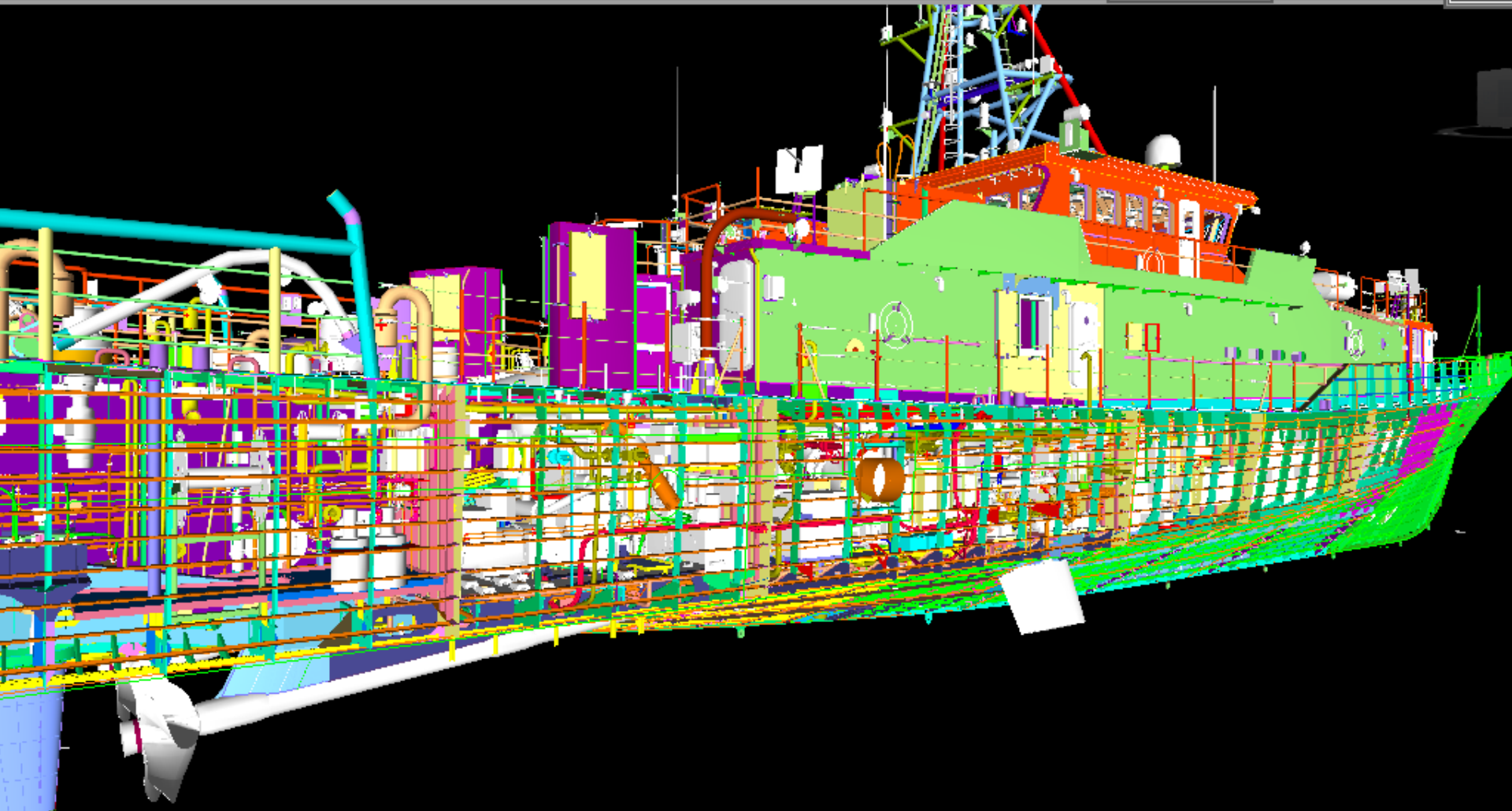


Manufacturing Efficiency with Throughput Simulation





<p>Quick Find </p>	<p>Require </p> <p>Hide </p> <p>Hide Unselected </p> <p>Unhide All </p> <p>Visibility</p>	<p>Links </p> <p>Quick Properties </p> <p>Properties </p> <p>Display</p>	<p>View Comments </p> <p>Comments</p>	<p>TimeLiner Playback </p> <p>Tools</p>	<p>Plan View </p>	<p>Tilt </p> <p>0</p>	<p>Section </p>
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Animation View Output **Item Tools**

Select All ▾
Select Same ▾ Quick Find 🔍
Selection Tree
Select & Search

Hide
Require
Hide Unselected
Unhide All ▾
Visibility

Links
Quick Properties
Properties
Display

View Comments
TimeLiner Playback
Comments Tools

Section View ×

Plan View ×

Tilt ×



Bollinger Project description: Simulation model of Shop 4

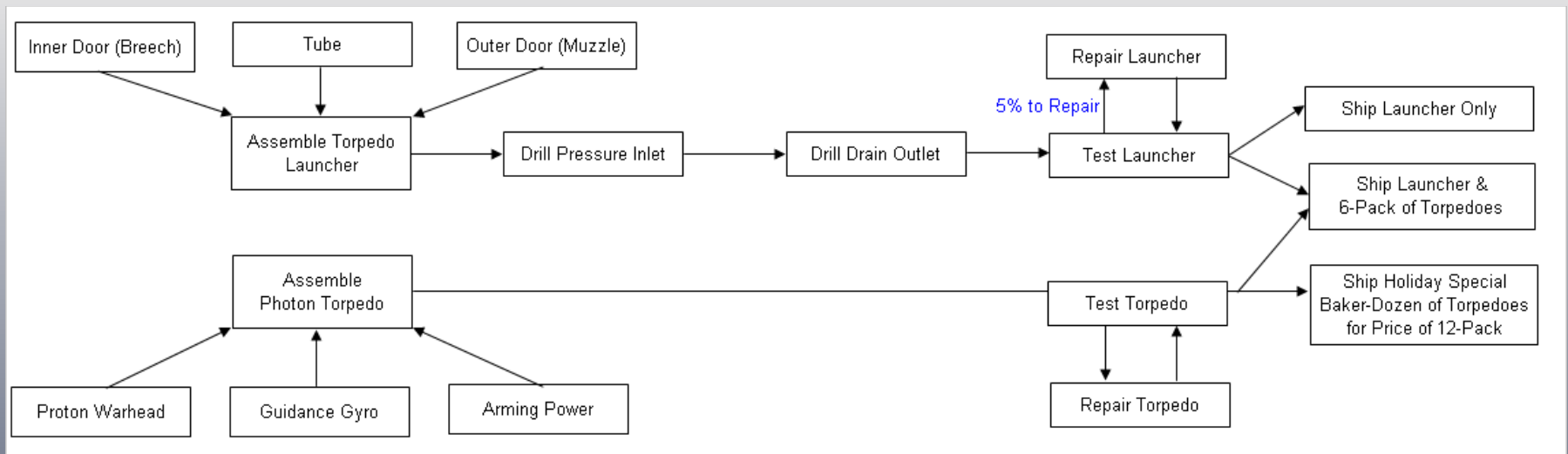
Goal:	Model Shop 4 to improve Zone utilization to ensure 1 ship per zone per 8 wks.
Description:	Simulation model consists of 3 zones within shop 4 and 50 Work Packages per zone with the availability of 3 20ton cranes and 1 10ton crane.
Results expected:	Work functionality, resource availability, HTML Report, Throughput per 8 wks
Implementation period:	Week 10/18/2010 to 12/11/2010

Samples Plant Simulation Data Requirements

Product Data: What is produced? Quantities? BOM? Attributes (volume, weight, size, color, etc)

AutoCAD layout of Shop 4

Block Flow Diagram of work process for zones 1, 2, and 3 in Shop 4 (create based on WP per zone with High-level and 1 level deeper)



Samples Plant Simulation Data Requirements

- Zone Work Package information

- Zone
- Work Packages per Zone
- Work Package Time per Zone
- Dependencies of Operations within the Work Package

- Zone Workstation information

- Product Bill Of Materials and any Variants
- Assembly Locations
- Variant specific operation times
- Parallel Process
- Sequential Process

Samples Plant Simulation Data Requirements

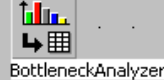
Production Schedule information

- Program Schedule
 - Hull Schedule
 - Shop 4 Schedule
 - Shop 1, 2, 3, and 5 schedules as feeder shops
 - Parts per Assembly
 - Assemblies per unit
 - Units per hull



All Shipyards

Created by: Ray Poshadlo 10-19-10 in ver 9.0.7
Last Edit by: Ray Poshadlo 10-22-10 in ver 9.0.7



Double-Click For Comments



NumShipyardsEnded=0

GrandTotalShipsDelivered=0

For now, only LockPort New Construction is modeled
In the future, the other Shipyards represented by

Algiers, LA	Amelia, LA	CalcasienRepair Sulphur, LA	Chand Mathews, LA	Fourchon Golden Meadow, LA	LockportNewConst 60DayTotal Units: 0 90DayTotal Units: 0	LockporRepair Lockport LA	LockporRepair [Lockport LA]	Amelia, LA	Amelia, LA
Total Units:0	Total Units:0	Total Units:0	Total Units:0	Total Units:0	Total Units:0	Total Units:0	Total Units:0	Total Units:0	Total Units:0

Source



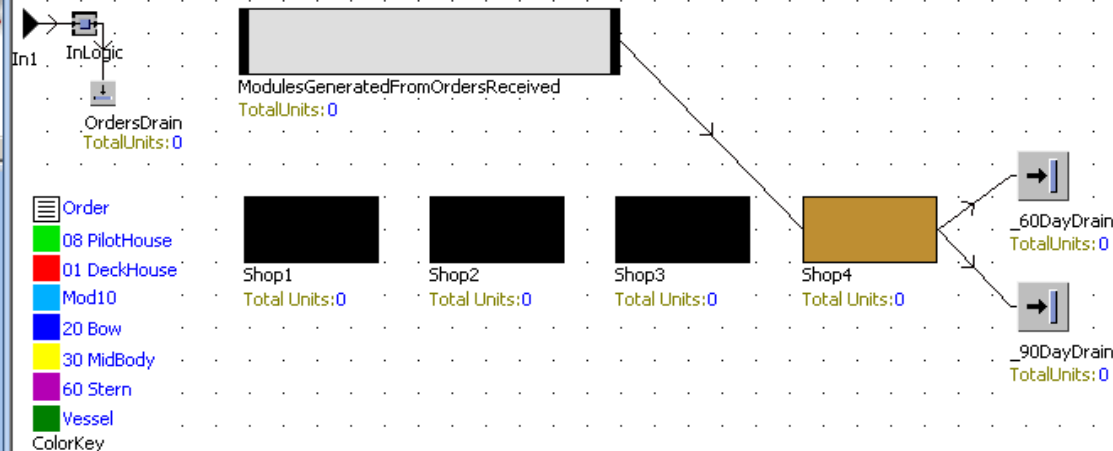
Lockport New Construction

Created by: Ray Poshadlo 10-19-10 in ver 9.0.7
Last Edit by: Ray Poshadlo 11-13-10 in ver 9.0.7

Double-Click For Comments

CreateModules
FromOrders

AutoStop
Simulation



Order

- 08 PilotHouse
- 01 DeckHouse
- Mod10
- 20 Bow
- 30 MidBody
- 60 Stern
- Vessel
- ColorKey



Siemens Shop 4 Planner ...

Microsoft Outlook Web A...

Bollinger Plant Simulation...

Dennis Presentation Plan...

BollingerSimulation11...



.Models.ControlPanel

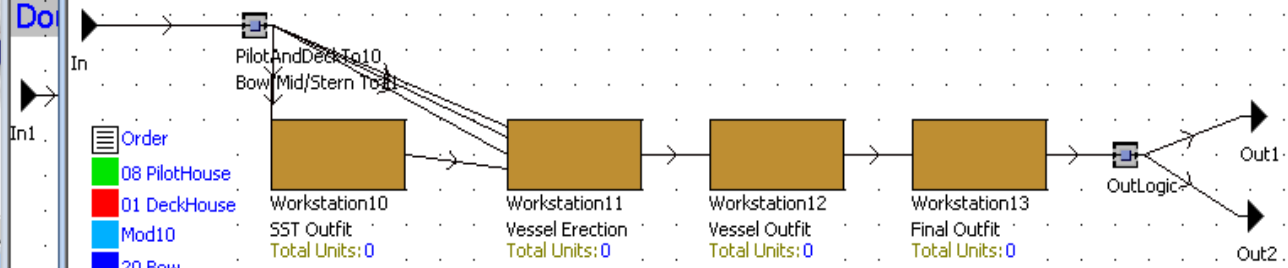
Class Library

- 08 PilotHouse
- 01 DeckHouse
- Mod10
- 20 Bow
- 30 MidBody
- 60 Stern
- Vessel
- ColorKey

.Models.AllShipyards.LockportNewConst.Shop4



RouteIn RouteOut Temp

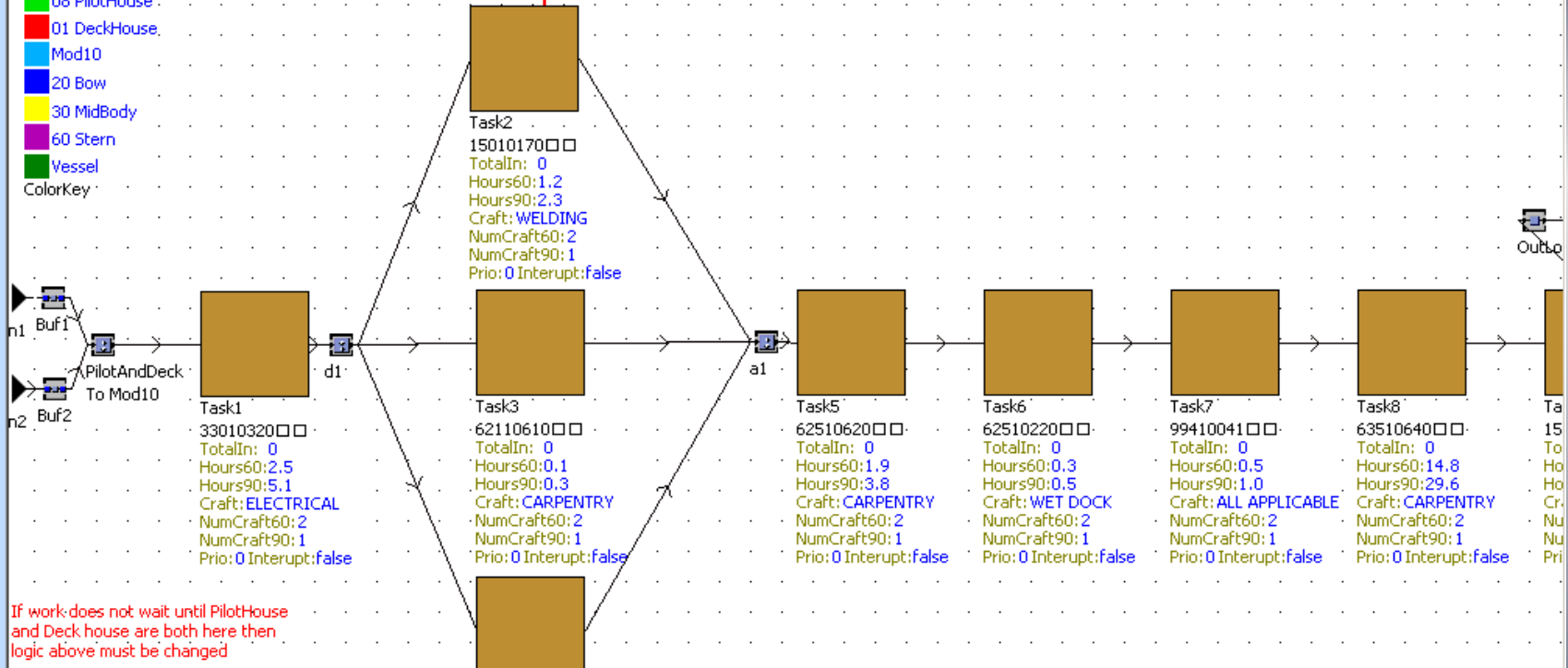


Console

Order

- 08 PilotHouse
 - 01 DeckHouse
 - Mod10
 - 20 Bow
 - 30 MidBody
 - 60 Stern
 - Vessel
- ColorKey

Note: Work flow is simplified for Demo purposes only. Actual flows will be added when Level of Detail is de
 Here we see an example of Tasks2 thru 4 that can be worked on in PARALLEL... the rest in serial



If work does not wait until PilotHouse and Deck house are both here then logic above must be changed

Console

Ready

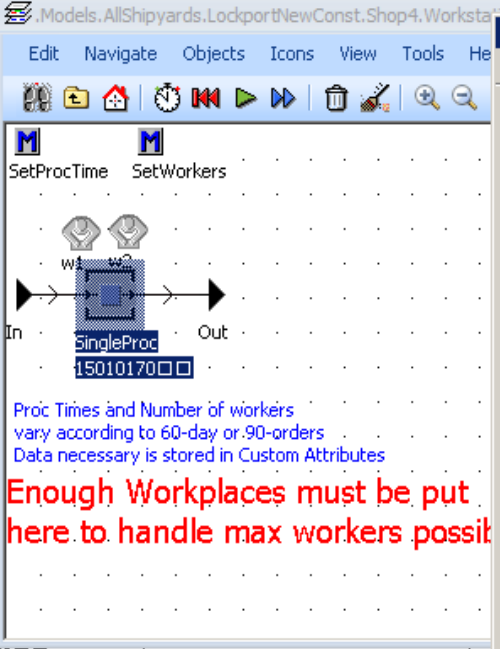
CAP NUM SCRL



askData Broker NumOfCraft (UserInput)

- Order
- 08 PilotHouse
- 01 DeckHouse
- Mod10
- 20 Bow
- 30 MidBody
- 60 Stern
- Vessel
- ColorKey

Note:



Enough Workplaces must be put here to handle max workers possible

Task1
3301032
TotalIn: 0
Hours60:2.5
Hours90:5.1
Craft: ELECTRICAL
NumCraft60: 2
NumCraft90: 1
Prio: 0 Interrupt: false

TotalIn: 0
Hours60:0.1
Hours90:0.3
Craft: CARPENTRY
NumCraft60: 2
NumCraft90: 1
Prio: 0 Interrupt: false

Models.AllShipyards...Shop4.Workstation10.Task2.SingleProc

Name: SingleProc
Label: 15010170

Failed, Entrance locked, Exit locked, Planned, Exit locked

Times | Set-Up | Failures | Controls | Exit Strategy | Statistics

Importer | Failure Importer | User-defined Attributes

Active
 Common resources
Setting-Up | Processing

Services for Setting-Up and Processing

Can be interrupted and drawn off: Interruptible
Release when services are failed: All

Priority: 0 | Broker: ~.Broker

Request control: SetWorkers
Receive control:
Release control:

OK | Cancel | Apply

NumCraft60: 2 | NumCraft60: 2 | NumCraft60: 2 | NumCraft60: 2
NumCraft90: 1 | NumCraft90: 1 | NumCraft90: 1 | NumCraft90: 1
Prio: 0 Interrupt: false | Prio: 0 Interrupt: false | Prio: 0 Interrupt: false | Prio: 0 Interrupt: false

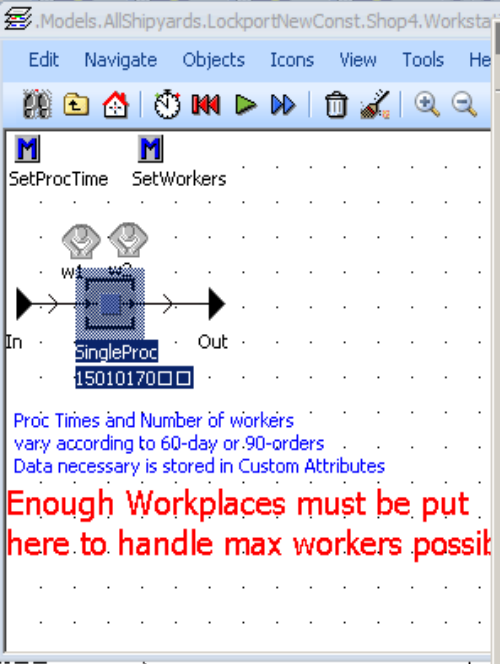
If work does not wait until PilotHouse and Deck house are both here then logic above must be changed



taskData Broker NumOfCraft (UserInput)

- Order
- 08 PilotHouse
- 01 DeckHouse
- Mod10
- 20 Bow
- 30 MidBody
- 60 Stern
- Vessel
- ColorKey

Note:



Enough Workplaces must be put here to handle max workers possible

Name: SingleProc

Failed Entrance locked

User-defined Attributes

Name: []

Value Statistics Communication

Connect to 3D attribute

OK Cancel Apply

Task1
3301032
TotalIn: 0
Hours60:2.5
Hours90:5.1
Craft:ELECTRICAL
NumCraft60:2
NumCraft90:1
Prio:0 Interrupt:false

TotalIn: 0
Hours60:0.1
Hours90:0.3
Craft:CARPENTRY
NumCraft60:2
NumCraft90:1
Prio:0 Interrupt:false

NumCraft60:2 NumCraft60:2 NumCraft60:2 NumCraft60:2
NumCraft90:1 NumCraft90:1 NumCraft90:1 NumCraft90:1
Prio:0 Interrupt:false Prio:0 Interrupt:false Prio:0 Interrupt:false Prio:0 Interrupt:false

If work does not wait until PilotHouse and Deck house are both here then logic above must be changed

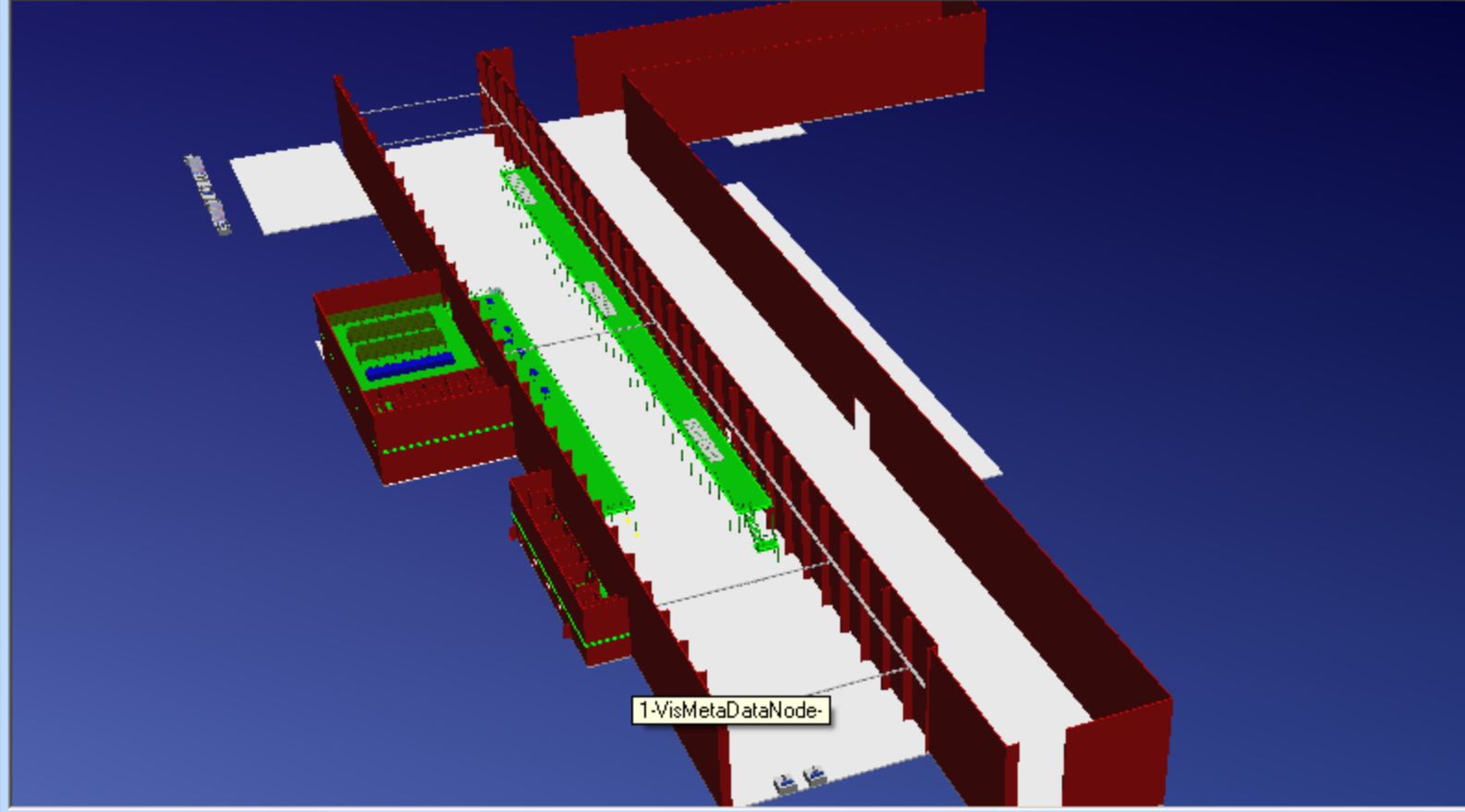
Console



- Library
- Class Library 3D Library
- MaterialFlow
 - Resources
 - InformationFlow
 - UserInfoInterface
 - MUs
 - Tools
 - Models
 - ControlPanel
 - AllShipyards
 - LockportNewConstructio
 - LockportShop4
 - ApplicationObjects
 - Shop4
 - ParallelFlowDismantleBe
 - ParallelFlowAssemblyAft
 - DayShift1Parent
 - DayShift2Parent
 - NightShift1Parent
 - NightShift2Parent
 - BollingerTools
 - LockportNewConstructio
 - WorkstationParent
 - TaskParent
 - ShopAndYardParent
 - ModelParent
 - FrameIconParent
 - BlackBoxDoNothing
 - BufferWithDisplayPanel
 - DrainWithDisplayPanel
 - AssemblyGreen
 - WorkstationTaskTableP
 - ColorKey
 - Logo
 - Toggle
 - AutoStop
 - AllApplicableCrafts

3D - .Models.LockportShop4

Edit View Modes 2D Tools Help



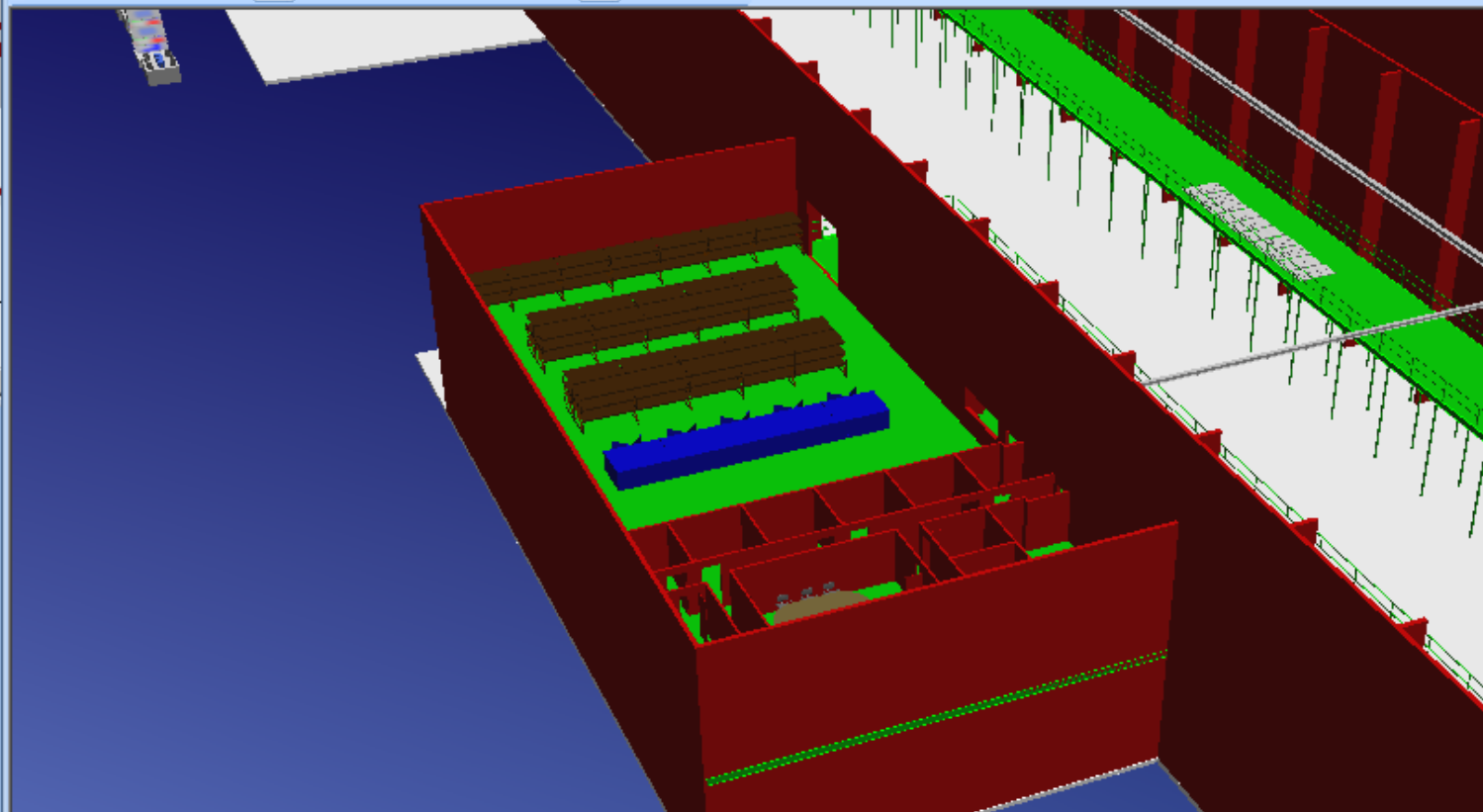
Console

Error in formula called by '.ApplicationObjects.ModelParent': Unknown identifier Drain

Error in formula called by '.ApplicationObjects.FrameIconParent': Unknown identifier Drain



- basis
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 - WorkstationTaskTableP
 - ColorKey
 - Logo
 - Toggle
 - AutoStop
 - AllApplicableCrafts



Console

Error in formula called by '.ApplicationObjects.ModelParent': Unknown identifier Drain
 Error in formula called by '.ApplicationObjects.FrameIconParent': Unknown identifier Drain



Class Library

- Class Library
- 3D Library
- basis
 - MaterialFlow
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 - AllApplicableCrafts

.Models.ControlPanel

Navigate Objects Icons View Tools Help

3D

3D - .Models.LockportShop4

Edit View Modes 2D Tools Help

1-VisMetaDataNode-

Console

```

Error in formula called by '.ApplicationObjects.ModelParent': Unknown identifier Drain
Error in formula called by '.ApplicationObjects.FrameIconParent': Unknown identifier Drain
  
```

Selected plain graphic object '1-VisMetaDataNode'

CAP NUM SCRL

Questions