLATION.
4. ALL GYPSUM BOARD CEILINGS AND SOFFITS SHALL BE PAINTED UNLESS NOTED OTHERWISE. REFERENCE FINISH DRAWING AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. EXISTING LIGHT FIXTURES TO BE REMOVED. PATCH AND REPAIR AREAS AFFECTED BY CONSTRUCTION.
6. PATCH AND REPAIR EXISTING BEAM IN LOCATION WHERE EXISTING LIGHT FIXTURE WAS REMOVED.
7. PATCH AND REPAIR EXISTING BEAM IN LOCATIONS WHERE EXISTING CROSS JOIST WAS REMOVED.
8. PAINT EXISTING BEAMS, COLOR TO BE SELECTED BY ARCHITECT.



1 REFELCTED CEILING PLAN

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

0 2 4 8'

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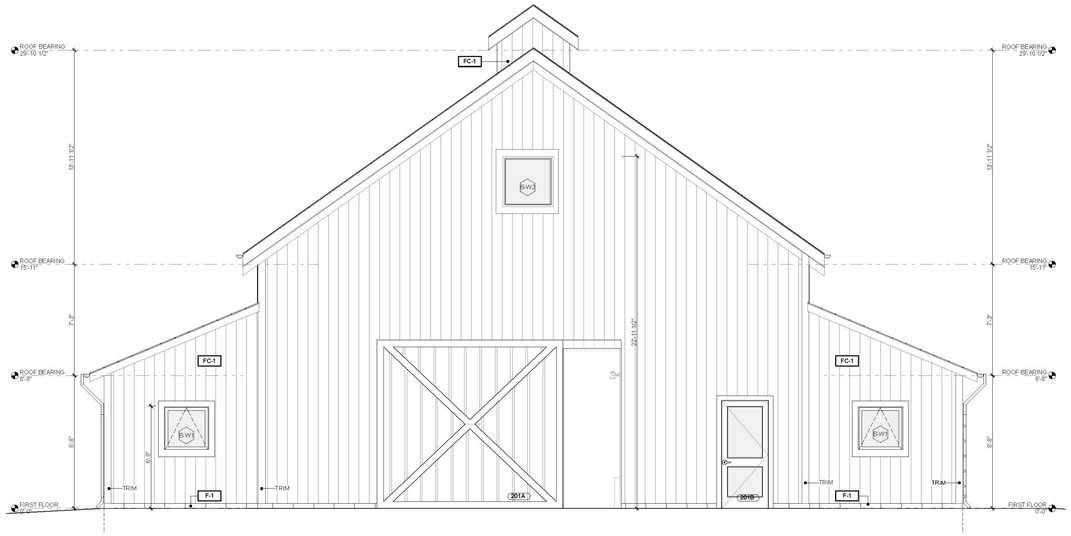
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REFLECTED CEILING PLAN

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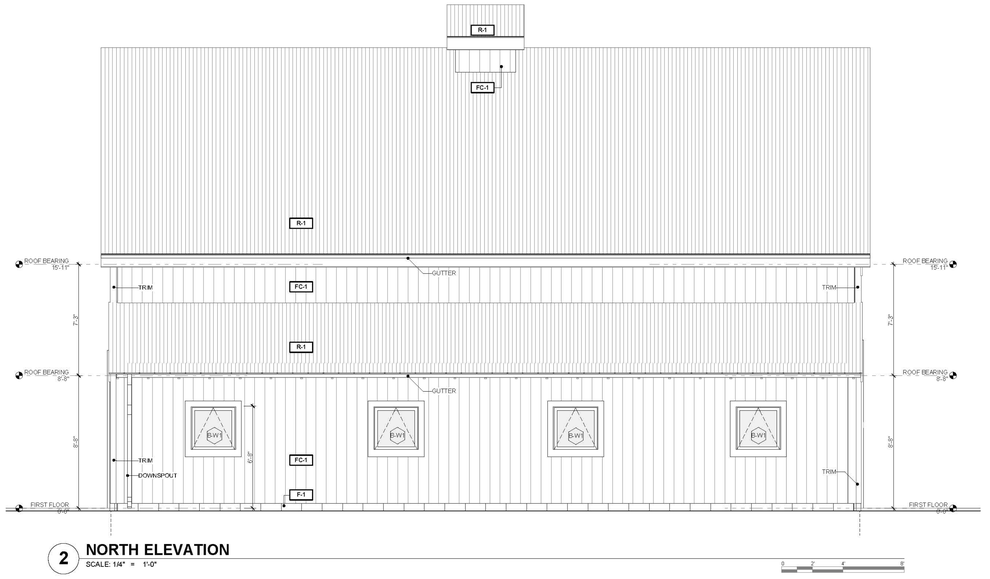
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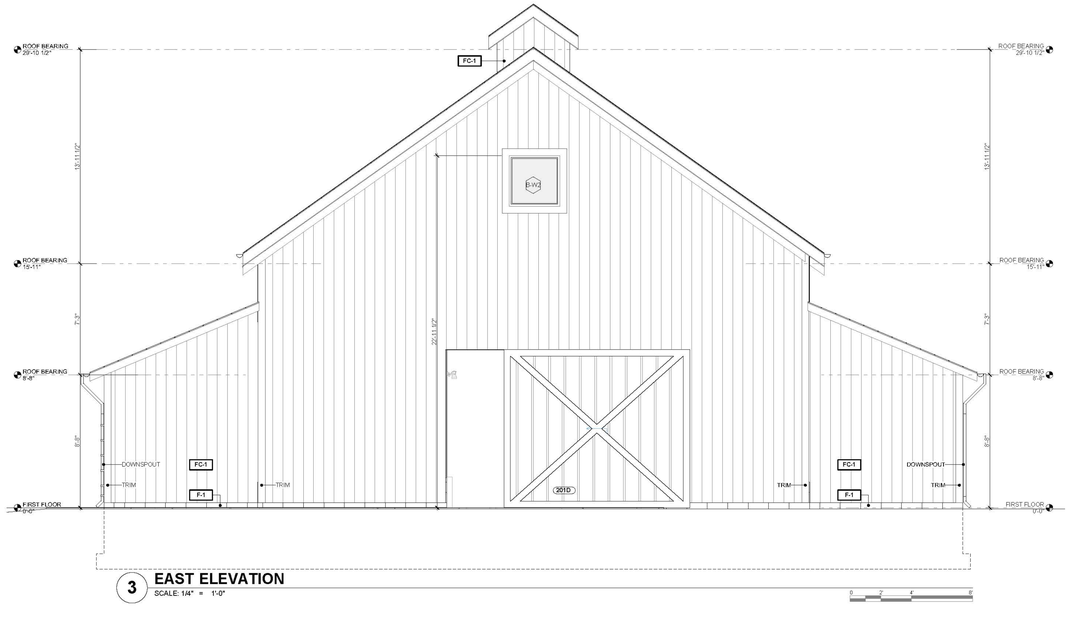
1 WEST ELEVATION

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



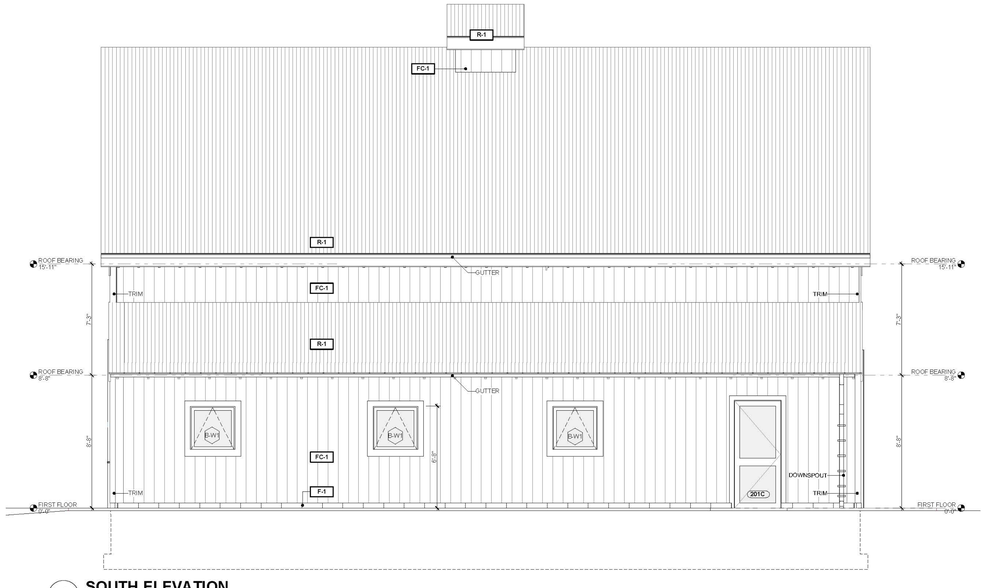
2 NORTH ELEVATION

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



3 EAST ELEVATION

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



4 SOUTH ELEVATION

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

MATERIAL SCHEDULE

ALL MATERIAL ASSEMBLIES LISTED BELOW TO OCCUR OVER THE FOLLOWING UNLESS NOTED OTHERWISE:

WEATHER BARRIER
7/16" EXTERIOR GRADE OSB SHEATHING
2X6 STUDS W/ R-19 KRAFT FACED BATT INSULATION

F-1
SMOOTH FACED CMU FOUNDATION WALLS

FC-1 - FIBER CEMENT SIDING
FIBER CEMENT LAP SIDING TO BE JAMES HARDIE SHEET (BOARD AND BATTEN) SIDING OR APPROVED EQUAL. REFER TO EXTERIOR ELEVATIONS AND WALL SECTIONS FOR EXPOSURE WIDTHS. SIDING IS TO BE PAINTED, COORDINATE FINAL COLOR WITH ARCHITECT AND OWNER.

R-1 - STANDING SEAM METAL ROOF
METAL STANDING SEAM ROOF
MANUFACTURER'S RECOMMENDED UNDERLAYMENT
7/16" APA RATED EXTERIOR GRADE SHEATHING
ICE GUARD SHOULD BE INSTALLED AT ALL EAVES AND VALLEYS, UP 72", AND WRAPPED OVER THE FACE OF ALL FASCIAS

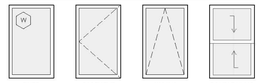
EXTERIOR ELEVATION GENERAL NOTES

ALL FIBER CEMENT EXTERIOR TRIM TO BE AZEK OR BORAL, PAINTED, OR APPROVED EQUAL.

ALL ROOF PENETRATIONS TO BE COORDINATED WITH ARCHITECT PRIOR TO INSTALLATION.

GUTTER PROFILES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING

WINDOW LEGEND



WINDOW HEAD GIVEN ABOVE FIRST AND SECOND FLOOR, CONFIRM WINDOW QUANTITIES WITH ELEVATIONS.

**** WINDOW COUNT PROVIDED FOR GENERAL REFERENCE AND VERIFICATION ONLY. CONTRACTOR TO VERIFY TOTAL NUMBER OF WINDOWS WITH DOCUMENTS.**

WINDOW SCHEDULE

ID	W x H	REMARKS
B-W1	1x1	
B-W2	1x1	

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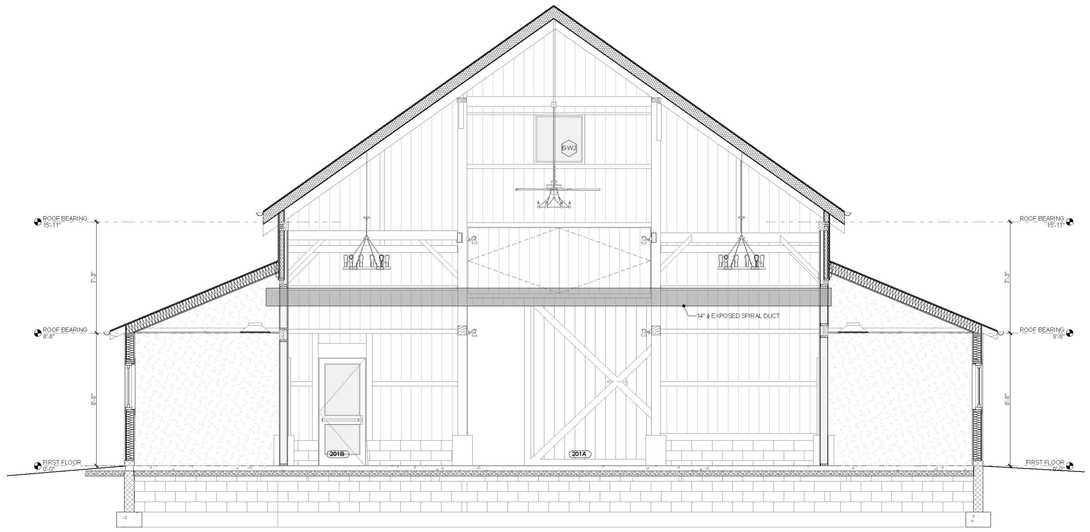
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EXTERIOR ELEVATIONS

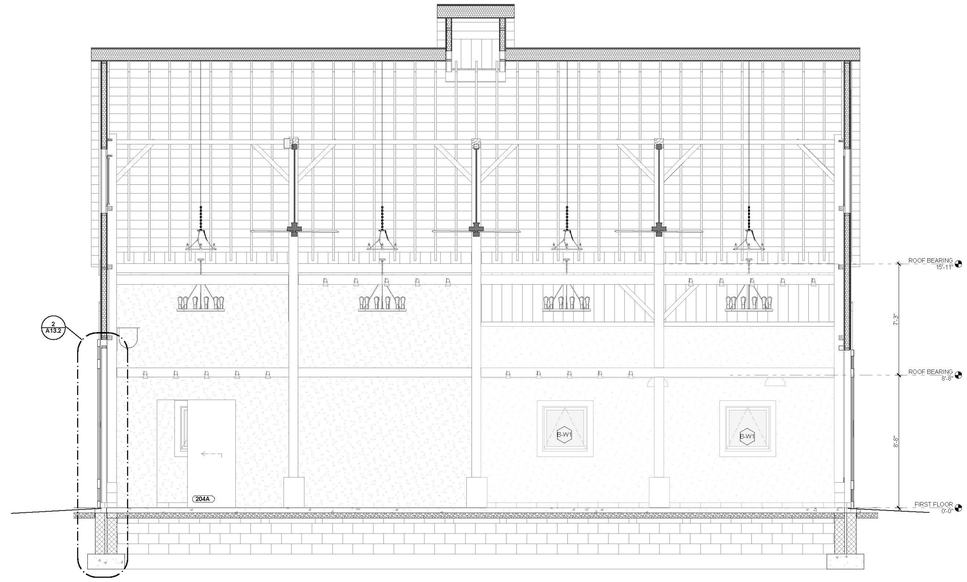
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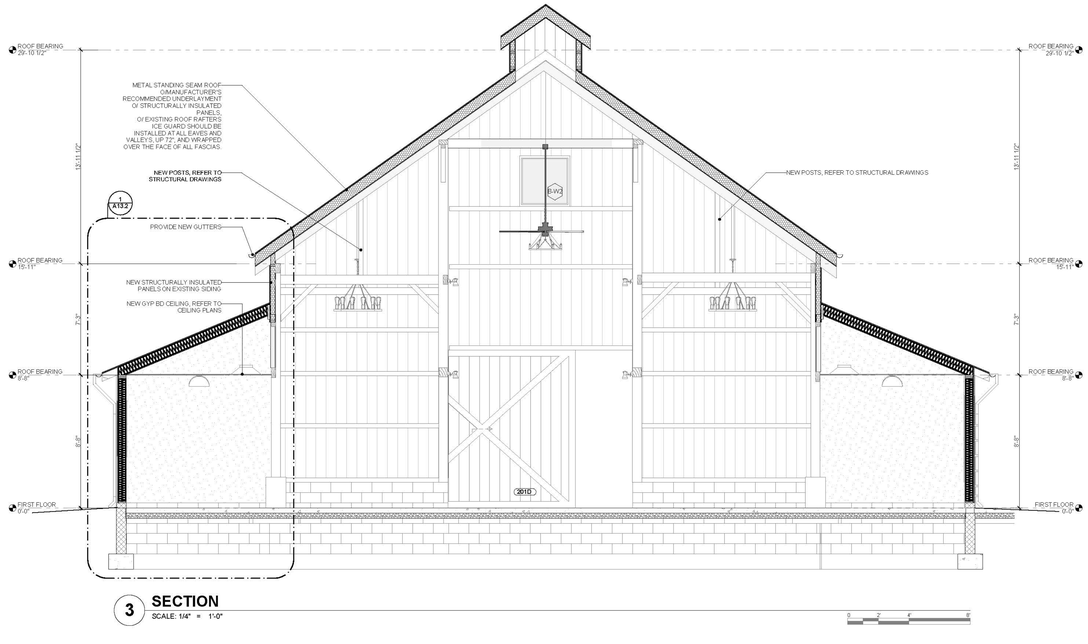
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1 **SECTION**
SCALE: 1/4" = 1'-0"



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



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

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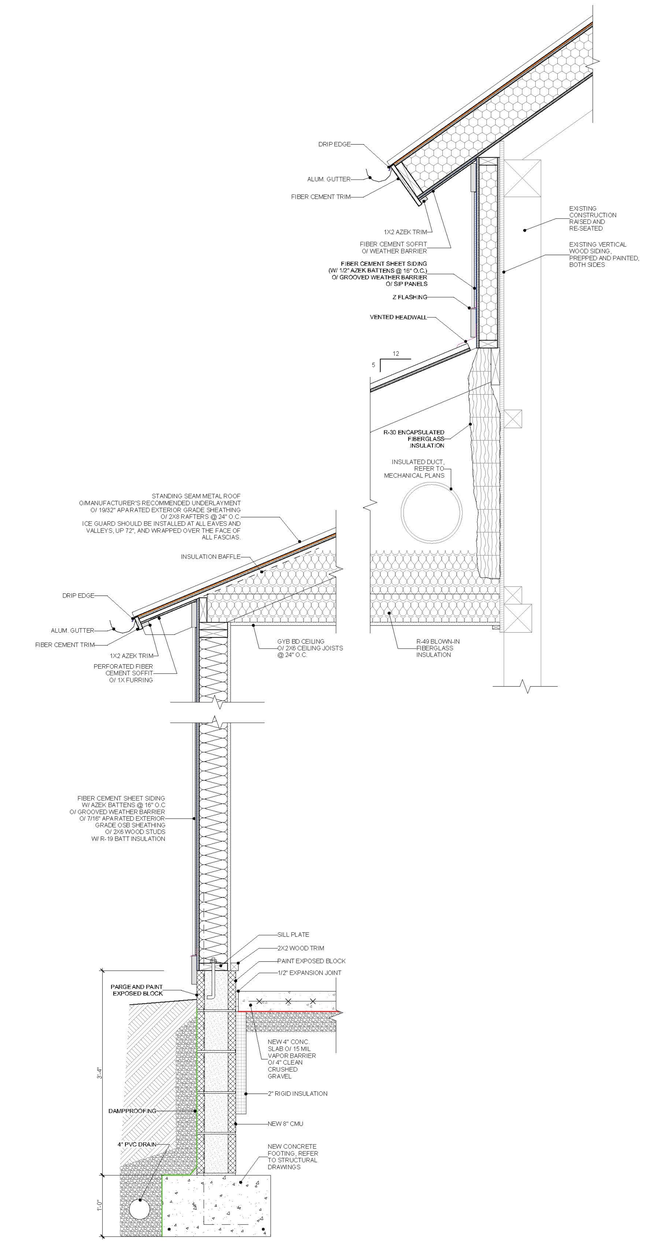
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DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

BUILDING SECTIONS

A13.1

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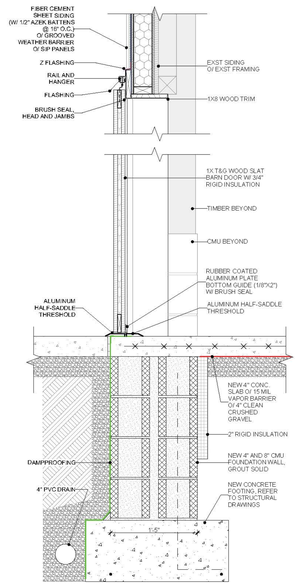
Plotted: Monday, March 10, 2025



TYPICAL FOUNDATION WALLS @ ADDITIONS

1 WALL SECTION

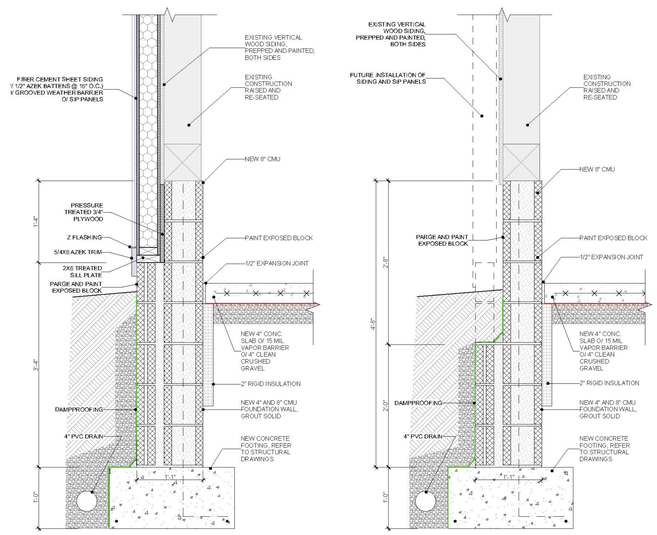
SCALE: 1" = 1'-0"



NEW FOUNDATION WALLS AT BARN DOOR OPENINGS

2 WALL SECTION

SCALE: 1" = 1'-0"



NEW FOUNDATION WALLS AT EXISTING GABLE ENDS

DEDUCT ALT: NEW FOUNDATION WALLS AT EXISTING GABLE ENDS

3 WALL SECTIONS

SCALE: 1" = 1'-0"

Peninsula

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T 330.657.2800

PROGRESS NOT FOR CONSTRUCTION
3/10/2025

PROJECT TEAM

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STRUCTURAL ENGINEER:
TTR Engineers
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MEP ENGINEER:
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216.531.8880

BATH TOWNSHIP

NORTH FORK PRESERVE BARN RENOVATION

4400 EVERETT ROAD, AKRON, OH 44333

PROJECT # 2324

ISSUE:

SD REVIEW	11-08-2024
DD REVIEW	12-20-2024
DD REVIEW	02-04-2025
FINAL REVIEW	03-07-2025

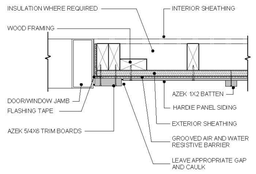
WALL SECTIONS

A13.2

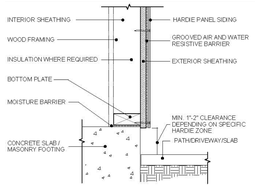
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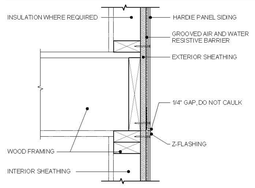
DOOR/WINDOW JAMB



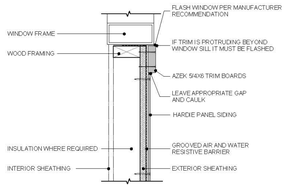
HARDSCAPE CLEARANCES, DECKS, PORCHES, PATIOS, WALKWAYS, ROOFS, ETC.



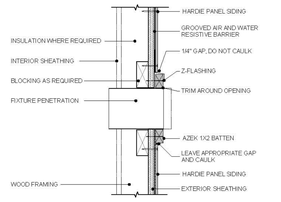
HORIZONTAL JOINT



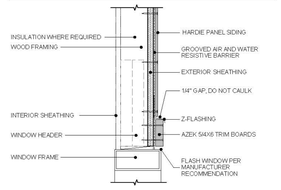
WINDOW SILL



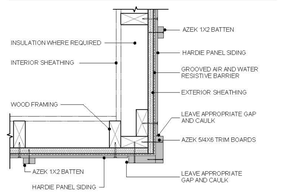
FIXTURE PENETRATION



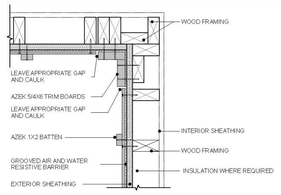
WINDOW/DOOR HEAD



OUTSIDE CORNER



INSIDE CORNER



1 TYPICAL SIDING DETAILS

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

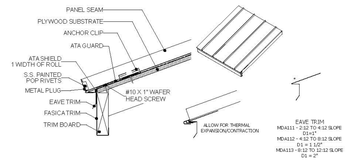
0 6" 12" 18"

BASIS OF DESIGN:

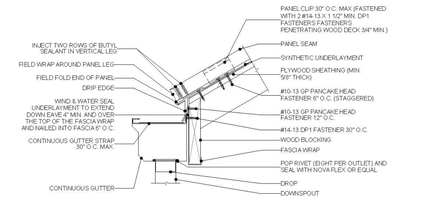
ATAS INTERNATIONAL "DUTCH SEAM" - ALUMINUM

A. THICKNESS: 0.040 ALUMINUM
B. WIDTH: 15"
C. SEAM HEIGHT: 1 1/2"
D. TEXTURE: SMOOTH (NO STIFFENING RIBS)
E. MINIMUM SLOPE: 2:12

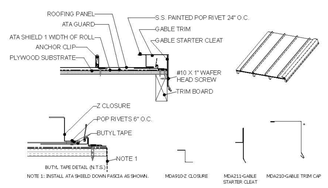
EAVE



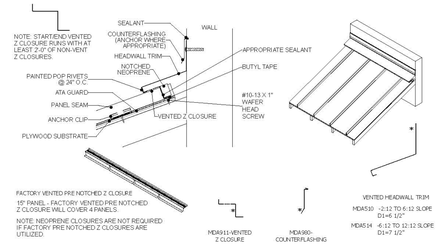
EAVE W/ GUTTER



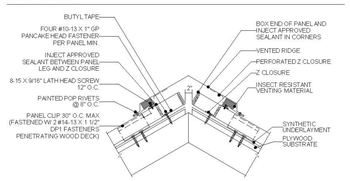
GABLE



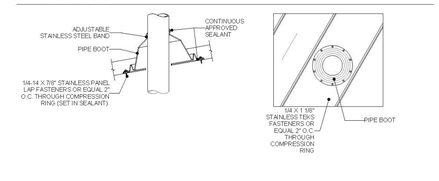
VENTED HEADWALL



VENTED RIDGE



PIPE PENETRATION



2 TYPICAL METAL ROOF DETAILS

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

0 6" 12" 18"

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DETAILS

A13.3

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Plotted: 03/10/2025 10:15:15 AM

GENERAL CONDITIONS

1.01 GENERAL PROVISIONS

A. Provisions of instructions to bidders, general conditions, supplementary conditions, alternates, addendae, and specifications for associated trades are a part of this specification. contractors and subcontractors shall examine all items that will affect work under this division.
B. Contractors shall provide all labor, equipment, supplies services, and shall perform all work complete and in strict accordance with specifications and applicable drawings. Any deviations shall be clearly defined and itemized in accordance with these specifications.
C. Contractors are instructed to read carefully specifications for all parts of the work, which may include architectural, electrical, mechanical, plumbing, fire protection, civil, structural and all other drawings as well as specifications for all divisions that are a part of the contract documents.
D. All items of labor, material, and equipment not specifically mentioned herein or shown on the plan, but are incidental to, or required for the complete installation and proper operation of the work, shall be furnished as if called for in detail by the specifications or drawings.

1.02 PERMITS, CODES, INSPECTIONS, AND TESTS

A. Contractor shall secure and pay for all permits and inspections required for the prosecution of the work. All permits and certificates of inspection and approval signed by the controlling building department shall become property of the owner.
B. Drawings indicate minimum design requirements. national, state, and local codes shall be followed. The Contractor shall include the cost of satisfying such codes and standards in the bid.

1.03 SITE VISIT

A. Contractor shall visit the site of the work and become familiar with all conditions affecting the work. Submission of a proposal/bid shall presuppose knowledge of all such conditions and no additional compensation shall be allowed where extra labor or materials are required because of ignorance of these conditions.

2.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Provide and pay for all materials, labor, services, equipment, licenses, taxes, and other items necessary for the execution, installation and completion of the work indicated in the contract documents.
B. The work involves construction of a maintenance building using post frame / pole building construction with metal siding and roofing.

2.02 CONTRACT METHOD

A. Construction of the work under single prime contracts for general trades, with plumbing, heating and ventilating, and electrical as subcontractors to the prime.

2.03 CONTRACTOR'S DUTIES

A. Except as specifically noted, provide and pay for:
   1. Labor, materials, and equipment.
   2. Tools, construction equipment and machinery.
   3. Water, heat, and utilities including electrical power required for construction.
   4. Other facilities and services necessary for proper execution and completion of work.
B. The Contractor shall obtain and pay for all permits required by law for the execution of this work unless noted otherwise.
C. The Contractor shall also obtain and pay for certificates, inspections and other legal fees required, both permanent and temporary, including electrical and highway permits.
D. The Contractor shall also obtain and pay for material testing as indicated in the contract documents. this may include, but is not limited to concrete and soils testing, and structural steel framing inspection and testing.
E. The Contractor shall provide engineered drawings for the post frame / pole building structure, including but not limited to:
   1. post sizes, types, and layout
   2. roof trusses, purlins
   3. post footings / foundations
   4. cross bracing, shear connections

2.04 COORDINATION

A. The General Trades Contractor shall act as project expediter for all subcontracts and shall prepare and monitor the project schedule.
B. Coordinate work for the various sections of specifications to ensure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.
C. Verify that the characteristics of elements of interrelated operating equipment are compatible; coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
D. Coordinate space requirements and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing shown for pipes, ducts and conduits, as closely as practicable; make runs parallel with liner of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

2.05 REFERENCE STANDARDS

A. For products specified by association or trade standards, comply with requirements of the standards, except when more rigid requirements are specified or required by applicable codes.
B. The date of the standard is that which was in effect as of the bid date, unless a specific date is indicated.
C. Obtain copies of standards when required by contract documents. Maintain copy at job site during progress of the specific work.

2.06 CONSTRUCTION TIME

A. Start Date and Substantial Completion of the Work (to be certified by the Architect) shall be agreed to by the Owner and Contractor. Any materials/equipment obtained before the official start date must be stored off-site by the contractor.

2.07 CONTRACTOR'S USE OF PREMISES

A. Contractor shall assume full responsibility for protection and safekeeping of products under this contract stored on the site.
B. Contractor shall move any stored products, under contractor's control, which interfere with operations of the Owner.
C. Contractor shall, at his option, obtain and pay for the use of additional storage or work areas needed for operations.

2.08 SPECIAL REQUIREMENTS

A. Fire protection: Provide and maintain an adequate number of hand fire extinguishers at convenient and appropriate locations during construction. Avoid all accumulations of flammable debris by removing rubbish promptly. take all other precautions necessary to prevent fire. Supervise closely the storage of paint materials and other combustible products.
B. Accident prevention and safety: Comply with all applicable laws, ordinances, rules, regulations and orders of governing authorities having jurisdiction for the safety of persons and property to protect them from damage, injury or loss. Erect and maintain, as required by conditions and progress of the work, all necessary safeguards for safety and protection, including fences, railings, barricades, lighting, posting of danger signs and other warnings against hazards. Where prevention of construction accidents is not regulated by code or ordinance, comply with AGC's "Manual of Accident Prevention in Construction." Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the project. All scaffolds shall be built in accordance with all requirements of local state, and federal laws and regulations.

2.09 EXAMINATION

A. Existing conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the work.
   1.Before construction, verify the location and points of connection of utility services.
B. Existing utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the work.
   1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
   2. Furnish location data for work related to project that must be performed by public utilities serving project site.
C. Acceptance of conditions: Examine substrates, areas, and conditions, with installer or applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
   4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the work indicates acceptance of surfaces and conditions.

2.10 PREPARATION

A. Existing utility information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
B. Field measurements: Take field measurements as required to fit the work properly. Recheck measurements before installing each product. Where portions of the work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. coordinate fabrication schedule with construction progress to avoid delaying the work.
C. Space requirements: Verify space requirements and dimensions of items shown diagrammatically on drawings.
D. Review of contract documents and field conditions: Immediately on discovery of the need for clarification of the contract documents, submit a request for information to owner and architect. Include a detailed description of problem encountered, together with recommendations for changing the contract document.

2.11 PROJECT SUPERINTENDENT RESPONSIBILITIES

A. Coordinate the work of the contractor and the subcontractors for the work of all trades.
B. Coordinate the schedules of the contractor, the subcontractors and suppliers of materials and equipment.
C. Verify timely deliveries of products for installation by the trades.
D. Verify that labor and materials are adequate to maintain schedules.
E. Conduct conferences and maintain communications with subcontractors, suppliers, and other concerned parties as necessary to:
   1. Maintain coordination and schedules.
   2. Resolve matters in dispute.
F. Participate in project meetings.
G. Report progress of work.
H. Recommend needed changes in schedules.
I. Assist in compiling and assembling project record information.
J. Observe required testing. Maintain a record of tests including:
   1. Testing agency and name of inspector.
   2. Subcontractor.
   3. Date and time of testing.
   4. Type of test, and results.
   5. Retesting required.
K. Verify that subcontractors maintain accurate record documents.
L. Attend all punch list inspections.

3.01 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

A. Prior to submittal, review for compliance with Contract Documents. Contractor shall stamp submittals approving them for materials, fit and coordination, prior to submission to Owner.
B. Check field dimensions and clearance dimensions.
C. Check relation to available space.
D. Check anchor bolt settings.
E. Review the effect of any changes on the work of other contracts or trades.
F. Check compatibility with equipment and work of other trades.
G. Identify details by reference to sheet and detail numbers shown on Contract Drawings.
H. Submit the number required for use by the contractor plus three (3) copies for the Architect/Owner/Engineer. The Contractor has the option to provide submittals electronically. In this case, reviewed submittals will be returned in the same manner.
I. Provide physical samples of material or sizes to illustrate functional characteristics of material and full range of color, texture, and/or pattern.
J. Certified Test Reports: Before delivery of materials and equipment, certified copies of the reports of all tests listed in the technical sections shall be submitted and approved. The testing shall have been performed in a laboratory meeting the requirements specified herein. Unless otherwise specified the tests shall have been performed within three years of submittal of the reports for approval. Test reports shall be accompanied by the certificate from the manufacturer certifying that the material and equipment proposed to be supplied is of the same type, quality, manufacturer, and make as that tested.
K. Manufacturer's Certificates of Conformance or Compliance: Manufacturer's certification furnished by the Contractor on items of materials and equipment incorporated into the work will be accepted only when this method will assure full compliance with the provisions of the Contract, as determined by the Architect. Pre-printed certifications will not be acceptable. All certifications shall be in the original. The original of all manufacturer's certifications shall name the appropriate item of equipment or material, specification, standard, or other document specified as controlling the quality of that item and shall have attached thereto certified copies of test data upon which the certifications are based. All certificates shall be signed by the manufacturer's official authorized to sign certificates of conformance or compliance.
L. Laboratory Reports: Reports shall cite the contract requirements, the test or analysis procedures used, the actual test results, and include a statement that the item tested or analyzed conforms or fails to conform to the specification requirements. All test reports shall be signed by a representative of the testing laboratory authorized to sign certified test reports.
M. Schedule submissions at least 14 days before the date that reviewed submittals will be needed; give special consideration to time constraints required by "long lead" items or equipment.
N. Architect's duties:
   1. Review for design concept and for coordination with Contract Documents.
   2. Review of separate item does not constitute review of an assembly in which item functions.

3.02 QUALITY CONTROL

A. The Contractor shall maintain an adequate inspection system and perform such inspections and tests as will assure that the work performed under the Contract conforms to the Contract Documents and shall maintain and make available to the Architect adequate records of such inspections and tests.
B. Factory Tests: Tests made on various products and component parts prior to shipment to the job site, including but not limited to such items as transformer, boilers, air conditioning equipment, electrical equipment, and precast concrete.
C. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. 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.
   1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
   2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
   3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
   4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
   5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

3.03 SPECIAL TESTS AND INSPECTIONS

A.Contractor will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as indicated in individual Specification Sections, and as follows:
   1. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
   2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
   3. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
   4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
   5. Retesting and reinspecting corrected work.

4.01 PRODUCT REQUIREMENTS

A.Where a specific manufacturer's product is named, it is done to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other manufacturers.
B.Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

4.02 COMPARABLE PRODUCTS

A. Voluntarily submitted products differing from, but comparable to, those named in the contract documents shall being submitted during bidding in the space allocated on the Bid Form. Attach list of additional items if necessary. The Owner will request additional information for comparable products, if necessary, and accept or reject substitutions at their discretion.
B. Conditions: Architect will consider Contractor's request for comparable product 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:
   1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
   2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
   3. Evidence that proposed product provides specified warranty.
   4. The proposed product will result in either a no-cost or deduct change order.
   5. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
   6. Samples, if requested.

5.01 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
B. Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

5.02 INSTALLATION

A.General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
B.Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

5.03 PROGRESS CLEANING

A.General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
B. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
C. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
D. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
E. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
F. During handing and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
G. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
H. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

5.04 STARTING AND ADJUSTING

A.Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
D. Manufacturer's Field Service: If field service by factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with sections 3.02 and 3.03.

5.05 PROTECTION OF INSTALLED CONSTRUCTION

A.Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
B. Comply with manufacturer's written instructions for temperature and relative humidity.

5.06 CORRECTION OF THE WORK

A.Repair or remove and replace defective construction. Restore damaged substrates and finishes.
   1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
B.Restore permanent facilities used during construction to their specified condition.
C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

5.07 FINAL CLEANING

A. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
   1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
   3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
   4. Remove tools, construction equipment, machinery, and surplus material from Project site.
   5. Remove snow and ice to provide safe access to building.
   6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   7. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   8. Sweep concrete floors broom clean in unoccupied spaces.
   9. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
   10.Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
   11.Remove labels that are not permanent.
   12.Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration. (Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.)
   13.Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
   14.Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
   15.Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
   16.Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
   17.Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
   18.Leave Project clean and ready for occupancy.

6.01 CLOSEOUT SUBMITTALS

A.Format: Submit operations and maintenance manuals in the following format:
   1. PDF electronic file. Assemble each manual into a composite electronically-indexed file. Submit on digital media acceptable to Owner.
      a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically-linked table of contents at beginning of each manual.
      b. Enable inserted reviewer comments on draft submittals.
   2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect will return two copies.
B.Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect and Engineer will return copy with comments.
   1. Correct or modify each manual to comply with Architect's and Engineer's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Agent's comments and prior to commencing demonstration and training.
C. 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.
D. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
E.Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
F.Manufacturers' Data: Where manuals contain manufacturers' standard printed data, 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.
G. 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.
H. Record on a set of "As-Built" prints any deviations from Design Drawings. Deliver this set to the Owner before submitting request for final payment. The "As-Built" prints shall be an accurate depiction of the Project as completed.
I. Do not use original project record documents as part of operation and maintenance manuals.

SECTION 01 50 00 – TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.
1.2 SUMMARY
   1.1 Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
1.3 WASTE DISPOSAL FACILITIES (DUMPSTERS)
   A. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Waste Disposal Facilities shall be provided for the Work of all Contracts.
1.4 FIRE EXTINGUISHERS
   1.1 Provide portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
1.5 PROJECT SIGNS
   A. Identification Signs: Provide Project identification signs when indicated on Drawings.
   B. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
C. Provide temporary, directional signs for construction personnel and visitors.
D. Maintain and touchup signs so they are legible at all times.
E. Unauthorized signs are not permitted.
1.6 ELECTRIC POWER - USE OF EXISTING FACILITY POWER
   A. Use of Owner's existing electric power service will be permitted. Provide connections and extensions of services as required for construction operations. Clean and maintain electric power service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
      1. Usage Charges to be paid by the Owner.
      2. Provide temporary power stands or pedestals for use by all Contracts. Stands shall have multiple 110v-120v outlets and circuits. Each Contract requiring power greater than 110v-120v power shall provide this at their own expense.
      3. Coordinate with the Owner prior to the commencement of work, regarding which existing panels and circuits are to be used for temporary power and lighting.
1.7 TEMPORARY ELECTRIC POWER
   A. Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
      1. All fees, permits, connection charges, utility company equipment, usage charges, etc. are to be paid by the Contract responsible for providing the temporary electric power service.
1.8 TEMPORARY LIGHTING
   A. Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
      1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
      2. In existing facilities where the construction activities may occur over a series of phases, temporarily relocate directional exterior egress signage and lighting to direct building occupants and construction personnel away from hazards or dead-end pathways created by the construction activities. Coordinate the temporary relocation of egress signage with the authority having jurisdiction.
1.9 WATER SERVICE – USE OF EXISTING FACILITY WATER SERVICE
   A. Use of the Owner's existing domestic water service will be provided. Provide connections and extensions of services as required for construction operations. Clean and maintain water service in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
      1. Usage Charges to be paid by the Owner.
      2. Each contract is responsible for its own hoses, nozzles, etc.
1.10 TEMPORARY WATER SERVICE
   A. Install water service and distribution piping in sizes and pressures adequate for construction.
      1. All fees, permits, connection charges, utility company equipment, usage charges, etc. are to be paid by the Contract responsible for providing the temporary water service.
1.11 SANITARY FACILITIES – USE OF EXISTING FACILITY RESTROOMS
   A. Provide temporary restroom facilities on-site.
1.12 PROTECTION OF FINISHES
   A. Provide surface protection material to protect existing and new flooring, walls, ceiling, etc. surfaces.
      1. The Project Coordinator shall be responsible for the protection of all floor finishes installed as new construction, as it pertains to this project.
      2. Each Contract shall be responsible for the protection of all finishes, unless noted otherwise. Finishes may include but not be limited to: existing flooring and new/existing (walls, ceilings, countertops, furniture, equipment, etc.).
1.13 SECURITY ENCLOSURE AND LOCKUP
   A. Install temporary enclosure around partially completed areas of construction.
1.14 BARRICADES, WARNING SIGNS AND LIGHTS
   A. Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
1.15 PROTECTION OF EXISTING FACILITIES
   A. Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
   B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.0 SUMMARY
   A. Extent of concrete work is indicated on the drawings.
1.01 SECTION INCLUDES
   A. Concrete formwork.
   B. Floors and slabs on grade.
   C. Concrete foundations and anchor bolts.
   D. Concrete reinforcement.
   E. Miscellaneous concrete elements, including equipment pads, equipment pits, light pole bases, flagpole bases, thrust blocks, and manholes.
   F. Concrete curing.
1.02 RELATED REQUIREMENTS
   A. Division 07 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.
1.03 REFERENCE STANDARDS
   A. ACI 117 - Specification for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).
   B. ACI 211.1 - Selecting Proportions for Normal-Density and High-Density Concrete - Guide; 2022.
   C. ACI 301 - Specifications for Concrete Construction; 2020.
   D. ACI 302.1R - Guide to Concrete Floor and Slab Construction; 2015.
   E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
   F. ACI 305R - Guide to Hot Weather Concreting; 2020.
   G. ACI 306R - Guide to Cold Weather Concreting; 2016.
   H. ACI 308R - Guide to External Curing of Concrete; 2016.
   I. ACI 318 - Building Code Requirements for Structural Concrete; 2019 (Reapproved 2022).
   J. ACI 347R - Guide to Formwork for Concrete; 2014 (Reapproved 2021).
   K. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
   L. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
   M. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.
   N. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2021.
   O. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2022a.
   P. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.
   Q. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
   R. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2016.
   S. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
   T. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.
   U. ASTM C476 - Standard Specification for Grout for Masonry; 2022.
   V. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019, with Editorial Revision (2022).
   W. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2022.
   X. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2020.
   Y. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2018.
   Z. ASTM E154/E154M - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover; 2008a (Reapproved 2019).
   AA. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2018a.
   AB. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2018a.
1.04 SUBMITTALS
   A. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
      1. For curing compounds, provide data on methods of removal in the event of incompatibility with floor covering adhesives.
      2. For membrane-forming, moisture emission-reducing, curing and sealing compound, provide manufacturer's installation instructions.
   B. Mix Design: Submit proposed concrete mix design.
      1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
      2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.
      3. Indicate proposed mix design complies with fiber reinforcing manufacturer's written recommendations.
      4. Indicate proposed mix design complies with admixture manufacturer's written recommendations.
      5. Indicate proposed mix design complies with expansive component manufacturer's written recommendations.
   C. Test Reports: Submit a report for each test or series of tests specified.
1.05 QUALITY ASSURANCE
   A. Perform work of this section in accordance with ACI 301 and ACI 318.
      1. Maintain one copy of each document on site.
   B. Follow recommendations of ACI 305R when concreting during hot weather.
   C. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK
   A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
   B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
      1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
      2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
      3. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.
2.02 REINFORCEMENT MATERIALS
   A. Reinforcing Steel (Bar): ASTM A615/A615M, Grade 60 (60,000 psi).
      1. Type: new billet bars.
      2. Finish: Unfinished, unless otherwise indicated.
   B. Reinforcing Steel (Welded Wire Fabric): ASTM A1064
      1. Type: Flat Sheets
      2. Finish: Unfinished, unless otherwise indicated.
      3. Placement: Installed on top of chairs.
   C. Reinforcement Accessories:
      1. Tie Wire: Annealed, minimum 16-gauge, 0.0508 inch.
      2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
2.03 CONCRETE MATERIALS
   A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
      1. Acquire cement for the entire project from one source.
      2. Minimum of 75% of Cementitious material by Weight.
   B. Fine and Coarse Aggregates: ASTM C33/C33M.
   C. Fly Ash: ASTM C618, Class C or F.
      1. Maximum 20% of Cementitious material by weight.
      2. Fly Ash is not permitted in mixes for flat horizontal exposed surfaces.
   D. Ground Granulated Blast Furnace Slag is only permitted in concrete mixes that will not be exposed.
   E. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.
   F. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.
2.04 ADMIXTURES
   A. General Use of Admixtures shall be in accordance with the following.
      1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
      2. All admixtures shall be sourced from one manufacturer and the combination of those admixtures shall be approved by the manufacturer.
      3. Approved manufactures are Euclid Chemical, www.euclidchemical.com#9ale and Sika USA, https://usa.sika.com. Any other manufacture of equal or better quality that is approved in writing by the architect.
   B. Air Entrainment Admixture: ASTM C260/C260M.
      a. Euclid Chemical Company; EUCON AEA-92S
      b. Sika USA; Sika AV-260
   C. High Range Water Reducing: ASTM C494/C494M Type A & F
      a. Euclid Chemical Company; EUCON 1037
      b. Sika USA; Sikament 610
   D. Concrete Retarder Admixture: ASTM C494/C494M Type B & D.
      a. Euclid Chemical Company; Eon Retarder 75
      b. Sika USA; Sika Plastiment
   E. Concrete Accelerating Admixture: ASTM C494/C494M Type C & E.
      a. Euclid Chemical Company; ACCELGUARD 80
      b. Sika USA; Sika Set NC
   F. Water Reducing Admixture: ASTM C494/C494M Type A & D.
      a. Euclid Chemical Company; EUCON NW
      b. Sika USA; Sika Plastocrete-10N
   G. Shrinkage Reducing Admixture: ASTM C494/C494M, Type S.
      a. Euclid Chemical Company; EUCON SRA Floor:
      b. Sika USA; SikaControl-75
2.05 CURING MATERIALS
   A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
      1. Products:
         a. Dayton Superior Corporation; AquaFilm: www.daytonsuperior.com
         b. Euclid Chemical Company; EUCOBAR: www.euclidchemical.com
         c. Kaufman Products, Inc; VaporAid: www.kaufmanproducts.net
         d. Nox-Crete Inc; Monofilm: www.nox-crete.com
         e. SpecChem, LLC; SpecFilm Concentrate or SpecFilm: www.specchemllc.com
         f. W. R. Meadows, Inc; Evapre or Evapre-RTU: www.wr

pallets, dunnage, or other supports and spacers. Protect members and packaged materials from corrosion and deterioration.

PART 2 PRODUCTS

2.01 MATERIALS

A. Steel Angles and Plates: ASTM A36/A36M.
B. Steel W Shapes and Tees: ASTM A992/A992M.
C. Cold-Formed Structural Tubing: ASTM A500/A500M, Grade B.
D. High-Strength Structural Bolts, Nuts, and Washers: ASTM A325, with matching compatible ASTM A563/A563M nuts and ASTM F436/F436M washers.
E. Tension Control Bolts: Twist-off type; ASTM F3125/F3125M.
F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
G. Grout: ASTM C1107/C1107M, Non-shrink, premixed grout consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch.
   2. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch.
   3. Height Change, Plastic State; when tested according to ASTM C827/C827M:
      a. Maximum : Plus 4 percent.
      b. Minimum : Plus 1 percent.
H. Touch-Up Primer for Galvanized Surfaces: Fabricator's standard zinc rich paint, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

A. Shop to fabricate to greatest extent possible.
B. Continuously seal joined members by continuous, uniform welds. Grind exposed welds surfaces to a smooth finish.
C. Fabricate connections for bolt, nut, and washer connectors.
D. Remove weld spatter, slivers, and similar surface discontinuities.
E. Remove blemishes and surface irregularities resulting from temporary braces or fixtures by filling or grinding, before cleaning, treating, and galvanizing.

2.03 FINISH

A. Prepare structural component surfaces in accordance with SSPC-SP 3.
B. Galvanize structural steel members to comply with ASTM A123/A123M. Provide minimum 1.7 oz/sq ft galvanized coating.

2.04 SOURCE QUALITY CONTROL

A. Welded Connections: Visually inspect all shop-welded connections, document, and record results.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.02 ERECTION

A. Erect structural steel in compliance with AISC 303.
B. Allow for erection loads and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.
C. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with RCSC (HSBOLT) "Specification for Structural Joints Using High-Strength Bolts".
D. Do not field cut or alter structural members without approval of Architect.
E. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for non-shrink grout. Trowel grouted surfaces to a smooth finish, splaying neatly to 45 degrees.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 1/4 inch per story, non-cumulative.
B. Maximum Offset from True Alignment: 1/4 inch.

3.04 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Division 01 - Quality Requirements.
B. Welded Connections: Visually inspect all field-welded connections, document, and record results.

SECTION 06 10 00 – ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.
B. Exposed timber structural framing.
C. Non-structural dimension lumber framing.
D. Preservative treated wood materials.

1.02 RELATED REQUIREMENTS

A. Section 061500 - Wood Decking.

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.
B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
C. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.
D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.
E. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2018, with Errata (2019).
F. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
G. NELMA (SGR) - Standard Grading Rules for Northeastern Lumber; 2021.
H. PS 20 - American Softwood Lumber Standard; 2021.
I. WWPA G-5 - Western Lumber Grading Rules; 2021.

1.04 SUBMITTALS

A. See Division 01 - Administrative Requirements for submittal procedures.
B. Product Data: Provide technical data on wood preservative materials and application instructions.
C. Samples: For rough carpentry members that will be exposed to view; submit two samples, 8by12 inch in size illustrating wood grain, color, and general appearance.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.06 WARRANTY

A. See Division 01 - Closeout Submittals for additional warranty requirements.
B. Correct defective work within a See Arch Specs-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species:
      a. Exposed Framing: Douglas Fir-Larch, unless otherwise indicated.
      b. Concealed Framing: SPF, SYP, or Doug Fir, unless otherwise indicated.
   2. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
   3. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER

A. Grading Agency: Western Wood Products Association; WWPA G-5.
B. Sizes: Nominal sizes as indicated on drawings, S4S.
C. Moisture Content: S-dry or MC19.
D. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
   1. Species: Allowed under grading rules.
   2. Species:
      a. Exposed Framing: Douglas Fir-Larch, unless otherwise indicated.
      b. Concealed Framing: SPF, SYP, or Doug Fir, unless otherwise indicated.
   3. Grade: No. 1 and Better.
E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
B. Die-Stamped Connectors: Hot dipped galvanized steel, sized to suit framing conditions.
   1. For contact with preservative treated wood and exposed locations, provide minimum G185 galvanizing complying with ASTM A653/A653M.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.
B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including shims, bracing, and blocking.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
B. Make provisions for temporary construction loads and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
C. Install structural members full length without splices unless otherwise specifically detailed.
D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes, AWC (WFCM) Wood Frame Construction Manual, and 2017 OBC.
E. Install horizontal spanning members with crown edge up and not less than 3 inches of bearing at each end.
F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
G. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

3.05 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
B. Allow preservative to dry prior to erecting members.

3.06 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.
B. Variation from Plane, Other than Floors: 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.07 FIELD QUALITY CONTROL

A. See Division 01 - Quality Requirements for additional requirements.

3.08 CLEANING

A. Waste Disposal: See Division 01 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.
C. Prevent sawdust and wood shavings from entering the storm drainage system.

3.09 SCHEDULES

A. Roof Beams: Doug Fir, No. 1 Grade.

SECTION 06 12 16 - STRUCTURAL INSULATED PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Structural insulated panels (SIPs) with expanded polystyrene core.

1.2 RELATED SECTIONS

A. Section 06 10 00 – Rough Carpentry.
B. Section 06 16 00 – Sheathing.
C. Section 07 46 46 – Fiber Cement Siding.

1.3 REFERENCES

A. ASTM International:
   1. ASTM C 203 - Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
   2. ASTM C 272 - Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.
   3. ASTM C 273 - Standard Test Method for Shear Properties of Sandwich Core Materials.
   4. ASTM C 297 - Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions.
   5. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
   6. ASTM D 1621 - Standard Test Method for Compressive Properties Of Rigid Cellular Plastics.
   7. ASTM D 1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics.
   8. ASTM D 1623 - Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
   9. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
   10. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
   11. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
B. Underwriters Laboratories, Inc: UL 723 - Test for Surface Burning Characteristics of Building Materials.
C. The Engineered Wood Association: APA PRP-108 - Performance Standards and Qualification Policies for Structural-Use Panels.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00.
B. Product Data: Manufacturer's data sheets on each product; manufacturer-specific installation instructions for SIP system, including preparation instructions and recommendations, and storage and handling requirements and recommendations.
C. Shop Drawings: Submit shop drawings for SIPs showing layout, elevations, SIP details, product components and accessories. SIP installation drawing shall be reviewed by and sealed by a registered professional engineer qualified to perform such work. Deviations from standard detail and load design values shall be calculated and signed and sealed by a registered professional engineer.
D. Samples: Submit 12 inch by 12 inch (305 mm by 305 mm) sample panel.
E. SIP Code Compliance Report: Submit manufacturer's ICC-ES evaluation report for the International Building Code.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Installer shall be experienced in performing work of this section and shall specialize in installation of work similar to that required for this project. All work shall be performed in accordance with the manufacturer's installation manuals, and in accordance with manufacturer's panel layout drawings when supplied.
B. Source Limitations: Obtain all SIPs from one manufacturer, through one source. Accessories shall be acceptable to the SIP manufacturer.
C. Field Measurements: Provide field measurements of structure to SIPs manufacturer prior to fabrication of panels. Coordinate fabrication schedule to comply with project schedule requirements.
D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Erect panels in area designated by Architect.
   2. Do not proceed with remaining work until workmanship is approved by Architect.
   3. Correct mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Ordering: Comply with SIP manufacturer ordering instructions and coordinate lead time requirements to avoid construction delays.
B. Delivery: Deliver materials from SIP manufacturer with identification labels or markings intact.
C. Unloading: Off-load SIPs from delivery vehicle using method which will not damage SIPs, and as acceptable to the manufacturer.
D. Storage: SIPS shall be fully supported using wood stickers, placed in level storage, and prevented from contact with the ground. Stickers shall be placed as recommended by manufacturer.
E. Protection: SIPs shall remain in the manufacturer's protective wrap until needed for installation. Unused panels will be rewrapped and/or covered with a suitable covering that will prevent exposure to rain, snow, water, sunlight, dirt, mud, and any foreign matter that may affect SIP performance.
F. Subsequent Construction: Coordinate installation of subsequent construction to avoid exposure of SIPs to rain, snow, high moisture, and ultraviolet light and as recommended by the manufacturer.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer to the greatest extent practical. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

A. Panel manufacturer will provide lamination warranty documents for building Owner acceptance and execution upon completion. Manufacturer's standard forms shall be submitted.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: The Murus Company, Inc.
B. Subject to compliance requirements, products may be supplied by other manufacturers, including but not limited to the following:
   1. Greenix Panel
   2. ICS Eco SIPs
   3. Thermocore

2.2 STRUCTURAL INSULATED PANELS

A. Murus EPS Structural Insulated Panel (SIP) with Expanded Polystyrene Core: A stress skin panel manufactured by a pressure lamination process complying with the following:
   1. Panel Type: MURUS OSB-2100EPS Structural Insulated Panel, OSB/EPS Foam CoreOSB, 2100
   2. Panel Type: MURUS NB-2100EPS Insulated Panel, OSB/EPS Foam Core.
   3. Thermal Characteristics: 4-1/2 inches (114 mm) thick SIP with R-15.
   4. Thermal Characteristics: 8-1/4 inches (210 mm) thick SIP with R-29.
   5. Expanded Polystyrene Core: Minimum of .95 pcf (15 kg/cu m) insulation manufacturer shall provide confirmation of Third Party Certification.
      a. K Factor: .26, ASTM C 518.
      b. Compressive Strength: 10 psi, ASTM D 1621.
      c. Flexural Strength: 25 psi min, ASTM C 203.
      d. Tensile Strength: 28 psi min, ASTM C 297.
      e. Shear Strength: 16 psi min, ASTM C 273.
      f. Shear Modulus: 440 psi min, ASTM C 273.
      g. Modulus of Elasticity: 915 psi min, ASTM C 203.
      h. WVTI'perm Inches: 5.0 max, ASTM E 96.
      i. Water Absorption (by volume): 4% max, ASTM C 272.
      j. Maximum Service Temperature: 165 degrees F.
      k. Foam Fire Rating: Class 1, ASTM E 84.
      l. Flame Spread: <25, ASTM E 84.
      m. Smoke Developed: <450, ASTM E 84.
      n. Transverse Load: ASTM E 72.
      o. Combined Axial and Bending: ASTM E 72.
   6. OSB: APA performance rating mark shall be identified on the panel, with an Exposure 1 durability rating; minimum physical properties shall be tested and described in APA PRP-108 or NIST PS 2. 7/16 inch (11 mm) thickness unless noted otherwise.
   7. Adhesives: Manufacturer-approved one part urethane laminating adhesive having an in-use temperature range of - 40 degree F to +250 degree F (-40 degree C to 121 degree C).
   8. Wiring Chases: If indicated or required, shall be cut into the panel during the manufacturing process.
   9. Sizes: As indicated. Murus NEOPOR SIPs are available in widths of 4 feet or 8 feet by lengths of 8 feet to 24 feet (1219 mm or 2438 mm by 1219 mm to 7315 mm).

2.3 ACCESSORIES

A. Fasteners: Galvanized ring shank panel nails, or panel screws, as specified by panel manufacturer, for attachment of panel to frames, roofs, and corners. All fasteners to be sized and provided by manufacturer and installed per manufacturer's requirements. Do not use common fasteners.
B. Foam Sealant: Compatible with all components of the panel and adjacent materials, provided by manufacturer.
C. Construction Adhesive for Installing Dimensional Lumber: Supplied by contractor, acceptable to manufacturer.
D. Dimensional Lumber: SPF #2 kiln-dried or better, or pre-engineered equivalent.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until foundation or slab have been properly prepared.
B. If supporting framing and level line are the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.
B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Installation shall be in strict accordance with manufacturer's published instructions, details, and the drawings that are part of the contract documents for this project. Conflicts between these documents shall be resolved in writing prior to start of construction.

3.4 PROTECTION

A. Protect installed products until completion of project.
B. When storing panels, do not allow them to come into contact with the ground. Stored panels shall remain dry and in the manufacturer's original packaging. Do not allow panels to be stored in an unsupported manner.
C. Roof panels shall be fully protected from weather by roofing materials or other means to provide temporary protection at the end of the day, or when rain or snow is imminent.
D. Remove and replace installed wall or roof panels which have become excessively wet or damaged before proceeding with installation of additional panels or other work.

SECTION 06 16 00 - SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes: Plywood sheathing.

1.2 SUBMITTALS

B. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
   2. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
   3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

C. Evaluation Reports: For the following, from ICC-ES:
   1. Wood-preservative-treated plywood.

QUALITY ASSURANCE

1.3 A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering it with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

A. Plywood: Either DOC PS 1 or DOC PS 2 unless otherwise indicated.
B. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
C. Factory mark panels to indicate compliance with applicable standard.

2.2 PLYWOOD SHEATHING

A. Plywood Wall and Parapet Sheathing: Either DOC PS 1 or DOC PS 2, Exposure 1, Fire Retardant Treated, Exterior sheathing.
   1. Span Rating: Not less than 24/0.
   2. Nominal Thickness: As indicated on Drawings, but not less than 1/2 inch.

2.3 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
   1. For sheathing, provide fasteners with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.
   2. For plywood sheathing, provide fasteners of Type 304 stainless steel.
B. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
C. Screws for Fastening Plywood Sheathing to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
D. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached.
   1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C 1002.
   2. For steel framing from 0.033 to 0.112 inch thick, use screws that comply with ASTM C 954.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between other framing members with less than full bearing.
B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.
C. Securely attach to substrate by fasteners as indicated, complying with the following:
   1. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
   2. ICC-ES evaluation report for fastener.
D. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 PLYWOOD SHEATHING INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
B. Fastening Methods: Fasten panels as indicated below:
   1. Wall, Parapet and Soffit Sheathing:
      a. Screw to cold-formed metal framing.
      b. Space panels 1/8 inch apart at edges and ends.

SECTION 06 20 20 - INTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Standing and running trim.
   2. Paneling.

1.2 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.
B. Samples: For each type of trim, molding, or paneling indicated.
C. Finishes: Physical samples of stain color and finish sheen (to match existing) for all transparent and semi-transparent finishes.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review.
B. Hardwood Plywood
C. Hardboard: AHA A135.4.
D. MDF: ANSI A208.2, Grade 130, made with binder containing no urea-formaldehyde resin.
E. Particleboard: ANSI A208.1, Grade M-2, made with binder containing no urea-formaldehyde resin.
F. Melamine-Faced Particleboard: Particleboard complying with ANSI A208.1, Grade M-2, finished on both faces with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

2.2 STANDING AND RUNNING TRIM

A. Moldings/Trim for Transparent Finish (Stain or Clear Finish): Clear (better than FAS)
   1. Species: Douglas fir or Pine (as required to match existing)
   2. Maximum Moisture Content: 15 percent.
B. Moldings for Opaque Finish (Painted): Made to patterns included in WMMPA WM 12.
   1. Moldings grade: WMMPA WM 4, P-grade.
      a. Species: pine or poplar.
      b. Maximum Moisture Content: 15 percent.

2.3 PLYWOOD PANELING

A. "A" grade face hardwood veneer panels
   1. Face species: Birch
   2. Thickness: 1/4" thickness (or as required to match existing conditions).

2.4 MISCELLANEOUS MATERIALS

A. Glue: Alpha-to-resin, polyurethane, or resorcinol wood glue.
   1. Use wood glue that has a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installing interior finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours.

3.2 INSTALLATION, GENERAL

A. Install interior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
   1. Scribe and cut interior finish carpentry to fit adjoining work.
   2. Countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.
   3. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining interior finish carpentry with 1/32-inch (0.8-mm) maximum offset.
   4. Install stairs with no more than 3/16-inch (4.7-mm) variation between adjacent treads and risers and with no more than 3/8-inch (9.5-mm) variation between largest and smallest treads and risers within each flight.

3.3 STANDING AND RUNNING TRIM INSTALLATION

A. Install trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches long except where necessary.
   1. Use scarf joints for end-to-end joints.
   2. Stagger end joints in adjacent and related members.

SECTION 06 41 00 - ARCHITECTURAL WOODWORK

PART 4 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Custom cabinets and associated hardware.
B. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips unless concealed within other construction before woodwork installation.

1.2 SUBMITTALS

A. Product Data: For laminate material, cabinet hardware and accessories and finishing materials and processes.
B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
C. Samples:
   1. Lumber and panel products for transparent finish, for each species and cut, finished on one side and one edge.
   2. Plastic-laminates, for each type, color, pattern, and surface finish.
   3. Thermoset decorative panels, for each type, color, pattern, and surface finish.

1.3 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 5 - PRODUCTS

2.1 CABINET MATERIALS

A. Wood Species and Cut for Transparent Finish: Birch or as indicated on the Drawings, plain sawn or sliced.
B. Wood Species for Opaque Finish: Any closed-grain hardwood.
C. Wood Products:
   1. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
   2. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
   3. Softwood Plywood: DOC PS 1.
   4. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.

2.2 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural woodwork, except for items specified in Division 08 Section "Door Hardware (Scheduled by Describing Products)."
B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening.
C. Back-Mounted Pulls: BHMA A156.9, B02011.
D. Bar Pulls: Back mounted, solid metal, 6 inches long, 1/2 inch in diameter.
E. Catches: Magnetic catches, BHMA A156.9, B03141.
F. Drawer Slides: BHMA A156.9, B05091.
   1. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension type; zinc-plated steel ball-bearing slides.
G. Drawer Locks: BHMA A156.11, E07041.
H. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
   1. Satin Stainless Steel: BHMA 630.

2.3 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.
B. Transaction Counter Carriers: Custom fabricated steel tube frames to support counter.
C. Adhesives, General: Do not use adhesives that contain urea formaldehyde.

2.4 FABRICATION

A. General: Complete fabrication to maximum extent possible before shipment to Project site. Where necessary for fitting at site, provide allowance for scribing, trimming, and fitting.
B. Sliding Door Panels:
   1. Stiles rails and door panels: Solid wood; transparent finish.
   2. Door lite mutins and stops: Solid wood; transparent finish.
C. Wood Cabinets for Transparent Finish:
   1. Grain Direction: Vertically for drawer fronts, doors, and fixed panels.
   2. Matching of Veneer Leaves: Book or Slip match.
   3. Semiexposed Surfaces Other Than Drawer Bodies: Same species and cut indicated for exposed surfaces or compatible species to that indicated for exposed surfaces, stained to match.
   4. Drawer Sides and Backs: Solid hardwood lumber.
   5. Drawer Bottoms: Hardwood plywood.
   6. Provide dust panels of 1/4-inch plywood or tempered hardboard above compartments and drawers, unless located directly under tops.

2.5 SHOP FINISHING

A. Finish architectural woodwork at fabrication shop. Defer only final touchup, cleaning, and polishing until after installation.
B. Backprinting: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling.
C. Transparent Finish:
   1. Grade: Premium.
   2. Finish System: Acrylic lacquer or Conversion varnish.
   3. Staining: Match approved sample for color.
   4. Wash Coat for Stained Finish: Apply a wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.

PART 6 - EXECUTION

3.1 INSTALLATION

A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas. Examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.
B. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
C. Install woodwork level, plumb, true, and straight to a tolerance of 1/8 inch in 96 inches. Shim as required with concealed shims.
D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching finish where transparent finish is indicated.
F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide uniformly narrow edge reveals.
   1. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into wood framing, blocking, or hanging strips.
G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."

SECTION 07 21 00 - INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Perimeter wall and under slab insulation.
   2. Concealed building insulation.
   3. Vapor retarders and accessories.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.
B. Samples for Verification: Full-size units for each type of exposed insulation indicated.
C. Product test reports.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84 for surface-burning characteristics and other methods indicated with product, by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

PART 2 - PRODUCTS

2.1 FOAM-PLASTIC BOARD INSULATION

A. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, 1.60 lb/cu. ft., with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively:
   1. Provide thickness and thermal resistance (R-value) indicated on the Drawings.
   2. Provide compressive strength for applications as indicated on the Drawings: 15 psi minimum in walls and roof; 25 psi minimum under slabs.

2.2 GLASS-FIBER BLANKET INSULATION

A. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
B. Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (blankets with reflective membrane facing), Class A (membrane-faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene vapor-retarder membrane on 1 face.
C. Where glass-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt or roll form with thermal resistances indicated:
   1. 3-1/2 inches thick with a thermal resistance of 15 deg F x h x sq. ft./Btu at 75 deg F.
   2. 5-1/2 inches thick with a thermal resistance of 21 deg F x h x sq. ft./Btu at 75 deg F.
   3. 9-1/2 inches thick with a thermal resistance of 28 deg F x h x sq. ft./Btu at 75 deg F.
   4. 10-1/4 inches thick with a thermal resistance of 38 deg F x h x sq. ft./Btu at 75 deg F
D. Auxiliary Insulation Materials
   1. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by insulation manufacturers for sealing joints and penetrations in vapor-retarder facings.
   2. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.
   3. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide cross ventilation between insulated attic spaces and vented eaves.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
B. Source Limitations: Obtain ridge and hip cap shingles, synthetic underlayment and self-adhering sheet underlayment from single source from single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store roofing materials in a dry, well-ventilated, weathertight location according to asphalt shingle manufacturer's written instructions.
B. Store underlayment rolls on end on pallets or other raised surfaces. Do not double stack rolls.
C. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.
D. Handle, store, and place roofing materials in a manner to avoid significant or permanent damage to roof deck or structural supporting members.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended in writing by manufacturer.

1.8 WARRANTY

A. Warranty: Manufacturer agrees to repair or replace asphalt shingles that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Manufacturing defects.
      b. Structural failures including failure of asphalt shingles to self-seal after a reasonable time.
   2. Material Warranty Period: Sends on" shingles for 50 year minimum from date of Substantial Completion, prorated, with first 10 years nonprorated.
   3. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds up to 110 mph for 15 years from date of Substantial Completion.
   4. Algae-Discoloration Warranty Period: Asphalt shingles will not discolor 10 years from date of Substantial Completion.
   5. Workmanship Warranty Period: 5 years from date of Substantial Completion.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Exterior Fire-Test Exposure: Provide asphalt shingles and related roofing materials identical to those of assemblies tested for Class A fire resistance according to ASTM E108 or UL 790 by Underwriters Laboratories or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

2.2 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

A. Laminated-Strip Asphalt Shingles: ASTM D 3462, laminated, multi-ply overlay construction, glass- fiber reinforced, mineral-granule surfaced, and self-sealing.
   1. Basis-of-Design Product: Subject to compliance with requirements, provide Timberline HDZ by GAF Materials Corporation or comparable product by one of the following:
      a. CertainTeed Corporation
      b. Owens Corning
      c. TAMKO Roofing Products, Inc.
   2. Strip Size: Manufacturer's standard.
   3. Algae Resistance: Granules treated to resist algae discoloration.
   4. Color and Blends: Timerline HDZ "Barkwood" or matching color blend as approved by Architect.

2.3 UNDERLAYMENT MATERIALS

A. Felt: ASTM D 226, Type II, asphalt-saturated organic felts, nonperforated.
B. Synthetic Underlayment: UV-resistant polypropylene, polyolefin, or polyethylene polymer fabric with surface coatings or treatments to improve traction underfoot and ab

2.4 METAL ROOF PANEL ACCESSORIES
A. General: Provide complete metal panel assembly incorporating trim, copings, fascias, gutters and downspouts, and miscellaneous flashings, in manufacturer's standard profile[] [profiles as indicated]. Provide required fasteners, closure strips, and sealants as indicated in manufacturer's written instructions.
B. Flashing and Trim: Match material, thickness, and finish of metal panel face sheet.
C. Panel Fasteners: Self-tapping screws and other acceptable corrosion-resistant fasteners recommended by metal panel manufacturer. Where exposed fasteners cannot be avoided, supply fasteners with EPDM or neoprene gaskets, with heads matching color of metal panels by means of factory-applied coating.
D. Joint Sealers: Manufacturer's standard or recommended liquid and preformed sealers and tapes, and as follows:
1. Tape Sealers: Manufacturer's standard non-curing butyl tape, AAMA 809.2.
2. Concealed Joint Sealant: Non-curing butyl, AAMA 809.2.
E. Steel Sheet Miscellaneous Components: ASTM C 645, with ASTM A 653/A 653M, G60 (Z180) hot-dip galvanized zinc coating.
F. Metal Accessories: Approved by metal panel manufacturer. Refer to [Section 07 72 00] "Metal Accessories" for requirements for metal accessories.

2.5 SNOW RETENTION SYSTEMS
1.1 Basis of Design Product: S-5 ColorGard bar type snow guard
1. Bar and color insert shall match metal roof.
2. CorruBracket attachments

2.6 FABRICATION
A. General: Provide factory fabricated and finished metal panels and accessories meeting performance requirements, indicated profiles, and structural requirements.
B. Fabricate metal panel joints configured to accept sealant providing weathertight seal and preventing metal-to-metal contact and minimizing noise resulting from thermal movement.
C. Form panels in continuous lengths for full length of detailed runs, except where otherwise indicated on approved shop drawings.
D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's written instructions, approved shop drawings, and project drawings. Form from materials matching metal panel substrate.

2.7 FINISHES
A. Two coat coil applied, baked on full strength (70% resin, PVF2) fluorocarbon coating consisting of a nominal 0.25 mil dry film thickness primer, and a nominal dry film thickness of 0.7 -0.8 mil color coat for a total 0.9 to 1.1 mil total system dry film thickness. Finish to be selected from manufacturer's standard color selection. The back side of the material should be 0.25 mil primer and a 0.25 mil polyester wash coat.
1. Metal Panel Color:
a. Selected from full range of manufacturer's standard colors.
2. Metal Related Trim/Accessories Color:
a. Selected from full range of manufacturer's standard colors.

2.8 RELATED MATERIALS
A. General: Coordinate use of related materials:
1. Underlayment as recommended by manufacturer.
2. Tongue and Groove Deck: Refer to Division 6 Rough Carpentry
3. Sealants: Refer to Division 7 Joint Sealants

2.9 SOURCE QUALITY
A. Source Quality: Obtain metal panel products from a single manufacturer.
B. Quality Control: Obtain metal panels, trim and other accessories from a manufacturer capable of providing on-site technical support and installation assistance.

PART 3 EXECUTION
3.1 MANUFACTURER'S INSTRUCTIONS
A. Compliance: Comply with manufacturer's product data, recommendations and installation instructions for substrate verification, preparation requirements and installation.
1. Strippable Film: Remove manufacturer's protective film, if any, from surfaces of metal panels.
B. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
1. Verification of Conditions:
a. Panel support systems are ready for construction activities of this section and within specified tolerances.
b. Rough-in utilities are in correct locations.
2. Installer's Examination:
a. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
b. Transmit installer's report to Architect within 24 hours of receipt.
c. Delay construction activities of this section until unacceptable conditions have been corrected.
d. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.2 PREPARATION
A. Coordination: Coordinate metal panel work with other trades to provide a noncorrosive and leak-free metal installation.
1. Install substrate in accordance with manufacturer's recommendations.
2. Coordinate work, with installation of other associated work, to ensure quality application.
3. Coordinate work with installation of associated metal flashings and building walls.
4. Coordinate work to minimize foot traffic and construction activity on installed finished surfaces.
5. Dissimilar Metals: Prevent galvanic action of dissimilar metals.

3.3 INSTALLATION
A. General: Install metal panels to profiles, patterns and drainage indicated and required for leak-free performance. Provide for structural and thermal movement of work. Seal joints for leak-free metal installation.
1. Shim or otherwise plumb substrates receiving metal panels.
2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws.
3. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
4. Locate and space fasteners in uniform vertical and horizontal alignment.
5. Install flashing and trim as metal panel work proceeds.
6. Install continuous length panels if at all possible. If splices are required, locate panel splices over, but not attached to, structural supports and only with prior Architect approval.
7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws.
8. Fasten flashings and trim around openings and similar elements with self-tapping screws.
9. Fix panels at location depicted on reviewed shop drawings.
10. Allow for required panel clearance at penetrations for thermal movement.
11. Sealant-Type Joints: Provide sealant-type joint where indicated. Form joints to conceal sealant. Comply with Division 7 Joint Sealants Section for sealant installation.
B. Metal Installation:
1. Install metal panels plumb, true and in correct alignment with structural framing, in accordance with shop drawings and manufacturer's printed installation instructions.
2. Install metal panels using non-corroding fasteners color-matched to panel.
3. Install trim using concealed fasteners where possible; sight-exposed non-corroding fasteners color-matched to trim are permitted on vertical surfaces only.
C. Installation Tolerances:
1. Variation from Plumb: Maximum 1/8" (3.2 mm) in 20 feet (6.096 m).
2. Variation from Level: Maximum 1/8" (3.2 mm) in 20 feet (6.096 m).
3. Variation from True Plane: Maximum 1/8" (3.2 mm) in 20 feet (6.096 m).
D. Underlayment Installation
1. Underlayment to be supplied by metal panel manufacturer.
2. Self-adhered High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 40 mils thick adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.
3. Thermal Stability: Stable after testing at 240 degree F; ASTM D1970.
4. Low-Temperature Flexibility: Passes after testing at minus 20 degree F; ASTM D1970.
5. Apply over the entire metal roof surface.
E. Flashing and Trim Installation: Comply with performance requirements, manufacturer's written installation instructions, and the SMACNA "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and install units to true level. Install work with laps, joints, and seams that will be permanently watertight.

3.4 FIELD QUALITY REQUIREMENTS
A. Site Tests: (Post-Installation Testing): Owner reserves right to perform post-installation testing of installed metal panel installation.

3.5 CLEANING
A. Cleaning: Remove temporary coverings and protection of adjacent work areas.
B. Repair or replace damaged installed products.
C. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance.
D. Remove construction debris from project site and legally dispose of debris.
E. Remove strippable coating and/per Mfr dry wipe-down cleaning of panels as erected.

3.6 PROTECTION
A. Protection: Protect installed product's finish surfaces from damage during construction:
1. Protect installed products from damage by subsequent construction activities.
2. Replace products having damage other than minor finish damage.
3. Repair products having minor damage to finish in accordance with panel Manufacturer's recommendation.
4. Architect shall be sole judge of acceptability of repair to damaged finishes; replace products having rejected repairs

SECTION 07 46 46 - FIBER CEMENT SIDING

PART 1 - GENERAL
1.1 SUMMARY
A. Section includes fiber-cement siding, soffit, and accessories.
1.2 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Samples: For siding including related accessories.
C. Qualification Data: For qualified siding Installer.
H. Warranty: Sample of special warranty.
1.3 QUALITY ASSURANCE
A. Labeling: Provide fiber-cement siding that is tested and labeled according to ASTM C 1186 by a qualified testing agency acceptable to authorities having jurisdiction.
B. Source Limitations: Obtain each type, color, and texture of siding, including related accessories, from single source from single manufacturer.
C. Preinstallation Conference: Conduct conference at project site.
1.4 WARRANTY
A. Special Warranty: Standard form in which manufacturer agrees to repair or replace siding that fail(s) in materials or workmanship within specified warranty period.
1. Warranty Period: 30 years from date of Substantial Completion.
1.5 EXTRA MATERIALS
A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Furnish full lengths of siding including related accessories, in a quantity equal to 2 percent of amount installed.

PART 2 - PRODUCTS
2.1 FIBER-CEMENT SIDING
A. General: ASTM C 1186, Type A, Grade II, fiber-cement board, noncombustible when tested according to ASTM E 136; with a flame-spread index of 25 or less when tested according to ASTM E 84.
1. Pattern: Battens as indicated on plans.
2. Panel: 48-inch minimum wide sheets with smooth texture.
3. Factory Priming and Paint: Manufacturer's standard primer and finish. Field apply final coat of paint. Caulk and paint any exposed nail heads.
2.2 ACCESSORIES
A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.
1. Provide accessories made from same material as siding unless otherwise indicated.
B. Aluminum Accessories: Where aluminum accessories are indicated, provide accessories complying with AAMA 1402.
1. Texture: Smooth
2. Nominal Thickness: 0.024 inch (0.6 mm)
3. Finish: Manufacturer's standard
C. Flashing: Provide aluminum flashing at window and door heads and where indicated.
1. Finish for Aluminum Flashing: Siliconized polyester coating, color to be selected.
D. Fasteners:
1. For fastening fiber cement, use hot-dip galvanized or stainless-steel fasteners as approved by manufacturer.
E. Weather Barriers:
1. Non-woven, non-perforated, weather barrier with engineered vertical surface pattern to promote drainage
2. Performance Characteristics:
a. Air Penetration: Less than 0.004 cfm/ft2 at 75 Pa, when tested in accordance with ASTM E2178.
b. Water Vapor Transmission: Less than 20 perms, when tested in accordance with ASTM E96.
c. Water Penetration Resistance: Greater than 200 cm when tested in accordance with AATCC Test Method 127.
d. Basis Weight: 2.1 oz/yd2, when tested in accordance with TAPPI Test Method T-410.
e. Air Resistance: Greater than 300 seconds, when tested in accordance with TAPPI Test Method T-460.
f. Tensile Strength: Greater than 24 lbs/in., when tested in accordance with ASTM D882, Method A.
g. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84.
3. Tape: fasteners, flashing, and sealants as recommended by manufacturer.

PART 3 - EXECUTION
3.1 EXAMINATION
A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of siding and related accessories.
B. Proceed with installation only after unsatisfactory conditions have been corrected.
3.2 INSTALLATION
A. General: Comply with siding manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
1. Do not install damaged components.
2. Fit exterior siding neatly around openings and other work without binding siding to allow for thermal movement.
B. Install fiber-cement siding and related accessories.
1. Install fasteners no more than 24 inches (600 mm) o.c.
C. Install joint sealants to produce weathertight installation.
3.3 ADJUSTING AND CLEANING
A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.

SECTION 07 62 00 - ROOF FLASHING AND TRIM

PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Gutters and downspouts.
2. Metal trim including wall and roof interface flashing, flat roof flashing and trim, and other miscellaneous trim.
1.2 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Samples: For each type of exposed finish required and for each type of accessory including flashing pattern, gutter hangers and snowguards.
1.3 QUALITY ASSURANCE
A. Installer Qualifications: Approved by manufacturer to install warranted roof system.
B. Preinstallation Conference: Conduct conference at Project site.
1.4 WARRANTY
A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace metal roof panel assemblies that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Ten years from date of Substantial Completion.
B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal roof panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
1. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS
2.1 ACCESSORIES
A. Roof Flashing and Trim: Aluminum (or formed from same material as metal roof panels), in thickness as shown on approved shop drawings. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fascias, and fillers. Finish flashing and trim has same finish system as adjacent metal roof panels.
B. Gutters: Aluminum or formed from same material as metal roof panels. Standard shapes to match existing with end pieces, outlet tubes, and other special pieces as required for a complete installation (or as indicated on the Drawings). Furnish gutter supports spaced a maximum of 24 inches o.c., fabricated from same metal as gutters.
C. Downspout Discharge: Aluminum: 3 inch X 4 inch. Include elbows, transitions and other special pieces as required for a complete installation.
2.2 OTHER FLASHING AND TRIM
A. Aluminum Sheet: ASTM B 209 alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.
B. Finish for selected sheet material:
1. Surface: Smooth, flat finish.
2. Exposed Coil-Coated Finish:
a. 2-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat.
3. Concealed Finish: Manufacturer's standard white or light-colored acrylic or polyester backer finish.

PART 3 - EXECUTION
3.1 INSTALLATION
A. Comply with SMACNA's "Architectural Sheet Metal Manual." Allow for thermal expansion; set true to line and level. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.
B. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
C. Fabricate nonmoving seams in sheet metal with flat-lock seams. For aluminum, form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
D. Aluminum Flashing and Trim: Coat back side of aluminum flashing and trim with bituminous coating where it will contact wood, ferrous metal, or cementitious construction.
E. Separate dissimilar metals with a bituminous coating or polymer-modified, bituminous sheet underlayment.

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
1.2 SUBMITTALS
A. Product Data: For each joint-sealant product indicated.
B. Samples: For each kind and color of joint sealant required.
C. Joint-Sealant Schedule: Include the following information:
1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.
D. Product test reports.
1.3 WARRANTY
A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS
2.1 SILICONE JOINT SEALANTS
A. Mildew-Resistant, Acid-Curing Silicone Joint Sealant: ASTM C 920.
1. Type: Single component (S).
2. Grade: Nonsag (NS).
2.2 URETHANE JOINT SEALANTS
A. Urethane Joint Sealant: ASTM C 920.
1. Type: Single component (S).
2. Grade: nonsag (NS).
3. Class: 100/50,
2.3 LATEX JOINT SEALANTS
A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.
2.4 JOINT SEALANT BACKING
A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.
2.5 MISCELLANEOUS MATERIALS
A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION
3.1 PREPARATION
A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
3.2 INSTALLATION
A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
F. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 JOINT-SEALANT SCHEDULE
A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
a. Construction and control joints in cast-in-place concrete.
b. Control and expansion joints in unit masonry.
c. Joints in exterior siding and trim.
d. Joints between different materials listed above.
e. Perimeter joints between materials listed above and frames of doors windows and louvers.
f. Other joints as indicated.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
B. Joint-Sealant Application: Interior and Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
a. Joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings where indicated.
c. Perimeter joints between interior wall surfaces and frames of interior doors windows and trim.
d. Other joints as indicated.
2. Joint Sealant: Latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors or to be painted.
C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Sealant Location:
a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.
c. Other joints as indicated.
2. Joint Sealant: Silicone.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL
1.1 SUMMARY
A. Section includes hollow-metal work.
1.2 DEFINITIONS
A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM- HMMA 803 or SDI A250.8.
1.3 COORDINATION
A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
1.4 SUBMITTALS
A. Product Data: For each type of product.
1. Include construction details, material descriptions, core descriptions, and finishes.
B. Shop Drawings: Include the following:
1. Elevations of each door type.
2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.
7. Details of accessories.
C. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.
1.5 DELIVERY, STORAGE, AND HANDLING
A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
B. Provide additional protection to prevent damage to factory-finished units.
C. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
D. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch-high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS
2.1 MANUFACTURERS
A. Manufacturers may include, but are not limited to, the following:
1. Amweld International, LLC.
2. Ceco Door Products.
3. Karpen Steel Custom Doors & Frames.
4. Pioneer Industries, Inc.
5. Republic Doors and Frames.
6. Steelcraft.
B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.
2.2 EXTERIOR HOLLOW-METAL DOORS AND FRAMES
A. Construct exterior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
B. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3.
1. Physical Performance: Level A according to SDI A250.4.
2. Doors:
a. Type: As indicated in the Door and Frame Schedule.
b. Thickness: 1-3/4 inches
c. Face: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
d. Edge Construction: Model 1, Full Flush.
e. Core: Polyurethane or polyisocyanurate.
1) Thermal-Rated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than 2.1 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.
3. Frames:
a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
b. Construction: Full profile welded.
4. Exposed Finish: Prime.
2.3 FRAME ANCHORS
A. Jamb Anchors:
1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2.4 MATERIALS
A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
F. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke- developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
2.5 FABRICATION
A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
B. Hollow-Metal Doors:
1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
2. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches.
3. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets.
4. Bottom Edge Closures: Close bottom edges of doors with end closures or channels of same material as face sheets.
5. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
2. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
3. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
4. Jamb Anchors: Provide number and spacing of anchors as follows:
a. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
widths that allow optimum sealant movement capability.
5. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.
E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
2.6 STEEL FINISHES
A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION
3.1 EXAMINATION
A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
C. Proceed with installation only after unsatisfactory conditions have been corrected.
3.2 PREPARATION
A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
3.3 INSTALLATION
A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.
B. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
a. Install door silencers in frames before grouting.
b. Remove temporary braces necessary for installation only after frames have been properly set and secured.
c. Check plumb, square, and twist of frames as walls are constructed.
d. Shim as necessary to comply with installation tolerances.
e. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
a. Floor anchors may be set with power-actuated fasteners instead of post-installed expansion anchors if so indicated and approved on Shop Drawings.
3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
4. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from rabbet perpendicular to frame head.
b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Steel Doors:
a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
b. At Bottom of Door: 3/4 inch plus or minus 1/32 inch.
3.4 ADJUSTING AND CLEANING
A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
B. Remove grout and other bonding material from hollow-metal work immediately after installation.
C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 - GENERAL
1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
1.2 SUMMARY
A. Section Includes:
1. Solid-core doors with wood-veneer faces.
2. Factory finishing flush wood doors.
B. Related Sections:
1. Division 08 Section "Door Hardware" for hardware.
2. Division 08 Section "Glazing" for glass view panels in flush wood doors.
1.3 SUBMITTALS
A. Product Data: For each type of door indicated. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.
B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
1. Indicate dimensions and locations of mortises and holes for hardware.
2. Indicate dimensions and locations of cutouts.
3. Indicate requirements for veneer matching.
4. Indicate doors to be factory finished and finish requirements.
5. Indicate fire-protection ratings for fire-rated doors.
C. Samples for Verification:
1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each species and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.
D. Warranty: Sample of special warranty.
1.4 QUALITY ASSURANCE
A. Source Limitations: Obtain flush wood doors and wood paneling from single manufacturer.
B. Quality Standard: In addition to requirements specified, comply with AWI's "Architectural Woodwork Quality Standards Illustrated."
1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.
C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252.
1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
D. Preinstallation Conference: Conduct conference at Project site.
1.5 DELIVERY, STORAGE, AND HANDLING
A. Comply with requirements of referenced standard and manufacturer's written instructions.
B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic bags.
C. Mark each door on top and bottom rail with opening number used on Shop Drawings.
1.6 PROJECT CONDITIONS
A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.
1.7 WARRANTY
A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS
2.1 MANUFACTURERS
A. Basis of Design: Subject to compliance with requirements, provide Master Flush Doors by Eggers Industries or comparable products by one of the following:
1. Graham.
2. VT Industries.
3. Marshfield Door Systems, Inc.
4. Oshkosh Wood Doors.
2.2 DOOR CONSTRUCTION, GENERAL
A. Particleboard-Core Doors:
1. Particleboard: ANSI A208.1, Grade LD-2.
2. Blocking: Provide wood blocking in particleboard-core doors as follows:
a. 5-inch top-rail blocking, in doors indicated to have closers.
b. 5-inch bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
c. 5-inch midrail blocking, in doors indicated to have exit devices.
B. Structural-Composite-Lumber-Core Doors:
1. Structural Composite Lumber: WDMA I.S.10.
2. Provide at doors with full glass lite, and where required to maintain warranty with indicated cutouts.
2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH
A. Interior Solid-Core Doors:
1. Grade: Custom (Grade A faces).
2. Species: Birch, rift cut.
3. Cut: Plain sliced (flat sliced).
4. Match between Veneer Leaves: Book match.
5. Assembly of Veneer Leaves on Door Faces: Running match.
6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
7. Door Edges: Minimum ¼ inch solid lumber, same species as faces or a compatible species. No veneer edges except rated doors with concealed intumescent seals.
8. Core: Particleboard.
9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering.
2.4 LIGHT FRAMES
A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads as follows unless otherwise indicated.
1. Wood Species: Species compatible with door faces.
2. Profile: Flush rectangular beads.
3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips approved for such use.
B. Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of 0.048-inch- thick, cold-rolled steel sheet; factory primed for paint finish; and approved for use in doors of fire-protection rating indicated.
2.5 FABRICATION
A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of refer

4. Quantity: In addition to one extra key blank for each lock, provide three cylinder change keys and five master keys.

2.9 OPERATING TRIM

A. Standard: BHMA A156.6.

B. Materials: Fabricate from stainless steel, unless otherwise indicated.

2.10CLOSERS

A. Accessibility Requirements: Comply with the following maximum opening-force requirements:

1. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
2. Sliding or Folding Doors: 5 lbf applied parallel to door at latch.
3. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.

B. Door Closers for Means of Egress Doors: Comply with NFPA 101. Door closers shall not require more than 30 lbf to set door in motion and not more than 15 lbf to open door to minimum required width.

C. Size of Units: Unless otherwise indicated, comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

D. Surface Closers: BHMA A156.4, Grade 1. Provide type of arm required for closer to be located on non-public side of door, unless otherwise indicated.

1. Available Manufacturers:
   a. Corbin Russwin Architectural Hardware
   b. DORMA Architectural Hardware
   c. LCN Closers
   d. Norton Door Controls
   e. Rixson Specialty Door Controls
   f. SARGENT Manufacturing Company
   g. Yale Commercial Locks and Hardware

2.11PROTECTIVE TRIM UNITS (KICK and PUSH PLATES)

A. Size: 1-1/2 inches less than door width on push side and 1/2 inch less than door width on pull side, by height specified in door hardware sets.

B. Metal Protective Trim Units: BHMA A156.6; beveled top and 2 sides; fabricated from the following material:

1. Material: 0.050-inch- thick stainless steel.

2.12STOPS AND HOLDERS

A. Stops and Bumpers: BHMA A156.16, Grade 1.

1. Provide floor stops for doors unless wall or other type stops are scheduled or indicated. Do not mount floor stops where they will impede traffic. Where floor or wall stops are not appropriate, provide overhead holders.

B. Silencers for Door Frames: BHMA A156.16, Grade 1; neoprene or rubber, fabricated for drilled-in application to frame.

2.13DOOR GASKETING

A. Standard: BHMA A156.22.

B. General: Provide continuous weather-stip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

1. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
2. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
3. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

C. Smoke-Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke-control ratings indicated, based on testing according to UL 1784.

1. Provide smoke-labeled gasketing on 20-minute-rated doors and on smoke-labeled doors.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated, based on testing according to ASTM E 1408.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Gasketing Materials: ASTM D 2000 and AAMA 701/702.

2.14THRESHOLDS

A. Standard: BHMA A156.21.

B. Accessibility Requirements: Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.

C. Thresholds for Means of Egress Doors: Comply with NFPA 101. Maximum 1/2 inch high.

2.15MISCELLANEOUS DOOR HARDWARE

A. Auxiliary Hardware: BHMA A156.16, Grade 1.

2.16FABRICATION

A. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18. Do not furnish manufacturer's standard materials or forming methods if different from specified standard.

B. Fasteners: Provide screws according to commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

2. Comply with NFPA 80 for fasteners of door hardware in fire-rated applications.

C. Finishes: BHMA A156.18. All finishes shall be black unless noted otherwise.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights indicated as follows unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

C. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

D. Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
2. Door Closers: Unless otherwise required by authorities having jurisdiction, adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

3.2 DOOR HARDWARE SETS

A. The door hardware sets are described in the hardware schedule on the Drawings. The hardware supplier shall develop a complete hardware schedule that fully describes the actual model, manufacturer, finish and other options and selections as required for a complete door hardware installation for each scheduled door.

B. Finishes: All finishes shall be satin brass or satin rubbed bronze, as selected by Architect form manufacturer's full range of finish options.

C. Provide cushioned wall of floor mount door stop (to suit door location) for each door leaf.

SECTION 08 80 00 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes glazing for products specified in other Sections where glazing requirements are specified by reference to this Section:

1. Windows.
2. Doors.

1.3 DEFINITIONS

A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

C. IBC: International Building Code.

1.4 COORDINATION

A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.5 PERFORMANCE REQUIREMENTS

1.6 SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

B. Glass Samples: For each type of glass product other than clear monolithic vision glass, 12 inches square.

C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

D. Product Certificates: For glass.

E. Product Test Reports: For insulating glass and glazing sealants, for tests performed by a qualified testing agency.

a. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.

F. Preconstruction adhesion and compatibility test report.

G. Sample Warranties: For special warranties

1.7 QUALITY ASSURANCE

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications
2. AAMA Publications
3. IGMAIGMAC Publications

B. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or the manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

C. Insulated glass products are to be permanently marked either on spacers or at least one insulating unit component with appropriate certification label of Insulating Glass Certification Council (IGCC).

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Adhesion and Compatibility Testing: For insulated or laminated glass types installed with glazing sealants, test each glass product, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.

a. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
b. Use ASTM C 1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
c. Test no fewer than eight samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
d. Schedule enough time for testing and analysis results to prevent delaying the Work.

e. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including the use of specially formulated primers.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.10FIELD CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

a. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

1.11WARRANTY

A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.

a. Warranty Period: 10 years from date of Substantial Completion.

B. Manufacturer's Special Warranty for Laminated Glass: Manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

a. Warranty Period: Five years from date of Substantial Completion.

C. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

a. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or gross breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the criteria noted.

1. Provide fully tempered glass in insulated units where required for safety glazing.

C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated according to the IBC and ASTM E 1300.

a. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7, based on heights above grade indicated on Drawings.
   i. Wind Design Data: As indicated on Drawings.
b. Design Snow Loads: As indicated on Drawings.
c. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less.
d. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

D. Safety Glazing: Where safety glazing is indicated and required, provide glazing that complies with 16 CFR 1201, Category II.

a. Provide safety glazing in all hazardous locations as defined and listed in the Ohio Building Code OBC 2016, Section 2406. The following is a general list of required safety glazing locations, it is not meant to be inclusive of all required locations:
   i. Glazing in swinging doors
   ii. Glazing in sliding doors.
   iii. Glazing in panels adjacent to door openings within 24 inches of the opening edge up to 60 inches above the floor.
   iv. Glazing in panels with all of the following: bottom edge below 18 inches above the floor, top edge 36 inches above the floor, walking surface within 36 inches of the panel and overall area of panel is greater than 9 square feet.

E. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

a. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
b. For laminated-glass lites, properties are based on products of construction indicated.
c. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
d. U-Factor: Center-of-glazing value, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
e. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
f. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.2 GLASS PRODUCTS, GENERAL

A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.

B. Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.

2.3 LAMINATED GLASS

A. Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.

1. Construction: Laminate glass with polyvinyl butyl interlayer or cast-in-place and cured-transparent-resin interlayer to comply with interlayer manufacturer's written recommendations.
2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
3. Interlayer Color: Clear unless otherwise indicated.

2.4 INSULATING GLASS

A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.

1. Sealing System: Dual seal.
2. Spacer: Manufacturer's standard spacer material and construction.

2.5 GLAZING GASKETS

A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:

1. Neoprene complying with ASTM C 864.
2. EPDM complying with ASTM C 864.
3. Silicone complying with ASTM C 1115.
4. Thermoplastic polyolefin rubber complying with ASTM C 1115.

B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene EPDM silicone or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.

1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

2.6 GLAZING SEALANTS

A. General:

1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. Colors of Exposed Glazing Sealants: Selected by Architect from manufacturer's full range.

B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.

a. Subject to compliance with requirements provide one of the following:
   i. Dow Corning Corporation; 795.
   ii. GE Silicones; SilPruf, SCS2000.
   iii. Pecora Corporation; 895NST.

b. Color: To Be Selected

2.7 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:

1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.8 MISCELLANEOUS GLAZING MATERIALS

A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

B. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

C. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

D. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

E. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

F. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

2.9 MONOLITHIC-GLASS TYPES

A. Glass Type : Clear float glass.

1. Thickness: 6.0 mm.
2. Provide safety glazing using laminated or tempered glass and labeling at doors, sidelites and other locations required by code.

2.10 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

C. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. Effective sealing between joints of glass-framing members.

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

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass lites where length plus width is larger than 50 inches.

a. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
b. Provide 1/8 inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

J. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

K. Where wedge-shaped gaskets are driven into one side of channel to pressureize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subject to movement.

L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.

D. Place joints in tapes at corners of openings where sealing lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until right before each glazing unit is installed.

F. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

3.5 GASKET GLAZING (DRY)

A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure to compress dense compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

E. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)

A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weeps. Install sealants to comply with requirements in Division 07 Section "Joint Sealants."

B. Install cylindrical sealant backing or bond breaker tape where indicated.

C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 CLEANING AND PROTECTION

A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

SECTION 09 29 00 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Interior gypsum board.

B. Related Requirements include the following:

1. Division 06 Section "Sheathing" for gypsum sheathing.
2. Division 09 Section "Tiling" for tiling backing panels.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For the following products:

1. Aluminum Trim: Full-size Sample in 12-inch- long length for each trim accessory indicated.

1.4 STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install interior products until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, moisture damaged, or mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or spidothy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sound Control Partitions: For sound-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. General: ASTM C 1396/C 1396M.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Certainteed Corporation.
   b. Continental Building Products, LLC.
   c. Georgia-Pacific Building Products.
   d. National Gypsum Company.
   e. USG Corporation.

B. Gypsum Wallboard:

1. Regular Type: For vertical surfaces unless indicated otherwise.
   a. Thickness: Refer to wall type schedule on drawings.
   b. Long Edges: Tapered.
2. Type X: Where indicated or required for fire resistance rated assemblies.
   a. Thickness: 5/8 inch.
   b. Long Edges: Tapered.
3. Ceiling Type: Manufactured to have more sag resistance than regular-type gypsum board.
   a. Thickness: 1/2 inch.
   b. Long Edges: Tapered.
4. Moisture- and Mold-Resistant Type: With moisture- and mold-resistant core and surfaces.
   a. Core: 5/8 inch, Type X.
   b. Long Edges: Tapered.
   c. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet.
2. Shapes:
   a. Cornerbead.
   b. LC-Bead: J-shaped; exposed long flange receives joint compound.
   c. L-Bead: L-shaped; exposed long flange receives joint compound.
   d. U-Bead: U-shaped; exposed short flange does not receive joint compound.
   e. Expansion (control) joint.
   f. Curved-Edge Cornerbead: With notched or flexible flanges.

B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Fry Reglet Corp.
   b. Gordon, Inc.
   c. Pittcon Industries.
2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.
2. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for succeeding coats.

1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
3. Fill Coat: For second coat, use setting-type, sandable topping or drying-type, all-purpose compound.
4. Finish Coat: For third coat, use setting-type, sandable topping or drying-type, all-purpose compound.
5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound or drying-type, all-purpose compound.
   a. High-build interior coating product designed for application by airless sprayer may be used instead of skim coat to produce Level 5 finish.

D. Joint Compound for Tile Backing Panels:

1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.

2.6 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

D. Sound-Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

E. Acoustical Sealant: As specified in Division 07 Section "Joint Sealants."

F. Thermal Insulation: As specified in Division 07 Section "Thermal Insulation."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, including welded hollow-metal frames and support framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

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

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Install panels off of base floor substrate. Provide 1/8 inch to 1/4 inch high maximum space at floor.

E. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

F. Form control and expansion joints with space between edges of adjoining gypsum panels. Each board should be supported by separate framing members.

1. Install control joints in accordance with the manufacturer's recommendations and where shown on the drawings, in addition to the following:
   a. Locate joints at points of maximum stress and/or at points of natural weak planes, such as at openings, juncture of dissimilar materials, and at re-entrant corners.
   b. Locate joints in interior walls directly over building control and expansion joints.
   c. Install control joints where partition abuts structural elements and dissimilar construction.
   d. Locate joints in ceilings with a maximum of 50' between joints and a maximum of 2500 sq. ft. per undivided panel and where wings of "L", "U", and "T" shaped areas are joined.
   e. Locate joints in interior partitions and walls without openings, with a maximum spacing of thirty feet (30') between joints.

G. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Fit gypsum panels around ducts, pipes, and conduits and install required sealant.
2. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.

H. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

I. Sound Control Partitions and STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
   a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
   b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

B. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints 1 framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

C. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

D. Wall Terminations:

1. Fire Rated Assemblies: Where walls are indicated as a fire rated assembly, terminate top of wall per designated UL assembly.
2. Non-Rated Assemblies: Where non-rated walls are indicated to extend to the underside of the deck, terminate top of wall as follows;
   a. Do not utilize fire rated sealants in non-rated assemblies.
   b. All side terminations are to be installed to prohibit visible gaps. Extend gypsum board tight to terminating item or extend gypsum board to within ½ inch and provide acoustical sealant.

E. Wall Penetrations: At all penetrations including but not limited to ducts, pipes, conduit, and wires/cables.

1. Fire Rated Assemblies: Where walls are indicated as a fire rated assembly, install materials to meet the designated UL assembly.
2. Smoke Partitions: Intent is to prohibit all visible gaps in wall system.
   a. Install gypsum board to within ½ inch of penetrating item and provide acoustical sealant to prohibit all visible gaps through wall. Utilize backer material (mineral wool) for sealant back up.
   b. Do not utilize fire rated sealants in smoke partitions.
3. Non-Rated Assemblies:
   a. Install gypsum board to within ½ inch of penetrating item and provide acoustic sealant to prohibit all visible gaps through wall. Utilize backer material (mineral wool) for sealant back up.
   b. Do not utilize fire rated sealants in non-rated assemblies.

3.4 APPLYING TILE BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Panel: Comply with manufacturer's written installation instructions and install where indicated. Install with 1/4-inch gap where panels abut other construction or penetrations.

B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

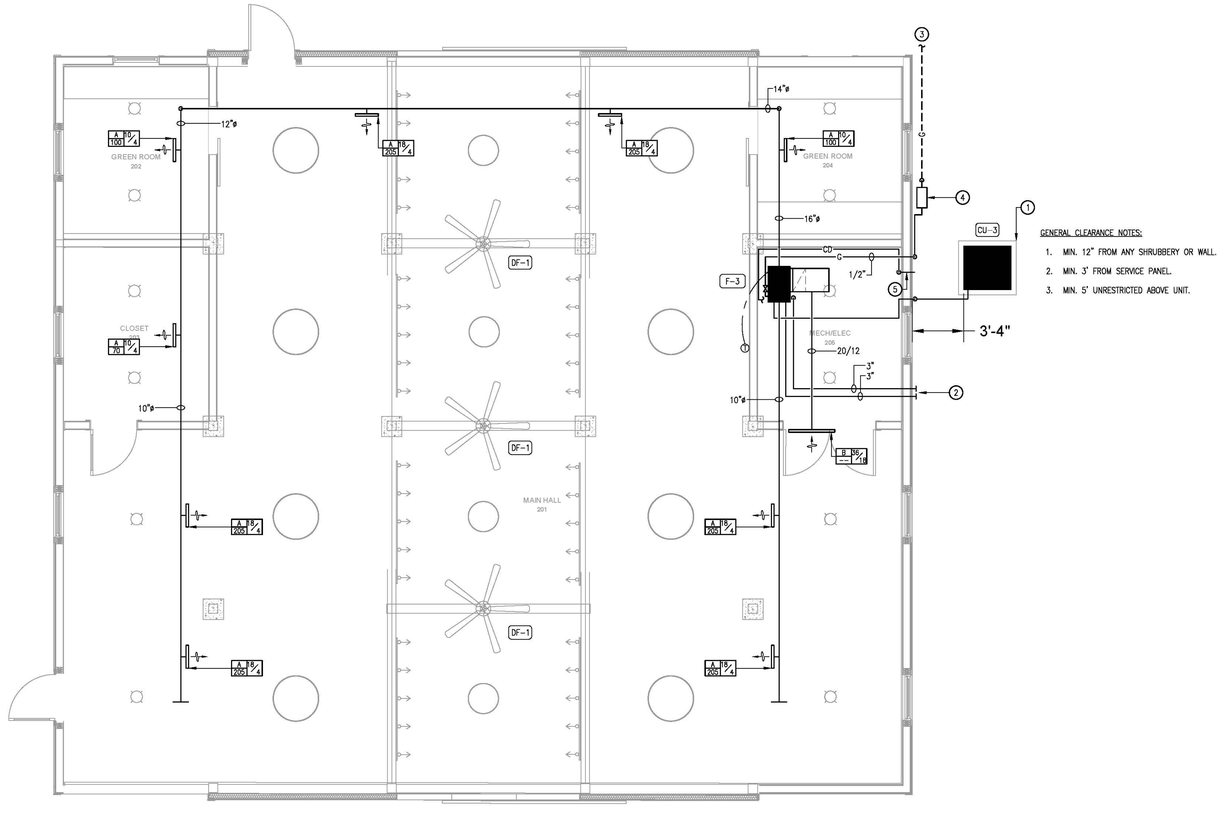
3.5 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints at locations indicated on Drawings according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners.
2. Bullnose Bead: Use where



1 BARN MECHANICAL PLAN

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

1' 2' 4' 8'

CODED NOTES:

1. SET CONDENSING UNIT ON 4" CONCRETE PAD.
2. DIRECT VENT FURNACE FLUE AND INTAKE.
3. NEW NATURAL GAS SERVICE LINE FROM SITE.
4. PROVIDE NEW NATURAL GAS METER SET.
5. 3/4" CONDENSATE PIPE SHALL BE DAYLIGHTED.

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PROJECT # 2324

ISSUE:

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BARN MECHANICAL PLAN

M11.1

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