



Welcome to the



FEBRUARY 12-14, 2020 | San Antonio Texas

Assessor Boot Camp

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Agenda



Intros
BUILDER Basics
Inventory
Inspections



Direct Rating Calibration
System-by-system Breakdown
QA Reviews



Army Corps of Engineers - CERL

Decades of building information

Patterns

Development of high technology

Asset Management System

What do I have in my building?

What condition is it in?

How long will it last?

Should I repair or replace it?

Bottom Line: Long-term planning tool, not for short-term repairs



BUILDER – An Engineered Approach

Full inventory database - not just those with deterioration

Condition assessments based on objective measurements

Clock is always running, so data does not go stale

Decisions are made based on “real time” info

Consistency is key

Organizational Tree





UNIFORMAT II

ASTM standard for classifying building elements

A SUBSTRUCTURE

B SHELL

C INTERIORS

D SERVICES

E EQUIPMENT AND FURNISHINGS

F SPECIAL CONSTRUCTION AND DEMOLITION

G BUILDING SITEWORK



UNIFORMAT II - Hierarchy

C INTERIORS

C10 INTERIOR CONSTRUCTION

C20 STAIRS

C30 INTERIOR FINISHES

C3010 WALL FINISHES

C3020 FLOOR FINISHES

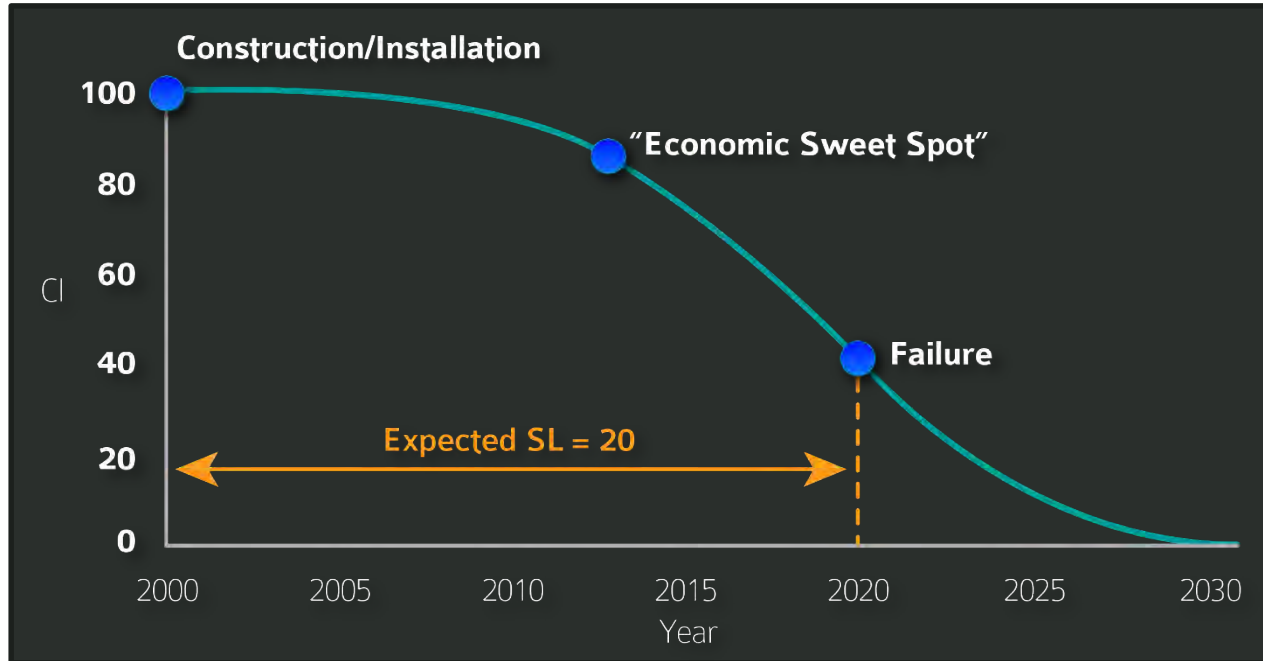
C302001 TILE FLOOR FINISHES

Ceramic Tile

Marble Tile

Porcelain Tile

Lifecycle Curve



Section Requirements

Section Name

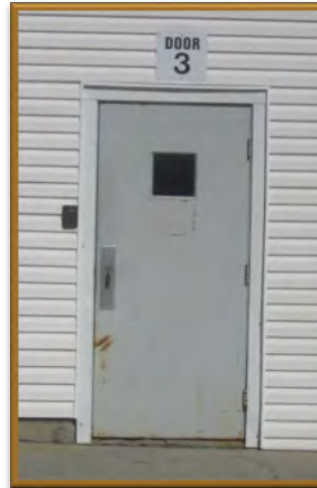
Material Category

Subtype

Quantity

Year Built/Installed

Material/Equipment Category (4)	Sub-Component Type (5)	UoM	Cost	DL
B203001 SOLID DOORS	Aluminum	EA	5,382	20
B203001 SOLID DOORS	General	EA	3,977	20
B203001 SOLID DOORS	Other	EA	3,977	20
B203001 SOLID DOORS	Steel	EA	4,186	20
B203001 SOLID DOORS	Unknown	EA	3,977	20
B203001 SOLID DOORS	Wood	EA	3,283	20
B203002 GLAZED DOORS	General	EA	3,588	40
B203002 GLAZED DOORS	Other	EA	3,588	40
B203002 GLAZED DOORS	Unknown	EA	3,588	40
B203003 REVOLVING DOORS	Electric	EA	30,740	20
B203003 REVOLVING DOORS	General	EA	30,740	20
B203003 REVOLVING DOORS	Manual	EA	25,327	20
B203003 REVOLVING DOORS	Other	EA	30,740	20
B203003 REVOLVING DOORS	Unknown	EA	30,740	20
B203004 OVERHEAD AND ROLL-UP DOORS	Aluminum/Fiberglass, Electric, 12'x12'	EA	5,795	20
B203004 OVERHEAD AND ROLL-UP DOORS	Aluminum/Fiberglass, Manual, 12'x12'	EA	4,282	20
B203004 OVERHEAD AND ROLL-UP DOORS	General	EA	4,784	20
B203004 OVERHEAD AND ROLL-UP DOORS	Other	SF	48	20
B203004 OVERHEAD AND ROLL-UP DOORS	Shutter, Rollup	EA	4,784	20
B203004 OVERHEAD AND ROLL-UP DOORS	Steel Rolling	EA	3,518	25





Condition Rating Methods

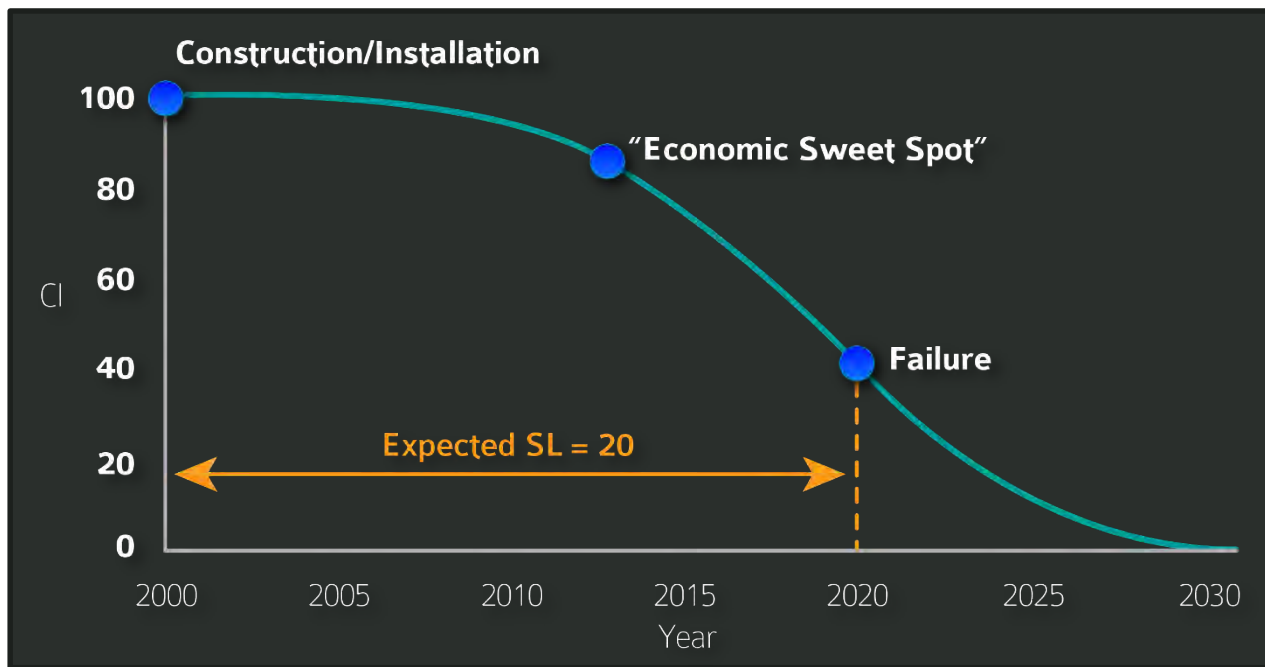
Direct Rating (Direct Condition Rating – DCR)

Distress Survey

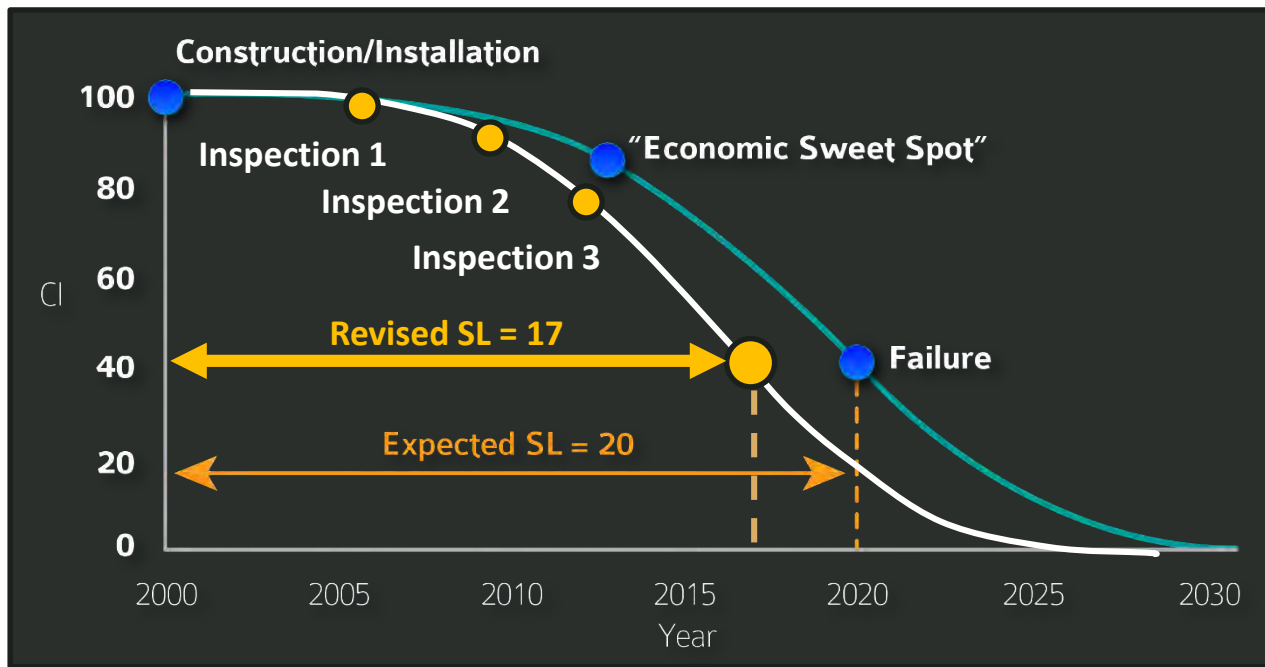
Subcomponents

Age-Based Rating

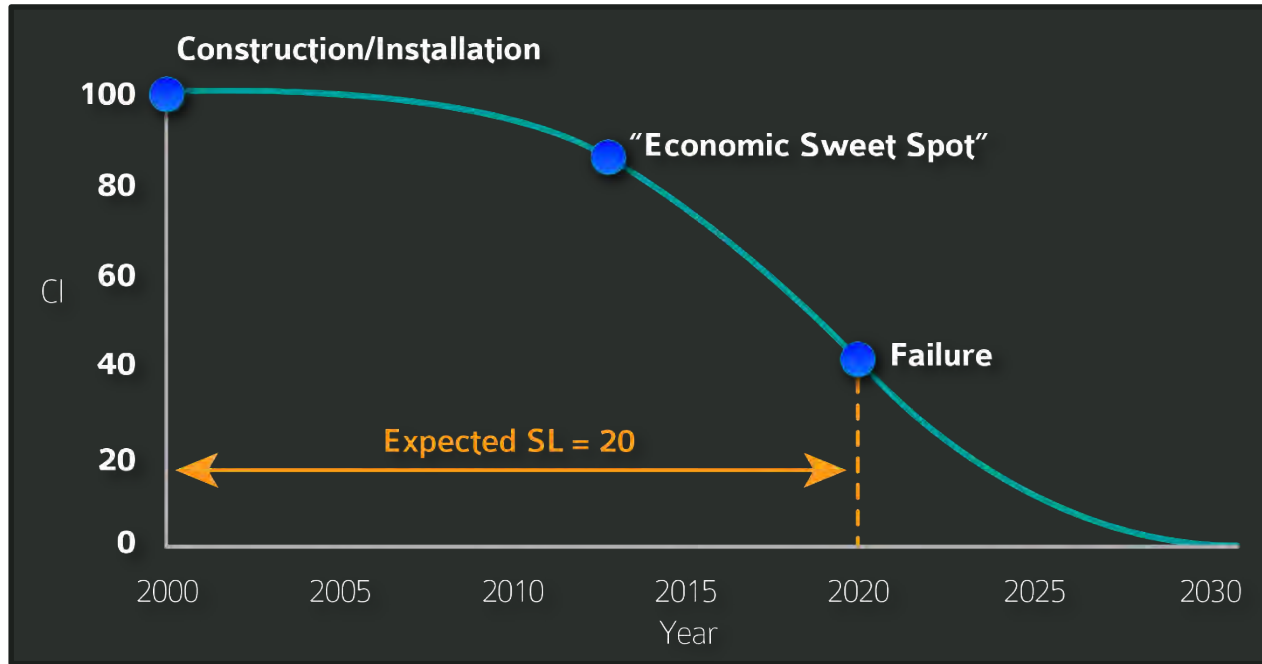
Lifecycle Curve Before Assessments



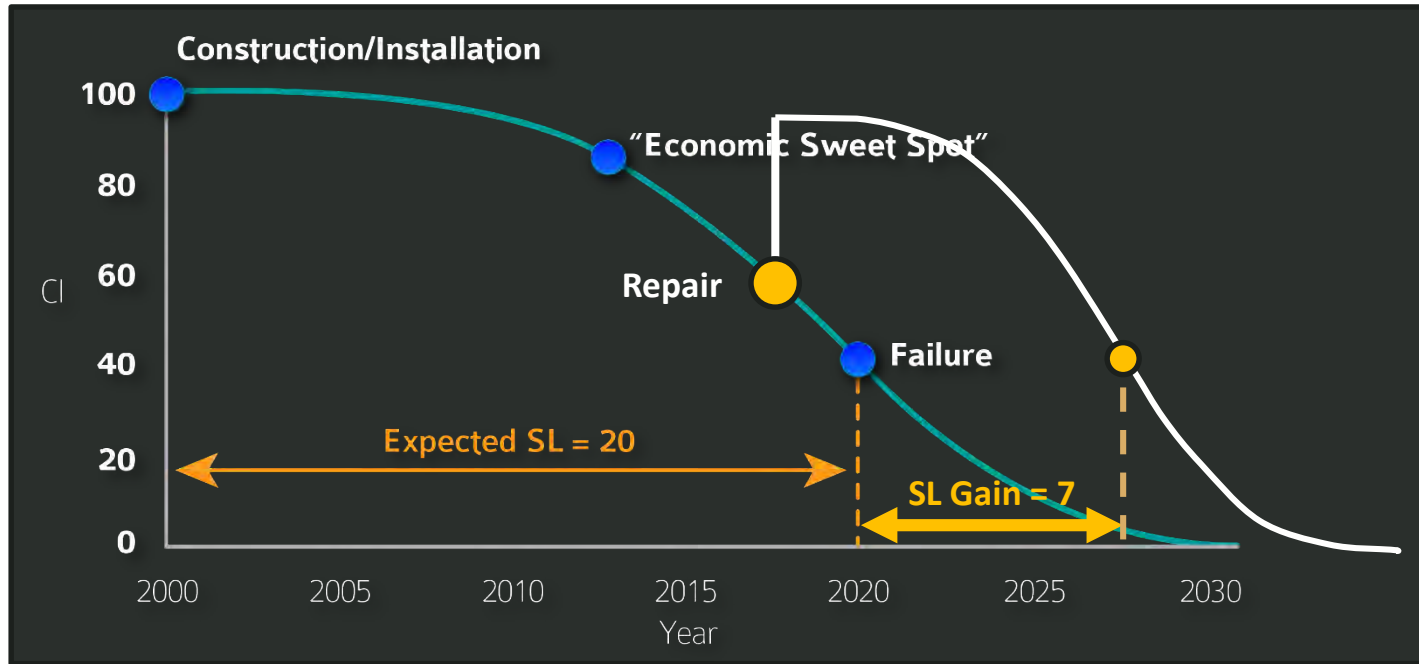
Lifecycle Curve After Assessments



Lifecycle Curve Before Work



Lifecycle Curve After Work





Assessor's Role

1. Gather and record inventory
2. Perform inspections and provide a rating

There is no “one way” to do it



The Army Guide

Revised last year Army BUILDER SMS Inventory and Assessment Guide

Safety

Site coordination

What to bring

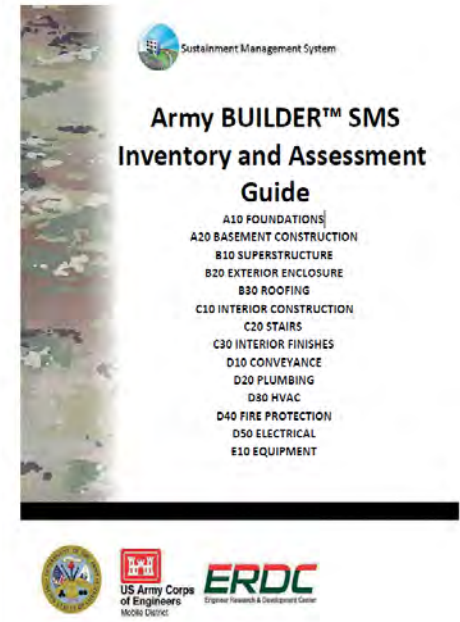
Photos/Comments

What to inventory

How to inspect

General guidance by system

Challenge to lasso the nuances





Inventory

BUILDER Summit Training – Assessor Boot Camp





Inventory Importance

Can't manage assets until you know what you have

More important than inspections

More time consuming than inspections

Mini mysteries



Section

The fundamental level of BUILDER

4,300+ choices

List of choices varies by Component

Demo of catalog



Section Requirements

Section Name

Material Category

Subtype

Quantity

Year Built/Installed



Section Name

Default is N/A

Why can't all Section Names be N/A?

Where it is and sometimes what it is

Should be in all caps

Specific requirements

Floor

Equipment acronyms

Roof equipment should have ROOF x in the name

Panel Section Name: FL1 - RM 109 - LP1



Section Name

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	



Section Name

Sectioning will often determine Section Name

The next-guy-in-three-years Rule

Don't be redundant

Discuss with your co-assessors to agree on addition and room names, direction

RESTROOM vs BATHROOM; DRILL HALL vs DRILL ROOM vs DRILL AREA; N vs NW

Be consistent



Section Name in BUILDER








Save Comment Reports

Section Name: FL3 Equipment Category: C102001 STANDARD INTERIOR DOORS
Component Subtype: Wood Door/Metal Frame


General Info. Section Details (0) Condition Trend Inspection History Cost Modifiers Attachments (0)


Quantity: 4 EA Latest Inspection Paul Org: Red Plus Standard
Year Install/Renewed: 1988 ☐ Estimated Date: 01/01/1988
Age: 32 CSCI: 100 Minimum CI for Repair: 50
RSL: 8 Type: Direct Rating Minimum CCI for Paint: 0
Current Status: Active Maximum RPL for Paint: 0
Painted: ☐ Current Estimated Condition Maximum RSL for Replacement: 0
CSCI: 60

Section Names - Examples

 D30 HVAC
 D3010 ENERGY SUPPLY
 D3020 HEAT GENERATING
 SYSTEMS
 B1_2000_BOILERRM
 D302001 BOILERS Gas, Hot
 Water - 650-900 MBH
 BFT1_2000_MECHRM SW
 D302004 AUXILIARY
 EQUIPMENT Boiler Feedwater
 Tank - Shot chemical feeder,
 by pass, floor mount, 5 gal
 CFW1_2000_MECHRM
 SW D302004 AUXILIARY
 EQUIPMENT Chemical
 Feedwater - 175 PSIG, 5
 gallon
 ET1_2000_MECHRM SW
 D302004 AUXILIARY
 EQUIPMENT Expansion Tank


 CENTRAL WING
 SOUTH B201011
 SUN CONTROL
 DEVICES General


 CENTRAL WING
 WEST B201001
 EXTERIOR CLOSURE
 Brick Veneer
 w/CMU Backup


 CENTRAL WING
 WEST B201006
 BALCONY WALLS &
 HANDRAILS
 Handrailing



Material Category (Equipment Type)

Relatively easy...if you know your system

Boiler > Electric, Gas, Oil, or Solid Fuel > Capacity

Sometimes have to work backwards

Rooftop A/C: Is it in D304001 Air Distribution, Heating, and Cooling? Or in D303002 Direct Expansion Systems?



Subtype (Sub-Component Type)

Specific Types – Most detailed and most accurate for costs and service life

If no match, round up and note actual

General – A grouping of several subtypes; no need to define

Other – You know what it is, but it's not on the list of choices

Unknown – You don't know what it is

Do not use



Quantity

Unit of Measure

Changes with the Subtype

Can use Other to get easier UoM

Accuracy

UoM of EA

UoM of LF or SF

Grouping

If "No" then quantity must be 1

Existing data in BUILDER

Change quantity if your measurement is +/- 15% different

Big picture planning tool

D509004 LIGHTNING PROTECTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Group Ok?	Age Based?	Design Life	UOM
General	No	No	No	No	N/A	No	50	EA
Other	Yes	No	No	No	N/A	Yes	50	SF
Unknown	No	No	No	No	N/A	No	50	SF



Year Installed/Renewed

Important – Starts the lifecycle curve

Check real property records, if you have them

Ask facility manager/escort

Search serial number

Guesstimate

Defaults to Building's construction date

Installed vs. renewed

Estimated checkbox

Caution!

The screenshot displays a software interface with four tabs: 'General Info.', 'Section Details (0)', 'Condition Trend', and 'Inspection History'. The 'General Info.' tab is active, showing the following fields:

- Quantity: 4 (text input)
- EA (text input)
- Year Install/Renewed: 1988 (text input)
- ☐ Estimated (checkbox)
- Age: 32 (text input)
- RSL: 8 (text input)
- Current Status: Active (dropdown menu)
- Painted: ☐ (checkbox)

On the right side of the form, there are two sections:

- Latest Inspection**
 - Date: 01/01/1988
 - CSCI: 100 (highlighted in green)
 - Type: Direct Rating
- Current Estimated Condition**
 - CSCI: 60 (highlighted in yellow)



Inventory Photos and Comments

Needed to show and describe the item

General and Other

Chicklet Chart shows when inventory photos and comments are needed

Use common sense

Sentence case

Avoid tech jargon, slang

Put them in the right spot

Inventory comments relate to what and where it is; inspection comments relate only to condition

List of standard comments

Prefix

Looooooooong comments



Section Details

Collect data for:

ID – Be exact

Model

Serial

Manufacturer

Location – NGITY rule

Equipment Type

Capacity – Use EST if needed

Date Manufactured – 1/1/x

Year Installed – Match section

Control Type

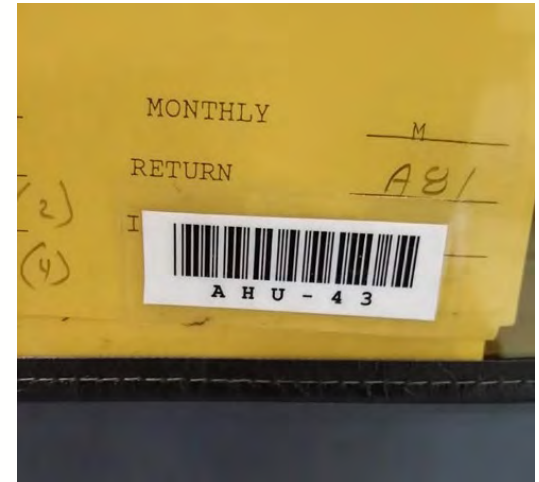
All caps


N/A


One-for-one

Don't add photos

Not used in BUILDER algorithms






 D3030 COOLING GENERATING SYSTEMS

 NORTH_CU-1 D303002 DIRECT EXPANSION SYSTEMS Condenser, DX, Air Cooled - Direct Drive, 8 ton

Component Subtype: Condenser, DX, Air Cooled - Direct Drive, 8 ton

General Info. Section Details (1) Condition Trend Inspection History Cost Modifiers Attachments (2)

+ Add new record Refresh

		Attachments	ID Number	Eq. Type	Eq. Make	Serial No.	Model	Capacity
		 x 0	CU-1	CONDENSING UNIT (R-22)	ODYSSEY	9022KA4AD	TTA150B300FA	8 TON

General Info. Section Details (1) Condition Trend Inspection History Cost Modifiers Attachments (2)

+ Add new record Refresh

Manufacturer	Warranty Company	Warranty Date	Warranty Company 2	Warranty Date 2	Location	Date Manufactured
TRANE					NORTH	1/1/2009

tory Cost Modifiers Attachments (2)

Refresh

Control Type/Make	Year Installed	Sample Location	Comments
THERMOSTAT	2009		



Sectioning

Separate sections if a significant variation exists in Subtype or Year

Examples

Item with 3-step or more difference in DCR should have two sections

A section in an addition area or wing should be named ADDITION or WING

Don't inventory abandoned in place

HVAC always by floor then by wing if needed; Interiors usually by floor

Anything on the roof should be named ROOF – x

Check “Group OK” – If Section Details are required, do not group

Cop out – Read the Army Guide

Be consistent



Adding Inventory

Pre-load

During assessment

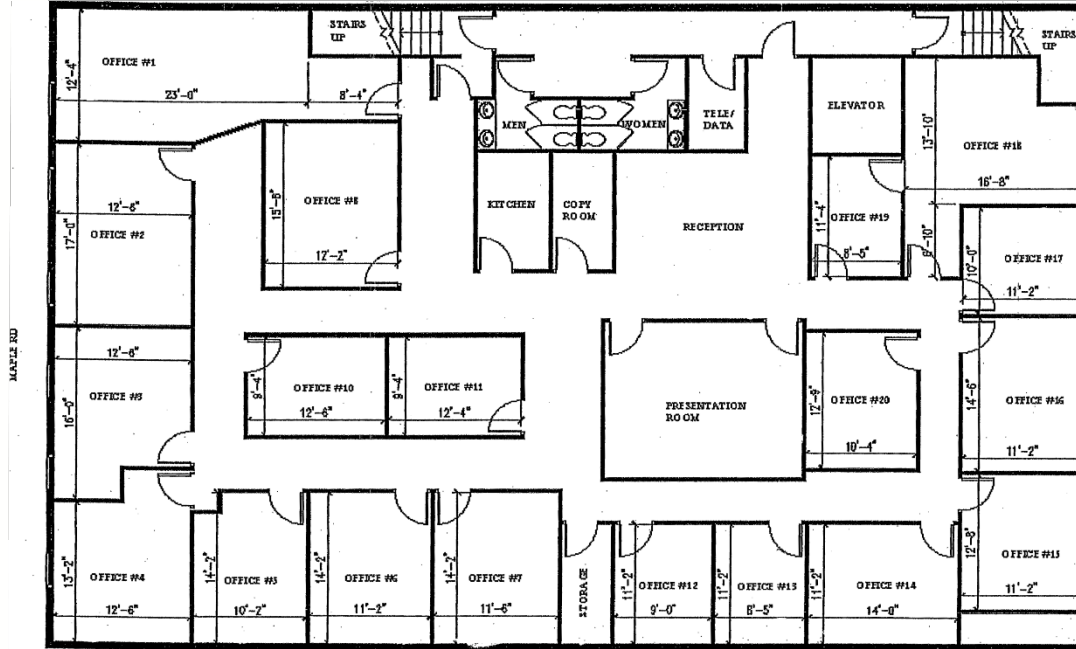
When in doubt, add it and document it

Check if items are in scope

Sometimes General is out; sometimes that's all there is

Methods to add

Sectioning Examples





Sectioning Review



B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	General	SF	12	5
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Other	SF	12	5
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Unknown	SF	12	5
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Asbestos Cement Shingles	SF	70	3
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Asphalt Shingles	SF	40	3
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Clay Tile	SF	70	9
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Concrete Shingles	SF	70	4
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Concrete Tile	SF	70	4
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Fiberglass Shingles	SF	20	6
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Formed Metal	SF	30	6
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Formed Metal - Metal Standing Seam	SF	30	6
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Metal Shingles	SF	30	3
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Preformed Metal	SF	30	6
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Preformed Metal - Metal Panel	SF	30	6
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Shingle & Tile	SF	20	9
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Slate Shingles	SF	70	9
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Wood Shakes	SF	30	5
B30 ROOFING	B3010 ROOF COVERINGS	B301001 STEEP SLOPE ROOF SYSTEMS	Wood Shingles	SF	12	5
B30 ROOFING	B3010 ROOF COVERINGS	B301002 LOW SLOPE ROOF SYSTEMS	General	SF	10	5
B30 ROOFING	B3010 ROOF COVERINGS	B301002 LOW SLOPE ROOF SYSTEMS	Other	SF	10	5
B30 ROOFING	B3010 ROOF COVERINGS	B301002 LOW SLOPE ROOF SYSTEMS	Unknown	SF	10	5
B30 ROOFING	B3010 ROOF COVERINGS	B301002 LOW SLOPE ROOF SYSTEMS	Built-Up	SF	10	5
B30 ROOFING	B3010 ROOF COVERINGS	B301002 LOW SLOPE ROOF SYSTEMS	Liquid Elastomers	SF	10	5
B30 ROOFING	B3010 ROOF COVERINGS	B301002 LOW SLOPE ROOF SYSTEMS	Modified Bitumen	SF	20	4
B30 ROOFING	B3010 ROOF COVERINGS	B301002 LOW SLOPE ROOF SYSTEMS	Polyurethane Foam	SF	20	0
B30 ROOFING	B3010 ROOF COVERINGS	B301002 LOW SLOPE ROOF SYSTEMS	Single Ply Membrane	SF	20	4



Inspections

BUILDER Summit Training – Assessor Boot Camp





Inspections Background

Traditional FCAs highlight only the problems

Different assessors/firms means different methodologies/biases/results

Difficult to manage assets across the state/country/world

Lack of consistency

How to prioritize?

Standardized and repeatable inspection process



CI

0-100

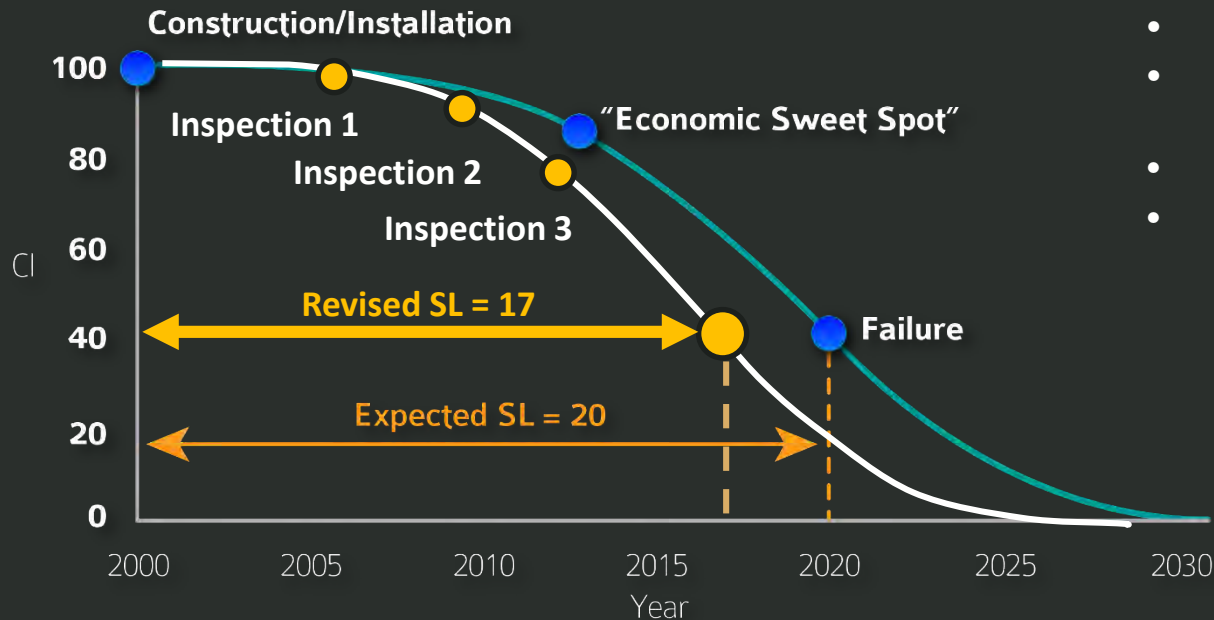
100 = Out-of-the-box new

40 = Failure (Condition Unreliable)

Inspections provide CI and show where it sits on the lifecycle curve

Can compare Section to Section, Building to Building, etc.

Lifecycle Curve After Assessments



- Inspections add real life
- BUILDER constantly degrades Sections
- Adjusts with inspections
- Minor difference in CI can cause major difference in RSL



Three Types of Ratings

Direct Ratings

Distress Survey

Age-Based Ratings



Direct Rating

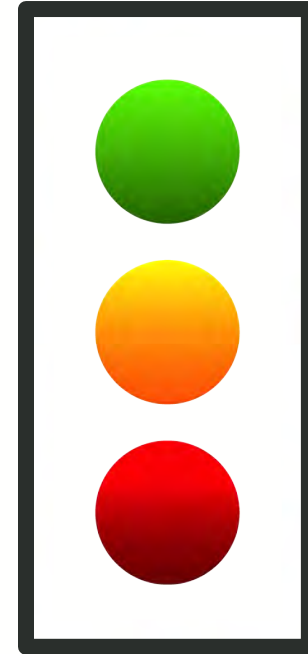
Most direct way to a CI

Pick a color – Green/Amber/Red

Pick a severity within the color – Plus/Mid/Minus

9 choices

Each corresponds to a specific CI





Direct Rating – Army Guide

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)



Direct Rating – BUILDER

A Direct Rating of...	...using this criteria...	...will be recorded in BUILDER as a CSCI of:
Green (+)	Entire Section free of observable or known distress.	100
Green	No Section serviceability or reliability reduction. Some, but not all, minor subcomponents may suffer from slight degradation, or few major subcomponents may suffer from slight degradation.	95
Green (-)	Slight or no serviceability or reliability reduction overall to the Section. Some, but not all, minor subcomponents may suffer from minor degradation, or more than one major subcomponent may suffer from slight degradation.	88

A Direct Rating of...	...using this criteria...	...will be recorded in BUILDER as a CSCI of:
Amber (+)	Section serviceability or reliability is degraded, but adequate. A very few major subcomponents may suffer from moderate deterioration with perhaps a few minor subcomponents suffering from severe deterioration.	80
Amber	Section serviceability or reliability is definitely impaired. Some, but not a majority of, major subcomponents may suffer from moderate deterioration with perhaps many minor subcomponents suffering from severe deterioration.	71
Amber (-)	Section has significant serviceability or reliability loss. Most subcomponents may suffer from moderate degradation or a few major subcomponents may suffer from severe degradation.	61

A Direct Rating of...	...using this criteria...	...will be recorded in BUILDER as a CSCI of:
Red (+)	Significant serviceability or reliability reduction in Section. A majority of subcomponents are severely degraded and others may have varying degrees of degradation.	50
Red	Severe serviceability or reliability reduction to the Section such that it is barely able to perform. Most subcomponents are severely degraded.	30
Red (-)	Overall Section degradation is total. Few, if any, subcomponents salvageable. Complete loss of Section or serviceability.	10



A Direct Rating of...	...using this criteria...	...will be recorded in BUILDER as a CSCI of:
Green (+)	Entire Section free of observable or known distress.	100
Green	No Section serviceability or reliability reduction. Some, but not all, <u>minor</u> subcomponents may suffer from <u>slight</u> degradation, or <u>few</u> <u>major</u> subcomponents may suffer from <u>slight</u> degradation.	95
Green (-)	<u>Slight</u> or no serviceability or reliability reduction overall to the Section. Some, but not all, <u>minor</u> subcomponents may suffer from <u>minor</u> degradation, or <u>multiple</u> <u>major</u> subcomponents may suffer from <u>slight</u> degradation.	88

Serviceability or reliability

- Is it doing what it is supposed to do?

Subcomponents of a door:

- Panel, hardware, and frame

Subcomponents of an electrical panelboard:

- Breakers/fuses, disconnect switch, enclosure, and wiring

A Direct Rating of...	...using this criteria...	...will be recorded in BUILDER as a CSCI of:
Amber (+)	Section serviceability or reliability is <u>degraded</u> , but <u>adequate</u> . A <u>very few</u> <u>major</u> subcomponents may suffer from <u>moderate</u> deterioration with perhaps a <u>few</u> <u>minor</u> subcomponents suffering from <u>severe</u> deterioration.	80
Amber	Section serviceability or reliability is definitely <u>impaired</u> . <u>Some</u> , but <u>not a majority</u> of, <u>major</u> subcomponents may suffer from <u>moderate</u> deterioration with perhaps <u>many</u> <u>minor</u> subcomponents suffering from <u>severe</u> deterioration.	71
Amber (-)	Section has <u>significant</u> serviceability or reliability loss. <u>Most</u> subcomponents may suffer from <u>moderate</u> degradation or a <u>few</u> <u>major</u> subcomponents may suffer from <u>severe</u> degradation.	61

A Direct Rating of...	...using this criteria...	...will be recorded in BUILDER as a CSCI of:
Red (+)	<p><u>Significant</u> serviceability or reliability reduction in Section.</p> <p>A <u>majority</u> of subcomponents are <u>severely degraded</u> and <u>others</u> may have <u>varying degrees</u> of degradation.</p>	50
Red	<p><u>Severe</u> serviceability or reliability reduction to the Section such that it is <u>barely able to perform</u>.</p> <p><u>Most</u> subcomponents are <u>severely</u> degraded.</p>	30
Red (-)	<p>Overall Section degradation is total. Few, if any, subcomponents salvageable.</p> <p>Complete loss of Section or serviceability.</p>	10



Don'ts and Don'ts

Don't downgrade rating if:

- It's dirty

- There are code problems

- It is not energy efficient

- It is a safety violation not caused by a physical distress

Don't spend time figuring out what caused a deficiency

- But alert co-assessors

Don't ignore local knowledge

- But don't let them change your rating

Don't ignore age

- If over 75% of DL and rated A+ or A



Direct Rating Thought Process (1 of 2)

Get the color first – Determine level of loss of function (if any)

Green:

- Preventative maintenance, if that

- Minor repairs to some subcomponents, if that

Amber:

- Repair/restoration

- Minor repairs to several subcomponents

- Repair/replace one or more subcomponents

Red:

- Rehabilitation/replacement



Direct Rating Thought Process (2 of 2)

Dial in the severity based on the definitions

Generally, is it on the high side? Or the low side?

Consider cost and level of effort to repair

When in doubt remember the intent of Green/Amber/Red

Overall tolerance is one level

		Loss of Secondary Function(s)		
		Minimal	Moderate	Significant
Loss of Primary Function	None	G+	G	G-
	Partial	A+	A	A-
	Significant	R+	R	R-

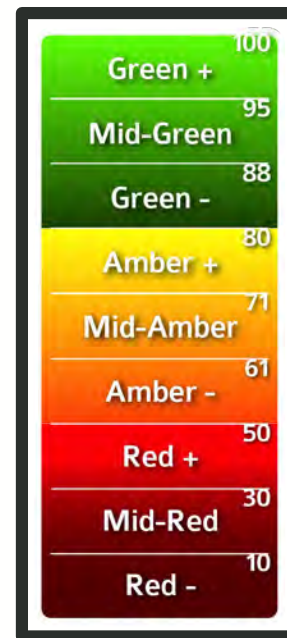


9 Ratings; 9 CIs

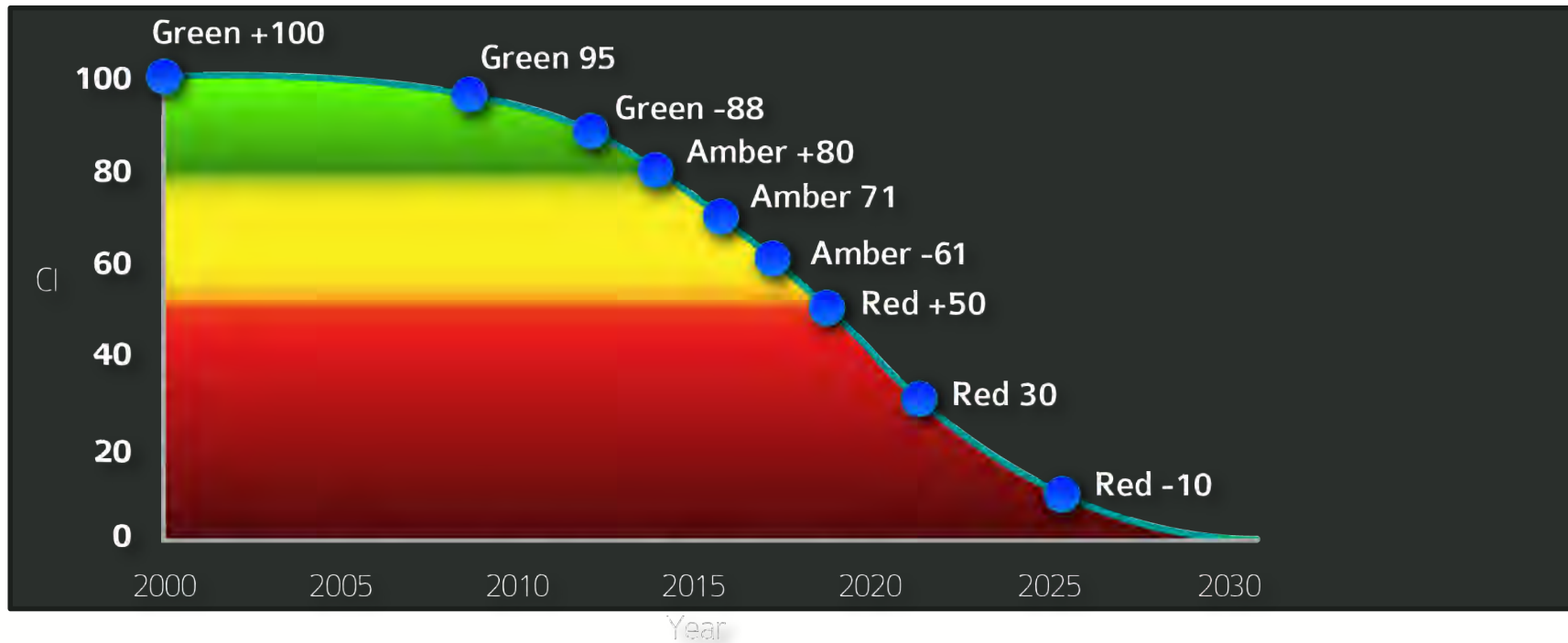
Not a range

What you pick is what you get

BUILDER will start the degradation process immediately



9 Ratings; 9 CIs





Direct Ratings

Advantages

- Fast
- Cheap

Disadvantages

- Very general
- No record of what exactly is wrong

Work Plan sample



Work Plan Sample

Building Name	RPUID	Section Category	Section Subtype	Section Name	Section Year	Work Type	Funding Year	Actual Cost
00001 - WAREHOUSE	435862	D102002 OVERHEAD CRANES	Cranes, Bridge girder, 3 ton, 40' span	N/A	2000	Replace	2019	\$115,000
00001 - WAREHOUSE	435862	D201001 WATERCLOSETS	General	N/A	2000	Repair	2019	\$6,200
00001 - WAREHOUSE	435862	D201002 URINALS	General	N/A	2000	Repair	2019	\$5,600
00001 - WAREHOUSE	435862	D201003 LAVATORIES	General	N/A	2000	Repair	2019	\$3,550
00001 - WAREHOUSE	435862	D305003 FAN COIL UNITS	General	RADIANT HEAT PANEL (EA)	1995	Repair	2018	\$47,500
00001 - WAREHOUSE	435862	B301004 FLASHINGS & TRIM	Flashings - Embedded Edge Metal	N/A	1992	Replace	2019	\$23,000
00001 - WAREHOUSE	435862	D502002 LIGHTING EQUIPMENT	Interior Lighting, FL - 2 Lamp T8	N/A	1995	Repair	2019	\$31,500
00001 - WAREHOUSE	435862	D502002 LIGHTING EQUIPMENT	Interior Lighting, FL - 1 Lamp T8	N/A	1995	Repair	2019	\$2,000
00001 - WAREHOUSE	435862	D305004 FIN TUBE RADIATION	General	RADIATOR (EA)	1995	Replace	2021	\$2,000
00001 - WAREHOUSE	435862	D502002 LIGHTING EQUIPMENT	Exterior Lighting	FLUORESCENT	2000	Replace	2019	\$3,150
00001 - WAREHOUSE	435862	D305002 UNIT HEATERS	Hydronic - 60 MBH	N/A	1995	Repair	2021	\$19,000
00001 - WAREHOUSE	435862	D502002 LIGHTING EQUIPMENT	Exit Lighting	N/A	1995	Replace	2019	\$2,000



Distress Survey

Most accurate method

Provides a record of exactly what is wrong

Identify all visible distresses

Select severity and density of each distress for each subcomponent



23 Distresses

Animal/Insect Damaged

Blistered

Broken

Capability/Capacity Deficient

Clogged

Corroded

Cracked

Damaged

Deteriorated

Displaced

Efflorescence

Electrical Ground Inadequate

Holes

Leaks

Loose

Missing

Moisture/Debris/Mold

Noise/Vibration

Operationally Impaired

Overheated

Patched

Rotten

Stained/Dirty

Animal/Insect Damage

Subcomponent has been gnawed, scratched, or likewise damaged. Evidence includes holes, droppings, nests, sawdust, indicating the presence of animals, birds, and/or insects.



Blistered

Round or elongated raised areas of the subcomponent surface that are generally filled with air.



Broken

Subcomponent has been fractured, shattered, or otherwise separated into two or more pieces, resulting in the loss of operability to this or other subcomponents.



Capability/Capacity Deficient

Subcomponent serviceability is lacking due to insufficient capacity, technical obsolescence, or lack of compliance to applicable codes.



Clogged

Obstruction within a subcomponent that is disrupting the intended flow of air, other gasses, or liquids.



Corroded

Subcomponent is wearing away, disintegrating, flaking, and/or scaling due to the effects of chemical, electrochemical, or electrolytic attack.



Cracked

Subcomponent has been fractured. Separation into two or more pieces may or may not have occurred. No loss of operability.



Damaged

Dents, chips, gouges, rips, distortion, rupture, etc. resulting from impact, fire, flood, or other means associated with specific events.



Deteriorated

The natural degradation of the subcomponent through normal usage and/or environmental exposure. This may involve disintegration, erosion, delamination, weathering, checks, warps, bumps, raveling, flaking, pitting, spalling, wear, etc. and/or a change in properties (e.g. brittle).



Displaced

Subcomponent has been moved, shifted, bulged, rotated, or settled from its intended position. This may be due to a specific event (e.g. earthquake, collision, failure of another subcomponent, etc.), plastic deformation, or consolidation over time.



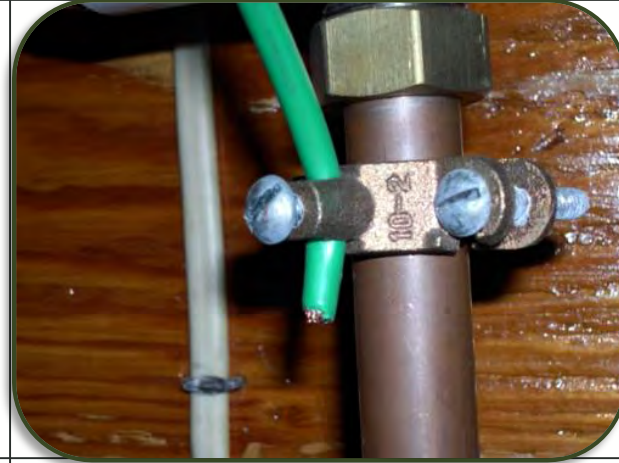
Efflorescence

White powdery coating of salts encrusted on the surface of masonry, concrete, or plaster subcomponents caused by moisture leaching alkalis from mortar or concrete.



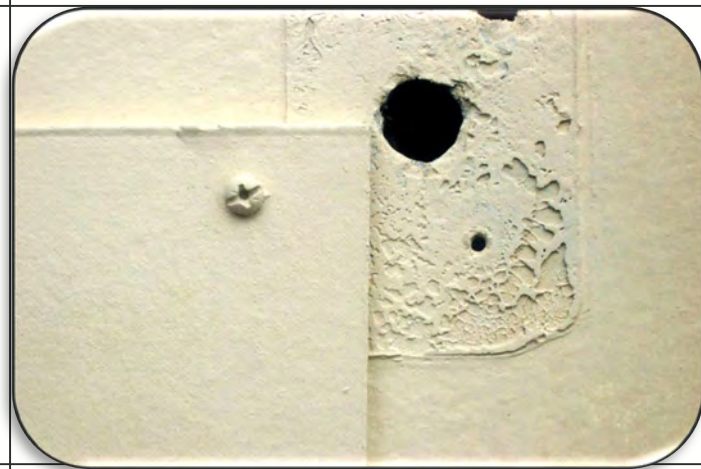
Electrical Ground Inadequate

Improper connection causing a short circuit or resulting in inadequate grounding.



Holes

Drilling, punching or penetration of a subcomponent for an intended purpose. Penetration depth may be partial or complete.



Leaks

The unwanted entry, passage, or escape of gas or liquid.



Loose

Subcomponent or parts are not secured tightly. Also, one or more fasteners are not tightened properly.



Missing

Subcomponent and/or parts including fasteners are required, but absent due to removal, dislodgement, or deterioration.



Moist/Debris/Mold/Contaminated

The unintended presence of foreign material, vegetation, mold, mildew, water and/or other liquid.



Noise/Vibration Excessive

Equipment noise and/or vibration in excess of normal or acceptable levels.



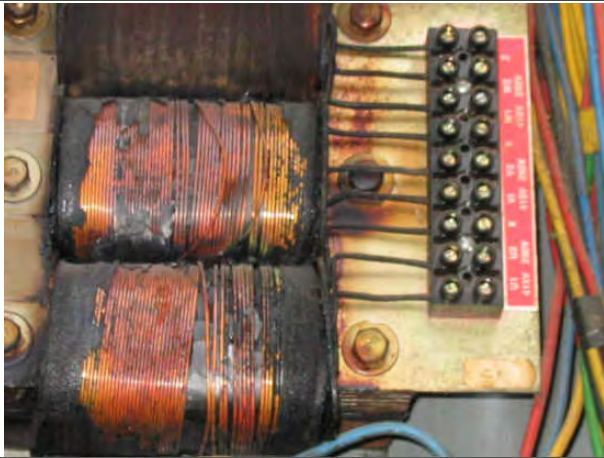
Operationally Impaired

Subcomponent does not operate properly or at all due to improper installation or construction, misalignment, binding, over tightening, malfunctioning, part failure, or repair/maintenance practices.



Overheated

Temperature exceeds normal or acceptable levels.



Patched

An obvious localized repair to the subcomponent.



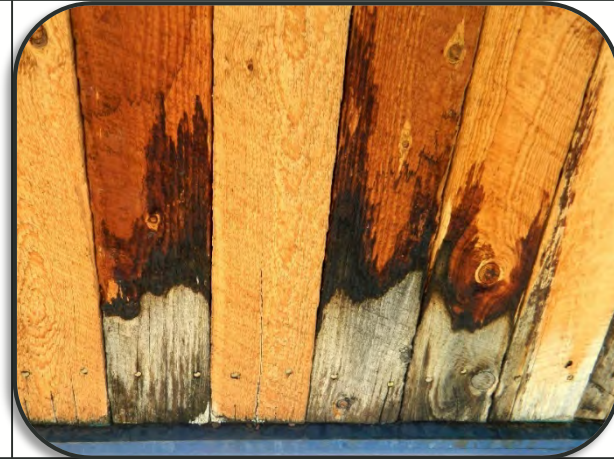
Rotten

Fungal or bacterial decay or decomposition resulting in softness, sponginess, disintegration, loss of strength, and/or distortion of the subcomponent.



Stained/Dirty

Subcomponent discoloration resulting from liquids, graffiti, smudges, mildew, mold, moss, algae, soot, dirt, animal waste, or other sources.





Inspection Comments Rules

Required on Amber and Red inspections (Amber+ and below)

Will add specificity to a Work Plan item from a Direct Rating

Complete sentences and in industry-standard terminology

Avoid tech jargon, slang

If problems exist in certain rooms, include room numbers

Not required for paint ratings

NGITY rule



Inspection Comments Format

5 parts

1. Front end/prefix

2. Distress word

All caps

3. Severity

4. Location

5. Quantity

Extent of the problem

Assessor name (First Last)-affiliation/company-date [Dawson Sutton-DIGON-2/11/2020]

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

A+	Front End	CRACKED.	The pump has	minor	cracks	present on	10% of the	housing.
A	Front End	DETERIORATION.	The tank has	moderate	deterioration	over	50 %	of the base.
A-	Front End	DAMAGED.	The exhaust has	significant	damage	to	all	the vehicle connectors.
R+	Front End	CRACKED.	The crane has	extensive	cracks	present on	2	pedestals.
R	Front End	LEAKS.	The piping has	severe	leaking	around the	HVAC	penetrations.
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	CW	pumps are	completely	operationally impaired.



Age-Based Ratings

How do you rate things you can't see?

Let BUILDER do the work

BUILDER uses lifecycle curve to determine condition

Section information is important, especially year

Check Chicklet Chart

Age-based OK if it says "No" but you can't see it

Fast and accuracy can be spot-on or way off-base

Need to verify equipment exists

Don't trust the drawings

Don't cheat

Standard comments



Tips

Meet as a group before and after

Plan a route through the building

Check the catalog for Sections you may have missed

Bring water, sunscreen, hat, backpack

Work safe!



Safety

Don't write, read, talk on the phone, or take pictures while you are walking

Don't enter confined spaces

Watch your head

Avoid areas with HazMat signs

Watch loose-fitting clothes, lanyards

Don't reach into equipment, holes; be careful walking along bushes

Go inside if lightning or thunder is present

Use 3-point ladder technique

If you see something harmful, don't try to fix it

If you see something dangerous, get out



Summary

If you can see it, rate it

Direct ratings with distresses

Photos and comments for Ambers and Reds

If you can't see it, age-base it with comment