

ShipConstructor

Software USA, Inc.



STDEP Phase II Extension Weld Planning Presentation

ShipConstructor Software USA, Inc.

April 5, 2006

Agenda

- ShipConstructor Software, Inc. Overview
 - ShipConstructor modules overview
- ShipConstructor Software USA, Inc. Overview
- STDEP Program Overview
 - Phase I
 - Phase II
 - Phase II Extension
- STDEP Phase II Extension
 - New Module Development Overview
 - Functional Specification vs. Development Specification
 - Format
 - Methodology
 - Electrical Specification
 - Weld Planning Specification
 - Requirements
 - Scope

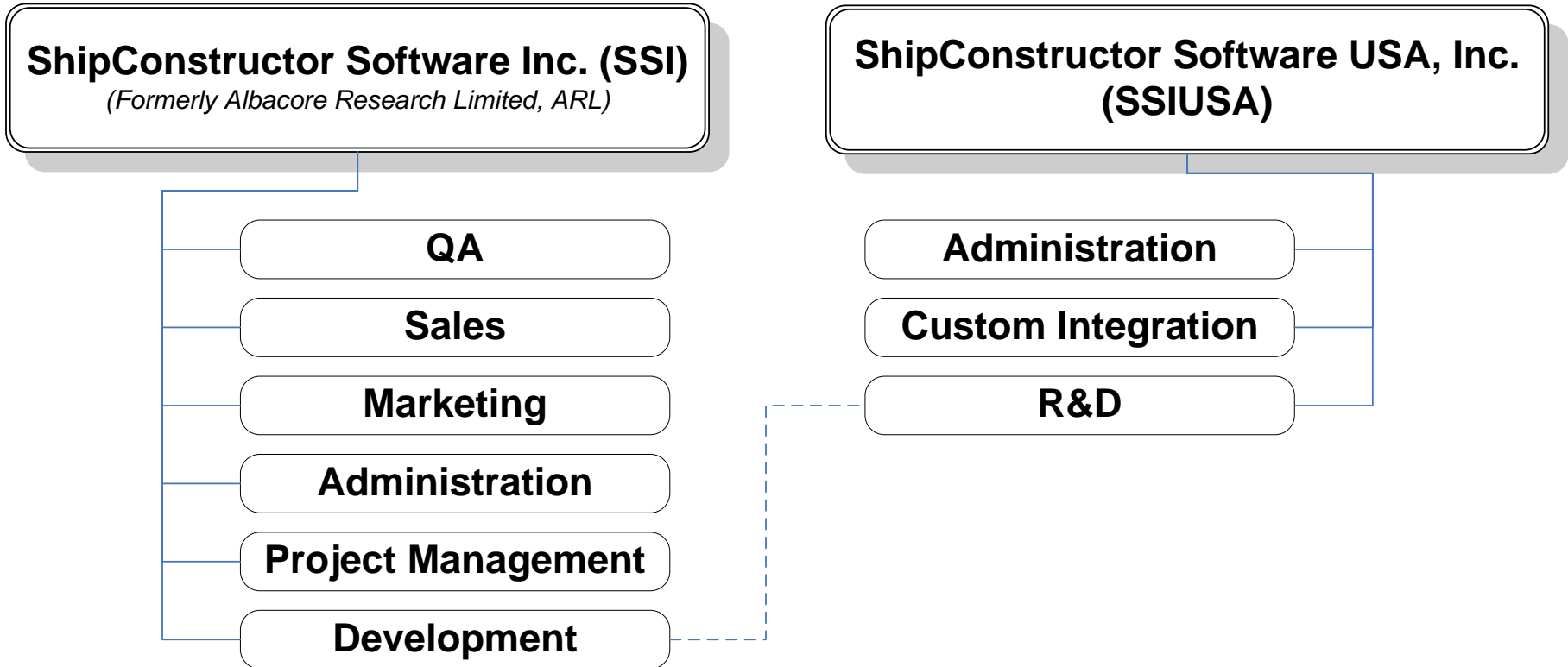
ShipConstructor Software, Inc. (SSI) Overview

- ShipConstructor Software, Inc. (SSI), formerly Albacore Research, Ltd., changed name in December 2005
 - Canadian company headquartered in Victoria, BC
 - 1989 to 1999: ShipCAM, NC-Pyros, and CAD-Link
 - 2000 to 2004: ShipConstructor
 - Hull, Structure, Piping, HVAC, Equipment, Penetrations, SQL Server Database
 - Links to MaxSurf, FastShip, BHS/GHS, more...
 - 2005: Database Driven Relational Object Model
 - Controllable Relational Geometry
 - 2006 to 2010: Electrical, STEP interfaces, [Weld Management](#), Product Lifecycle Maintenance, GA and Class Approval, more...

ShipConstructor Software USA, Inc. (SSIUSA) Overview

- ShipConstructor Software USA, Inc. (SSIUSA) incorporated on November 28, 2005
 - U.S. owned company
 - ShipConstructor name and technology licensed from ShipConstructor Software, Inc.
 - Research and development, U.S. Navy and government projects, custom integration as primary focus areas
- ShipConstructor Software Inc. (SSI, formerly Albacore Research, Ltd. (ARL)) will continue core software development and provide technical support to SSIUSA
 - Canadian company
 - Focus on international sales & marketing, U.S. sales & marketing, core software development, feature development and de-bugging

ShipConstructor Software USA, Inc. (SSIUSA) Overview



STDEP (Second Tier Design Enhancement Program) Overview

- Phase I Proposal submitted in May 2003
 - 15 development modules proposed; 3 were funded
 - 2nd Tier Common Parts Catalog, Piping improvements, HVAC
- Phase II Proposal submitted October 2004
 - 10 development modules proposed; 2 were funded
 - “Superuser” training and stress testing – March 20-24, 2006
 - Second major LR build scheduled for release in April 2006
 - Available for production in mid 2006
- SC2006 incorporates DDROM (developed with SSI internal development funds)
- Split and Merge
 - Capability to import 2004 and 2005 project databases to 2006
 - Completely different database structure
 - All geometry and attribute data can be imported; no conversion of production drawings
 - Available in 2006 release

STDEP Phase II Update

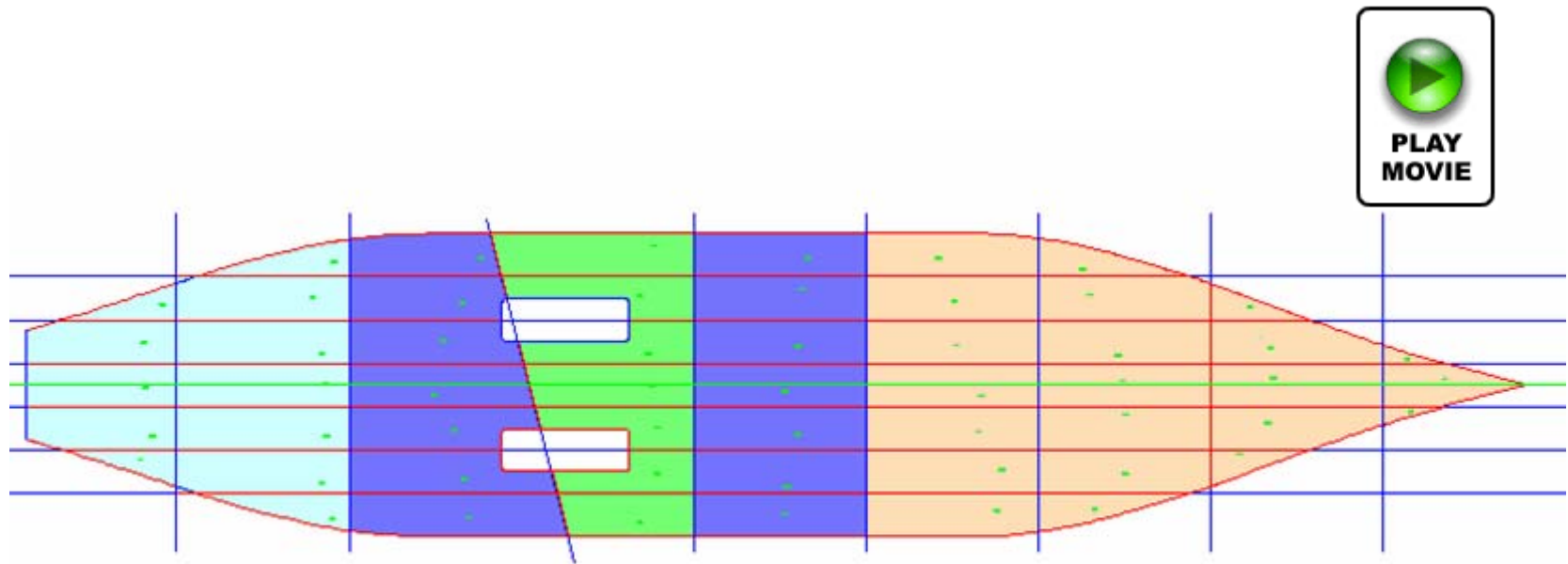
- ShipConstructor 2006 Limited Release (LR)
 - Made available January 2006
 - Several updates posted
 - “Superuser” training and stress testing – March 20-24, 2006
 - Second major LR build scheduled for release in April 2006
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STDEP Phase II Extension New Module Development

- Electrical Specification Development
 - Spec for Electrical Detail Design
- Weld Planning Specification Development
 - Spec for incorporating weld path into PDM and generating reports
- Two types of Specification
 - Functional Specification (NSRP participation)
 - User requirements
 - Use case scenarios
 - Input, output, mechanisms and rules
 - Development Specification (SSI internal)
 - Framework, language, interface, integration, API etc.

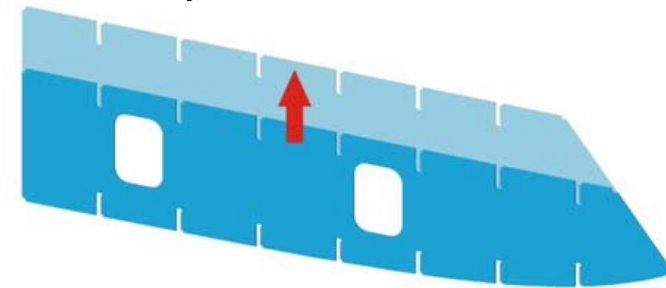
What is DDRROM?

- Relationships (associations) are automatically created in data base
- Drag & drop a construction line and all parts automatically update

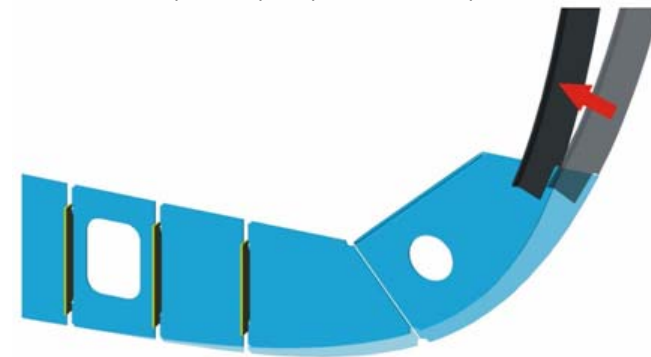


DDRROM – Intelligent Structure Parts

- 2005 Part is a Block – 2006 Part is Intelligent Associative Geometry
 - 1-Click part definition – no trim break, extend
 - Automatic tool path generation
 - Automatic Inside – Outside Determined
 - Automatic Solid Generation
 - Automatic Piece-Mark Generation
 - Automatic Orientation Icon Generation
 - Now use plain ACAD commands on Parts
 - Copy, Mirror, Array
- ✓ Significant savings in modeling
- ✓ Significant savings in design changes



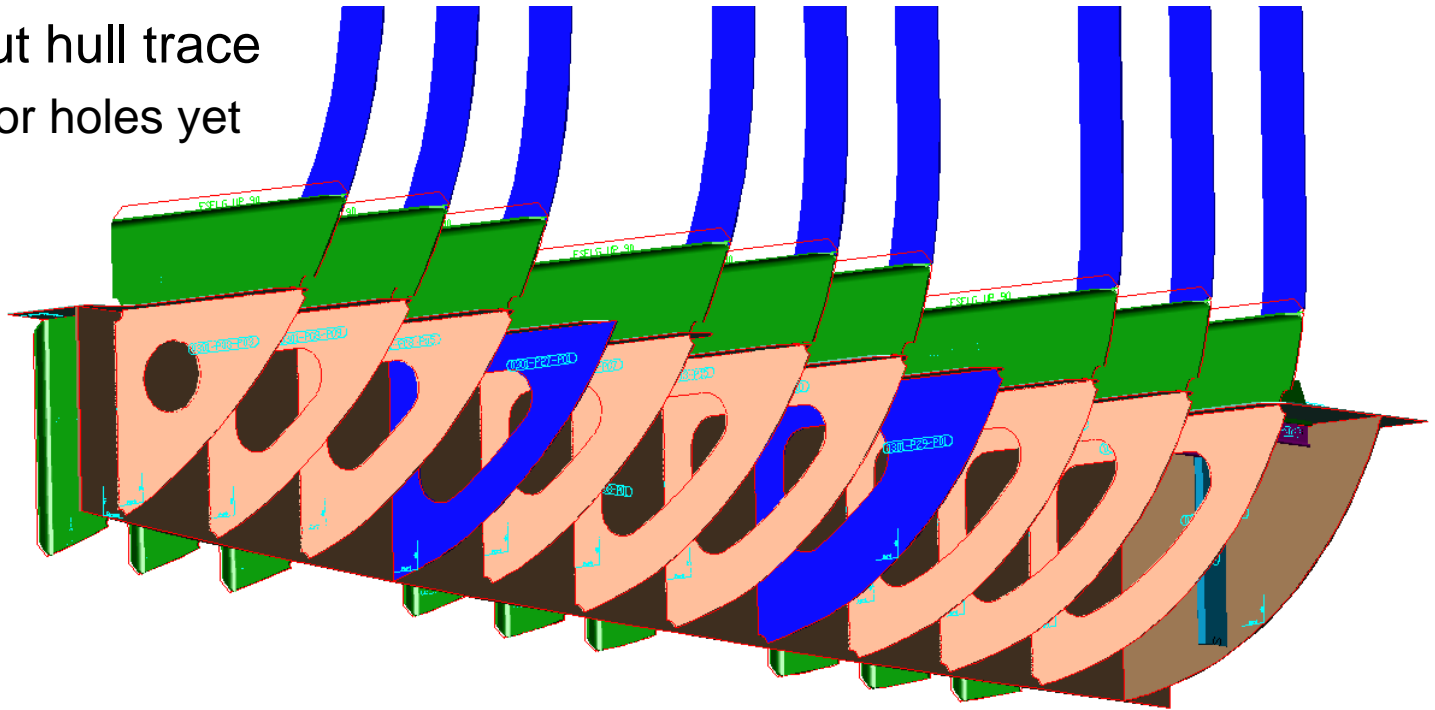
Automatic update of plate part after tank-top moved



Automatic update several parts after hull trace change

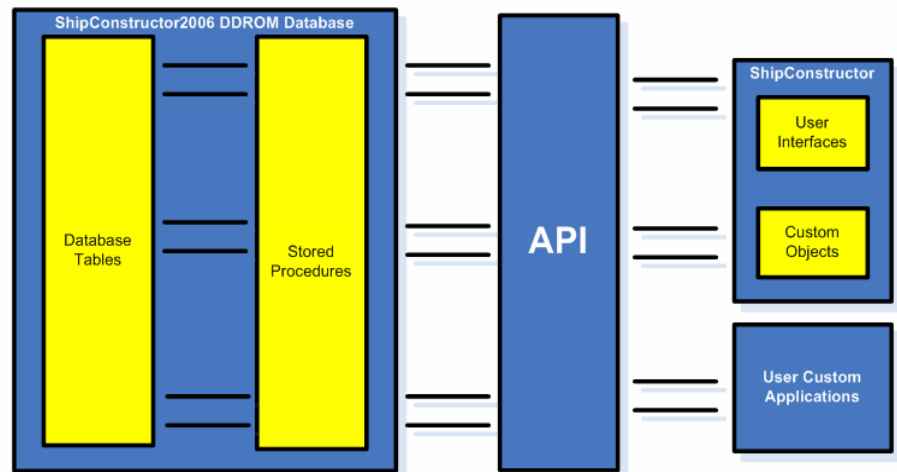
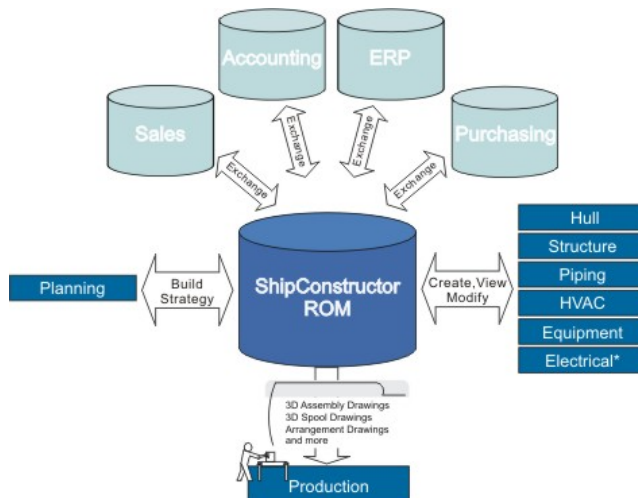
Structural Part Replication

- Define parts in one frame
- Replicate to other frames
- Swap out hull trace
 - Not for holes yet



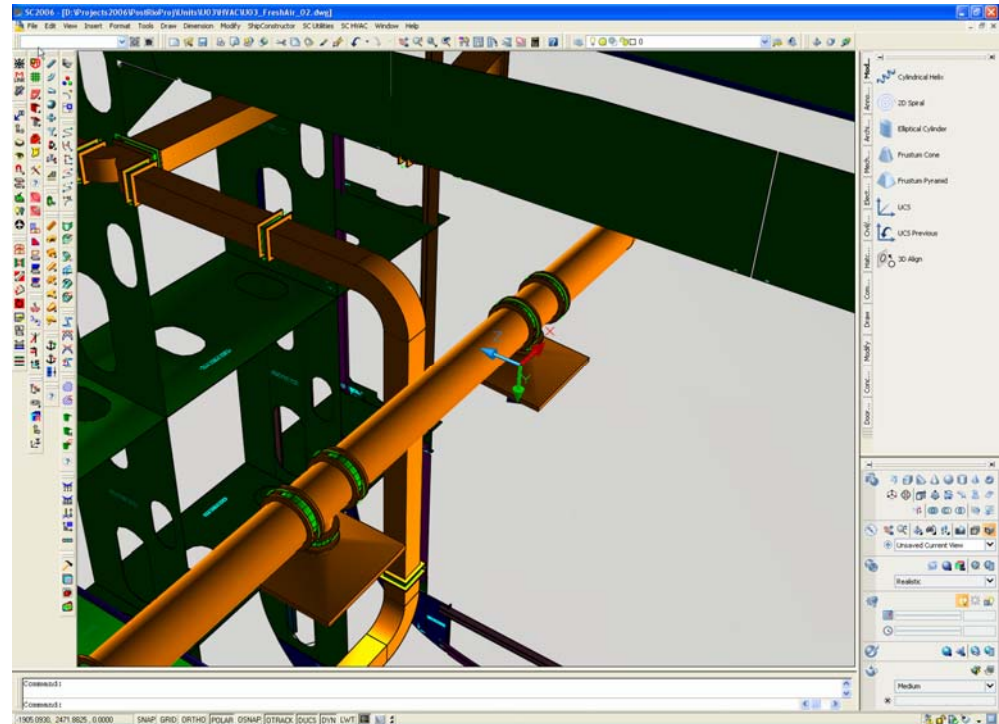
DB – API Application Programming Interface

- Thousands of possibilities
- Documented framework, COM & .NET
- User integration – planning, accounting, purchasing, PLM
- 3rd Party Developers
 - New ShipConstructor Developers Network and API Licensing Agreement



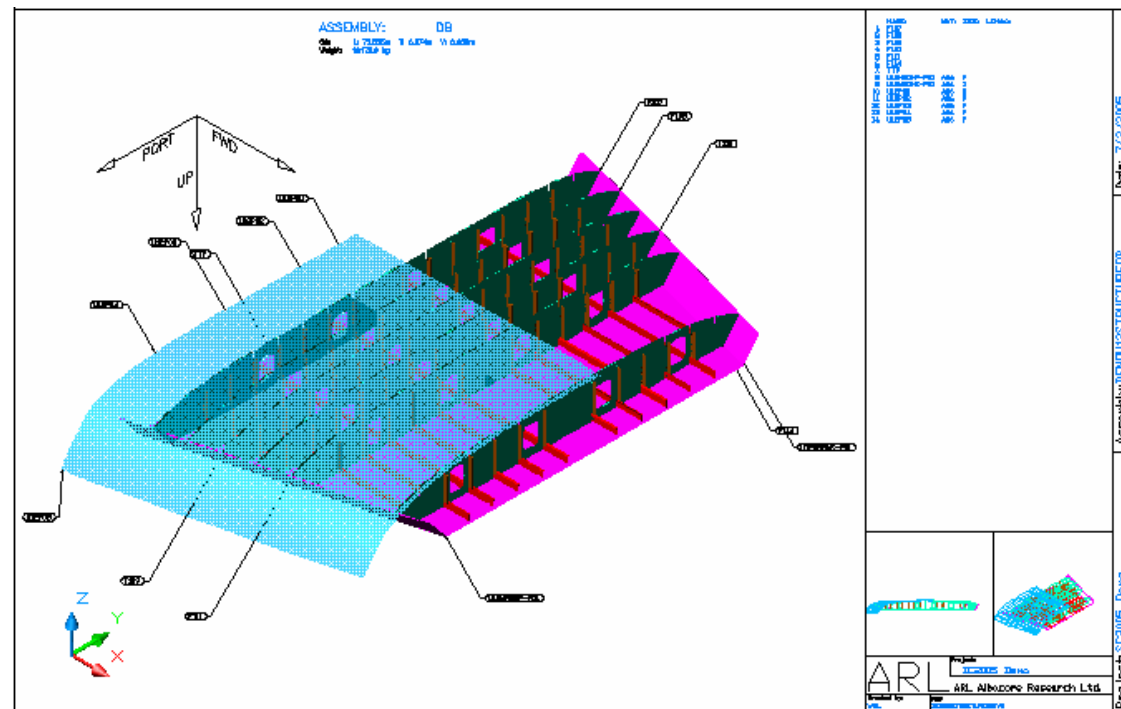
Pipe & HVAC

- Rapid Modeling Engine
- Realistic Rendering



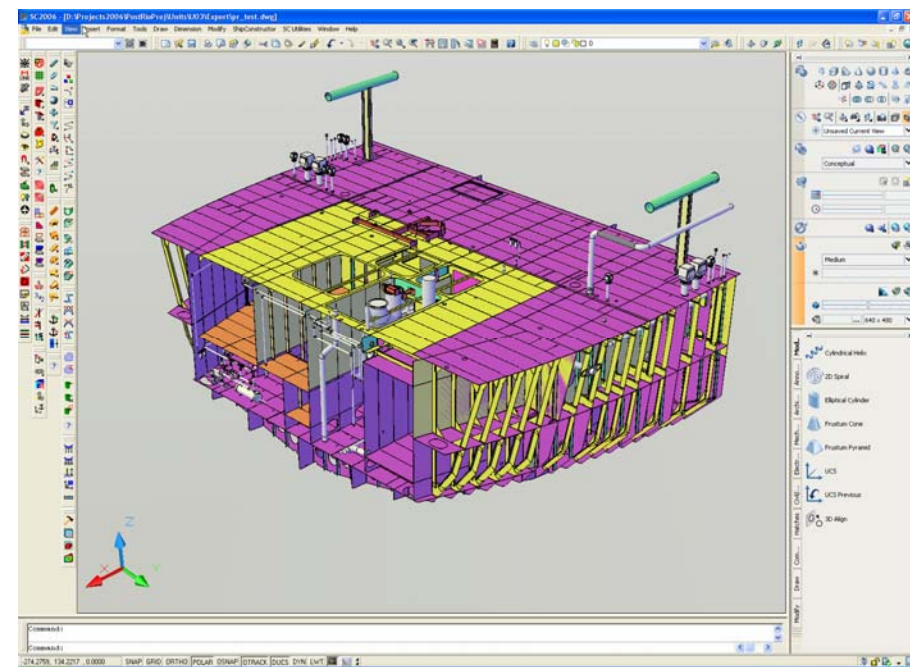
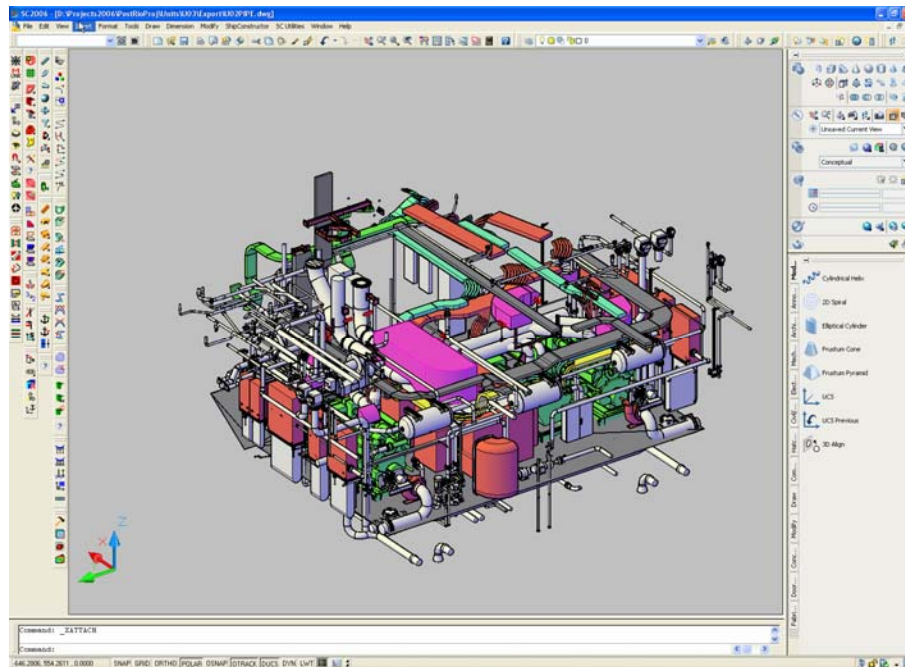
Production Drawings

- DDRROM & Transformation Solver (Phantom Objects)
- Example: Rotate to production orientation



ShipConstructor in AutoCAD 2007

- Sophisticated viewing modes
- Fast even for large data sets



STDEP Phase II Extension Weld Module Spec Development

- **Specification Development Methodology**
 - **Functional Specification (NSRP participation)**
 - Spec to be written by ShipConstructor and Bender
 - Input from Designers, planners and production personnel
 - Draft spec to be posted on project website for review, comment and updating
 - Website forums for open discussion
 - Follow-on meeting to set functional priorities
 - Spec completion by October (targeting early finish)
 - **Development Specification (SSI internal)**
 - Framework, language, interface, integration, API etc.

Weld Module Spec Development

- Results from March 30 meeting with designers, planners from shipyards & design agents
- Desired features
 - Use DDROM relationships to identify welded joints
 - Manager to set up project with pre-configured rule base (ABS, Navy etc.)
 - Designer identifies weld during design
 - Rule based drop down lists, auto-assignment with user override
 - Automated weld symbol feature
 - Automated edge prep labeling

Weld Module Spec Development

- **Desired Features**
 - Weld properties stored in separate linked database
 - Flag joints without weld assignment
 - Rule based plate gaps for butt welds
 - Define important attributes
 - Length
 - CG
 - Size
 - Weld Type
 - Weld Process
 - Orientation
 - Editable attributes – rule based default with user override

Weld Module Spec Development

- Desired Features
 - Relationships between welds and structures
 - Changing plate thickness auto-updates weld
- Reporting
 - Profile summary information
 - Consumables information
 - Bil of Material
 - Weld list sorted by type/size in unit/assembly/stage/ship
 - Summary levels
 - Panel, assembly
 - Tied to build strategy

Weld Module Spec Development

- Desired Features
 - Link to QA, testing schedules
 - Automated generation of test & inspection requirements with user override
 - Include pipe, HVAC, foundations etc.
 - Robotic toolpath generation
 - Interference checking

Weld Module Spec Development

- SP-7 Input
 - Website forum open for new members – provide e-mail address
 - Open discussion
 - Production information
 - Reports