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Insulation/Weatherization Systems
1. Insulation shall be installed to meet code requirements. It is recommended for exterior walls that 6-inch metal studs with R-19 batt insulation or similar insulation capacity be provided with vapor retarder facing, lapped at all joints behind sheet rock. If the “vapor retarder” cannot be made air tight, then specify a vapor barrier. Roof insulation (not including tapered insulation) is to measure no more than 6-inches deep, be R-42 minimum, with a vapor barrier on the warm building side.

2. In addition, provide an air barrier/weather resistant barrier installed in accordance with the manufacturers installation instructions at the exterior of the wall beneath the brick/stone finish. Follow installation instructions at all window and door openings. Of particular importance is the requirement to install a job mock-up using the specified air barrier/secondary weather resistant barrier with the system of fastening and taping seams as per the manufacturer’s instructions. The architect’s approval of the system is to be obtained for appearance and workmanship standard. Air penetration performance of 0.001 cfm/ft² at 1.56 psf or 0.301-inches of water, is to be specified. Care must be taken to ensure integrity at all penetrations and at window, door, floor, and roof connections.

3. The following manufacturers and materials are approved as fluid-applied air and water barriers:
   A. Grace Construction Products: Perm-A-Barrier VP
   B. Henry Company: Air Bloc® 31
   C. Tremco Commercial Sealants & Waterproofing: ExoAir™ 220 or 230
   D. Carlisle Coatings and Waterproofing (CCW): Barritech VP

4. The following manufacturers and materials are approved as fluid-applied vapor barriers:
   A. Grace Construction Products: Perm-A-Barrier Liquid
   B. Henry Company: Air Bloc® 32
   C. Tremco Commercial Sealants & Waterproofing: ExoAir™ 120
   D. Carlisle Coatings and Waterproofing (CCW): Barriseal

Roofing
1. The following manufacturers and products are approved as roofing materials, other roofing types and materials by Owner’s written approval:
   A. Sika Sarnafil®: Thermoplastic PVC Membrane
   B. Carlisle: SynTec, 60-mil Sure-Weld Thermoplastic Polyolefin (TPO)
   C. Firestone: 60-mil UltraPly™ Thermoplastic Polyolefin (TPO)

2. All roofing, insulation, flashings, and accessories shall be applied in strict accordance with the approved roofing materials manufacturer's latest printed specifications for a 20-year bonded type roof.

3. Use full coverage 20-year bond roofing specification for the type of deck upon which the roofing is to be applied.

4. Specifications for roofing installation shall be formulated by the architect after consultation with the owner. Specifications shall include the following:
   General contractor and roofing sub-contractor jointly agree, for a period of two (2) years after the date of substantial completion, to inspect and make immediate emergency temporary repairs as required to stop leaks or correct defects in the roofing system work, including attachments to metal flashings forming an integral part of the roofing, within three working days of notice received from the owner by telephone, telegram or letter; and further agree to make permanent repairs to restore the affected items to the standards of construction required by these specifications within a reasonable time and as weather conditions permit; and further agree to make such temporary and permanent repairs without reference to or consideration of the cause or nature of such leaks or defects in the waterproofing work. In case of defective roofing system work, damage caused by leaks or by their repair, shall also be repaired. Work
required within the period shall be completed without cost to the owner, except that repair work required because of Acts of God, abuse, alterations or failure of the substrate or supporting structure (other than that caused by defects in the roofing work), will be paid for by the owner, promptly after completion of the required repair work in each instance. However, this agreement and the enforcement of its provisions shall not deprive the owner of any action, right or remedy otherwise available to him.

**Roof Hatches**
1. Roof hatches will be needed for the following two circumstances:
   A. For mechanical equipment on roofs needing servicing; and
   B. For roof heights above 16 feet with or without mechanical equipment.
2. Roof hatches should be 24-inches square minimum size. Where major mechanical systems placed on the roof are involved, hatches should measure 34-inches x 72-inches and should be accessed by a ship’s ladder-type stairway.
3. If the roof of a building has several levels, ladders on the roof will be needed extending between levels or a roof hatch for each level will be necessary.

**Roof Decks**
1. All roofs shall be designed so that there is a minimum slope of 2.5% to a roof drain or a minimum of 0.25-inch slope per foot. The roof design and construction shall not have any flat spots or ponding of water on the surface of the roof. Supplemental slopes shall be provided by crickets.
2. Cant strips on flat roof decks shall be at least 4-inches high (preferably 6-inches) and shall slope toward a drain not less than 3-inches per foot (25%).
3. Roof insulation shall comply with current recommendations of ASHRAE, LDS Church Building Standards, Utah State, and US Federal Regulations.

**Roof Drains and Metal Flashings**
1. Only round clamp type drains shall be used. "Zurn", "Jay R. Smith", or "Josam" brands are acceptable.
2. All lead drain pans shall be not less than 30-inches x 30-inches for roof, floor, etc.
3. All lead pipe flashings and lead pan shall be no less than 6 lbs. per sq. ft. sheet lead. All pipe flashings for plumbing and heating shall have a minimum of 6-inches flange on the bases and shall extend 1-inch above the pipe. When work is complete, the lead shall be bent down inside the pipe.
4. Two or more objects shall not extend through the roofing closer than 18-inches unless both objects are flashed with integral flashing. No objects shall extend through the roof closer than 18-inches from cant strips, firewalls, etc.
5. The plumbing contractor shall extend drain pipes through the bowl of a drain no less than 12-inches above the bottom of the bowl, but in any event not to exceed 50% of the depth of the bowl.
6. The plumber shall protect the drains by means of welded wire mesh, screens, or other acceptable manner as soon as they are installed and shall not remove this protection until the roofs have been inspected and accepted.
7. The Architect should clearly designate who is to furnish each type of flashing, counter flashing, roof jack, etc; whether they are lead, steel, copper, galvanized iron, etc.

8. When applicable, the contractor shall provide “heat tape” and associated required power for roof drains and secondary roof drain lines. During design, the architect shall consult with the owner.