

SECTION 07530 - ELASTOMERIC MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Modifications to existing roofing and flashing system for installation of signs, conduit, equipment, and piping.
 - 2. Repair and maintenance of the roof after roof installation until store grand opening.
- B. Related Requirements:
 - 1. Section 06100 - Rough Carpentry: Wood blocking and nailers.
 - 2. Section 07620 - Sheet Metal Flashing and Trim: Sheet metal fascia and edge trim, counter flashings, and other sheet metal.
 - 3. Section 07900 - Joint Sealers.
 - 4. Appendix B - Inspection, Testing, and Observation by Owner. Procedures for inspection, testing, and documentation by Owner furnished testing laboratory.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International:
 - 1. ASTM C 1289 - Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 - 2. ASTM D 4637 - EPDM Sheet Used In Single-Ply Roof Membrane.
 - 3. ASTM D 4434 - Polyvinyl Chloride Sheet Roofing.
 - 4. ASTM D 6878 - Thermoplastic Polyolefin Based Sheet Roofing.
- C. Factory Mutual Research Corporation (FM):
 - 1. FM Approvals Building Materials Approval Guide, Chapter 3 - Approved Combinations and Assemblies
 - 2. FM Global Loss Prevention Data Sheet 1-28 - Design Wind Loads.
 - 3. FM Global Loss Prevention Data Sheet 1-29 - Roof Deck Securement and Above-Deck Components.
 - 4. FM Approval Standard 4450 - Class 1 Insulated Steel Deck Roofs.
 - 5. FM Approval Standard 4470 - Class 1 Roof Covers.
- D. Underwriters Laboratories, Inc. (UL):
 - 1. UL - Roofing Materials and Systems Directory.
 - 2. UL 790 - Fire Resistance of Roof Covering Materials.
 - 3. UL 1256 - Fire Test of Roof Deck Construction.

1.3 SYSTEM DESCRIPTION

- A. Single Ply Membrane Roofing System: Single ply membrane roofing system consisting of insulation on metal deck with 60 mil reinforced membrane mechanically fastened.
- B. Flashing and Waterproofing Membranes: 60 mil reinforced membrane, fully adhered, as defined herein and indicated on the drawings.

1.4 SUBMITTALS

- A. Comply with the requirements of Section 01330. Submit required submittals within 30 days after contract award. Submittals shall be available at all times to the Walmart Construction Manager.

- B. Product Data: Submit Product Data and MSDS sheets for accepted system showing compliance with the specified physical properties.
- C. Shop Drawing: Submit Shop Drawings showing:
 1. Fastener patterns to meet uplift requirements.
 2. Layouts for Crickets and saddles.
 3. Walk pad layouts.
 4. Details required for completion but not shown and drawings.
 5. Techniques for nighttime or weather tie offs.
- D. Closeout Submittals: Comply with the requirements of Section 01770.
 1. Letter from manufacturer stating that existing warranty has not been voided by alterations performed under this contract.
 2. Roofing Contractor’s warranty for work on existing roofing performed under this contract.
- E. Regulatory Requirements Documentation: Submit Factory Mutual and UL data and assembly drawings showing compliance with Quality Assurance requirements specified below. Submit letter of compliance from the manufacturer certifying compliance with referenced FM and UL roofing system requirements.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements for Roof Assembly: Comply with FM Approvals Building Materials Approval Guide or Underwriters Laboratories, Inc. Roofing Materials and Systems Directory as specified:
 1. Factory Mutual: Provide roofing assembly meeting Class 1A -60 requirements for fire resistance and wind uplift in accordance with FM Approvals Standard 4470 and FM Global Loss Prevention Data Sheet 1-28 and FM Global Loss Prevention Data Sheet 1-29
 2. Provide roof assembly meeting requirements of UL 1256 for Flame Spread developed from underside of deck and roof assembly meeting requirements of FM Approvals Standard 4450 for Class 1 Insulated Steel Deck Roofs (construction materials calorimeter).
- B. Approved Roofing Subcontractors: Employ one of the following subcontractors to perform work of this Section, no exceptions. Subcontractors are listed in order of Owner’s preference for this project.

PROVIDER NAME	VENDOR#	CONTACT	PHONE NUMBER
SIMON ROOFING AND SHEET METAL CORP	356694	MELISSA MORRIS	866-641-7663
	EMAIL ADDRESS		
	CALLCENTER@SIMONROOFING.COM;MMORRIS@SIMONROOFING.COM		
R&B ROOFING LLC	66103	TIM BELL	214-221-5000
	EMAIL ADDRESS		
	TIM@RBROOF.COM; DOUG@RBROOF.COM; KEVIN@RBROOF.COM		
PARTNER'S COMMERCIAL ROOFING, LLC	452594	JUSTIN DUDLEY	713-802-1111
	EMAIL ADDRESS		
	LEAKS@PARTNERSROOFING.COM		
PROVIDER NAME	VENDOR#	CONTACT	PHONE NUMBER

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Contractor shall make arrangements for delivery of materials in manufacturer's original unopened containers, dry, undamaged, seals and labels intact.
- B. Contractor shall store materials in weather-protected environment, clear of ground and moisture. Storage requirements for insulation are as follows:
 1. Cut or remove plastic shipping wrap from insulation.
 2. Cover with tarpaulin, shield from moistures and ultraviolet rays.
 3. Elevate minimum of 4 inches above substrate.

4. Secure to resist high winds.
 5. Distribute insulation stored on roof deck to prevent concentrated loads.
 6. Do not install wet insulation. Insulation shall be thoroughly dry prior to installation.
- C. Store cements, primers, and caulks in heated area above 40 degrees F during cold weather and in area below 80 degrees F in warm weather.
- D. Protect adjacent materials and surfaces against damage from roofing work. Do not store materials on completed roofing.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Follow industry standards for environment requirements including, but not limited to, the following:
1. Do not apply roofing membrane during inclement weather. When air temperature is expected to fall below 40 degrees F, follow specified Cold Weather Application Procedures as specified herein.
 2. Do not apply finished roofing system to wet, damp or frozen deck surface or when precipitation is occurring.
 3. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

1.8 SEQUENCING AND SCHEDULING

- A. Contractor shall coordinate the Work with installation of associated metal counter flashings specified under other sections as the Work of this Section proceeds.
- B. Contractor shall complete installation of base flashing at roof curbs prior to setting roof top equipment.

1.9 WARRANTY

- A. Verify with Owner if a warranty is in effect for the existing roofing system. Do not void warranty for existing roof by performance of work under this contract.
1. Notify roofing system manufacturer of required alterations to existing warranted roof system, in form required by manufacturer.
 2. Prior to starting alterations, photograph the existing conditions, in compliance with roofing manufacturer's requirements. Upon completion of alterations, photograph altered roof conditions in accordance with roofing manufacturer's requirements.
 3. Submit to roofing system manufacturer all information required to maintain warranty, including description of work, drawings, photographs, specifications, etc.
 4. Obtain inspection services of existing roofing system manufacturer's representative as necessary to ensure that warranty remains in effect after completion of work under this contract.
 5. Obtain statement from roofing system manufacturer that original warranty remains in effect after completion of modifications.
- B. Provide a warranty issued by Roofing Contractor against loss of weathertightness for work on existing roofing performed under this contract. commencing at date of Substantial Completion, for a period of not less than 2 years.

PART 2 - PRODUCTS

2.1 MATERIALS AND MANUFACTURER

- A. Acceptable manufacturers: Verify existing roofing system manufacturer with Owner . Provide materials acceptable to existing roofing system manufacturer and as required to maintain existing roofing system warranty.
- B. Manufacturer Contact Information:
1. Carlisle SynTec Systems, Steve Benjamin, National Accounts Technical Manager (413) 262-8928, steven.benjamin@syntec.carlisle.com.
 2. Firestone Building Products Company, Indianapolis, IN, Chris Mincey, National Accounts Representative, (800) 428-4442 x53236.

3. Johns Manville Roofing Systems, A.J. Maijala, Manager, Preferred Accounts (303) 978-2176 or (303) 898-0027, aj.maijala@jm.com.

- C. Roofing System: Verify existing roofing system type with Owner. Provide roofing system materials of type and manufacturer to match existing system, conforming to the requirements specified herein.

2.2 MEMBRANE PHYSICAL PROPERTIES

- 2.3 Verify and match existing membrane and as approved by existing roofing system manufacturer.FLASHING MEMBRANE

- A. Flashing Membrane: Reinforced and non-reinforced membrane and pressure-sensitive flashing by Roofing System manufacturer, minimum 60 mils, specifically designed for use in flashing at perimeters and wall, and around projections through roofing system.

2.4 WATERPROOFING MEMBRANE

- A. Waterproofing Membrane: Membrane waterproofing formed into uniform, flexible sheets by Roofing System manufacturer. Reinforced, 60 mils nominal thickness.
- B. Waterproofing Flashing: Reinforced and non-reinforced membrane and pressure-sensitive flashing by Roofing System manufacturer, minimum 60 mils, specifically designed for use in flashing at perimeters and wall, and around projections through roofing system.

2.5 ROOF INSULATION

- A. Isocyanurate Foam Insulation: Polyisocyanurate board insulation, ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces, with an LTTR (Long Term Thermal Resistance) value of 17.4 for 3.0" thickness based on ASTM C1303 and CAN/ULC S770.

1. Manufacturers:

- a. HPH, by Carlisle.
- b. ISO 95+ GL, by Firestone.
- c. ENRGY3 or ISO3 by Johns Manville.
- d. Products meeting the specified requirements by other manufacturers as recommended by the roofing membrane manufacturer.

- B. Insulation Assembly:

1. Insulation: Isocyanurate Foam, match existing insulation thickness if attaching to existing roof area, or 3.0 inches thick if new roof is isolated from existing roof.

- C. Roof Curb Insulation: Polyisocyanurate Foam; both faces covered with glass fiber felt; thickness to match wood nailer.

- D. Tapered Insulation: Provide crickets, saddles, and tapered insulation of same material as roof insulation; taper to the following slopes:

1. Crickets and Saddles: 1/2 inch per foot (1/4 inch per foot positive slope).
2. Insulation Installed to Counter slope the Roof Structure: 1/2 inch per foot.
3. Edge Taper Insulation: Adjacent to gutter assembly, slope at minimum rate of 1/2 inch per foot. Provide insulation having a starting thickness of 1 inch, tapering insulation up to match nominal roof insulation thickness.

2.6 ROOF PENETRATION FLASHING AND SEALS

- A. Molded Pipe Flashing: Pre-molded flexible pipe flashing as recommended and supplied by the roofing manufacturer.

2.7 ACCESSORIES

- A. Provide accessories as shown on the drawings and manufacturer's system accessories for a complete and warranted Roofing System, including, but not limited to, the following:
 - 1. Weathered Membrane Cleaner.
 - 2. Lap Sealant.
 - 3. Bonding Adhesive.
 - 4. Membrane Fasteners.
 - 5. Termination Bar.
 - 6. Insulation Fasteners.
 - 7. Walkway / Isolation Pads.
 - 8. Preformed Accessories including Pipe Flashings.
 - 9. Preformed Corner Patching.
 - 10. Draw Bands.
 - 11. Foam Filler Insulation: Polyurethane Expanding Foam as defined within Section 07900.
 - 12. 3-inch & 6-inch in-seam tape.
 - 13. Pressure-sensitive flashing.
 - 14. Primer.
 - 15. In-seam plates.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, cant strips, nailing strips, and reglets are in place. Verify deck is supported and tightly secured.
- B. Verify surfaces are dry and free of water, snow, and ice.
- C. Beginning installation means acceptance of substrate.

3.2 PREPARATION

- A. Provide covers and other means of protection as necessary to protect building surfaces against damage during roofing work.
- B. Where Work will continue over finished roof membrane, protect surfaces from damage.

3.3 ROOF INSULATION INSTALLATION

- A. Place long edge of boards parallel to deck flutes, forming joint over solid bearing. Lay insulation units with long edge joints continuous and end joints staggered. Mechanically fasten insulation, through fire resistive layer if specified, to deck with FM approved fasteners and plates in accordance with requirements of FM.
 - 1. Install fasteners using drill with torque clutch; other types of drills will not be permitted.
 - 2. In no case shall the number of fasteners be less than indicated in approved submittals.
- B. Lay insulation boards to moderate contact without forcing joints. Cut insulation to fit neatly around protrusions through roof. At parapet walls, cope insulation around protrusions and embed plates; butt tight to wall, sealing conditioned building.
 - 1. Fill gaps over 1/4 inch wide with Foam Filler Insulation. After foam sets and before installation of membrane, trim foam flush with insulation surface.
- C. Place roof crickets and tapered insulation to required slope pattern in accordance with Contract Documents and manufacturer's instructions.
- D. Apply no more insulation than can be sealed with membrane in same day.

- E. Adhere a single layer of insulation to manufactured metal curbs with bonding cement.

3.4 ROOFING MEMBRANE APPLICATION

- A. Mechanically Fastened Membrane:
 - 1. Starting at low point of roof surface, run membrane perpendicular to roof slope. Unroll membrane over prepared substrate, lapping adjoining sheets as recommended by manufacturer.
 - 2. Mechanically fasten membrane using manufacturer's fastening system. Install fasteners in accordance with submitted engineered layout pattern to resist specified wind uplift.
 - 3. Install fasteners using drill depth sensing or torque limiting screw guns to limit under / over drive of fasteners.
 - a. Drill motors and other non-limiting drivers shall not be used.
 - 4. Seam Sealing
- B. Seal seams according to the system manufacturer's recommendation. Cold Weather Application Procedures: When air temperature is expected to fall below 40 degrees F, follow Cold Weather Application Procedures as follows:
 - 1. Store materials in heated storage units prior to installation. Rotate adhesive, cement, and sealant containers to maintain their temperature above 40 degrees F.
 - 2. Allow membrane to relax until no wrinkles are visible.
 - 3. Allow adequate time for solvents in cements to flash off. Check dryness of applied cements before sealing joints.
 - 4. Verify that frost, dew, and other forms of moisture have evaporated prior to covering insulation with membrane to prevent entrapment of moisture within finished roof system.

3.5 WATER CUTOFFS AND WEATHER PROTECTION

- A. Install water cut-offs at end of day's operation to seal insulation and edge of roof membrane from moisture entry. If inclement weather appears imminent during roofing application, cease operations and protect deck, insulation, flashings, penetrations and membrane from moisture infiltration with water cutoffs. Insulation and roofing materials not so protected prior to inclement weather will be considered damaged and will be cause for rejection.
- B. Remove water cut-offs and other temporary weather protections prior to continuing roofing work. Remove materials that have been subject to moisture damage and return deck to a clean, dry condition before proceeding with roofing operations. Remove damaged materials from job site.
- C. The water cut-offs and weather protection shall not be considered a part of the final roof system specified.

3.6 MEMBRANE FLASHING AND ACCESSORIES

- A. Apply flexible flashings to seal membrane to vertical elements using manufacturer's standard peel and stick flashing.
 - 1. Reinforced Flashing Membrane: Where conditions permit, flash penetrations and walls with reinforced flashing membrane.
 - 2. Uncured Flashing: Limit use of uncured flashing to overlay vertical seams as required at angle changes, to flash inside and outside corners, scuppers, and other penetrations or unusually shaped walls as approved by the manufacturer.
- B. Roof Penetrations:
 - 1. Molded Pipe Flashing: Install where configuration of penetration will permit.
- C. Seal flashings and flanges of items penetrating membrane.
- D. Fasten termination bars at 12 inches on center or less to maintain constant compression.
- E. Isolation Pads: Install isolation pads at pipe supports.
- F. Walkway Pads: Install walkway pads as shown on the drawings. Maximum pad section length shall be 10 ft. with three inch spacing between pad sections, unless otherwise indicated on Drawings. Adhere pads to roofing system

to prevent displacement in maximum anticipated design wind velocity and to allow drainage of moisture from beneath pads. Install pads to allow roof surface drainage without ponding water. Install pads after adjacent equipment installation.

3.7 WATERPROOFING MEMBRANE

- A. Waterproofing Membrane: Install waterproofing membrane to be fully adhered to parapet using bonding adhesive as recommended by membrane manufacturer. Run membrane waterproofing over top of parapet and turn down front side of parapet 3 inches.
 - 1. Provide continuous weather tight seal from 3" below parapet cap, over parapet, down interior face, and onto roof surface.
 - 2. Conceal adhesive on exterior face of parapet with waterproofing.
- B. Waterproofing Flashing: Apply waterproofing membrane flashings to seal membrane to vertical elements using manufacturer's peel and stick flashing.
 - 1. Reinforced Waterproofing Flashing: Where conditions permit, flash walls with reinforced waterproofing flashing or as required by the manufacturer.
 - 2. Uncured Flashing: Limit use of uncured flashing to overlay vertical seams as required at angle changes, to flash inside and outside corners, scuppers, and other penetrations or unusually shaped walls where use of reinforced waterproofing flashing is not practical or as required by the manufacturer.

3.8 FIELD QUALITY CONTROL

- A. Field quality control shall be the responsibility of the Contractor in accordance with Section 01452. Except as specified as mandatory, field quality control testing and inspection shall be at the discretion of the Contractor as necessary to assure compliance with Contract requirements. Owner T&I specified in Appendix B shall not preclude Contractor's responsibility to perform similar routine, necessary, and customary testing and inspection of the methods and frequency suitable for the type of work involved.
- B. Manufacturer's Site Inspections:
 - 1. Provide site inspection and reports by the manufacturer's representative as required by the manufacturer to maintain the existing warranty.

- C. Correct identified defects or irregularities.

3.9 OWNER TESTING AND INSPECTION (T&I)

- A. The Owner will perform testing and inspection as specified in Appendix B (Section 07530).

3.10 CLEANING

- A. Replace defaced or disfigured finishes caused by Work of this Section.

3.11 PROTECTION

- A. Where construction traffic must continue over finished roof installation, protect roof surfaces as recommended by roofing system manufacturer to protect manufacturer's warranty.

3.12 MAINTENANCE AND REPAIR DURING CONSTRUCTION

- A. The Contractor shall maintain the entire roofing system and related work until issuance of Certificate of Occupancy. Maintenance shall consist of repair of material or installation defects or damage resulting from any subsequent work on the roof or from any weather related damage. Maintenance shall be to maintain the roof system in a watertight condition including repair of conditions that show signs of inferior workmanship that may result in potential leaks. Leaks occurring during the maintenance shall be repaired in accordance with good roofing practice and the requirements specified herein. The Contractor shall remove and replace all wet insulation caused by water leaks and repair the Roofing System.

END OF SECTION

ROOF INSPECTION INSTRUCTIONS

TOOLS AND SUPPLIES: Provide the following during inspections:

- Copy of roof plan and copy and specifications.
- Tape measure, metal thickness gauge, paint for marking defects on roof, roof coring tools and repair materials, and seam probe (to be supplied by Roofing Contractor).

INSPECTION PROCEDURE

- All undersigned parties shall accompany inspection.
- Inspect underside of decking from inside of building for proper insulation fastener spacing and sheet fastener spacing.
- Roof Inspection shall start at the parapet wall on the GM side of the building, at the back corner.
- Proceed around perimeter, (including TLE, Garden Center, etc).
- Continue across front wall and down sidewall at GR.
- Inspect all metal flashings, base and wall flashings, perimeter attachments, perimeter membrane sheet layout, parapet waterproofing membrane, and all accessories.
- Inspect condition of paint on exterior walls. Inspect CMU for proper paint coverage.
- Inspect all painted metals for proper coverage.
- Inspect back wall gutter or internal drainage system.
- Inspect field of roof system, beginning approx. 10' from back wall, walking side to side of building.
- Inspect roof area no more than 10 feet on each side of walking paths, from back, to front of building.
- Inspect all checklist items at field seams, flashings, RTUs, mechanical equipment, skylights, refrigeration units, gas lines, expansion joints, crickets, walkpads, and other roof accessories.
- Mark defects on roof by paint markings and identify each defect using corresponding defect number.
- After roof inspection is complete FAX signed inspection form to Walmart Construction Manager within 24 hours.

COMPLETION OF CHECKLIST

- Answer each checklist item Yes or No.
- Mark "N/A" on checklist items which do not apply.
- Identify defects on the Walmart Deviation Log. (www.bldgportal.com, enter username and password, select Deviation Log)
- Number each defect as follows:
 - Identification Symbol-Checklist Item No.-Defect No. (E.g. MF-1-3)
 - Identification symbol and checklist item number shall correspond to the Roof Inspection Checklist. The defect number shall be numbered in sequence for each checklist item.
- Complete all applicable information in the Deviation Log including the resolution of each item.

ROOF INSPECTION CHECKLIST

(GI) GENERAL:

- | | | | |
|--|--------|-------|--------|
| 1. Has the specified roof system been installed? | YES___ | NO___ | N/A___ |
| 2. Has all construction materials, trash, and other debris been removed from the roof? | YES___ | NO___ | N/A___ |
| 3. Have all punch list items been addressed and signed off? | YES___ | NO___ | N/A___ |
| 4. Is there any visible physical damage to roof? | YES___ | NO___ | N/A___ |
| 5. Are the RTU's numbered so they can be seen from the roof hatch? | YES___ | NO___ | N/A___ |
| 6. Is the roof hatch painted? | YES___ | NO___ | N/A___ |
| 7. Is the any roofing mastic or other foreign substance on roof membrane? | YES___ | NO___ | N/A___ |

(MF) MECHANICAL FASTENERS: (Check from inside building)

- | | | | |
|--|--------|-------|--------|
| 1. Is the insulation attachment pattern installed per manufacturers required spacing and pattern? | YES___ | NO___ | N/A___ |
| 2. Is the membrane sheet attachment in the seams at minimum 12" inches o.c. or per manufacturers required spacing? | YES___ | NO___ | N/A___ |
| 3. Are all seams mechanically attached? | YES___ | NO___ | N/A___ |

(PF) PERIMETER WALL FLASHING

Metal Flashing Types (Check all that apply)

- Embedded edge metal
- Metal cap flashing
- Wall/Parapet
- Coping
- Other
- Pre-finished metal
- Painted metal. Paint condition:

- | | | | |
|--|--------|-------|--------|
| 1. Has the edge metal fascia been attached with fastener spacing in 3" o.c. staggered? | YES___ | NO___ | N/A___ |
| 2. Is the edge metal fascia continuously attached to the cleat? | YES___ | NO___ | N/A___ |
| 3. Is the edge metal lapped a minimum of 4"? | YES___ | NO___ | N/A___ |
| 4. Have the laps been sealed? | YES___ | NO___ | N/A___ |
| 5. Is edge metal properly stripped into roof system? | YES___ | NO___ | N/A___ |
| 6. Has the metal been sealed at the flashing? | YES___ | NO___ | N/A___ |
| 7. Has the metal coping been fastened with neoprene gasket fasteners at 12" o.c.? | YES___ | NO___ | N/A___ |

(PW) PARAPET WALL MEMBRANE

- | | | | |
|---|--------|-------|--------|
| 1. Is the membrane fully adhered in all areas to the parapet walls? | YES___ | NO___ | N/A___ |
| 2. Are there any voids, wrinkles, or disbanded areas? | YES___ | NO___ | N/A___ |
| 3. Has the termination bar been installed at the base flashing? | YES___ | NO___ | N/A___ |
| 4. Is the base flashing run onto the roof membrane and seam sealant used? | YES___ | NO___ | N/A___ |
| 5. Are corner flashings installed? | YES___ | NO___ | N/A___ |
| 6. Are there any open seams? | YES___ | NO___ | N/A___ |
| 7. Is the membrane terminated and sealed at parapet end wall conditions? | YES___ | NO___ | N/A___ |
| 8. Are all parapet end walls fully painted or flashed? | YES___ | NO___ | N/A___ |

(PA) PERIMETER MEMBRANE SHEETS ATTACHMENT

- | | | | |
|---|--------|-------|--------|
| 1. Have the required number perimeter sheets per system specification been installed? | YES___ | NO___ | N/A___ |
| 2. Are the fasteners spaced per the manufacturers requirements? | YES___ | NO___ | N/A___ |
| 3. Have T-Lap patches been installed at all T-joints? | YES___ | NO___ | N/A___ |
| 4. Have seams been properly sealed? | YES___ | NO___ | N/A___ |

(EW) EXTERIOR WALL PAINT (Inspect every 25' minimum.)

- | | | | |
|--|--------|-------|--------|
| 1. Is wall painted/sealed? | YES___ | NO___ | N/A___ |
| 2. Are there visible voids in the paint? | YES___ | NO___ | N/A___ |
| 3. Cracks in blocks or open mortar joints? | YES___ | NO___ | N/A___ |
| 4. Are walls painted behind downspouts? | YES___ | NO___ | N/A___ |

DRAINAGE SYSTEM (Check all that apply)

- Gutters and downspouts
- Interior drains Overflow drains Overflow scuppers
- Scuppers with leaders & downspouts Overflow scuppers

Specified gauge (Check all areas with gauge)

- Main roof area _____ gauge _____
- TLE _____ gauge _____
- Garden Center _____ gauge _____
- Receiving _____ gauge _____
- Other _____ gauge _____

(GD) GUTTERS AND DOWNSPOUTS

- | | | | |
|--|--------|-------|--------|
| 1. Is the specified type of metal installed? | YES___ | NO___ | N/A___ |
| 2. Is the gutter sized as indicated on the drawings? | YES___ | NO___ | N/A___ |
| 3. Is gutter holding water? | YES___ | NO___ | N/A___ |
| 4. Is the gutter painted inside? | YES___ | NO___ | N/A___ |
| 5. Are gutter straps installed every 36" o.c.? | YES___ | NO___ | N/A___ |
| 6. Gutter expansion joints installed every 40' maximum? | YES___ | NO___ | N/A___ |
| 7. Are the gutter outlets soldered to the gutter? | YES___ | NO___ | N/A___ |
| 9. Are gutter brackets installed every 36" o.c.? (Inspect from the ground level) | YES___ | NO___ | N/A___ |
| 10. Are the downspouts the specified size and configuration? | YES___ | NO___ | N/A___ |
| 11. Are the downspout straps installed at top, center, and bottom? | YES___ | NO___ | N/A___ |
| 12. Are the downspouts spaced as called out in the documents? | YES___ | NO___ | N/A___ |
| 13. Have splash blocks been installed? | YES___ | NO___ | N/A___ |
| 14. Have the downspouts been properly tied to the storm sewer? | YES___ | NO___ | N/A___ |
| 15. Are joints in gutter leaking? | YES___ | NO___ | N/A___ |
| 16. Are outlets in gutter leaking? | YES___ | NO___ | N/A___ |

(RE) ROOF EDGE

- | | | | |
|--|--------|-------|--------|
| 1. Is gravel guard properly installed? | YES___ | NO___ | N/A___ |
| 2. Is gravel guard properly stripped into roof system? | YES___ | NO___ | N/A___ |
| 3. Is gravel guard prefinished or painted? | YES___ | NO___ | N/A___ |
| 4. Is the gravel guard nailed at 3"o.c. staggered? | YES___ | NO___ | N/A___ |
| 6. Is roof edge ponding water? | YES___ | NO___ | N/A___ |

(DR) INTERIOR DRAINS

- | | | | |
|--|--------|-------|--------|
| 1. Are the roof drains the specified diameter? | YES___ | NO___ | N/A___ |
| 2. Are the overflow drains the specified diameter? | YES___ | NO___ | N/A___ |
| 3. Does the roof drain outlet diameter match the diameter of the leader pipe? | YES___ | NO___ | N/A___ |
| 4. Has the roof membrane been properly trimmed inside the roof drain? | YES___ | NO___ | N/A___ |
| 5. Is the roof drain free of debris and draining properly? | YES___ | NO___ | N/A___ |
| 6. Has the insulation been tapered around the roof drains? | YES___ | NO___ | N/A___ |
| 7. Have the roof drains been checked for leaks inside the store? | YES___ | NO___ | N/A___ |
| 8. Has the wire mesh and draw band been installed over the over flow drain outlet? | YES___ | NO___ | N/A___ |
| 9. Are the roof drain strainers in place? | YES___ | NO___ | N/A___ |
| 10. Does ponding exist? | YES___ | NO___ | N/A___ |

(SC) SCUPPERS

- | | | | |
|---|--------|-------|--------|
| 1. Are scuppers the specified height and width? | YES___ | NO___ | N/A___ |
| 2. Are the scuppers located directly in line with the primary and over flow drains? | YES___ | NO___ | N/A___ |
| 3. Are they flush with the roof? | YES___ | NO___ | N/A___ |
| 4. Does ponding exist? | YES___ | NO___ | N/A___ |
| 5. Has the scupper box been installed and sealed to the wall? | YES___ | NO___ | N/A___ |
| 6. Are scuppers properly flashed to roof system? | YES___ | NO___ | N/A___ |

(JC) JIB CRANE

- 1. Is the jib crane located with unobstructed clear space below? YES___ NO___ N/A___
- 2. Does the jib crane appear to be usable in a safe manner? YES___ NO___ N/A___
- 3. Is safety chain installed? YES___ NO___ N/A___
- 4. Is the ladder safety chain installed? YES___ NO___ N/A___
- 5. Is GFI outlet installed within 6' reach of the jib hoist arm? YES___ NO___ N/A___
- 6. Are walkway protection pads installed? YES___ NO___ N/A___
- 7. Is parapet door in place (on raised parapet projects)? YES___ NO___ N/A___

(CM) CAMERA MOUNTS

- 1. Are mounts attached and sealed to parapet wall? YES___ NO___ N/A___
- 2. Are penetrations installed for each mount? YES___ NO___ N/A___
- 3. Are specified flashings and conduit used and installed at wire penetrations? YES___ NO___ N/A___
- 4. Is wiring for camera held off of the roof? YES___ NO___ N/A___

(RM) ROOF FIELD MEMBRANE: (Seams should be checked in random areas for proper seals and voids. No wrinkles in seams will be acceptable.)

- 1. Has maximum width field sheet been used? (7' EPDM / 8' TPO) YES___ NO___ N/A___
- 2. Are all seams properly lapped and sealed? YES___ NO___ N/A___
- 3. Are T-lap patches in place at all T-Laps? YES___ NO___ N/A___
- 4. Are all edges of cut sheet sealed? YES___ NO___ N/A___
- 5. Do wrinkles exist in any laps? YES___ NO___ N/A___
- 6. Does any ponding exist in roof area? YES___ NO___ N/A___
- 7. Is membrane shingled properly with the slope of the roof? YES___ NO___ N/A___

(RI) ROOF INSULATION

- 1. Is insulation the specified thickness? (To be checked when making roof cores.) YES___ NO___ N/A___
- 2. Are there visible gaps in the insulation boards? YES___ NO___ N/A___
- 3. Is there any ponding along horizontal insulation joints? YES___ NO___ N/A___
- 4. Are there any voids or missing insulation? YES___ NO___ N/A___

(RTU) ROOF TOP UNITS & REFRIGERATION UNITS FLASHINGS:

- 1. Are base flashings fully adhered to curb? YES___ NO___ N/A___
- 2. Are corner flashings on curbs installed? YES___ NO___ N/A___
- 3. Are seams to roof membrane sealed with no voids or wrinkles? YES___ NO___ N/A___
- 4. Are crickets installed to divert water around unit? YES___ NO___ N/A___
- 5. Are counterflashings installed and properly attached? YES___ NO___ N/A___
- 6. Are walkpads installed as per the documents? YES___ NO___ N/A___
- 7. Are condensation P-traps installed on all units? YES___ NO___ N/A___

(SK) SKYLIGHTS:

- 1. Are base flashings fully adhered to curb? YES___ NO___ N/A___
- 2. Are corner flashings on curbs installed? YES___ NO___ N/A___
- 3. Are seams to roof membrane sealed with no voids or wrinkles? YES___ NO___ N/A___
- 4. Are crickets installed to divert water around unit? YES___ NO___ N/A___
- 5. Are counterflashings installed and properly attached? YES___ NO___ N/A___
- 6. Are skylights attached to curbs at 12"o.c.? YES___ NO___ N/A___
- 7. Do screws have neoprene washers? YES___ NO___ N/A___
- 8. Are any cracks visible in domes? YES___ NO___ N/A___
- 9. Is there moisture between domes? YES___ NO___ N/A___
- 10. Are any of the units damaged? YES___ NO___ N/A___
- 11. Are any of the corners open? YES___ NO___ N/A___

(GL) GAS LINES:

- 1. Are gas lines painted? YES___ NO___ N/A___
- 2. Is blocking spaced under line at 8' o.c max.? YES___ NO___ N/A___
- 3. Is blocking located within 2' of RTU? YES___ NO___ N/A___
- 4. Is blocking located within 1'-6" of each corner? YES___ NO___ N/A___
- 5. Are protection pads under each block? YES___ NO___ N/A___
- 6. Are protection pads the correct size and fully adhered? YES___ NO___ N/A___
- 7. Are pipe clamps correct sizes and installed per the documents? YES___ NO___ N/A___
- 8. Are gas pipe dirt legs touching roof? YES___ NO___ N/A___

(EJ) ROOF EXPANSION JOINTS

- 1. Is the expansion joint installed? YES___ NO___ N/A___
- 2. Is the joint properly terminated at the parapet at the front? YES___ NO___ N/A___
- 3. Is the joint properly terminated at the rear? YES___ NO___ N/A___
- 4. Is the joint properly flashed to roof system? YES___ NO___ N/A___
- 5. Are there any open seams? YES___ NO___ N/A___

(MI) MISCELLANEOUS ITEMS

- 1. Are soil stacks properly flashed and clamps installed? YES___ NO___ N/A___
- 2. Are roof jacks properly flashed and collars sealed? YES___ NO___ N/A___
- 3. Are protection pads under support? YES___ NO___ N/A___

ATTENDED BY:

GENERAL CONTRACTOR

(Printed name and title)

ROOFING CONTRACTOR

(Printed name and title)

MANUFACTURERS REP.

(Printed name and title)

OWNER'S CONST MGR.

(Printed name and title)

STORE MANAGER

(Printed name and title)