



OpenBridge Designer/Modeler – Understanding Workspace Files and Configuration

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Agenda



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Understanding Workspace Files and Configuration

Bentley

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Combining an OBM WS into an ORD WS

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OpenBridge Designer/Modeler – Understanding Workspace Files and Configuration



Where to Find/Set Variables

- **Application Level:**

- **OpenBridgeModeler.cfg**

- Path:

- OBM: C:\Program Files\Bentley\OpenBridge Modeler CE xx.xx\OpenBridgeModeler\config\appl

- OBD: C:\Program Files\Bentley\OpenBridge Designer CE xx.xx.xx\OpenBridgeModeler\config\appl

- **Workspace Level:**

- **_Bridge Default Standards - Imperial.cfg**

- **_Bridge Default Standards - Metric.cfg**

- Path:

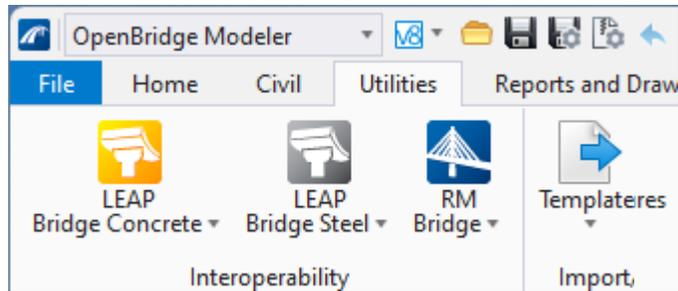
- OBM: C:\ProgramData\Bentley\OpenBridge Modeler CONNECT Edition xx.xx\Configuration\Organization-Civil

- OBD: C:\ProgramData\Bentley\OpenBridge Designer CONNECT Edition
xx.xx.xx\OpenBridgeModeler\Configuration\Organization-Civil

- **Workset Level**

New Variables in the ***OpenBridgeModeler.cfg*** file v10.10.20

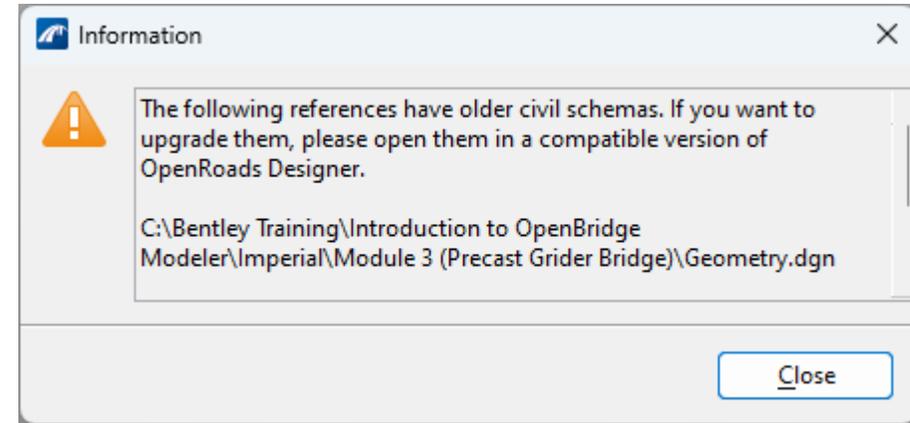
- OBM_DISABLE_PROSTRUCTURES = 1 **
- PS_ACCESSPSBUTTON=1



** *Commented out by default*

New Variables in the ***OpenBridgeModeler.cfg*** file v10.11

- OBM_SKIP_REFERENCE_SCHEMA_CHECK = TRUE
- OBM_BEARINGLINE_TO_SUPPORTLINE_RATIO=0.7
- CIVIL_TOOL_SETTINGS_OMIT_ITEMTYPES = TRUE
- CIVIL_QUICK_PROPERTIES_OMIT_ITEMTYPES = TRUE
- OBM_SPC_HPILE_FILTER=(\-HP\$)
- OBM_SPC_CONNECTOR_FILTER=(\-L\$ | \-WT\$)



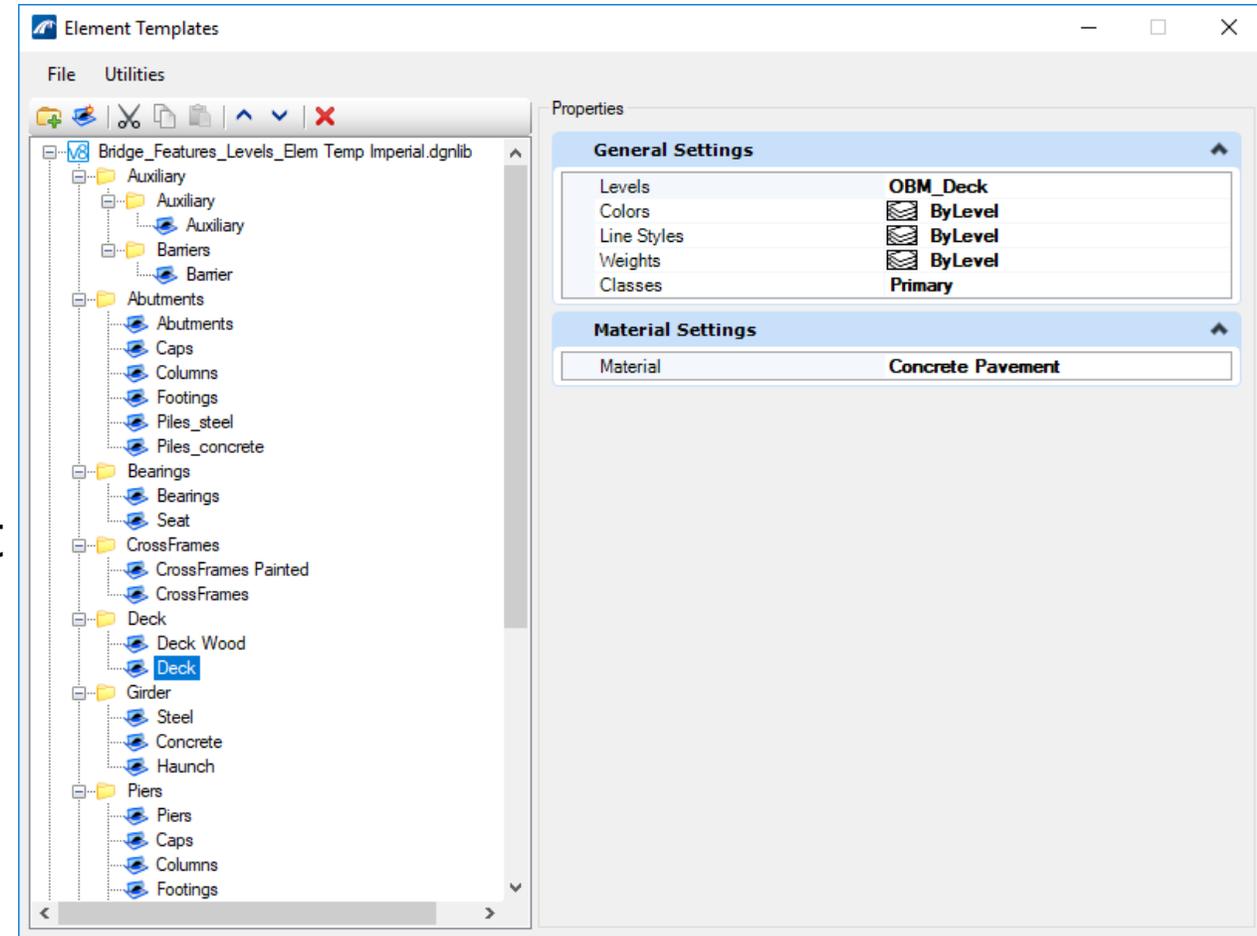
All are commented out by default

New Variables in the ***OpenBridgeModeler.cfg*** file v10.12

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Features and Element Templates

- ***Bridge_Features_Levels_Elem Temp Imperial.dgnlib***
- ***Bridge_Features_Levels_Elem Temp Metric.dgnlib***
- Contains Features, Levels and Element Templates



Path = C:\ProgramData\Bentley\OpenBridge Designer CONNECT Edition\OpenBridgeModeler\ Configuration\Organization-Civil_Bridge Default Standards - Imperial\OpenBridge Modeler\Dgnlib\Feature Definitions

What are Features ?

- Features are used for every step of the modeling process

The image displays four overlapping software dialog boxes from Bentley, illustrating how features are defined for different bridge components. Red boxes highlight the 'Feature Definition' fields in each dialog.

- Add Bridge (Main Panel):** Shows the 'Feature' section with 'Feature Definition' highlighted in red.
- Place Deck:** Shows the 'Feature' section with 'Feature Definition' set to 'Deck' and 'Name Prefix' set to 'Deck'. The 'Material' section shows 'Deck Material'.
- Place Pier:** Shows the 'Feature' section with 'Feature Definition' set to 'Abutment_concrete_piles' and 'Name Prefix' set to 'Pier'. The 'Material' section shows 'Cap Material', 'Column Material', 'Footing Material', and 'Pile Material'.
- Place Abutment:** Shows the 'Feature' section with 'Feature Definition' set to 'Abutment_conc' and 'Name Prefix' set to 'Abutment'. The 'Material' section shows 'Material' and 'Build Order'.
- Place Bearing:** Shows the 'Feature' section with 'Feature Definition' set to 'Bearing' and 'Name Prefix' set to 'Bearing'. The 'Material' section shows 'Grout Pad/Bevel Plate', 'Bearing Seat', 'Path', and 'Material'.

What are Feature Definitions and where do I find them ?

- Features Definitions are used to set a Feature Symbology for a part of the model
- Stored in a DGNLIB
- Can be viewed using the Explorer tool

The image shows two software windows. The 'Explorer' window on the left displays a tree view under 'OpenBridge Standards' > 'Libraries' > 'Feature Definitions'. A 'Deck' feature definition is selected, indicated by a blue arrow pointing to the 'Properties (OpenBridge Standards)' window on the right. The 'Properties' window shows the following details for the selected 'Deck' feature:

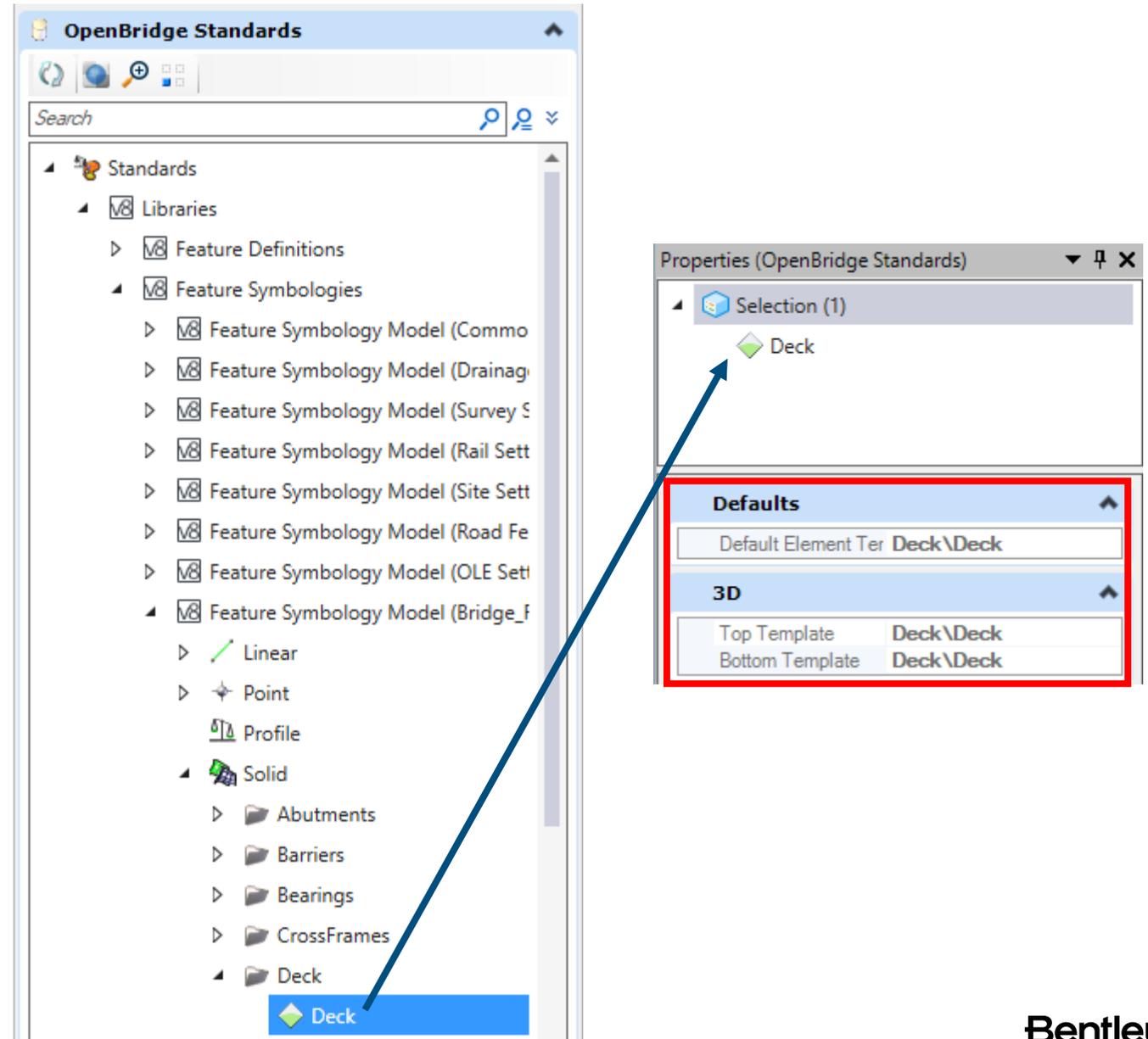
Feature Definition	
Name	Deck
Description	
Name Seed	

Item Type	
Item Type	No Item Type

Symbology	
Template Style	Deck

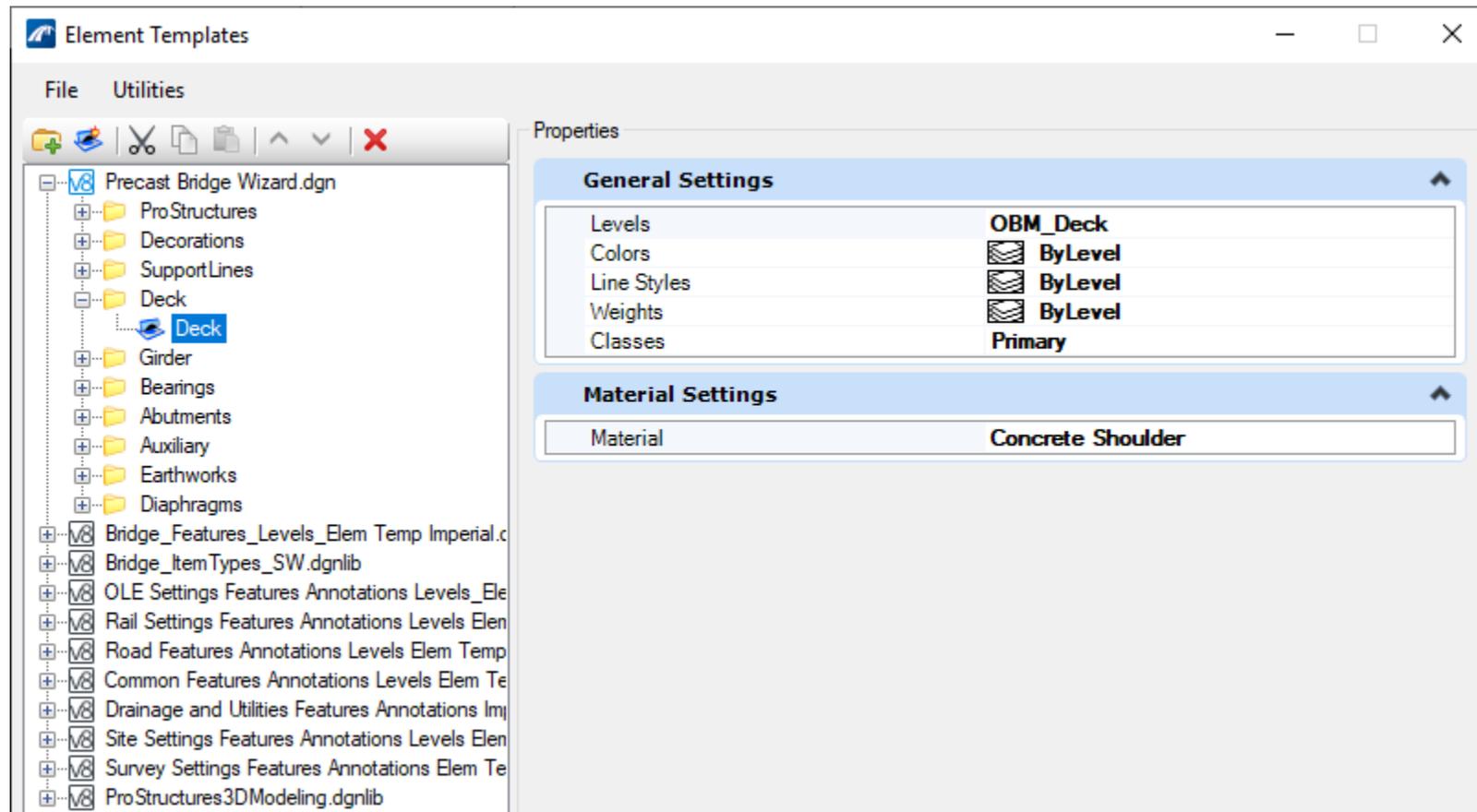
What are Feature Symbologies ?

- Features Symbologies are used to specify the Element Template(s) used to draw a feature.
- Stored in a DGNLIB
- Can be viewed using the Explorer tool



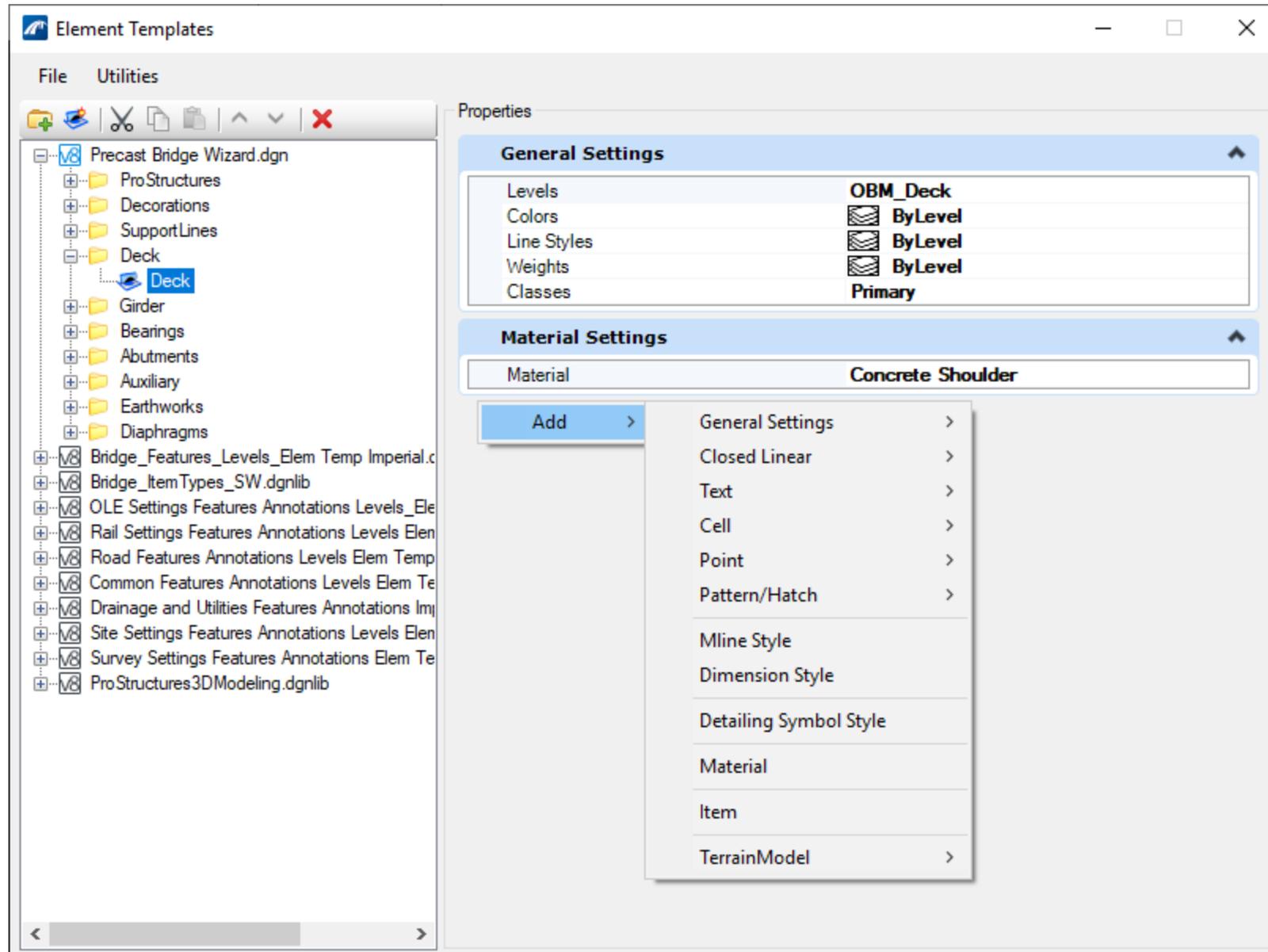
Element Templates

- Element templates define properties of elements
- Configured in a DGNLIB
- General Settings:
 - Level
 - Color
 - Style
 - Weight
 - Class
 - Transparency
 - Priority



Element Templates

- Additional Properties
 - Right Click to Add other properties



In Summary ... All of this is in one DGNLIB

Bridge_Features_Levels_Elem Temp Imperial.dgnlib
Bridge_Features_Levels_Elem Temp Metric.dgnlib

Feature
Definition

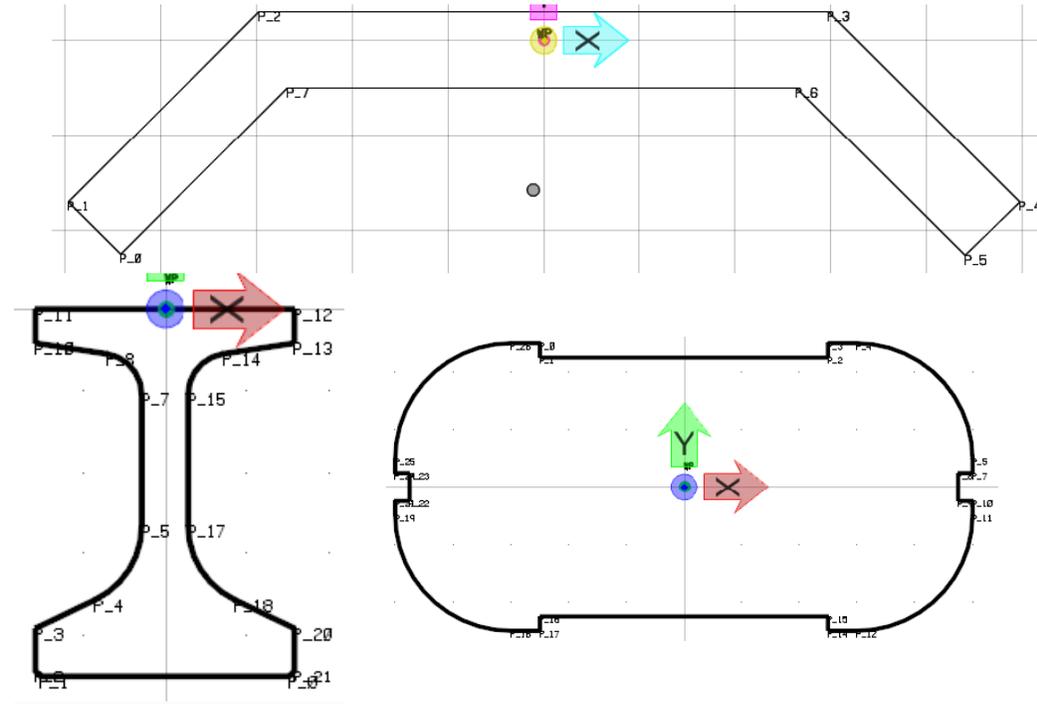
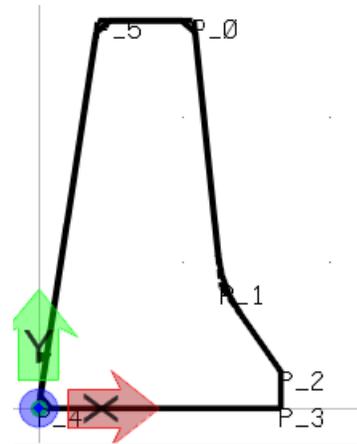
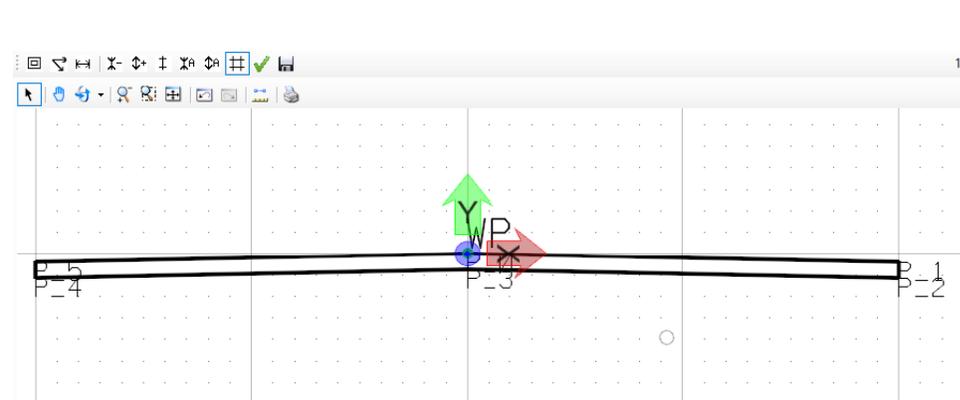
Feature
Symbology

Element
Templates

Levels

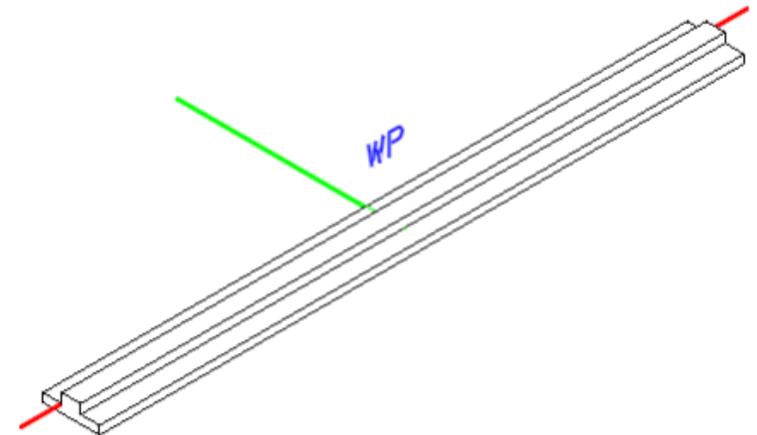
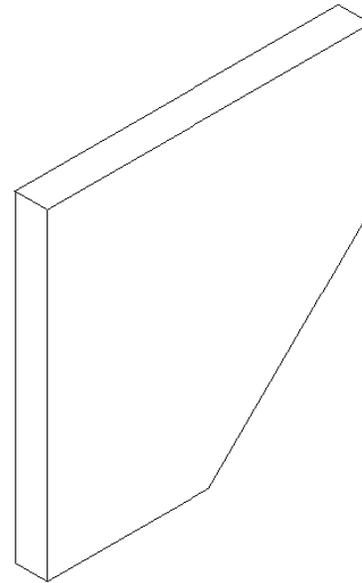
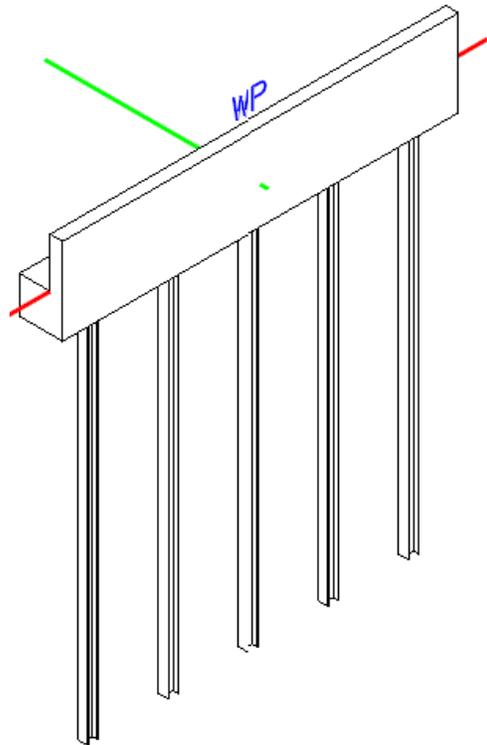
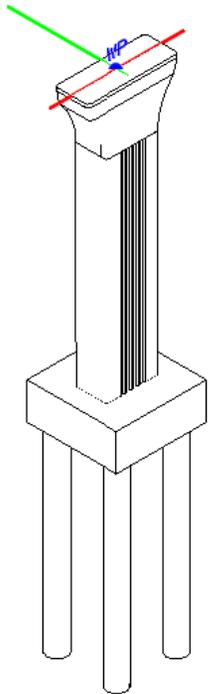
Templates

- OBM_TEMPLATE_FILE = *Bridge Templates/templates.xml*
 - All 2D templates
 - Deck, Barrier, Precast Beam, Column and Footing Templates



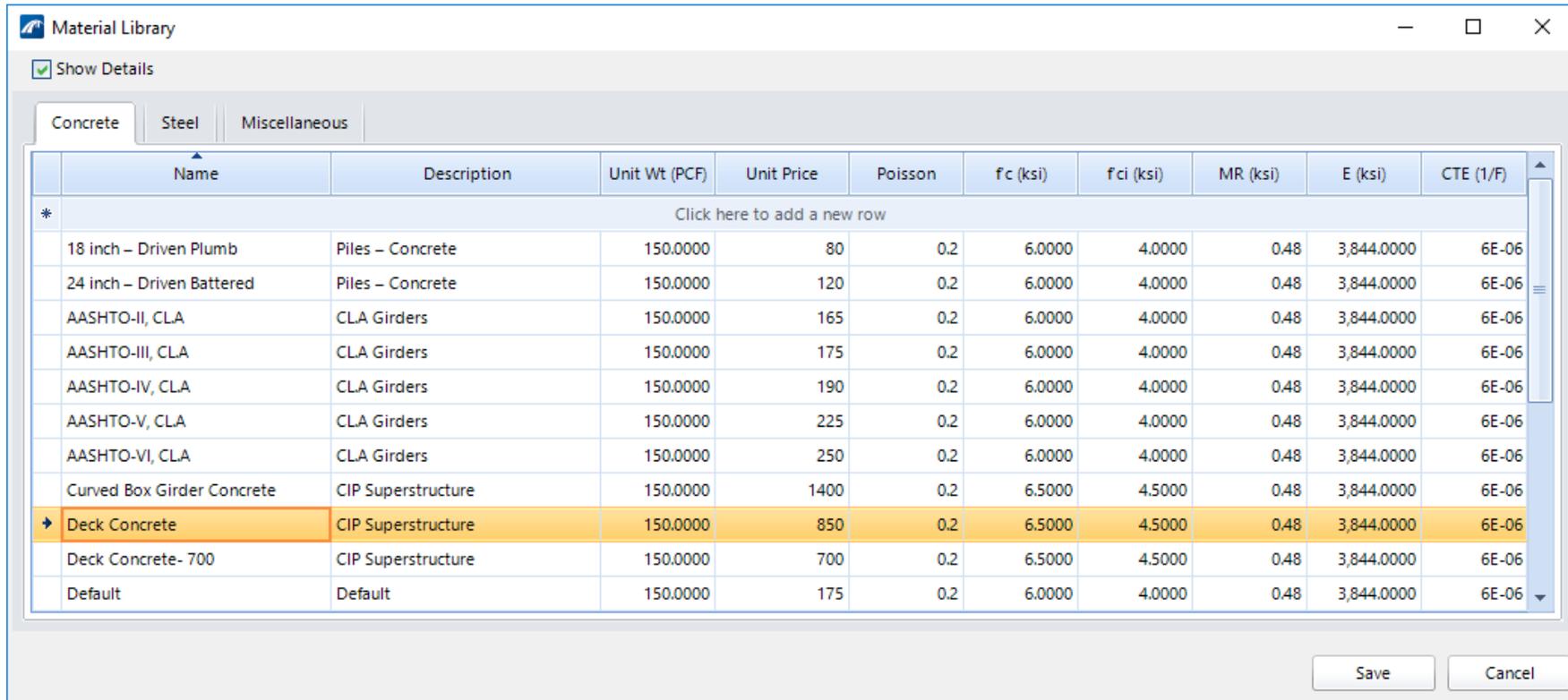
Templates

- OBM_PIER_TEMPLATE_FILE = *Bridge Templates/PierLib.xml*
 - Piers, Abutments, Wingwall and Sleeper Slab Templates



Materials

- OBM_MATERIAL_FILE = *Bridge Templates/MaterialLibrary.xml*
- Can copy/paste to and from Excel to modify/update

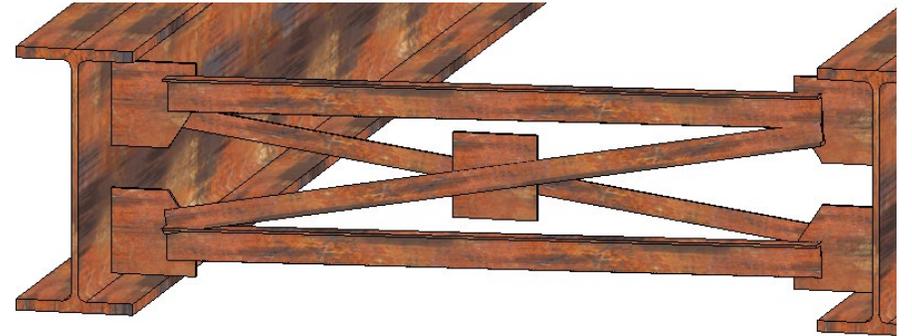


The screenshot shows a software window titled "Material Library" with a "Show Details" checkbox checked. It features three tabs: "Concrete", "Steel", and "Miscellaneous". The "Concrete" tab is active, displaying a table with the following columns: Name, Description, Unit Wt (PCF), Unit Price, Poisson, f c (ksi), f ci (ksi), MR (ksi), E (ksi), and CTE (1/F). The table contains several rows of material data, with the "Deck Concrete" row highlighted in orange. A "Save" button and a "Cancel" button are located at the bottom right of the window.

Name	Description	Unit Wt (PCF)	Unit Price	Poisson	f c (ksi)	f ci (ksi)	MR (ksi)	E (ksi)	CTE (1/F)
* Click here to add a new row									
18 inch – Driven Plumb	Piles – Concrete	150.0000	80	0.2	6.0000	4.0000	0.48	3,844.0000	6E-06
24 inch – Driven Battered	Piles – Concrete	150.0000	120	0.2	6.0000	4.0000	0.48	3,844.0000	6E-06
AASHTO-II, CLA	CLA Girders	150.0000	165	0.2	6.0000	4.0000	0.48	3,844.0000	6E-06
AASHTO-III, CLA	CLA Girders	150.0000	175	0.2	6.0000	4.0000	0.48	3,844.0000	6E-06
AASHTO-IV, CLA	CLA Girders	150.0000	190	0.2	6.0000	4.0000	0.48	3,844.0000	6E-06
AASHTO-V, CLA	CLA Girders	150.0000	225	0.2	6.0000	4.0000	0.48	3,844.0000	6E-06
AASHTO-VI, CLA	CLA Girders	150.0000	250	0.2	6.0000	4.0000	0.48	3,844.0000	6E-06
Curved Box Girder Concrete	CIP Superstructure	150.0000	1400	0.2	6.5000	4.5000	0.48	3,844.0000	6E-06
Deck Concrete	CIP Superstructure	150.0000	850	0.2	6.5000	4.5000	0.48	3,844.0000	6E-06
Deck Concrete- 700	CIP Superstructure	150.0000	700	0.2	6.5000	4.5000	0.48	3,844.0000	6E-06
Default	Default	150.0000	175	0.2	6.0000	4.0000	0.48	3,844.0000	6E-06

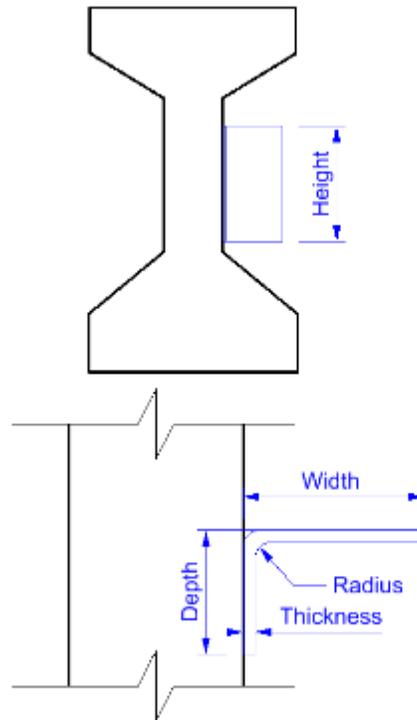
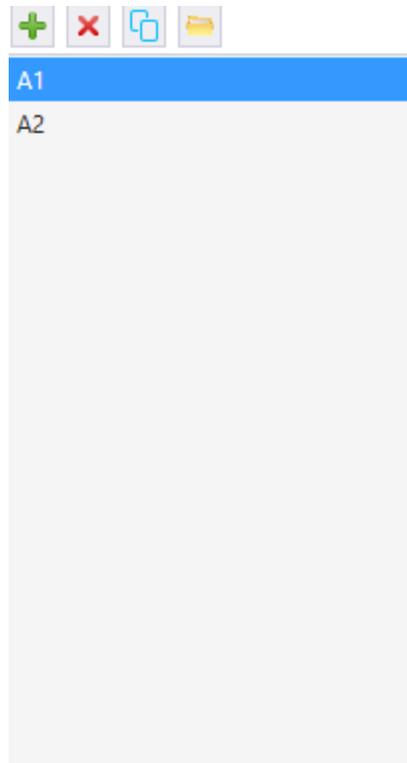
Steel Girder Superstructure Specific Libraries

- OBM_STIFFENER_FILE =
Bridge Templates/StiffenerLibrary.xml
- OBM_CROSSFRAME_FILE =
Bridge Templates /CrossFrameLibrary.xml
- OBM_CONNECTIONPLATE_FILE =
Bridge Templates/ConnectionPlateLibrary.xml
- OBM_FIELDSPLICE_FILE =
Bridge Templates/FieldSpliceLibrary.xml
- OBM_SHEARCONNECTOR_FILE =
Bridge Templates/ShearConnectorLibrary.xml



Connector Angles

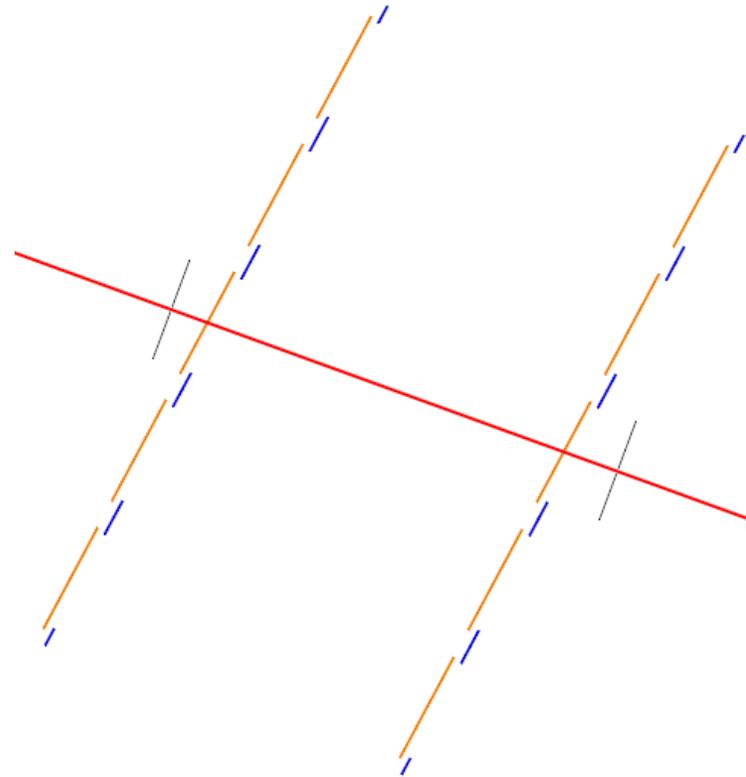
- OBM_CONNECTORANGLE_FILE=
Bridge Templates/ConnectorAngleLibrary.xml



Template Name	A1
Plate Thickness (")	0.500
Default Height (")	42.000
Depth (")	6.000
Width (")	9.000
Corner Radius (")	1.000
Material	Grade 36

Cross Frame 2D Lines

- `OBM_CROSSFRAME_2D_LINES_OFFSET_IMPERIAL = 0.50`
- `OBM_CROSSFRAME_2D_LINES_OFFSET_METRIC = 0.15`



CONSPAN Beam Section Library

- OBM_LEAP_BEAMS_TEMPLATE_FILE = *Bridge Templates/default.lbclib*
- Latest LBC lib is delivered with each release

Beam Type: LEAP Concrete

Haunch Start ('): 2.000

Haunch End ('): 2.000

Rotation Angle: Calculated -1.1458°

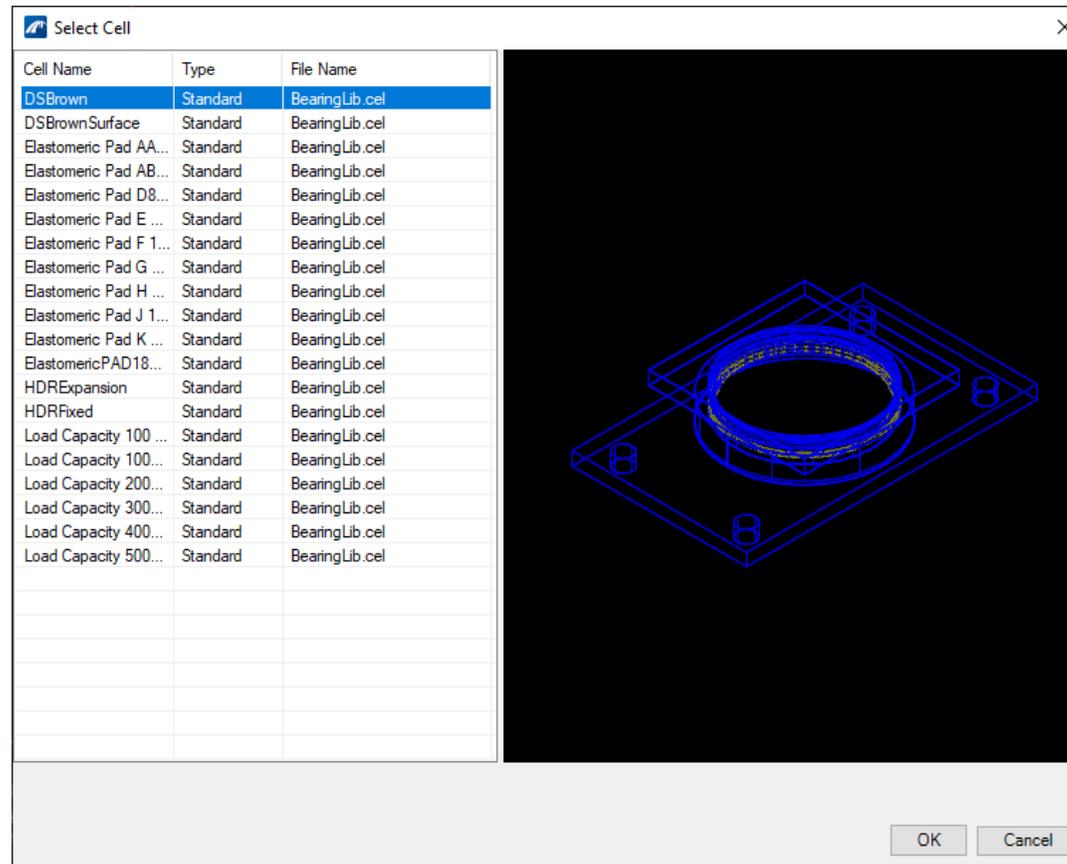
Location Type	Relative Location	From	Start Location (')	Section Length (')	Template	Material
SupportLine	0.500	SupportLine1	114+69.6912	111.608	PA33/53.25	AASHTO-II, CL...
					PA33/53.5	
					PA33/55	
					PA33/55.25	
					PA33/55.5	
					PA33/61	
					PA33/61.25	
					PA33/61.5	
					PA33/63	
					PA33/63.25	
					PA33/63.5	
					PA33/69	

Cell Libraries

- `OBM_AUX_CELLLIST = Bridge Templates/Auxiliaries/AuxLib.cel`
 - 3D Cells to enhance model – light poles, signs, scuppers, etc
- `OBM_COMPONENTSCENTER_IMPORTED_AUXCELLS_PATH =`
[your writable path here]
 - Folder used when importing cells from the Component Center
 - Default location if not defined:
C:\Users\user.name\AppData\Local\Temp\Bentley\OpenBridgeModeler\10.0.0\ComponentsCenterImportedCells\Auxiliaries

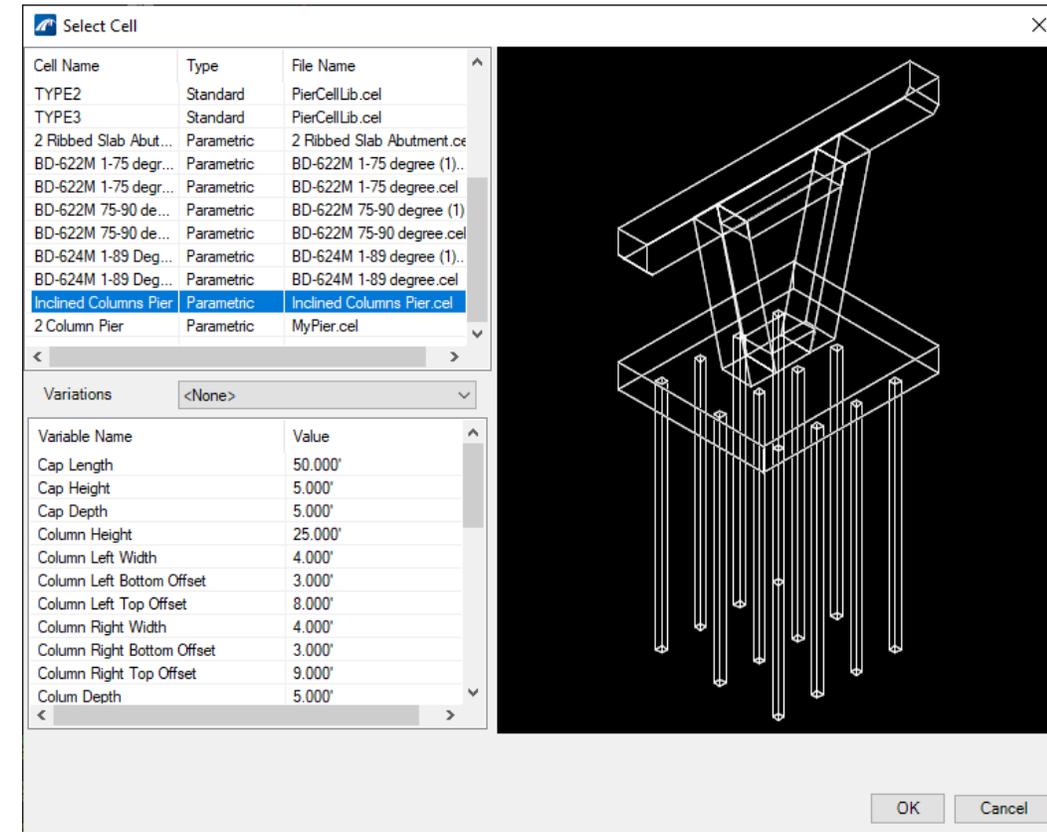
Cell Libraries

- OBM_BEARING_CELLLIST =
Bridge Templates/Bearings/BearingLib.cel



Cell Libraries

- OBM_PIER_CELLLIST =
Bridge Templates/Functional Components/PierLib.cel
 - Piers and abutments that OBM can not model today
 - Can be solids models or functional components or generative components



NBI Element Numbers

OBM_ELEMENTNUMBERS_NBI_FILE =
Bridge Templates/ElementNumbers_NBI.xml

OBM_ELEMENTNUMBERS_STATE_FILE =
Bridge Templates/ElementNumbers_State.xml

Volume	44.558 Cu.'
Surface Area	641.098 Sq.'
State Element Number	107
NBI Element Number	107
SyncId	1ad/a771-cb9d-42d8-bd0f
Type	Rolled Shapes
Template	W36X395
Length	55.000'
Material	Rolled wide flange section
Material Unit Price	1.750
Unit Wt	490.000
CTE	0.000
E	29000.000
Poisson	0.295
Fu	58.000
Fy	36.000
G	11500.000

SPC Filters

- Defined in the ***OpenBridgeModeler.cfg*** file

United States - AISC, US units

OBM_SPC_ORGANIZATION=AISC

OBM_SPC_VERSION=14

OBM_SPC_FILTER=(\-W\$|\-S\$)

OBM_SPC_CROSSFRAME_FILTER=(\-L\$|\-C\$|\-MC\$|\-W\$|\-S\$|\-WT\$)

OBM_SPC_HPILE_FILTER=(\-HP\$)

OBM_SPC_CONNECTOR_FILTER=(\-L\$|\-WT\$)

United Kingdom - BSI

#OBM_SPC_ORGANIZATION=BSI

#OBM_SPC_VERSION=4-1:2005

#OBM_SPC_FILTER=(\-UB\$|\-UC\$|\-UBP\$)

#OBM_SPC_CROSSFRAME_FILTER=(\-UB\$|\-UC\$|\-UBP\$|\-EA\$|\-UA\$|\-PFC\$)

#OBM_SPC_HPILE_FILTER=(\-UB\$|\-UC\$|\-UBP\$)

#OBM_SPC_CONNECTOR_FILTER=(\-L\$|\-WT\$)

Multiple country codes (maximum 9) by adding an index (like _1, _2) after the variable name. Different codes for the same country can't be loaded.

MS_DGNLIBLIST

<i>MS_DGNLIBLIST</i>	<i>DGN Library List</i>	List of DGN library files that are used to find Levels, Line Styles, Text Styles, Dimension Styles, Multiline Styles, Element Templates, Text Favorites, Table Styles, Report Definitions, Drawing Seeds, Drawing Boundaries, Display Styles, Display Rules, Page Layouts, Saved Views, and Item Types for your current session.
<i>MS_DGNLIBLIST_ITEMTYPES</i>	<i>DGN Library Itemtypes List</i>	List of DGN library files that are used to find available ItemTypes for your current session.
<i>MS_DGNLIBLIST_DETAILINGSYMBOLSTYLES</i>	<i>Process the DGNLIBs for available Detailing Symbol Styles</i>	List of DGN library files that are used to find detailing symbol styles. If this configuration variable is not defined, then the DGN library files will be taken from the <i>MS_DGNLIBLIST_DRAWINGSEEDS</i> configuration variable. If <i>MS_DGNLIBLIST_DRAWINGSEEDS</i> is also not defined, then the DGN Library files will be taken from the <i>MS_DGNLIBLIST</i> configuration variable.
<i>MS_DGNLIBLIST_DIMENSIONSTYLES</i>	<i>Process the DGNLIBs for available Dimension Styles</i>	List of DGN library files that are used to find dimension styles. If this configuration variable is not defined, then the DGN library files will be taken from the <i>MS_DGNLIBLIST</i> configuration variable.
<i>MS_DGNLIBLIST_DISPLAYSTYLES</i>	<i>Process the DGNLIBs for available Display Styles</i>	List of DGN library files that are used to find display styles. If this configuration variable is not defined, then the DGN library files will be taken from the <i>MS_DGNLIBLIST</i> configuration variable.
<i>MS_DGNLIBLIST_DRAWINGSEEDS</i>	<i>Process the DGNLIBs for available Drawing Seeds</i>	List of DGN library files that are used to find drawing seeds. If this configuration variable is not defined, then the DGN library files will be taken from the <i>MS_DGNLIBLIST</i> configuration variable.
<i>MS_DGNLIBLIST_LINESTYLES</i>	<i>Process the DGNLIBs for available Line Styles</i>	List of DGN library files that are used to find line styles. If this configuration variable is not defined, then the DGN library files will be taken from the <i>MS_DGNLIBLIST</i> configuration variable.
<i>MS_DGNLIBLIST_LINKS</i>	<i>DGN Library List for Link Set files</i>	List of DGN library files that are used to find Sheet Indexes and Link Sets for your current session.
<i>MS_DGNLIBLIST_PRINTING</i>	<i>DGN Library List for Print Styles</i>	List of DGN library files that are used to find Print Styles for your current session.
<i>MS_DGNLIBLIST_RENDER</i>	<i>DGN Library List for Rendering tasks</i>	List of DGN library files that are used to find Rendering Setups, Materials, and Lights for your current session.
<i>MS_DGNLIBLIST_TEXTFAVORITES</i>	<i>Process the DGNLIBs for available Text Favorites</i>	List of DGN library files that are used to find text favorites. If this configuration variable is not defined, then the DGN library files will be taken from the <i>MS_DGNLIBLIST</i> configuration variable.
<i>MS_DGNLIBLIST_TEXTSTYLES</i>	<i>Process the DGNLIBs for available Text Styles</i>	List of DGN library files that are used to find text styles. If this configuration variable is not defined, then the DGN library files will be taken from the <i>MS_DGNLIBLIST</i> configuration variable.



Combining an OBM WS into an ORD WS



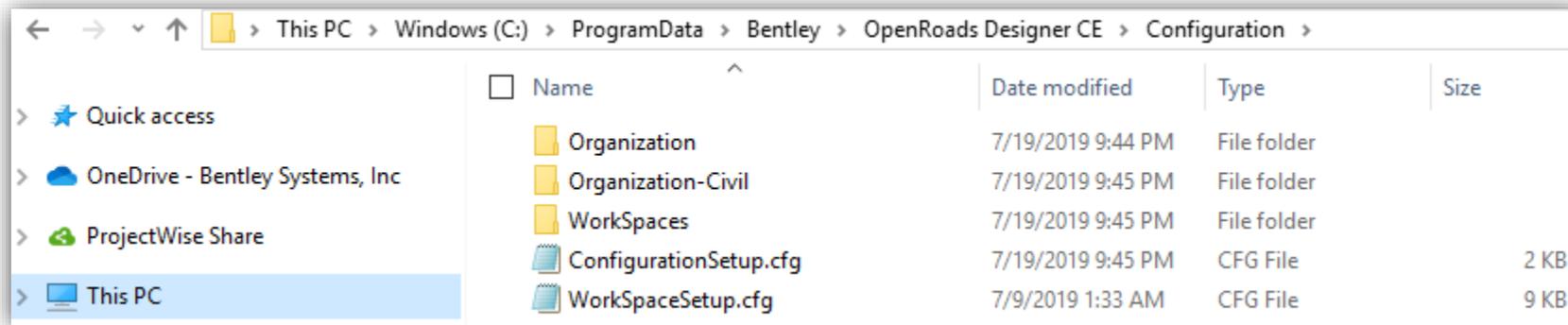
Considerations ...

- Default OBM/OBD Workspace is a copy of most recent ORD workspace with OBM specific files and variables added.
- Where will the Workspace be located?
 - Local
 - Server
 - PW Managed WS
 - Other ?
- Bridge templates at Workspace vs Workset level
- Will Bridge colleagues be using ProConcrete functionality?

Steps to Combine ORD/OBD Workspace

Note: These notes are for OBD. OBM has a slightly different but very similar folder structure so keep this in mind.

1. Locate ORD Config Files



Steps to Combine ORD/OBD Workspace

2. Review ConfigurationSetup.cfg and WorkSpaceSetup.cfg

```
[General]
_USTN_CUSTOM_CONFIGURATION=C:/Bentley/XDOT/Configuration

[SetConfiguration]
%if !defined (_USTN_USER_CONFIGURATION)
%if defined (_USTN_CUSTOM_CONFIGURATION) && ($_USTN_CUSTOM_CONFIGURATION) != "" && exists ($_USTN_CUSTOM_CONFIGURATION)
_USTN_CONFIGURATION = ($_USTN_CUSTOM_CONFIGURATION)
%endif
%endif
```

Determine location of Workspace and Workset folders

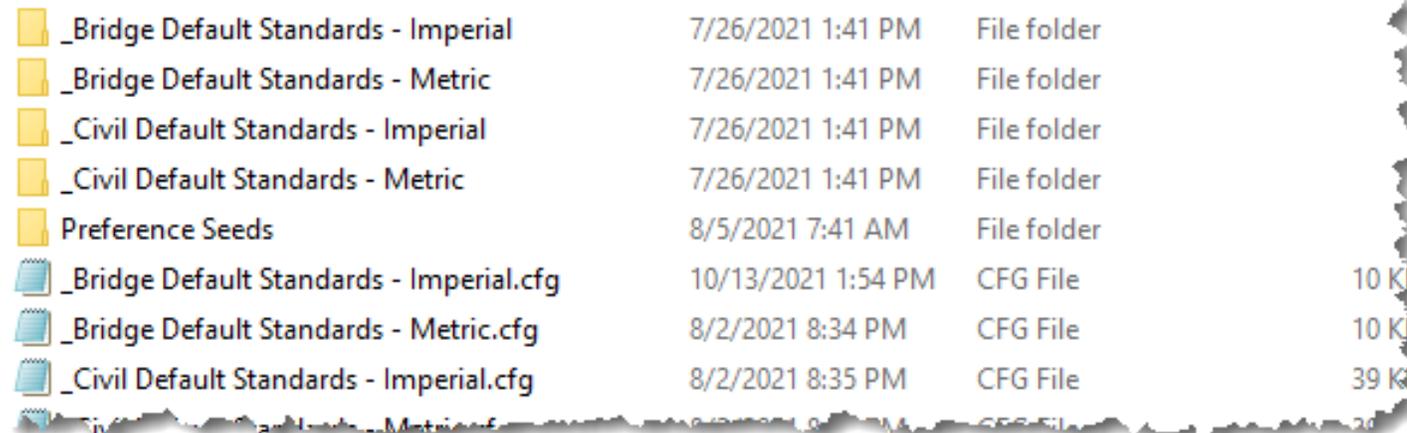
3. Set OBM cfg files to point to same folder structure as ORD

C:\ProgramData\Bentley\OpenBridge Designer CONNECT Edition\OpenBridgeModeler\Configuration

Steps to Combine ORD/OBD Workspace

4. Copy *_Bridge Default Standards* folder and .cfg file to equivalent ORD location

*C:\ProgramData\Bentley\OpenBridge Designer CE xx.xx\OpenBridgeModeler
\Configuration\Organization-Civil*



_Bridge Default Standards - Imperial	7/26/2021 1:41 PM	File folder	
_Bridge Default Standards - Metric	7/26/2021 1:41 PM	File folder	
_Civil Default Standards - Imperial	7/26/2021 1:41 PM	File folder	
_Civil Default Standards - Metric	7/26/2021 1:41 PM	File folder	
Preference Seeds	8/5/2021 7:41 AM	File folder	
_Bridge Default Standards - Imperial.cfg	10/13/2021 1:54 PM	CFG File	10 KB
_Bridge Default Standards - Metric.cfg	8/2/2021 8:34 PM	CFG File	10 KB
_Civil Default Standards - Imperial.cfg	8/2/2021 8:35 PM	CFG File	39 KB
_Civil Default Standards - Metric.cfg	8/2/2021 8:35 PM	CFG File	39 KB

Steps to Combine ORD/OBD Workspace

5. Check your workspace standards file.

- Make sure it is calling the _Bridge Default Standards – (units).cfg

```
# If using OpenBridge Modeler, load Bridge Organization standards in this order:
# 1. Standard named specified in BRIDGE_ORGANIZATION_NAME
# 2. Metric example
# 3. Imperial example
BRIDGE_ORGANIZATION_NAME_DEFAULT_METRIC = _Bridge Default Standards - Metric
BRIDGE_ORGANIZATION_NAME_DEFAULT_IMPERIAL = _Bridge Default Standards - Imperial
%if $_ENGINE_NAME == "OpenBridgeModeler"
  %if exists $(CIVIL_ORGANIZATION_ROOT)$ (BRIDGE_ORGANIZATION_NAME).cfg
    % include $(CIVIL_ORGANIZATION_ROOT)$ (BRIDGE_ORGANIZATION_NAME).cfg
  %elif exists $(CIVIL_ORGANIZATION_ROOT)$ (BRIDGE_ORGANIZATION_NAME_DEFAULT_METRIC).cfg
    BRIDGE_ORGANIZATION_NAME = $(BRIDGE_ORGANIZATION_NAME_DEFAULT_METRIC)
    % include $(CIVIL_ORGANIZATION_ROOT)$ (BRIDGE_ORGANIZATION_NAME).cfg
  %elif exists $(CIVIL_ORGANIZATION_ROOT)$ (BRIDGE_ORGANIZATION_NAME_DEFAULT_IMPERIAL).cfg
    BRIDGE_ORGANIZATION_NAME = $(BRIDGE_ORGANIZATION_NAME_DEFAULT_IMPERIAL)
    % include $(CIVIL_ORGANIZATION_ROOT)$ (BRIDGE_ORGANIZATION_NAME).cfg
  %endif
%endif
#-----
```

Steps to Combine ORD/OBD Workspace

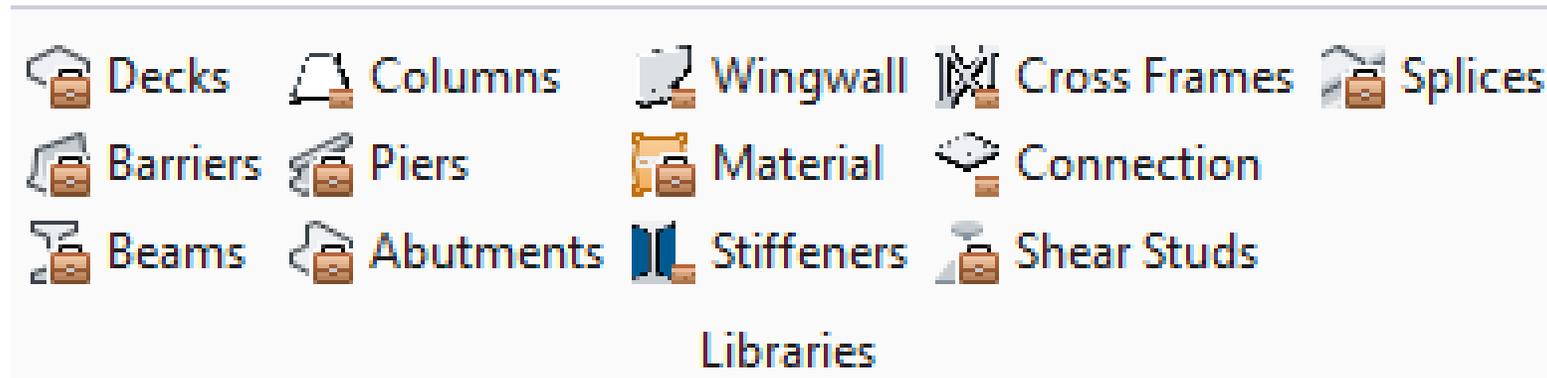
6. Check the [WorkSet.Template](#) file

- Used when creating a workset without having a template workset folder structure
- The one included with OpenBridge includes variables to check for template libraries at the workset level

```
#####  
# OpenBridge Modeler workset overrides  
#####  
%if exists ($(_USTN_WORKSETSTANDARDS)Bridge Templates/AuxLib.cel)  
    OBM_AUX_CELLLIST                = $(_USTN_WORKSETSTANDARDS)Bridge Templates/AuxLib.cel  
%endif  
%if exists ($(_USTN_WORKSETSTANDARDS)Bridge Templates/BearingLib.cel)  
    OBM_BEARING_CELLLIST            = $(_USTN_WORKSETSTANDARDS)Bridge Templates/BearingLib.cel  
%endif  
%if exists ($(_USTN_WORKSETSTANDARDS)Bridge Templates/FieldSpliceLibrary.xml)  
    OBM_FIELDSPLICE_FILE            = $(_USTN_WORKSETSTANDARDS)Bridge Templates/FieldSpliceLibrary.xml  
%endif
```

Template Libraries – Workspace vs Workset

- Workspace
 - Could be Read-only locally as well
 - Most likely be Read-only for server, PW and other managed locations
- Workset level
 - Will allow OpenBridge user to create templates as needed to model structure



ProConcrete Considerations for ProjectWise

- If using PW, PC requires additional variables to be defined.
- REBAR_PROJDIR & REBAR_PROJECT variable is located in the application.cfg in the following folder:

*C:\ProgramData\Bentley\OpenBridge Designer CONNECT Edition\OpenBridgeModeler\
Configuration\Organization-Civil\Bridge Default Standards - Imperial\Prostructures*

```
# Where to find the 2D rebar detailing projects [Directory]
#   The default location is <workSpaceName>/Standards/ProStructures/Rebar/Detailing/
#
# REBAR_PROJDIR

# Name of the pre-selected 2D rebar detailing project [Keyword]
#
REBAR_PROJNAME = USA_Canada

# Where to find the 2D rebar detailing project files [Directory]
#   No default location.
#   This variable is required in ProjectWise Managed Workspace setups.
#   When the variable is set, the user is limited to this one 2D rebar detailing project.
#
# REBAR_PROJECT = $(REBAR_PROJDIR)$(REBAR_PROJNAME)/
```

ProConcrete Considerations for ProjectWise

- Typical application.cfg variables for PC:

```
#-----  
#   Rebar application  
#-----  
REBAR                = $_PS_WORKSPACESTANDARDS)Rebar/  
REBAR_LIBDIR         = $_PS_WORKSPACESTANDARDS)Rebar/library/  
REBAR_PROJDIR        = $_PS_WORKSPACESTANDARDS)Rebar/Detailing/  
REBAR_PROJNAME       = USA_Canada                # Should be overridden in workspace and/or workset.  
REBAR_PROJECT        = $(REBAR_PROJDIR)$REBAR_PROJNAME)/ # No default. Needed by PW Managed Workspaces. Optional otherwise.  
REBAR_SUPPDIR        = $_PS_SYSTEMROOT)Rebar/support/  
REBAR_USERDIR        = $(MS_SCR)  
REBAR_AUTOLABEL_LIB  = $(REBAR_PROJECT)XXDOT_DefaultRebarLabels.dgnlib  
  
%lock REBAR_PROJECT
```



OpenBridge Designer/Modeler – Understanding Workspace Files and Configuration

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