



ROOFING SCOPING GUIDELINES

1.0 GENERAL GUIDELINES

2.0 BUILDING ENVELOPE SCOPING GUIDELINES

3.0 ROOFING CATEGORIES AND COMPONENTS

3.1 Introduction

Roofing presents multiple challenges to designers for several reasons. As the “top” element of the building, they are subject to significantly higher rain loads than vertical elements such as walls and windows. Improper design can lead to accumulation of water, which exert significant pressures on the system and can force water through even small discontinuities (for example, 1 in. of standing water exerts the equivalent pressure of a 45 mph wind on the walls of a building). Roofs are often penetrated by piping and other equipment, and must be terminated at parapets and rising walls. The latter become difficult when dealing with existing buildings, as properly integrating roof systems with these elements can be difficult, but at the same time critical to keeping the building dry.

Roof guidelines for new vs. existing buildings can be very different, given the challenges of properly integrating new roof systems with existing walls and parapets, most of which (on existing schools) will be of solid masonry construction with no dedicated weather barrier. Understanding the construction of the subject building will be critical to the success of the project, as roof systems rarely leak in the field of the roof but rather at penetrations and details.

- For discussion of Energy Code Compliance issues, refer to the Building Envelope Scoping Guidelines.
- See the Building Envelope Testing Scoping Guidelines for further discussion of testing strategies.

3.2 Project Definition

The Roofing Capital Category may include some or all of the following components:

Roofing

- *Roofing*
- *Flashing*
- *Roofing Drains*
- *Leaders, Gutters, Downspouts*
- *Hatches*
- *Ladders and Ladder Safety Cages*
- *Roof Barriers, Fences and Roof-top Playground Cages*

Roofing Specialties

- *Bulkheads/Penthouses*
- *Cupola/Spires/Towers*
- *Dormers*
- *Dunnage Steel*
- *Skylights*
- *Water Tanks*

Plaza Decks



Design Requirements: Refer to Section 4.4 Roofs, 4.5 Bulkheads and other relevant sections of the SCA Design Requirements for further design and technical requirements.

3.3 Referred Items and Additional Items

Scope all Roof items, using the BCAS report as a checklist of items and selected node(s) for guidance.

Using the selected Nodes and BCAS report as a guide, determine if full or partial roof replacement or repairs may be required for one or all roofs on the premises. Study building history including original and previous completed projects at the school and research existing roofing warranties.

Work related to Bulkhead/Penthouses, if any, should be included under 'Roofing Specialties'. This includes door replacement required by the roofing project.

Work to the parapet such as adding rails or increasing the height by adding courses of masonry or a larger coping due to the increase in insulation or to ensure the parapet area is watertight for the new roof work shall be scoped as part of the roof work. If work on the parapet is required to make it structurally sound or if replacement is required, then the parapet work is to be scoped as an additional item under "Parapets".

3.4 Investigation & Documentation of Findings

Add an introductory paragraph in the Building History portion of the scope report under 'Roof' and identify the approx. age of the roof(s) and the status of warranties. The SCA list of roof warranties is available on the SCA's website under 'Reference Material' in the design portion of the site. Include the name of the roofing manufacturer and roof contractor/installer if known. This is critical since work performed on a warranted roof that is not approved by the manufacturer, or is not performed by a contractor approved by the manufacturer, will void most roof warranties. No roof cuts are permitted on roofs that are still under warranty.

All new roofs must comply with NYC Energy Code, which typically will require increased thickness of insulation depending upon the location of the school, as requirements may vary by borough and older roofs were not designed to the current energy code. The 2016 NYC Energy Code calls for R-30 for all boroughs. This could mean adding several inches of insulation to existing roofs, which may cause problems with flashing heights, doorsills, etc. at the roof level. National or SHPO designated and eligible buildings are currently permitted to be exempt from NYC Energy Code. Local NYC "Landmarked" buildings are not eligible for this exemption. Therefore, it is important to know the National or SHPO status at the onset of the project. If feasible, the increased insulation thickness should be provided or maximized on SHPO designated buildings if they can be achieved without negative impacts to the building.

Indicate the height of existing parapets and whether the parapet height is compliant with code for min. height. If parapet or roof work is being done, then parapets must be in compliance with the NYC Building Code. If parapets are non-compliant, parapet height(s) must be increased or railings or roof barriers must be added. Consult with the DPM or DM for direction on whether to include parapet or roof barrier work as part of Roofing or Parapets. Older buildings with compliant parapets may end up becoming non-compliant if several inches of roof insulation must be added to comply with current energy code requirements.



FDNY access to the rooftop(s) is required. Existing and potentially new obstacles must be taken into account during the scoping process.

Prepare “Existing Condition” or “Damage Mapping” drawings that record the location(s) and extent of deficiencies observed on annotated plans, elevations and other drawings as appropriate. Also, prepare corresponding “Recommended Work” drawings that graphically describe the recommendations. Refer to the [Building Envelope Scoping Guidelines](#), Section [2.5 Investigation & Documentation of Findings](#) for additional requirements.

3.5 Roofing Element Work

3.5.1 General

Roofs are mainly divided into two major categories:

- Flat (Low Slope) Roofs -
- Steep Slope Roofs

Roofs with a pitch below 2” per foot are considered low-slope roofs, but are between 1/8” per foot (minimum), up to 1/4” per foot (preferred). Existing flat (low slope) roofs are typically replaced with new Hybrid modified SBS Built-up Roofing per the current SCA Design Requirements.

Roofs with a pitch greater than 2” per foot are considered Steep Slope Roofs (moderate to steep pitch). Steep slope roofs often encountered on school buildings are between 9” and 12” per foot. Existing moderate and steeply pitched roofs are typically replaced in kind; however, metal or shingle roofs are most commonly used for roof replacement. It is best practice to verify minimum slope requirements with roofing manufacturers. Always proceed with the most stringent slope requirement.

3.5.1.1 Flat Roofs

There are many different kinds of Flat Roof systems that may be encountered in existing school construction, including, but not necessarily limited to the following:

- 4-Ply Built-up Roofing, typically with membrane-over insulation is known as a “Conventional Built-up Roofing”.
- Protected Roofing Membrane Assembly (PRMA; also known as Inverted Roof Membrane Assembly or IRMA)
- EPDM (Ethylene Propylene Diene Monomer) Roofing
- Modified roofing with Mineral-surfaced cap sheet (mineral surfaced roofing).
- Plaza Deck
- Cold Adhesive roofing system with mineral-surfaced, modified cap sheet.
- Liquid-applied waterproofing with PRMA system.
- Torched-applied (APP) modified roofing system.

3.5.1.2 Steep Slope Roofs

The following is a list of existing Steep Slope Roof systems that may be encountered:

- Standing Seam Copper Roof
- Batten Seam Copper Roof



- Flat Seam Copper Roof
- Prefabricated Metal Roof.
- Slate Shingle Roof
- Asphaltic Shingle Roof
- Simulated Slate Shingle Roof
- Spanish (Clay Tile) Tile Roof

3.5.2 Roofing

Determine the approximate age of the roof from the Custodian, DOE, CID and/or A&E records.

Performing a room-by-room walk-through of all spaces below the roofs with the School Custodian is required to identify locations of reported and observed water infiltration and interior damage. Also, interview teachers in those rooms/areas with leakage and interior damage, since they may have a better sense of the severity of the leaks, etc. Visually inspect the leak areas beneath the roof(s) and coordinate with the condition of roof and masonry above including any temporary roof repairs, roof penetrations, and roof drains.

The quality of the roof is harder to assess with PRMA/IRMA roofing systems and at plaza deck, but look at the flashing conditions and identify deficiencies on roofs such as floating insulation (indicative of ponding water), insufficient or unevenly distributed stone ballast, exposed roofing membranes, etc. For all exposed membranes, look for separation at seams (fish mouth), alligatoring, blisters, organic growth, distribution of gravel, lifting up of insulation for PRMA, ponded water, and other evidence of damage and document in the scope report.

Water infiltration may not be related to roofing but attributable to parapets, exterior masonry, leaks within rooftop equipment or other sources. The AEOR must be careful in making a determination of the source(s) of leaks. Try to relate the location of interior defects to those that appear in roofs, roof top structures or at parapet locations, when the source could be related to building envelope components other than roofing.

Request roof cuts and asbestos tests as early as possible in the scoping phase to allow for an accurate cost estimate. It is important to perform roof cuts to determine the quality of the fill and screed underneath, which can also determine if the deck is saturated. Aerated concrete and gypsum fills are not acceptable substrate materials to install a new roof on and thus important to determine the type and thickness of the material, which will need to be removed as part of the project. Getting roof cut test results will also confirm which roofs actually contain asbestos and avoid the necessity of making assumptions of ACM. Arrange tests through QCCS and IEH. If the existing roof is under warranty, this will require consultation with the manufacturer and coordination with QCCS and IEH to ensure that the required tasks are accomplished without voiding the roofing warranty. Typically, no roof cuts are permitted on roofs with a roof warranty still in effect. If water testing is planned, coordinate roof cuts directly after completion of water testing (if roof cuts are allowed). This will help limit false results and can allow for documentation of trapped water between roofing layers (which may migrate to lower layers or dry to the interior if too much time passes between the leak and the roof cuts).

Water testing, infrared scanning, or a combination of these or other NDT techniques may be used to help locate the source of infiltration if it is not obvious. It is important to evaluate whether the parapet or other roof structures are the source or are contributing to water infiltration. Many times leaks can come from two or more sources and if only one is



addressed, leaks will continue. It is important to understand the limitations of various NDT techniques used for roofing. Refer to the [Building Envelope Testing Scoping Guidelines](#) for additional information.

When a Parapet is being replaced and the roof is in a satisfactory condition or under warranty, then only roofing strips are required to be removed and replaced to facilitate parapet replacement. If the roofing strip is replaced only to facilitate the parapet work, reflash drains and vents within the roof strip, rather than relocate or replace. (See also comments under "Parapets"). If roof is not a program component, then include roof strips in the Parapet component, which is typically 3'-0" wide. However, make sure that cap flashings are being installed at least at 12" higher than the high point of roof. Should pointing and other related work be required on the parapet to ensure prevention of water infiltration and damage to the new roof, include them under "Roofing" rather than include them as additional recommended items (capital categories). This should include through-wall flashings, as opposed to surface-mounted or reglet-set flashing, in masonry parapets.

As noted in the Building Envelope Scoping Guidelines, it is interpreted that even partial roofing replacement must follow the current energy code and thus comply with insulation thickness requirements as listed in Table C402.1.3. Thus within the slope if the insulation can be installed without causing ponding it should be so incorporated. If adding insulation thickness will cause a ponding issue, the designer should file a CCD1 requesting a waiver for compliance with the building code as ponding would be an unsafe condition, which the energy code permits as a reason to not meet the code.

Verify condition and minimum clearances under HVAC equipment (including fans, split units, etc.) and dunnage, and electrical conduits. These elements are often very low, which restricts future roof replacement or repairs without removal and reinstallation of the components sitting too low on roof. Equipment curbs should be tall enough to allow a minimum of 8 in. of roof flashing from the highest roof surface. Design crickets around all equipment to facilitate drainage and prevent ponding, especially if equipment or curbs interrupt the normal drainage slope of the roof. If any condensing or other roof top units are removed to facilitate roof/dunnage work, the designer must ensure that it does not affect school functioning. Temporary condensing unit(s) or relocation of existing unit(s) may be required if roof work is to occur while school is in operation. Include such work in the roof replacement recommendations.

For metal roofs, pay special attention to lift-up and open seams, cracked soldering, or exposed fasteners. Check conditions at ridge, valley, step flashing, gutter lining, etc. Also, verify condition of snow guards/fences and drains. If the metal roofing surfaces are in satisfactory condition, consider the option of encapsulating the roofs and/or gutters with waterproofing such as liquid-applied material in lieu of replacement. Note that coating of the roof will improve water tightness on steep-slope surfaces that quickly shed water, but depending on the material may be ineffective in lower-slope applications. Areas such as roof-to-gutter transitions may be weak points if the coating simply sheds into the gutter, as gutter backups or overflows can back up water below the roof/coating and still create leaks. Fleece-reinforced liquid-applied membrane systems (PMMA or urethane) may be best solutions for these locations.

For slate and tile shingle roofs, inspect the missing, cracked and sliding of shingles. Pay special attention to snow guards in the roof field area and at the gutter area, which can lead to localized shingle failure or cracking. Slate shingles can be tested for durability and



estimated remaining service life per ASTM Standard C406 – Standard Specification for Roofing Slate if the overall quality of the roof is in question.

For asphaltic shingle roofs, inspect shingles that are missing and lifting up. In some cases, snow guards may be installed in the roof field and at the eave. Verify conditions of shingles around snow guards. Step flashing at chimneys or sloped parapets are common sources of leaks in asphaltic shingle roofs.

Verify type, size, location, and condition of snow guards. Consider providing pipe-type snow guard with flag and net at the eave. This will stop ice from sliding down in the gutter or on the grade. Many times, snow guards are also installed in the entire field area such as loop type snow guards to keep snow evenly distributed on the entire field area.

Work should not be done just because a roofing project is identified. If no leaks or no visible defects in the roof and no complaints from school personnel, then no roof repair/replacement may be required. If no work is required, notify the SCA and discontinue work on that component. If the roof is not leaking, but is in poor condition and at the end of its usable life cycle, this should be clearly stated and a recommendation made for replacement if leaks are anticipated in the near future. The AEOR shall fully describe conditions that justify replacement. Many 20-year-old slate roofs with visible deterioration have been known to continue to perform with maintenance, which could easily have been considered poor and replaced before the end of their true service life. Whether a full roof replacement will be approved is a matter of availability of funding in the overall Five-year plan at the time of inspection.

On steep slope roofs, icicles are often formed on overhang portions of gutters depending on the orientation of the school and if the adjacent space is heated or non-heated. Discuss this condition with the custodial staff and include alternates to prevent icicles such as heat trace cables, redesign of gutter and installation of snow guards. These elements must be carefully reviewed to determine the best solution for specific issues, and to avoid creating conditions that trap or accumulate snow and thus exacerbate, not mitigate, icing issues. Icing issues are most critical where they occur over entrances, sidewalks, and publicly accessible areas.

At all penetrations including repairs to existing roofing for mechanical projects, utilize “warrantable penetration seals – liquid membrane flashing” now included in the SCA Standard Specifications. Do not use traditional “pitch pockets” in roof replacement or new installations.

3.5.3 Flashing

Critical minimum heights and joints of cap flashings, doorsills, etc. must be noted. It is important to know during the scoping if flashing levels or doorsills will have to be raised because they are too low to begin with or where the increase in insulation thickness (to comply with current energy code) will make them too low. Allow a minimum of 8” (12” preferred where feasible) for roof flashing from anticipated roof walking surface. These and other similar conditions should be looked at all roof top structures, bulkheads, and at intersections of adjacent roofs. Curbs at bulkhead doors should be raised to maintain the 8” minimum distance above the roof surface and the door heights raised, if required, to meet or exceed minimum height requirements by code. Low profile flashings may be considered if warrantable with the approved roofing manufacturers, but should not be less than 5” above the roof surface. Also, many old ventilators and other roof-top equipment may be deteriorated and need to be replaced as a potential leak source.



In-wall cap flashings that need to be raised to provide a proper flashing height must be removed entirely (typically by removing the brick above and below at a minimum, to ensure water does not weep out below the new base flashing).

3.5.4 Roof Drains

Identify conditions at existing roof drains and if any leaks may be attributed to the roof drains and/or piping below.

It is a SCA requirement that roof drains be replaced with full roof replacement. However, if roof drains were recently replaced and appear in good condition, provide such justification for retaining the existing. In addition, if doing a parapet replacement and removing and replacing a drain would be unwarranted, it may also remain with justification provided.

Note the location of existing roof drains and vent stacks. Per SCA Standards, roof drains and vent stacks should be located a minimum of 2'-6" from the face of existing parapets and other obstructions to permit proper roofing installation and satisfy warranty requirements. For roof replacements, relocate roof drains and vents that cannot be reflashed properly, which is typically 1'-0" to 1'-6" or less, depending on the item. If needed, discuss the detail with roofing manufacturers and the Authority's Construction Inspection Division during the design.

If roof replacement is required, the feasibility of adding roof drains should be considered to improve roof drainage and minimize the amount of fill and screed or tapered insulation required to meet slope requirements.

Removal and reinstallation of roof drains, vents and related piping within roof strips should be avoided unless they are in very poor condition/leaking or are too close to the wall to facilitate proper flashing. It is a SCA requirement to replace drains only with full roof replacement. If the roofing strip is replaced only to facilitate the parapet work, replacement/relocation of drain and vents may be unwarranted, as these drains and/or vents will be replaced again with roof replacement. Reflashing drains and vents in lieu of replacement will be a more cost effective design. While there is a preferred distance away from the parapet for these items, they can be adequately flashed even if they are a little closer. Discussion with the CID unit may be warranted for their opinion on the distance proposed. Any plumbing-related work due to the parapet replacement and associated roof strip work is to be included under the Parapet category and not under the roof category.

Overflow scuppers can often be re-flashed, but may require replacement if they are formed of sheet metal with poor seaming, etc.

3.5.6 Leaders, Gutters, Downspouts

Inspect existing leaders, gutters and downspouts. Identify type(s), materials and locations and whether exposed or concealed within existing wall or cornice construction

Where there are leaks at existing gutters and gutter materials are in an overall satisfactory condition, then consider an option to apply a liquid membrane roof material (such as fleece-reinforced liquid-applied membrane systems) to gutter lining, rather than replacing the gutter.



At concealed leaders and downspouts, perform tests to confirm that existing lines are intact and unbroken.

Review gutters for potential overflow conditions due to frequently clogged drains or poor slope. In many cases, gutter back-ups can produce significant leakage at roof edges. In these cases, simply lining the gutter will not address the issue. Providing an outside gutter edge that is at least 1 in. below the bottom of the roof underlayment (so that overflow runs to the exterior and cannot back up) is the best way to prevent these leaks. Special consideration is necessary for built-in or “Yankee” gutters, where this may not be possible due to the roof slope.

3.5.7 Hatches

Inspect existing roof hatches. Identify materials and locations and any deterioration. Include recommendations for repair or replacement if required. Leakage may be occurring from the hatches themselves at poor seals, which is more common than leakage at perimeter flashing.

3.5.8 Ladders and Ladder Safety Cages

Inspect existing roof access ladders and ladder safety cages and describe their condition. Identify materials and locations and any deterioration. Include recommendations for repair or replacement if required.

Ladders mounted to Parapets or Exterior Masonry may require removal and reinstallation to facilitate masonry related work. Scope removal, repair, refinishing and/or replacement with Parapets or Exterior Masonry if no other Roof Work is required.

Refer to Design Requirements for roof access requirements. Addition of roof ladders or other means of access may be required.

3.5.9 Roof Barriers, Fences and Roof-top Playground Cages

Inspect existing roof barriers, fences and cages. Identify materials and locations and any deterioration. Include recommendations for repair or replacement.

If the thickness of the roof assembly increases, this will reduce the height of the parapet and may necessitate the addition of roof barriers or otherwise increasing the parapet height. If possible, avoid penetrating the roof assembly by fastening of roof barriers through the roof surface, as it may be feasible to attach them to the parapet. Attach to the vertical face of the parapet when possible, but include review of the parapet structural performance as the code required load resistance of railings/guards is relatively high, and may require strengthening of unreinforced masonry elements.

FDNY Rooftop access is to be addressed to ensure the roof is compliant when revising parapets, rails, and cages.

3.5.10 Bulkheads/Penthouses

Bulkheads, including roofing, doors, sills, windows and masonry are considered part of the roof work, as they contribute to the integrity of the roof. Typically, masonry or window repairs, if required, may also be scoped under “Exterior Masonry” and “Windows” respectively. However, if no other masonry or window work is recommended, include



masonry and window repairs to Bulkheads/Penthouses under “Roofing” to ensure the integrity of the new roof system to be installed.

3.5.11 Cupola/Spire/Towers

If any cupola, spires or towers exist, include a description of elements and their condition, with any recommended repairs.

3.5.12 Dormers

If any dormers exist, include a description of elements and their condition along with any recommended repairs. Step flashing at dormer edges, as well as the transition from the main roof slope to the dormer ridge, are common sources of leakage.

3.5.13 Dunnage Steel

Verify condition and minimum clearances under dunnage. Refer to the SCA Design Requirements for minimum dimensions and clearances above the roof. These elements are often very low, which restricts future roof replacement or repairs without removal and reinstallation of the components sitting too low on the roof. Include such work in the roof replacement recommendations. Judgment should be used in determining the need to remove equipment and while the clearances may not meet NRCA height recommendations, there is many times sufficient space to permit the replacement without removing the equipment.

Describe dunnage structure and materials and identify any deterioration in the findings. Remove rust, prepare and paint if required.

3.5.14 Skylights

If any skylights exist, identify the location(s) and areas served. Include a description of elements and their condition along with any recommended repairs.

Determine whether leakage at skylights, if reported, results from perimeter conditions or the skylights themselves. Note that apparent leakage on the interior may result from winter-time condensation on the interior of skylights, especially older skylights without thermal breaks or insulating glazing. Systematic water testing may be the best means of confirming the location of water infiltration.

If existing skylights are covered or not used and are not required by code, openings may be removed, with the existing opening closed by installing a new concrete slab (over metal deck) and roofed over. This will require structural analysis of the existing roof deck.

Identify if the skylight(s) are visible from the exterior. If associated with a SHPO designated “Eligible” building, indicate if the skylights are associated with the building exterior or designated interior spaces.

If skylights require replacement, comply with current energy code requirements. SHPO-designated projects may be exempted from these requirements, but energy improvements should be incorporated to the greatest extent feasible.



3.5.16 Water Tanks

Verify condition and minimum clearances under existing water tanks. Refer to the SCA Design Requirements for minimum dimensions.

Determine if the existing water tanks are still in use or inactive. If not in use, discuss with the DPM/DM the feasibility of removal and whether it might reduce the scope of necessary repairs in the current or future building envelope projects.

Describe water tank structure and materials and identify any deterioration in the findings. Remove rust, prepare and paint if required.

3.5.1 Plaza Decks

Plaza Deck work should include removal of topping, waterproofing, repair of existing slab substrate, and removal of masonry at the perimeter walls to extend the new waterproofing up the inside of the wall prior to installing a new topping of concrete or pavers.

3.6 Related Work

3.6.1 HVAC

The Roofing Work above may require the removal and reinstallation of existing (or replacement with new) roof-mounted mechanical equipment (including dunnage), fans, piping, etc. The work and expense to remove, reinstall or replace such items is to be included under the Roof category.

3.6.2 Plumbing

The Roofing Work above will typically require the removal and replacement or relocation of existing roof drains, vents, and related piping. The work and expense to remove, reinstall or replace such items is to be included under the Roof category.

3.6.2 Electrical

The Roofing Work above may require the removal and reinstallation of existing (or replacement with new) roof-mounted electrical equipment, fans, piping, etc. Common examples include conduits run along the interior of parapets, which are often corroded or otherwise damaged. The work and expense to remove, reinstall or replace such items is to be included under the Roof category.

3.7 Design Considerations

Proposed Building Envelope Modifications shall be designed to meet or exceed Energy Code Requirements. Refer to the [Building Envelope Scoping Guidelines](#) for discussion of Energy Code Compliance.

It is important to detail as many of the different roof conditions as possible, especially complicated areas. This will assist the Project Officer (PO) in managing the contractors. In particular, metal flashing details at inside and outside corners, or other elements requiring 3-d/isometric views. Be aware that basic notes or specification requirements for "Contractor to provide all detailing", etc. are not sufficient to ensure a watertight roof, and may only lead to problems or disputes in the event that



leakage occurs. Lack of sufficient detailing can also lead to change orders if complicated details are required for water tightness but not adequately represented on the drawings.

The SCA standard for roofing replacement systems is Hybrid Built-up/SBS Modified Bituminous Roofing. The standard is for a 2-ply vapor barrier to be hot-mopped. If after removal of the roofing, the deck is found to be wet with saturated insulation, then an inspection by the AEOR should be made and the manufacturer consulted in order to determine whether a vent base sheet with mechanical fasteners is to be installed. Every project is to have a dollar allowance to cover this condition. The Contract Documents should include this detail but indicate it as only for the allowance. Some roofs with many penetrations, or where the use of a kettle is impractical due to the roofs location or small size, the use fleece-reinforced liquid-applied membrane systems (PMMA or urethane) shall be investigated and discussed for approval with A&E. Other considerations for such a roof that may need to be discussed based on roof location is if asphalt odors can't be mitigated even with after-hours work.

In new built-up roofing in excess of 200 feet in any direction, introduce roof-to-roof expansion joints/dividers per roofing manufacturer's recommendations. Provide specific plans showing the nature and extent of all expansion joints, as these elements may be prone to leakage and should only be included if necessary by the roof conditions.

The use of lightweight insulating concrete fills is not permitted. Structural lightweight concrete fill and screed or structural repair mortar is the preferred method of obtaining the desired 1/8" per foot pitch minimum requirement. While 1/4" is preferred, this is typically not practical on these roofs. It is important to determine before the project is out to bid what the adverse effect increasing the slope will have on the parapet and flashing heights and the documents adjusted accordingly. If roof cuts show there is an existing insulating fill, it is to be removed as part of the documents and new concrete to be installed. If the weight of the additional fill is a concern, then tapered insulation may be used, but some work to level the slab to receive the concrete will still be required. Where small amounts of patching will be needed, structural repair mortar is the most appropriate. Consult DPM and DM prior to using tapered insulation, which should be considered in consultation with the SCA technical staff. Decks made of tectum or nailable precast plank also require careful consideration in the removal of the existing roofing and installation of the new roof.

Roof insulation should be rigid insulation with an R-value complying with Energy Code requirements. Tapered insulation may be used on steel roof deck, tectum, concrete plank decks, or when existing concrete roof deck is not pitched to drains. Tapered insulation should also be used to form crickets at equipment curbs, to direct water around the curbs. When multiple layers of insulation are required, stagger joints.

Contact SCA approved roofing manufacturers for unusual details not covered in the standard details to develop warrantable details. As noted previously, notes for "contractor to provide detailing" are unacceptable for atypical conditions.

For special roof structures, such as dome roofs, alternatives to SCA standard built-up roof should be evaluated by the AEOR. Contact roof manufacturer's representatives for suggestions and submit to SCA A&E for approval.

Installing new roofing membranes over existing roofing membranes (overlay) is not permitted without prior SCA permission. There may be cases where this is the best option to extend the life of an existing roof if funding is limited. Conditions should be discussed with the roofing manufacturer(s) as for their recommended system and then finalized with SCA A&E input and approval. This decision should be made during the scope phase. The building code allows for one new layer to be installed



over existing roofing, but if two or more layers exist on the roof the entire assembly must be removed and cannot be over coated/covered.

End of Roofing Scoping Guidelines