



USAF Built Infrastructure Inventory and Assessments Manual

Appendix for Roofing (B30)

July 2017

This document includes information that shall not be disclosed outside the Government and shall not be duplicated, used or disclosed in whole or in part for any other purpose than the United States Air Force Built Infrastructure Assessment Program.

Table of Contents

I. Overview.....	3
A. B30 Roofing Description.....	3
1. UNIFORMAT II definition.....	3
2. Major components.....	3
3. Lifecycle characteristics.....	3
II. Inventory.....	3
A. General B30 Inventory Guidance.....	3
B. Inventory B3010 Roof Coverings.....	5
C. Inventory B3020 Roof Openings.....	11
III. Assessment.....	12
A. General B30 Assessment Guidance.....	12
B. Assessment B3010 Roof Coverings.....	13
C. Assessment B3020 Roof Openings.....	18
IV. Inventory and Assessment Rules of Thumb.....	19
A. Assessor Qualifications.....	19
B. Year Installed.....	19
C. Inventory/Assessment.....	19
V. Inventory/Assessment Data Collection Sheets.....	20
VI. B30 UNIFORMAT II Minimum Component Reference Table.....	23

I. Overview

This manual covers the inventory and assessment process for the “Roofing (B30)” building system and components. Please see the SMS Playbook for additional information including:

- BUILDER™ Sustainment Management System Concepts
- Overview of ASTM E 1557 UNIFORMAT II Standard Classification for BUILDER™
- BUILDER™ Inventory Overview
- BUILDER™ Assessment Overview
- BUILDER™ Remote Entry Database (BRED™)
- Working with Web-Based BUILDER™
- Quality Assurance
- Site Visit Preparation and Execution
- Site Visit Safety

A. B30 Roofing Description

1. UNIFORMAT II definition

- The roofing system of a building separates the building interior from the exterior environment. It provides weather protection and insulation. It may also serve other functions such as supporting equipment, providing fire separation or allowing daylight to enter the building. The roof is supported by the building structural system.

2. Major components

- Roof Coverings (B3010): Provide the primary weather protection and insulation for the top of the building. In BUILDER™ SMS, roof covering refers to the complete roof system composed of the exposed covering and any underlayment such as insulation, asphaltic/bitumen layers, membranes, etc. Typical roof covering or system types found on USAF bases include Built-up, Modified-Bitumen, Membrane, Metal, Shingle and Tile. The roof coverings component also includes exterior rain drainage (gutters and downspouts). Other Roofing includes earthen berms over flat roofed and barrel roof munitions storage facilities.
- Roof Openings (B3020): Provide physical access and daylight passage through the roof system. These openings can be fixed or operable and be made of different materials. USAF inventory is optional.

3. Life cycle characteristics

- Roof systems and coverings have advanced over the years and typically have an expected design life of 25–50 years. When properly installed these components show slow rates of deterioration, but can accelerate with age if common problems such as wind damage, debris build up, minor leaks, etc. are not addressed in a timely manner. Since roof systems are relatively short-lived components, they are assessed using the Direct Condition Rating (DCR) Definitions chart considering observed defects. Life cycle deterioration is reflected in BUILDER™ SMS software age-based life cycle degradation curves.

II. Inventory

A. General B30 Inventory Guidance

This section presents common UNIFORMAT II B30 Roofing Inventory component sections found across USAF

installations as a guide for entering into the BUILDER™ SMS or BRED™ software. Inventory items are arranged by BUILDER™ SMS system with Material Category, Component Subtype, Quantity and Inventory Notes. Each building's full or partial inventory can be captured in the field using the Inventory/Assessment Data Collection Sheet(s) included in Section V and the AFCEC BUILDER™ SharePoint Site in the Documents Library. Section VI (B30 UNIFORMAT II Minimum Component Reference Table) provides a complete listing of the minimum components inventoried and assessed for B30. Bases may elect to inventory and assess additional components.

NOTE: Bases may elect to inventory and assess other roofing component sections. Inventory and assessment is required by the current AFCAMP Playbook as project support documentation for consideration in the project prioritization process.

Component Subtypes General, Other, and Unknown require a Section Name to further describe the Component Sections.

It is critical to confirm the year installed (default from Real Property Assets Database (RPAD)) or to estimate the year installed. BUILDER™ SMS uses the Install Date, life cycle degradation curves and assessment observations to establish Condition Index (CI) for each Component Section. If the assessor suspects the RPAD default date is not accurate or an addition or renovation has taken place, check the RPAD record for year renovated or check local as-built or renovation drawings to help determine the year installed. Estimated Install Dates decrease the Expected Service Life significantly. Every effort should be made to establish an Install Date and avoid the use of estimated.

If this is an initial assessment and no roofing inventory has previously been entered into BUILDER™ SMS, an inventory is required. Roofing components inventoried for USAF buildings are usually visible. When roofing components are not visible (or the roof is not accessible), as-built drawings should be used to identify and quantify the roofing components. If as-built drawings are not available, the assessor may use experience to make an assumption for the roofing types and quantities based on similar construction, consultation with local staff and other resources such as www.inspectapedia.com.

BRED™ currently has an inventory data field "NOT Energy Efficient: Yes/No" used by Defense Logistics Agency (DLA). The field is not currently used by the Air Force. The checkbox is currently just a "flag" to let DLA know a more thorough Level 2 Energy Audit is suggested. The Standard Report simply checks if any sections in the building were flagged. If a section is flagged, the report suggests the building receive a Level 2 Energy Audit and estimates a cost for the audit based on the facility square footage. The flag appears in the report under "Efficiency and Obsolescence."

The remainder of this section provides photo examples of the most common USAF roofing inventory items categorized by major components and accompanied with appropriate Material/Equipment Category, Component Subtype and Quantity from the BRED™ drop down menus. This information is supplemented with general and specific inventory hints as a guide for data entry by the assessor.

General Roofing B30 Inventory Hints

- BUILDER SMS considers 3' rise and greater in 12' run as Steep Slope Roof System. Some materials used in both low and steep slope systems are not an option in both inventory subtypes. Choosing the construction material will provide a better cost estimate and should be selected disregarding the slope. Provide an Inventory Comment.
- For roof coverings only the top most visible layer of the roof system is captured under B30. For example: If a metal roof is visible from above and plywood underlayment is visible from below, the metal roof is entered under B30 and the plywood is entered as roof construction under B10 Superstructure.
- Mechanical ventilation/exhaust fans for attics or other roof ventilation are entered under D30 HVAC.
- Exterior roof drainage, such as gutters/downspouts are captured under B30 (Roof Drainage – Exterior). Interior roof drain piping is captured under D20 Plumbing.
- Ladders associated with roof openings are captured under C10 Interior Construction
- Inventory Comments should be recorded to clarify inventory component description if Section Name is insufficient.

B. Inventory B3010 Roof Coverings

Roof covering Component Sections for the USAF are inventoried by roof covering system (Component Type) with just one exception. Because the inventory is by roof covering system, the assessor will not inventory underlayment materials, roof insulation or accessory items (e.g. edge metal, flashing, insulation, fascia, pitch pans, ridge vents, walk pads, etc.). The roof covering inventory includes the roof system visible material typically rubber, plastic, asphalt, metal, shingle, tile, etc. and the component subtype such as single-ply, built-up, modified-bitumen, shingle, tile, etc. The exception is exterior roof drainage which includes gutters and downspouts. Typical roof coverings on USAF bases are:

1. Material Category: B301002 Low Slope Roof Systems

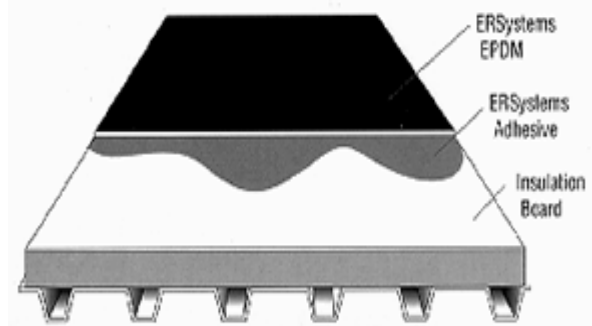
Component Subtype: Single Ply Membrane

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- A typical single ply roof section
- Rubber is popular for low slope roofs due to installation ease, low cost, and life
- Ethylene Propylene Diene Monomer (EPDM) is factory supplied in thicknesses of 30- 60 mils
- Developed in the 1960's



2. Material Category: B301002 Low Slope Roof Systems

Component Subtype: Single Ply Membrane

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Black color
- Sheets with glued seams
- Insulation below membrane
- Plate and pin fasteners hold down insulation
- Sheets then glued to plate fasteners



3. Material Category: B301002 Low Slope Roof Systems

Component Subtype: Single Membrane

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Single Ply w/Ballast
- Black color
- Sheets with seams
- Insulation below membrane
- Stone ballast holds down membrane



4. 4. Material Category: B301002 Low Slope Roof Systems

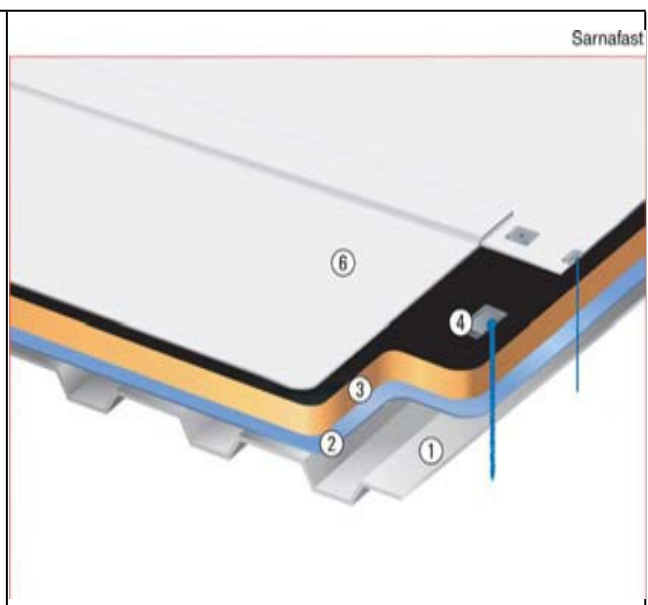
Component Subtype: Single Ply Membrane

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Elastomeric Coating
- Thermoplastics are durable and tough. Seams are welded (not glued) by heat or chemical agent to virtually form a single ply covering
- Common types - PVC (Polyvinyl Chloride) or TPO (Thermoplastic Olefin)
- Developed in the 1970's



5. Material Category: B301002 Low Slope Roof Systems

Component Subtype: Single Ply Membrane

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Plastic
- Sheets with heat welded seams
- Insulation on deck and below membrane
- Plate fasteners hold down insulation
- Sheets welded to plate fasteners



6. Material Category: B301002 Low Slope Roof Systems

Component Subtype: Single Ply Membrane

Quantity: SF Year built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Plastic
- Typically white
- Elastomeric coating rolled over single ply covering and "lapped up" parapets and curbs
- Elastomeric coating is high solid, elastic "recover" applied by spray or roller



7. Material Category: B301002 Low Slope Roof Systems

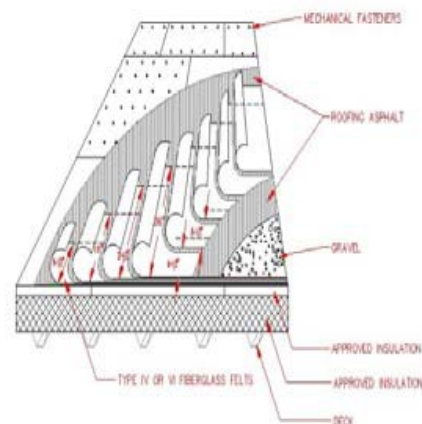
Component Subtype: Built-Up

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Asphalt
- Built-Up w/Aggregate
- Developed in 1850's for flat, low slope covering
- Felts embedded in hot asphalt "plies" usually totaling 4
- May be found on old WW II structures but now less common



4-PLY BUILT-UP ROOF SYSTEM

8. Material Category: B301002 Low Slope Roof Systems

Component Subtype: Built-Up

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Asphalt Built-Up w/Aggregate
- Gravel embedded in asphalt flood coat
- Sometimes referred to as "Tar and Gravel"
- Multi Plies Layered and Adhered to roof
- Edge Band Metal Stop
- Frequently No Insulation



9. Material Category: B301002 Low Slope Roof Systems

Component Subtype: Built-Up

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Asphalt Built-Up w/Mineral Surface Cap
- Heavy weight mineral cap sheet panels not rolls ("Protection Board")
- Applied in hot liquid topping coat
- Feels "thin" especially if there is no insulation



10. Material Category: B301001 Steep Slope Roof Systems

Component Subtype: Preformed Metal – Metal Panel

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Stamped or formed panels, “corrugated” metal sheets are included in this group
- May be galvanized or painted
- Typically found on smaller storage, range, or expeditionary buildings from 1940’s to 1980’s
- Often has no rain gutters
- Insulation, if present, may be below roof material and visible from inside
- Most metal roofs of small storage buildings consist of only one layer. This metal layer should be captured as roof construction under Superstructure (B10) unless it is above a wood or concrete deck



11. Material Category: B301001 Steep Slope Roof Systems

Component Subtype: Other

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Fiberglass Sheets
- Fiberglass “Translucent Panels” integrated into metal roof
- Do not count as “Skylights”
- Section Name required



12. Material Category: B301001 Steep Slope Roof Systems

Component Subtype: Formed Metal – Metal Standing-Seam

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Formed panel system with raised seam overlap.
- Typically factory finished or painted
- Insulation, if present, is below the roof deck



13. Material Category: B301001 Steep Slope Roof Systems

Component Subtype: Asphalt Shingles

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yea/No

Inventory Notes:

- Typical of residential style construction
- Found on many USAF bases in buildings constructed prior to 1970's
- Design life varies from 30-50 years. 3-tabs (photo) typically 30 years. "Dimensional" shingles are typically 40-50 years.
- Actual life significantly less than design life



14. Material Category: B301005 Gutters & Downspouts

Component Subtype: Gutters

Quantity: LF Year Built/Renewed: Estimated

Painted/Coated: Yes/No

Inventory Notes:

- Interior roof drain piping entered under D2040
- Count LF of gutters
- Submits downspouts as separate section
- Copper found on some older or historic buildings entered as metal with comment



15. Material Category: B301002 Low Slope Roof Systems

Component Subtype: Polyurethane Foam

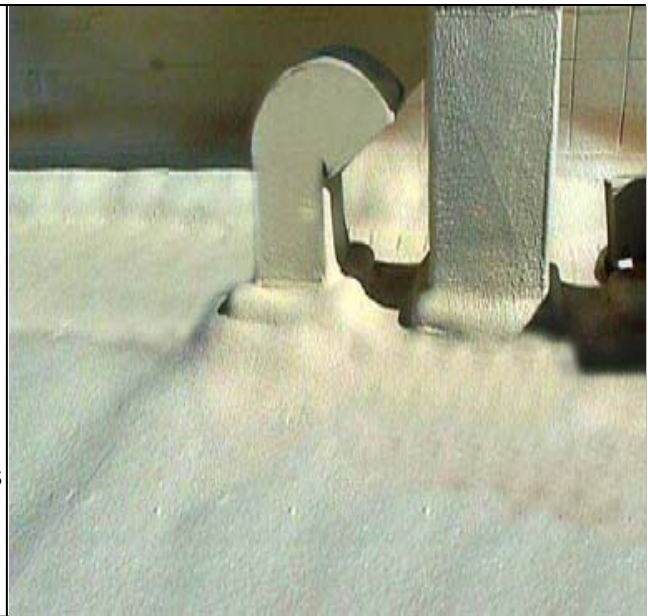
Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes

Inventory Notes:

- Often used as “recover” to extend life, provide insulation, or provide impact protection
- Spray applied, expands after spraying and forms seamless cover
- If metal roof panels visible from below, enter under B10 super structure



16. Material Category: B301090 Other Roofing

Component Subtype: Other

Quantity: SF Year Built/Renewed: RPAD

Inventory Notes:

- Enter Section Name as Earthen Roof Covering
- Enter barrel/curved concrete structure visible from inside, under B1020 Superstructure, Roof Construction
- Enter end walls under B2010 Exterior Enclosure, Exterior Walls
- Section Name required



C. Inventory B3020 Roof Openings

Roof openings component sections for the USAF are optional. Currently, BUILDER™ SMS B3020 does not have the capability to add Sections. Typical roof openings include:

1. Material Category: B3020 Roof Openings

Component Subtype: Skylight

Quantity: EA

Inventory Notes:

- Material type will identify the framing (metal, plastic, or wood)



2. Material Category: B3020 Roof Openings

Component Subtype: Hatch/Scuttle

Quantity: EA

Inventory Notes:

- Typically metal and allow for personnel or equipment access to the roof



III. Assessment

A. General B30 Assessment Guidance

Roofing component sections are assessed using Direct Condition Rating (DCR). Usually roofing components will be visible. When component sections are not visible, no assessment is required and an Age-Based rating is given by BUILDER™ SMS. In this case BUILDER™ SMS will use the inventory year installed and software life cycle degradation curves to establish the CI.

When roofing component sections are visible, they should be assessed. The on-site assessment is determined based on the assessor's observations compared to the Direct Condition Rating (DCR) Definitions chart (see next page) for major components B3010 and B3020. The rating reflects observed deterioration, impact on operability and repair requirements based on the chart and the assessor's professional judgment. When determining the rating, the assessor should consider the quantity and severity of conditions or distresses observed. The assessor must provide an Inspection Comment in cases of **Amber+** or lower DCR or BUILDER™ calculated Distress Survey rating. Photographs documenting defects must be taken and attached to the assessment.

Under no circumstances should age be factored into a DCR or Distress Survey assessment. Ratings are based on condition, operability and/or survivability only. BUILDER™ SMS already factors in the age from the Install Date when BUILDER™ calculates Condition Index (CI).

The following conditions or events can accelerate roofing component deterioration and should be considered by the assessor:

- Advanced age.
- Improper construction or installation
- Neglected maintenance including debris build up on roof covering or in drainage
- Moisture infiltration resulting from damage or wear/tear to roof covering
- Surface damage due to personnel or equipment on roof without protection
- Environmental factors damage such as wind (uplift) and solar (UV deterioration)

NOTE: Red highlighted text is provided as an example of a lifecycle of typical components and should be adjusted as needed to represent other various components.

Direct Condition Rating (DCR) Definitions	
Rating	Observation
Green (+)	Fully Operational - Free of Known or Observable Defects Keep doing PM required to maintain warranty - no action required
Green	Fully Operational - Slight Deterioration or Minimal wear Keep doing PM - no action required
Green (-)	Fully Operational – Normal wear and/or serviceability defects Keep doing PM - need to start planning for rehabilitation
Amber (+)	Reduced Operation – Minor wear and/or serviceability defects Repairs could be accomplished and replacement planned within next eight to ten years (Investment of resources could extend life)
Amber	Reduced Operation – Moderate wear and/or serviceability defects Repairs could be accomplished and replacement planned within next six to seven years (Investment of resources could extend life)
Amber (-)	Reduced Operation – Significant wear and/or serviceability defects Repairs could be accomplished and replacement planned within next three to five years (Investment of resources could extend life)
Red (+)	Loss of Operation – Moderate wear and/or serviceability failure Repairs could be accomplished and replacement planned within next two years (Run to failure - further investment unwise)
Red	Loss of Operation – Significant wear and/or serviceability failure Repairs could be accomplished and replacement planned within the next year (Run to failure - further investment unwise)
Red (-)	Loss of Operation – Complete wear and/or serviceability failure Replacement needs to be planned immediately

The assessor should consider the condition of roof accessories in rating the roof covering even though roof accessories are not inventoried. A roof covering in excellent condition could be rated **Amber +** or below if a significant quantity or severity of condition exist related to roof flashing, edge metal, pitch pockets, curbs, etc. Accessories defects must be included in assessment Inspector Comments.

B. Assessment B3010 Roof Coverings

Below are assessment hint questions to help the assessor determine the most appropriate DCR and examples of common distresses.

B3010 Assessment Hint Questions

- What distresses or problems are observed?
- What is the quantity and severity of the distresses?
- Is the roof leaking?
- Will repairs preserve or extend the remaining service life of the roof?

Based on above:

- Select a DCR from the chart.
- If assessment rating is **Amber+** or below, enter an Inspection Comment to describe the reason. Photograph documentation is required to be attached to the assessment. An Inspection Comment should also be entered regardless of DCR, if a significant localized issue needs to be highlighted, which may not necessarily impact the overall Component Section DCR.

Examples of typical roof coverings distresses or conditions include:

1. Typical Distress: Blister



2. Typical Distress: Slipping



3. Typical Distress: Wrinkling



4. Typical Distress: Staining



5. Typical Distress: Debris - Vegetation in Gutter



6. Typical Distress: Defective Seam



7. Typical Distress: Ponding



8. Typical Distress: Fastener "Pop-up"



9. Typical Distress: Surface Deterioration



10. Typical Distress: Impact Damage



11. Typical Distress: Debris - Vegetation



12. Typical Distress: Missing Shingles



13. Typical Distress: Patch



14. Typical Distress: Asphalt Shingles Curling



15. Typical Distress: "Fishmouth"



16. Typical Distress: Cracking



17. Typical Distress: Bubbling Asphalt Roof



18. Typical Distress: Roof Cracked on MUNS Igloo



19. Typical Distress: Corroded Downspout



20. Typical Distress: Hole over Mechanical Room



21. Typical Distress: Broken Downspout
Staining Wall



22. Typical Distress: Severe Wind Scour



23. Typical Distress: Missing Roof Tiles



24. Typical Distress: Damaged Gutter



25. Typical Distress: Roof Joint Expansion
Joint Deteriorated



26. Typical Distress: Modified Bitumen Separating at
Seams



27. Typical Distress: Disconnected
Downspout



28. Typical Distress: Munition Storage Facility
Earthen Covering Erosion



C. Assessment B3020 Roof Openings

Below are assessment hint questions to help the assessor determine the most appropriate DCR and examples of common distresses. Currently, BUILDER™ SMS B3020 does not have the capability to add Sections.





B3020 Assessment Hint Questions

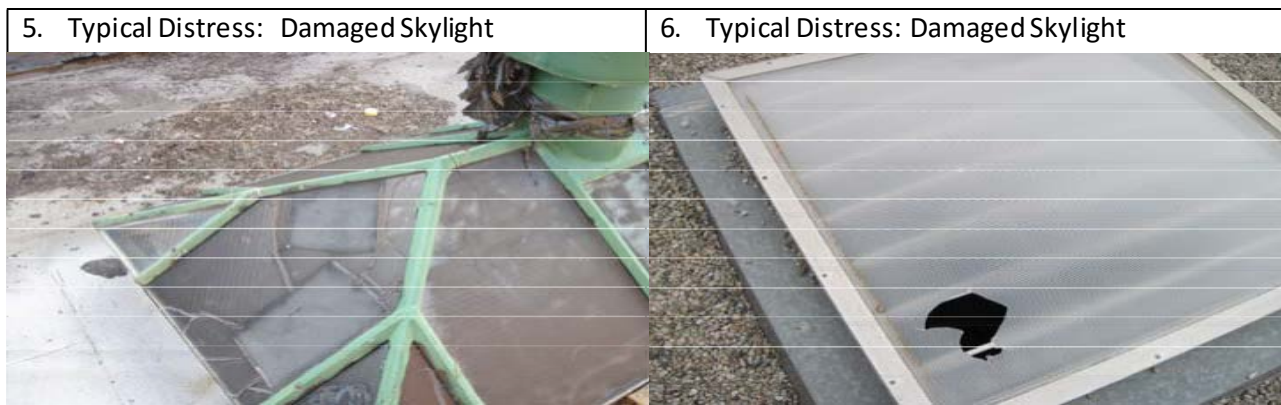
- What distresses or problems are observed?
- What is the quantity and severity of the distresses?
- Is the roof opening damaged or leaking?
- Does the roof opening operate (open, close, secure, etc.) properly?
- Will repairs preserve or extend the remaining service life of the opening?

Based on above:

- Select a DCR from the chart.
- If assessment rating is **Amber+** or below, enter an Inspection Comment to describe the reason. Photographs attached to the assessment is required to document the assessment. An Inspection Comment should also be entered regardless of DCR, if a significant localized issue needs to be highlighted, which may not necessarily impact the overall Component Section DCR.

Examples of typical roof openings distresses and conditions include:

1. Typical Distress: Leak in Skylight	2. Typical Distress: Sealant Deterioration
	
3. Typical Distress: Inoperable Lifters	4. Typical Distress: Unsafe Hatch
	



IV. Inventory and Assessment Rules of Thumb

A. Assessor Qualifications

- The assessor should have 5+ years of specialized experience related to roofing systems and should have attended two or more classroom or online roof inspection courses such as those offered by RCI, Inc. as part of the roofing professional certification program. The assessor should be able to identify common roofing system types/elements and have experience in identifying common problems related to roofing systems.

B. Year Installed

- In some cases, roof sections may be replaced as an individual repair or partial replacement. These areas would have a different age. The RPAD construction and renovation dates should be confirmed. If they are not appropriate, the roof age must be estimated. The building occupants or other facilities staff may be able to provide some information.
- Additions, new wings or major renovations likely require identifying a separate roof section with a different age.
- Some buildings may have a roof warranty document posted near roof access to assist in determining age.

C. Inventory/Assessment

- Always use a measuring wheel or tape to confirm the actual roof areas.
- Flat roof areas can be compared to building area for a cross-check. Note: Make sure to adjust for overhangs.
- Typical Section Names used for B30 include: MAIN, UPPER, LOWER, WING "X", EAST, WEST, FLAT, SLOPED, etc.
- The B30 items noted below, included in BUILDER™ SMS dropdowns, are typically not inventoried or assessed.
 - Roof accessories such as edge metal, flashing, walkpads, pitch pans (pockets), ridge vents, fascia, soffits (condition of accessories considered in overall roof assessment)
 - Underlayment materials below the roof covering such as insulation or cover boards
 - Passive ventilation such as ridge or other vents

- Mechanical ventilation such as mechanical exhaust fans for attics or other roof ventilation (entered under D30 HVAC)
- Interior roof drain piping (entered under D20 Plumbing)
- If the roof has only one layer such as metal-sheet, then this component is captured as roof construction under B10 Superstructure

V. Inventory / Assessment Data Collection Sheets

The following data collection forms are included as a recommendation and may also be found in the AFCEC BUILDER™ SharePoint Site in the Documents Library. Many assessors also use plans or a notebook. Use whatever collection method works best for the individual assessor. The first sheet is for all roofs, the subsequent sheet is used to document distresses.

(See Next 2 Pages)

Building Number		<div>Sketch</div>
Roof Type		
Install Date		
Area SF		
Roof Rating: Green, Yellow or Red		
Exterior Drainage LF	Gutter Downspout	
Ext Dm Rating: G, Y or R		
Roof Openings	Hatch Skylight	
R O Rating: G, Y or R		

General Evaluation	No Problem OK	Defect		Location, Observation, Action	Date of Repair
		Minor	Major		
Does the roof leak?					
Are there water stains on underside of deck, ceilings, walls, floor?					
Do exterior walls or eaves show water damage?					
General Appearance					
Debris					
Ponded Water					
Physical Damage					
New Equipment, Alterations or Patching					

ROOF DISTRESSES FOUND

<u>Roof Covering</u> BUR Mod-Bit Single Ply Asphalt Plastic Rubber Ballast Circle one	<u>Distress</u> Not Found Minor Major			<u>Comments</u> Location, Observation, Action
Blistering				
Slippage				
Ponding				
Ridges - Wrinkling				
Surface Deterioration				
Debris –Vegetation				
Holes				
Seam Splits				
Fishmouth / Cracking				
Fastener Backout				
Ponding				
Improper Equipment Supports				
Patching				
Accessory Issues				
Bare Spots in Gravel				
Other				

<u>Roof Covering</u> Metal Shingle Tile _____ Asphalt Clay Concrete PUF Circle one	<u>Distress</u> Not Found Minor Major			<u>Comments</u> Location, Observation, Action
Surface Deterioration				
Debris –Vegetation				
Holes/Splits				
Missing				
Fastener Issues				
Damage				
Surface Deterioration				
Holes				
Accessory Issues				
Curling				
Other				
Other				

VI. B30 UNIFORMAT II Minimum Component Reference Table

The following table provides SMS MINIMUM inventory and condition assessment requirements. The table effectively provides a list of WHAT will be inventoried, WHERE within the SMS the component inventory will reside and HOW a component is to be condition assessed. The structure of the list is within UNIFORMAT II to be consistent with BUILDER™ SMS. Currently, all components are Direct condition assessed. Eventually, Distress assessments may be conducted on selective components.

PM Inspection/Testing Directive column gives information on any Air Force applicable publication providing Preventative Maintenance (PM) actions that, once conducted, provides information on a component's condition assessment. Preventive Maintenance Task Lists (PMTLs) or other inspections may be considered a Distress type assessment in the future for some components.

Condition assessment frequency is not to exceed 5 years. Condition assessments conducted as part of a PMTL may be entered into SMS but should not be more often than an annual assessment.

AMP/Sub-AMP reflects the AMP/Sub-AMP to which the component is assigned:

F/S&F: Facility AMP/Facility Structures & Finishes Sub-AMP

B	SHELL				DEFINITION						
Unf L1	Unf L2	Unf L3	WBS L4		This system includes all structural slabs, and decks and supports within basements and above grade. Note that the structural work will include both horizontal items (slabs, decks, etc.) and vertical structural components (columns and interior structural walls). Exterior load bearing walls are not included in this system but in System B2010, Exterior Walls.	In Builder/ Fueller/ Paver/ Railer/ Utility	PM Inspection/ Testing Directive	Insp/ Assess Freq	SMS Type Insp	Assessment Method	AMP/ Sub-AMP
	B30	ROOFING			This System includes all waterproof roof coverings, expansion joints, and all required trim. In addition to roof coverings, the system includes all waterproof membranes and traffic toppings over below grade enclosed areas, balconies, and the like.						
		B3010	ROOF COVERINGS		This System includes all waterproof roof coverings, expansion joints, and all required trim. In addition to roof coverings, the system includes all waterproof membranes and traffic toppings over below grade enclosed areas, balconies, and the like.						
			B301001	STEEP SLOPE ROOF SYSTEMS	Assemblies include roof coverings such as shingle, wood shake, structural standing seam, metal roofing, tile, etc.	B	N/A	5 yr	Direct	Visual	F/S & F
			B301002	LOW SLOPE ROOF SYSTEMS	Assemblies include roof coverings such as built-up, elastomeric, modified bitumen, polyurethane form, single ply membrane, etc.. Also, walkways and work areas (used to gain access to rooftop equipment) will be included here.	B	PMTL B2035 225 1950 01/ 02/03/04/05/ 06/07/08 Roof Coverings includes cleaning/ recoating	A	Direct	Visual or as per PMTL	F/S & F
			B301005	GUTTERS & DOWNSPOUTS	Assemblies include all gutters, downspouts, and associated work including splash blocks.	B	N/A	5 yr	Direct	Visual	F/S & F
			B301006	ROOF OPENINGS AND SUPPORTS	All roof penetrations including roof hatches, sky lights, area glazing, gravity roof ventilators, smoke vents, etc. for Munitions Storage facilities.	B	N/A	5 yr	Direct	Visual	F/S & F
			B301090	OTHER ROOFING	Roofing not described by the assembly categories listed above including earthen berms over flat roofed and barrel roof munition storage facilities.	B	N/A	5 yr	Direct	Visual	F/S & F