

SECTION 07 53 23

**RUBBERGARD™ FullForce EPDM MEMBRANE
WITH SECURE BOND™ TECHNOLOGY ADHERED ROOFING SYSTEM
FIRESTONE BUILDING PRODUCTS, LLC**

PART 1 GENERAL

The project, City of Rome located in Rome, NY, includes the provision of a complete Firestone Building Products RubberGard™ EPDM SA Membrane Roofing System.

1.01 SUMMARY

- A. Furnish and install elastomeric sheet roofing system, including:
 - 1. Roofing manufacturer's requirements for the specified warranty.
 - 2. Preparation of roofing substrates.
 - 3. Wood nailers for roofing attachment.
 - 4. Use existing vapor barrier.
 - 5. Insulation.
 - 6. Elastomeric EPDM membrane roofing.
 - 7. Metal roof edging and copings.
 - 8. Flashings.
 - 9. Walkway pads.
 - 10. Other roofing-related items specified or indicated on the drawings or otherwise necessary to provide a complete weatherproof roofing system.
- B. Disposal of demolition debris and construction waste is the responsibility of Contractor. Perform disposal in manner complying with all applicable federal, state, and local regulations.
- C. Comply with the published recommendations and instructions of the roofing membrane manufacturer, at <http://manual.fsbp.com> .
- D. Commencement of work by the Contractor shall constitute acknowledgement by the Contractor that this specification can be satisfactorily executed, under the project conditions and with all necessary prerequisites for warranty acceptance by roofing membrane manufacturer. Any modification of the Contract Sum will be made in accordance with the stipulations of the Contract Documents stated elsewhere.

1.02 RELATED SECTIONS [as present or needed]

- A. Section 06 10 00 - Rough Carpentry: Wood nailers associated with roofing and roof insulation.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim: Formed metal flashing and trim items associated with roofing.
- C. Section 07 72 00 - Roof Accessories: Roof hatches, vents, and manufactured curbs.
- D. Section 08 62 00 - Unit Skylights.
- E. Section 22 10 00 - Plumbing Piping and Roof Drains.

1.03 REFERENCES

- A. Referenced Standards: These standards form part of this specification only to the extent they are referenced as specification requirements.
 - 1. ASTM C 1177/C 1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2006.

2. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2013.
3. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.
4. ASTM D 4637 - Standard Specification for EPDM Sheet used in Single-Ply Roof Membrane; 2004.
5. ASTM D 4811 - Standard Specification for Nonvulcanized (Uncured) Rubber Sheet Used as Roof Flashing; 2004.
6. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2013a.
7. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.
8. FM 1-28 - Design Wind Loads; Factory Mutual System; 2007.
9. FM 1-29 - Roof Deck Securement and Above Deck Roof Components; Factory Mutual System; 2006.
10. FM 4470 - Approval Standard - Class I Roof Covers; current version.
11. PS 1 - Construction and Industrial Plywood; 2009.
12. PS 20 - American Softwood Lumber Standard; 2010.
13. SPRI ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems; 2007. (ANSI/SPRI ES-1).

1.04 SUBMITTALS

- A. Product Data:
 1. Provide membrane manufacturer's printed data sufficient to show that all components of roofing system, including insulation and fasteners, comply with the specified requirements and with the membrane manufacturer's requirements and recommendations for the system type specified; include data for each product used in conjunction with roofing membrane.
 2. Where UL or FM requirements are specified, provide documentation that shows that the roofing system to be installed is UL-Classified or FM-approved, as applicable; include data itemizing the components of the classified or approved system.
 3. Installation Instructions: Provide manufacturer's instructions to installer, marked up to show exactly how all components will be installed; where instructions allow installation options, clearly indicate which option will be used.
- B. Shop Drawings: Provide:
 1. The roof membrane manufacturer's standard details customized for this project for all relevant conditions, including flashings, base tie-ins, roof edges, terminations, expansion joints, penetrations, and drains.
- C. Pre-Installation Notice: Copy to show that manufacturer's required Pre Installation Notice (PIN) has been accepted and approved by the manufacturer.
- D. Executed Warranty as a requirement of project close-out.
- E. Specimen Warranty: Submit prior to starting work.
- F. Samples: Submit samples of each product to be used.

1.05 QUALITY ASSURANCE

- A. Applicator Qualifications: Roofing installer shall have the following:

1. Current Firestone Contractor status.
 2. At least ten years experience in installing specified system.
 3. Capability to provide payment and performance bond to building owner.
- B. Pre-Installation Conference: Before start of roofing work, Contractor shall hold a meeting to discuss the proper installation of materials and requirements to achieve the warranty.
1. Require attendance with all parties directly influencing the quality of roofing work or affected by the performance of roofing work.
 2. Notify Architect well in advance of meeting.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original containers, dry and undamaged, with seals and labels intact and legible.
- B. Store materials clear of ground and moisture with weather protective covering.
- C. Keep combustible materials away from ignition sources.

1.07 WARRANTY

- A. Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.
- B. Warranty: Firestone 20 year Red Shield Limited Warranty covering membrane, roof insulation, and membrane accessories.
 1. Limit of Liability: No dollar limitation.
 2. Scope of Coverage: Repair leaks in the roofing system caused by:
 - a. Ordinary wear and tear of the elements.
 - b. Manufacturing defect in Firestone brand materials.
 - c. Defective workmanship used to install these materials.
 - d. Damage due to winds up to 55 mph.
 3. Not Covered:
 - a. Damage due to winds in excess of 55 mph.
 - b. Damage due to hurricanes or tornadoes.
 - c. Hail.
 - d. Intentional damage.
 - e. Unintentional damage due to normal rooftop inspections, maintenance, or service.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer - Roofing System: Firestone Building Products Co., Carmel, IN. www.firestonebpc.com or approved equal.
 1. Roofing systems manufactured by others may be acceptable provided the roofing system is completely equivalent in materials and warranty conditions and the manufacturer meets the following qualifications:
 - a. Specializing in manufacturing the roofing system to be provided.
 - b. Minimum ten years of experience manufacturing the roofing system to be provided.
 - c. Able to provide a no dollar limit, single source roof system warranty that is backed by corporate assets in excess of one billion dollars.
 - d. ISO 9002 certified.
 - e. Able to provide polyisocyanurate insulation that is produced in own facilities.
- B. Manufacturer of Insulation and Cover Board: Same manufacturer as roof membrane.
- C. Manufacturer of Metal Roof Edging: Same manufacturer as roof membrane.
 1. Metal roof edging products by other manufacturers are not acceptable.
 2. Field- or shop-fabricated metal roof edgings are not acceptable.

- D. Substitution Procedures: See Instructions to Bidders.
1. Submit evidence that the proposed substitution complies with the specified requirements.

2.02 ROOFING SYSTEM DESCRIPTION

- A. Roofing System:
1. Membrane: Ethylene propylene diene monomer (EPDM).
 2. Thickness: As specified elsewhere.
 3. Membrane Attachment: Fully adhered.
 4. Slope: Deck is sloped.
 5. Comply with applicable local building code requirements.
 6. Provide assembly having Underwriters Laboratories, Inc. (UL) Class A Fire Hazard Classification.
- B. Vapor Barrier over deck/deck cover:
1. Membrane: Existing 2 ply vapor barrier
- C. Insulation:
1. Total System R Value: 11.4 (2" ISO) + 2.5 (1/2" ISOgard HD) Total = 13.9
 2. Maximum Board Thickness: 2 inches (50 mm); use as many layers as necessary; stagger joints in adjacent layers.
 3. Base Layer: Polyisocyanurate foam board, non-composite.
 - a. Attachment: Low-rise polyurethane adhesive.
- Cover Board: High Density Polyisocyanurate Cover Board:
1. Thickness: 0.5 inch (12.7mm).
 2. R-Value: 2.5 based on ASTM tests C158 and C177.
 - a. Attachment: Low-rise polyurethane adhesive.

2.03 EPDM MEMBRANE MATERIALS

- A. Roofing and Flashing Membrane: Black cured synthetic single-ply membrane composed of ethylene propylene diene terpolymer (EPDM) with the following properties:
1. Thickness: 0.060 inch (1.5 mm).
 2. Reinforcement: Non-reinforced.
 3. Nominal Thickness Tolerance: Plus/minus 10 percent.
 4. Sheet Width: Provide the widest available sheets to minimize field seaming.
 5. Acceptable Product: RubberGard FullForce EPDM Membrane with Secure Bond Technology by Firestone.
- B. Flashing Membrane: Self-curing, non-reinforced membrane composed of nonvulcanized EPDM rubber, complying with ASTM D 4811 Type II, and with the following properties:
1. Thickness: 0.055 inch (1.4 mm).
 2. Color: Same as field membrane
 3. Acceptable Product: RubberGard EPDM FormFlash by Firestone.
- C. Self-Adhesive Flashing Membrane: Semi-cured 45 mil EPDM membrane laminated to 35 mil (0.9 mm) EPDM tape adhesive; QuickSeam Flashing by Firestone.
- D. Pre-Molded Pipe Flashings: EPDM, molded for quick adaptation to different sized pipes; Firestone EPDM Pipe Flashing.
- E. Self-Adhesive Lap Splice Tape: 35 mil (0.9 mm) EPDM-based, formulated for compatibility with EPDM membrane and high-solids primer; QuickSeam Splice Tape by Firestone.
- F. Bonding Adhesive: Neoprene-based, formulated for compatibility with EPDM membrane and wide variety of substrate materials, including masonry, wood, and insulation facings; LVOC Bonding Adhesive by Firestone.
- G. Adhesive Primer: Synthetic rubber based primer formulated for compatibility with EPDM membrane and tape adhesive, with VOC content less than 2.1 lb/gal (250 g/L); QuickPrime Plus LVOC by Firestone.

- H. Low Rise Foam Adhesive: Two-component, low-rise polyurethane adhesive designed to attach polyisocyanurate insulation to a variety of acceptable substrates; ISO Stick by Firestone.
- I. Seam Edge Treatment: EPDM rubber-based sealant, formulated for sealing exposed edges of membrane at seams; FullForce Sealant by Firestone.
- J. Pourable Sealer: Two-part polyurethane, two-color for reliable mixing; Pourable Sealer by Firestone.
- K. Water Block Seal: Butyl rubber sealant for use between two surfaces, not exposed; Water Block Seal by Firestone.
- L. Metal Plates and Strips Used for Fastening Membrane and Insulation: Steel with Galvalume coating; corrosion-resistance meeting FM 4470 criteria.
 - 1. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches (33 mm) wide by 0.10 inch (2.5 mm) thick; Firestone Termination Bar by Firestone.
- M. Roof Walkway Pads: EPDM, 0.30 inch (7.6 mm) thick by 30 by 30 inches (760 by 760 mm) with EPDM tape adhesive strips laminated to the bottom; QuickSeam Walkway Pads by Firestone.

2.04 ROOF INSULATION AND COVER BOARDS

- A. Polyisocyanurate Board Insulation: Closed cell polyisocyanurate foam with black glass reinforced mat laminated to faces, complying with ASTM C 1289 Type II Class 1, with the following additional characteristics:
 - 1. Thickness: As indicated elsewhere.
 - 2. Size: 48 inches (1220 mm by 48 inches (1220 mm), nominal.
 - a. Exception: Insulation to be attached using adhesive or asphalt may be no larger than 48 inches (1220 mm) by 48 inches (1220 mm), nominal.
 - 3. R-Value (LTTR): 1.0 inch (25 mm) Thickness: 5.7, minimum.
 - 4. Compressive Strength: 20 psi (138 kPa) when tested in accordance with ASTM C 1289.
 - 5. Ozone Depletion Potential: Zero; made without CFC or HCFC blowing agents.
 - 6. Recycled Content: 19 percent post-consumer and 15 percent post-industrial, average.
 - 7. Acceptable Product: ISO 95+ polyiso board insulation by Firestone
- B. High Density Polyisocyanurate Cover Board: Non-combustible, water resistant high density, closed cell polyisocyanurate core with coated glass mat facers, complying with ASTM D 1623, and with the following additional characteristics:
 - 1. Size: 48 inches (1220 mm) by 96 inches (2440 mm), nominal.
 - a. Exception: Board to be attached using adhesive or asphalt may be no larger than 48 inches (1220 mm) by 48 inches (1220 mm), nominal.
 - 2. Thickness: 0.5 inch (12.7mm).
 - 3. R-Value: 2.5 based on ASTM tests C158 and C177.
 - 4. Surface Water Absorption: <3%, maximum, when tested in accordance with ASTM C 209.
 - 5. Compressive Strength: 120psi, when tested in accordance with ASTM 1621.
 - 6. Density: 5pcf, when tested in accordance with ASTM 1622.
 - 7. Factory Mutual approved for use with FM 1-60 and 1-90 rated roofing assemblies.
 - 8. Mold Growth Resistance: Passed, when tested in accordance with ASTM D 3273.
 - 9. Acceptable Product: ISOGARD HD Cover Board by Firestone.
- C. Adhesive for Insulation Attachment: Type as required by roof membrane manufacturer for roofing system and warranty to be provided; use only adhesives furnished by roof membrane manufacturer.

2.06 METAL ACCESSORIES

Include following elements as applicable to your project, eliminate others:

- A. Metal Roof Edging and Fascia: Continuous metal edge member serving as termination of roof membrane and retainer for metal fascia; watertight with no exposed fasteners; mounted to roof edge nailer.
 - 1. Wind Performance:

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- a. Membrane Pull-Off Resistance: 100 lbs/ft (1460 N/m), minimum, when tested in accordance with ANSI/SPRI ES-1 Test Method RE-1, current edition.
 - b. Fascia Pull-Off Resistance: At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-2, current edition.
 - c. Provide product listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-270 rating.
2. Description: Two-piece; 45 degree sloped galvanized steel sheet edge member securing top and bottom edges of formed metal fascia; Firestone EdgeGard Plus or Firestone Rail Fascia.
 3. Fascia Face Height: Verify In Field
 4. Edge Member Height Above Nailer: 1-1/4 inches (31 mm).
 5. Fascia Material and Finish: 24 gage, 0.024 inch (0.06 mm) galvanized steel with Kynar 500 finish in manufacturer's standard color; matching concealed joint splice plates; factory-installed protective plastic film.
 6. Length: 144 inches (3650 mm).
 7. Functional Characteristics: Fascia retainer supports while allowing for free thermal cycling of fascia.
 8. Aluminum Bar: Continuous 6063-T6 alloy aluminum extrusion with pre-punched slotted holes; miters welded; injection molded EPDM splices to allow thermal expansion.
 9. Anchor Bar Cleat: 20 gage, 0.036 inch (0.9 mm) G90 coated commercial type galvanized steel with pre-punched holes.
 10. Curved Applications: Factory modified.
 11. Fasteners: Factory-provided corrosion resistant fasteners, with drivers; no exposed fasteners permitted.
 12. Special Shaped Components: Provide factory-fabricated pieces necessary for complete installation, including miters, scuppers, and end caps; minimum 14 inch (355 mm) long legs on corner pieces.
 13. Scuppers: Welded watertight.
 14. Accessories: Provide matching brick wall cap, downspout, extenders, and other special fabrications as shown on the drawings.
- B. Parapet Copings: Formed metal coping with galvanized steel anchor/support cleats for capping any parapet wall; watertight, maintenance free, without exposed fasteners; butt type joints with concealed splice plates; mechanically fastened as indicated; Firestone PTCF.
1. Wind Performance:
 - a. At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-3, current edition.
 - b. Provide product listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-90 rating.
 2. Description: Coping sections allowed to expand and contract freely while locked in place on anchor cleats by mechanical pressure from hardened stainless steel springs factory attached to anchor cleats; 8 inch (200 mm) wide splice plates with factory applied dual non-curing sealant strips capable of providing watertight seal.
 3. Material and Finish: 24 gage, 0.024 inch (0.06 mm) thick galvanized steel with Kynar 500 finish in manufacturer's standard color; matching concealed joint splice plates; factory-installed protective plastic film.
 4. Dimensions:
 - a. Wall Width: As indicated on the drawings.
 - b. Piece Length: Minimum 144 inches (3650 mm).
 - c. Curved Application: Factory fabricated in true radius.
 5. Anchor/Support Cleats: 20 gage, 0.036 inch (0.9 mm) thick prepunched galvanized cleat with 12 inch (305 mm) wide stainless steel spring mechanically locked to cleat at 72 inches (1820 mm) on center.
 6. Special Shaped Components: Provide factory-fabricated pieces necessary for complete installation, including miters, corners, intersections, curves, pier caps, and end caps; minimum 14 inch (355 mm) long legs on corner, intersection, and end pieces.
 7. Fasteners: Factory-furnished; electrolytically compatible; minimum pull out resistance of 240

pounds (109 kg) for actual substrate used; no exposed fasteners.

2.07 ACCESSORY MATERIALS

- A. Wood Nailers: PS 20 dimension lumber, Structural Grade No. 2 or better Southern Pine, Douglas Fir; or PS 1, APA Exterior Grade plywood; pressure preservative treated.
 - 1. Width: 3-1/2 inches (90 mm), nominal minimum, or as wide as the nailing flange of the roof accessory to be attached to it.
 - 2. Thickness: Same as thickness of roof insulation.

PART 3 INSTALLATION

3.01 GENERAL

- A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system. Where manufacturer provides no instructions or recommendations, follow good roofing practices and industry standards. Comply with federal, state, and local regulations.
- B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.
- C. Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project requires a manufacturer's warranty.
- D. Perform work using competent and properly equipped personnel.
- E. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.
- F. Install roofing membrane only when surfaces are clean, dry, smooth and free of snow or ice; do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F (15 to 25 degrees C).
- G. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.
 - 1. Protect from spills and overspray from bitumen, adhesives, sealants and coatings.
 - 2. Particularly protect metal, glass, plastic, and painted surfaces from bitumen, adhesives, and sealants within the range of wind-borne overspray.
 - 3. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.
- H. Until ready for use, keep materials in their original containers as labeled by the manufacturer.
- I. Consult membrane manufacturer's instructions, container labels, and Material Safety Data Sheets (MSDS) for specific safety instructions. Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition.

3.02 EXAMINATION

- A. Examine roof deck to determine that it is sufficiently rigid to support installers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck.
- B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.
- C. Examine roof substrate to verify that it is properly sloped to drains.
- D. Verify that the specifications and drawing details are workable and not in conflict with the roofing

manufacturer's recommendations and instructions; start of work constitutes acceptable of project conditions and requirements.

3.03 PREPARATION

- A. Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened surfaces, loose or foreign materials, oil, grease and other materials that may damage the membrane.
- C. Fill all surface voids in the immediate substrate that are greater than 1/4 inch (6 mm) wide with fill material acceptable insulation to membrane manufacturer.
- D. Seal, grout, or tape deck joints, where needed, to prevent bitumen seepage into build

3.05 INSULATION AND COVER BOARD INSTALLATION

- A. Install insulation in configuration and with attachment method(s) specified in PART 2, under Roofing System.
- B. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather.
- C. Lay roof insulation in courses parallel to roof edges.
- D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch (6 mm). Fill gaps greater than 1/4 inch (6 mm) with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch (6 mm).
- E. Adhesive Attachment: Apply in accordance with membrane manufacturer's instructions and recommendations; "walk-in" individual roof insulation boards to obtain maximum adhesive contact.

3.06 SINGLE-PLY MEMBRANE INSTALLATION

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
- C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.
- D. Install membrane adhered to the substrate, with edge securement as specified.
- E. Adhered Membrane: Bond membrane sheet to substrate using membrane manufacturer's recommended bonding material, application rate, and procedures.
- F. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches (1:6) using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.
 - 1. Exceptions: Round pipe penetrations less than 18 inches (460 mm) in diameter and square penetrations less than 4 inches (200 mm) square.
 - 2. Metal edging is not merely decorative; ensure anchorage of membrane as intended by roofing manufacturer.

3.07 FLASHING AND ACCESSORIES INSTALLATION

- A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.
- B. Metal Accessories: Install metal edgings, gravel stops, and copings in locations indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto

membrane.

1. Follow roofing manufacturer's instructions.
 2. Remove protective plastic surface film immediately before installation.
 3. Install water block sealant under the membrane anchorage leg.
 4. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
 5. Where single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
 6. If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.
 7. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.
- C. Scuppers: Set in sealant and secure to structure; flash as recommended by manufacturer.
- D. Roofing Expansion Joints: Install as shown on drawings and as recommended by roofing manufacturer.
- E. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces that the roofing membrane abuts to; extend flashing at least 8 inches (200 mm) high above membrane surface.
1. Use the longest practical flashing pieces.
 2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
 3. Complete the splice between flashing and the main roof sheet with specified splice adhesive before adhering flashing to the vertical surface.
 4. Provide termination directly to the vertical substrate as shown on roof drawings.
- F. Roof Drains:
1. Taper insulation around drain to provide smooth transition from roof surface to drain. Use specified pre-manufactured tapered insulation with facer or suitable bonding surface to achieve slope; slope not to exceed manufacturer's recommendations.
 2. Position membrane, then cut a hole for roof drain to allow 1/2 to 3/4 inch (12 to 19 mm) of membrane to extend inside clamping ring past drain bolts.
 3. Make round holes in membrane to align with clamping bolts; do not cut membrane back to bolt holes.
 4. Apply sealant on top of drain bowl where clamping ring seats below the membrane
 5. Install roof drain clamping ring and clamping bolts; tighten clamping bolts to achieve constant compression.
- G. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.
1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical; otherwise use specified self-curing elastomeric flashing.
 2. Pipe Clusters and Unusual Shaped Penetrations: Provide penetration pocket at least 2 inches (50 mm) deep, with at least 1 inch (25 mm) clearance from penetration, sloped to shed water.
 3. Structural Steel Tubing: If corner radii are greater than 1/4 inch (6 mm) and longest side of tube does not exceed 12 inches (305 mm), flash as for pipes; otherwise, provide a standard curb with flashing.
 4. Flexible and Moving Penetrations: Provide weathertight gooseneck set in sealant and secured to deck, flashed as recommended by manufacturer.

3.08 FINISHING AND WALKWAY INSTALLATION

- A. Install walkways at access points to the roof, around rooftop equipment that may require maintenance, and where indicated on the drawings.
1. Use specified walkway pads unless otherwise indicated.

- B. Walkway Pads: Adhere to the roofing membrane, spacing each pad at minimum of 1.0 inch (25 mm) and maximum of 3.0 inches (75 mm) from each other to allow for drainage.
 - 1. If installation of walkway pads over field fabricated splices or within 6 inches (150 mm) of a splice edge cannot be avoided, adhere another layer of flashing over the splice and extending beyond the walkway pad a minimum of 6 inches (150 mm) on either side.
 - 2. Prime the membrane, remove the release paper on the pad, press in place, and walk on pad to ensure proper adhesion.

3.09 FIELD QUALITY CONTROL

- A. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).
- B. Perform all corrections necessary for issuance of warranty.

3.10 CLEANING

- A. Clean all contaminants generated by roofing work from building and surrounding areas, including bitumen, adhesives, sealants, and coatings.
- B. Repair or replace building components and finished surfaces damaged or defaced due to the work of this section; comply with recommendations of manufacturers of components and surfaces.
- C. Remove leftover materials, trash, debris, equipment from project site and surrounding areas.

3.11 PROTECTION

- A. Where construction traffic must continue over finished roof membrane, provide durable protection and replace or repair damaged roofing to original condition.

END OF SECTION

SECTION 07 41 13

**UNA-CLAD™ UC-14 METAL PANEL ROOFING SYSTEM
FIRESTONE BUILDING PRODUCTS, LLC**

PART 1 GENERAL

The project, City of Rome located in Rome, NY, includes the provision of a complete Firestone Building Products UNA-CLAD™ UC-14 Self-locking, Concealed Clip, Standing Seam Metal Panel Roofing System.

1.01 SUMMARY

- A. Furnish and install concealed clip metal panel roofing system, including:
 - 1. Roofing manufacturer's requirements for the specified warranty.
 - 2. Preparation of roofing substrates.
 - 3. Wood nailers for roofing attachment.
 - 4. Self adhering underlayment.
 - 5. Metal roof edging and copings.
 - 6. Flashings.
 - 7. Other roofing-related items specified or indicated on the drawings or otherwise necessary to provide a complete roofing system.
- B. Disposal of demolition debris and construction waste is the responsibility of Contractor. Perform disposal in manner complying with all applicable federal, state, and local regulations.
- C. Comply with the published recommendations and instructions of the roofing system manufacturer, at <http://manual.fsbp.com>.
- D. Commencement of work by the Contractor shall constitute acknowledgement by the Contractor that this specification can be satisfactorily executed, under the project conditions and with all necessary prerequisites for warranty acceptance by roofing system manufacturer. No modification of the Contract Sum will be made for failure to adequately examine the Contract Documents or the project conditions.

1.02 RELATED SECTIONS [as present or needed]

- A. Section 06 10 00 - Rough Carpentry:
 - 1. Roof Sheathing: Plywood or oriented strand board (OSB), minimum 7/16 inch (11 mm) thickness with H-clip or tongue-and-grooved joints.
 - 2. Perimeter wood members for attachment of edge trim.
 - 3. Wood nailers associated with roof insulation installed by others.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim: Formed metal flashing and trim items associated with non-metal roofing.
- C. Section 07 72 00 - Roof Accessories: Roof hatches and vents for installation on curbs specified in this section.
- D. Section 08 62 00 - Unit Skylights: For installation on curbs specified in this section.

1.03 REFERENCES

- A. Referenced Standards: These standards form part of this specification only to the extent they are referenced as specification requirements.
 - 1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers; 2011.
 - 2. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2011.

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3. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2008.
4. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2013.
5. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2013.
6. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2013a.
7. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; American Society for Testing and Materials; 2011.
8. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.
9. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; American Society for Testing and Materials; 2005 (Reapproved 2012)
10. ASTM E1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference; American Society for Testing and Materials; 1995 (Reapproved 2011).
11. ASTM E1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems; American Society for Testing and Materials; 2011.
12. MBMA - Metal Roofing Systems Design Manual; Metal Building Manufacturers Association; 2012.
13. PS 1 - Construction and Industrial Plywood; 2009.
14. PS 20 - American Softwood Lumber Standard; 2010.
15. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.
16. UL 2218 - Standard for Impact Resistance of Prepared Roof Covering Materials; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's data sheets on each product to be installed and manufacturer's standard detail drawings applicable to this project.
 1. Installation Instructions: Provide manufacturer's instructions to installer, marked up to show exactly how all components will be installed; where instructions allow installation options, clearly indicate which option will be used.
- B. Samples: Submit following samples for approval:
 1. 12 inch (300 mm) long sample of roof panel.
 2. Roof attachment clips.
 3. Color chips for selection of finish color and sheen.
 4. After selection of finish color, provide two 3 by 5 inch (75 by 125 mm) metal samples finished in color selected.
- C. Shop Drawings: Provide drawings prepared especially for this project for all relevant conditions, including plans and elevations, sections and details, specified loads, flashings, roof edges, terminations, expansion joints, curbs, penetrations, and drainage. Specifically include interfaces with materials not supplied by metal roof panel manufacturer and identify each component and its finish.
- D. Pre-Installation Notice: Copy to show that manufacturer's required Pre-Installation Notice (PIN) has been accepted and approved by the manufacturer.

- E. Manufacturer's Installation Inspection Reports: Manufacturer may, at its option, inspect the installation at any time to appraise the installing contractor of their compliance with manufacturer's requirements. Typical inspections will include:
 - 1. Prior to the installation of the metal roofing panels to inspect the underlayments. The roofing contractor is responsible for assuring that the substrate is in suitable condition for the installation of the metal roofing components to the substrate.
 - 2. Intermediate inspections to ensure proper installation of the metal roofing panels (if required).
 - 3. At final completion of all metal roofing system work.
 - 4. Submit to Owner, for the project record, a copy of each report of inspection made.
- F. Executed Warranty, by authorized company official upon final close-out.
- G. Specimen Warranty: Submit prior to starting work.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Roofing installer shall have received training from metal panel manufacturer for installation of the specified roof panel system, and:
 - 1. Current Firestone Red Shield licensed installer status.
 - 2. Having and using only equipment authorized and inspected by metal panel manufacturer.
 - 3. Capability to provide payment and performance bond to building owner.
- B. Pre-Installation Conference: Before start of roofing work, Contractor shall hold a meeting to discuss the proper installation of materials and requirements to achieve the warranty.
 - 1. Require attendance with all parties directly influencing the quality of roofing work or affected by the performance of roofing work.
 - 2. Notify Architect well in advance of meeting.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original containers, dry and undamaged, with seals and labels intact and legible.
- B. Exercise extreme care in unloading, storing, and installing metal panels to prevent bending, warping, twisting, and surface damage.
- C. Store products above ground on well-supported platforms that provide minimum of 1:48 slope. Store under waterproof covering or indoors and provide proper ventilation of metal components to prevent condensation build-up between metal components.

1.07 WARRANTY

- A. Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.
- B. Manufacturer's warranty is in addition to, and not a limitation of, other rights the owner may have under the contract documents.
- C. Warranty: Firestone Red Shield Limited Warranty covering roof panels and associated metal components, roof sheathing/insulation manufactured by Firestone, and accessories, covering weathertightness, finish, materials, labor, and workmanship.
 - 1. Limit of Liability: No dollar limitation.
 - 2. Scope of Coverage: Repair leaks in the roofing system caused by:
 - a. Ordinary wear and tear of the elements.
 - b. Manufacturing defect in Firestone brand materials.
 - c. Defective workmanship used to install these materials.
 - d. Damage due to winds up to 55 mph.
 - 3. Not Covered:
 - a. Materials made by entities other than Firestone Building Products
 - b. Damage due to winds in excess of 55 mph.
 - c. Damage due hurricanes or tornadoes.

- d. Hail.
 - e. Intentional damage.
 - f. Unintentional damage due to normal rooftop inspections, maintenance, or service.
- D. Painted Finish Warranty: Provide Firestone standard Red Shield non-prorated warranty covering durability of painted finish, to include film integrity, color change, fading, and chalking, unless otherwise indicated below.
- 1. Warranty Period: 20 years commencing on date of substantial completion.
 - 2. Metallic Colors (as identified by Firestone): Not warranted against color change or fading.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer - Metal Roof Panels and Associated Sheet Metal Components: Firestone Building Products LLC, Carmel, IN: www.firestonebppo.com or approved equal.
- 1. Provide all components of system supplied or specified by same manufacturer.
 - 2. Roofing systems manufactured by others may be acceptable provided the roofing system is completely equivalent in materials and warranty conditions and the manufacturer meets the following qualifications:
 - a. Specializing in manufacturing the roofing system to be provided.
 - b. Minimum ten years of experience manufacturing the roofing system to be provided.
 - c. Able to provide a no dollar limit, single source roof system warranty that is backed by corporate assets in excess of one billion dollars.
 - d. ISO 9002 certified.
 - e. Able to provide waterproofing membrane underlayment.
- B. Manufacturer of Insulation: Same manufacturer as metal roof panels.
- C. Substitutions: See Section 1 - Product Requirements.
- 1. Submit evidence that the proposed substitution complies with the specified requirements.

2.02 ROOFING SYSTEM DESCRIPTION

- A. Roofing System: Standing seam metal roof panels and other components, together forming a watertight assembly having the following characteristics:
- 1. Warranty: 20 year.
 - 2. Panel Seam Type: Self-locking; not requiring field seaming, concealed clip attachment to substrate.
Retain one / Delete one
 - 3. Panel Material: Steel, 24 gauge (0.64 mm) with fluoropolymer finish, over G90 hot-dipped galvanized coating.
 - 3. Color: To be selected from manufacturer's standard and premium colors.
 - 4. Design Loads: In accordance with ASCE 7, current edition.
 - a. Design Snow Load: Not less than 20 psf (960 kPa).
 - b. Maximum Deflection Under Snow Load: Not more than L/180 or as recommended by ASCE 7, whichever is less.
 - c. Wind Uplift Resistance: Class 90 rating, minimum, when tested in accordance with UL 580.
 - d. Wind Pull-Off Resistance: No failure of roof panel or fasteners when tested in accordance with ASTM E1592 for negative loading equal to negative design wind load; for assemblies not tested, capacity for gauge, span, or loading may be determined by interpolating between test values only.
 - 5. Impact Resistance: Minimum of Class 4, when tested in accordance with UL 2218.
 - 6. Thermal Effects: Design roof panels and their attachment to allow free movement in response to expansion and contraction forces resulting from temperature variation, as specified in the MBMA Metal Roofing Systems Design Manual.
 - 7. External Fire Resistance: Class A when tested in accordance with ASTM E108 or UL 790.

City of Rome – Garage Roof

8. Provide all necessary members and connections, whether indicated in the manufacturer's standard detail drawings or not.
 9. Accessories and Their Fasteners: Capable of resisting the specified design wind uplift forces and allowing for thermal movement of the roof panel system, not restricting free movement of the roof panel system resulting from thermal forces except at designed points of roof panel fixity.
- B. Roof System Components: In order from the top down:
1. Metal roofing panels and trim.
 2. Underlayment: Self-adhering, high temperature underlayment over entire roof; material as specified.

2.03 ROOF PANELS AND SHEET METAL FABRICATIONS

- A. Roof Panels: Firestone UNA-CLAD UC-14 Standing Seam Roofing; roll formed roofing panels produced in a permanent factory environment with fixed-base roll-forming equipment.
1. Seam Height: 1-3/4 inches (44.5 mm).
 2. Seam Spacing (Panel Width): 16 inches.
 2. Profile: Flat.
 3. Texture: Smooth.
 4. Provide factory applied integral seam sealant in leg of panel.
 5. Concealed clips as tested and supplied by manufacturer.
 6. Form roofing panels in longest practical lengths, true to shape, accurate in size, square, and free from distribution or manufacturing defects.
- B. Steel Sheet: ASTM A653/A653M, lock-forming quality, extra smooth, tension-leveled, galvanized/galvannealed steel, minimum spangle.
- B. Fluoropolymer Coating: 70 percent full strength Kynar 500/Hylar 5000.
1. Exposed Surface: 1.0 mil (0.25 mm) plus/minus 0.1 mil (0.025 mm) total dry film thickness.
 2. Concealed Surface: 0.2 to 0.3 mils (0.05 to 0.08 mm) total dry film thickness.
 3. Color: To be selected from manufacturer's standard and premium colors.
- C. Sheet Metal Components Associated with Metal Roof Panels: Made by same manufacturer and compatible with roof panels; of not less than minimum thickness required by roof panel manufacturer.
1. Fabricate trim, flashing, and accessories to roofing manufacturer's specified or approved profiles.
 2. Exposed metal components of same finish as panels.
 3. Color: Same as panels.
 4. Provide the following formed sheet metal components:
 - a. Eave.
 - b. Vented ridge.
 - c. High eave, vented.
 - d. Vertical fascia.
 - e. Side wall flashing.
 - f. Pipe and other penetration flashings, for penetrations over 8 inches.
 - g. Flashings at interface to other roofing types.
 - h. Other flashings.
 - i. Copings, parapet covers.
 - j. Soffit panels, solid.
 - k. Soffit panels, vented.

2.05 ACCESSORY MATERIALS

- A. Self-Adhered Underlayment: Rubberized sheet waterproof membrane complying with ASTM D 1970/D1970M, self-adhering.
1. Resistance to Direct Exposure: At least 90 days.
 2. Minimum High Temperature Resistance: 230 degrees F (110 degrees C).

3. Water Vapor Permeance: 0.1 perm (5.7 ng/(Pa s sq m)), maximum.
 4. Acceptable Product: Clad-Gard SA by Firestone
- B. Fasteners: In strict accordance with metal roof panel manufacturer's requirements; minimize exposed fasteners.
1. Fasteners Exposed to Weather: Sealed or with sealed washers on exterior side of covering to waterproof fastener penetration; washer material compatible with screw head; minimum 3/8 inch (9.5 mm) diameter washer for structural connections; gasket portion of fasteners or washers made of EPDM, neoprene, or other equally durable elastomeric material.
 2. Fasteners Exposed to View: Head of color matching panel or component in which installed.
- C. Installation Clips: Manufacturer standard galvanized or stainless steel clips, as required by panel selection, for concealed securement of panels. Use only those approved for use by the roof system manufacturer.

PART 3 INSTALLATION

3.01 GENERAL

- A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system. Where manufacturer provides no instructions or recommendations, follow good roofing practices and industry standards. Comply with federal, state, and local regulations.
- B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.
- C. Verify that shop drawings prepared by metal roof panel manufacturer have been approved and are available to installers; do not use drawings prepared by others for installation drawings.
- D. Verify that the specifications and drawing details are workable and not in conflict with the roofing manufacturer's recommendations and instructions; start of work constitutes acceptable of project conditions and requirements.
- E. Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project requires a manufacturer's warranty.
- F. Perform work using competent and properly equipped personnel.
- G. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.
- H. Install roofing only when surfaces are clean, dry, smooth and free of snow or ice; do not apply roofing during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F (15 to 25 degrees C).
- I. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.
1. Protect from spills and overspray from bitumen, adhesives, sealants and coatings.
 2. Particularly protect metal, glass, plastic, and painted surfaces from bitumen, adhesives, and sealants within the range of wind-borne overspray.
 3. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.
- J. Until ready for use, keep materials in their original containers as labeled by the manufacturer.
- K. Consult panel manufacturer's instructions, container labels, and Safety Data Sheets (SDS) for specific safety instructions. Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition.

3.02 EXAMINATION

- A. Examine roof deck to determine that it is sufficiently rigid to support installers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck.
- B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.
- C. Verify that the substructure installation is in accordance with the approved shop drawings and roof panel manufacturer's requirements, that the fasteners are correct for the substrate, and the substrate is installed to accommodate and support the appropriate clip spacing and attachment.
- D. Verify that installed work of other trades that such work is complete to a point where the roofing system installation may commence.
- E. Verify that roof openings, curbs, pipes, sleeves, ducts, vents, and other penetrations through roof substrate are complete and properly located.
- F. In event of discrepancy, notify Architect in writing; do not proceed with installation until discrepancies have been resolved.

3.04 COVER BOARD INSTALLATION

- A. Install cover board over entire area to be roofed, mechanically fastened as required by roofing manufacturer.

3.05 UNDERLAYMENT INSTALLATION

- A. Install underlayment in accordance with manufacturer's instructions.
- B. Install self-adhered underlayment over entire roofing surface.

3.06 ROOF PANEL INSTALLATION

- A. Install the metal roof panel system in accordance with the manufacturer's instructions, installation drawings, and approved shop drawings, so that it is weathertight and allows for thermal movement.
- B. Locate space and fasten all clips in accordance with roof panel manufacturer's recommendations. For required fasteners, use proper torque settings to obtain controlled uniform compression for a positive seal without rupturing the sealing washers.
- C. Do not place utility penetrations through the panel seams.
- D. Do not allow panels or trim to come into contact with dissimilar materials (i.e. copper, lead, graphite, treated lumber, mortar, etc). Protect from water run-off from these materials.
- E. Perform field cutting of panels and related sheet metal components by means of hand or electric shears. At no time shall a hot/friction saw be used.
- F. Remove protective film immediately after installation.

3.07 FLASHING AND ACCESSORIES INSTALLATION

- A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by roof panel manufacturer's recommendations and details.
- B. Install metal trim, accessories, and edgings in locations indicated on the drawings.
 - 1. Follow roofing manufacturer's instructions.
 - 2. Remove protective plastic surface film immediately before installation.
- C. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces that the roofing system abuts to; extend flashing at least 8 inches high above system surface.
- D. Flashing at Penetrations: Flash all penetrations passing through the panel; make flashing seals directly to the penetration.

1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical.
2. Where pre-molded pipe flashings are not practical, provide flashing detail as recommended by metal panel manufacturer.

3.08 FIELD QUALITY CONTROL

- A. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).
- B. Perform all corrections necessary for issuance of warranty.

3.09 ADJUSTING AND CLEANING

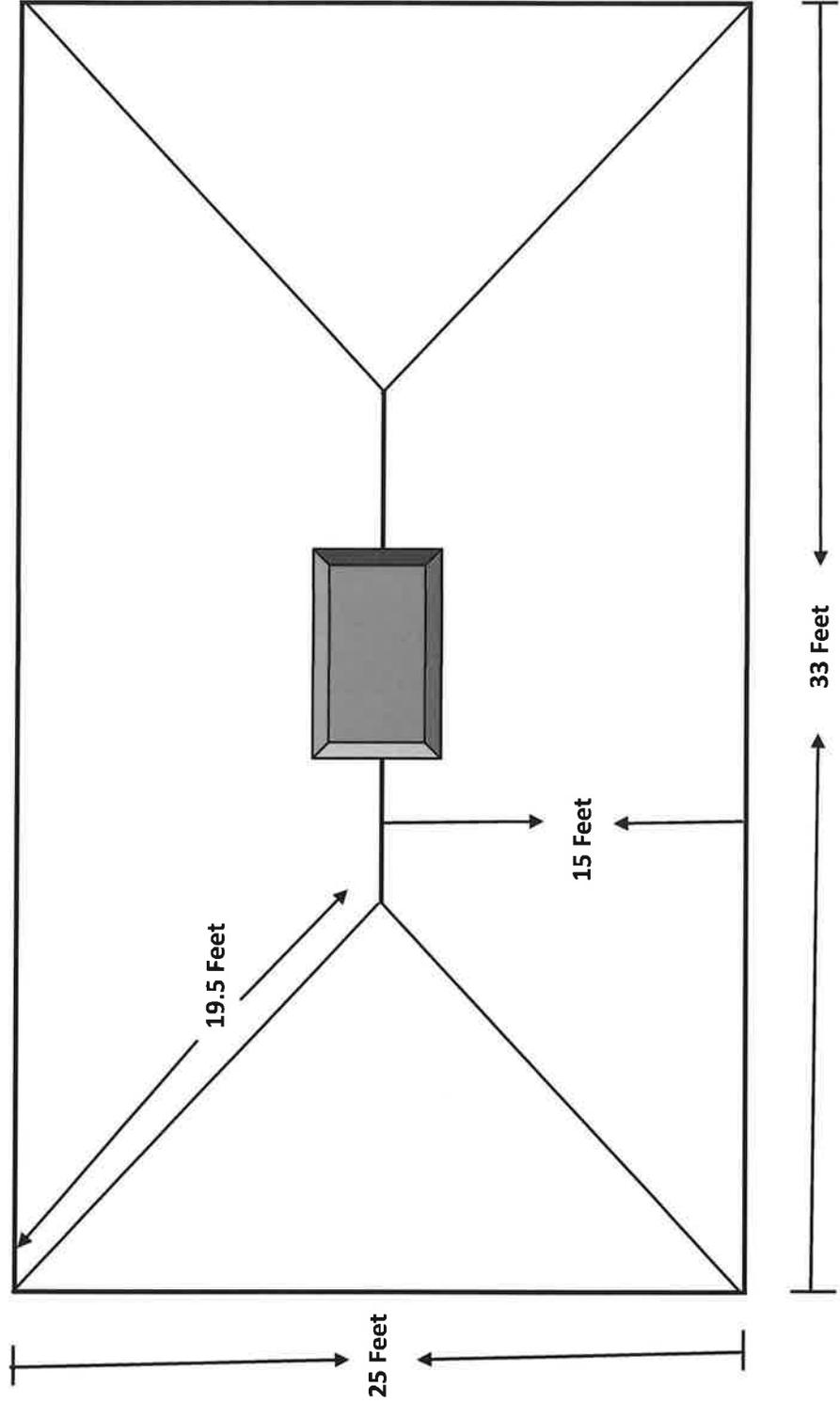
- A. Repair panels having minor damage.
- B. Remove panels damaged beyond repair and replace with new panels to match adjacent undamaged panels.
- C. Clean exposed panel surfaces promptly after installation in accordance with recommendations of panel and coating manufacturers.
- D. Clean all contaminants generated by roofing work from building and surrounding areas, including adhesives, sealants, and coatings.
- E. Repair or replace building components and finished surfaces damaged or defaced due to the work of this section; comply with recommendations of manufacturers of components and surfaces.
- F. Remove leftover materials, trash, debris, equipment from project site and surrounding areas.

3.10 PROTECTION

- A. Where construction traffic must continue over finished roof panels, provide durable protection and replace or repair damaged roofing to original condition.

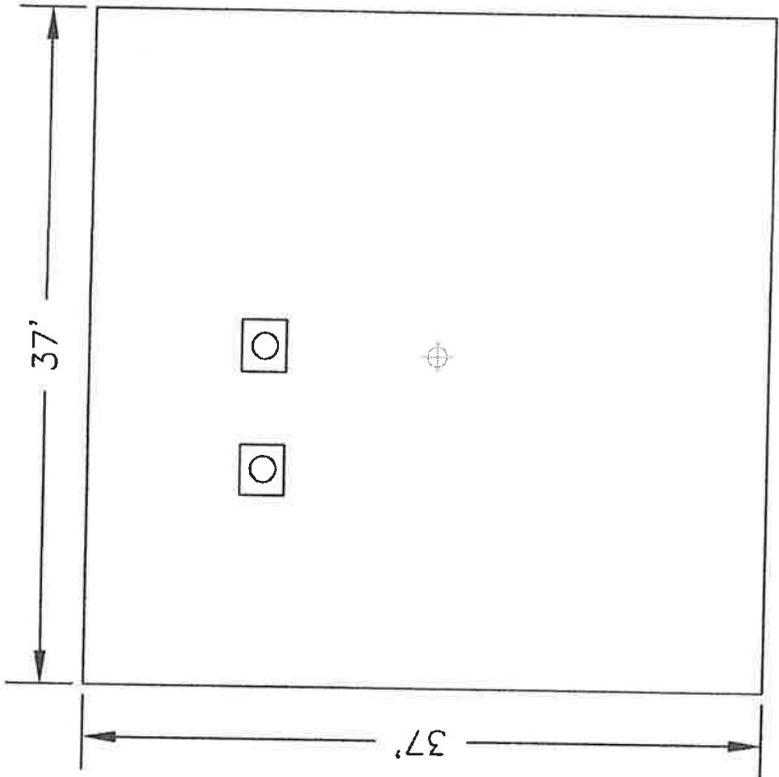
END OF SECTION

Same Spec as Garage Roof



City of Rome, New York	
Waste Water Treatment Plant	
Rome, NY 13440	
Date: 1/27/20	ROOF: Ft Bull Pump Station

#1



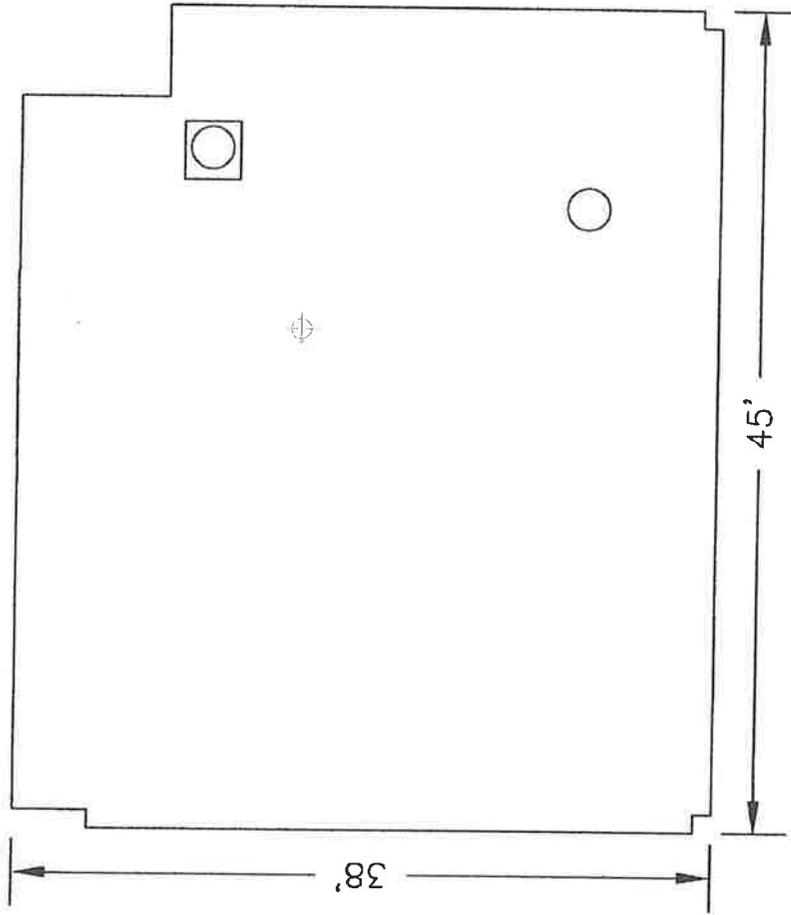
Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
1,369 Square Feet

City of Rome, New York
Waste Water Treatment Plant
Rome, NY 13440

DATE: 7-20-10 ROOF: Generator Buildir

#1

#2



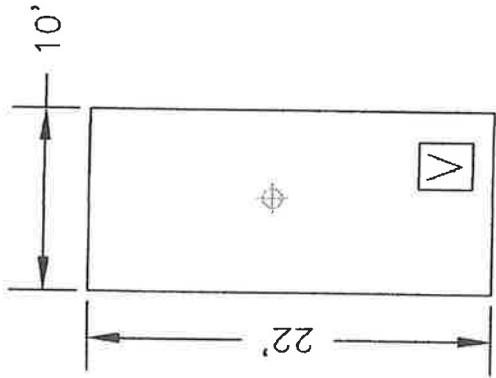
Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
1,664 Square Feet

City of Rome, New York
Waste Water Treatment Plant
Rome, NY 13440

DATE: 7-20-10 ROOF: Chlorine Building

#2

#3

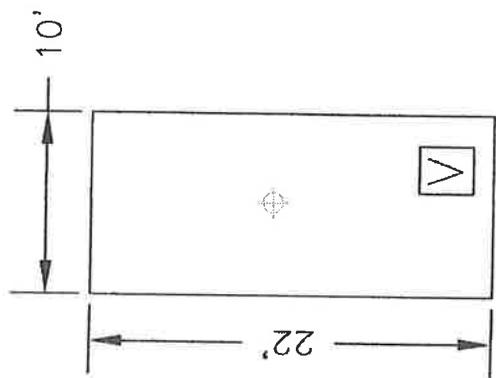


Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
220 Square Feet

City of Rome, New York	
Waste Water Treatment Plant Rome, NY 13440	
DATE: 7-20-10	ROOF: Thick Sludge 1

#3

#4

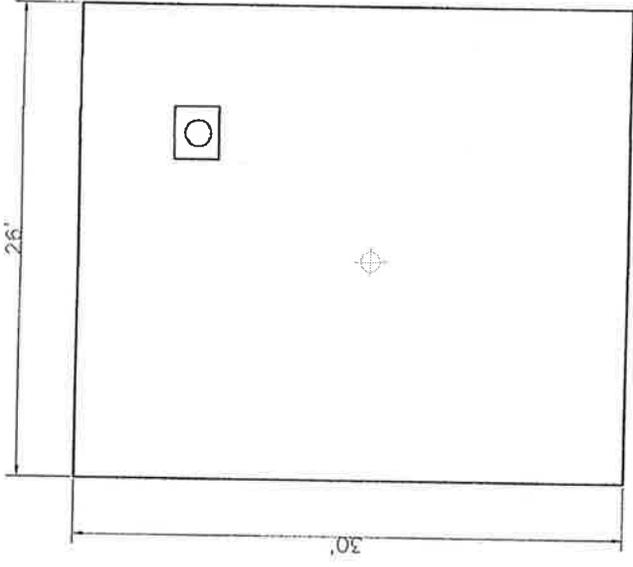


Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mapped to deck)
Concrete Deck
220 Square Feet

City of Rome, New York Waste Water Treatment Plant Rome, NY 13440	
DATE: 7-20-10	ROOF: Thick Sludge 2

#4

#5

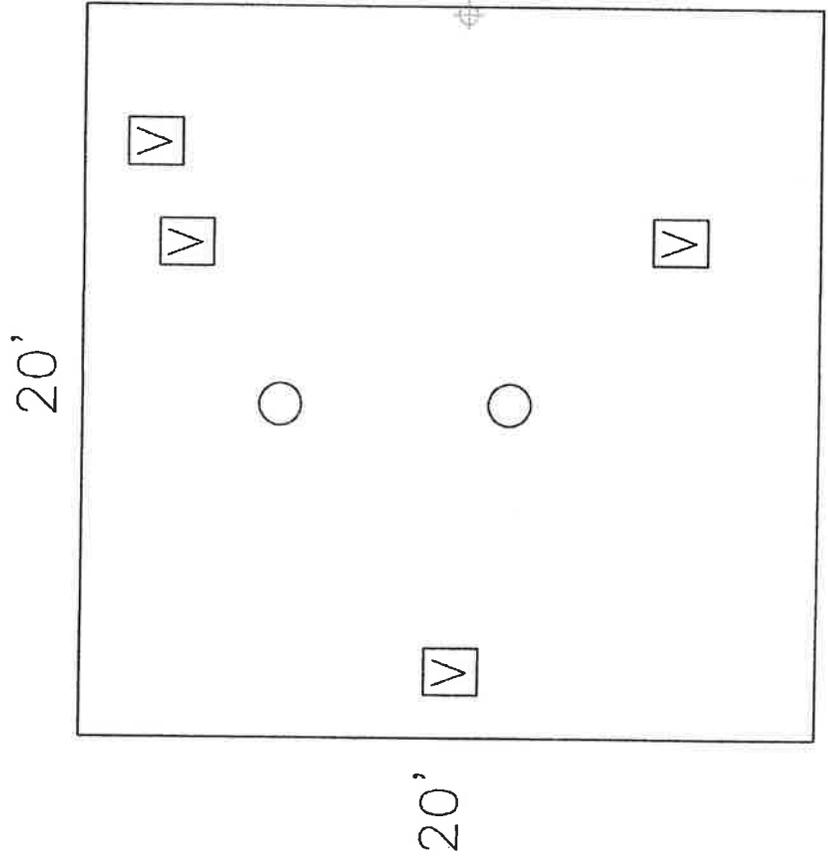


Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
780 Square Feet

City of Rome, New York Waste Water Treatment Plant Rome, NY 13440	
DATE: 7-20-10	ROOF: Scum&Grease Se

#5

#6

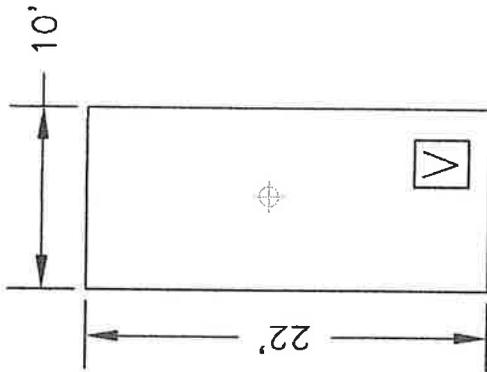


Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
400 Square Feet

City of Rome, New York Waste Water Treatment Plant Rome, NY 13440	
DATE: 7-20-10	ROOF: Raw Waste Bldg

#6

#7

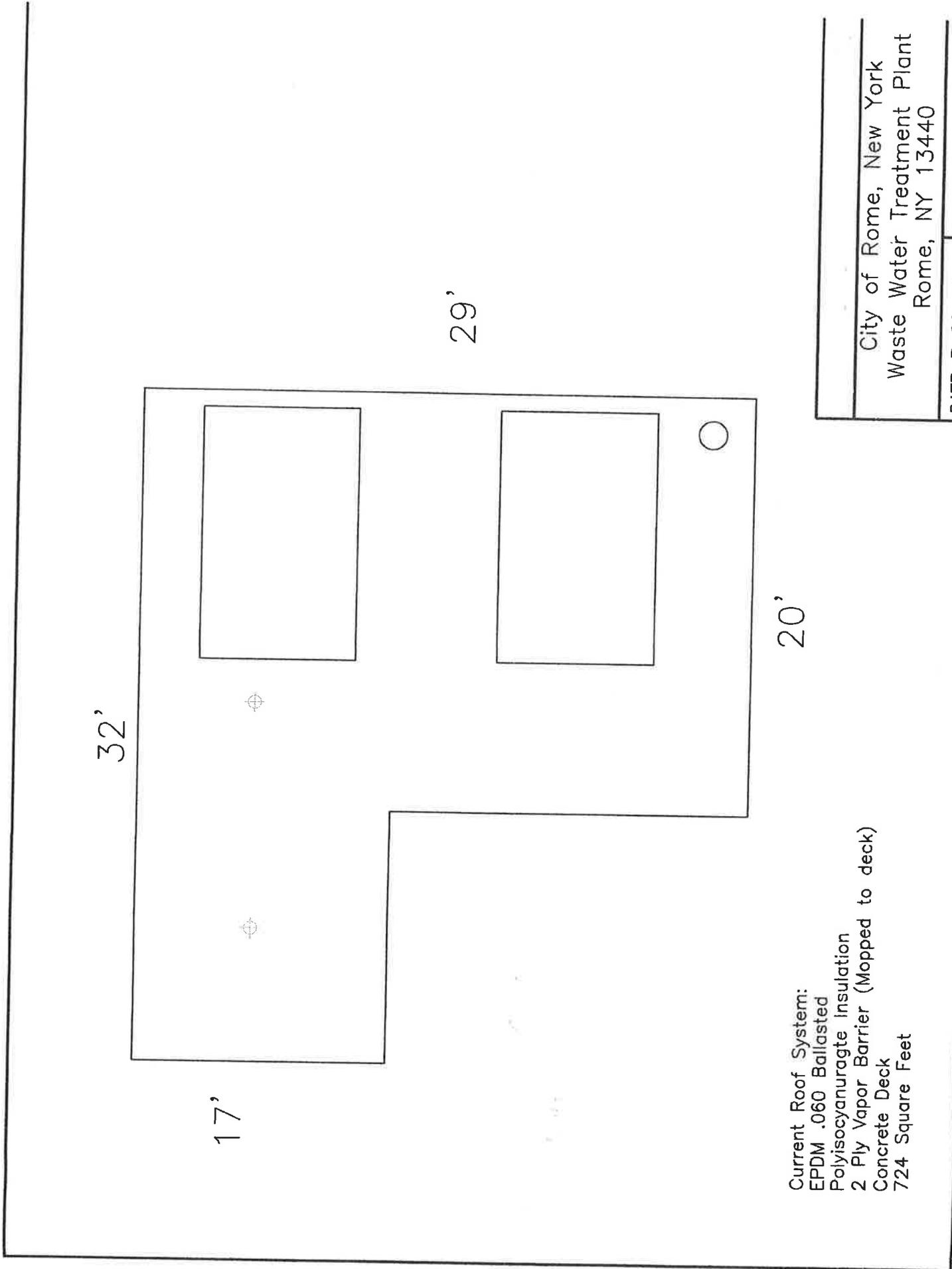


Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
220 Square Feet

City of Rome, New York Waste Water Treatment Plant Rome, NY 13440	
DATE: 7-20-10	ROOF: Scum Pump #1

#7

#8

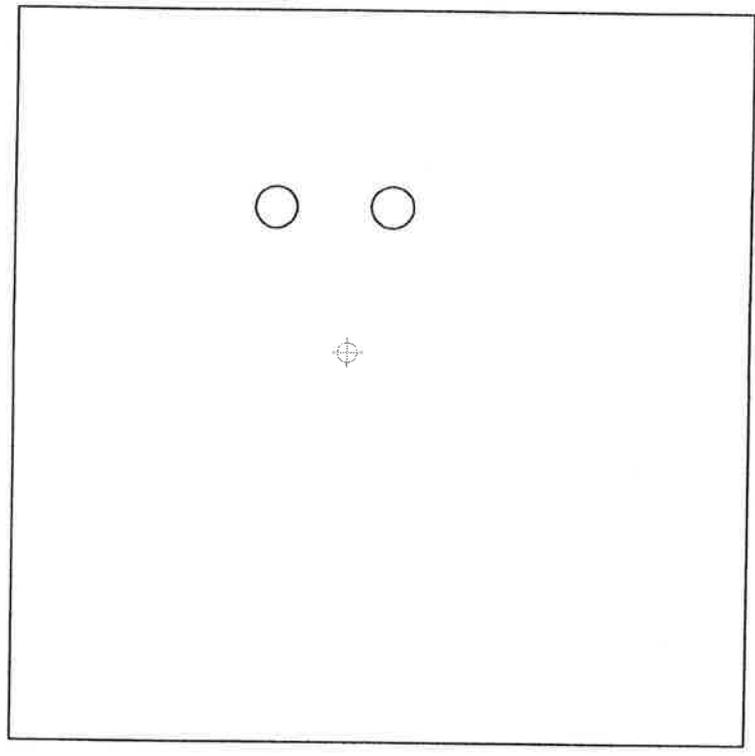


Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
724 Square Feet

#8

#9

18'



19'

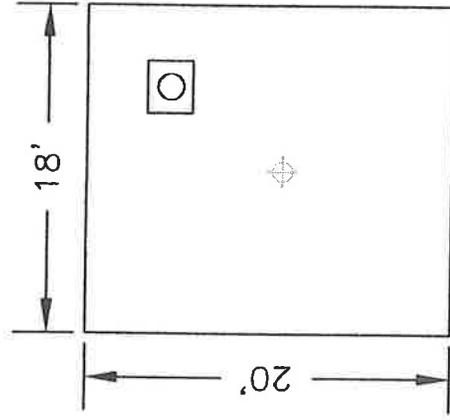
Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
342 Square Feet

City of Rome, New York
Waste Water Treatment Plant
Rome, NY 13440

DATE: 7-20-10 ROOF: Main Pump Bldg

#9

#10

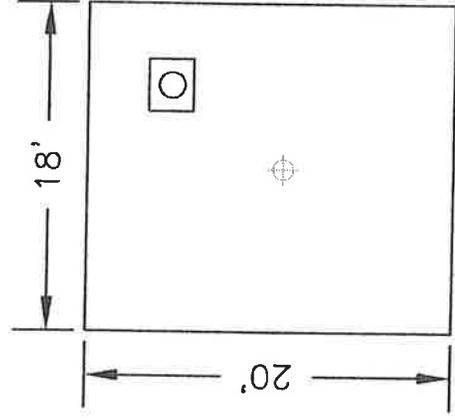


Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mapped to deck)
Concrete Deck
360 Square Feet

City of Rome, New York Waste Water Treatment Plant Rome, NY 13440	
DATE: 7-20-10	ROOF: Scum Pump #2

#10

#11

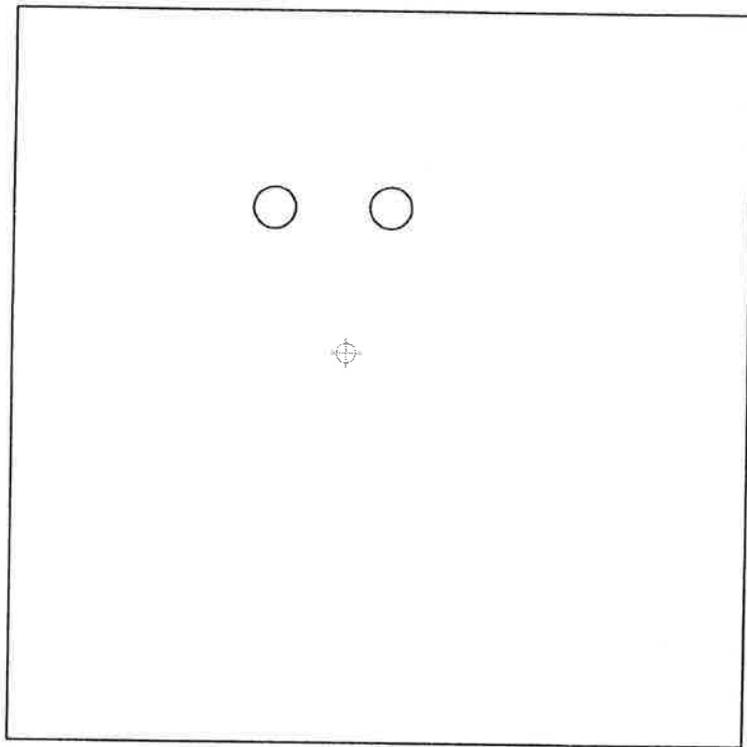


Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
360 Square Feet

City of Rome, New York Waste Water Treatment Plant Rome, NY 13440	
DATE: 7-20-10	ROOF: Scum Pump #3

#11

18'



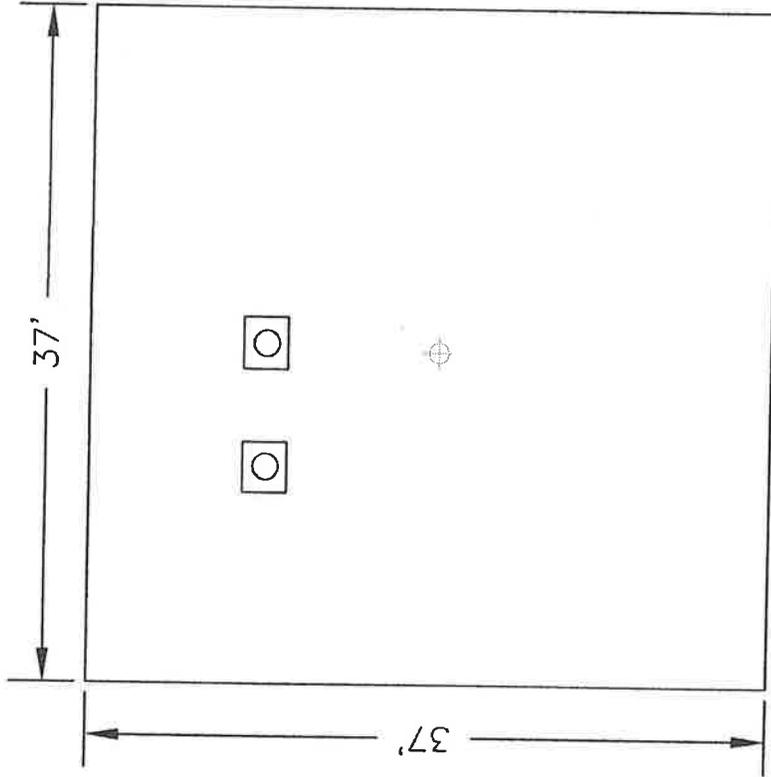
19'

Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
342 Square Feet

City of Rome, New York
Waste Water Treatment Plant
Rome, NY 13440

DATE: 7-20-10

ROOF: Main Pump Bldg

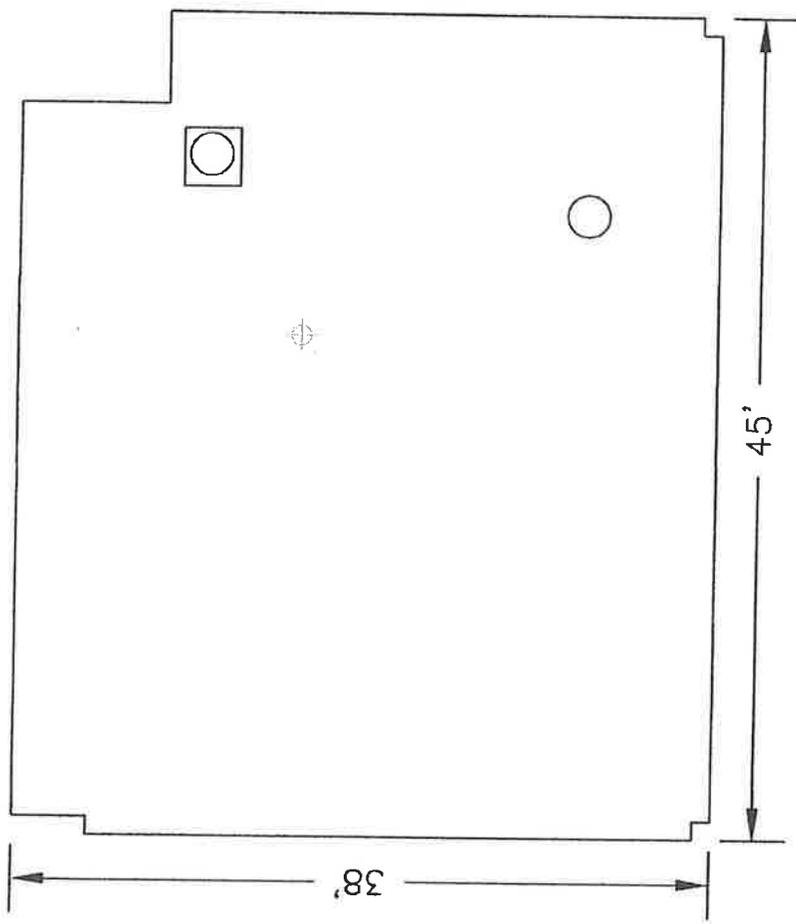


Current Roof System:
 EPDM .060 Ballasted
 Polyisocyanurate Insulation
 2 Ply Vapor Barrier (Mapped to deck)
 Concrete Deck
 1,369 Square Feet

City of Rome, New York
 Waste Water Treatment Plant
 Rome, NY 13440

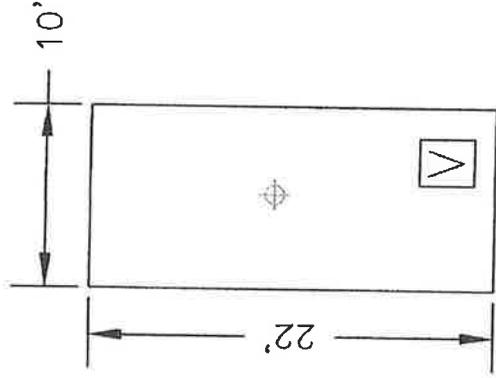
DATE: 7-20-10

ROOF: Generator Buildir



Current Roof System:
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 Polyisocyanurate Insulation
 2 Ply Vapor Barrier (Mopped to deck)
 Concrete Deck
 1,664 Square Feet

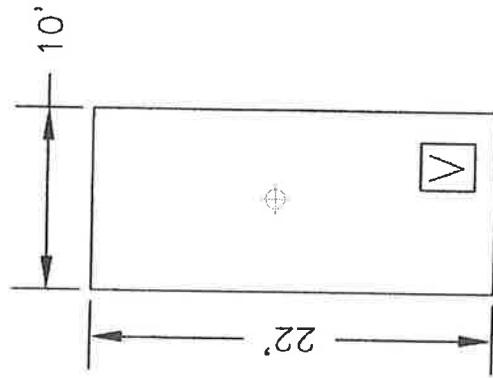
City of Rome, New York	
Waste Water Treatment Plant	
Rome, NY 13440	
DATE: 7-20-10	ROOF: Chlorine Building



Current Roof System:
 EPDM .060 Ballasted
 Polyisocyanurate Insulation
 2 Ply Vapor Barrier (Mopped to deck)
 Concrete Deck
 220 Square Feet

City of Rome, New York
 Waste Water Treatment Plant
 Rome, NY 13440

DATE: 7-20-10 ROOF: Thick Sludge 1

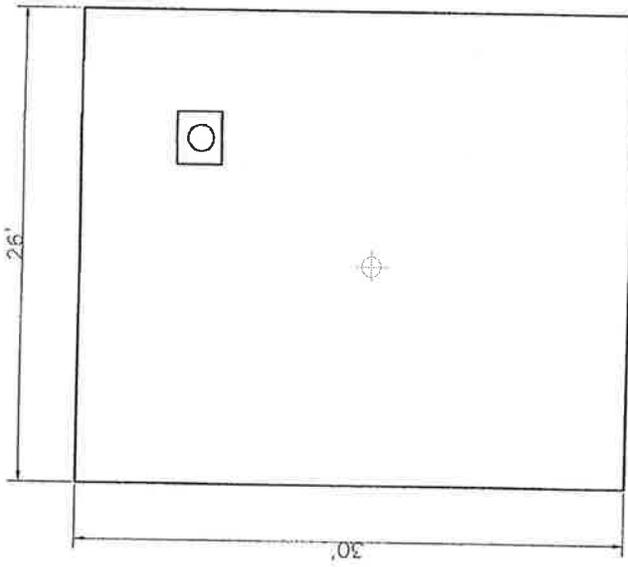


Current Roof System:
 EPDM .060 Ballasted
 Polyisocyanurate Insulation
 2 Ply Vapor Barrier (Mopped to deck)
 Concrete Deck
 220 Square Feet

City of Rome, New York
 Waste Water Treatment Plant
 Rome, NY 13440

DATE: 7-20-10

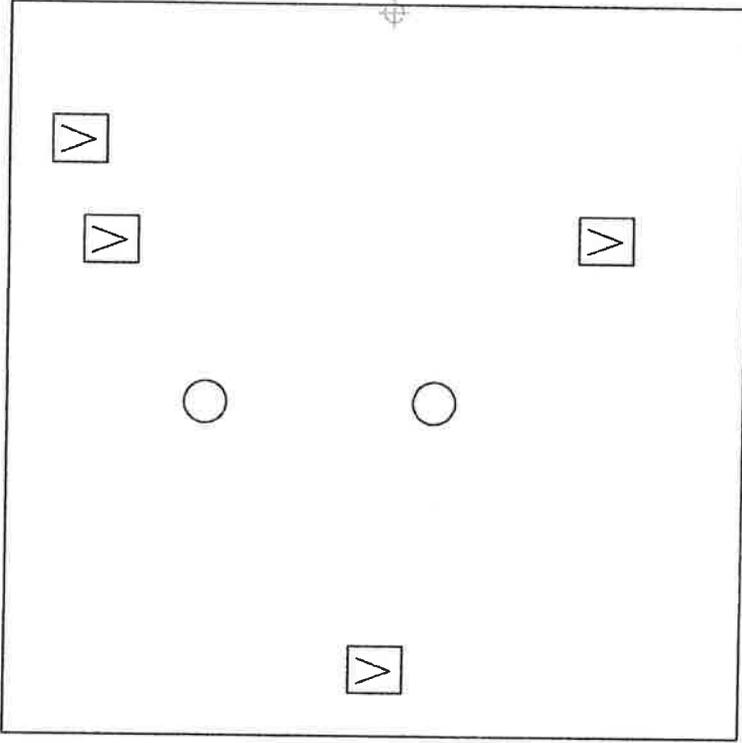
ROOF: Thick Sludge 2



Current Roof System:
 EPDM .060 Ballasted
 Polyisocyanurate Insulation
 2 Ply Vapor Barrier (Mopped to deck)
 Concrete Deck
 780 Square Feet

City of Rome, New York	
Waste Water Treatment Plant	
Rome, NY 13440	
DATE: 7-20-10	ROOF: Scum&Grease Se

20'



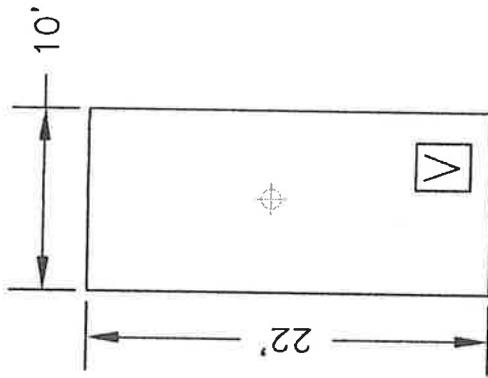
20'

Current Roof System:
EPDM .060 Ballasted
Polysocyanuragte Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
400 Square Feet

City of Rome, New York
Waste Water Treatment Plant
Rome, NY 13440

DATE: 7-20-10

ROOF: Raw Waste Bldg



Current Roof System:
 EPDM .060 Ballasted
 Polyisocyanurate Insulation
 2 Ply Vapor Barrier (Mopped to deck)
 Concrete Deck
 220 Square Feet

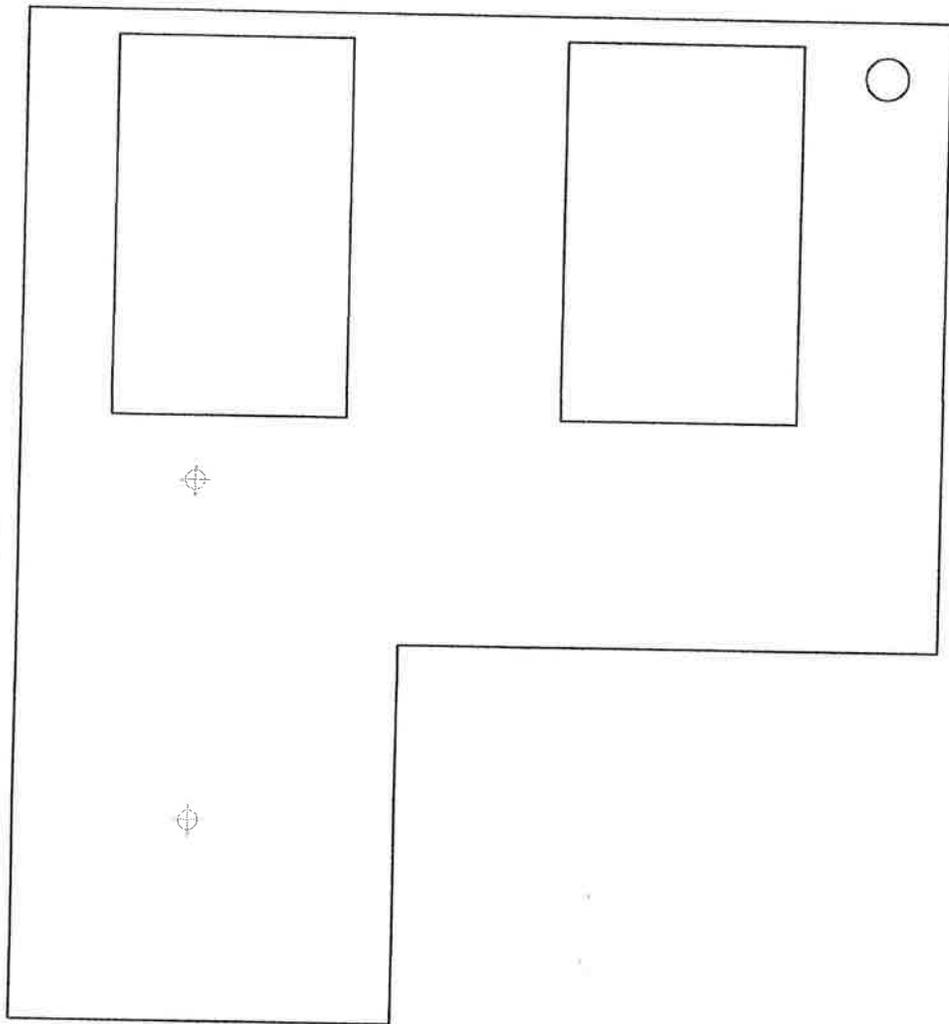
City of Rome, New York Waste Water Treatment Plant Rome, NY 13440	
DATE: 7-20-10	ROOF: Scum Pump #1

32'

17'

29'

20'

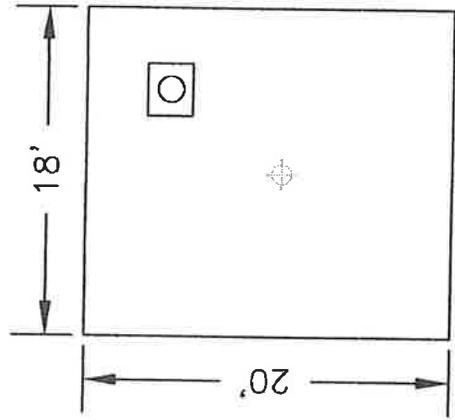


Current Roof System:
EPDM .060 Ballasted
Polyisocyanurate Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
724 Square Feet

City of Rome, New York
Waste Water Treatment Plant
Rome, NY 13440

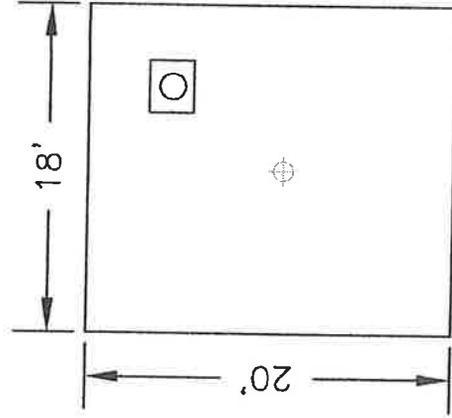
DATE: 7-20-10

ROOF: Screen & Grit E



Current Roof System:
 EPDM .060 Ballasted
 Polyisocyanurate Insulation
 2 Ply Vapor Barrier (Mopped to deck)
 Concrete Deck
 360 Square Feet

City of Rome, New York Waste Water Treatment Plant Rome, NY 13440	
DATE: 7-20-10	ROOF: Scum Pump #2



Current Roof System:
EPDM .060 Ballasted
Polysocyanuragte Insulation
2 Ply Vapor Barrier (Mopped to deck)
Concrete Deck
360 Square Feet

City of Rome, New York
Waste Water Treatment Plant
Rome, NY 13440

DATE: 7-20-10

ROOF: Scum Pump #3