



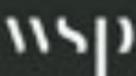
Welcome to the



January 24-26, 2023 | San Antonio, TX

**DIGON**  
SYSTEMS

 Stantec

 WSP

 TETRA TECH

Jacobs

GORDIAN

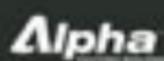
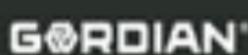
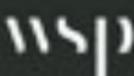
Alpha



# Introduction to BUILDER

Kurt Sorensen (channeling Paul Showalter)

DIGON Systems







# Remote Participation

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- Streaming URLs:
  - <https://www.youtube.com/@DIGON-Systems>
  - <https://digon.my.webex.com/digon.my/j.php?MTID=mdea107410b6650a3ae427399a8070496>
- Questions / Comments / Help
  - [info@digon.com](mailto:info@digon.com)



# Scope of This Morning

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*Today's theme: Boss says, "You should learn BUILDER."*

- Overview
- Requesting an account
- Logging in
- Navigating
- Inventory
- Sectioning
- Inspections
- Photos/comments



**BUILDER™**



# Scope of This Afternoon

---

## Work Planning

- Standards, Policies, Priorities

## Scenarios

- Constrained vs. Unconstrained

## Reporting

- Looking at some of the data

## Metrics Review

- BCI / FCI

## Additional Training Resources



# Family of SMS Products

In research and development since the 1970's in the  
US Army Construction Engineering Research Laboratory (CERL)



## **BUILDER**

For building program  
management



## **PAVER**

For airfields and roads program  
and project management



## **RAILER**

For track project  
management



## **ROOFER**

For roofing project  
management



# How does BUILDER do that?

Preventative vs. Reactionary

Project Programming

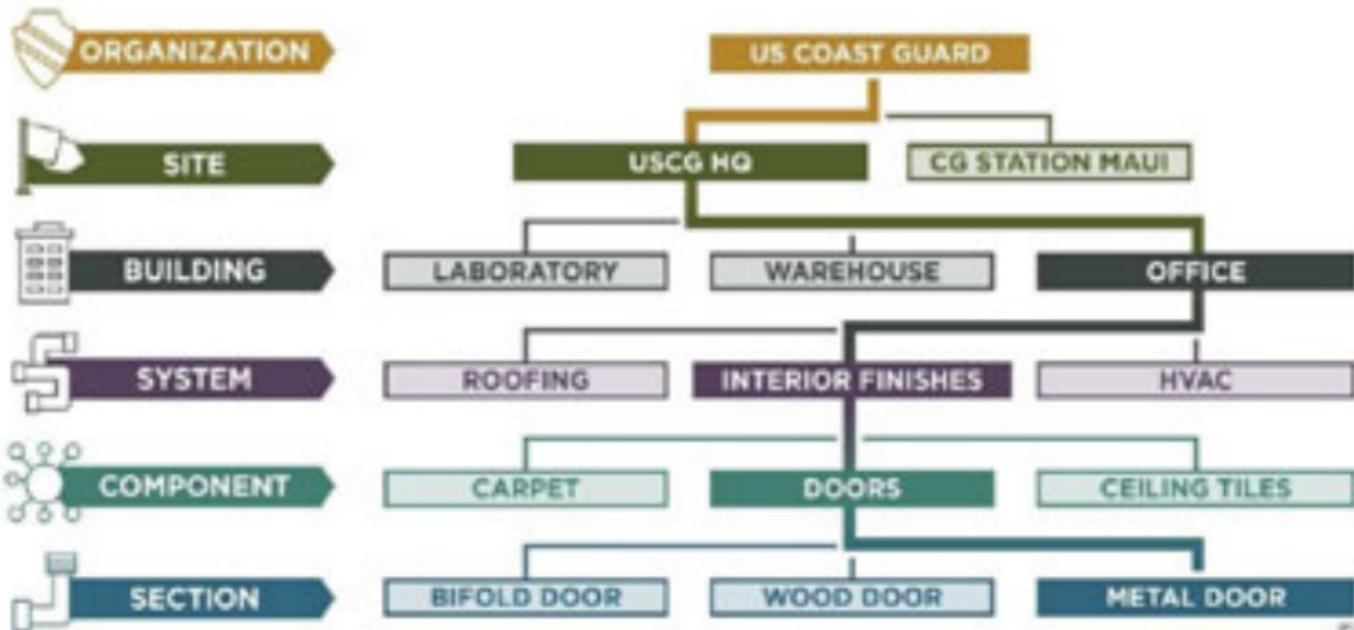
Knowledge-based

Real time

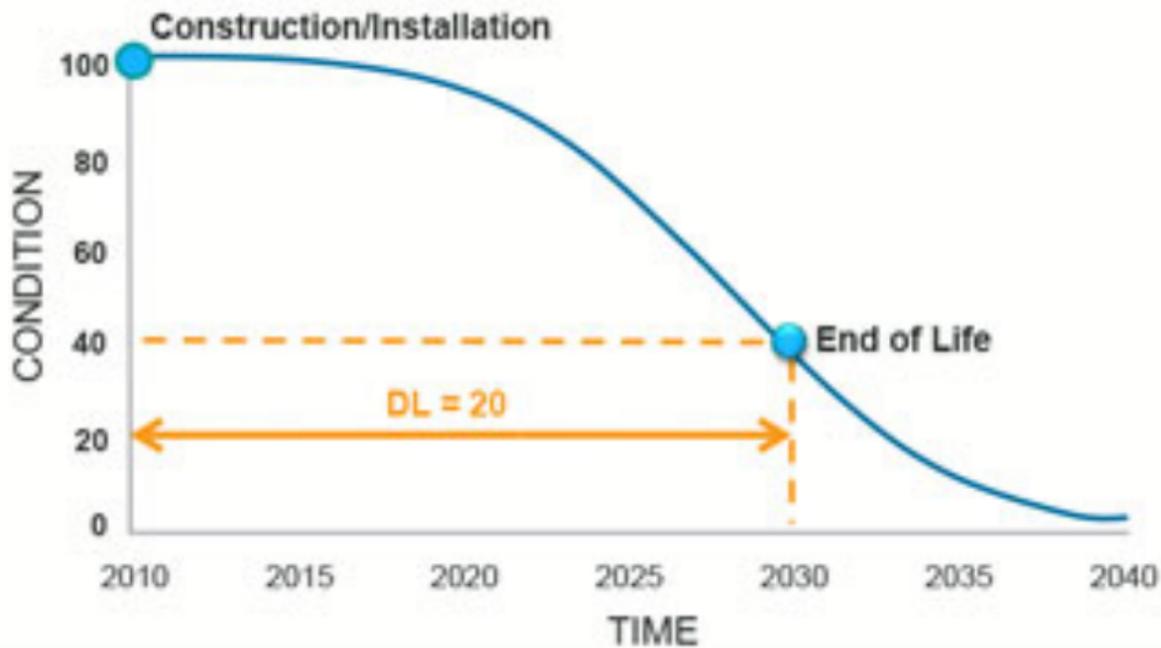
Important to recognize what BUILDER  
does not do!



# UNIFORMAT Hierarchy



# Lifecycle Curve





## Same but Different





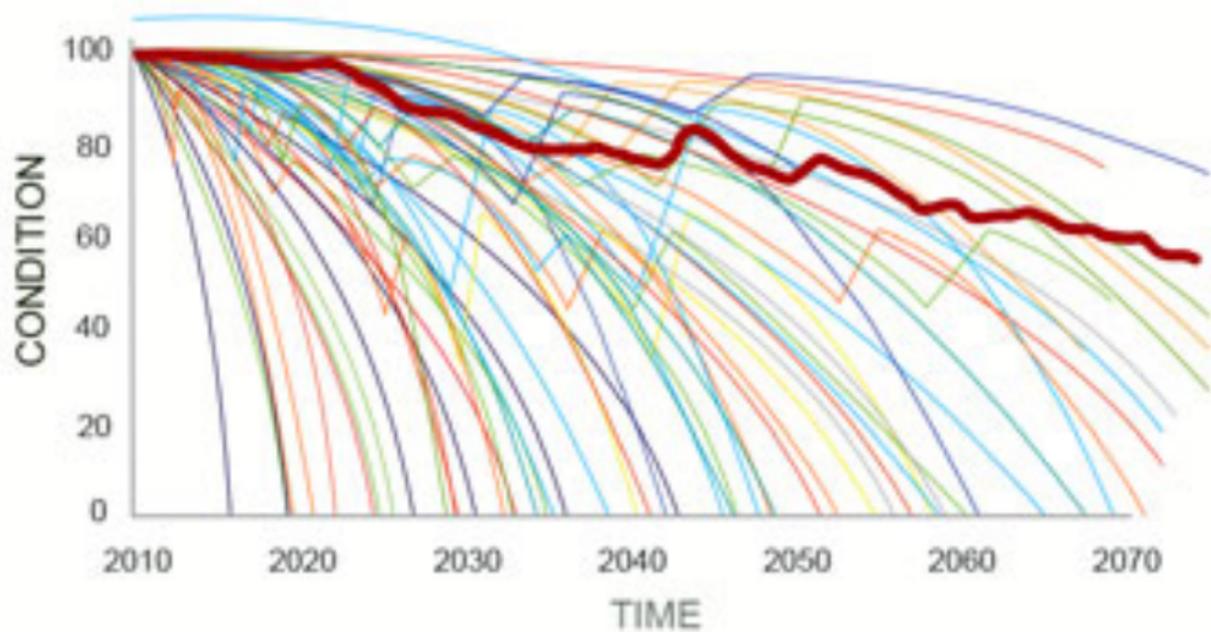
# Catalog of Sections

System	Component	Equipment/Material Category	Sub-Type	Design Life	Unit Cost	UoM
S20 EXTERIOR ENCLOSURE	S2010 EXTERIOR WALLS	S201001 EXTERIOR CLOSURE	Brick Veneer w/Stub Backup	75	\$32.87	SF
			Cement Boards / Panels	50	\$20.78	SF
			GIP Concrete	75	\$20.31	SF
			Concrete Block	75	\$19.02	SF
			E.F.S.	50	\$21.73	SF
			Fiber Cement Siding	75	\$3.08	SF
			General	30	\$27.21	SF
			Glass Block	60	\$52.32	SF
			Gypsum	60	\$1.85	SF
			Masonry	75	\$30.78	SF
			Masonry Cavity	75	\$37.55	SF
			Masonry Composite	75	\$40.87	SF
			Metal Panel	30	\$12.31	SF
			Metal Siding	30	\$9.17	SF

# Lifecycle Curve with an Inspection



## Roll Up of BCI





# Functionality Assessments

## For issues outside of Condition

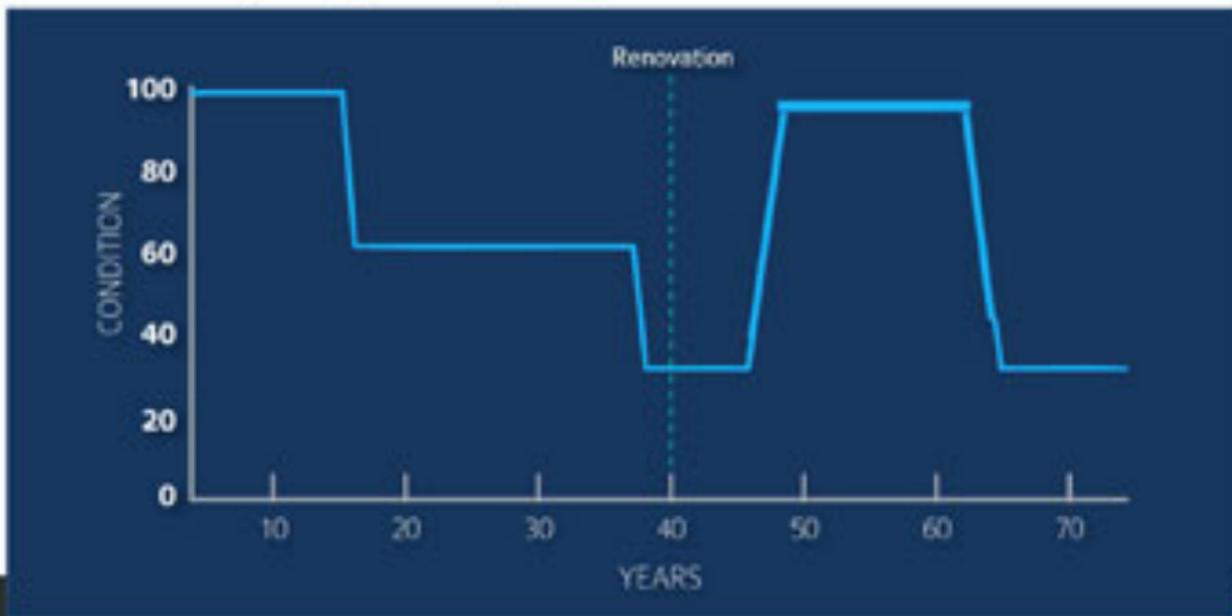
- An overall value that rates the entire Building's functionality
- E.g., "How well does the building serve it's Mission/Operation of user?"
- Rated at the Building level
- Combine Condition and Function for a single Performance Index
  - $PI = 0.71CI + 0.29FI$
- BUILDER FI does not degrade continually as with CI
- A pilot for "resiliency" was setup but the first focus is

Description	Response
<b>Strength</b> The analysis was a component of the Building Health Service Strength Condition. It is a component of the overall building health condition. It is a component of the overall building health condition. It is a component of the overall building health condition.	
<b>Water Proof Zones</b> The analysis was a component of the Building Health Service Water Proof Condition. It is a component of the overall building health condition. It is a component of the overall building health condition. It is a component of the overall building health condition.	
<b>Hardware-Web Zone</b> The analysis was a component of the Building Health Service Hardware-Web Zone Condition. It is a component of the overall building health condition. It is a component of the overall building health condition. It is a component of the overall building health condition.	



# FI Timeline

The score only changes when you update BUILDER with a new assessment





# BUILDER Training

Accounts, Logging In, and Navigating Around BUILDER



# Requesting an Account

BUILDER™ User Account Request Form			BUILDER Support Email: <a href="mailto:info@support.bimdc.com">info@support.bimdc.com</a>	On-line Form Tutorial Link: <a href="#">Click Here</a>
Service/Agency			Account Verifier	
Requesting Organization			Requesting POC	
First Name	Last Name	Email	Access to organization or site(s) requested (with location)	Role <small>(Select Only: Approver or Work Planner)</small>
				<input type="text"/>
				Read Only Approver Work Planner
				<input type="text"/>

# Permission Levels

- Different levels provide different access

		Inventorior	Inspector	Inspection Supervisor	Work Planner	Master Planner
Inventory	View	X	X	X	X	X
	Add	X	X	X	X	X
	Modify	X	X	X	X	X
	Delete	X	X	X	X	X
Inspection	View		X	X	X	X
	Add		X	X	X	X
	Modify		X	X	X	X
	Delete					X
Work Planning	View				X	X
	Add				X	X
	Modify					X
	Delete					X
Scenarios	Run				X	X
	Create				X	X
	Modify					X
	Copy Scenario to Work Plan				X	X
	Delete					X
Miscellaneous	Run Reports	X	X	X	X	X
	Use Search Bar					X
	Export BRID File			X	X	X
	Import BRID File			X	X	X



# Log In and Navigate

<https://buildersoftware.net/Summit2023/>

Username: The email you registered with

Password: Summit2023





# Top Navigation Drop Down

## Work Configuration

- Settings for standards

## Work Plan

- All sections that failed the standards

## Scenarios

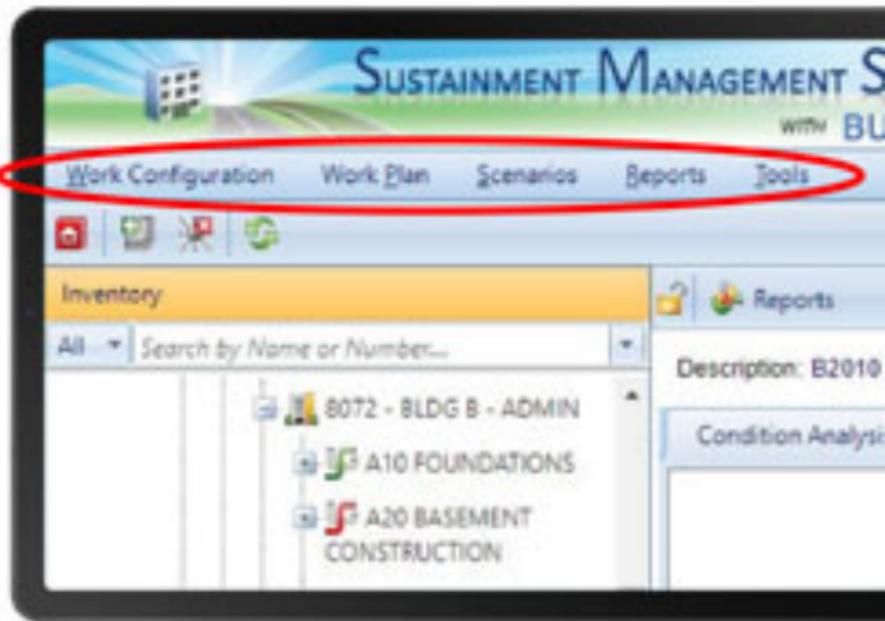
- Long term planning simulations

## Reports

- Standard reports

## Tools

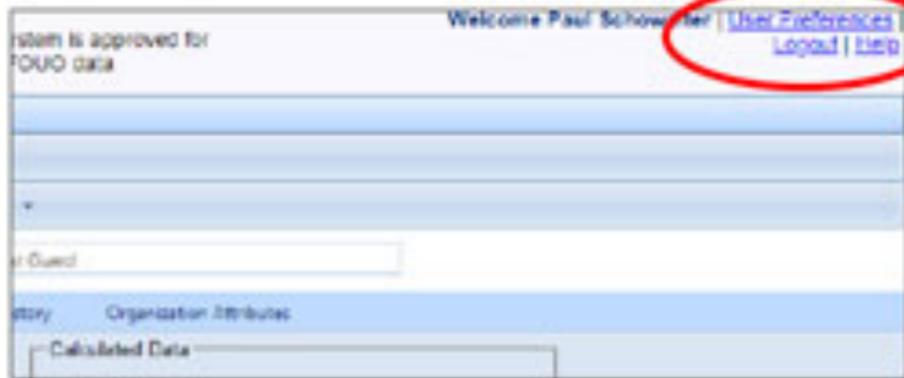
- Library
- Administration
- BRED Management





## Top Right Links

- Preferences
- Help
- Protect your account  
by logging out

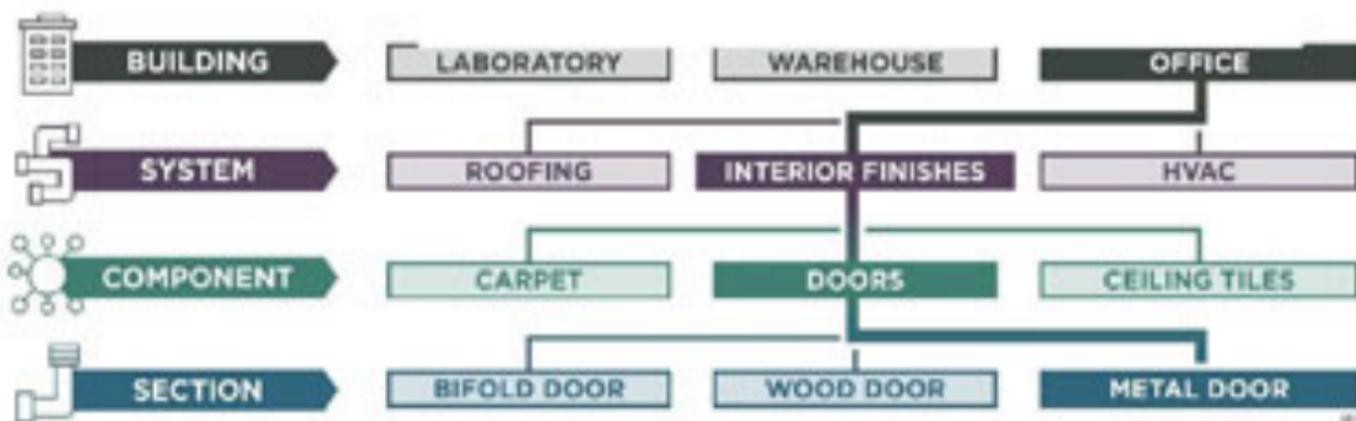




# BUILDER Training

Inventory

# UNIFORMAT Hierarchy





# Importance of Inventory

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Can't manage assets until you know what you have

More important than inspections

More time consuming than inspections



# Inventory Collection Process

---

Preload inventory if possible

If an item is not in inventory, add it

If an item is in inventory, verify it exists and everything is correct

If it is not correct, fix it

If item has been replaced, delete old Section and add new Section

When in doubt, add it and document it



# Section Requirements (1 of 2)

---

## Section Name

- Default is N/A
- Next-person-in-3-years rule

## Equipment/Material Category

## Subtype

- Specific Subtypes – Most detailed and most accurate for costs and service life
- 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



## Section Requirements (2 of 2)

---

### Quantity

- Unit of Measure

### Year Built/Installed

- Defaults to Building's construction date
- Starts the lifecycle curve
- Built/renewed
- Estimated Checkbox



# Section Details

---

## Usually includes

- ID Number
- Make
- Model
- Serial #

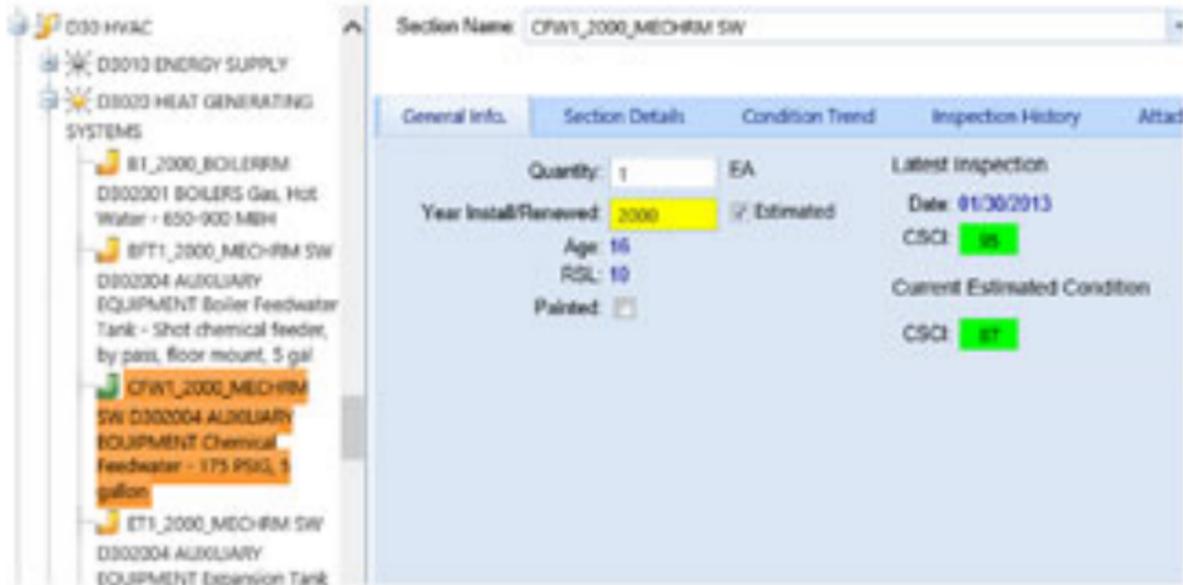
## Can include

- Capacity
- Date Manufactured
- Location
- Warranty Info

## Not used in BUILDER algorithms

# Section Names

- Default is N/A
- More detail needed if multiple similar Sections
- Location needed if item is hard to find
- Don't be redundant



The screenshot shows a software interface for managing HVAC systems. On the left is a tree view of the system hierarchy, and on the right is a detailed view of a selected section.

**Tree View:**

- D00 HVAC
  - D0010 ENERGY SUPPLY
  - D0020 HEAT GENERATING SYSTEMS
    - BT\_2000\_BOILERRM
      - D00001 BOILERS Gas, Hot Water - 650-900 MBH
    - BFT1\_2000\_MEC-IRM SW
      - D00004 AUXILIARY EQUIPMENT Boiler Feedwater Tank - Shot chemical feeder, by pass, floor mount, 5 gal
    - CFW1\_2000\_MEC-IRM SW**
      - D00004 AUXILIARY EQUIPMENT Chemical Feedwater - 175 PIG, 1 gallon**
    - ET1\_2000\_MEC-IRM SW
      - D00004 AUXILIARY EQUIPMENT Extension Tank

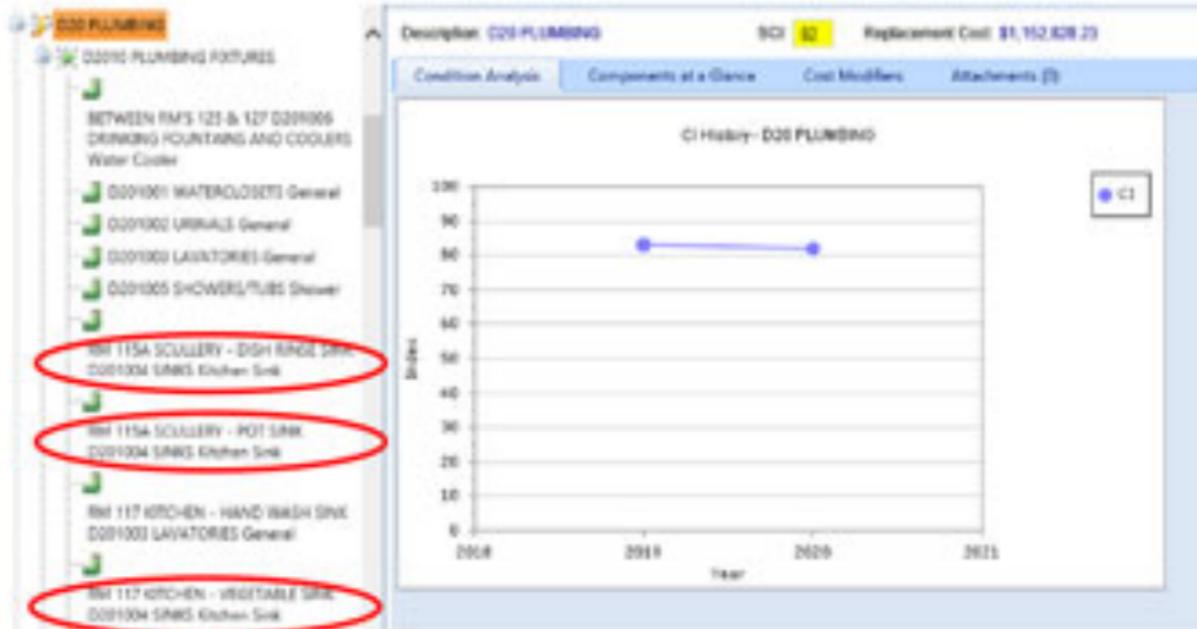
**Section Details View:**

Section Name: CFW1\_2000\_MEC-IRM SW

General Info	Section Details	Condition Trend	Inspection History	Attach
Quantity: 1	EA	Latest Inspection	Date: 01/30/2013	
Year Install/Renewed: 2000	<input type="checkbox"/> Estimated	CSCI: 95	Current Estimated Condition	
Age: 16		CSCI: 97		
RSL: 10				
Painted: <input type="checkbox"/>				



# Oversectioning





# Quantity Accuracy

---

85-90%

EA vs. LF/SF

Remember the purpose: Big picture planning tool

Let's add some inventory!

## Add Inventory

- System: E10
- Eq/Mat Cat: E1030
- Subtype: E103002 Loading Dock Equipment, Dock Leveler
- Year: 2005
- Qty: 1
- Section Name: EAST
- CMMS ID: DL-E1





# BUILDER Training

Break Time... Then Inspections



## Inspections - Background

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In a standard FCA, different assessors/firms means different methodologies/biases/results

Can't manage assets across the state/country/world without consistency

Standardized and repeatable inspection process



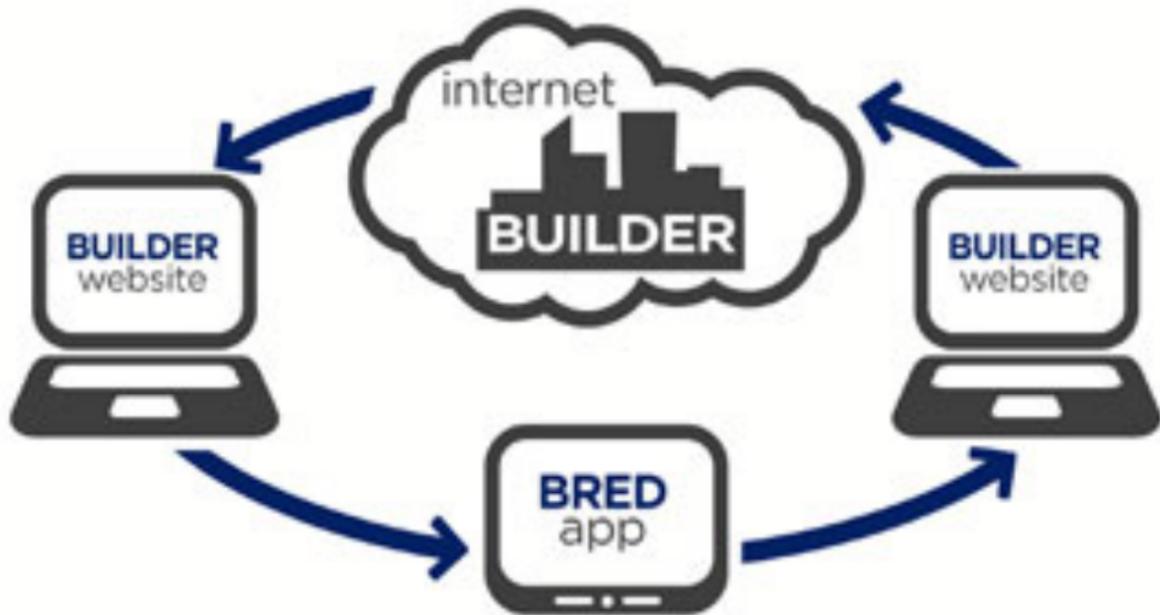
# Inspection Tools

---

- Paper and pencil
- BRED
- Third-party app



## BRED Workflow





# Downloading BRED

<https://support.sms.erd.c.dren.mil/downloads/bred>

The screenshot shows a web browser window with the URL <https://support.sms.erd.c.dren.mil/downloads/bred>. The page title is "STATUS".

**STATUS**

BUILDER is being widely adopted across the Department of Defense and is in varying stages of adoption by:

- US Marine Corps
- US Navy
- US Air Force
- US Army
- Defense Logistics Agency
- Defense Health Agency

A recent National Academies of Science report, "Predicting Outcomes of M&R Investments in Federal Facilities" highlighted BUILDER. BUILDER addresses the set of the severe consequences of this report. Federal agency interest is widespread and CERF recently presented BUILDER at a Federal Facilities Council meeting to a diverse audience from every federal facility management organization. As an outcome of this presentation, GRACE is in discussion with multiple agencies on how to adopt BUILDER. BUILDER is also available for use in the private sector through several licensed distributors. Current users include educational, municipal, and private enterprises.

[BUILDER Downloads](#) [BUILDER Training Material](#) [Support](#)

The right side of the screenshot shows a list of download items:

- USA BRED Lookup file (Paul Pinsky | 0)
- USAF BRED Lookup file (Paul Pinsky | 0)
- BRED Application version 3.3.7.13 (Paul Pinsky | 461)
- BRED Certificate of Networthiness Expires 9/27/2021 (Gardetha Marks | 112)
- BRED 3.3.7 User Guide (Gardetha Marks | 367)

# Lifecycle Curve with an Inspection



# Direct Ratings

- Most direct way to a CI
- Pick a color – Green/Amber/Red
- Pick a severity within the color – Plus/Mid/Minus
- 9 choices; 9 CIs
- Not a range - each corresponds to a specific CI





## Definitions - Green

A Direct Rating of...	...using this criteria...	...will be recorded in BUILDER as a CI of:
Green (+)	New. No action needed.	100
Green	Slight degradation. Preventative maintenance only.	95
Green (-)	Minor degradation. Minor corrective measures needed.	88

## Definitions - Amber

A Direct Rating of...	...using this criteria...	...will be recorded in BUILDER as a CI of:
Amber (+)	Moderate degradation. Minor repairs needed.	80
Amber	Significant degradation. Multiple repairs needed.	71
Amber (-)	Major degradation. Major repairs needed	61



## Definitions - Red

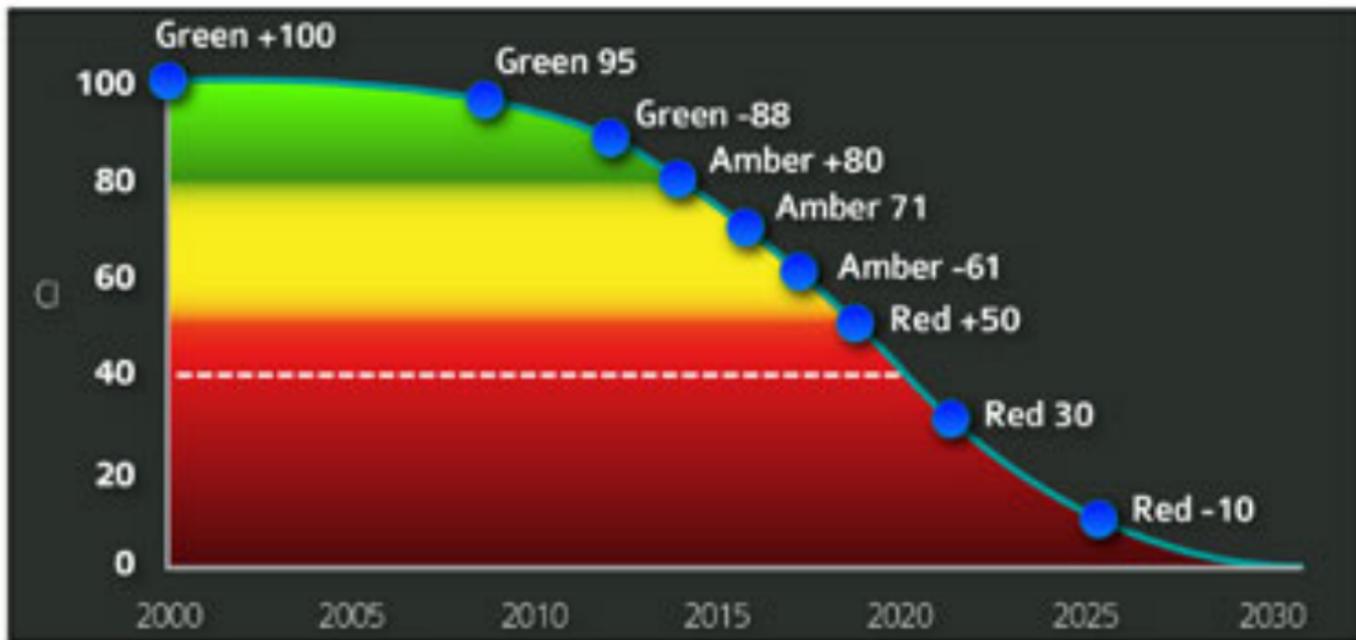
A Direct Rating of...	...using this criteria...	...will be recorded in BUILDER as a CI of:
Red (+)	Severe degradation. Rehabilitation needed.	50
Red	Working but total loss of reliability. Barely able to perform. Not feasible to repair. Replacement is imminent.	30
Red (-)	Inoperable. Total loss. Immediate replacement is needed.	10

# Direct Ratings Process

- Get the color first
  - Greens and Reds will usually be obvious
  - Everything else will be an Amber
- Dial in the severity based on the definitions
  - Generally, is it on the high side? Or the low side?
- Consider primary and secondary function

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

## Direct Ratings on the Curve





# 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



# Age-Based Inspections

---

How do you rate things you can't see? Foundations, piping, etc.

BUILDER uses lifecycle curve to determine condition

Need to verify Section exists

Add a Section Comment

# Add an Inspection

- Observation:
  - Struggles to operate with loud noises
  - Extensive rust.
- Add an Inspection, Comment
- Add an Inspection Photo





# Inspection Exercise

Getting Data Out of BUILDER



# Running Reports

- QA

The screenshot shows a web browser window with the address bar displaying a URL. The page title is "BUILDER Custom Reports- Core Set". The breadcrumb navigation is: "Help Center > Knowledgebase > BUILDER > Installation and Server Administration > BUILDER Custom Reports- Core Set". The article content includes:

**BUILDER Custom Reports- Core Set**

Last updated: Apr 3, 2019 by Paul Hickey

In contrast to the BUILDER Standard Reports, which are built into the code of the BUILDER Sustainment Management System (SMS) application, the **BUILDER Custom Reports** are developed outside of the BUILDER SMS code. They are deployed from a report server separate from BUILDER. These reports are therefore easier to modify; they are designed to expand the reporting capability beyond what is provided in the BUILDER Standard Reports.

There is a **core set** of Custom Reports that were designed and developed by the BUILDER design team. These reports are named "Final", "Inspection Locks", "QC" and "QAC". The Custom Reports are intended to help the user during their data quality assurance phase a means to review the data at the various levels of the BUILDER hierarchy. This core set of reports is generally deployed to all BUILDER instances.

This documentation also describes the BUILDER Catalog report, which lists all available Section Designations that can be selected via BUILDER menus during inventories.

**Author:** Dennis Nelson

**Attachments**

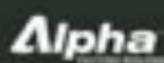
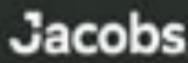
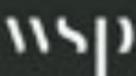
- 20190403\_Final-Custom-Reports-Standard-Set\_Literature.pdf (546.54KB)



# More Advanced Training

Kurt Sorensen

President of DIGON Systems





# Agenda

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## Work Planning

- Standards, Policies, Priorities

## Scenarios

- Constrained vs. Unconstrained

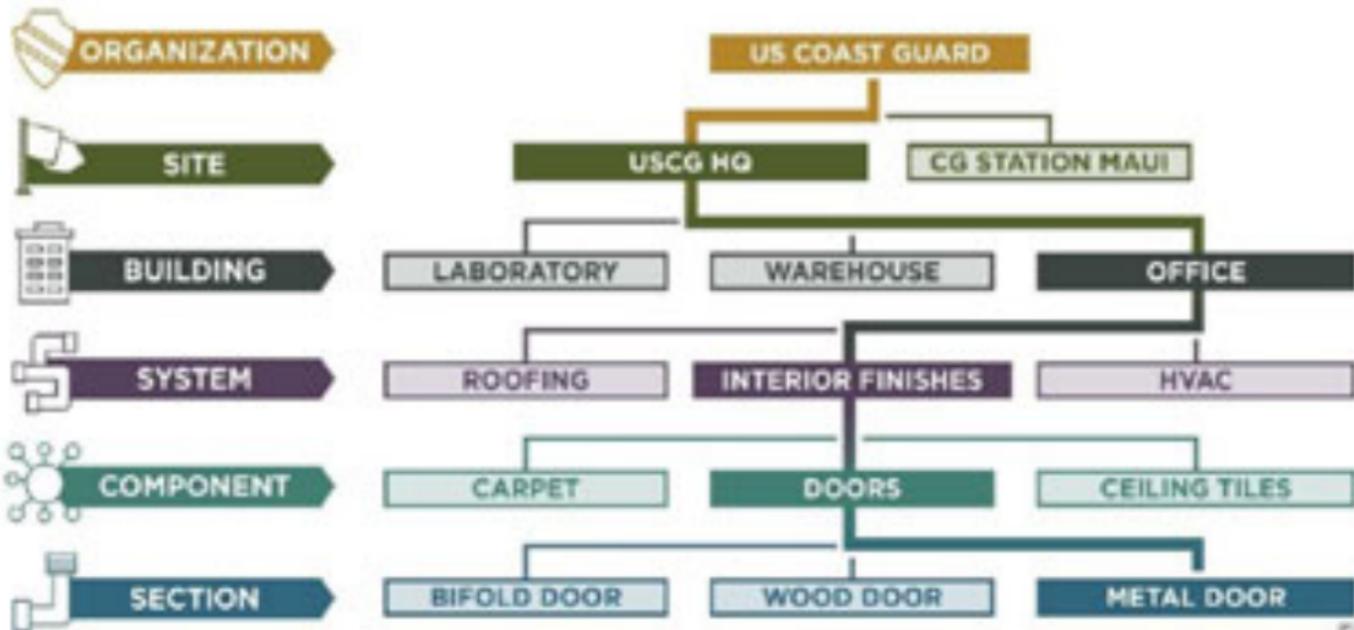
## Metrics Review

- BCI / FCI

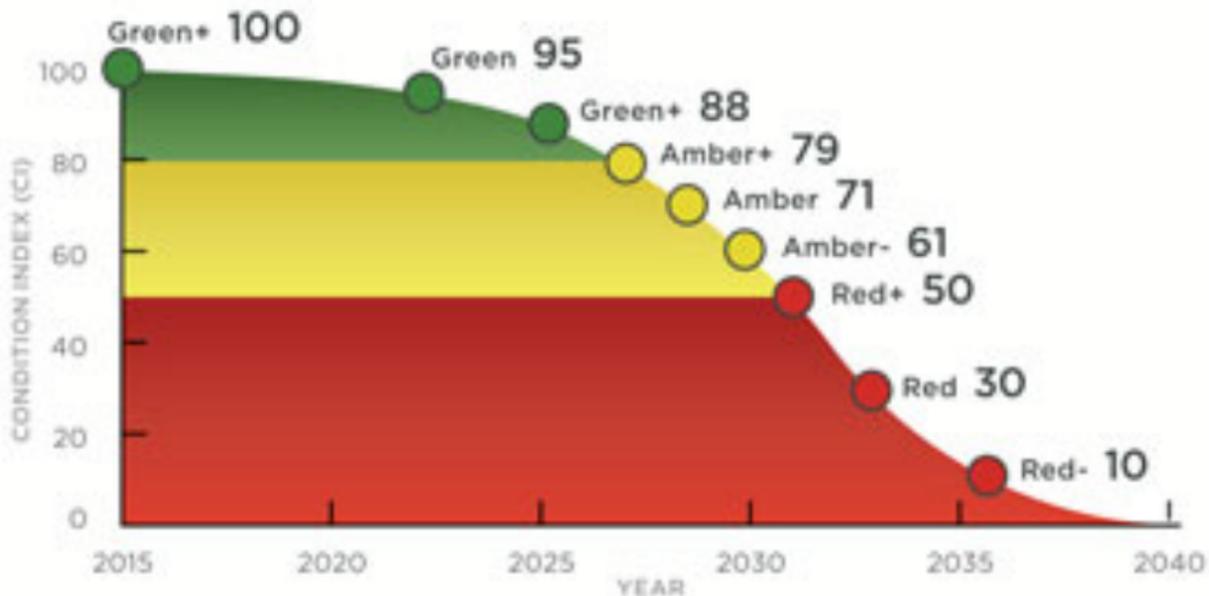
## Reporting

- Looking at Scenario data

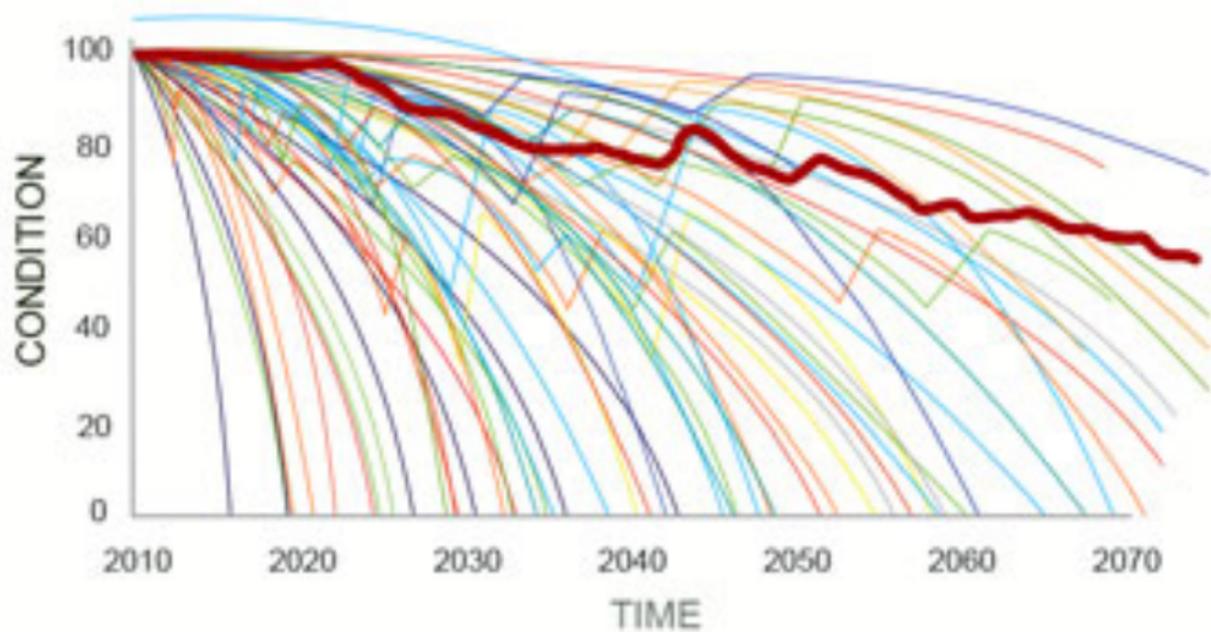
# UNIFORMAT Hierarchy



## 9 Ratings – 9 CIs



## Roll Up of BCI





# Top Navigation Drop Down

## Work Configuration

- Settings for standards

## Work Plan

- All sections that failed the standards

## Scenarios

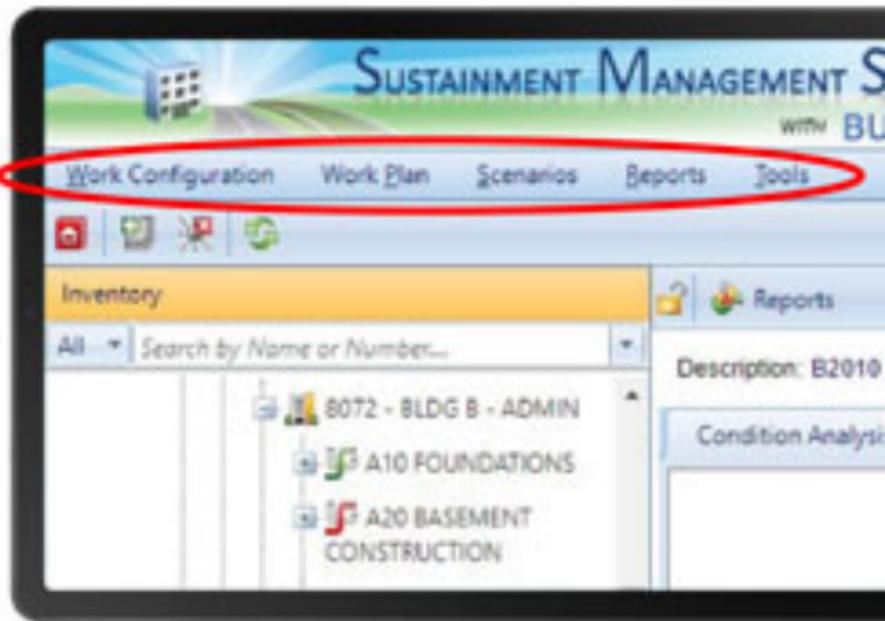
- Long term planning simulations

## Reports

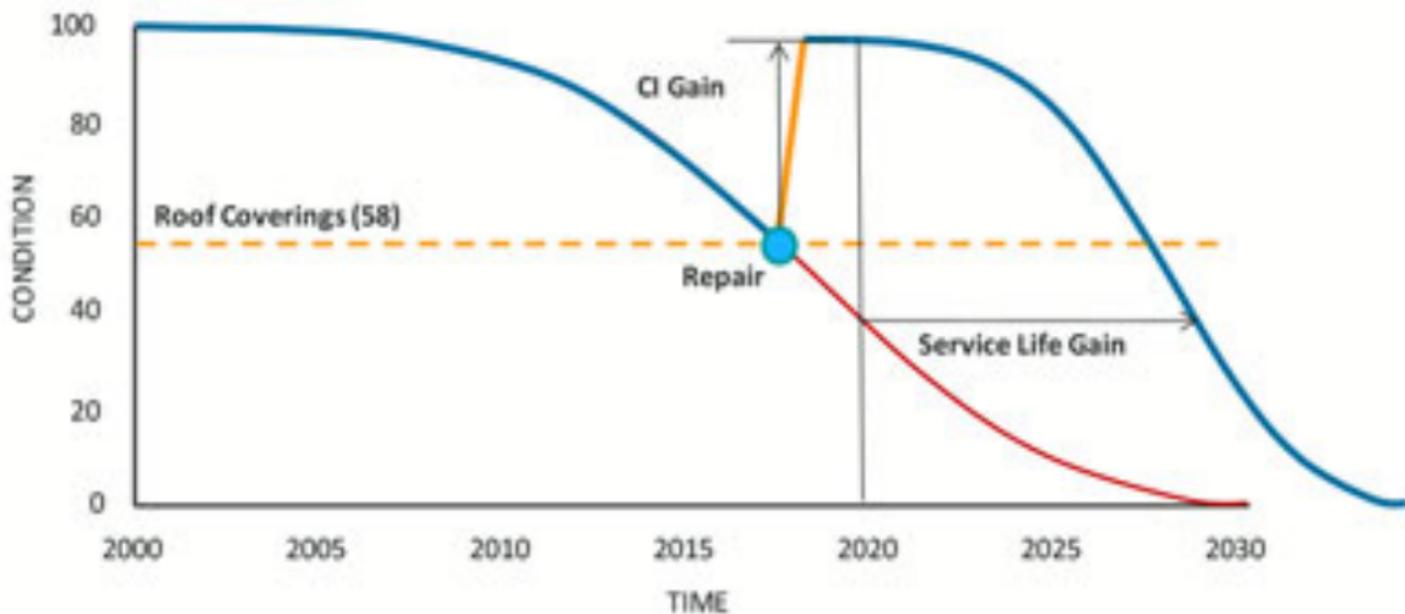
- Standard reports

## Tools

- Library
- Administration
- BRED Management



# Work Approach



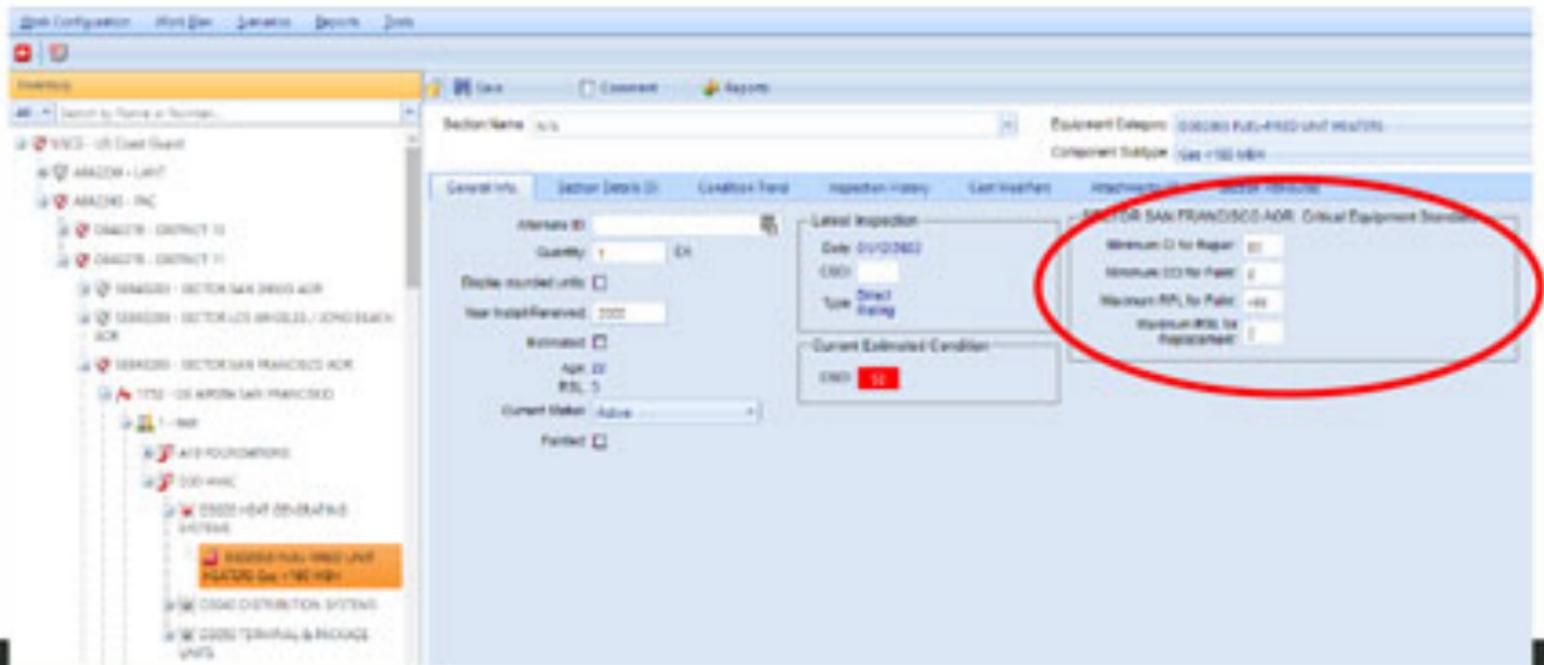
# Work Generation – Standards & Policies



# Work Prioritization / Funding



# Sections



The screenshot displays a software interface for configuring equipment sections. On the left is a tree view showing a project hierarchy. The main area is divided into several tabs: 'General Info', 'Section Details (S)', 'Location/Zone', 'Inspection History', 'Last Inspection', and 'Improvements'. The 'Section Details (S)' tab is active, showing fields for 'Section Name', 'Equipment Category', and 'Component Name'. Below this are sections for 'Latest Inspection' and 'Current Estimated Condition'. A red circle highlights the 'Improvements' tab, which is currently selected, showing a list of improvement items with columns for 'Minimum ID for Repair', 'Minimum ID for Panel', 'Maximum RPM for Panel', and 'Maximum RPM for Equipment'.

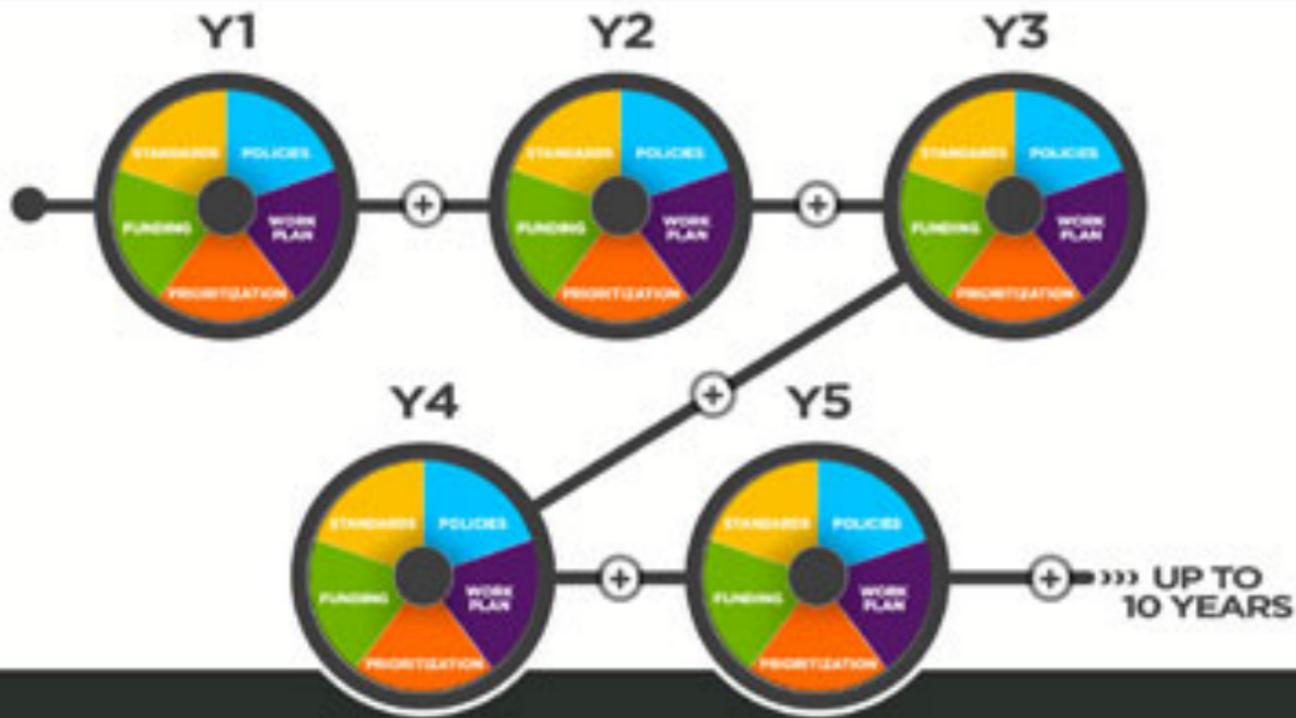
**Tree View:**

- ▼ VCS - US East Coast
  - ▼ AMAZON - LMT
  - ▼ AMAZON - INC
    - ▼ 044276 - DISTRICT 10
    - ▼ 044276 - DISTRICT 11
      - ▼ 064620 - SECTOR SAN DIEGO ACB
      - ▼ 064620 - SECTOR LOS ANGELES / JORDAN BACH ACB
      - ▼ 064620 - SECTOR SAN FRANCISCO ACB
        - ▼ 1112 - US WFOH SAN FRANCISCO
          - ▼ 1-940
            - ▼ AFB FOUNDATIONS
            - ▼ 000-494C
            - ▼ 0000-HEAT DE-LOADING UNIT-00
            - ▼ 0000-FULL-1962 UNIT-00 (highlighted)
            - ▼ 0000-DISTRIBUTION SYSTEMS
            - ▼ 0000-TERMINAL & MOUNTING UNITS

**Form Fields:**

- Section Name:
- Equipment Category: 000000-FULL-1962-UNIT-00-0000
- Component Name: Gas 1192 MBH
- Section Details (S):
  - Alternate ID:
  - Quantity:  EA
  - Stack mounted units:
  - New Install/Revised:
  - Estimated:
  - Age:  YRS:
  - Current Status: Active
  - Failed:
- Latest Inspection:
  - Date: 01/03/2021
  - CSI:
  - Type: Direct (highlighted)
  - Rating:
- Current Estimated Condition:
  - CSI:
- Improvements (highlighted):
  - SECTOR SAN FRANCISCO ACB - Critical Equipment Section
  - Minimum ID for Repair:
  - Minimum ID for Panel:
  - Maximum RPM for Panel:
  - Maximum RPM for Equipment:

# Work Planning & Generation



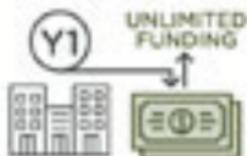
# Unconstrained Scenarios

- Assume unlimited funds are available.
- Repair and replace all sections that are identified for work

UNLIMITED  
ANNUAL



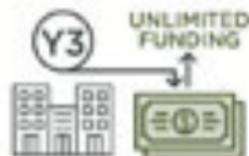
FUNDING



**FCI 100**  
**BCI 1 YEAR**  
**AGE LOWER**



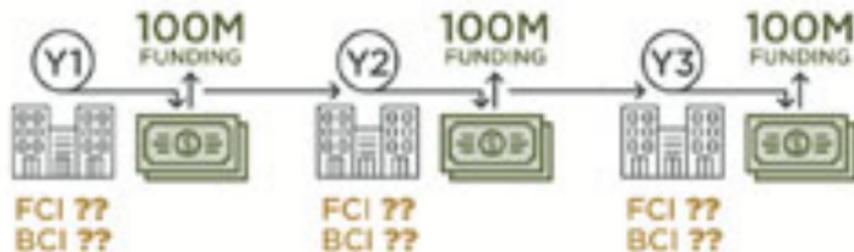
**FCI 100**  
**BCI IMPROVED**  
**FROM SPEND**



**FCI 100**  
**BCI ??**

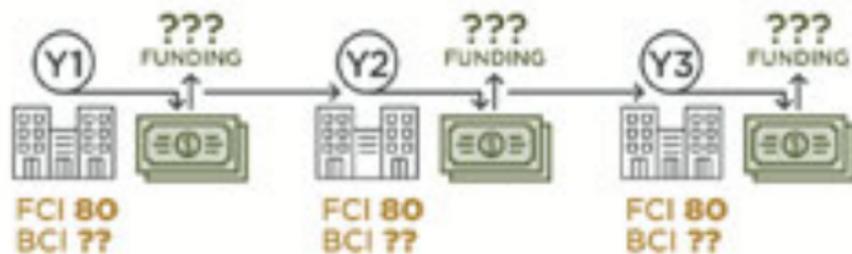
# Funding Constrained Scenarios

- Set one or more funding source to establish a budget for up to 10 years
- Complete work based on priority score up to available budget
- Roll-over uncompleted work to the next year for possible completion
- Used to show the impact of funding decisions



# Funding Constrained Scenarios

- Set a facility FCI target policy
- Complete all work based on priority to satisfy the FCI policy
- Roll-over uncompleted work to the next year for possible completion
- Used to identify the funding requirements to meet a FCI target





# Scenario Reporting

The screenshot displays the Builder Summit software interface. The top window shows a project tree on the left with 'Scenario Reporting' selected. The main window is titled 'Custom Reports' and shows a report configuration for 'Scenario Reporting'. The configuration includes:

- Scenario Run Between Start Date:** 1/1/2011
- End Date:** 1/1/2011
- Select Run-Or-Over Scenario?:**  Run  Over
- Scenario:** Scenario 1 (Selected)
- Include Details?:**  Yes  No
- Include P&ID?:**  Yes  No
- Include Custom Tables?:**  Yes  No
- Section Status:** Active
- Run Report:** Button



# Work Prioritization Example

- Facility criticality

The screenshot shows a software window titled "Measure Scores" with a menu bar containing "Close", "Save", and "Help". The window displays the following information:

- Name: MDI
- Category: Building
- Measure: Facility Mission Dependency Index (MDI)

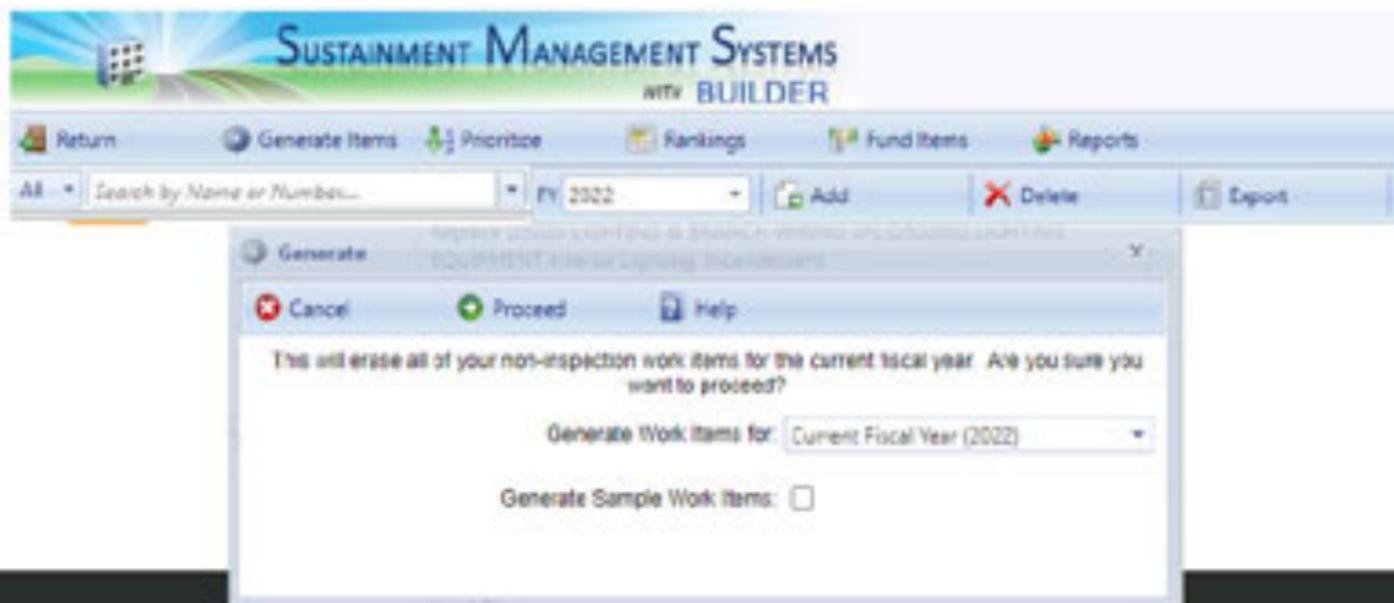
Below this information is a table with two columns: "Name" and "Point Value". Each row in the table includes a small icon of a pencil and a downward-pointing arrow.

Name	Point Value
85 - 100	100
80 - 84	94
85 - 89	89
80 - 84	84
75 - 79	79
70 - 74	74
65 - 69	69
60 - 64	64
55 - 59	59
50 - 54	54
45 - 49	49
40 - 44	44



# Work Item Generation

- Only is created once clicked in BUILDER





# Work Item Lists

- Based on the configuration settings, BUILDER will create a "Work Plan" of all sections that are identified as deficient.

The screenshot displays the SUSTAINMENT MANAGEMENT SYSTEMS with BUILDER software interface. The main window shows a "Work Plan" table with columns for "Status", "Name", "Cost", "Description", and "Cost". The table lists three work items, each marked as "Deficient".

Status	Name	Cost	Description	Cost
Deficient	ENCLOSURE - ENVIRONMENTAL ROOM BUILDING 5	ENCLOSURE AIR DISTRIBUTION HEATING & COOLING Humidifier - 11 & per hour	Repair COOLING DISTRIBUTION SYSTEMS ENCLOSURE AIR DISTRIBUTION HEATING & COOLING Humidifier - 11 & per hour	\$0,700
Deficient	ENCLOSURE - ENVIRONMENTAL ROOM BUILDING 5	ENCLOSURE SPECIAL PIPING SYSTEMS Component for Distribution System Piping, Valves, and Filings	Repair COOLING OTHER PUMPING SYSTEMS ENCLOSURE SPECIAL PIPING SYSTEMS Component for Distribution System Piping, Valves, and Filings	\$1,000
Deficient	ENCLOSURE - ENVIRONMENTAL ROOM BUILDING 5	ENCLOSURE SPECIAL PIPING SYSTEMS Lab Network up to 1" copper	Repair COOLING OTHER PUMPING SYSTEMS ENCLOSURE SPECIAL PIPING SYSTEMS Lab Network up to 1" copper	\$750

# Work Item Lists

- Each work item identified is specific to the section

Work Plan Items		Projects	Budget Summary			
	Details	Name	Asset	Description	Cost	
			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ROOF	Link
X	<a href="#">Replace</a>	S30228001 - MAIN OFFICE BUILDING 1	ROOF 0301007 Variable Frequency Drives VFD, 5 HP	Replace 03010 ELECTRICAL SERVICE & DISTRIBUTION ROOF Drives VFD, 5 HP		<ul style="list-style-type: none"> <li>Roll Over</li> <li><b>Contains</b></li> <li>DoesNotContain</li> <li>StartsWith</li> <li>EndsWith</li> <li>EqualTo</li> <li>NotEqualTo</li> <li>GreaterThan</li> <li>LessThan</li> <li>GreaterThanOrEqualTo</li> <li>LessThanOrEqualTo</li> <li>Between</li> </ul>
X	<a href="#">Replace</a>	S30228054 - NPOGCTV LABORATORY	ORIGINAL 8301002 LOW SLOPE ROOF SYSTEMS Modified Bitumen	Replace 83010 ROOF COVERINGS ORIGINAL 8301002 LOW SLOPE ROOF SYSTEMS Modified Bitumen		
X	<a href="#">Replace</a>	S30228054 - NPOGCTV LABORATORY	ORIGINAL 8301003 ROOF INSULATION & FILL General	Replace 83010 ROOF COVERINGS ORIGINAL 8301003 ROOF INSULATION & FILL General		
X	<a href="#">Replace</a>	S30228053 - POLE BARN	0304007 EXHAUST SYSTEMS Fan System, Roof Exhaust - 500 CFM	Replace 03040 DISTRIBUTION SYSTEMS 0304007 EXHAUST SYSTEMS Fan System, Roof Exhaust - 500 CFM		



## Work Item Detail View

- Each work item can be managed and if set to "complete" will automatically update the BUILDER key metrics.

A screenshot of the BUILDER software interface showing the 'Work Item Detail View' for a 'HVAC' section. The window title is 'BUILDER - Work Item Detail View'. The interface includes a menu bar (File, Edit, View, Help), a toolbar, and a main content area. The main content area has tabs for 'Details' and 'Cost Analysis'. Below the tabs, there are fields for 'Project ID', 'Project RSI', 'Current Type', and 'New Type'. The 'Section Name' is 'HVAC'. The 'Description' is 'Replace 2002 HEAT GENERATING SYSTEMS (2002) BUILDER Details, Not Used'. The 'Work Request ID' is empty, and the 'Status' is 'Awaiting Funds'. The 'Funding FY' is '2010', and the 'Work FY' is '2010'. The 'Estimated Cost' is '\$170,000.00'. The 'Work Code' is 'Landscape', and the 'Efficiency Savings' is empty. The 'Work Activity' is 'Replace', and the 'Actual Cost' is '\$170,000.00'. The 'Quantity' is '1' and the 'Unit' is 'EA'. The 'Cost Book' is 'Reference'. At the bottom, there is a 'Total Information' section with 'Total' at '\$170,000' and 'RSI' at 'None'.



# Key Metrics Review

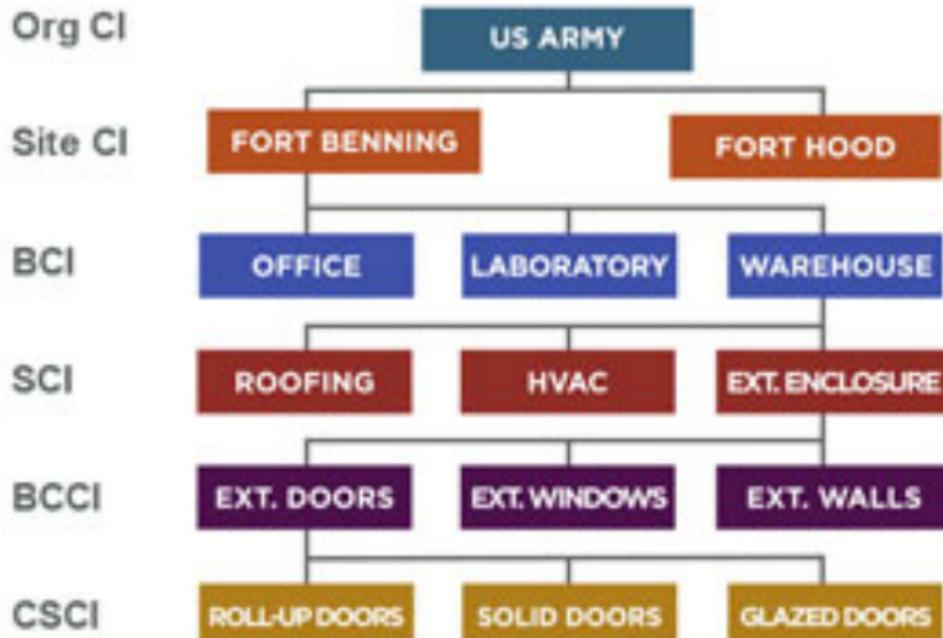
Review of the most important facility numbers (FCI / BCI)



# What is a Condition Index? (CI)

A rating that assesses an item's condition.

Condition is assessed at the section level, and then 'rolls up' to create CI ratings at higher levels





# What is a Section?

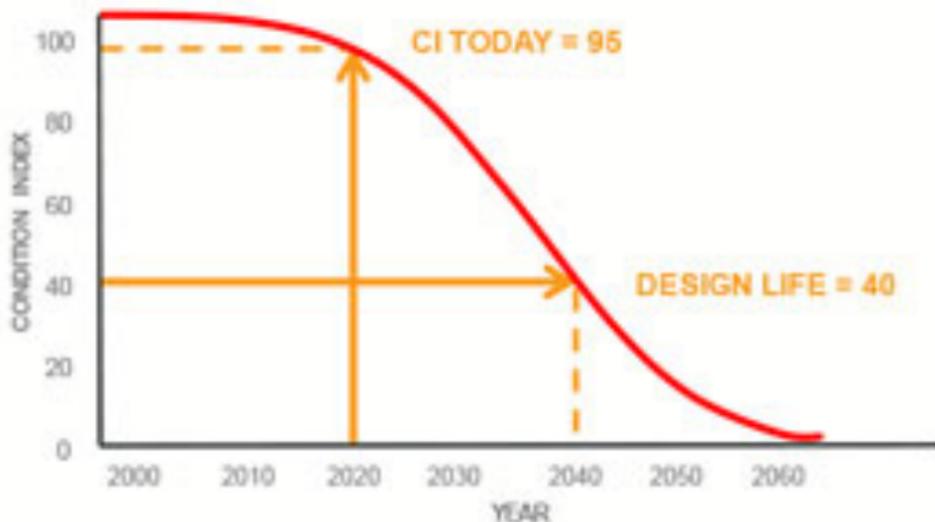
- Example:  
2x Glazed Doors





## CSCI: Component-Section C1

- Example:  
B203002  
Glazed Doors



# What is a Component?

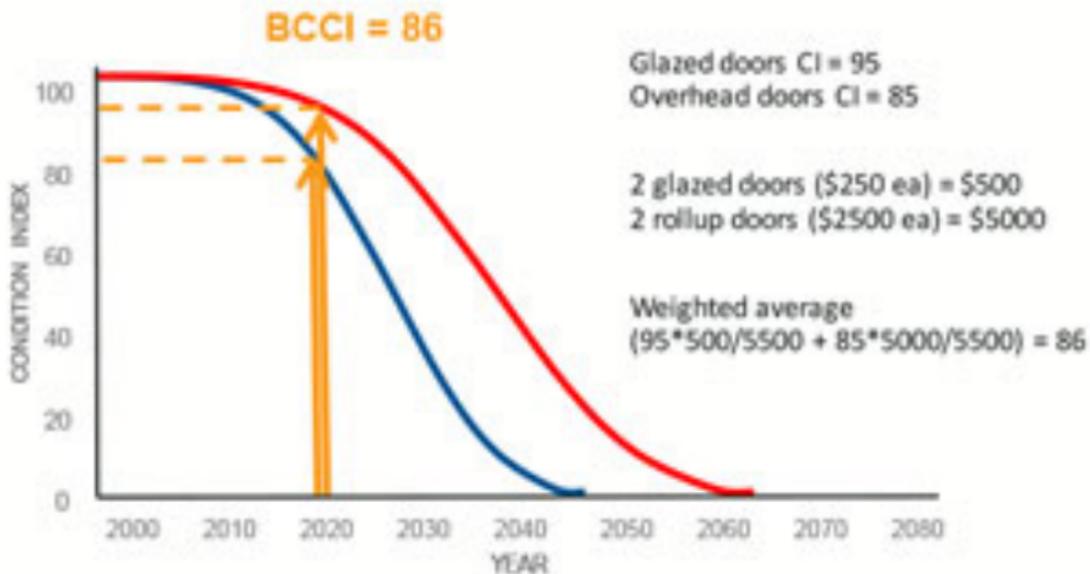
- Example:  
Exterior Doors





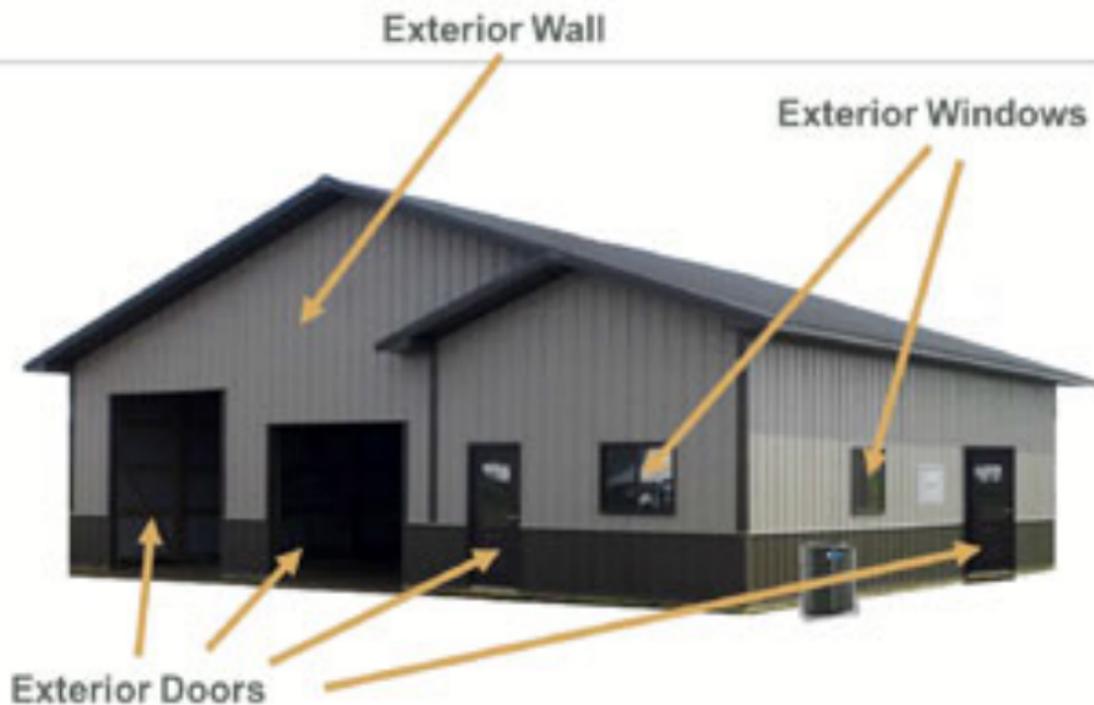
# BCCI: Building Component CI

- Example:  
B2030  
Exterior Doors



# What is a System?

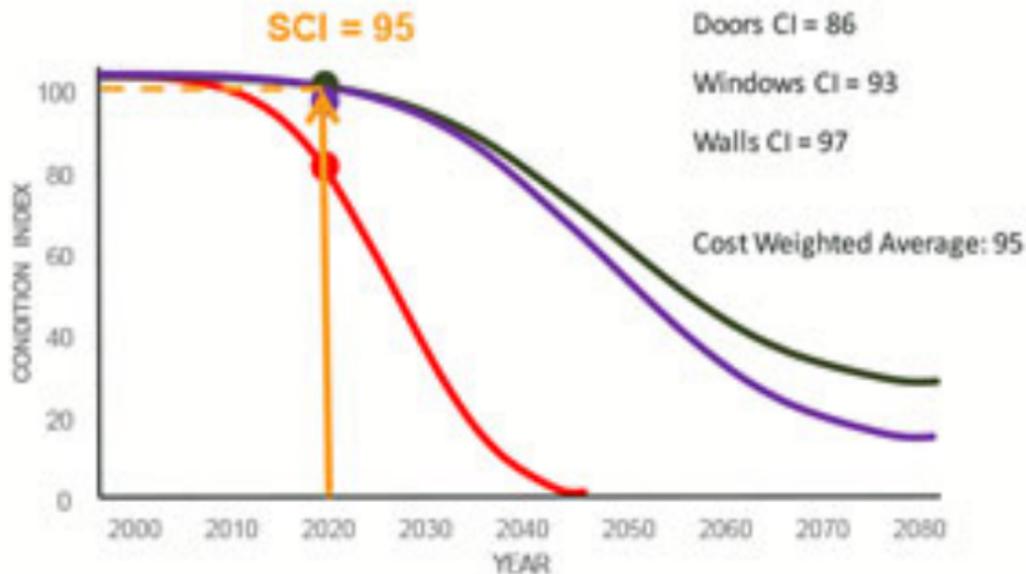
- Example:  
Exterior Enclosure





# SCI: System Condition Index

- Example:  
B20 Exterior  
Enclosure



# What is a Building?

- Example:  
Warehouse

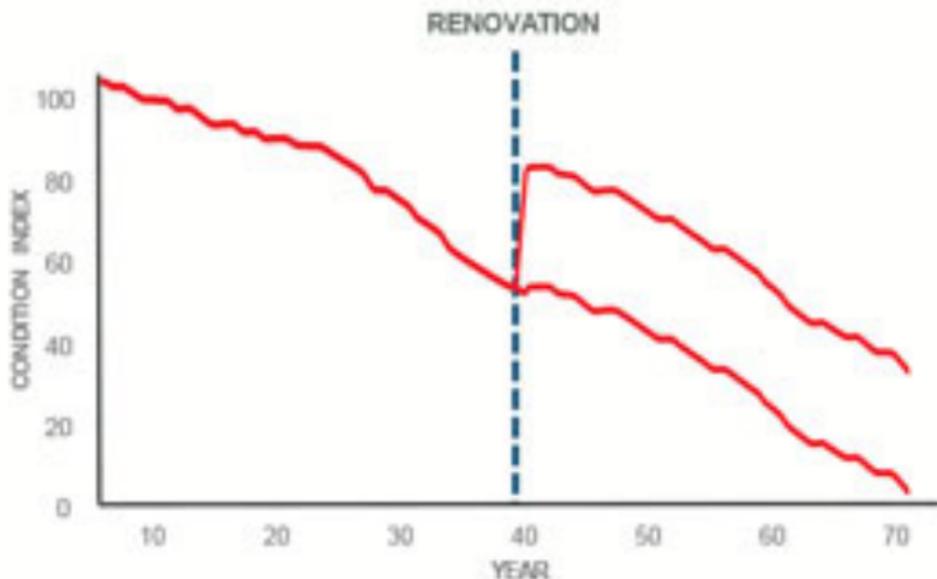






## Impact to Metric of Investment

The effect on BCI of a renovation at 40 years.





# Facility Condition Index (FCI)

BUILDER offers the same FCI used for decades with a new way of identifying work

$$\text{FCI} = \left( 1 - \left( \frac{\text{Identified Work}}{\text{Current Replacement Value}} \right) \right) \times 100$$



## Denominator | PRV

Replacement cost of the building

$$FCI = \left( 1 - \left( \frac{\text{Identified Work}}{\text{Current Replacement Value}} \right) \right) \times 100$$



## USCG Standards Find Work

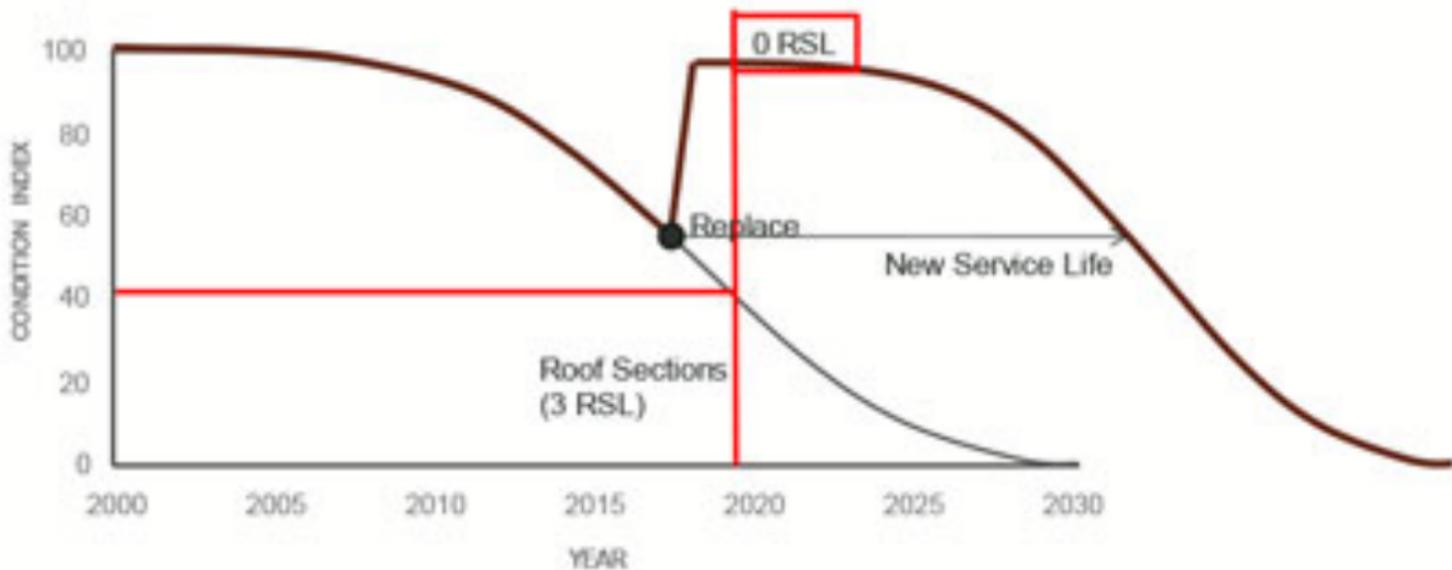
- Not based on inspector opinion
- Transparent and repeatable work configuration

$$FCI = \left( 1 - \left( \frac{\text{Identified Work}}{\text{Current Replacement Value}} \right) \right) \times 100$$



# Replacement Work

## Example: Warehouse





## Impacts of Investment | FCI vs BCI

---

- FCI improves only when work is done against BUILDER identified work items.
- FCI will only improve based on the estimated costs from BUILDER. Not always a real cost.
- Do not expect a large jump in BCI because the facilities have so many other sections that will be factored in the equation.

# Mosaic of Decision Metrics

- Leadership will use a mosaic of metrics to make the right facility investment decisions
- Both BCI and FCI will play a key role in that decision





# Additional Training Resources

- <https://www.sms.erdcdren.mil/>
- Select BUILDER
- Scroll to bottom

A screenshot of a web browser displaying the "STATUS" page for BUILDER. The browser's address bar shows the URL "https://www.sms.erdcdren.mil/". The page title is "STATUS". The main content includes a paragraph stating that BUILDER is being widely adopted across the Department of Defense and is in varying stages of adoption by several agencies. A bulleted list follows, listing the agencies: US Marine Corps, US Navy, US Air Force, US Army, Defense Logistics Agency, and Defense Health Agency. Below the list is a paragraph mentioning a recent National Academies of Science report titled "Predicting Outcomes of I&ER Investments in Federal Facilities" which highlighted BUILDER. At the bottom of the page, there are two links: "BUILDER Downloads" and "BUILDER Training Material", with the latter link circled in red.

Government Management Ltr. |

← → ↻ 🏠 🌐 📄 ⌂

## STATUS

BUILDER is being widely adopted across the Department of Defense and is in varying stages of adoption by:

- US Marine Corps
- US Navy
- US Air Force
- US Army
- Defense Logistics Agency
- Defense Health Agency

A recent National Academies of Science report, "Predicting Outcomes of I&ER Investments in Federal Facilities" highlighted BUILDER. BUILDER addresses five out of the seven recommendations of this report. Federal agency interest is widespread and CERL security presented BUILDER at a Federal Facilities Council meeting to a diverse audience from many Federal facility management organizations. As an outcome of this presentation, USACE is in discussion with multiple agencies on how to adopt BUILDER. BUILDER is also available for use in the private sector through several licensed distributors. Current users include educational, municipal, and private enterprises.

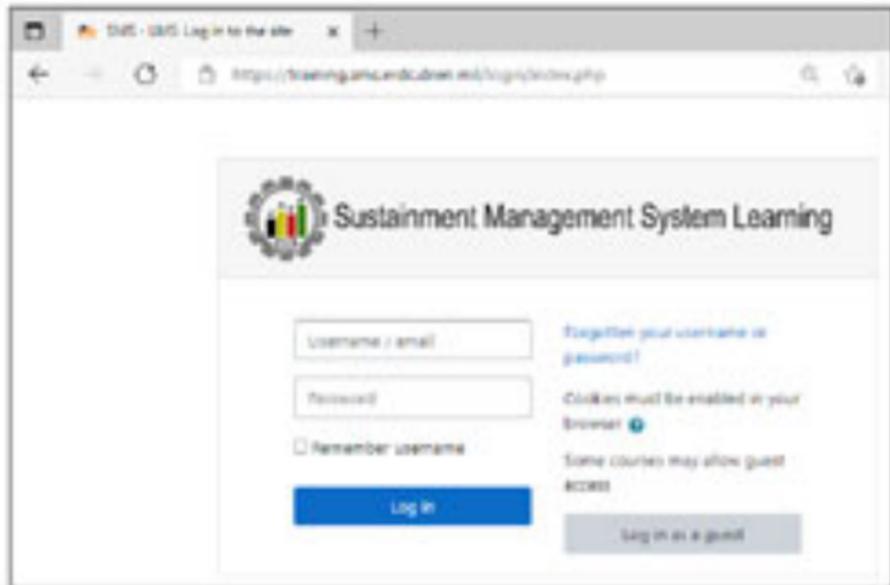
[BUILDER Downloads](#) [BUILDER Training Material](#) [Support](#)



## Log In Options

Self-Registration on the LMS is currently restricted to specific email domains for the current SMS user community.

dren.mil, army.mil, af.mil, navy.mil,  
mail.mil, uscg.mil, deca.mil, dia.mil,  
afit.edu, afcent.mil, anl.gov, mda.mil  
Others send request to:  
buildersupport@usace.army.mil





# BUILDER 3 Training

- **Course Description:** Provides a comprehensive overview of BUILDER.
- **Prerequisites:** SMS Overview
- **Length:** 5 Hours 30 Minutes
- **Tip:** Disable Pop-ups

A composite image showing a browser window, a navigation menu, and a pop-up notification. The browser window on the left shows the URL "https://training.simsweb.com/.../builder3x.html" and the page title "BUILDER 3.x". The navigation menu in the center lists "Home", "Site pages", "Courses", "Sustenance Management System (SMS)", "SMS Overview", "BUILDER", "Participants", "Course Description", "Fundamentals", "Inventory Overview", and "Condition Assessment". The "BUILDER" item is highlighted. On the right, a "Pop-ups blocked" notification is shown, circled in red. It contains the text "Pop-ups blocked" and a link to "https://training.simsweb.com/.../builder3x.html". Below the link are two radio buttons: "Always allow pop-ups and notifications from https://training.simsweb.com/" and "Continue blocking". At the bottom of the notification are "Manage" and "Done" buttons.

# Content Types

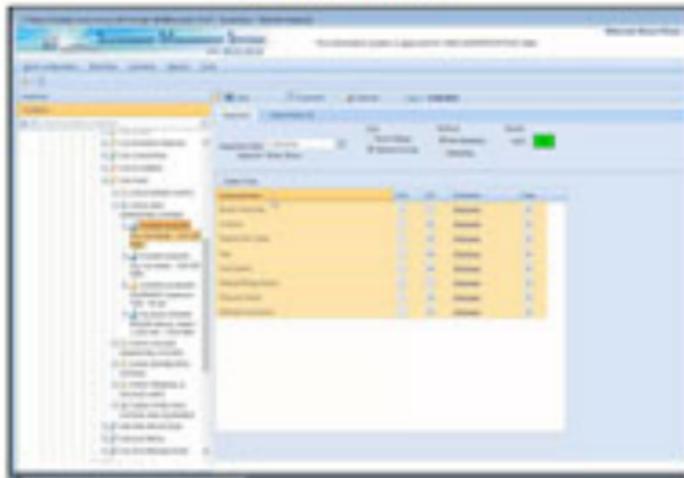
## Lessons



Address Type(s): Damaged and Corroded  
Severity Level(s): Med and Hnd  
Quantity/Density: 25% and 75%




## Demo Videos



Item	Value	Unit	Color
Item 1	100	ft	Blue
Item 2	200	ft	Blue
Item 3	300	ft	Blue
Item 4	400	ft	Blue
Item 5	500	ft	Blue
Item 6	600	ft	Blue
Item 7	700	ft	Blue
Item 8	800	ft	Blue
Item 9	900	ft	Blue
Item 10	1000	ft	Blue



## BUILDER 3 Content

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**Fundamentals:** 21 Min Lesson – 9 Min Video

**Inventory:** 29 Min Lesson – 30 Min Video

**Condition Assessment:** 33 Min Lesson – 39 Min Video

**Data Collection:** 9 Min Lesson – 11 Min Video

**BUILDER Indices:** 27 Min Lesson – 4 Min Video

**Reference Books:** 11 Min Lesson – 12 Min Video

**Work Planning:** 25 Min Lesson – 29 Min Video

**Scenarios:** 11 Min Lesson – 29 Min Video

**BRED:** 6 Min Lesson – 55 Min Video



# Additional Training Resources

**Description:** Provides an overview of Army requirements for BUILDER Reassessments

**Prerequisites:** None

**Length:** 3 hours

**Style:** On-location Video

A screenshot of a web browser displaying a Learning Management System (LMS) page. The browser address bar shows a URL starting with "https://training.army.mil/...". The page title is "U.S. Army - BUILDER - Reassessment Training". Below the title is a breadcrumb trail: "Home / Courses / U.S. Army / BUILDER / Reassessment Training / Introduction / Introduction - Video". On the left side, there is a navigation menu with a tree structure: "Home", "Site pages", "Courses", "U.S. Army", "BUILDER", "Reassessment Training", "Participants", "General", "Course", "Description", "Introduction", "Introduction - Video". The main content area features a video player with the title "Introduction - Video" and a thumbnail image of a person in a white hard hat and a high-visibility yellow vest standing in front of a wooden building. Below the video player, there is a "Description" section that reads: "Provides a broad overview of the BUILDER project while also familiarizing users with the Sustainment Management System concepts. The BUILDER software application interface is explored providing a basic overview for new users." Below the description is a "Time Requirement" section that reads: "20 Minutes".



# Long Video Content

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## **Introduction: 29 Minutes**

Provides a broad overview of the BUILDER program while also familiarizing users with the Sustainment Management System concepts. The BUILDER software application/interface is explored providing a basic overview for new users.

## **Inventory: 38 Minutes**

Covers inventory basics and Army Guide requirements that allow for consistency within the BUILDER interface. Will familiarize participants with Lifecycle Curves and show participants how to see all inventory. Covers navigating the inventory levels of BUILDER (Organization, Site, Building, System, Component, and Section) and highlights the specific ways inventory is organized for consistency.

## **Inspection: 36 Minutes**

Discusses the differences and interchangeability between an inspection and a Re-inspection. Highlights inspections are non-destructive and non-invasive. Also, introduces steps for consistency – BUILDER has rules and definitions while the Army Guide has specific procedures to ensure Condition Index (CI) consistency.

## **Business Rules & Data Quality: 37 Minutes**

Discusses content within the Army BUILDER SMS Inventory and Assessment Guide and its importance for participants. Defines the business/inspection rules and quality data which allows participants to achieve the primary objectives for BUILDER. Also, covers the BUILDER Remote Entry Database (BUILDER RED / BRED) process and key points of using the application.



# UNIFORMAT II - System Videos

## Inventory Rules, Typical Distresses, Safety, Army Scope <https://youtu.be/0BQ29u6k7r0>

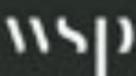
- A10 Foundations: 6 Minutes
- A20 Basement Construction: 5 Minutes
- B10 Superstructure: 4 Minutes
- B20 Exterior Construction: 9 Minutes
- B30 Roofing: 8 Minutes
- C10 Interior Construction: 8 Minutes
- C20 Staircases: 8 Minutes
- C30 Interior Finishes: 8 Minutes
- D10 Conveying: 4 Minutes
- D20 Plumbing: 9 Minutes
- D30 HVAC: 11 Minutes
- D40 Fire Protection: 5 Minutes
- D50 Electrical: 10 Minutes
- E10 Equipment: 5 Minutes



Thank you.

**DIGON**  
SYSTEMS

 Stantec

 WSP

 TETRA TECH

Jacobs

GORDIAN

Alpha