

**SECTION 07 60 00
ROOF FLASHING / PATCHING**

PART 1.00 - GENERAL

1.01 REFERENCE STANDARDS

- A. ASTM B32 - Standard Specification for Solder Metal; 2020.

1.02 RELATED DOCUMENTS

- A. The Contractor is referred to the "Bid Book"; the "Standard Agreement" between the Construction Manager (CM) and the Contractor(s); "Division 01 - General Requirements" of the Contract Specifications"; the "Contract Drawings" and all Amendments and Addenda thereto; all of which govern the Work of this Section

1.02 SCOPE OF WORK

1. The Work of this Section includes all labor, materials, equipment and services necessary to complete the roof flashing and patching work as indicated on the Drawings and/or specified herein including, but not limited to, the following:
 - a. Metal base flashing and related patching of existing 4-ply built-up coal tar roofing assembly at new stack vent locations for new kitchen plumbing chases (see Plumbing/Heating Drawings for locations – stack vent installation, including core drilling, firestopping and cap flashing by Plumbing/Heating Contractor – coordinate work as required).
 - b. Provide all other labor and materials as may be reasonably inferred to be required to make the Work of this Section complete.

1.03 RELATED WORK SPECIFIED ELSEWHERE

1. The following additional Sections/Divisions contain requirements that relate to the Work of this Section:
 - a. Section 02050 – Selective Demolition/Removals/Cutting/Patching

2. SECTION 06100 – CARPENTRY

4.01 DIVISION 22 – PLUMBING/HEATING

1.04 SUBMITTALS

1. The following Shop Drawings, Catalog Cuts, Material Samples and other data pertaining to the Work of this Section shall be submitted in accordance with Division 01 – General Requirements, Section 01000.1.7 Submittals:
 - a. Shop Drawings: Metal Base Flashing (shop-fabricated.)
 - b. Manufacturer's Catalog Cuts: For each item specified.

5.02 DELIVERY / STORAGE / HANDLING

1. Contractor shall comply with roofing manufacturer's recommendations for delivery, storage and handling of materials.
2. Roofing materials shall be delivered to the project site in original, unopened containers or packages, as applicable, with all manufacturer's labels intact.
3. Materials stored on roofs shall be limited to the safe loading of existing roofing assembly and concrete roof slab. All materials shall be stored on raised platforms with weather-protective coverings, tarpaulins being preferred. If plastic coverings are used, proper venting of each enclosure is required. All storage procedures shall be strictly monitored by the Contractor.
4. During the working day, roofing materials shall be stored in a clean, dry area protected from inclement weather.
5. Under no circumstances shall flammable materials be stored on roof areas after working hours.
6. Protection of roofing materials and equipment shall be the responsibility of the Contractor.
7. Contractor shall obtain the CM's approval for the method of site storage of roofing materials.

5.03 EQUIPMENT, TOOLS OR MATERIALS SHALL NOT BE STORED ON THE PROJECT GROUNDS AND/OR ROOF OF THE BUILDINGS AFTER NORMAL WORKING HOURS, NOR ON WEEKENDS OR HOLIDAYS, UNLESS PROPERLY COVERED AND SECURED TO THE SATISFACTION OF THE CM. IN ANY EVENT, EQUIPMENT, TOOLS OR MATERIALS SHALL ONLY BE STORED ON THOSE ROOFS WHICH THE CONTRACTOR CAN WORK ON AT ONE TIME.

- A. 1.06 VERIFICATION / COORDINATION OF PROJECT CONDITIONS
1. Contractor shall carefully verify all relevant existing conditions and substrates before starting work.
 2. Contractor shall coordinate roofing work with core drilling of concrete slab penetrations and installation of new kitchen stack vents by Plumbing/Heating Contractor (new stack vents shall be located at least 48 inch. from existing parapets/bulkhead walls/stack vents/roof drains to avoid disturbing existing ACM base flashing at these locations, and to permit proper flashing and patching of new roof penetrations).
 3. In accordance with typical samples taken by the Authority, existing roofing assembly consists of: slag embedded in asphalt/4-ply felt/2" thick insulation board/2-ply vapor seal (Contractor to verify in field and provide new materials to match existing as required). Built-up roofing membrane has tested negative for ACM.

PART 2.00 – PRODUCTS

6.01 GENERAL REQUIREMENTS

6.02 NEW ROOFING MATERIALS SHALL BE FULLY COMPATIBLE WITH ADJACENT EXISTING INSTALLATIONS TO REMAIN.

1. Unless otherwise noted or directed by the CM, only the latest edition of reference standards or requirements in effect at the time of the bid opening shall be applicable. Where these standards conflict with the NYC Building Code, the latter requirements shall govern.
2. Contractor shall comply with roofing manufacturer's recommendations for safety and fire prevention.

6.03 MATERIALS

6.04 ROOFING FELT, BITUMEN, CEMENT, SLAG AND RELATED MATERIALS SHALL BE THE PRODUCT OF OR CERTIFIED AS COMPATIBLE WITH ONE OF THE ACCEPTABLE ROOFING MANUFACTURERS AND SHALL MATCH ADJACENT EXISTING INSTALLATIONS (CONTRACTOR TO VERIFY IN FIELD). ACCEPTABLE MANUFACTURER FOR ROOFING MATERIALS IS KOPPERS, INC. OR APPROVED EQUAL.

- A. Coal-tar saturated organic No. 15 felt plies (36" wide) for roofing membrane, felt strip flashing and water stops shall conform to ASTM D227.
- B. Coal-tar bitumen (pitch) for installing roofing/water stop felt plies and surface coat shall conform to ASTM D450, Type I.
- C. Roof flashing cement (asbestos-free, asphalt-base) for installing felt strip and metal base flashing (horizontal flanges) shall conform to ASTM D4586, Type I.
- D. Asphaltic cement (asbestos-free) for coating exposed metal base flashing (vertical collar) shall be semi-mastic, brushing consistency and shall conform to ASTM D5643.
- E. Roofing slag (aggregate) to be embedded in surface coat shall consist of clean, durable particles of 1/4" to 5/8" in size and shall conform to ASTM D1863.
- F. Metal base flashing for new stack vents shall be 26 ga. stainless steel, Type 304, with dull, non-reflective finish, conforming to Federal Specification QQ-S-766 (dead soft fully annealed). Horizontal flange of base flashing shall extend 4" min. onto roofing plies, with vertical collar extending 10" min. above roof as indicated on the Drawings (coordinate diameter of flashing collar with Plumbing/Heating Contractor). Base flashing assemblies shall be shop-fabricated with all vertical and horizontal seams neatly soldered for installation in the field. Solder for

stainless steel shall consist of 40% lead and 60% tin (new materials), and conform to ASTM B32.

- G. Treated wood nailers/blocking for stack vent base flashing shall be as specified in Section 6100 – Carpentry. New wood nailers/blocking shall match the thickness of the existing roof insulation and shall be secured to the existing concrete slab with power-actuated zinc-coated steel pin fasteners, HILTI Model DNI72P8536 or approved equal, with 36mm dia. steel washers. The depth of slab penetration shall range from $\frac{3}{4}$ " - 1- $\frac{1}{2}$ " for proper holding power. Provide a minimum of two fasteners per nailer/blocking.
- H. Nails for securing metal base flashing shall be stainless steel conforming to National Bureau of Standards R150 and Fed. Spec. FF-N0105a, and shall be long enough to penetrate 1 inch. min. into the wood nailer. Nails shall be installed 6 inch. max. o.c.

PART 3.00 – EXECUTION

7.01 PREPARATION (GENERAL)

7.02 SURFACES TO BE PATCHED WITH NEW ROOFING OR FLASHING MATERIALS SHALL BE CLEAN, DRY AND FREE OF DUST, DEBRIS OR SLAG WHICH MIGHT HAVE AN ADVERSE EFFECT ON THE ADHESION BETWEEN THE EXISTING AND NEW PLIES. ROOFING MATERIALS SHALL NOT BE INSTALLED WHEN AMBIENT TEMPERATURES ARE LESS THAN 40 DEGREES FAHRENHEIT.

7.03 PREPARATION OF EXISTING SUBSTRATES SHALL BE IN ACCORDANCE WITH THE ROOFING

7.04 MANUFACTURER'S RECOMMENDATIONS.

7.05 INSTALLATION

7.06 AFTER COORDINATING NEW ROOF STACK VENT LOCATIONS WITH PLUMBING/HEATING CONTRACTOR IN ACCORDANCE WITH PARA. 1.06.B OF THIS SECTION, SCRAPE AND REMOVE EXISTING AGGREGATE BY APPROVED MEANS FROM APPROX. 60" X 60" AREA OF ROOF AT EACH PROPOSED SLAB PENETRATION, MINIMIZING DAMAGE TO THE EXISTING MEMBRANE. CAREFULLY SAW-CUT AND REMOVE APPROX. 12" X 12" SECTION OF EXISTING BUILT-UP ROOFING (VERIFY SIZE OF REQUIRED CUTOUT) AND 2" THICK INSULATION BOARD CENTERED ON EACH PROPOSED PENETRATION, TAKING CARE NOT TO DAMAGE THE EXISTING VAPOR SEAL SUBSTRATE TO REMAIN APPLIED TO THE SLAB BELOW.

7.07 AFTER CORE-DRILLING/FIRESTOPPING OF NEW OPENINGS IN CONCRETE ROOF SLAB AND INSTALLATION OF NEW 4" DIA. CAST-IRON STACK VENTS (BY PLUMBING/HEATING CONTRACTOR), INSTALL FELT WATER STOPS CONSISTING OF 2-PLIES OF NO. 15 COAL-TAR SATURATED ROOFING FELT AT PERIMETER OF EACH ROOFING ASSEMBLY CUTOUT TO PROTECT EXPOSED EDGES OF INSULATION AND ROOFING MEMBRANE. FELT WATER STOPS SHALL FIRST BE MOPPED TO THE TOP OF THE EXISTING VAPOR SEAL, THEN TURNED-UP ON THE VERTICAL CUT EDGES OF THE INSULATION BOARD, AND THEN TURNED OVER AND MOPPED TO THE TOP OF THE ROOFING MEMBRANE AS INDICATED ON THE DRAWINGS. FELT PLIES SHALL BE INDIVIDUALLY MOPPED WITH A HOT COAT (APPROX. 375 DEG. F + 25 DEG. F – DO NOT HEAT ABOVE 400 DEG. F) OF COAL-TAR BITUMEN USING THE EQUIVALENT OF 25 LBS. PER SQUARE. MOP COATS SHALL BE HOT WHEN FELTS ARE LAID AND SHALL BE APPLIED UNIFORMLY SO AS NOT TO LEAVE ANY BARE SPOTS; UNDER NO CIRCUMSTANCES SHALL FELT TOUCH FELT. FELTS SHALL BE ROLLED CLOSELY BEHIND THE MOPPING WITHOUT WRINKLES OR BUCKLES SO THAT NO VOIDS OR AIR POCKETS OCCUR UNDER THE PLIES.

7.08 INSTALL TREATED 2" X 4" WOOD NAILERS WITH BLOCKING AS REQUIRED TO MATCH THICKNESS OF EXISTING ROOF INSULATION (2" THICK INSULATION BOARD – VERIFY IN FIELD) AROUND PERIMETER OF EACH STACK VENT AND SECURE TO ROOF SLAB AS SPECIFIED AND AS INDICATED ON THE DRAWINGS.

7.09 INSTALL BUILT-UP ROOFING CONSISTING OF 4-PLIES OF NO. 15 COAL-TAR SATURATED FELT EXTENDING OVER NEW WOOD NAILERS/WATER STOPS AND ADJACENT EXISTING ROOFING MEMBRANE AT EACH NEW STACK VENT LOCATION (OVERALL SIZE OF PATCH SHALL BE APPROX. 60" X 60"). EACH PLY SHALL BE EMBEDDED IN HOT BITUMEN AS PREVIOUSLY SPECIFIED, WITH EACH SHEET OVERLAPPING THE PLY BELOW BY 4" MIN. AS INDICATED ON THE DRAWINGS.

- 7.10 INSTALL METAL BASE FLASHING ASSEMBLIES AS SPECIFIED AND AS INDICATED ON THE DRAWINGS, WITH VERTICAL COLLAR EXTENDING AND CENTERED OVER EACH STACK VENT, AND HORIZONTAL FLANGES SET IN A TROWEL COATING OF ROOF FLASHING CEMENT AND PROPERLY SECURED THROUGH BUILT-UP ROOFING PATCH TO WOOD NAILERS. BRUSH COAT EXPOSED VERTICAL FLASHING COLLAR WITH ASPHALTIC CEMENT IN PREPARATION FOR INSTALLATION OF CAP FLASHING (X.H.C.I. PIPE SLEEVES) WITH CAULKING (BY PLUMBING/HEATING CONTRACTOR – COORDINATE WORK AS REQUIRED).
- 7.11 INSTALL FELT STRIP FLASHING CONSISTING OF 2-PLIES OF NO. 15 COAL-TAR SATURATED FELT OVER HORIZONTAL FLANGE OF METAL BASE FLASHING AND ADJACENT BUILT-UP ROOFING PATCH (FLASHING SHALL EXTEND 8” MIN. BEYOND EDGE OF METAL FLANGE). EACH PLY OF FELT SHALL BE SET IN A TROWEL COATING OF ROOF FLASHING CEMENT, WITH THE SECOND SHEET OVERLAPPING THE PLY BELOW BY 4” MIN. AS INDICATED ON THE DRAWINGS.
- 7.12 POUR A UNIFORM SURFACE COATING OF HOT COAL-TAR BITUMEN USING THE EQUIVALENT OF 75 LBS. PER SQUARE OVER THE ENTIRE FELT STRIP FLASHING/BUILT-UP ROOFING PATCH, EXTENDING OVER THE TRANSITION TO THE ADJACENT EXISTING ROOFING. EMBED ROOFING SLAG USING THE EQUIVALENT OF 300 LBS. PER SQUARE SIMILAR TO ADJACENT EXISTING AGGREGATE IN THE HOT BITUMEN COAT. SLAG SHALL BE APPLIED UNIFORMLY SO AS NOT TO LEAVE ANY BARE SPOTS.
- 7.13 RESTORED ROOFING AREAS SHALL BE LEFT IN THE SAME CONDITION AS THE ADJACENT EXISTING INSTALLATION.
- 7.14 CLEANING / PROTECTION
- 7.15 UPON COMPLETION OF THE WORK OF THIS SECTION, ALL UNUSED MATERIALS AND DEBRIS SHALL BE REMOVED FROM THE JOB SITE AND, WHERE APPLICABLE, LEGALLY DISPOSED OF. NO DUMPING OF CONSTRUCTION REFUSE MATERIAL SHALL BE PERMITTED. DEBRIS SHALL BE REMOVED FROM ROOFS VIA CHUTES OR CONTAINERS. ALL WORK AREAS SHALL BE LEFT IN A CLEAN CONDITION SATISFACTORY TO THE CM.
- 7.16 BUILDINGS, PARTICULARLY EXISTING ROOFING INSTALLATIONS, AND PROJECT GROUNDS SHALL BE ADEQUATELY PROTECTED FROM DAMAGE DUE TO THE WORK OF THIS SECTION. SHOULD ANY PORTION OF THE FOREGOING BE DAMAGED AS A RESULT OF THIS WORK, THE CONTRACTOR SHALL MAKE ALL NECESSARY REPAIRS AND/OR REPLACEMENTS TO THE SATISFACTION OF THE CM AT NO ADDITIONAL COST TO THE AUTHORITY.

END OF SECTION 07 60 00