SECTION 07 00 00 – THERMAL AND MOISTURE PROTECTION

PART 1 - GENERAL

1. VAPOR BARRIER

    A. Where wall assembly has been approved, provide an air/vapor barrier as defined by code requirements. Vapor barrier shall be provided on the warm side of the insulation system and meet state code requirements and energy goals.

    B. Exterior cavity wall (outboard of studs or masonry) insulation shall be rigid extruded polystyrene or mineral fiber board. Expanded polystyrene and polyisocyanurate insulations are not acceptable.

2. INSULATION

    A. If used, blanket or batt insulation shall be glass or mineral fiber as required by code.

3. WATERPROOFING

    A. Sheet waterproofing shall be utilized on exterior of below-grade walls where occupied space is on interior of wall. Alternatively, waterproofing admixtures to cast-in-place concrete can be considered with Owner approval.

4. WATER REPELLENTS

    A. Use on exterior wall masonry is not allowed.

SECTION 07 30 00 – STEEP SLOPE ROOFS

PART 1 - ROOF – GENERAL

1. TYPE

    A. Roof shall be Type 1 and U.L. Class A.

2. REQUIREMENTS

    A. Coordinate with Owner's Insurance requirement for uplift rating and other requirements. If minimum, meet current Indiana Building Code requirements and UL 580 or UL 1897.

3. INSULATION

    A. Insulation shall be polyisocyanurate or extruded polystyrene and shall be provided in a thickness to meet or exceed current energy code requirements. Stagger joints of multiple layers of roof board insulation at all locations. Expanded polystyrene (Bead board) and mineral fiber board insulations are not acceptable.

4. VAPOR BARRIER

    A. Provide vapor barrier in roof assembly in proper location.

5. ROOF EXPANSION JOINTS

    A. Roof expansion joints shall be by the roofing membrane manufacturer.

6. ROOF FLASHING

    A. Roof flashing shall be 12" (nominal), above finished roof.

    B. Install all counterflashings within reglets. Roof flashing into a wall shall utilize a two-piece metal assembly with flashing receiver and counterflashing. The flashing receiver shall be installed within the masonry bed joint or at a termination bar with a continuous sealant joint where not in a masonry wall application.

7. ACCESSIBILITY

    A. All levels of a roof shall be accessible. If change in height from one roof level to another exceeds 36", a roof ladder shall be provided.

PART 2 - STEEP SLOPE ROOFS (SLOPES GREATER THAN 4" PER FOOT)

1. MATERIALS

    A. Steep slope roofing materials shall be asphalt shingles or standing seam metal.

B. Asphalt shingles shall meet the following requirements:

1. Laminated shingle minimum 425 pounds per square.
2. Minimum 20-year warranty.

C. Standing seam metal roofs shall meet the following requirements:

1. Exposed fasteners are not allowed. All systems should be concealed fasteners. Concealed fastening clip shall be two-piece type that maintains panel above deck and allows for expansion and contraction of metal panels without buckling or deformation of panels. Panels shall be specified to be fastened at one point only along run of panel as determined by manufacturer.
2. Metal roof system shall meet ASTM 1592 uplift requirements.
3. System shall meet ASTM E 1680 for air infiltration at minimum of 0.06 cfm/sft at test pressure difference of negative 1.57 lbf/sft.
4. System shall meet ASTM E 1646 for water penetration at minimum test pressure difference of 2.86 lbf/sft.
5. System shall meet FM Global Severe Hail resistance requirements per ANSI FM 4473.
6. System shall meet combustion characteristics of ASTM E 136.

D. Include metal bar-type, seam-mounted (do not penetrate metal roof system) snow guards at all entrances and pedestrian walkways and at locations where ice and snow could damage landscaping near building. Adhered plastic-type snow guards are not acceptable.

E. Provide minimum 22-gauge Galvalume-coated steel with high-performance organic finish:

1. Fluoropolymer Two-Coat System (minimum): Manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight, with a minimum total dry film thickness of 1.5 mil (0.038 mm); complying with AAMA 2605.

F. Minimum 20-year warranty including paint finish to meet the following requirements:

1. Color fading more than five Hunter units when tested according to ASTM D 2244.
2. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
3. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

G. New Construction steep slope roofs shall have a minimum 4/12 pitch.

H. Provide soffit and ridge ventilation to meet Code standards. Ventilation through the deck is not allowed. Ridge vent shall be Galvalume-coated steel. Plastic vent is not acceptable.

I. Provide roof drainage through gutters and downspouts. All downspouts should connect to site storm drainage system. Built-in gutters are not allowed. If a higher volume drains to a lower roof, lower roof must be sized to accommodate additional flow. Include gutters and downspouts as required to prevent water run-off over pedestrian traffic ways and entrances and to minimize landscape damage.

PART 3 - ROOF MAINTENANCE AND REPAIRS

1. INSTALLER

   A. Installer shall be approved in writing by the roofing manufacturer. Installer shall have a minimum of five years experience with the approved system and with similar project types.

2. WARRANTY

   A. Provide manufacturer's material warranty agreeing to replace material which shows manufacturing defects within (term limit) years after installation/substantial completion.

   B. Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes. Warranty term (match material term limit) years. Include both repair and replacement costs of both material and labor in warranty. Exceptions outside of Acts of God or damage by other trades are not permitted.

SECTION 07 50 00 – MEMBRANE ROOFING

PART 1 - ROOF – GENERAL

1. TYPE

    A. Roof shall be Type 1 and U.L. Class A.

2. INSURANCE

    A. Coordinate with Owner's Insurance for uplift rating and other requirements. If minimum, meet current Indiana Building Code requirements and UL 580 or UL 1897.

3. INSTALLATION

    A. Single-ply roofing may be mechanically attached or fully adhered. Ballasted membranes are not acceptable.

4. INSULATION

    A. Insulation shall be polyisocyanurate or extruded polystyrene and shall be provided in a thickness to meet or exceed current energy code requirements. Stagger joints of multiple layers of roof board insulation at all locations. Expanded polystyrene (Bead board) and mineral fiber board insulations are not acceptable. Anchorage to new cast concrete decks should be appropriate to moisture levels and concrete cure rate at the time of roofing operations.

5. COVER BOARD

    A. Provide 1/4-inch-thick minimum fiberglass-faced gypsum ("Dens-Deck") cover board or roofing membrane manufacturer's recommended and warranted coverboard that does not contain wood or wood fiber over rigid board insulation. High density roof insulation as coverboard is acceptable.

6. VAPOR BARRIER

    A. Provide a self-sealing vapor barrier with a minimum perm rating of 0.03 (ASTM E96) in roof assembly in proper location.

7. ROOF EXPANSION JOINTS

    A. Roof expansion joints shall be by the roofing membrane manufacturer.

8. ROOF FLASHING

    A. If possible, roof flashing shall be 12 inches (nominal), above finished roof. If not, lower heights will be reviewed and warranted by roofing manufacturer/installer but not less than 6" above finished roof.

9. COUNTERFLASHING

A. Install all counterflashings within reglets. Roof flashing into a wall shall utilize a two-piece metal assembly with flashing receiver and counterflashing. The flashing receiver shall be installed within the masonry bed joint.

10. ACCESSIBILITY

A. All roof levels and areas must have access. Consider access by maintenance personnel with tools or equipment. Horizontal roof access through a full size (3'x7') lockable door is preferred. If access from a stair or penthouse is not possible then access through a roof hatch with a sloping access stair may be used with Owner approval. Vertical wall ladder use requires Owner approval. Roof hatches and penthouse doors shall be locked from the inside but free to open from the roof side and cores shall be coordinated with finished hardware specification.

11. SAFETY

A. If no parapet/guardrail is provided; design permanent roof tie-off hooks for Contractor and Owner use.

PART 2 - MEMBRANE ROOFING

1. ROOFING MATERIAL

A. Preferred low-slope roofing material shall be TPO or PVC roof system. Option to include a modified bituminous roof system for high roof traffic projects.

2. ROOF REQUIREMENTS

A. Roof membrane shall meet the following requirements:

1. Thickness: minimum 80 mil, scrim reinforced. A thinner membrane may be used with Owner approval and reduction of warranty terms.
2. Seams shall be heat welded.
3. System shall be fully adhered or in-seam mechanically attached. Ballasted roof systems are not allowed.
4. Color: color of roof to be evaluated with State Energy Code and building sustainability design requirements.
5. Minimum warranty: 30 years.

3. ROOF DRAINAGE

A. Provide positive drainage to roof drains. The slope shall not be less than ¼" per foot. Where water is channeled along a roof saddle, a minimum resultant slope of ¼" per foot per foot must be maintained. Dimension the saddles on the roof plan to ensure the minimum slope is met.

B. If a higher volume drains to a lower roof, lower roof must be sized to accommodate additional flow.

C. The roof shall be sloped primarily by use of the building steel as opposed to tapered insulation, however, make use of tapered insulation at roof saddles between drains.

D. Low-slope roofs shall be internally drained. Reference plumbing standards. Allow access to roof drain lines inside the building for maintenance.

4. ACCESSIBILITY AND SAFETY

A. Metal bar terminations shall be required at parapets.

B. Provide 2’ x 2’ walk pads at roof hatches and door access points and from roof access points to any rooftop equipment.

C. Provide locked access to the primary roof from the interior only. External roof access is permitted for entry porticos or other small ancillary roof areas.

D. Provide minimum 0.050 prefinished aluminum or galvanized steel flashing, edge trim, fascias, and copings that meet Code-required ANSI/SPRI ES 1 testing with anodized or fluorocarbon painted finish in color as selected by Architect.

E. If possible, group penetrations together within a single curbed area, minimum 12” above finished roof. Place no penetrations within the valleys.

F. Any units located on the roof shall be set on continuous curbs. Roofing shall not extend under any equipment. All units shall be a minimum of 12 inches above finished roof. All equipment shall be screened from view from the ground level.

G. Provide parapets with copings (not gravel stops) at all locations except for minor penthouses where gutter and one-way sloped roof is the most economical solution. Parapets shall be a minimum of 12” vertical height above the roof membrane to meet roofing system warranty requirements. If there are items requiring regular maintenance within 10’ of the roof edge, the parapet should be a minimum of 42” above the roof surface to act as a guardrail.

PART 3 - ROOF MAINTENANCE AND REPAIRS

1. INSTALLER

A. Installer shall be approved in writing by the roofing manufacturer. Installer shall have a minimum of five years experience with the approved system and with similar project types.

2. ROOF WARRANTY

A. Provide manufacturer’s material warranty agreeing to replace material which shows manufacturing defects within (term limit) years after installation/substantial completion.

B. Provide manufacturer’s system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes. Warranty term (match material term limit) years. Include both repair and replacement costs of both material and labor in warranty. Exceptions outside of Acts of God or damage by other trades are not permitted.

SECTION 07 60 00 – FLASHING AND SHEET METAL

1. FLASHING AND SHEET METAL

2. PAINT

    A. Fluoropolymer Paint (similar to Kynar 500) for galvanized steel and aluminum.

    B. Color shall be selected from manufacturer's standard colors

    C. If Ivy Tech Green is used, reference Ivy Tech standard colors referenced in Signage standard.

3. WATERPROOF MEMBRANE

    A. Roof edge/copings should meet ANSI/SPRI/FM 4435/ES-1 Test Standard for Edge Systems used with Low Slope Roofing Systems. Roof edges and copings should pass Pull-Off Resistance standards tested in accordance with ANSI/SPRI/FM 4435/ES-1 using test methods RE-1 and RE-2 to positive and negative design wind pressures as defined by applicable building codes.

SECTION 07 80 00 – SPRAYED ON FIREPROOFING

1. Material used for patching existing fireproofing shall be tinted (color) for identification.

SECTION 07 90 00 – JOINT PROTECTION

1. Sealants utilized on the exterior of the building shall be appropriate for the materials and expected movements. Urethane sealants are preferred to be utilized on interior of building (exceptions below).

2. Acrylic latex sealants may be used at door and window frames on interior of building.

3. Mildew-resistant silicone sealants shall be used in interior locations where water will be regularly present such as restroom and kitchen plumbing and fixtures.