AASHTOWare BrD/BrR 7.2.0

Library Tutorial

LIB1 - Libraries

Library Concepts

The libraries of BrD/BrR allow for the description of items that are standardized or used frequently in the description of a bridge or by analysis events. The libraries of BrD/BrR currently define the following items:

- Appurtenances (parapets, medians, railings, etc.)
- Connectors (bolts, nails)
- Corrugated Metal Panel
- Factors
- LRFD DF Applicability Ranges
- LRFD Substructure Design Settings
- Materials (steel, concrete, etc.)
- Prestress Shapes
- Steel Shapes
- Timber Shapes
- Vehicles

BrD/BrR is pre-loaded with library items selected by AASHTO. These items were taken from various sources including the following:

- *AASHTO LRFD Bridge Design Specifications*
- *AASHTO Manual for Bridge Evaluation*
- *AASHTO Standard Specifications for Highway Bridges*
- *AASHTO Standard Specifications for Transportation Materials*
- *AISC Manual of Steel Construction*
- *PCI Precast Prestressed Concrete Bridge Design Manual*

Library Types

Three types of library items:

Standard Items added to database by AASHTO. Standard library items are not editable.

Agency All items added to the library by a user.

User Defined Only available for vehicles.

Using Library Data

Two methods to use library items:

Linking Library item associated with a bridge component or analysis event. If the library item is modified then the updated data is used by the bridge component or analysis event. (Factors, Vehicles, LRFD DF Applicability Ranges)

Copying Data from library item copied from a library item to a bridge item. A change in the library item has no effect on bridge items that use data previously copied from library item. (Steel Shapes, PS Shapes, Timber Shapes, Factors, LRFD Substructure Design Settings, Materials, Appurtenances, Connections, Corrugated Metal Panel)

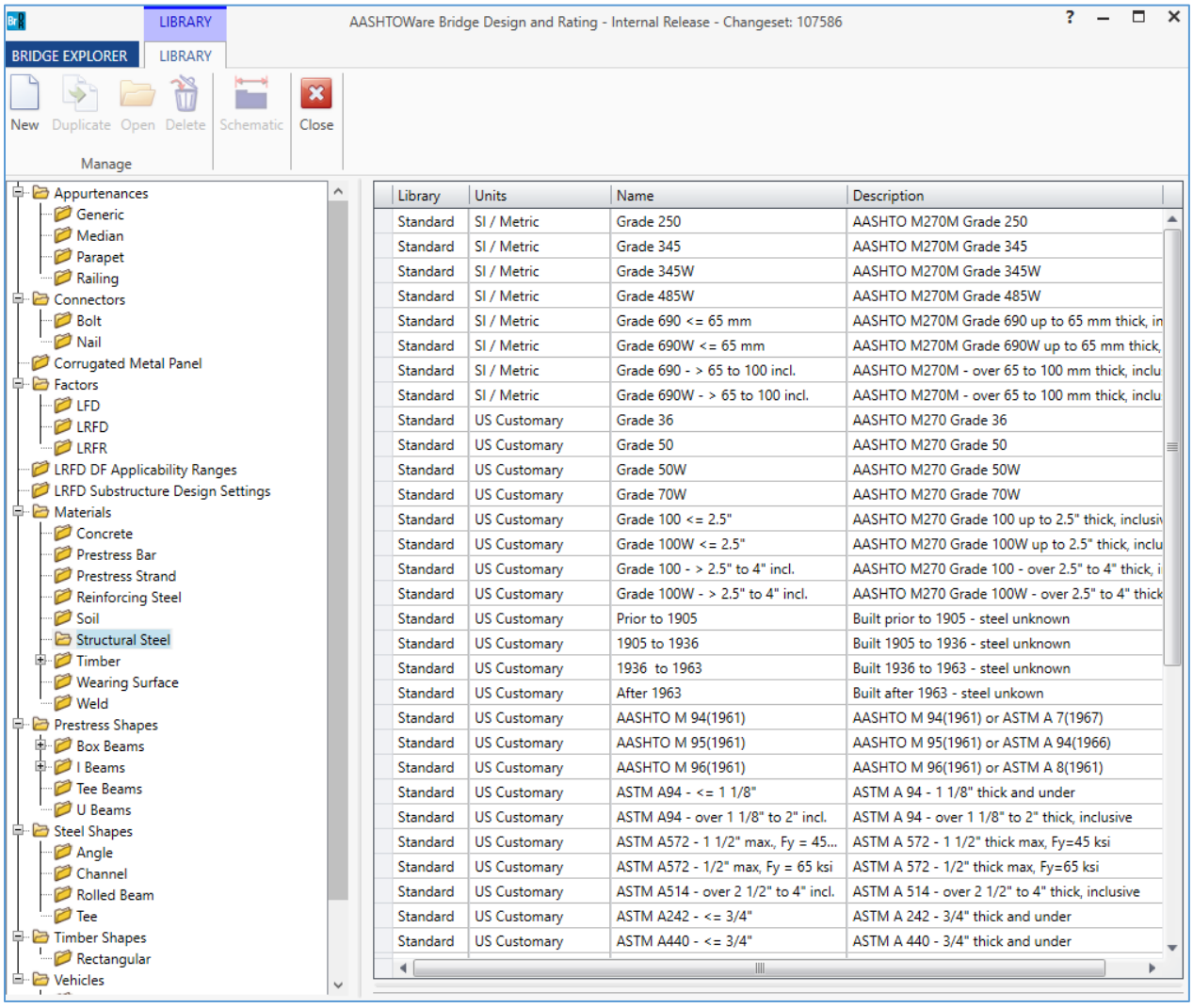
Linking is used to reduce amount of data stored in database for items that are unlikely to be modified.

Library Security

- Library access can be restricted for read, write, create, and delete access.
- Access restrictions apply to all libraries for a given user or group of users.
- Limit number of users with write, create, and delete access.
  - Reduce possibility of incorrect data.
  - Reduce duplicate items and inappropriate items.

Library Explorer

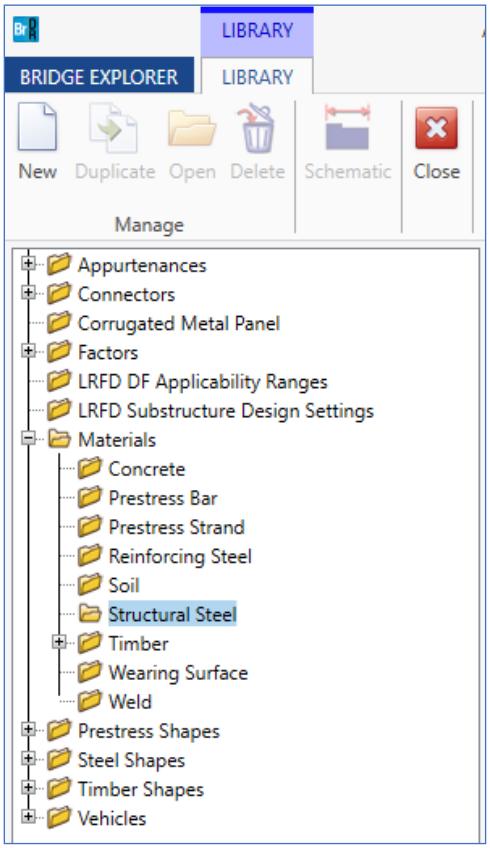
The Library Explorer is used to navigate the various libraries. The tree control in the left pane organizes the libraries. The item selected in the tree control determines the library items to be listed in the right pane of the window.



Exercise

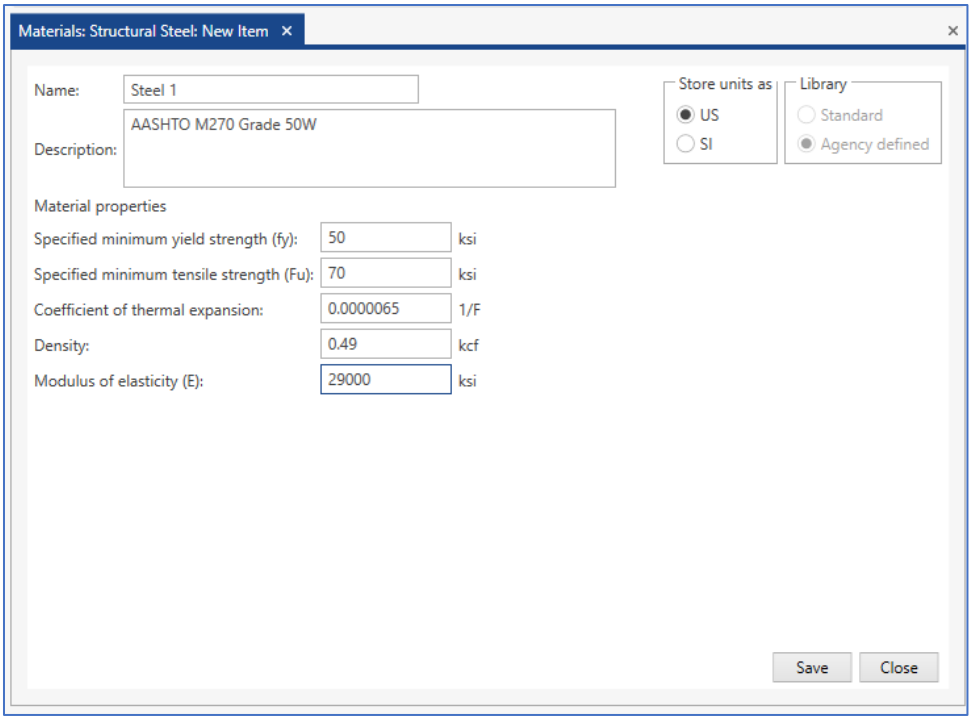
Add Steel Material Library Item

1. Click the Library button under the VIEW tab in the ribbon. Select the tree item Materials/Structural Steel as shown below.



2. Click the New button in the ribbon. A Materials: Structural Steel: New Item window will appear in the panel below the list of Standard library items.

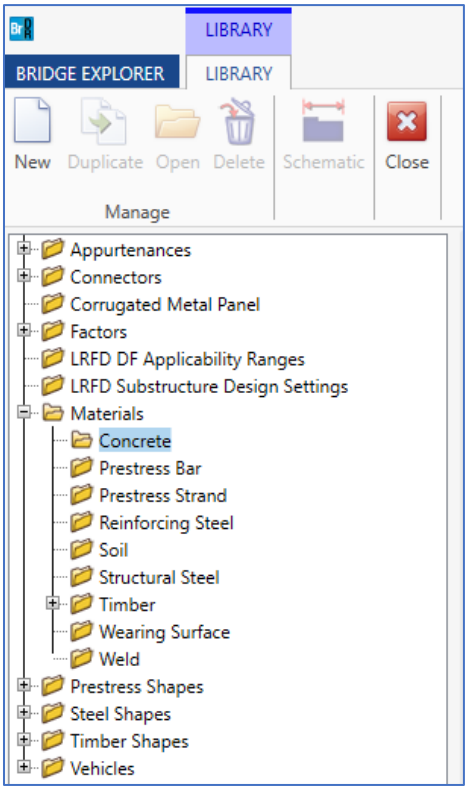
3. Select the system of units using the radio buttons and then fill in the structural steel information as shown below. Note that the name must be unique among all structural steel library items.



4. Click Save. The new structural steel material will now be listed in the right pane of the Library Explorer for the tree items Materials/Structural Steel as an Agency item.

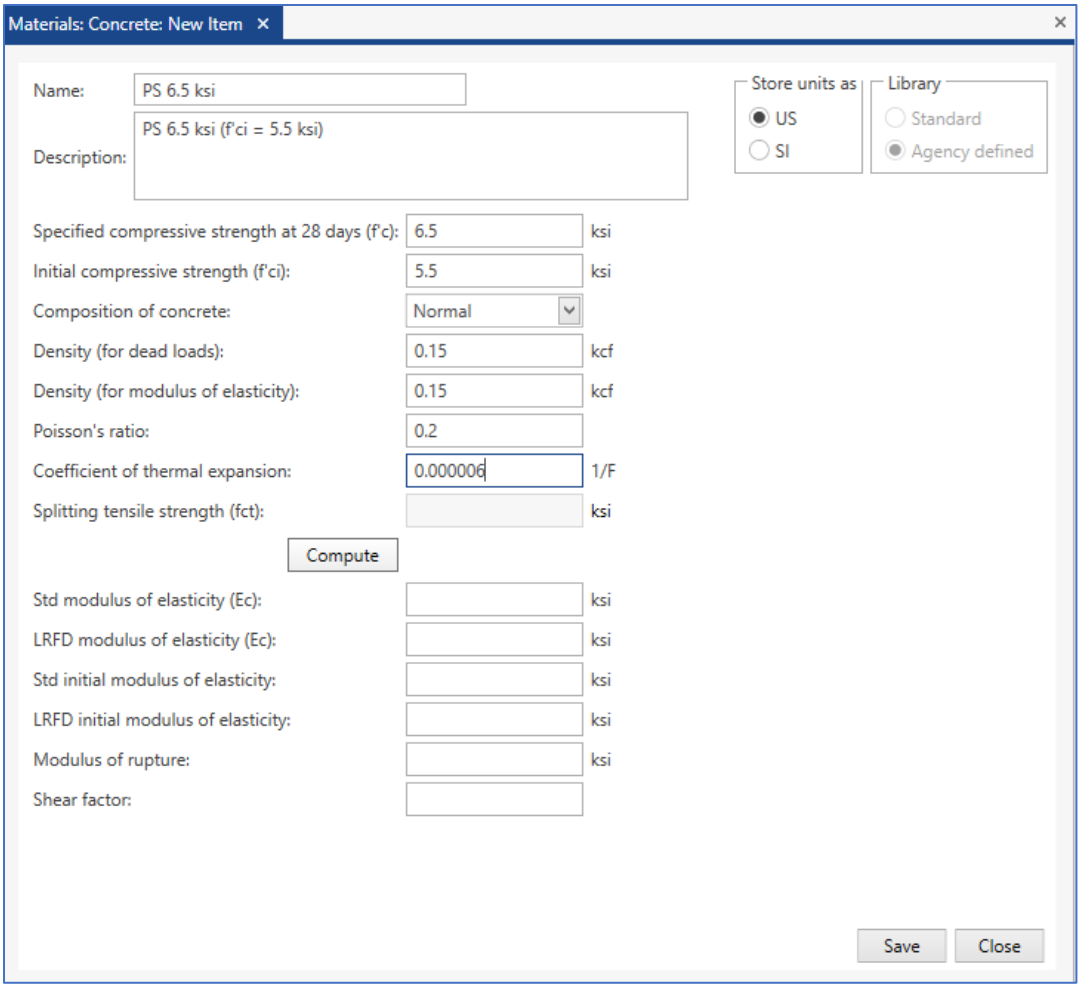
Add Concrete Material Library Item

1. Select the tree item Materials/Concrete as shown below.



2. Click the New button in the ribbon. A Materials: Concrete: New Item window will appear in the panel below the list of Standard library items.

3. Select the system of units using the radio buttons and then fill in the concrete information as shown below. Note that the name must be unique among all concrete library items.

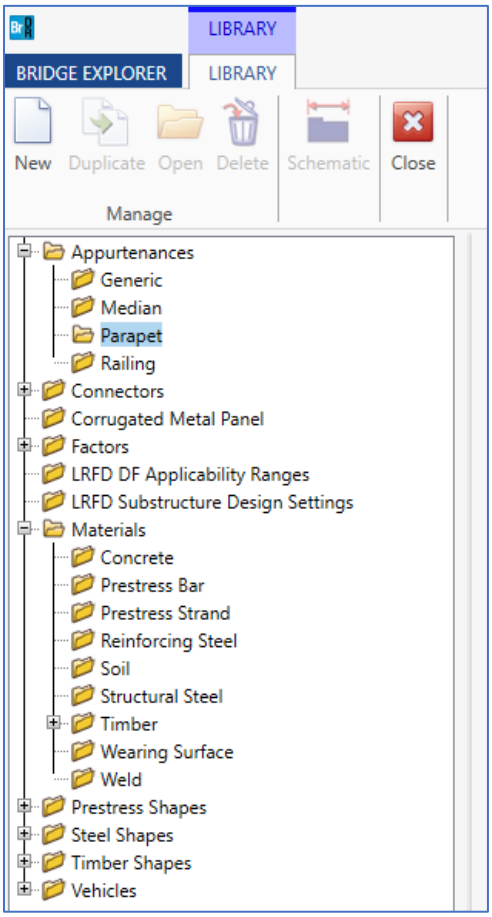


4. Click the Compute button to calculate the remaining properties or manually enter the values.

5. Click Save. The new concrete material will now be listed in the right pane of the Library Explorer for the tree items Materials/Concrete as an Agency item.

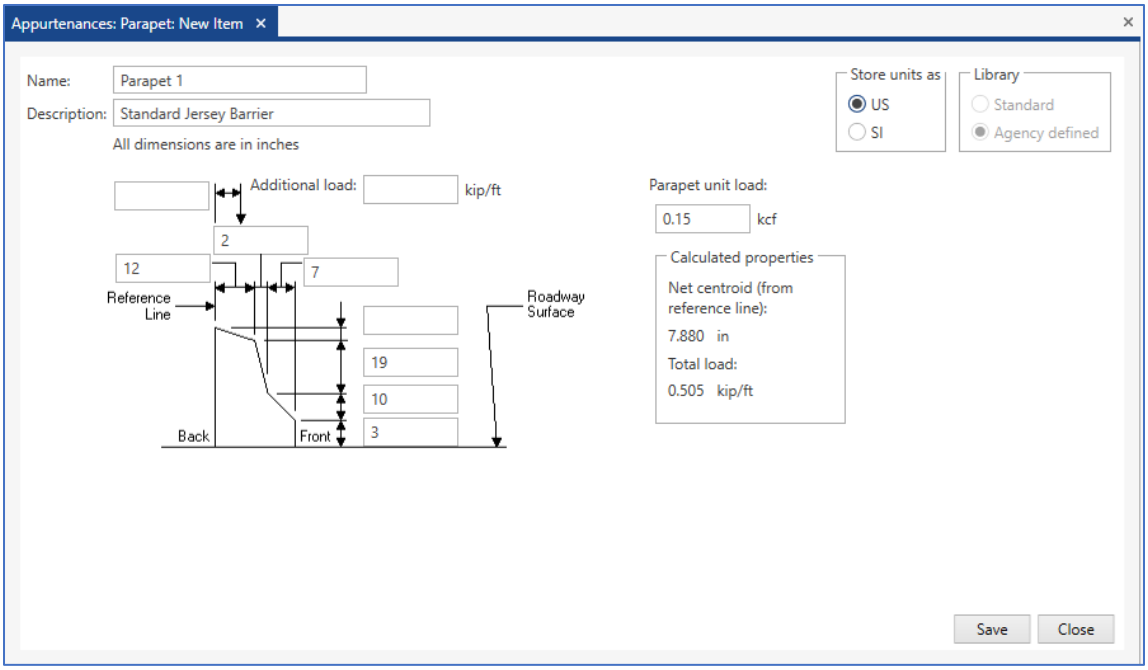
Add Parapet Library Item

1. Select the tree item Appurtenances/Parapet as shown below.



2. Click the New button in the ribbon. An Appurtenances: Parapet: New Item window will appear in the panel below the list of Standard library items.

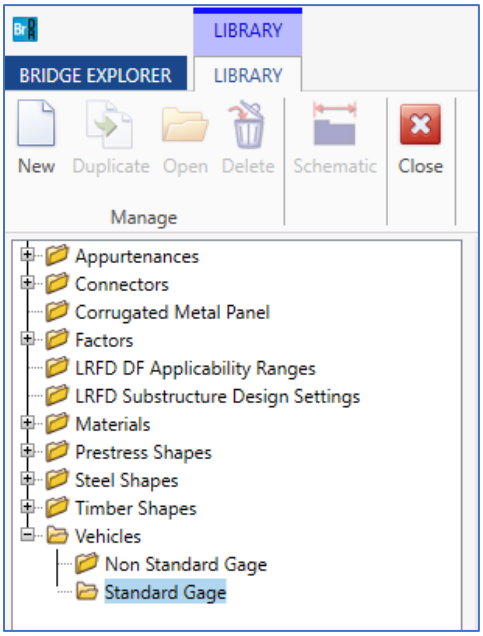
3. Select the system of units using the radio buttons and then fill in the parapet information as shown below. Note that the name must be unique among all parapet library items.



4. Click Save. The new parapet will now be listed in the right pane of the Library Explorer for the tree items Appurtenances/Parapet as an Agency item.

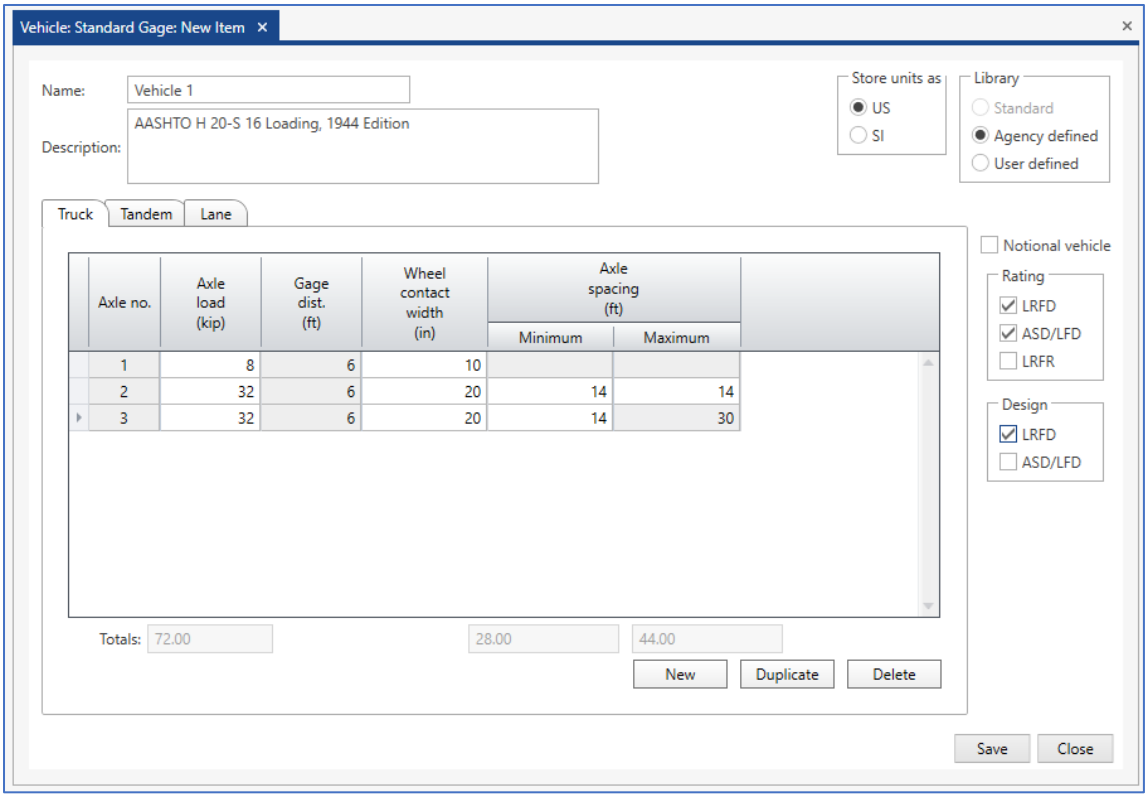
Add Vehicle Library Item

1. Select the tree item Vehicles/Standard Gage as shown below.

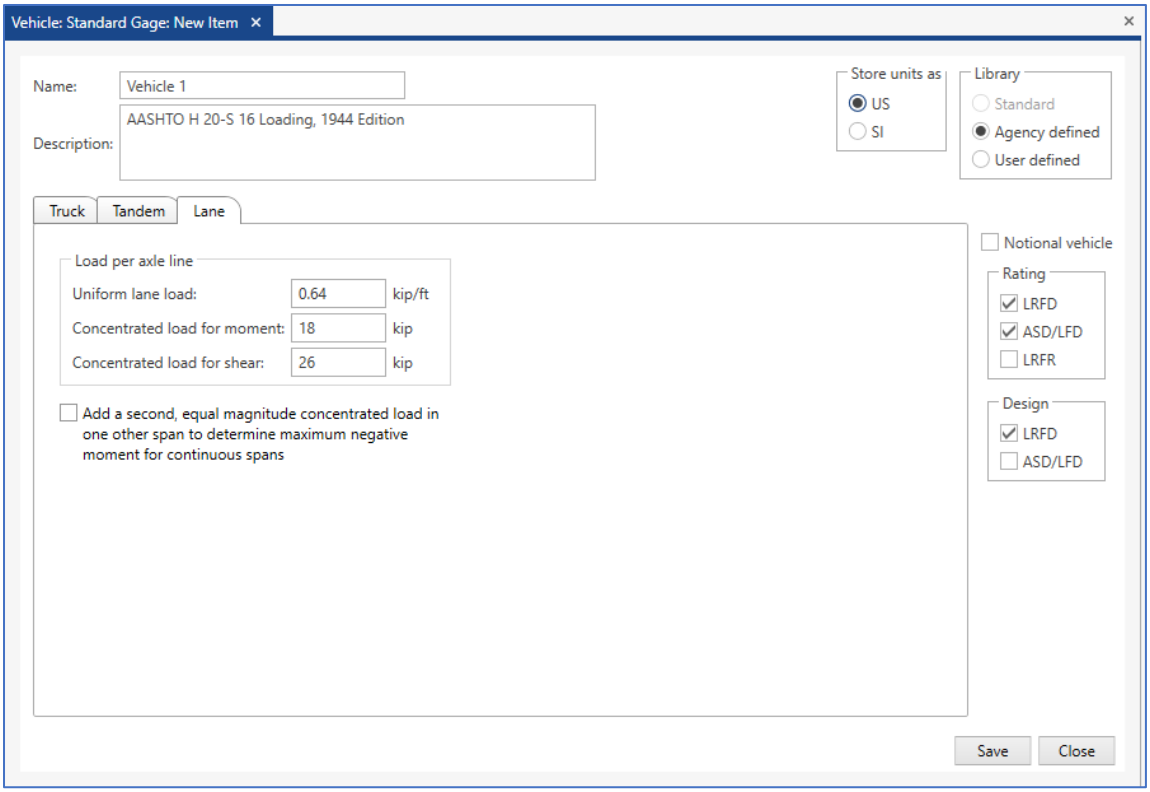


2. Click the New button in the ribbon. A Vehicle: Standard Gage: New Item window will appear.

3. Select the system of units using the radio buttons and then fill in the vehicle information as shown below for all items not on the tab control. Note that the name must be unique among all vehicle library items. The checkboxes inside the Design and Rating groups are used to filter the vehicle during an analysis event based on the type of event and the type of analysis engine selected. The Vehicle Library has a library type called ‘User Defined’. This library allows users to add their own vehicles.



4. Click the New button to add an axle to the vehicle.
5. Enter the first axle's dimensions. (Axle spacing is not applicable for the first axle.)
6. Repeat steps 4 and 5 for each additional axle.
7. Select the Lane Tab.
8. Enter data on the Lane tab as shown below.



9. Click Save. The new vehicle will now be listed in the right pane of the Library Explorer for the tree items Vehicles/Standard Gage.