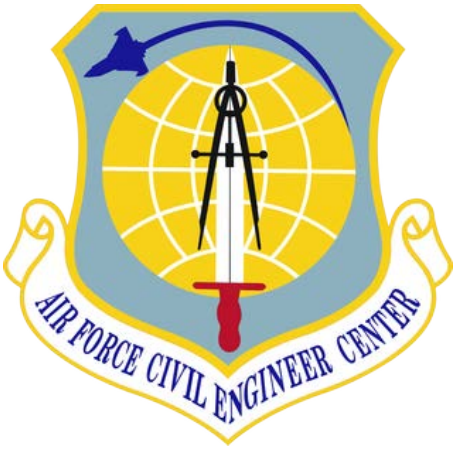


USAF Built Infrastructure Inventory and Assessments Manual

Appendix for Exterior Enclosure Systems (B20)

July 2017

Table of Contents

I. Overview

This manual covers the inventory and assessment process for the building "Exterior Enclosure Systems (B20)" 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. B20 Exterior Enclosure System description

1. UNIFORMAT II definition

- The exterior enclosure system separates the building interior from the exterior environment. It keeps environmental elements such as sunlight, moisture, wind, heat/cold and sound out of the living or work space. The exterior enclosure is supported by the building structural system and may be separate or integrated with the structural system. Exterior Enclosure does not include roofing systems.

2. Major components

- Exterior Wall Assembly (B2010): Besides providing protection from the environment, an exterior wall may also provide bearing support, shear support or fire resistance. Structural elements can operate separate from the exterior façade material or be integrated into the wall assembly. An example of an integrated wall assembly is a load bearing masonry wall.
- Exterior Windows/Glazing (B2020): Allows daylight, air movement, security and exterior vision.
- Exterior Doors (B2030): Allows for the passage of people or vehicles and may also serve many of the same purposes as exterior windows.

3. Lifecycle characteristics

- Exterior walls are classified as long-lived building components. Exterior wall components show slow rates of deterioration initially, but can accelerate with age. This typical pattern is reflected in the BUILDER™ SMS software age-based degradation curves.
- Exterior windows and doors are short lived items and lifecycle deterioration is also reflected in BUILDER™ SMS software age-based degradation curves.

II. Inventory

A. General B20 Inventory Guidance

This section presents common UNIFORMAT II B20 Exterior Enclosure 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 on the AFCEC BUILDER™ SharePoint Site in the Documents Library. Section VI (B20 UNIFORMAT II Minimum Component Reference Table) provides a complete listing of the minimum components inventoried and assessed for B20 for the USAF. Bases may elect to inventory and assess additional components.

NOTE: Bases may elect to inventory and assess other exterior enclosure 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 determine the year installed. BUILDER™ SMS uses the Install Date, life cycle degradation curves and assessment observations to establish a 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.

If this is an initial assessment and no exterior enclosure inventory has previously been entered into BUILDER™ SMS, an inventory is required. Exterior enclosure components inventoried for USAF buildings are usually visible. When exterior enclosure components are not visible, as-built drawings should be used to identify and quantify the components. If as-built drawings are not available, the assessor may use experience to make an assumption for the exterior enclosure 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 the 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 inventory items categorized by major components and accompanied with appropriate material category, component subtype and unit of measure 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.

B20 Exterior Enclosure Inventory Hints

- For composite exterior walls only the exterior layer of the wall is documented. For example, a concrete masonry unit (CMU) wall with EFIS or metal siding on the exterior is inventoried as an EFIS or metal sided wall.
- Exterior windows are counted as units (1 EA) and should be counted in the manner windows would be purchased or replaced. If the unit is a (4) lite window and all would be removed and replaced as 1 unit, count as a unit of 1 EA.
- Single doors are counted as (1) EA and double doors are counted as (2) EA.
- Exterior walls of a multi-story building with same construction history are inventoried/assessed as one Component Section.
- Exterior windows and doors with same construction history are sectioned by floor.
- All painted or coated components (walls, windows, doors) will be captured as "Painted."
- Inventory Comments should be recorded to clarify component description if Section Name is insufficient.

B. Inventory B2010 Exterior Walls

Exterior walls component section inventory for the USAF includes all materials associated with the following construction: exterior load-bearing walls, exterior louvers and screens, and balcony walls and handrails.

1. Material Category: B201001 Exterior Closure
Component Subtype: CIP Concrete
Quantity: SF Year Built/Renewed: RPAD
Painted/Coated: Yes
Year Painted/Coated: Normally Estimated
Paint/Coating Type: Best Guess
Inventory Notes: N/A

2. Material Category: B201001 Exterior Closure
Component Subtype: Precast Concrete Panel (Ribbed)
Quantity: SF Year Built/Renewed: RPAD
Painted/Coated: No
Inventory Notes: N/A

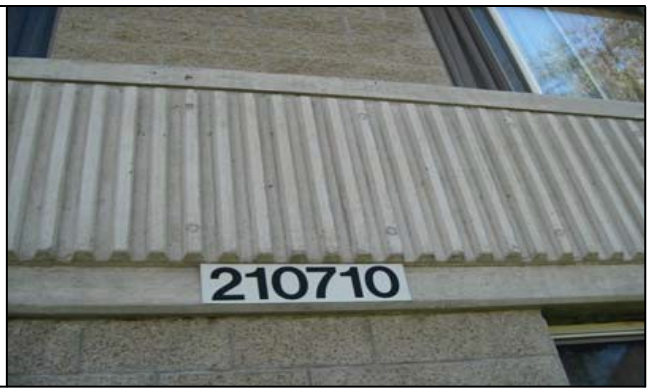
3. Material Category: B201001 Exterior Closure

Component Subtype: Precast Concrete Panel (Ribbed)

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: No

Inventory Notes: N/A



4. Material Category: B201001 Exterior Closure

Component Subtype: CIP Concrete

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: Yes

Year Painted/Coated: Normally Estimated

Paint/Coating Type: Best Guess

Inventory Notes: N/A

5. Material Category: B201001 Exterior Closure

Component Subtype: Other

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: No

Inventory Notes:

- Concrete Brick

6. Material Category: B201001 Exterior Closure

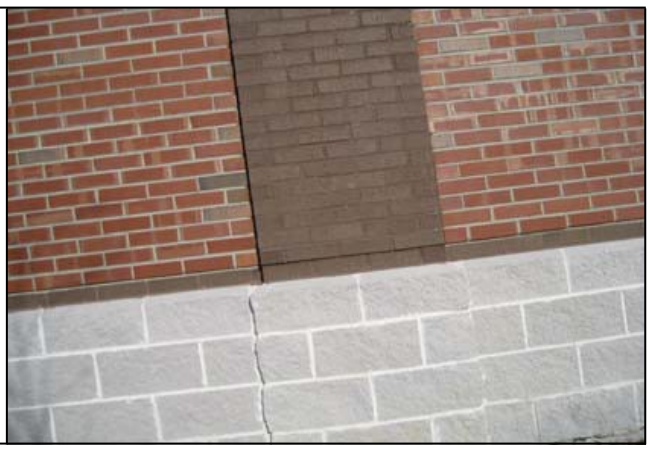
Component Subtype: Masonry Composite

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: No

Inventory Notes:

- Types of backup systems can usually be confirmed in rooms without finishes or ceilings, like mechanical or electrical rooms
- Face Brick w/Clay Brick backup



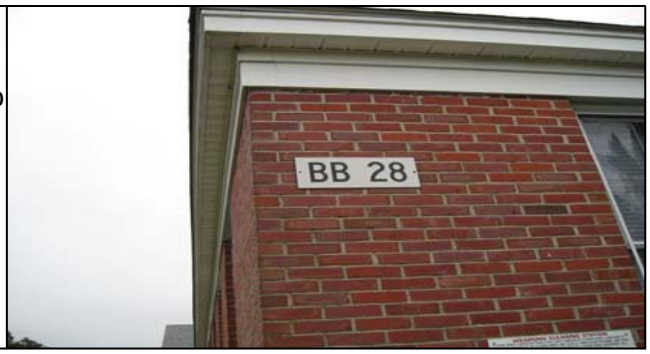
7. Material Category: B201001 Exterior Closure

Component Subtype: Brick Veneer w/CMU Backup

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: No

Inventory Notes: N/A



8. Material Category: B201001 Exterior Closure

Component Subtype: CIP Concrete

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: No

Inventory Notes:

- Munitions Storage Concrete Wall

9. Material Category: B201001 Exterior Closure

Component Subtype: Concrete Block

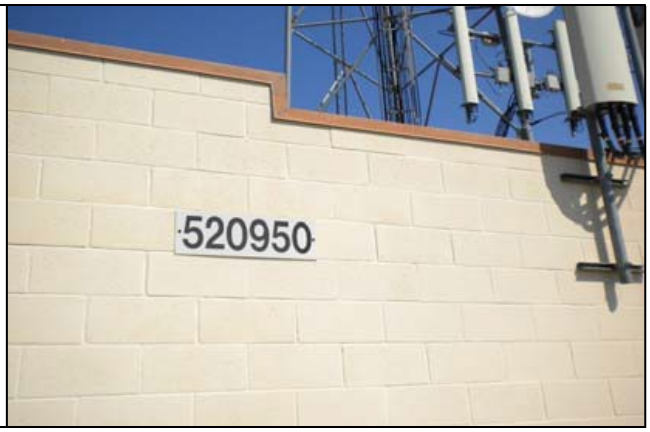
Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: Yes

Year Painted/Coated: Normally Estimated

Paint/Coating Type: Best Guess

Inventory Notes: N/A



10. Material Category: B201001 Exterior Closure

Component Subtype: Concrete Block

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: No

Inventory Notes:

- Often referred to as "split face block". Common on newer buildings since 1990's.

11. Material Category: B201001 Exterior Closure

Component Subtype: Glass Block

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: No

Inventory Notes: N/A

12. Material Category: B202003 Curtain Walls

Component Subtype: General

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: No

Inventory Notes: Section Name required

13. Material Category: B201001 Exterior Closure

Component Subtype: Other

Quantity: SF Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: No

Inventory Notes:

- Glass Wall Panels
- Section Name required

14. Material Category: B201001 Exterior Closure

Component Subtype: E.I.F.S.

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: Yes/No

Year Painted/Coated: Estimated

Paint/Coating Type: Best Guess

Inventory Notes: N/A

15. Material Category: B201001 Exterior Closure

Component Subtype: Stucco

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: Yes

Year Painted/Coated: Estimated

Paint/Coating Type: Best Guess

Inventory Notes:

- Stucco w/CMU Backup

16. Material Category: B201001 Exterior Closure

Component Subtype: Stucco

Quantity: SF Year Built/Renewed: RPAD

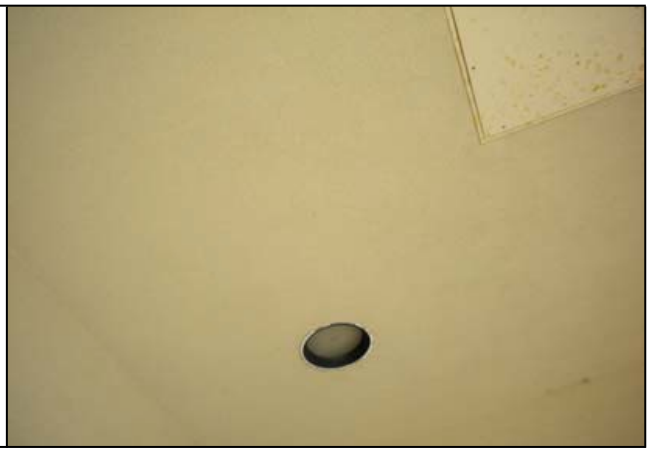
Painted/Coated: Yes/No

Year Painted/Coated: Estimated

Paint/Coating Type: Best Guess

Inventory Notes:

- Stucco Soffit



17. Material Category: B201001 Exterior Closure

Component Subtype: Metal Panels

Quantity: SF Year Built/Renewed: RPAD

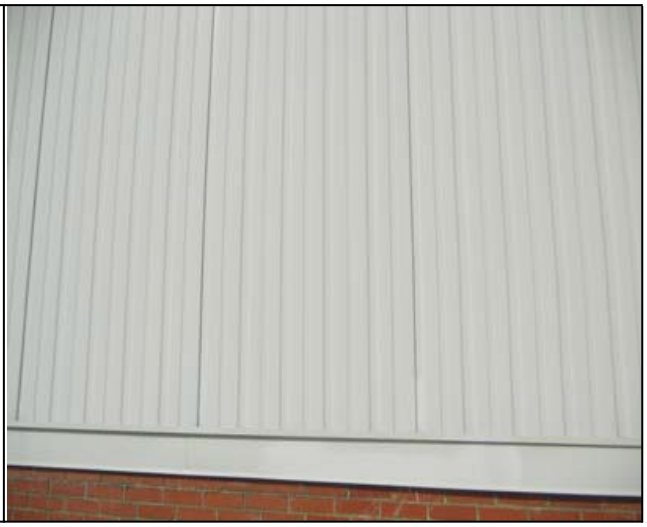
Painted/Coated: Yes/No

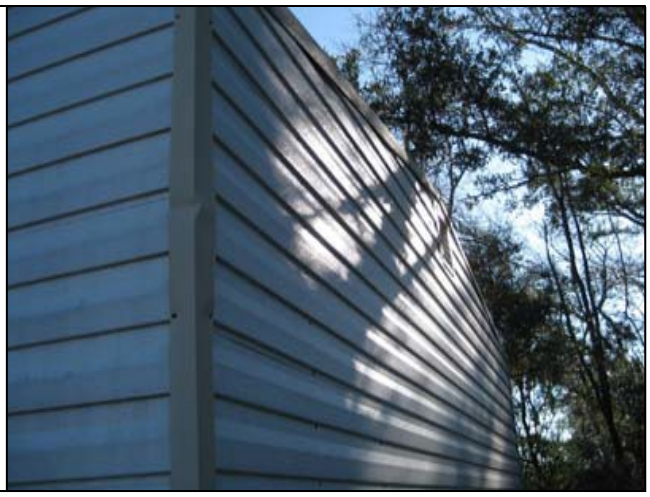
Year Painted/Coated: Estimated

Paint/Coating Type: Best Guess

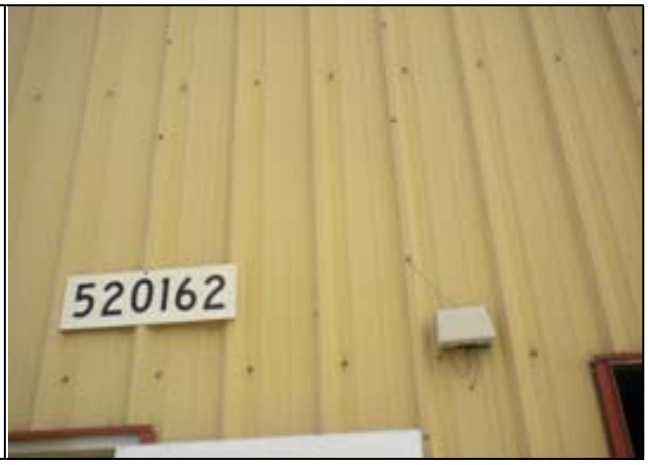
Inventory Notes:

- Metal Insulated Panels
- My be referred to as "Structural Integrated Panels (SIP's)"



18. Material Category: B201001 Exterior Closure Component Subtype: Metal Siding Quantity: SF Year Built/Renewed: RPAD Painted/Coated: Yes/No Year Painted/Coated: Estimated Paint/Coating Type: Best Guess Inventory Notes: • Metal Lap Siding	

19. Material Category: B201001 Exterior Closure Component Subtype: Metal Panels Quantity: SF Year Built/Renewed: RPAD NOT Energy Efficient: Yes/No Painted/Coated: Yes/No Year Painted/Coated: Estimated Paint/Coating Type: Best Guess Inventory Notes: N/A	

20. Material Category: B201001 Exterior Closure Component Subtype: Metal Panels Quantity: SF Year Built/Renewed: RPAD NOT Energy Efficient: Yes/No Painted/Coated: Yes/No Year Painted/Coated: Estimated Paint/Coating Type: Best Guess Inventory Notes: N/A	

21. Material Category: B201001 Exterior Closure

Component Subtype: Wood Cladding w/Stud Backup

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: Yes

Year Painted/Coated: Estimated

Paint/Coating Type: Best Guess

Inventory Notes:

- Cedar Bevel Siding w/ Wood Studs, Insulated

22. Material Category: B201001 Exterior Closure

Component Subtype: Wood

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: Yes

Year Painted/Coated: Estimated

Paint/Coating Type: Best Guess

Inventory Notes:

- Lap Siding

23. Material Category: B201001 Exterior Closure

Component Subtype: Wood

Quantity: SF Year Built/Renewed: RPAD

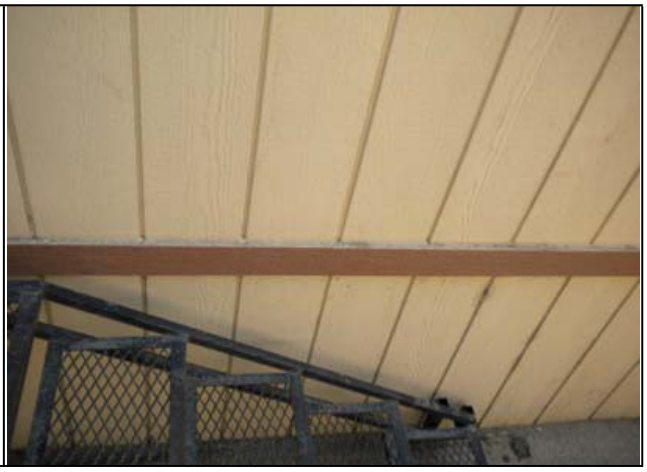
Painted/Coated: Yes

Year Painted/Coated: Estimated

Paint/Coating Type: Best Guess

Inventory Notes:

- Wood Paneling



24. Material Category: B201001 Exterior Closure

Component Subtype: Wood

Quantity: SF Year Built/Renewed: RPAD

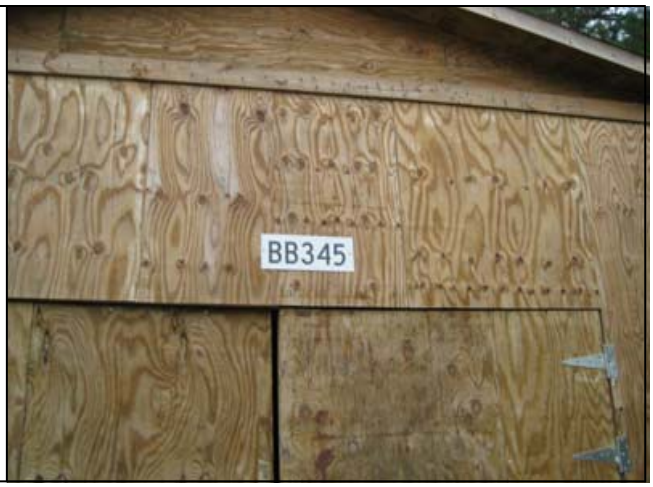
Painted/Coated: Yes

Year Painted/Coated: Estimated

Paint/Coating Type: Best Guess

Inventory Notes:

- Plywood



25. Material Category: B201001 Exterior Closure

Component Subtype: Wood

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: Yes

Year Painted/Coated: Estimated

Paint/Coating Type: Best Guess

Inventory Notes:

- Wood Shakes

26. Material Category: B201001 Exterior Closure

Component Subtype: Masonite

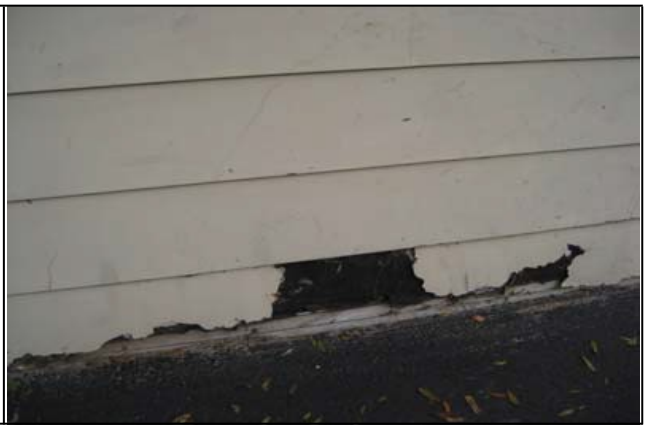
Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: Yes/No

Year Painted/Coated: Estimated

Paint/Coating Type: Best Guess

Inventory Notes: N/A



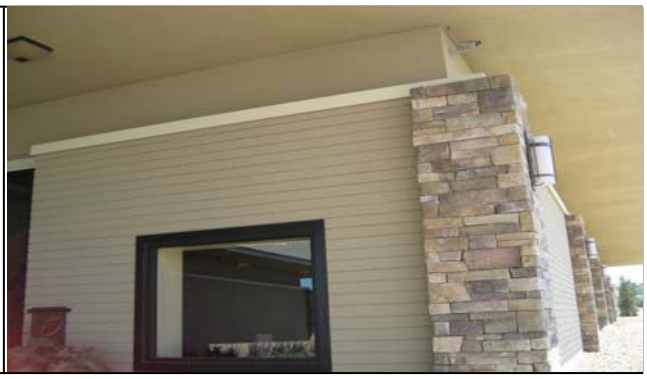
27. Material Category: B201001 Exterior Closure

Component Subtype: Stone Veneer w/ CMU Backup

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: No

Inventory Notes: N/A



28. Material Category: B201090 Other Exterior Walls

Component Subtype: CIP Reinforced Concrete

Quantity: SF Year Built/Renewed: RPAD

Painted/Coated: No

Inventory Notes:

- Blast wall for Magazine

C. Inventory B2020 Exterior Window Component Sections

Exterior windows Component Section inventory for the USAF includes all materials associated with the following construction includes all windows located in exterior walls or exterior skin.

1. Material Category: B202001 Windows

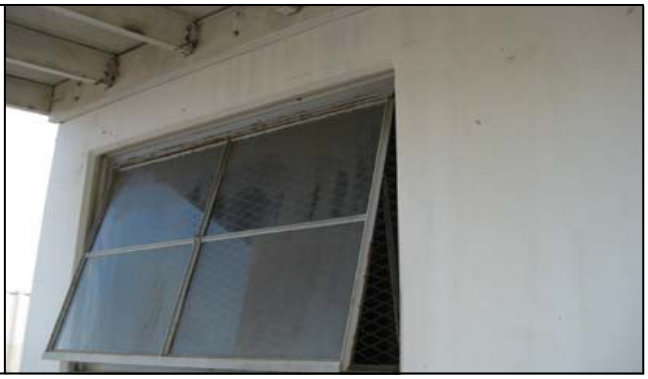
Component Subtype: Steel Windows

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Awning window
- Vinyl & wood awning windows similar



2. Material Category: B202001 Windows

Component Subtype: Aluminum Windows

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Vinyl & wood casement window similar
- Casement window

3. Material Category: B202001 Windows

Component Subtype: Aluminum Windows

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Inventory Notes:

- Double hung windows
- Vinyl & wood double hung similar
- This picture shows 2 windows

4. Material Category: B202001 Windows

Component Subtype: Steel

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Fixed window
- Aluminum, vinyl & wood fixed window similar

5. Material: B202001 Windows

Component Subtype: Steel

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Hopper window
- Aluminum, vinyl & wood hopper window similar
- This picture shows 2 windows

6. Material Category: B202001 Windows

Component Subtype: Steel

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Security window
- Aluminum, vinyl & wood security windows similar
- The glass has a wire grid imbedded

7. Material Category: B202001 Windows

Component Subtype: Steel

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Single hung window
- Aluminum, vinyl & wood single hung similar
- The bottom screen indicates the window is single hung

8. Material Category: B202001 Windows

Component Subtype: Steel

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Sliding window
- Aluminum, vinyl & wood sliding window similar

D. Inventory B2030 Exterior Door Component Sections

Exterior door Component Sections inventory for the USAF includes all materials associated with the following construction includes all doors located in exterior walls or exterior skin.

1. Material Category: B203002 Glazed Doors

Component Subtype: General

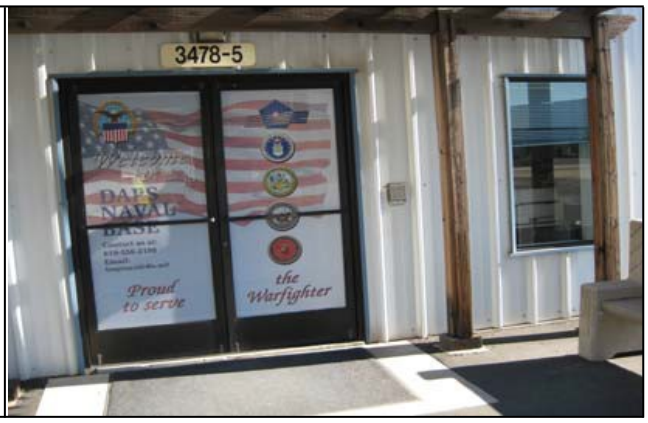
Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Double doors are counted as 2 EA
- Section Name required



2. Material Category: B203002 Glazed Doors

Component Subtype: General

Quantity: EA Year Built/Renewed: Estimated

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Sliding door
- Section Name required

3. Material Category: B203002 Glazed Doors

Component Subtype: Transom

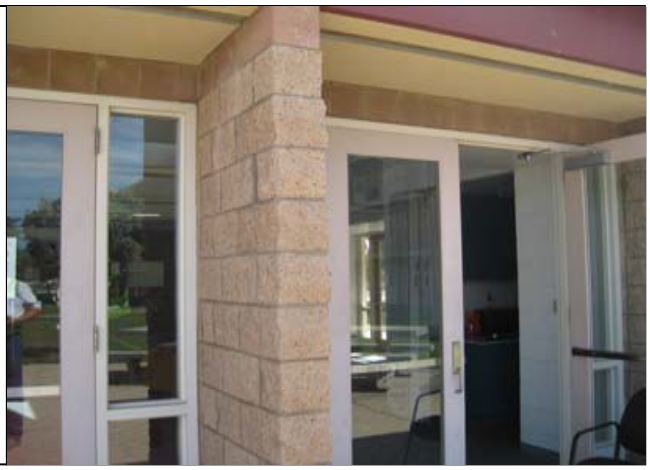
Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Door transoms
- Transoms can be over doors or beside doors and counted as 1 EA



4. Material Category: B203001 Solid Doors

Component Subtype: Wood

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

5. Material Category: B203001 Solid Doors

Component Subtype: Steel

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Metal louver doors most commonly found on Mechanical rooms
- Section Name: Mech RM Louver Doors
- Double doors are counted as 2 EA

6. Material Category: B203004 Overhead and Roll-Up Doors

Component Subtype: Steel Rolling, Manual, 10'x10'

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Put size in Section Name due to limited Component Type choices

7. Material Category: B203001 Solid Doors

Component Subtype: Steel

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

8. Material Category: B203005 Hangar Doors

Component Subtype: Steel Sliding

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

9. Material Category: B203007 Gates

Component Subtype: General

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes

Inventory Notes:

- Double gates are counted as 2 EA
- Section Name: Steel Security Gates
- Section Name required

10. Material Category: B203090 Other Exterior Specialty Doors

Component Subtype: General

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Section Name: Steel Sliding
- Note imbedded personnel door in details
- Section Name required

11. Material Category: B203001 Solid Doors

Component Subtype: Steel

Quantity: EA Year Built/Renewed: RPAD

NOT Energy Efficient: Yes/No

Painted/Coated: Yes/No

Inventory Notes:

- Transom is not inventoried but should be noted in details

12. Material Category: B203006 Blast Resistant Doors Component Subtype: General Quantity: SF Year Built/Renewed: RPAD NOT Energy Efficient: Yes/No Painted/Coated: Yes/No Inventory Notes: Section Name required	

III. Assessment

A. General B20 Assessment Guidance

Exterior enclosure component sections are assessed using Direct Condition Rating (DCR). Usually exterior enclosure components will be visible and accessible. 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 exterior enclosure component sections are visible and accessible, they must be assessed.

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™ calculated the Condition Index (CI).

The following conditions or events can accelerate exterior enclosure systems deterioration and should be considered by the assessor:

- Neglected maintenance including improper drainage
- Moisture infiltration
- Improper construction or installation
- Environmental factors damage such as soils settlement
- Cracking

If observed, the assessor must consider the severity and density of these conditions to determine the DCR provided by the following DCR chart. 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.

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 DCR Definitions - Coatings chart below will assist you when rating non-manufacturer applied coatings. This chart will be used to rate non-manufacturer applied coatings for:

- Painted or coated exterior wall, window & door materials

The assessor should match actual observations of the coating to those listed below and apply the corresponding "Rating."

Direct Condition Rating (DCR) Definitions - Coatings	
Rating	**Observation**
Green (+)	Perfect condition. No visible deterioration.
Green	Little visible deterioration.
Green (-)	Some visible deterioration.
Amber (+)	Minor visible deterioration.
Amber	Moderate visible deterioration.

Amber (-)	Major visible deterioration.
Red (+)	Significant visible deterioration.
Red	Severe visible deterioration.
Red (-)	Complete deterioration.

B. Assessment B2010 Exterior Walls

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

B2010 Assessment Hint Questions

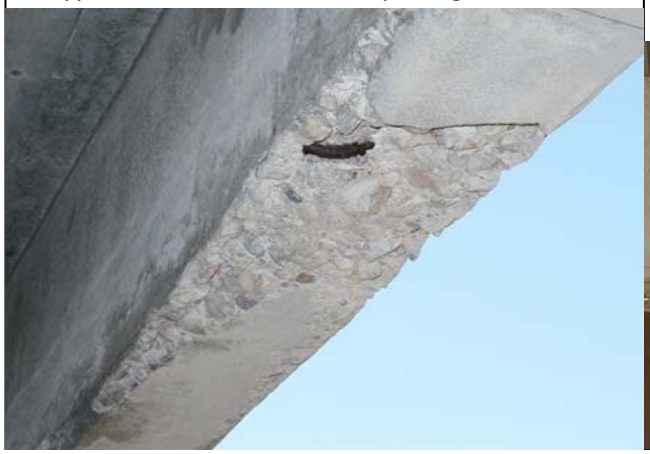
- What distresses or problems are observed?
- What is the quantity and severity of the distresses?
- Is the exterior wall damaged?
- Will repairs preserve or extend the remaining service life of the wall?

Based on above:

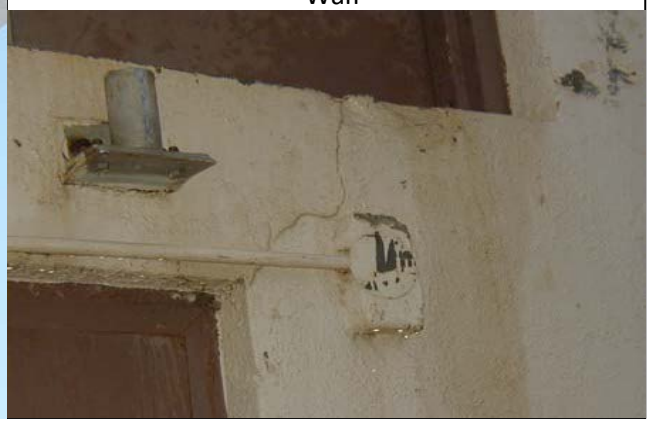
- Select a DCR from the chart.
- If assessment rating is Amber + or below, enter an Inspection Comment to describe the reason. Photographs must be taken and attached to the assessment. An Inspection Comment should also be entered regardless of rating if a significant localized issue needs to be highlighted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

Examples of typical exterior wall distresses include:

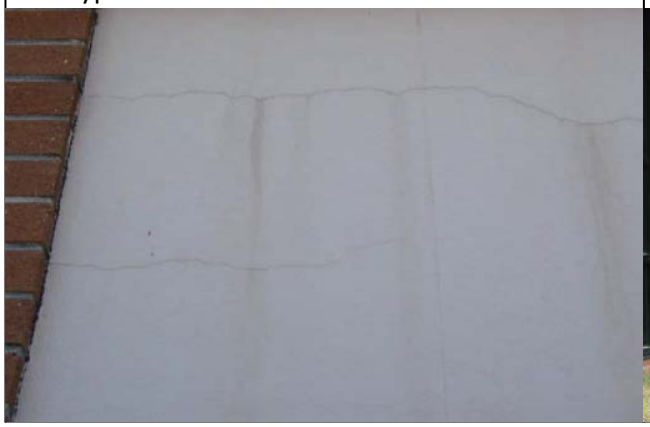
1. Typical Distress: Concrete Spalling on Wall Beam



2. Typical Distress: Cracked Cast-in-Place Concrete Wall

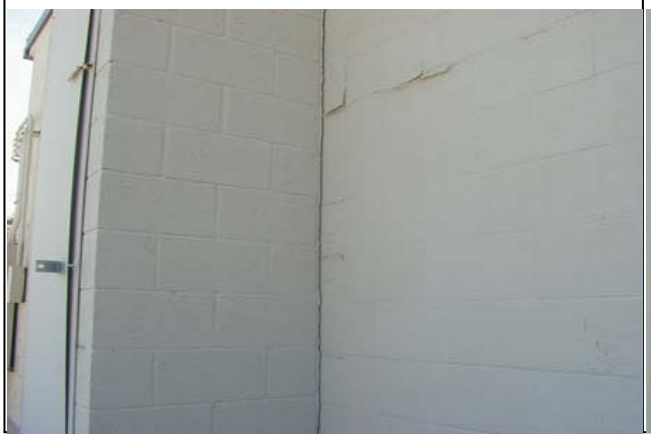


3. Typical Distress: Cracked Exterior Stucco



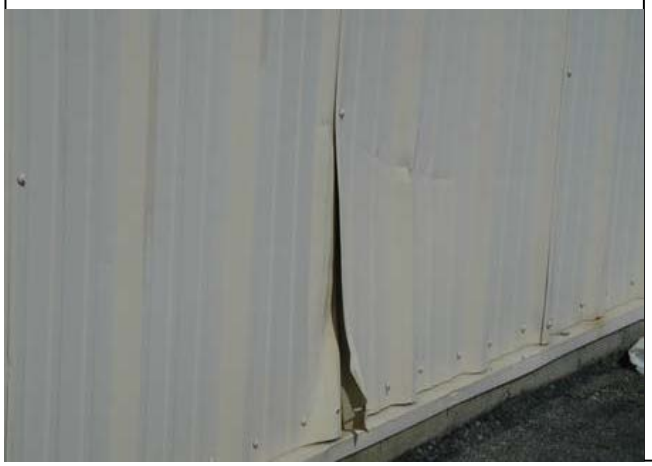
4. Typical Distress: Efflorescence on Brick Columns

5. Typical Distress: Separation of Wall & Pilaster

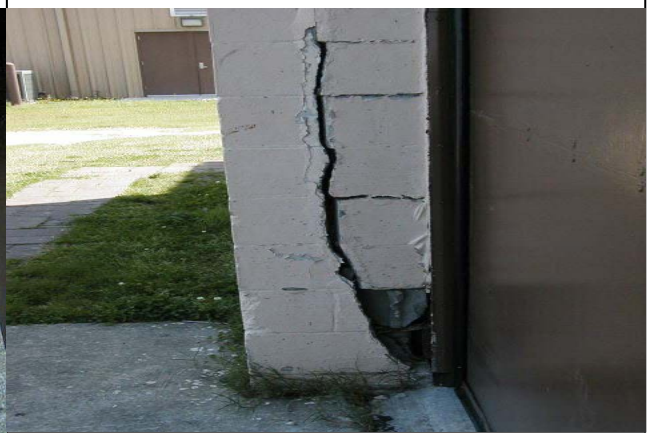


6. Typical Distress: Horizontal Crack in Column

7. Typical Distress: Metal Siding impact damage



8. Typical Distress: Termite Damage

9. Typical Distress: Severe Stucco Deterioration	10. Typical Distress: Structural Crack in Wall
	

C. Assessment B2020 Exterior Windows

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

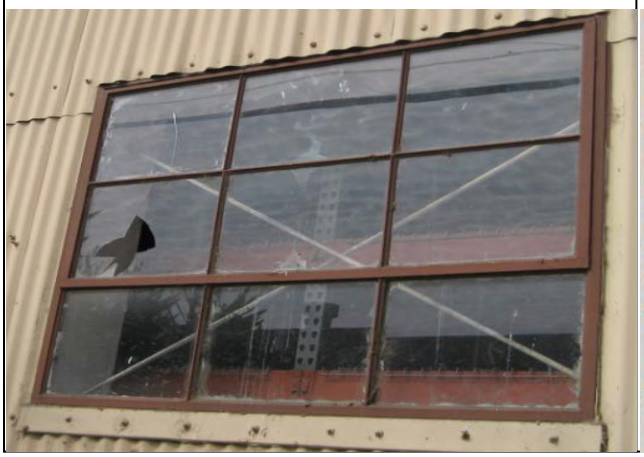
B2020 Assessment Hint Questions

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

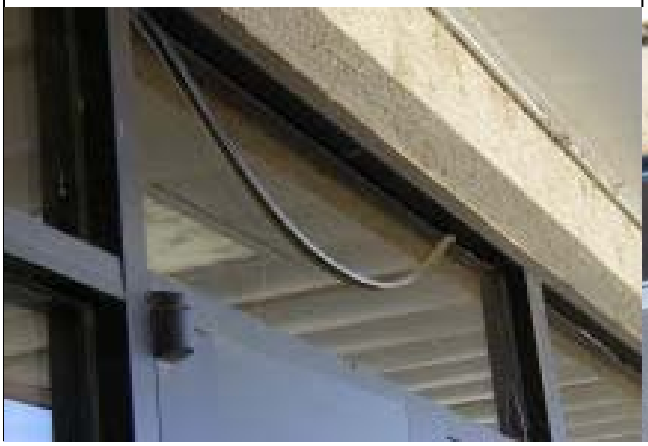
Based on above:

- Select a DCR from the chart.
- If assessment rating is Amber+ or below, enter an Inspection Comment to describe the reason. Photograph the distress and attach to the assessment.
- An Inspection Comment should also be entered regardless of DCR if a significant localized issue needs to be highlighted not necessarily impacting the overall component section DCR.

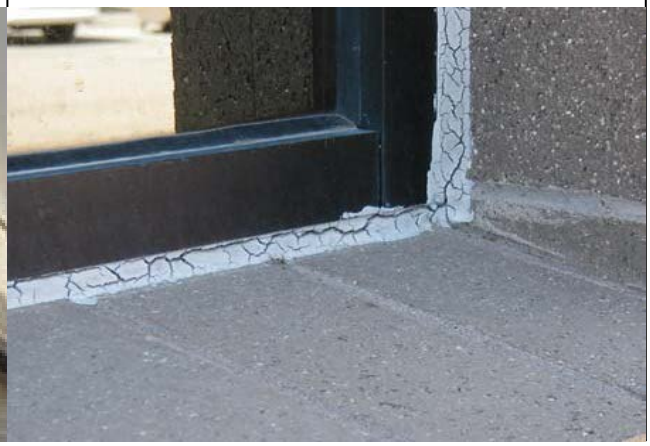
Examples of typical exterior windows distresses include:

1. Typical Distress: Broken	2. Typical Distress: Corroded
	

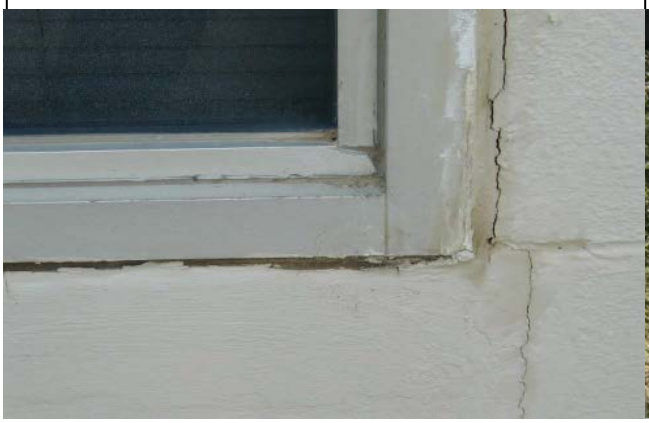
3. Typical Distress: Displaced Window Gasket



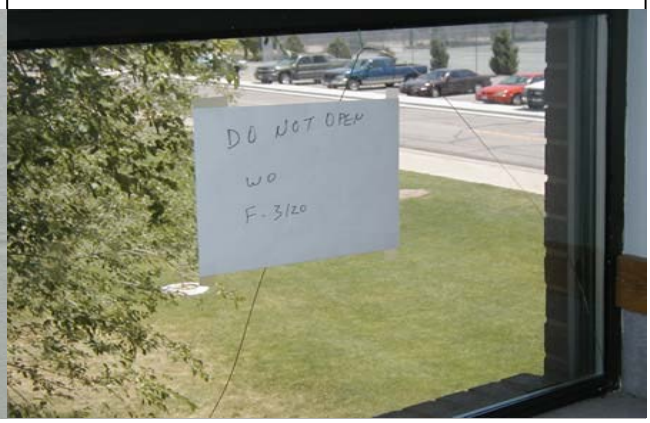
4. Typical Distress: Cracked Sealant around Window



5. Typical Distress: Deteriorated Window Caulking



6. Typical Distress: Broken



D. Assessment B2030 Exterior Doors Component Sections

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

B2030 Assessment Hint Questions

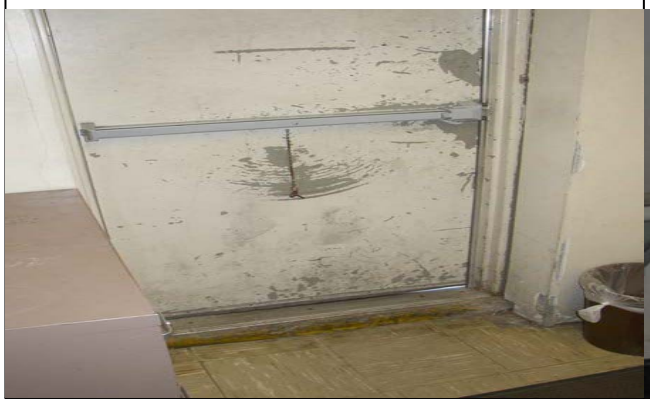
- What distresses or problems are observed?
- What is the quantity and severity of the distresses?
- Is the exterior door damaged?
- Will repairs preserve or extend the remaining service life of the door?

Based on above:

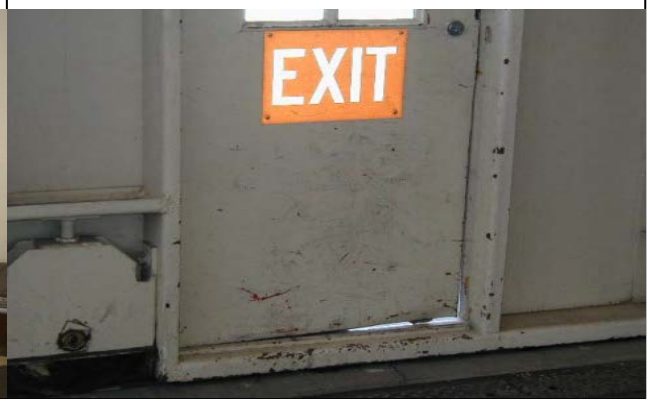
- Select a DCR from the chart.
- If assessment rating is Amber+ or below, enter an Inspection Comment to describe the reason. Photograph the distress and attach to the assessment.
- An Inspection Comment should also be entered regardless of DCR if a significant localized issue needs to be highlighted not necessarily impacting the overall Component Section DCR.
- Capture paint or coating on all applicable Component Sections.

Examples of typical exterior door distresses include:

1. Typical Distress: Ext Door with Paint Deterioration

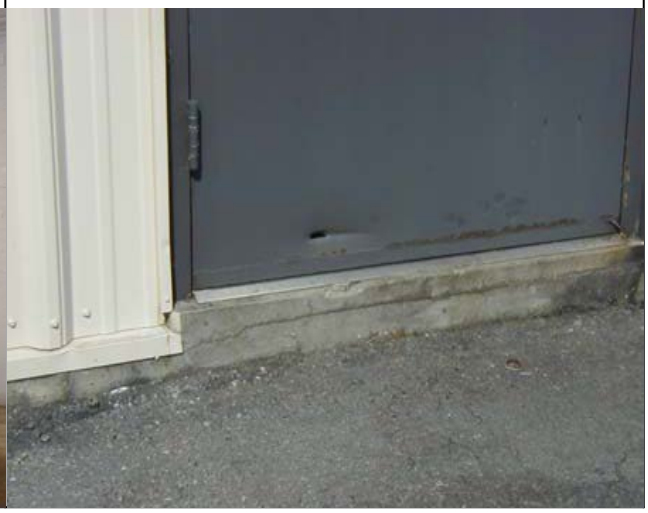


2. Typical Distress: Ext Door w/o Weather Stripping

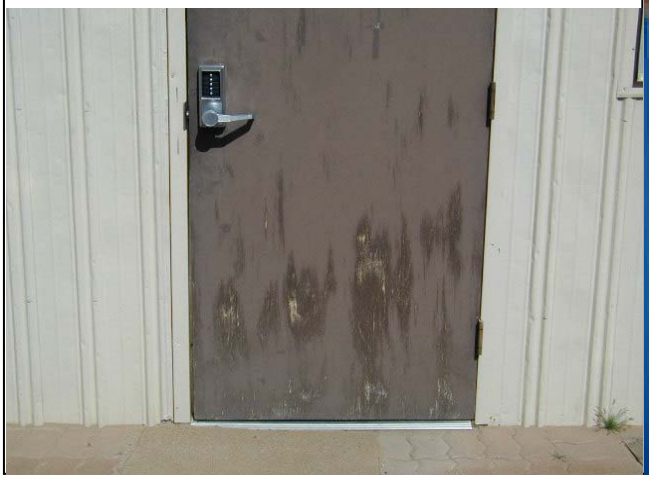


3. Typical Distress: Door Warped – Will not Shut

4. Typical Distress: Hole in Exterior Door



5. Typical Distress: Interior Door used for Exterior Application



6. Typical Distress: Misaligned Exterior Doors

7. Typical Distress: Broken Hardware, Corrosion

IV. Inventory and Assessment Rules of Thumb

A. Assessor Qualifications

- The architectural/structural assessor should have a combination of 8+ years of general building construction, facilities maintenance and planning/estimating experience related to building foundations, structure, enclosure and interior construction or be equivalent to a Journeyman, V Level Technician, Architect or Civil Engineer. The assessor should have a working knowledge of the ASTM E 1557 Standard Classification for Building Elements UNIFORMAT II and a basic understanding of other building systems such as HVAC, Plumbing, Fire Protection and Electrical. The assessor should be able to identify common building materials, techniques and structural/architectural system types/elements, be proficient at reading drawings and engineering reports and have experience identifying common problems related to architectural/structural systems. The lead architectural/structural assessor may be supported by less experienced staff during the inventory and assessment.

B. Year Installed

- Exterior enclosure components integral to a facility are typically the same age as building.
- Some exterior enclosure components 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 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 exterior enclosure sections with a different age.
- If the component section appears to have been installed when the building was constructed, check available as-built drawings to determine the original construction date.
- If construction drawings or as-builts are available, look for date published to assist with determining age of materials.

C. Inventory/Assessment

- Typical section names used for B20 include: 1FL, 2FL, WING "X", STAIR "X" etc.).
- Only assess exterior skin component. For example: If the exterior wall is EIFS, the EIFS is captured on the exterior wall and not the backup system.
- Window screen condition or missing screen does not factor into window rating.

V. Inventory / Assessment Data Collection Sheet

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 floor plans or a notebook. Use whatever collection method works best for the individual assessor.

(See Next 2 Pages)

Architectural Inventory Sheet

Building										Date:	
Assessor:	1FL	2FL	3FL	4FL	contact					Length x width	Date Built or Renewed
Superstructure											
Exterior Ramp/Loading dock											
Foundation					SOG	STRIP	SPREAD	Pier (LF)			
Roof Construction					Metal	Wood	Other				
Stairs Metal					1/2 sets		Full sets				
Stairs Wood					1/2 sets		Full sets				
Stairs Concrete					1/2 sets		Full sets				
Exterior Walls											
Exterior Walls 2											
Exterior Ladder (LF)											
Exterior Windows											
Exterior Windows 2											
Exterior doors					Metal		Glass		Wood		
Exterior Other doors											
Interior Construction											
Partitions											
Partitions 2											
Partitions 3											
Interior Doors wood					Metal		Glass		Wood		
Interior Doors Other											
Interior Ladder (LF)											
Interior Stairs Metal					1/2 sets		Full sets				
Interior Stairs Wood					1/2 sets		Full sets				
Interior Stairs Concrete					1/2 sets		Full sets				
Interior Finishes											
Wall Finishes											
Drywall											
Ceramic tile											
Acoustical											
Plaster											
Other											
Floor Finishes											
Carpet											
Ceramic tile											
Epoxy											
Linoleum											
Wood											
Rubber											
VCT											
Other											
Ceiling Finishes											
Acoustical Suspended											
Acoustical Attached											
Drywall											

Architectural Inventory Sheet

Building										Date:	
	1FL	2FL	3FL	4FL	contact					Direct Rating	
Superstructure											
Exterior Ramp/Loading dock											
Foundation					SOG	STRIP	SPREAD	Pier (LF)		Age Base	Age Base
Roof Construction					Metal	Wood	Other			Age Base	Age Base
Stairs Metal					1/2 sets		Full sets				
Stairs Wood					1/2 sets		Full sets				
Stairs Concrete					1/2 sets		Full sets				
Exterior Walls											
Exterior Walls 2											
Exterior Ladder (LF)											
Exterior Windows											
Exterior Windows 2											
Exterior doors					Metal		Glass		Wood		
Exterior Other doors											
Interior Construction											
Partitions											
Partitions 2											
Partitions 3											
Interior Doors wood					Metal		Glass		Wood		
Interior Doors Other											
Interior Ladder (LF)											
Interior Stairs Metal					1/2 sets		Full sets				
Interior Stairs Wood					1/2 sets		Full sets				
Interior Stairs Concrete					1/2 sets		Full sets				
Interior Finishes											
Ceiling Finishes											
Acoustical Suspended											
Acoustical Attached											
Drywall											
Plaster											
Popcorn											
Concrete											
Other											
Floor Finishes											
Carpet											
Ceramic tile											
Epoxy											
Linoleum											
Wood											
Rubber											
VCT											
Other											
Wall finishes											
Drywall											
Ceramic tile											
Acoustical											
Plaster											
Other											

VI. B20 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. Usually, components are assessed with Direct Condition Ratings. As appropriate, Distress Survey 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 Survey 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 reflects the AMP to which the component is assigned:

F: Facility AMP

(See Next Page)

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/ Fueler/ Paver/ Railer/ Utility	PM Inspection/ Testing Directive	Insp/ Assess Freq	SMS Type Insp	Assessment Method	AMP/ Sub-AMP
	B20	EXTERIOR ENCLOSURE			This system consists of the exterior facing of the facility, which includes all vertical and horizontal exterior closure such as exterior walls, exterior windows, and exterior doors. This system excludes roofing (See System B30, Roof). Load bearing exterior walls will be included here, and not in System B10, Superstructure. Structural frame elements at exterior such as columns, beams, spandrels, etc., would be included in Superstructure with only the applied exterior finishes (i.e., paint, stucco, etc.) being included here. Finishes to the inside face of walls which are not an integral part of the wall construction will be included in System C30, Interior Finishes.						
		B2010	EXTERIOR WALLS		All materials associated with the following construction: exterior load-bearing walls, parapets, exterior louvers and screens, balcony walls and handrails, exterior soffits, and exterior coatings.						
			B201001	EXTERIOR CLOSURE	Assemblies would include material contained in exterior closure wall, such as masonry with brick veneer. Materials used for interior finishes on exterior walls are not included in this assembly. For example, if the interior side of this masonry wall is sheetrock applied on metal furring strips, the masonry wall is included in this assembly, but the furring strips and sheetrock are categorized as C3010 WALL FINISHES. Includes reinforced concrete walls for Munitions Storage	B	N/A	5 yr	Direct	Visual	F/S & F
			B201005	EXTERIOR LOUVERS & SCREENS	Assemblies include louvers and screens which are located in exterior walls. The unit of measure at the assembly level is each.	B	N/A	5 yr	Direct	Visual	F/S & F
			B201006	BALCONY WALLS & HANDRAILS	Assemblies would include materials associated with balcony walls and handrails. These rails are usually guardrails and not associated with stairs. (Handrails and ladders)	B	N/A	5 yr	Direct	Visual	F/S & F
			B201090	OTHER EXTERIOR WALLS	Exterior walls not described by the assembly categories listed above. Includes concrete blast walls and earthen berms associated with Munitions Storage facility walls.	B	N/A	5 yr	Direct	Visual	F/S & F
		B2020	EXTERIOR WINDOWS		All windows located in exterior walls or exterior skin.						
			B202001	WINDOWS	Fixed or operable windows located in exterior walls or exterior skin. Assemblies would include frames, glazing, caulking, finishes and other associated work.	B	N/A	5 yr	Direct	Visual	F/S & F
			B202002	STOREFRONTS	Fixed storefronts including associated doors in exterior walls or exterior skin. Assemblies would include integral storefront doors, frames, glazing, caulking, finishes, and other associated work.	B	N/A	5 yr	Direct	Visual	F/S & F
			B202003	CURTAIN WALLS	This applies to glass curtain walls and spandrel glass in exterior walls or exterior skin. Assemblies would include integral curtainwall doors, frames, glazing, caulking, finishes, and other associated work.	B	N/A	5 yr	Direct	Visual	F/S & F
		B2030	EXTERIOR DOORS		All doors located in exterior walls or exterior skin.						
			B203001	SOLID DOORS	Assemblies include all exterior solid doors, hollow metal or wood with frames. Solid doors may include glazing lites in doors. Door hardware is located in B203008 EXTERIOR DOOR HARDWARE.	B	N/A	5 yr	Direct	Visual	F/S & F
			B203002	GLAZED DOORS	Assemblies include all full glazed exterior doors with glass, frames not included in storefront and curtainwalls. These doors can be made of storefront materials but are not part of a curtainwall or storefront. Door hardware is located in B203008 EXTERIOR DOOR HARDWARE.	B	N/A	5 yr	Direct	Visual	F/S & F
			B203003	REVOLVING DOORS	Assemblies include all revolving doors at exterior of the facility - electrical or manual.	B	N/A	5 yr	Direct	Visual	F/S & F
			B203004	OVERHEAD AND ROLL-UP DOORS	Overhead and roll-up doors installed in exterior walls or exterior skin. Assemblies include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each door. (Electrical or manual)	B	N/A	5 yr	Direct	Visual	F/S & F
			B203005	HANGAR DOORS	Large aircraft doors used on medium and high bay hangars. Assemblies would include frames, hardware, hoisting devices, and finish and other associated work.	B	N/A	5 yr	Direct	Visual	F/S & F
			B203006	BLAST RESISTANT DOORS	Special exterior doors used for blast resistance. Assemblies would include frames, hardware, hoisting devices, and finish and other associated work. Igloo/Blast, Hinged/Sliding	B	PMTL B2035 450 1950 01 Exterior Doors, Igloo/Blast, Hinged/ Sliding	A	Direct	Visual or as per PMTL	F/S & F