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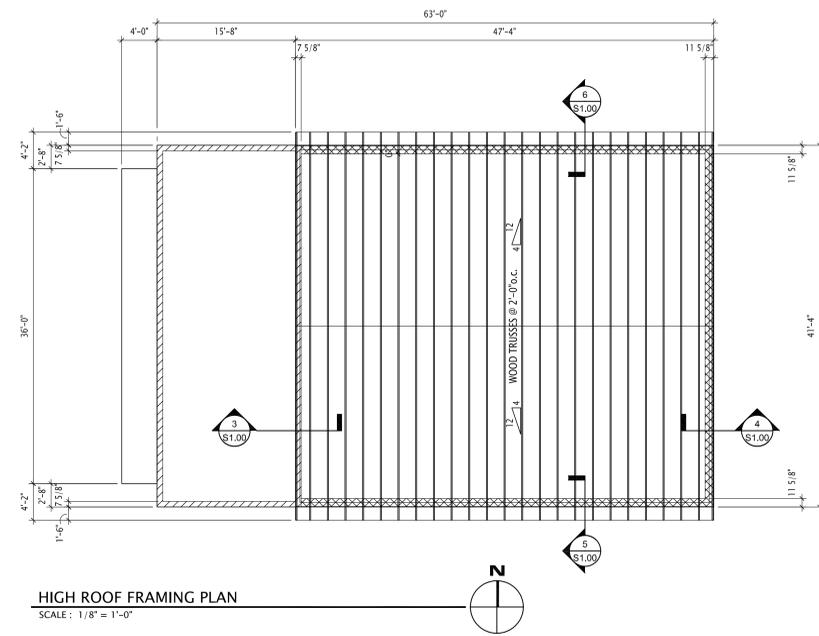
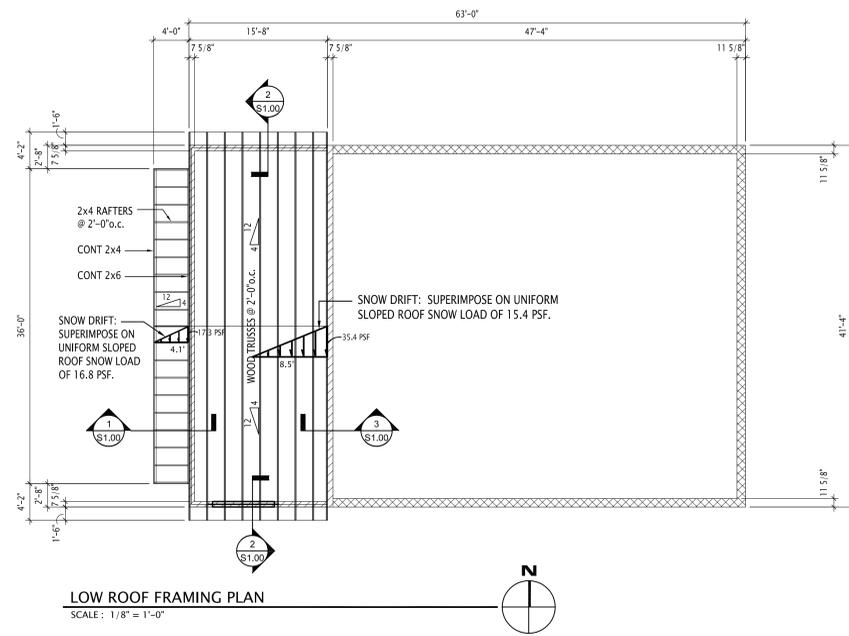
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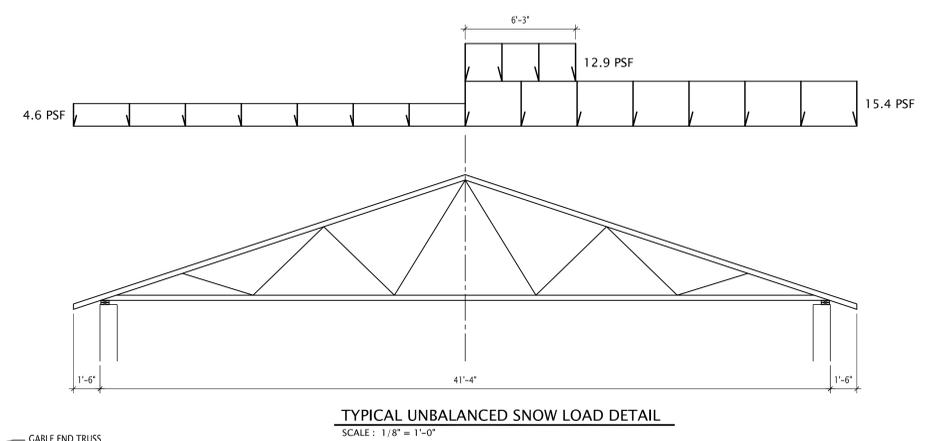
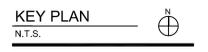
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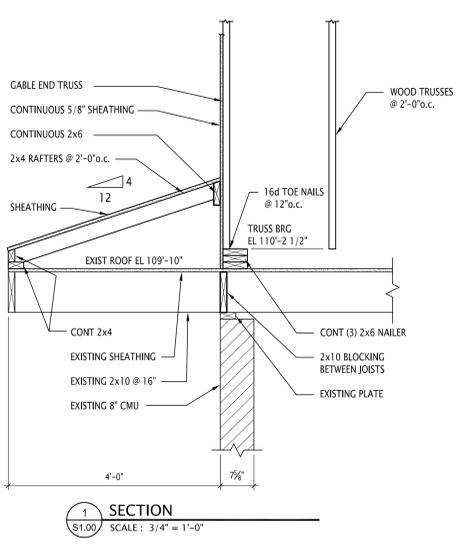


LOW ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"

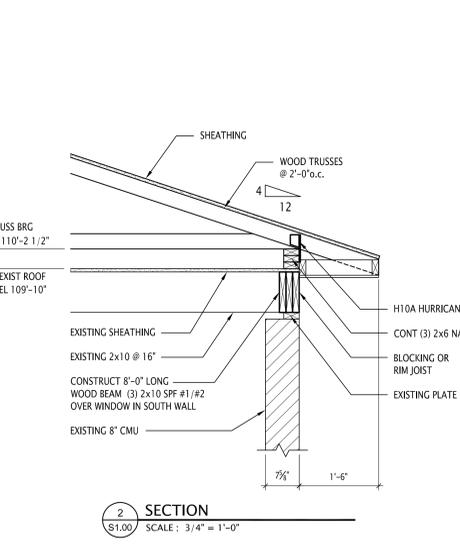
HIGH ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"



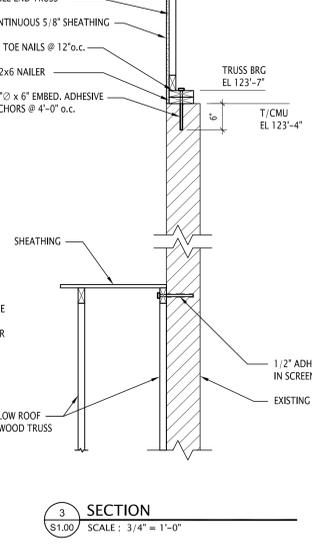
TYPICAL UNBALANCED SNOW LOAD DETAIL
SCALE: 1/8" = 1'-0"



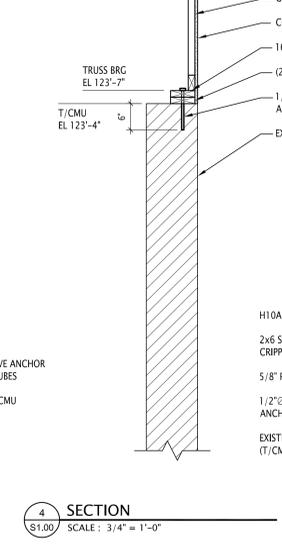
SECTION 1
SCALE: 3/4" = 1'-0"



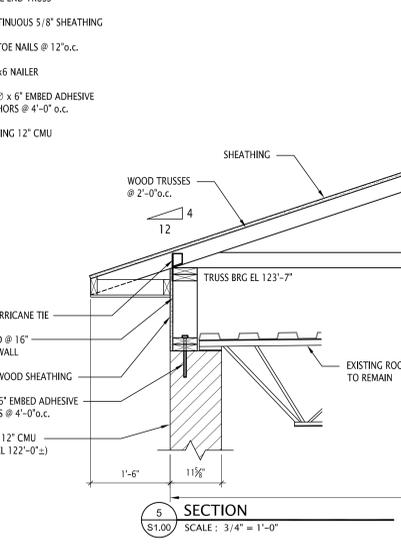
SECTION 2
SCALE: 3/4" = 1'-0"



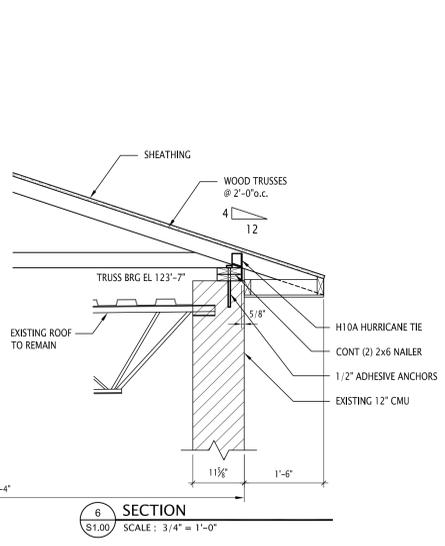
SECTION 3
SCALE: 3/4" = 1'-0"



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



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



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

PROJECT TITLE
Lucas Co. Bd. of Commissioners Roof System Replacement
1049 S. McCord
Holland, Ohio

CHECKED XXX
APPROVED XXX

TCJ JOB NO. 106274
LKL JOB NO. 14-11901

SHEET TITLE
ROOF FRAMING PLAN

SHEET NO.
S1.00

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STRUCTURAL DESIGN CRITERIA

- A. General
 - 1. Building Code: 2011 Ohio Building Code
 - 2. Occupancy Category: II
- B. Floor Live Load
 - 1. General Areas Unless Indicated: 100 psf
- C. Roof Live Load
 - 1. Pitched Roof (4:12): 20 psf
- D. Roof Snow Load
 - 1. Snow Exposure Factor, Ce: 1.00
 - 2. Thermal Factor, Ct: 1.10
 - 3. Snow Load Importance Factor, Is: 1.00
 - 4. Ground Snow Load, Pg: 20.0 psf
 - 5. Pitched Roof Balanced Snow Load (4-12), Ps: 15.4 psf
 - 6. Snow Drifts and Unbalanced Loads: As indicated
- E. Wind Design Data
 - 1. Basic Wind Speed, V: 90 mph
 - 2. Exposure Classification: B
 - 3. Enclosure Classification: Enclosed
 - 4. Mean Roof Height, H: 28-ft
 - 5. Wind Directionality Factor, Kd: 0.85
 - 6. Topographic Factor, Kzt: 1.00
 - 7. Gust Response Factor, G: 0.85
 - 8. Internal Pressure Coefficient, GCpi: 0.18
 - 9. Wind Load Importance Factor, Iw: 1.00
- F. Earthquake Design Data
 - 1. Site Class: D
 - 2. Seismic Design Category, SDc: B
 - 3. Mapped Short Period SRA, Ss: 0.159
 - 4. Mapped One Second Period SRA, S1: 0.052
 - 5. Short Period Design SRA, Sds: 0.170
 - 6. One Second Period Design SRA, Sd1: 0.083
 - 7. Seismic Load Importance Factor, Ie: 1.00
 - 8. Approximate Fundamental Period, Ta: 0.24 s
 - 9. Seismic Response Coefficient, Cs: 0.11
 - 10. Basic Seismic Force Resisting System: Ordinary Plain Masonry Shear Walls
 - 11. Response Modification Coefficient, R: 1-1/2
 - 12. Analysis Procedure: Equivalent Lateral Force Procedure

ANCHORAGE TO CONCRETE AND MASONRY

- A. Comply with the following:
 - 1. Specification for Masonry Structures (TMS 602-11/ACI 530.1-11/ASCE 6-11.)
 - 2. Building Code Requirements for Masonry Structures (TMS 402-11/ACI 530-11/ASCE 5-11)
- B. Furnish and install anchors of the type and materials indicated in the locations indicated. Substitution of anchor types is not permitted without prior authorization of structural engineer of record.
- C. Post-Installed Anchorage to Masonry
 - 1. Anchorage is designed for service loads using technical data published by anchor manufacturer for the design-basis anchor. Substitution request for anchors of another type or manufacturer shall be accompanied by ICC Evaluation Service Report and calculations showing equivalent capacity to the design basis anchor.
 - 2. Install anchors in accordance with Manufacturer's Printed Installation Instructions included in the anchor packaging. Anchor manufacturer's representative shall provide onsite installation training for each type of anchor utilized.
 - 3. Post installed adhesive anchors for installation in solid-grouted concrete masonry shall be approved in accordance with ICC-ES AC508.
 - a. Design Basis Anchor:

Adhesive:	Hilti HIT-HY 70
Carbon Steel Threaded Rod:	ASTM A193-08, Grade B7, zinc coated.
Stainless Steel Threaded Rod:	ASTM F593-08, Type 316, Condition CW.
 - 4. Adhesive anchors for installation in solid brick and hollow masonry.
 - a. Design Basis Anchor:

Adhesive:	Hilti HIT-HY 70
Carbon Steel Threaded Rod:	ASTM A193-08, Grade B7, zinc coated.
Stainless Steel Threaded Rod:	ASTM F593-08, Type 316, Condition CW.
Screen Tube:	Plastic screen tube with driving collar.
 - 5. Install adhesive anchors in dry masonry with minimum substrate temperature of 41 degrees.

WOOD FRAMING

- A. Comply with the following:
 - 1. National Design Specification for Wood Construction, 2012 Edition (ANSI/AWC NDS-2012).
 - 2. Special Design Provisions for Wind and Seismic (ANSI/AF&PA SDPWS-2008).
 - 3. Wood Frame Construction Manual, 2012 Edition (ANSI/AWC WFCM-2012).
 - 4. National Design Standard for Metal Plate Connected Wood Truss Construction (ANSI/TPI 1-2007).
- B. Dimension Lumber and Timber
 - 1. Provide dimension lumber and timber members of following species and grades unless indicated, or of other softwood species of equivalent or better mechanical properties.
 - a. Exterior Load-Bearing Walls: SPF, STUD grade.
 - b. Top and Bottom Wall Plates: SPF, No. 1/No. 2 grade.
 - c. Joists, Rafters, Headers, Beams: SPF, No. 1/No. 2 grade.
 - d. Nailers, Blocking, Bridging, Bracing: SPF STANDARD grade.
 - 2. Maximum moisture content = 19 percent.
 - 3. Dressed on four sides (S4S) unless rough sawn (RGH) is indicated.
- C. Metal Plated Wood Trusses
 - 1. Fabricate trusses from dimension lumber of species and grade required by design. Use preservative-treated or fire-retardant treated wood where indicated.
 - 2. Connector Plates:
 - a. Interior exposure: Minimum 0.036-in thick, hot-dip galvanized steel sheet conforming to ASTM A653 with G60 coating.
 - b. Preservative-treated wood, fire-retardant treated wood, or exterior exposure: Minimum 0.035-in thick, Type 304 stainless steel sheet conforming to ASTM A666.
 - 3. Engage professional engineer licensed in state of project to perform structural design of trusses. Professional engineer shall certify design and affix seal to truss shop drawings.
 - 4. Design roof trusses for following loads and deflection limits:
 - a. Top chord dead: 10 psf
 - b. Bot chord dead: 5 psf
 - c. Top chord roof live: 20 psf
 - d. Top chord snow: As indicated in Structural Design Criteria
 - e. Bot chord attic: 20 psf
 - f. Live/snow load deflection limit: Span/240
 - 5. Furnish metal framing connectors and fasteners required for truss-to-truss connections.
- D. Fasteners
 - 1. Install fasteners of type, diameter, and length as indicated
 - a. Nails, Spikes, and Staples: ASTM F1667
 - b. Power-Driven Fasteners: NES NER-272
 - c. Wood Screws: ASME B18.6.1
 - d. Lag Screws: ASME B18.6.1
 - e. SDS Screws: Simpson Strong-Tie, Strong-Drive
 - f. SDWS Screws: Simpson Strong-Tie, Strong Drive
 - g. Carbon Steel Bolts, Nuts, Washers: ASTM A307/ASTM A563
 - h. Stainless Steel Bolts, Nuts, Washers: ASTM F553/ASTM F594
 - 2. Fasteners used in preservative-treated wood or fire-retardant treated wood:
 - a. Interior Exposure: Hot-dip galvanized, ASTM A153
 - b. Exterior Exposure or areas of high humidity: Type 304 stainless steel
 - c. Exterior Exposure exposed to deicing salts: Type 316 stainless steel
 - 3. Nails shall be common nails with the following uncoated dimensions unless indicated:
 - a. 8d 2-1/2-in x 0.131-in
 - b. 10d 3-in x 0.148-in
 - c. 12d 3-1/4-in x 0.148-in
 - d. 16d 3-1/2-in x 0.162-in
 - e. 20d 4-in x 0.192-in
 - 4. Nails, lag screws, and wood screws shall penetrate minimum of ten times their diameter into main member.
 - 5. Install flat washer under head and nut of bolts and lag screws.
- E. Metal Framing Connectors
 - 1. Furnish manufactured metal framing connectors as indicated or as required to resist applied loads and to securely anchor and connect wood members.
 - 2. Design-basis framing connectors are standard products of Simpson Strong-Tie Company, Inc. using fasteners required for maximum strength of connector. Substitution request for connector of another manufacturer shall be accompanied by data showing equivalent capacity to the design basis connector.
 - 3. Notify Engineer when standard framing connectors are unsuitable for required capacity, member size, pitch, skew, and material.
 - 4. When specific framing connectors are not indicated, furnish the connectors of following Simpson Strong-Tie series suitable for the specified loads and conditions.
 - a. Roof rafter to double plate connection: H10A
 - b. Roof truss to double plate connection
 - i) Span less than or equal to 40-ft: H10A
 - ii) Span greater than 40-ft: H14
 - 5. Framing connectors and fasteners used for preservative-treated wood or fire-retardant treated wood:
 - a. Interior Exposure: Hot-dip galvanized, ASTM A153
 - b. Exterior Exposure or areas of high humidity: Type 304 stainless steel
 - c. Exterior Exposure exposed to deicing salts: Type 316 stainless steel
- F. Preservative Treatment
 - 1. Pressure treat wood and wood products requiring preservative treatment with water-borne preservatives in accordance with AWPA U1. Dry wood after treatment to maximum moisture content of 19 percent.
 - 2. Install preservative-treated wood in the following locations:
 - a. Wood exposed to weather. Use Category UC3B
 - b. Wood in contact with earth. Use Category UC4A.
 - c. Wood floor construction including posts, girders, subfloor, and joists, where subfloor or wood joists are closer than 18" to exposed earth or wood girders are closer than 12" to exposed earth in crawl and unexcavated spaces. Use Category UC2.
 - d. Wood framing members, blocking, and furring attached to the interior surface of exterior masonry walls below grade. Use Category UC2
 - e. Wood members including sheathing resting on exterior foundation walls and less than 8-in from exposed earth. Use Category UC3A.
 - f. Sleepers and sills on concrete slabs-on-grade. Use Category UC2.
 - g. Wood posts or columns supported on concrete slab or footing in direct contact with the earth unless the bottom of post or column is located more than 6-in above exposed earth and supported on 1-in min stand-off post base. Use Category UC3B.
- G. Interconnect plies of multi-ply posts, columns, beams, and girders with two rows of nails or SDSW screws at 16-in maximum centers. Fasteners shall have sufficient length to fully penetrate all plies. Install alternate fasteners from opposite sides of member.
- H. Install members in one piece between points of support unless indicated.
 - 1. Holes and Notches
 - 1. Do not notch dimension lumber joists or rafters unless shown or approved in writing by Engineer. Holes not exceeding one sixth the depth of the joist and not within 2-in of top or bottom edge may be located in the middle third of the span. Multiple holes shall be spaced no closer than the twice the depth of the member and shall be located at the same relative depth in the member.
 - 2. Do not notch I-joists and limit web holes to the size and locations permitted by joist manufacturer.
 - 3. Do not notch or cut holes in any truss member.

WOOD SHEATHING

- A. Comply with the following:
 - 1. National Design Specification for Wood Construction, 2012 Edition (ANSI/AWC NDS-2012).
 - 2. Special Design Provisions for Wind and Seismic (ANSI/AF&PA SDPWS-2008).
- B. Material
 - 1. Oriented Strand Board (OSB) conforming to DOC PS2.
 - 2. Minimum panel size 4-ft x 8-ft except at boundaries and changes in framing orientation. Minimum width of panel = 12-in.
- C. Fasteners
 - 1. Fasteners for attaching to wood framing
 - a. Common Nails: ASTM F1667 with following uncoated dimensions:
 - i) 8d 2-1/2-in x 0.131-in
 - ii) 10d 3-in x 0.148-in
 - 2. Locate fasteners minimum of 3/8-in from panel edges.
- D. Roof Sheathing
 - 1. Roof Sheathing: 7/16 or 15/32-in thick, 24/16 minimum span rating, Exposure 1.
 - 2. Place panel with long dimension across supports and stagger joints in adjacent rows by 4-ft.
 - 3. Center joints over and attach to common framing members. Fastener spacing:
 - a. Panel Edges: 6-in, unless indicated.
 - b. Intermediate Supports: 12-in.
 - c. Nail to wood framing with 8d common nails.
- E. Wall Sheathing
 - 1. Wall Sheathing: 7/16, or 15/32-in, thick, 24/16 minimum span rating, Exposure 1.
 - 2. If stud spacing is greater than 16-in, place 7/16-in thick panels with long dimensions across supports.
 - 3. Center joints over and attach to common studs. Fastener spacing:
 - a. Panel Edges: 6-in, unless indicated.
 - b. Intermediate Supports: 6-in, when stud spacing exceeds 16-in, 12-in, when stud spacing is 16-in or less.
 - c. Nail to wood framing with 8d common nails.



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KEY PLAN N.T.S.

PROJECT TITLE Lucas Co. Bd. of Commissioners Roof System Replacement 1049 S. McCord Holland, Ohio

Table with 2 columns and 10 rows for project details.

CHECKED XXX APPROVED XXX

TCI JOB NO. 106274 LKL JOB NO. 14-11901

SHEET TITLE GENERAL STRUCTURAL NOTES

SHEET NO. S2.00

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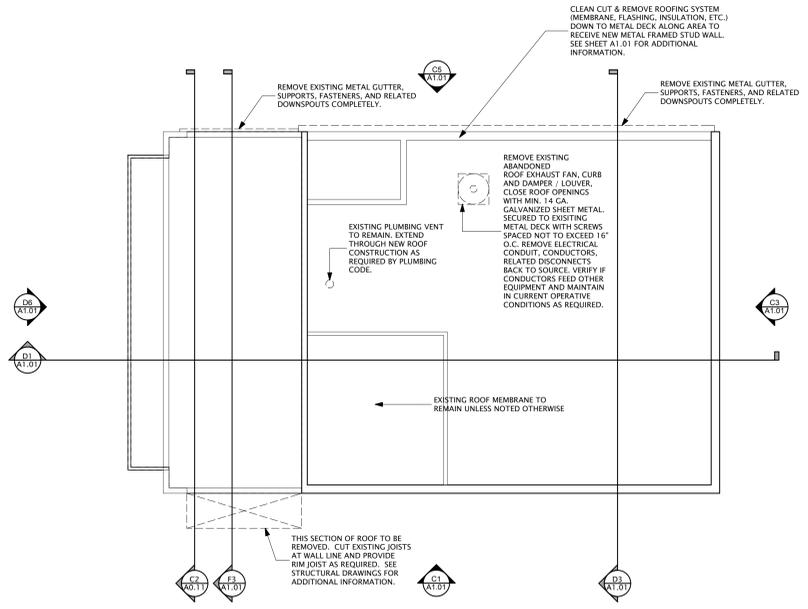
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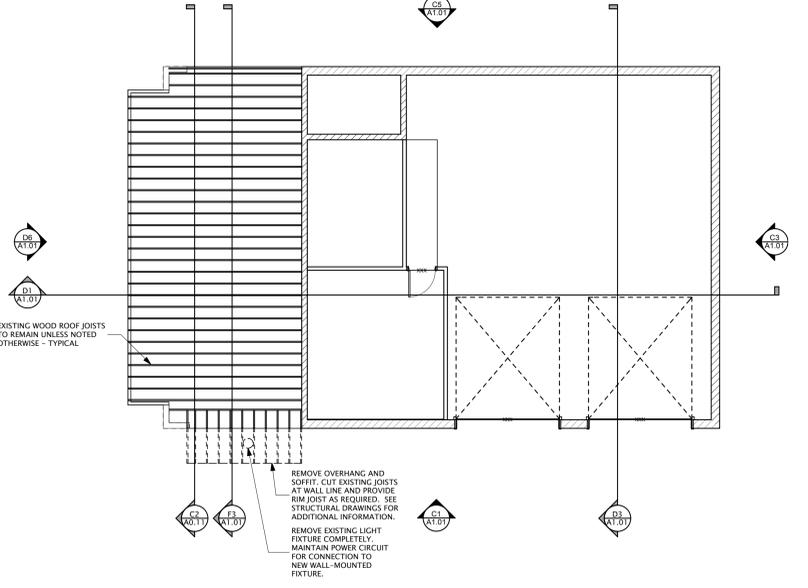
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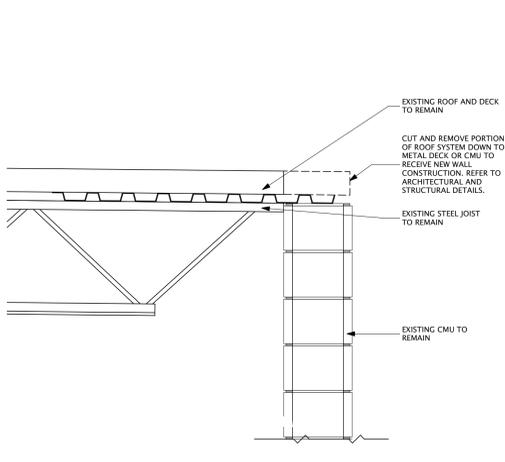
E4 HIGH ROOF DEMOLITION PLAN

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



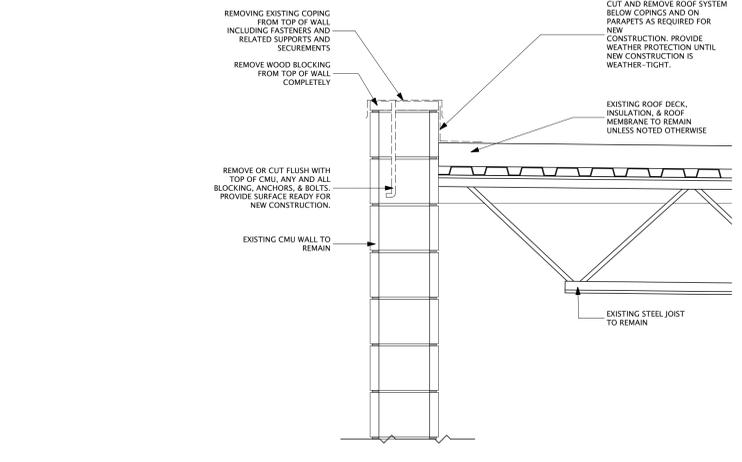
B4 2nd FLOOR DEMO

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



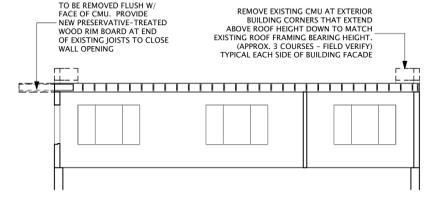
A5 ROOF DEMOLITION DETAIL

SCALE: 1" = 1'-0"



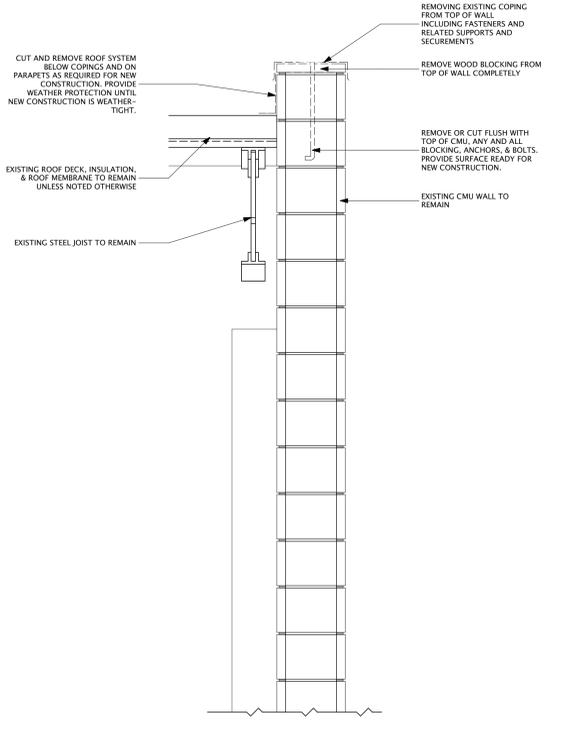
A4 ROOF DEMOLITION DETAIL

SCALE: 1" = 1'-0"



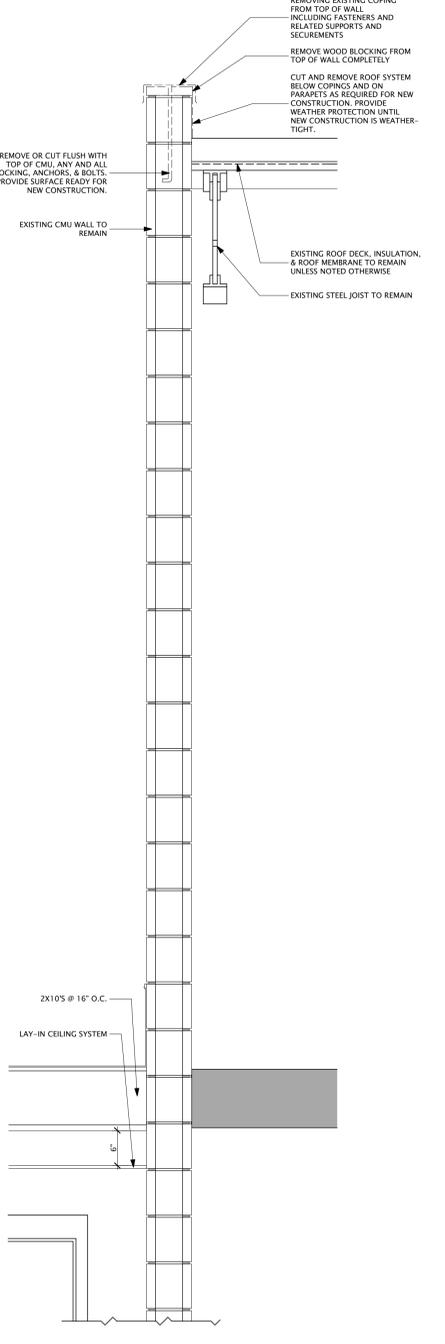
C2 DEMOLITION CROSS SECTION

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



A2 ROOF DEMO DETAIL

SCALE: 1" = 1'-0"

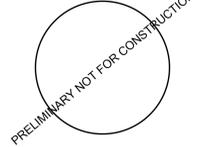


A1 ROOF DEMO DETAIL

SCALE: 1" = 1'-0"



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N.T.S.

PROJECT TITLE
Lucas Co. Bd. of Commissioners Roof System Replacement

1049 S. McCord Rd
Holland, Ohio

09/15/2014	ISSUED FOR PERMIT
09/03/2014	ISSUED FOR BIDDING
08/06/2014	PRELIMINARY DRAWINGS

CHECKED ARB
APPROVED ARB

TCI JOB NO. 106274

SHEET TITLE
DEMOLITION

SHEET NO.

A0.11



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PRELIMINARY NOT FOR CONSTRUCTION

KEY PLAN
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Lucas Co. Bd. of Commissioners Roof System Replacement

1049 S. McCord Rd
 Holland, Ohio

09/15/2014 ISSUED FOR PERMIT
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CHECKED ARB
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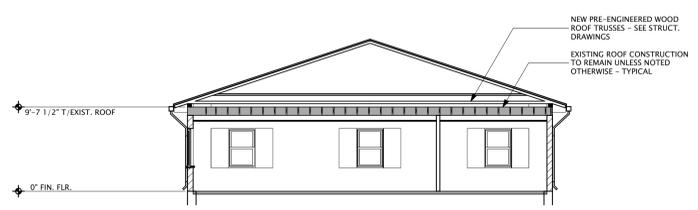
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PLANS, SECTIONS, & ELEVATIONS

SHEET NO.

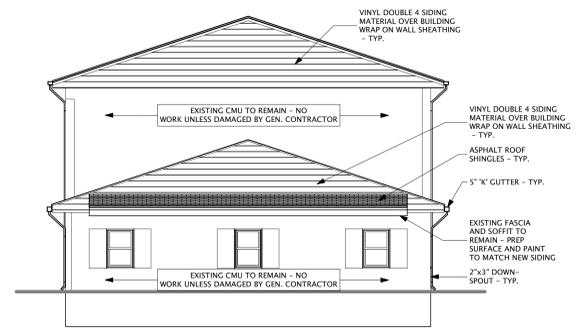
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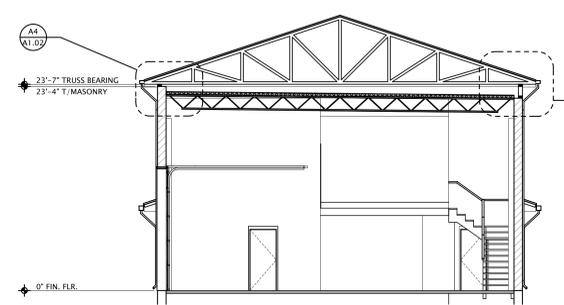
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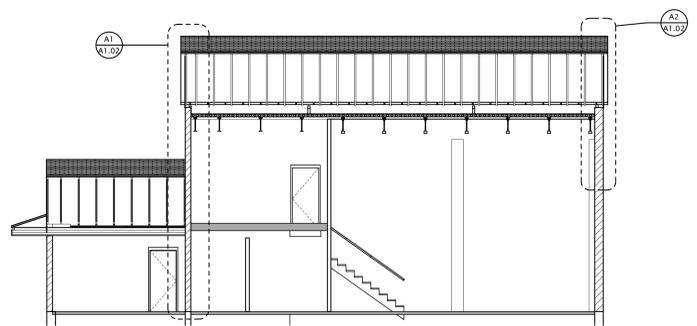
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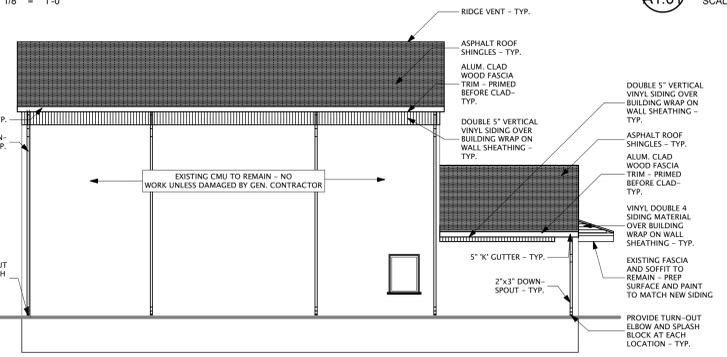
D6 WEST ELEVATION
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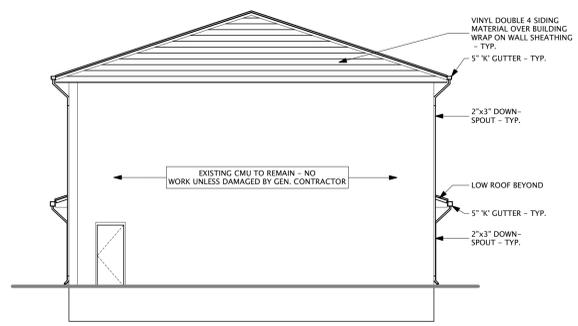
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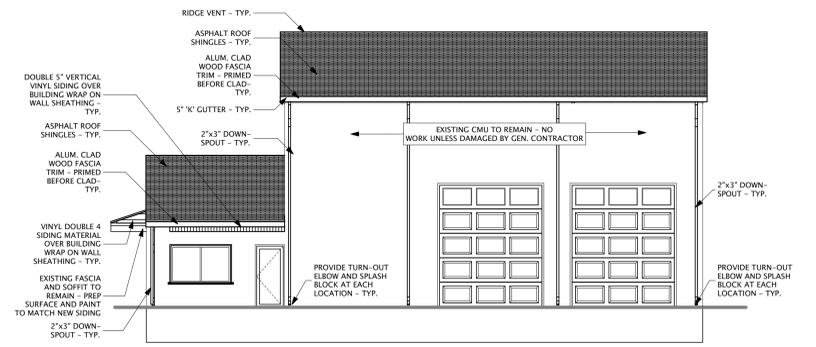
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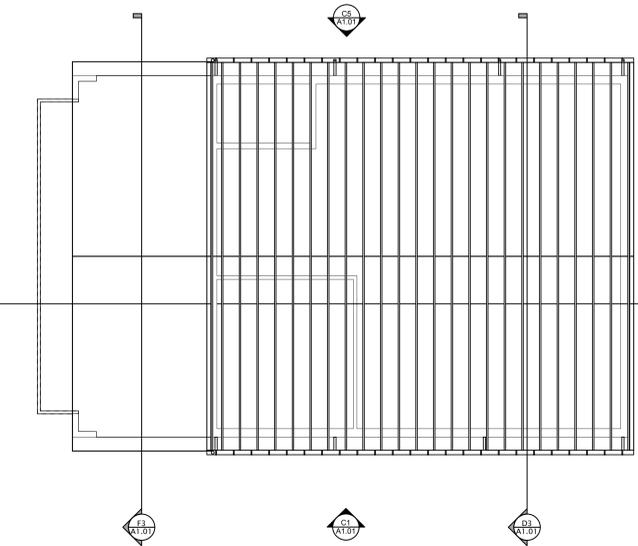
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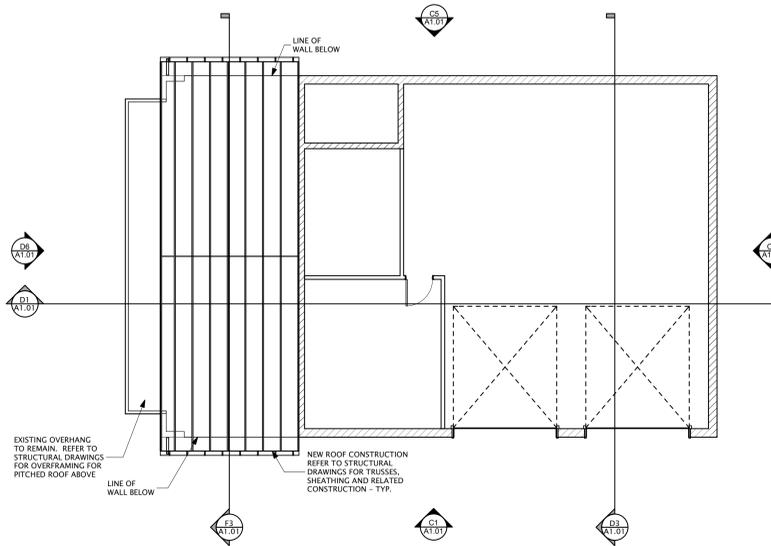
C3 EAST ELEVATION
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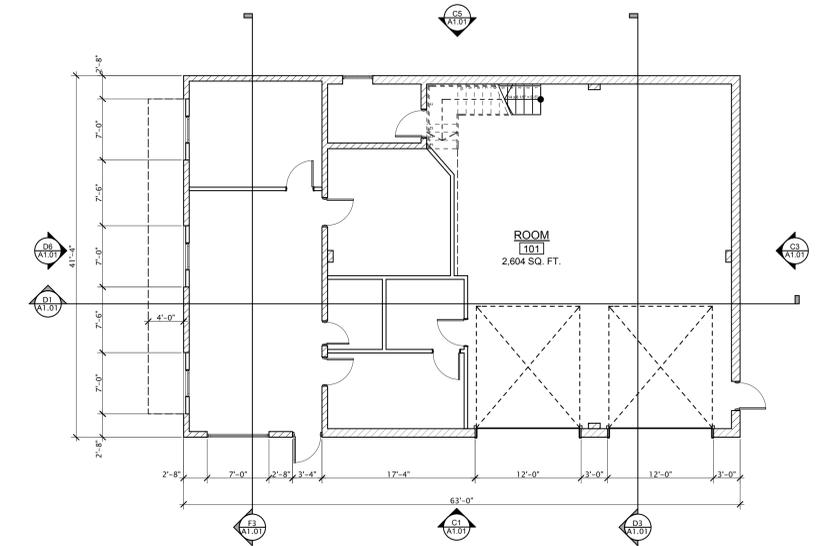
C1 SOUTH ELEVATION
 SCALE: 1/8" = 1'-0"



A5 HIGH ROOF FRAMING PLAN
 SCALE: 1/8" = 1'-0"



A3 LOW ROOF FRAMING PLAN
 SCALE: 1/8" = 1'-0"



A1 1st FLOOR PLAN
 SCALE: 1/8" = 1'-0"

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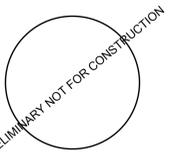
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KEY PLAN
N.T.S.

PROJECT TITLE
Lucas Co. Bd. of Commissioners
Roof System Replacement

1049 S. McCord Rd
Holland, Ohio

09/15/2014 ISSUED FOR PERMIT
09/03/2014 ISSUED FOR BIDDING
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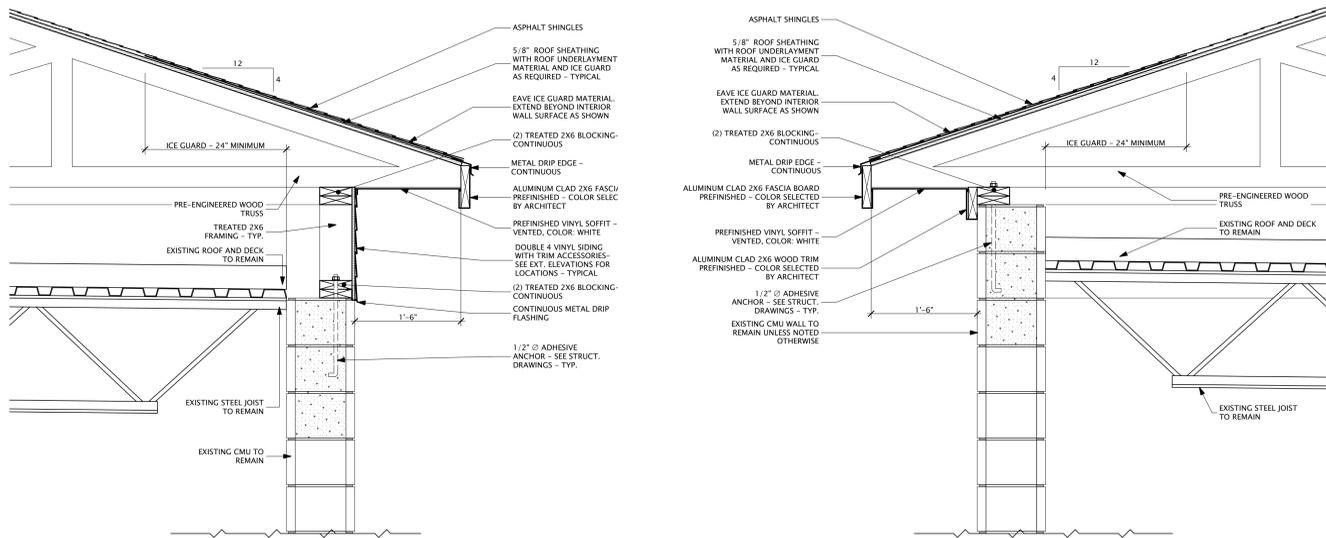
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TCI JOB NO. 106274

SHEET TITLE
SECTIONS AND DETAILS

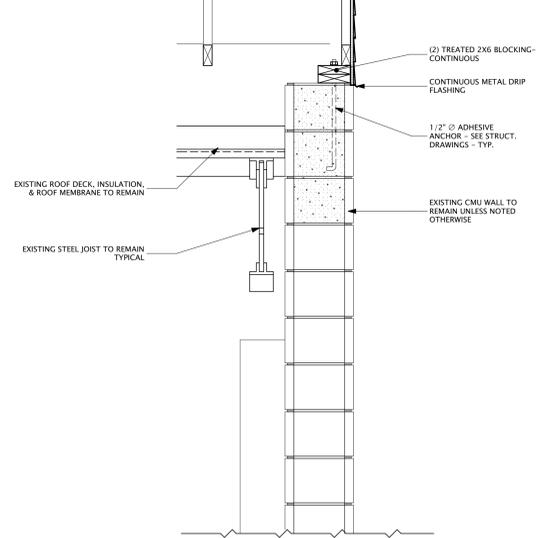
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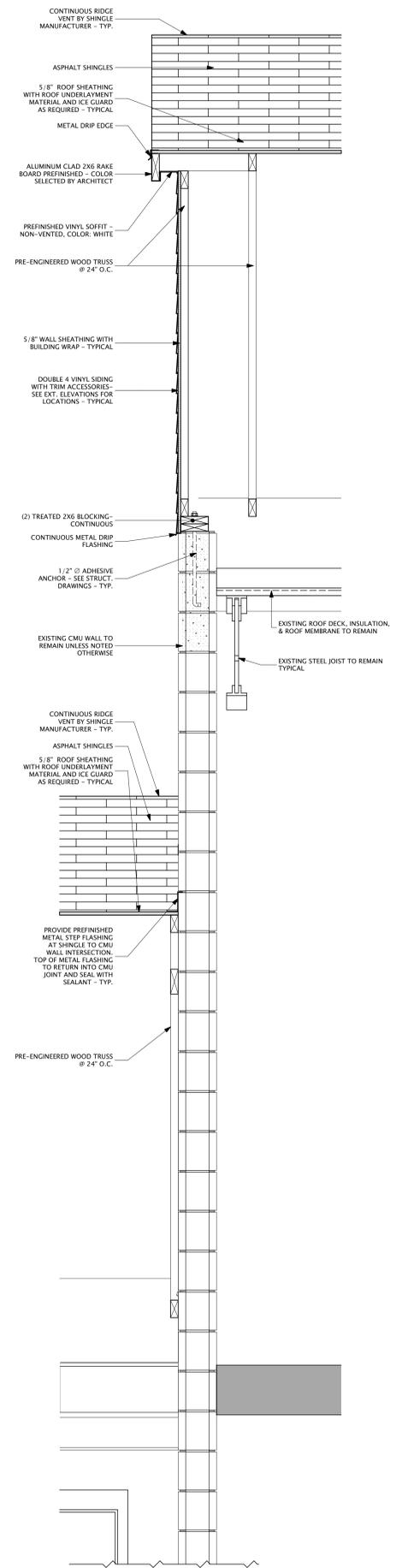


A6 ROOF DETAIL
SCALE: 1" = 1'-0"

A4 ROOF DETAIL
SCALE: 1" = 1'-0"



A2 ROOF DETAIL
SCALE: 1" = 1'-0"



A1 ROOF DETAIL
SCALE: 1" = 1'-0"

SECTION 011000 - SUMMARY

- 1.1 RELATED DOCUMENTS
 - A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- 1.2 SUMMARY
 - A. Section Includes:
 1. Existing roofing system as required for installation of new pre-engineered wood truss roof system with asphalt shingles and related trim and accessories. Related minor electrical work consisting of demolition, and relocated circuits for new lighting fixtures is included. Exterior sheathing, building wrap, flashings, siding, and aluminum cladding materials, soffits, and related construction are included. Refer to structural and architectural drawings for full scope of required work.
 - B. Type of Contract:
 1. Project will be constructed under a single prime contract.

- 1.3 PROJECT INFORMATION
 - A. Project Identification: Roof System Replacement.
 1. Project Location: Lucas County Engineer Complex, 1049 S. McCord Road, Holland, Ohio.
 - B. Owner: Lucas County Board of Commissioners.
 1. Owner's Representative: Mark Drennon, Administrative Deputy, 1049 S. McCord Road, Holland, Ohio 43528; telephone: (419) 213-2860.
 - C. Architect: The Collaborative, Inc.; 500 Madison Ave, Toledo, Ohio 43604; Audie R. Bates, AIA, Project Manager, (419) 242-7405.
 1. Architect's Representative: The Collaborative, Inc.; 500 Madison Ave, Toledo, Ohio 43604; Audie R. Bates, AIA, Project Manager, (419) 242-7405.
 - D. Architect's Consultants: The Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:
 1. Structural Engineering: LKL Engineers, Ltd.; 2735 N. Holland-Sylvania, Suite A-2, Toledo, Ohio 43615.
 - E. Project Web Site: A project Web site administered by Architect will be used for purposes of managing communication and documents during the construction stage.

- 1.4 WORK COVERED BY CONTRACT DOCUMENTS
 - A. The Work of Project is defined by the Contract Documents and consists of the following:
 1. Selective demolition of existing roof system as required for installation of new pre-engineered wood truss roof system with asphalt shingles and related trim and accessories. Related minor electrical work consisting of demolition, and relocated circuits for new lighting fixtures is included. Exterior sheathing, building wrap, flashings, siding, and aluminum cladding materials, soffits, and related construction are included. Refer to structural and architectural drawings for full scope of required work.
 - B. Type of Contract:
 1. Project will be constructed under a single prime contract.

- 1.5 ACCESS TO SITE
 - A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
 1. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
 - B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
 1. Maintain access to existing walkways, corridors, and other adjacent occupied or use facilities. Do not close or obstruct walkways, corridors, or other occupied or use facilities without written permission from Owner and approval of authorities having jurisdiction.
 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

- 1.6 COORDINATION WITH OCCUPANTS
 - A. Full Owner Occupancy: Owner will occupy site and existing building(s) during entire construction period. Cooperate with Owner so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
 1. Maintain access to existing walkways, corridors, and other adjacent occupied or use facilities. Do not close or obstruct walkways, corridors, or other occupied or use facilities without written permission from Owner and approval of authorities having jurisdiction.
 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

- 1.7 WORK RESTRICTIONS
 - A. Work Restrictions: General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
 - B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 4:30 p.m., Monday through Friday, unless otherwise indicated.
 1. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated.
 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 2. Obtain Owner's written permission before proceeding with utility interruptions.
 2. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise or vibration, odors, or other disruption to Owner occupancy with Owner.
 1. Notify Owner not less than two days in advance of proposed disruptive operations.
 2. Obtain Owner's written permission before proceeding with disruptive operations.
 - C. Smoking: Building Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor-air intakes.
 1. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
 2. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

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

SECTION 012500 - SUBSTITUTION PROCEDURES

- 1.1 RELATED DOCUMENTS
 - A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- 1.2 SUMMARY
 - A. Section includes administrative and procedural requirements for substitutions.
 - B. Related Requirements:
 1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
- 1.3 DEFINITIONS
 - A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

- 1.4 ACTION SUBMITTALS
 - A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 1. Substitution Request Form: Use facsimile of form provided in Project Manual.
 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code and in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specifying effect on the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.

- 3. m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 - 1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time indicated.
 - 2. The Architect will not consider requests for substitution related to bidding less than five (5) business days before the published date for receipt of bids.
- 1.5 QUALITY ASSURANCE
 - A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.
- 1.6 PROCEDURES
 - A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitution.
- 1.7 SUBSTITUTIONS
 - A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Requested substitution provides sustainable design characteristics that specified product provided.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect Contractor's construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
 2. Substitutions for Convenience: Not allowed unless otherwise indicated.

SECTION 013300 - SUBMITTAL PROCEDURES

- 1.1 RELATED DOCUMENTS
 - A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- 1.2 SUMMARY
 - A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
 - B. Related Requirements:
 1. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 2. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
- 1.3 DEFINITIONS
 - A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
 - B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
 - C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
 - D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.
- 1.4 ACTION SUBMITTALS
 - A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

- 1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS
 - A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
 - B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
 - C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 - D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
 4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Contractor.
 - e. Name of firm or entity that prepared submittal.
 - f. Names of subcontractor, manufacturer, and supplier.
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Specification Section number and title.
 - j. Specification paragraph number or drawing designation and generic name for each of products specified.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.

- n. Indication of full or partial submittal.
 - o. Transmittal number, numbered consecutively.
 - p. Submittal and transmittal distribution record.
 - q. Other necessary identification.
 - r. Remarks.
 - E. Options: Identify options requiring selection by Architect.
 - 1. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
 - F. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
 - G. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.
 - 1.6 SUBMITTAL PROCEDURES
 - A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 1. Submit electronic submittals via email as PDF electronic files.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic project record document file.
 2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
 - B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Standard color charts.
 - c. Statement of compliance with specified referenced standards.
 - d. Testing by recognized testing agency.
 - e. Notation of coordination requirements.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit Product Data in the following format:
 - a. PDF electronic file.
 - C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted.
 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Compliance with specified standards.
 - c. Notation of coordination requirements.
 - d. Notation of dimensions established by field measurement.
 - e. Relationship and attachment to adjoining construction clearly indicated.
 - f. Seal and signature of professional engineer, specifying available corresponding electronic submittal.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm), but no larger than 30 by 42 inches (750 by 1067 mm).
 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file.
 4. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 1. Transmittal packages that contain multiple, related components such as accessories together in one submittal package.
 - a. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 6. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 - D. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
 - E. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
 - F. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."
 - G. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- 1.7 DELEGATED-DESIGN SERVICES
 - A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
 - B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file paper copies of certificates, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
- 1.8 CONTRACTOR'S REVIEW
 - A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
 - B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
 - C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
- 1.9 ARCHITECT'S ACTION
 - A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
 - B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
 - C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
 - D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
 - E. Submittals not required by the Contract Documents may be returned by the Architect without action.

SECTION 017300 - EXECUTION

- 1.1 RELATED DOCUMENTS
 - A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- 1.2 SUMMARY
 - A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 1. Installation of the Work.
 2. Cutting and patching.
 3. Progress cleaning.
 4. Protection of installed construction.
 - B. Related Requirements:
 1. Section 011000 "Summary" for limits on use of Project site.
 2. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.
 3. Section 078413 "Penetration Firestopping" for patching penetrations in fire-rated construction.
- 1.3 DEFINITIONS
 - A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
 - B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.
- 1.4 QUALITY ASSURANCE
 - A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before cutting. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 2. Operational Elements: Do not cut and patch opening elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Fire-detection and -alarm systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
 - k. Operating systems of special construction.
 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistant material.
 - e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
 - g. Noise- and vibration-control elements and systems.
 2. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unacceptable manner.
 - B. Cutting and Patching Construction: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
 1. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.
- 1.5 MATERIALS
 - A. General: Comply with requirements specified in other Sections.
 - B. In-Place Materials: Use materials for patching identified to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.
- 1.6 EXAMINATION
 - A. Existing Conditions: 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, mechanical and electrical systems, and of 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; underground electrical services; and other utilities.
 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
 - B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, 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. Examine roughing-in for mechanical and electrical systems and verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 1. Description of the Work.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
 - D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.
- 1.7 PREPARATION
 - A. Field Measurements: Take field measurements as required to fit the Work properly. Rerack 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 delays.
 1. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
 2. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."
- 1.8 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. Conceal pipes, ducts, and wiring in finished surfaces unless otherwise indicated.
 3. Maintain minimum headroom clearance of 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces.
 - 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. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
 - F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
 - G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawing details to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
 - H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for local conditions.
 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 sleeve anchors and anchors with integral 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.
 - I. 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.
 - J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
- 1.9 CUTTING AND PATCHING
 - A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
 - B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
 - C. Temporary Support: Provide temporary support of work to be cut.
 - D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
 - E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."
 - F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.



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- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original installer, comply with original installer's written recommendations.
- In general, use hand or small power tools designed for sawing and grinding, not hammering and chipping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 - Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
- Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - Restore damaged pipe covering to its original condition.
 - Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 - Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 - Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.
- 1.10. PROGRESS CLEANING
- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
- Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
 - Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately according to regulations.
 - Use containers intended for holding waste materials of type to be stored.
 - Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - Remove liquid spills promptly.
 - Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. 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.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in applicable Sections.
- H. 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.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate components to ensure operability without damaging effects.
- J. 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.
- 1.11. 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.

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

- 1.1. RELATED DOCUMENTS
- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- 1.2. SUMMARY
- A. Section includes administrative and procedural requirements for the following:
- Recycling of nonhazardous demolition and construction waste.
 - Disposing of nonhazardous demolition and construction waste.
- 1.3. DEFINITIONS
- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal or reuse of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.
- 1.4. QUALITY ASSURANCE
- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- 1.5. WASTE MANAGEMENT PLAN
- A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- 1.6. PLAN IMPLEMENTATION
- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
- 1.7. RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL
- A. General: Recycle paper and recycling containers used in construction workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
- Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - Inspect containers and bins for contamination and remove contaminated materials if found.
 - Remove recyclable waste from Owner's property and transport to recycling receiver or processor.
- 1.8. RECYCLING DEMOLITION WASTE
- A. Metals: Separate metals by type.
 - Structural Steel: Stack members according to size, type of member, and length.
 - Remove and dispose of bolts, nuts, washers, and other rough hardware.
- 1.9. RECYCLING CONSTRUCTION WASTE
- A. Wood Materials:
 - Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- 1.10. DISPOSAL OF WASTE
- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
- Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - Burning: Do not burn waste materials.
 - Disposal: Remove waste materials from Owner's property and legally dispose of them.

SECTION 017700 - CLOSEOUT PROCEDURES

- 1.1. RELATED DOCUMENTS
- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- 1.2. SUMMARY
- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
- Substantial Completion procedures.
 - Final completion procedures.
 - Warranties.
 - Final cleaning.
 - Repair of the Work.
- B. Related Requirements:
 - Section 017300 "Execution" for progress cleaning of Project site.
 - Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
- 1.3. ACTION SUBMITTALS
- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.
- 1.4. CLOSEOUT SUBMITTALS
- A. Certificates of Release: From authorities having jurisdiction.
- 1.5. MAINTENANCE MATERIAL SUBMITTALS
- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.
- 1.6. SUBSTANTIAL COMPLETION PROCEDURES
- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - Submit closeout submittals specified in individual Sections, including specific warranties, workmanship books, maintenance service agreements, final certifications, and similar documents.
 - Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label parts with manufacturer's name and model number where applicable.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - Complete final cleaning requirements, including touchup painting.
 - Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine if Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - Retain inspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - Results of completed inspection will form the basis of requirements for final completion.
- 1.7. FINAL COMPLETION PROCEDURES
- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
 - Submit a final request for Payment for completion to contract requirements.
 - Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
- B. Retain inspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
- 1.8. LIST OF INCOMPLETE ITEMS (PUNCH LIST)
- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - Organize list of spaces in sequential order, starting with exterior areas.
 - Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - Include the following information at the top of each page:
 - Project name.
 - Date.
 - Name of Architect.
 - Name of Contractor.
 - Page number.
 - Submit list of incomplete items in the following format:
 - MS Excel electronic file: Architect will return annotated file.
- 1.9. SUBMITTAL OF PROJECT WARRANTIES
- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
 - Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
 - Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 - Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.
- 1.10. MATERIALS
- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.
- 1.11. FINAL CLEANING
- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ trained 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.
 - Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - 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.
 - Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - Remove tools, construction equipment, machinery, and surplus material from Project site.
 - 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.
 - Remove labels that are not permanent.
 - Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."
- 1.12. REPAIR OF THE WORK
- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
 - Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

- Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

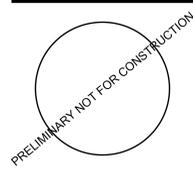
SECTION 024119 - SELECTIVE DEMOLITION

- 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:
 - Demolition and removal of selected portions of building or structure.
- B. Related Requirements:
 - Section 011000 "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.
 - Section 017300 "Execution" for cutting and patching procedures.
- 1.3. DEFINITIONS
- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- 1.4. MATERIALS OWNERSHIP
- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - Carefully salvage in a manner to prevent damage and promptly return to Owner.
- 1.5. INFORMATIONAL SUBMITTALS
- A. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.
- 1.6. CLOSEOUT SUBMITTALS
- A. Inventory: Submit a list of items that have been removed and salvaged.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
- 1.7. FIELD CONDITIONS
- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - Hazardous materials will be removed by Owner before start of the Work.
 - If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - Maintain fire-protection facilities in service during selective demolition operations.
- 1.8. PERFORMANCE REQUIREMENTS
- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction. Standards: Comply with ANSI/ASSE A106 and NFPA 241.
- 1.9. EXAMINATION
- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
 - Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstructed as damage caused by salvage operations.
 - Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.
- 1.10. UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS
- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
 - Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."
- 1.11. PREPARATION
- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - Cover and protect furniture, furnishings, and equipment that have not been removed.
 - Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- 1.12. SELECTIVE DEMOLITION, GENERAL
- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to cause damage to structure in repair or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chipping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire-proof and portable fire-suppression devices during flame-cutting operations.
 - Maintain adequate ventilation when using cutting torches.
 - Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 - Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 - Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - Dispose of demolished items and materials promptly.
 - Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- 1.13. SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS
- A. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- B. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight.
 - Remove existing roof membrane, flashings, copings, and roof accessories as indicated or required for installation of new construction.
- 1.14. DISPOSAL OF DEMOLISHED MATERIALS
- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 - Do not allow demolished materials to accumulate on-site.
 - Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 - Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.
- 1.15. CLEANING
- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.
- SECTION 061063 - EXTERIOR ROUGH CARPENTRY
- 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:
 - Wood blocking and nailers.

- 1.3. DEFINITIONS
- A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.
- B. Timber: Lumber of 5 inches nominal (114 mm actual) or greater in least dimension.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - NELMA: Northeastern Lumber Manufacturers' Association.
 - NLGA: National Lumber Grades Authority.
 - RIS: Redwood Inspection Service.
 - SPIB: The Southern Pine Inspection Bureau.
 - WCLIB: West Coast Lumber Inspection Bureau.
 - WWPA: Western Wood Products Association.
- 1.4. ACTION SUBMITTALS
- A. Product Data: For preservative-treated wood products. Include chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
- 1.5. DELIVERY, STORAGE, AND HANDLING
- A. Store materials under cover and protected from weather and contact with damp or wet surfaces. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.
- 1.6. LUMBER, GENERAL
- A. Comply with DOC PS 20 and with grading rules of lumber grading agencies verified by ALSCS's Board of Review as applicable. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by ALSCS's Board of Review.
 - Factory mark each item with grade stamp of grading agency.
 - Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry wood products.
 - Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content:
 - Boards: 19 percent.
 - Dimension Lumber: 19 percent.
- 1.7. LUMBER
- A. Dimension Lumber: Construction of No. 2 grade and any of the following species:
 - Mixed southern pine; SPIB.
- 1.8. PRESERVATIVE TREATMENT
- A. Pressure treat boards and dimension lumber with waterborne preservative according to AWPA U1; Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
- B. Preservative Chemicals: Acceptable to authorities having jurisdiction.
- C. After treatment, re-dry dimension lumber to 19 percent maximum moisture content.
- D. Mark treated wood with treatment quality mark of an inspection agency approved by ALSCS's Board of Review.
- E. Application: Treat items indicated on Drawings.
- 1.9. FASTENERS
- A. General: Provide fasteners of size and type indicated, acceptable to authorities having jurisdiction, and that comply with requirements specified in this article for material and manufacture. Provide nails and screws in sufficient length, to penetrate not less than 1-1/2 inches (38 mm) into wood substrate.
 - Use stainless steel unless otherwise indicated.
 - For preservative-preservative-treated wood, use stainless-steel fasteners.
- B. Nails: ASTM F 1607.
- C. Power-Driven Fasteners: ICC-ES AC70.
- D. Postinstalled Anchors: Stainless-steel, chemical anchors with capability to sustain, without failure, a load equal to 4 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing according to ASTM E 488, conducted by a qualified independent testing and inspecting agency.
 - Stainless-steel bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 758M and ASTM F 836M, Grade A) or Grade A4).
- 1.10. INSTALLATION, GENERAL
- A. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit work to other construction; scribe and cope as needed for accurate fit.
- B. Framing Standard: Comply with AFAPA WCD1 unless otherwise indicated.
- C. Install metal framing anchors to comply with manufacturer's written instructions.
- D. Do not splice structural members between supports unless otherwise indicated.
- E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- F. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of members or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- G. Apply copper naphthenate field treatment to comply with AWPA-M4, to all surfaces of preservative-treated lumber.
- H. Securely attach exterior rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - ICC-ES AC70 for power-driven fasteners.
 - "Fastening Schedule" in ICC's International Building Code.
 - "Fastener Schedule for Structural Members" and "Alternate Attachments" in ICC's International Residential Code for One- and Two-Family Dwellings.
- I. Use common wire nails unless otherwise indicated. Select fasteners of size that do not fully penetrate members where opposite side is exposed to view. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads unless otherwise indicated.
- SECTION 061600 - SHEATHING
- 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:
 - Wall sheathing.
 - Roof sheathing.
- B. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated materials, 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.
- 1.3. 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 with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.
- 1.4. WOOD PANEL PRODUCTS
- A. Plywood: DOC PS 1.
- B. Oriented Strand Board: DOC PS 2.
- C. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
- D. Factory mark panels to indicate compliance with applicable standard.
- 1.5. WALL SHEATHING
- A. Plywood Wall Sheathing: Exposure 1 sheathing.
 - Span Rating: Not less than 24/16.
 - Nominal Thickness: Not less than 1/2 inch (13 mm).
- B. Oriented-Strand-Board Wall Sheathing: Exposure 1 sheathing.
 - Span Rating: Not less than 24/16.
 - Nominal Thickness: Not less than 1/2 inch (13 mm).
- 1.6. ROOF SHEATHING
- A. Plywood Roof Sheathing: Exposure 1 sheathing.
 - Span Rating: Not less than 24/16.
 - Nominal Thickness: Not less than 15/32 inch (11.9 mm).
- B. Oriented-Strand-Board Roof Sheathing: Exposure 1 sheathing.
 - Span Rating: Not less than 24/16.
 - Nominal Thickness: Not less than 7/16 inch (11.1 mm).
- 1.7. FASTENERS
- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Screws: For Fastening Wood Structural Panels 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.
 - For wall and roof sheathing panels, provide screws with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 8000 hours according to ASTM B 117.
- 1.8. 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 fewer than three support members.
- 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 fastening as indicated, complying with the following:
 - Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
 - Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's "International Residential Code for One- and Two-Family Dwellings."
- D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.
- E. Coordinate wall and roof 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.
- F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- G. 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.
- 1.9. WOOD STRUCTURAL PANEL 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.
 - Wall and Roof Sheathing:
 - Screw to cold-formed metal framing.
 - Space panels 1-9 inch (3 mm) apart at edges and ends.



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KEY PLAN
N.T.S.

PROJECT TITLE
Lucas Co. Bd. of
Commissioners
Roof System
Replacement

1049 S. McCord Rd
Holland, Ohio

09/15/2014 ISSUED FOR PERMIT
09/03/2014 ISSUED FOR BIDDING
08/06/2014 PRELIMINARY DRAWINGS

CHECKED ARB
APPROVED ARB

TCl JOB NO. 106274

SHEET TITLE
SPECIFICATIONS

SHEET NO.
A1.04

SECTION 07313 - ASPHALT SHINGLES

- 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. Asphalt shingles.
 2. Underlayment.
 3. Ridge vents.
 4. Metal flashing and trim.
- 1.3 DEFINITION
 - A. Roofing Terminology: See ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.
- 1.4 ACTION SUBMITTALS
 - A. Product Data: For each type of product.
 - B. Samples: For each exposed product and for each color and texture specified.
 1. Asphalt Shingles: Full size.
 2. Ridge and Hip Cap Shingles: Full size.
 3. Ridge Vent: 12-inch (300-mm) long Sample.
 - C. Samples for Initial Selection: For each type of asphalt shingle indicated.
 1. Include similar Samples of accessories involving color selection.
 - D. Samples for Verification: For the following products, of sizes indicated:
 1. Asphalt Shingles: Full size.
 2. Ridge and Hip Cap Shingles: Full size.
 3. Ridge Vent: 12-inch (300-mm) long Sample.
- 1.5 INFORMATIONAL SUBMITTALS
 - A. Qualification Data: For Installer.
 - B. Product Test Reports: For each type of asphalt shingle and underlayment product indicated, for tests performed by a qualified testing agency.
 - C. Evaluation Reports: For synthetic underlayment and high-temperature, self-adhering sheet underlayment, from ICC-ES or other testing and inspecting agency acceptable to authorities having jurisdiction, that indicate that product is suitable for intended use under applicable building codes.
 - D. Sample Warranty: For manufacturer's warranty.
- 1.6 CLOSEOUT SUBMITTALS
 - A. Maintenance Data: For asphalt shingles to include in maintenance manuals.
- 1.7 MAINTENANCE MATERIAL SUBMITTALS
 - A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Asphalt Shingles: 100 sq. ft. (9.3 sq. m) of each type, in unbroken bundles.
- 1.8 QUALITY ASSURANCE
 - A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
- 1.9 DELIVERY, STORAGE, AND HANDLING
 - A. Store roofing materials in a dry, well-ventilated location protected from weather, sunlight, and moisture according to manufacturer's written instructions.
 - B. Store underlayment rolls on end on pallets or other raised surfaces. Do not double stack rolls.
 - C. Protect unused roofing materials 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 prevent damage to roof deck or structural supporting members.
- 1.10 FIELD CONDITIONS
 - A. Environmental Limitations: Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended in writing by manufacturer.
- 1.11 WARRANTY
 - A. Manufacturer's Warranty: Manufacturer agrees to repair or replace asphalt shingles that fail within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Manufacturing defects.
 2. Material Warranty Period: 40 years from date of Substantial Completion, prorated, with first 20 years nonprorated.
 3. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds of up to 110 mph (49 m/s) for 15 years from date of Substantial Completion.
 4. Algae-Resistance Warranty Period: Asphalt shingles will not discolor for 10 years from date of Substantial Completion.
 5. Workmanship Warranty Period: Two years from date of Substantial Completion.
 - B. Roofing Installer's Warranty: On warranty form at end of this Section, signed by Installer, in which Installer agrees to repair or replace components of asphalt-shingle roofing that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: Two years from date of Substantial Completion.
- 1.12 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 E 108 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.
- 1.13 GLASS-FIBER-REINFORCED ASPHALT SHINGLES
 - A. Laminated-Strip Asphalt Shingles: ASTM D 3462/D 3462M, 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 Owens Corning "Dakridge" or comparable product by one of the following:
 - a. CertainTeed Corporation.
 - b. GAF Materials Corporation.
 - c. IKO.
 2. Butt Edge: Straight cut.
 3. Strip Size: Manufacturer's standard.
 4. Algae Resistance: Granules resist algae discoloration.
 5. Impact Resistance: UL 2218, Class 4.
 6. Color and Blotch: As selected by Architect from manufacturer's full range.
 - B. Hip and Ridge Shingles: Manufacturer's standard units to match asphalt shingles.
- 1.14 UNDERLAYMENT MATERIALS
 - A. Synthetic Underlayment: UV-resistant polypropylene, polyolefin, or polyethylene polymer fabric with surface coatings or treatments to improve traction underfoot and abrasion resistance; evaluated and documented to be suitable for use as a roof underlayment under applicable codes by a testing and inspecting agency acceptable to authorities having jurisdiction.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Owens Corning "Deck Defense" or comparable product by one of the following:
 - a. GAF Materials Corporation.
 - b. Grace, W. R. & Co. - Com.
 - c. Owens Corning.
 2. Self-Adhering Sheet Underlayment, Polyethylene Grade: ASTM D 1970/D 1970M, minimum of 40-mil (1.0-mm) thick, slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release backing, cold applied.
 3. Basis-of-Design Product: Subject to compliance with requirements, provide Owens Corning "WeatherLok Flex" or comparable product by one of the following:
 - a. CertainTeed Corporation.
 - b. GAF Materials Corporation.
 - c. Grace, W. R. & Co. - Com.
 - d. Henry Company.
- 1.15 RIDGE VENTS
 - A. Rigid Ridge Vent: Manufacturer's standard, rigid section high-density polypropylene or other UV-stabilized plastic ridge vent for use under ridge shingles.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Owens Corning "VentSure" Rigid Rolled Vent or comparable product by one of the following:
 - a. At Vent, Inc., a Gibraltar Industries company.
 - b. Co-A-Vent, Inc.
 - c. GAF Materials Corporation.
 2. Minimum Net Free Area: 12.5 sq. in. per lineal foot.
 3. Width: 1-1/4 inches.
 4. Thickness: 5/8 inch.
- 1.16 ACCESSORIES
 - A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.
 - B. Roofing Nails: ASTM F 1667; aluminum, stainless-steel, copper, or hot-dip galvanized-steel wire coated nails, minimum (1) D-shank (3-mm) diameter, sharp-pointed, with a minimum 3/8-inch (9.5-mm) diameter flat head and of sufficient length to penetrate 3/4 inch (19 mm) into solid wood decking or extend at least 1/8 inch (3 mm) through OSB or plywood sheathing.
 1. Shank: Smooth.
 2. Where nails are in contact with metal flashing, use nails made from same metal as flashing.
 - C. Synthetic-Underlayment Fasteners: As recommended in writing by synthetic-underlayment manufacturer for application indicated.
- 1.17 METAL FLASHING AND TRIM
 - A. General: Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."
 - B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item.
 1. Apron Flashings: Fabricate with lower flange a minimum of 4 inches (100 mm) over and 4 inches (100 mm) beyond each side of downslope asphalt shingles and 6 inches (150 mm) up the vertical surface.
 2. Step Flashings: Fabricate with a head of 2 inches (50 mm) and a minimum extension of 4 inches (100 mm) over the underlying asphalt shingle and up the vertical surface.
 3. Drip Edges: Fabricate in lengths not exceeding 10 feet (3 m) with 2-inch (50-mm) roof-deck flange and 1-1/2-inch (38-mm) fascia flange with 3/8-inch (9.5-mm) drip or lower edge.
 - C. Vent Pipe Flashings: ASTM B 749, Type L51121, at least 1/16 inch (1.6 mm) thick. Provide lead sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof, and extending at least 4 inches (100 mm) from pipe onto roof.
- 1.18 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.
 1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flames tolerances.
 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provisions have 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.
- 1.19 UNDERLAYMENT INSTALLATION
 - A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
 - B. Synthetic Underlayment: Install on roof deck parallel with and starting at the eaves. Lap sides and ends and treat laps 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.
 1. Install in single layer on roofs sloped at 4:12 and greater.
 2. Install in double layer on roofs sloped at less than 4:12.
 - C. Self-Adhering Sheet Underlayment: Install, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install lapped in direction that sheds water. Lap sides not less than 3-1/2 inches (89 mm). Lap ends not less than 6 inches (150 mm) staggered 24 inches (600 mm) between successive courses. Roll laps with roller. Cover underlayment within seven days.
 1. Eaves: Extend from edges of eaves 24 inches (600 mm) beyond interior face of exterior wall.
 2. Rakes: Extend from edges of rake 24 inches (600 mm) beyond interior face of exterior wall.
 3. Ridges: Extend 36 inches (914 mm) on each side without obstructing continuously ridge vent slot.
 4. Sidelaps: Extend beyond sidewall 18 inches (450 mm), and return vertically against sidewall not less than 4 inches (100 mm).
 - 1.20 METAL FLASHING INSTALLATION
 - A. General: Install metal flashings and other sheet metal to comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."
 1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
 2. Apron Flashings: Extend lower flange over and beyond each side of downslope asphalt shingles and up the vertical surface.
 3. Step Flashings: Install with a head of 2 inches (50 mm) and extend over the underlying asphalt shingle and up the vertical surface. Fasten to roof deck only.
 4. Cricket or Backer Flashings: Install against the roof-penetrating element extending concealed flange beneath upslope asphalt shingles and beyond each side.
 5. Eave Drip Edges: Install rake drip-edge flashings over underlayment and fasten to roof decking.
 6. Eave Drip Edges: Install eave drip-edge flashings below underlayment and fasten to roof sheathing.
 7. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.
 - 1.21 ASPHALT-SHINGLE INSTALLATION
 - A. General: Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
 1. Install starter course on roof edge, consisting of an asphalt-shingle strip with tabs removed at least 7 inches (175 mm) wide with self-sealing strip face up at roof edge.
 1. Extend asphalt shingles 1/2 inch (13 mm) over fascia at eaves and ridges.
 2. 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.
 3. Fasten asphalt-shingle strips with a minimum of five roofing nails located according to manufacturer's written instructions.
 1. When ambient temperature during installation is below 50 deg F (10 deg C), seal asphalt shingles with asphalt roofing cement spots.
 4. Ridge Vents: Install continuous ridge vents over asphalt shingles according to manufacturer's written instructions.
 5. Hip and Ridge Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.
 1. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.
 - B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant the work against leaks and faulty or defective materials and workmanship for designated Warranty Period, and
 - C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of the work, as are necessary to correct faulty and defective work and as are necessary to maintain the work in a watertight condition.
 - D. This Warranty is made subject to the following terms and conditions:
 1. Specifically excluded from this Warranty are damages to the work and other parts of the building, and to building contents, caused by:
 - a. Lightning.
 - b. Peak gust wind speed exceeding 110 mph (m/sec).
 - c. Fire.
 - d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition.
 - e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. Vapor condensation on bottom of roofing; and
 - g. Activity on roofing by others, including construction contractors, maintenance personnel, designated Workmen, pets, and animals, whether authorized or unauthorized by Owner.
 2. When the work has been damaged by any foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
 3. Roofing Installer is responsible for damage to the work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of the work.
 4. During Warranty Period, if Owner allows alteration of the work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of the alterations, but only to the extent the alterations affect the work covered by this Warranty. If Owner engages Roofing Installer to perform the alterations, Warranty shall not become null and void unless Roofing Installer, before starting the alterations, notified Owner in writing, showing reasonable cause for claim, that the alterations would likely damage or deteriorate the work, hereby reasonably justifying a limitation or termination of this Warranty.
 5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a use or service more severe than originally specified, this Warranty shall become null and void on date of the change, but only to the extent the change affects the work covered by this Warranty.
 6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect the work and to examine evidence of such leaks, defects, or deterioration.
 7. This Warranty is recognized to be the only warranty of Roofing Installer on the work and shall not operate to restore to Owner or off Owner other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of the work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.
 - E. IN WITNESS WHEREOF, this instrument has been duly executed this **"Insert day"** day of **"Insert month"**, **"Insert year"**.
 1. Authorized Signature: **"Insert signature"**.
 2. Name: **"Insert name"**.
 3. Title: **"Insert title"**.

SECTION 07463 - PLASTIC SIDING

- 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 vinyl siding and soffit.
 - B. Related Requirements:
 1. Section 061063 "Exterior Rough Carpentry" for wood framing, grounds, nailers, and blocking.
- 1.3 COORDINATION
 - A. Coordinate siding installation with flashings and other adjoining construction to ensure proper sequencing.
- 1.4 ACTION SUBMITTALS
 - A. Product Data: For each type of product. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - B. Samples for Initial Selection: For vinyl siding and soffit including related accessories.
 - C. Samples for Verification: For each type, color, texture, and pattern required.
 1. 12-inch (300-mm)-long-by-actual-width Sample of siding.
 2. 12-inch (300-mm)-long-by-actual-width Sample of soffit.
- 1.5 INFORMATIONAL SUBMITTALS
 - A. Qualification Data: For vinyl siding installer.
 - B. Product Certifications: For each type of vinyl siding and soffit.
 - C. Research/Evaluation Reports: For each type of vinyl siding required, from ICC-ES.
 - D. Sample Warranty: For special warranty.
- 1.6 CLOSEOUT SUBMITTALS
 - A. Maintenance Data: For each type of product, including related accessories, to include in maintenance manuals.
- 1.7 MAINTENANCE MATERIAL SUBMITTALS
 - 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 vinyl siding and soffit including related accessories, in a quantity equal to 2 percent of amount installed.
- 1.8 QUALITY ASSURANCE
 - A. Vinyl Siding Installer Qualifications: A qualified installer who employs a VSI-certified Installer on Project.
- 1.9 DELIVERY, STORAGE, AND HANDLING
 - A. Deliver and store packaged materials in original containers with labels intact until time of use.
 - B. Store materials under cover.

- 1.10 WARRANTY
 - A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Structural failures including cracking, fading, and delimiting.
 - b. Deterioration of materials beyond normal weathering.
 2. Fading is defined as loss of color, after cleaning with product recommended by manufacturer, of more than 5 Hunter color-difference units as measured according to ASTM D 2244.
 - 3. Warranty Period: 10 years from date of Substantial Completion.
- 1.11 MANUFACTURERS
 - A. Source Limitations: Obtain products, including related accessories, from single source from single manufacturer.
- 1.12 VINYL SIDING
 - A. Vinyl Siding: Integrally colored product complying with ASTM D 3679.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Alside.
 - b. CertainTeed Corporation.
 - c. Norandex, Building Materials Distribution, Inc.
 - d. RMC Siding.
 - e. Royal Building Products.
 - f. Variform, Inc.
 2. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.
 3. Horizontal Pattern: 8-inch (203-mm) exposure in plain, double, 4-inch (102-mm) board style.
 4. Texture: Smooth.
 5. Nominal Thickness: 0.044 inch (1.1 mm).
 6. Minimum Profile Depth (Butt Thickness): 1/2 inch (13 mm).
 7. Nailing Hem: Double thickness.
 8. Finish:
 1. Colors: As selected by Architect from manufacturer's full range of colors.
- 1.13 VINYL SOFFIT
 - A. Vinyl Soffit: Integrally colored product complying with ASTM D 4477.
 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. Alside.
 - b. CertainTeed Corporation.
 - c. Norandex, Building Materials Distribution, Inc.
 - d. RMC Siding.
 - e. Royal Building Products.
 - f. Variform, Inc.
 2. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.
 3. Pattern: 8-inch (203-mm) exposure in vinyl groove, double, 4-inch (102-mm) board style.
 4. Texture: Smooth.
 5. Ventilation: Provide perforated and unperforated soffit where indicated on Drawings.
 6. Nominal Thickness: 0.040 inch (1.0 mm).
 7. Minimum Profile Depth: 1/2 inch (13 mm).
 8. Colors: As selected by Architect from manufacturer's full range of colors.
- 1.14 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 adjacent siding unless otherwise indicated.
 - B. Vinyl Accessories: Integrally colored vinyl accessories complying with ASTM D 3679 except for wind-load resistance.
 1. Texture: Smooth.
 - C. Decorative Accessories: Provide the following vinyl decorative accessories as indicated:
 1. Moldings and trim.
 - D. Colors for Decorative Accessories: Match adjacent siding.
 - E. Fasteners:
 1. For fastening to wood, use siding nails of sufficient length to penetrate a minimum of 1 inch (25 mm) into substrate.
 2. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1/4 inch (6 mm), or three screw-threads, into substrate.
 3. For fastening vinyl, use hot-dip galvanized fasteners. Where fasteners are exposed to view, use prefinished aluminum fasteners in color to match item being fastened.
- 1.15 EXAMINATION
 - A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of vinyl siding and soffit and related accessories.
 - B. Proceed with installation only after unsatisfactory conditions have been corrected.
- 1.16 PREPARATION
 - A. Clean substrates of projections and substances detrimental to application.
- 1.17 INSTALLATION
 - A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
 1. Center nails in elongated nailing slots without binding siding to allow for thermal movement.
 - B. Install vinyl siding and soffit and related accessories according to ASTM D 4756.
 1. Install fasteners for horizontal vinyl siding no more than 16 inches (400 mm) o.c.
 - C. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.
- 1.18 ADJUSTING AND CLEANING
 - A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.
 - B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

SECTION 07620 - SHEET METAL FLASHING AND TRIM

- 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. Formed roof-drainage sheet metal fabrications.
 2. Formed steep-slope roof-sheet metal fabrications.
 - B. Related Requirements:
 1. Section 061063 "Exterior Rough Carpentry" for wood nailers, curbs, and blocking.
- 1.3 COORDINATION
 - A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
 - B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.
- 1.4 ACTION SUBMITTALS
 - A. Product Data: For each type of product.
 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.
 - B. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.
- 1.5 INFORMATIONAL SUBMITTALS
 - A. Sample Warranty: For special warranty.
- 1.6 QUALITY ASSURANCE
 - A. Fabricator Qualifications: Employ skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
- 1.7 DELIVERY, STORAGE, AND HANDLING
 - A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from un cured concrete and masonry.
 - B. Protect strippliable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.
- 1.8 WARRANTY
 - A. Special Warranty on Finishes: Manufacturer agrees to repair finishes or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Finish Warranty Period: 10 years from date of Substantial Completion.
- 1.9 PERFORMANCE REQUIREMENTS
 - A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
 - B. Sheet Metal Standard for Flashing and Trim: Comply with SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
 - C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overwresting of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- 1.10 SHEET METALS
 - A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippliable, temporary protective film before shipping.
 1. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.
 1. Exposed Coil-Coated Finish:
 - a. Two-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

- 2. Color: As selected by Architect from manufacturer's full range.
- 3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil (0.013 mm).
- C. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet complying with ASTM A 653/A 653M, G90 (Z275) coating designation; prepared by coil-coating process to comply with ASTM A 755/A 755M.
 1. Surface: Smooth, flat.
 2. Exposed Coil-Coated Finish:
 - a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 3. Color: As selected by Architect from manufacturer's full range.
 4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil (0.013 mm).
- 1.11 MISCELLANEOUS MATERIALS
 - A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
 1. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed (PVC) PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
 - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
 2. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
 3. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
 4. Fasteners for Zinc-Coated (Galvanized) Solid Sheet: Series 300 stainless steel or hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.
 2. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nongas, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
 3. D. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
 - E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavily bodied for hooked-type gutters with limited movement.
 - F. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
 - G. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.
 - H. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.
 - 1.12 FABRICATION - GENERAL
 - A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 2. Obtain field measurements for accurate fit before shop fabrication.
 3. Form sheet metal flashing and trim to fit substrates without excessive oil camming, bucking, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
 4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
 - B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (2-mm) offset of adjoining faces of adjacent alignment of matching profile.
 - C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified in MCVA's "Guide Specification for Residential Metal Roofing."
 - D. Expansion Provisions: Form metal expansion joints in sheet metal flashing and trim, and
 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
 2. Use lapped expansion joints only where indicated on Drawings.
 - E. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
 - F. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
 - G. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard and by FM Global Property Loss Prevention Data Sheet I-49 for application, but not less than thickness of metal being secured.
 - H. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
 - I. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.
 1. Do not use graphic pencils to mark metal surfaces.
 - 1.13 ROOF-DRAINAGE SHEET METAL FABRICATIONS
 - A. Hanging Gutters: Fabricate to cross section required, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch (2400-mm) long sections. Furnish flat-stock gutter brackets and flat-stock gutter spacers and straps fabricated from same metal as gutters, of size recommended by cited sheet metal standard but with thickness not less than twice the gutter thickness. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters. Shop fabricate interior gutter accessories.
 1. Gutter Profile: Style K according to cited sheet metal standard.
 2. Expansion Joints: Butyl type with covered plate.
 3. Gutters with Girth up to 18 Inches (380 mm): Fabricate from the following materials:
 - a. Aluminum: 0.024 inch (0.61 mm) thick.
 - B. Downspouts: Fabricate rectangular downspouts to dimensions indicated, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors. Shop fabricate elbows.
 1. Fabricate from the following materials:
 - a. Aluminum: 0.024 inch (0.61 mm) thick.
</

F

E

D

C

B

A

1.18 ROOF FLASHING INSTALLATION
 A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and cited sheet metal standard. Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
 B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for FM Approvals' listing for required windstorm classification.
 C. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches (100 mm) over base flashing. Install stainless-steel draw band and tighten.
 D. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

1.19 ERECTION TOLERANCES
 A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.
 B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

1.20 CLEANING AND PROTECTION
 A. Surface Cleaning of metal surfaces of substances that interfere with uniform oxidation and weathering.
 B. Clean off excess sealants.
 C. Remove temporary protective coverings and stripable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.
 D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

SECTION 079200 - JOINT SEALANTS

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. Silicone joint sealants.
 2. Urethane joint sealants.

1.3 ACTION SUBMITTALS
 A. Product Data: For each joint-sealant product.
 B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

1.4 INFORMATIONAL SUBMITTALS
 A. Qualification Data: For qualified testing agency.
 B. Field-Adhesion Test Reports: For each sealant application tested.
 C. Sample Warranties: For special warranties.

1.5 QUALITY ASSURANCE
 A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
 B. Product Testing: Test joint sealants using a qualified testing agency.
 1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

1.6 FIELD CONDITIONS
 A. Do not proceed with installation of joint sealants under the following conditions:
 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
 2. When joint substrates are wet.
 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY
 A. Special Installer's Warranty: 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: Two years from date of Substantial Completion.
 B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those 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.
 C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
 1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 2. Disintegration of joint substrates from causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

1.8 JOINT SEALANTS, GENERAL
 A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
 B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

1.9 SILICONE JOINT SEALANTS
 A. Silicone, S, NS, 100/50, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 a. GE Construction Sealants; SC2700 SilPruf LM.
 b. Sika Corporation U.S.; Sikasil WS-290 FPS.
 B. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 a. Dow Corning Corporation; 791.
 b. GE Construction Sealants; SC52000 SilPruf.
 c. May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 265 LTS.
 d. Pecora Corporation; PCS.
 e. Sika Corporation U.S.; Sikasil WS-295 FPS.

1.10 URETHANE JOINT SEALANTS
 A. Urethane, M, NS, 50, NT: Multicomponent, nonsag, plus 50 percent and minus 50 percent movement capability nontraffic-use, urethane joint sealant; ASTM C 920, Type M, Grade NS, Class 50, Use NT.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 a. Pecora Corporation; Dynatrol II.
 B. Urethane, M, NS, 50, T, NT: Multicomponent, nonsag, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type M, Grade NS, Class 50, Uses T and NT.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 a. Tremco Incorporated; Dymeric 240.

1.11 LATEX JOINT SEALANTS
 A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 a. BASF Construction Chemicals, LLC, Building Systems; Sonolac.
 b. Pecora Corporation; AC-20.
 c. Tremco Incorporated; Tremflex 834.

1.12 JOINT-SEALANT BACKING
 A. Sealant Backing Material, General: Nonstaining, compatible with joint substrates, sealants, primers, and other joint fillers, and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
 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. BASF Construction Chemicals, LLC, Building Systems.
 b. Construction Foam Products, a division of Nomaco, Inc.
 B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application

indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

1.13 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, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
 C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

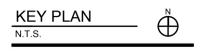
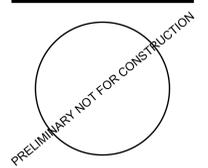
1.14 EXAMINATION
 A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
 B. Proceed with installation only after unsatisfactory conditions have been corrected.

1.15 PREPARATION
 A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 a. Concrete.
 b. Masonry.
 3. Remove laitance and form-release agents from concrete.
 4. 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. Nonporous joint substrates include the following:
 a. Metal.
 b. Glass.
 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.

1.16 INSTALLATION OF JOINT SEALANTS
 A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
 B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
 C. 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.
 D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
 E. 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.
 F. 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.

1.17 CLEANING
 A. 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.

1.18 PROTECTION
 A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.



PROJECT TITLE
Lucas Co. Bd. of Commissioners Roof System Replacement

**1049 S. McCord Rd
 Holland, Ohio**

09/15/2014 ISSUED FOR PERMIT
 09/03/2014 ISSUED FOR BIDDING
 08/06/2014 PRELIMINARY DRAWINGS

CHECKED ARB
 APPROVED ARB

TCI JOB NO. 106274

SHEET TITLE
SPECIFICATIONS

SHEET NO.
A1.06