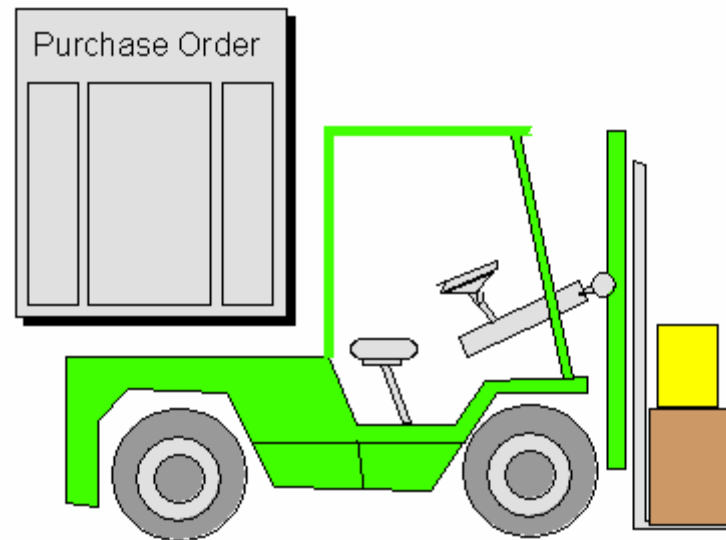


PERCEPTION MAT-PAC



The Material Management Module

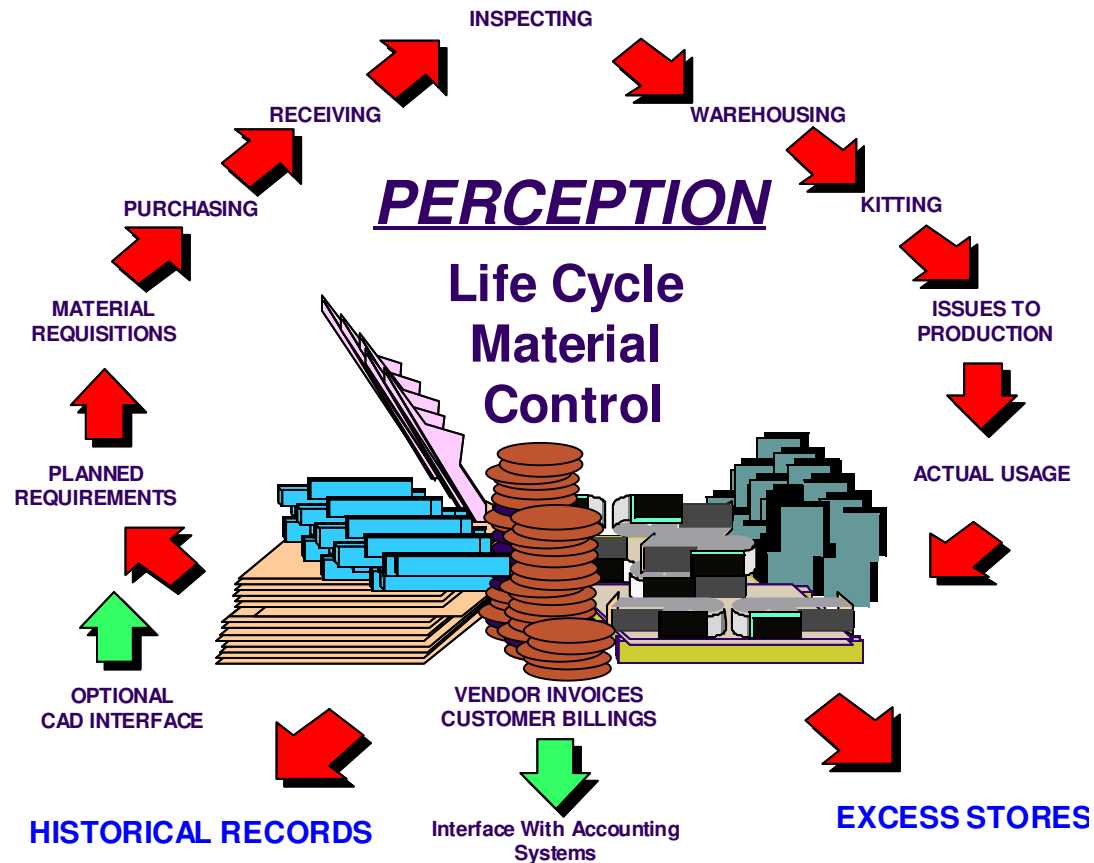
***PERCEPTION* manages and coordinates all material control functions:**

- Engineering bills of material
- Purchasing requisitions
- Purchase orders, RFQs and amendments
- Delivery expediting information
- Delivery receipts & inspections
- Warehousing & storage locations
- Production requisitions
- Work order pallets
- Issues to production
- Vendor invoice control
- Customer billings (fixed price services and time & materials)

System Benefits

- 1. Consolidated information of all purchasing and material control activities, from requisitions to purchases, deliveries and vendor invoice control.**
- 2. Better material planning & controls for production work orders.**
- 3. Complete tracking of material quantities and costs & commitments.**
- 4. Superior parts catalog designed for easy use and to eliminate duplicate parts, a typical inventory problem.**
- 5. Fast and accurate reporting of material cost and delivery problems.**
- 6. Different purchasing functions to address special needs for new construction and ship repair.**
- 7. System handles all types of shipyard material: direct purchase, stock, manufactured parts, and owner furnished equipment/material.**

Managing Material From Engineering to Production



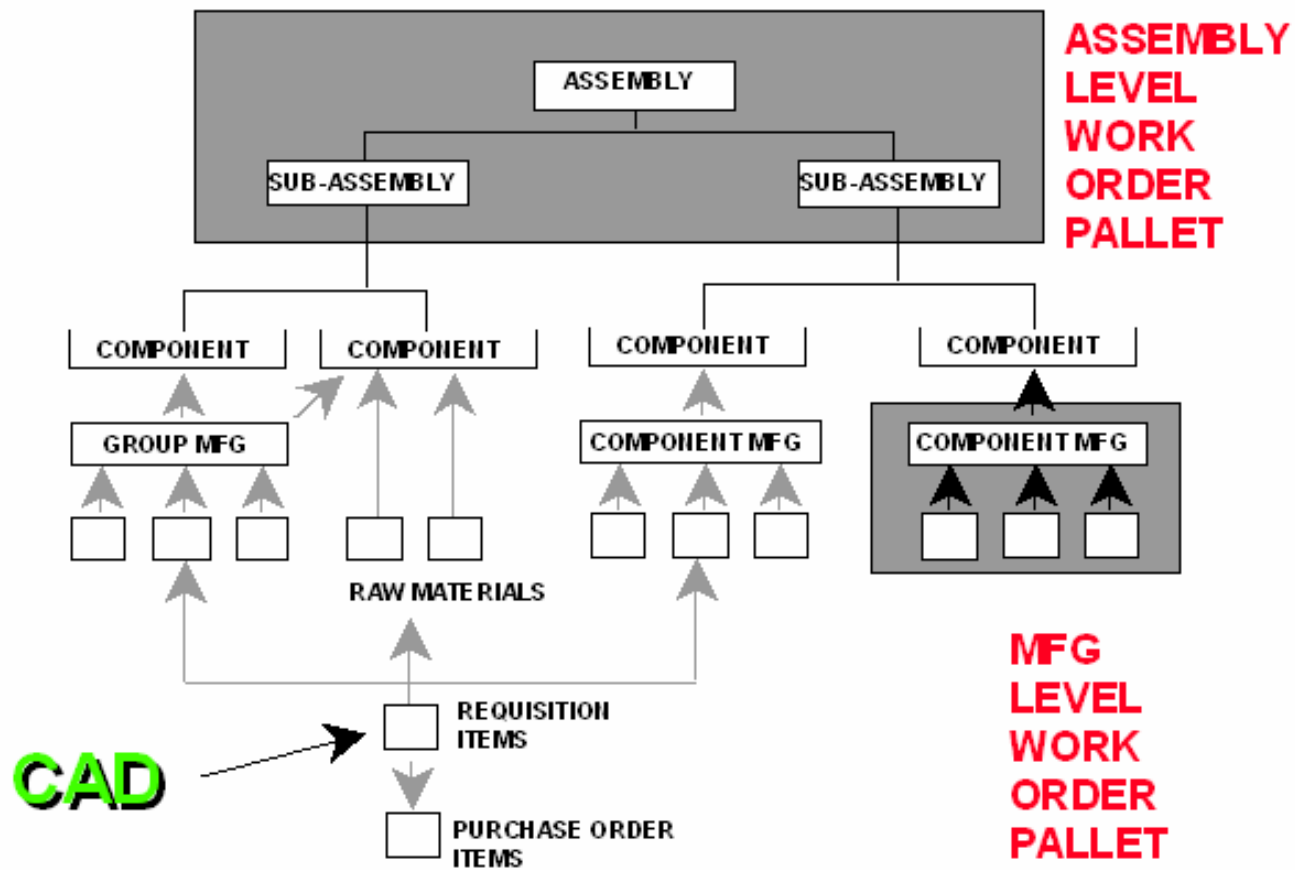
Different material control characteristics between new construction and ship repair:

New Construction: Detailed engineered bills of material requiring careful time-phased scheduling and integration within the construction work plan.

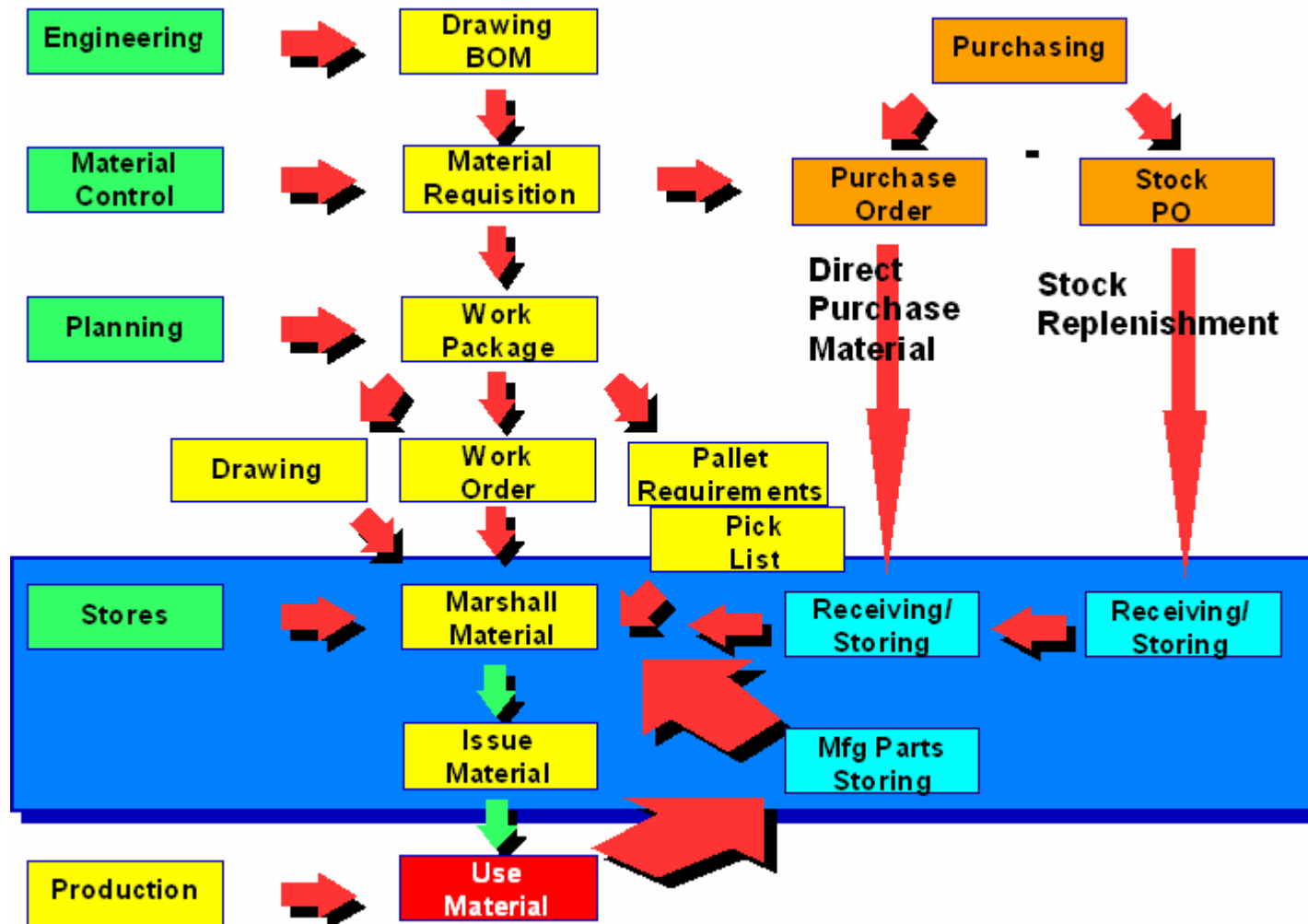
Ship Repair: Immediate needs determined more by waterfront, rather than engineering requirements.

New Construction

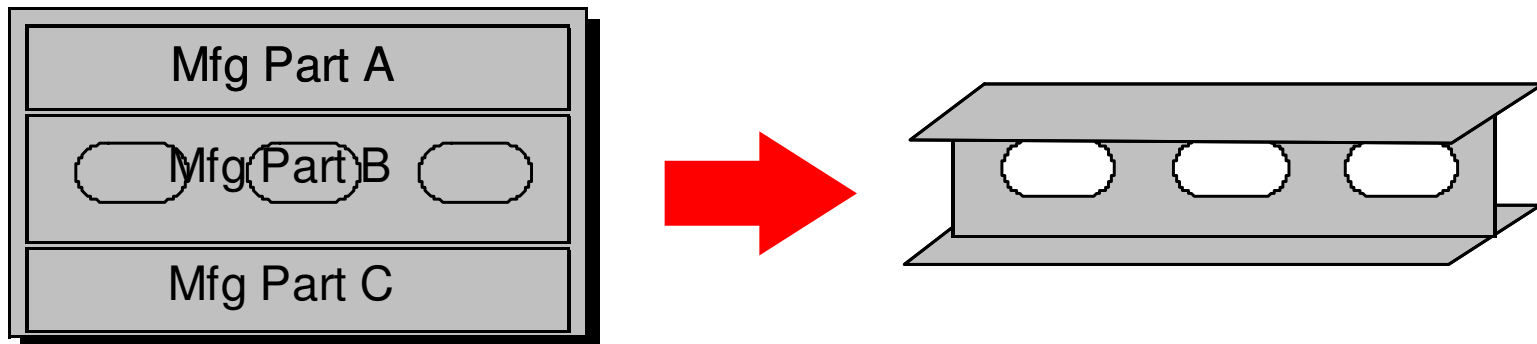
Multiple Level Bills of Material



Processing Material For New Construction

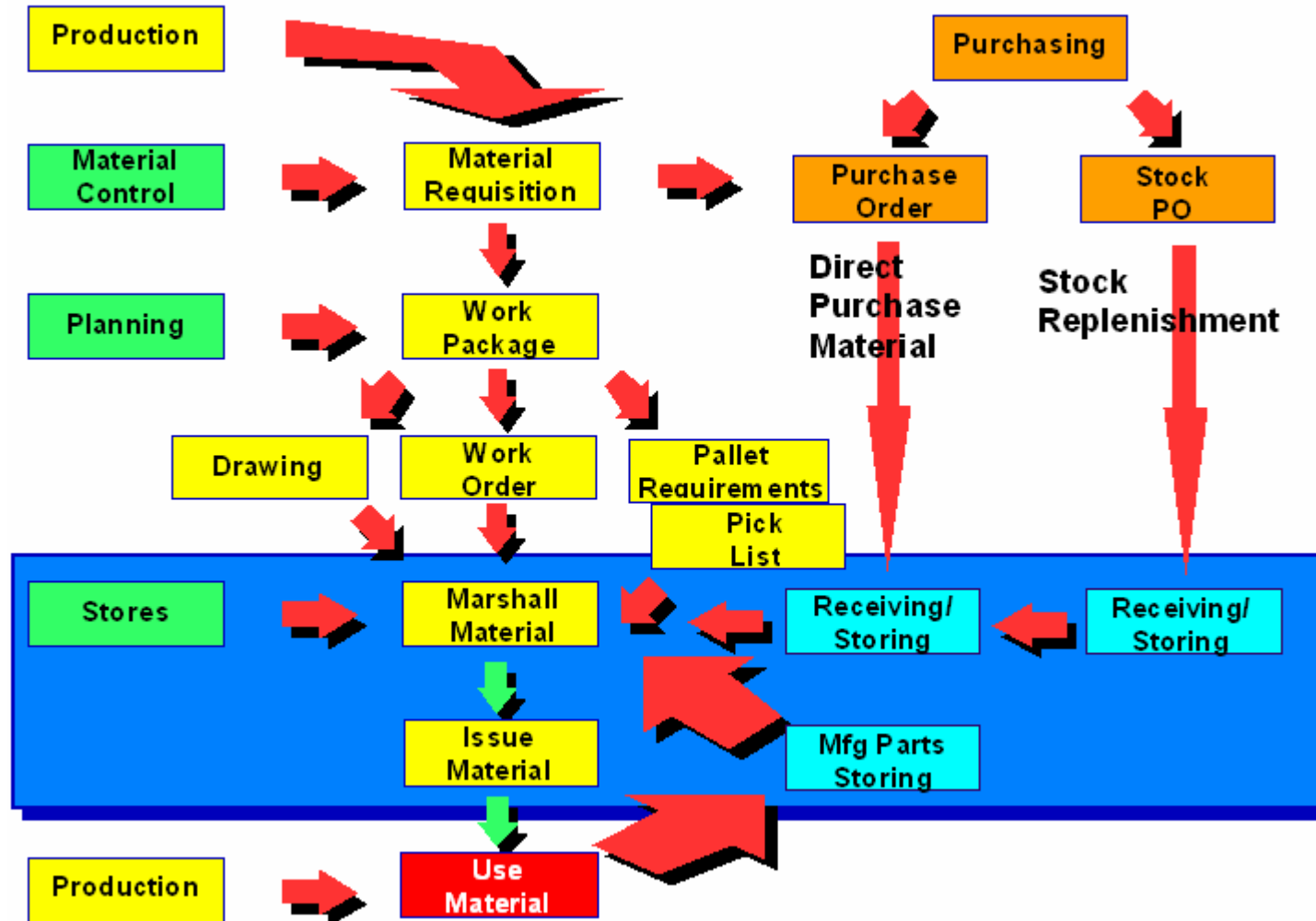


Processing Materials in Production: Purchased Parts & Manufactured Parts



Ship Repair

Processing Material For Ship Repair



Sources of ship materials:

- **Direct purchased material (spec items & standard parts)**
- **Stock inventory**
- **Owner-furnished material**
- **Manufactured parts**

PERCEPTION's Standard Parts Catalog

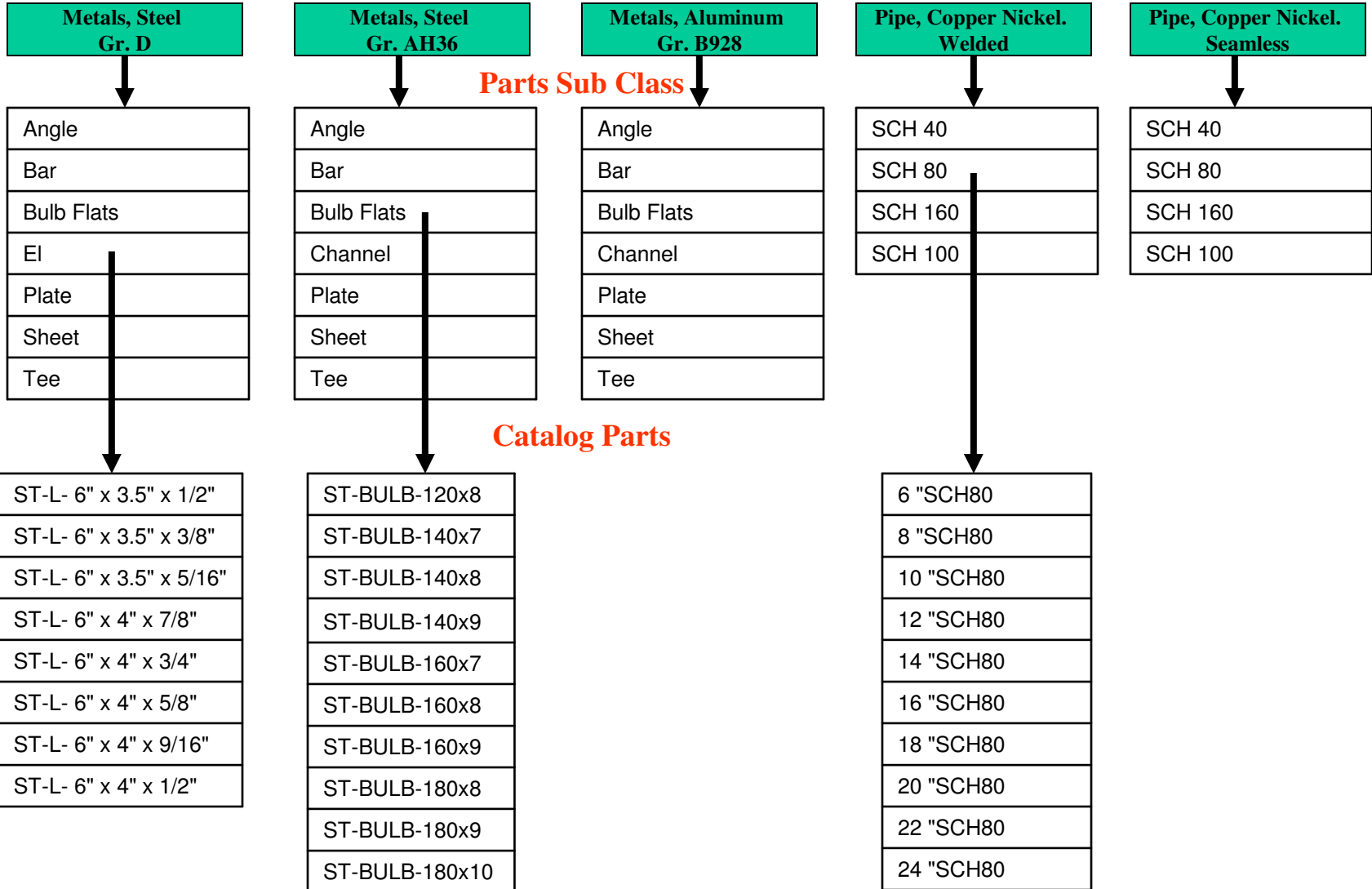
The Parts Catalog groups parts into the following part types:

- **Stock**
- **Standard Direct Purchase Items**
- **Standard Manufactured Items**

Within the each part type, a part can be further categorized by:

- **By Part Classification**
- **By Part Sub-classification**

Parts Class



An option for each Part is a list of default classification attributes.

Certain functions in the system allow the user to scan any set of parts in its part classification and select only those parts that meet a prescribed set of part attributes, such as color, size, & material.

Pipe Attributes

Type Material
Type Construction
Type Connection
Schedule
Outside Diameter
Inside Diameter
Wall Thickness
Weight Pipe per Meter
Weight with Water per Meter
External Surface Area

The default part attributes worksheet allows the user to define as many different part attributes as necessary for the given Part Classification or Sub Classification

Default Part Classification Attributes for the Estimating Environment					
	Part Classification	Part Attribute Type	Part Attribute	Description	UoM
1	VALVE	Material	ASTM Grade	ASTM Material Grade	EA
2	VALVE	Physical	P Dia	Pipe Diameter	EA
3	VALVE	Performance	PSI	Max operating pressure	EA
4	VALVE	Physical	Type	Valve Type	EA

Once the default part type attributes have been defined for the Part Classification, the system will automatically copy this set of attribute names to each part entered under this classification.

The user then will need to enter the attribute values appropriate for each part in that classification.

The Part Sub Classification default attributes work exactly the same way.

The Parts Catalog provides an easy view of all pertinent information about any part in the catalog.

Pictures, drawings & spec files also can be identified here.

Parts Catalog Detail Information

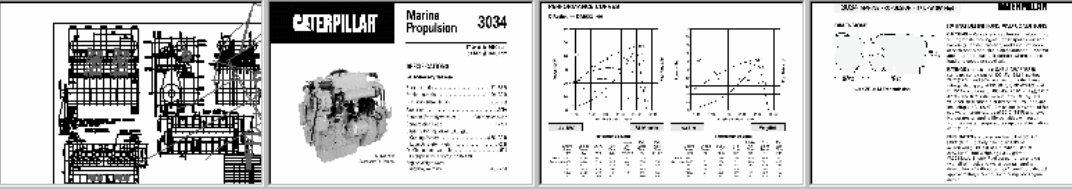
Parts Catalog | Attributes | Inventory | Transactions | Last Receipts | Pending Deliveries

Classification: Engines, Diesel Part Type: Direct Purchase Description: Caterpillar 3034 NA

Part ID: CAT-3034 NA MFG P/N: 3034 NA

NATO ID: - - -

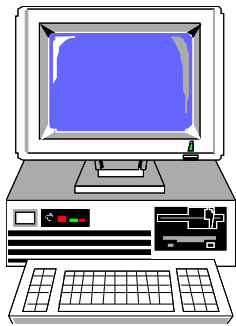
Drawing File Name: L:\SPAR\SPARDATA\Drawings Pi Thumbnail Picture File Name: 3-D Model File Name: L:\SPAR\SPARDATA\Drawings Pi Spec Document File Name: L:\SPAR\SPARDATA\Drawings P



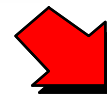
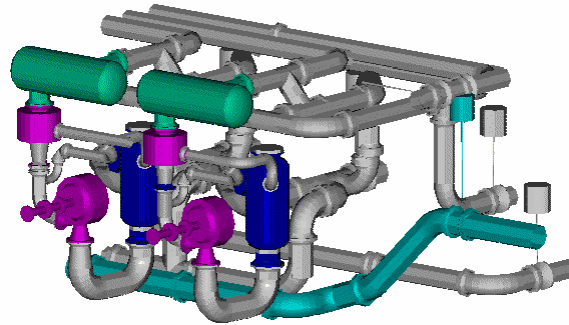
Part Attribute Type	Part Attribute	Description	Value	UoM
1 Material	Weight	Engine Weight	579	LBS
2 Material	Width	Engine Width	20.5	IN
3 Physical	Bore x Stroke	Bore x Stroke	3.82 x 3.94	IN
4 Physical	Continuous Duty HP	Continuous Duty HP	63	HP
5 Physical	Continuous Duty kW	Continuous Duty kW	47	kW
6 Physical	Continuous Duty RPM	Continuous Duty RPM	2600	RPM
7 Physical	Cylinders	Number of Cylinders	4	NO
8 Physical	Displacement	Engine Displacement	183	CUIN
9 Physical	Height	Engine Height	20.5	IN

Integrating With CAD/CAE Systems

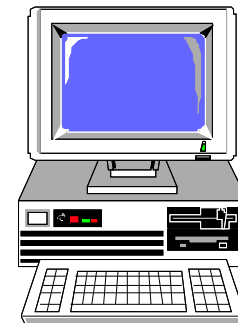
Options to Automate Transfer of BOM from CAD systems.



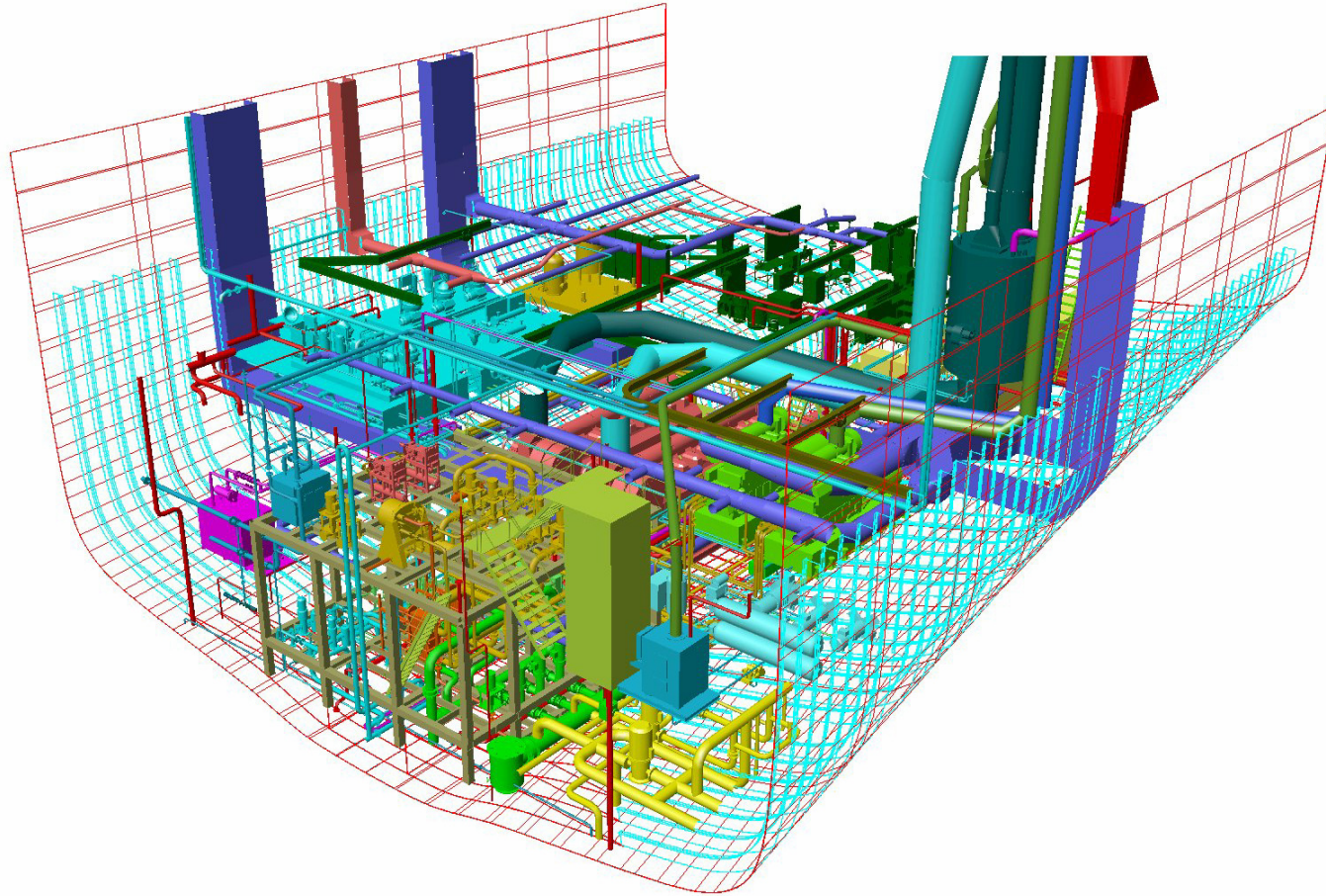
**CAD
System**



**PERCEPTION
MAT-PAC**



Electronically accessing CAD design data can significantly expedite the purchasing and material control process.

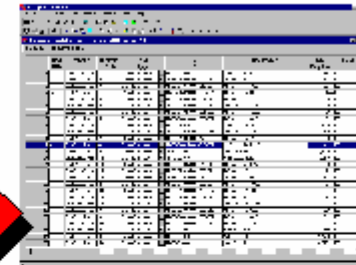


CAD System



Whether transferring
BOM to
PERCEPTION
automatically

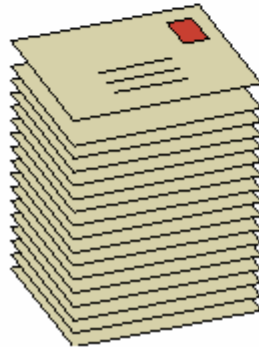
...or by manual
data entry



PERCEPTION



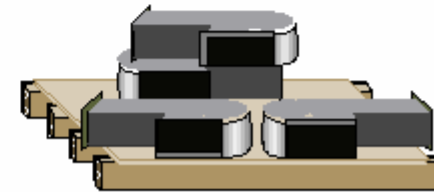
**Generate
Purchase Orders**



**Receive, track
inspections & manage
warehouse**



**Then kit for
production.**



Types of Purchase Orders:



Normal PO formulated from existing requisition(s).



QUICK PO for items not entered on a requisition.



Blanket Purchase Agreement



Bulk Purchase Order

Purchase Order Options

Header & Footer Paragraphs

Standard Header & Footer Library

All Foreign Funds & Currencies

Automated Multiple Sales Taxes At Item Level

Amendments & Change Orders

Customized Purchase Order Forms Available

Email communications of purchase orders

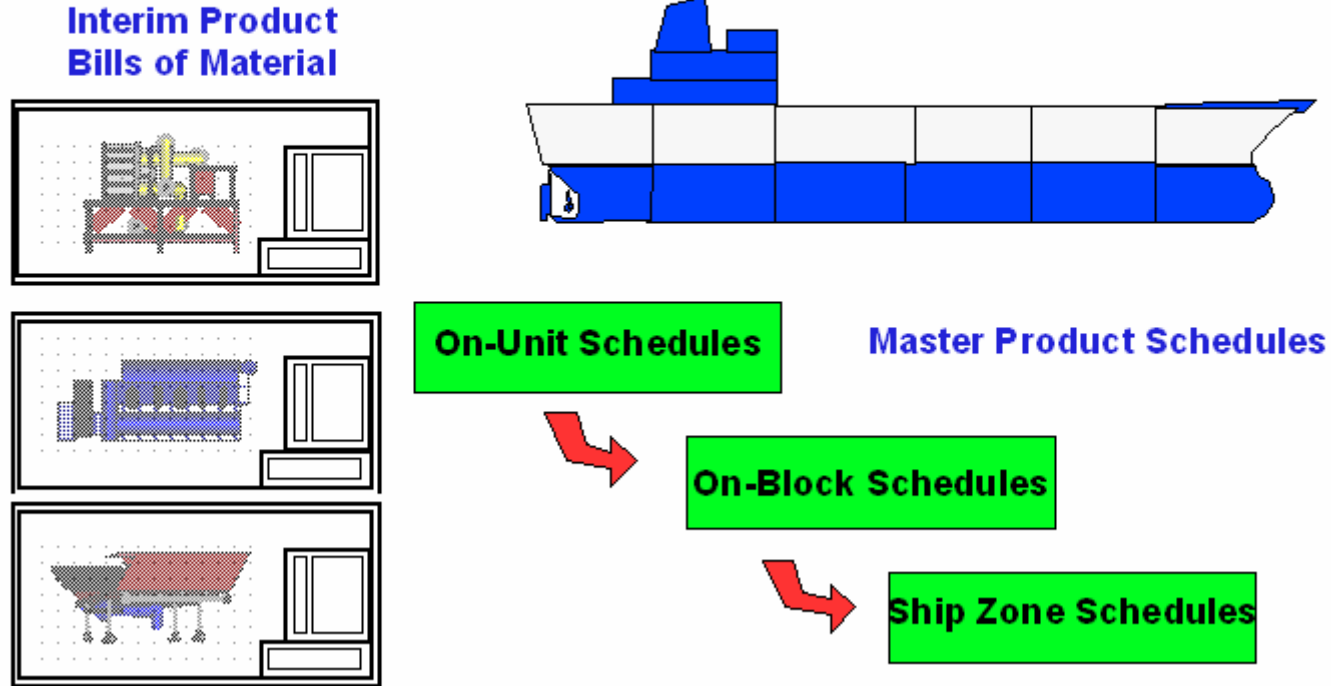
Purchase Order Options:

- Send hardcopy to vendor
- Send via fax linked to system network
- Send via email direct from *PERCEPTION*

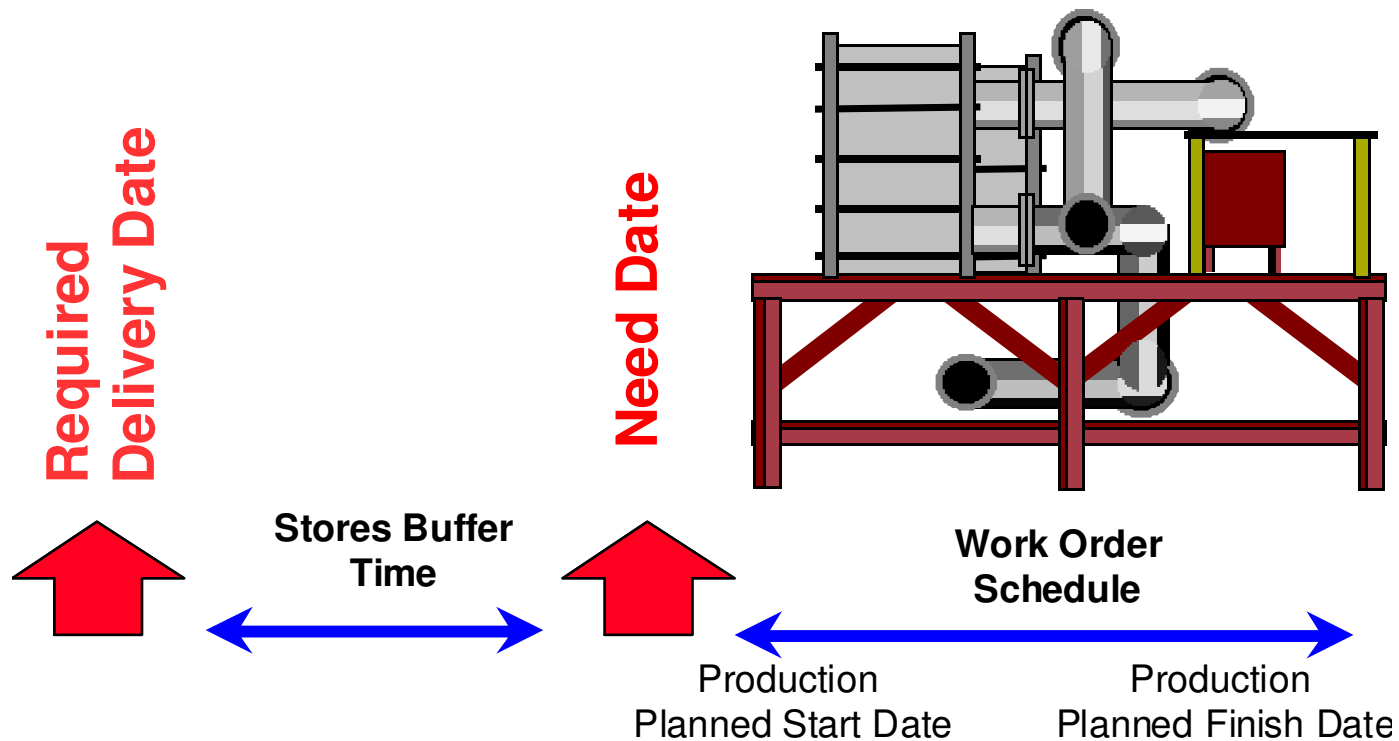
Managing Material Schedules

Planning & Scheduling Material Purchases & Deliveries

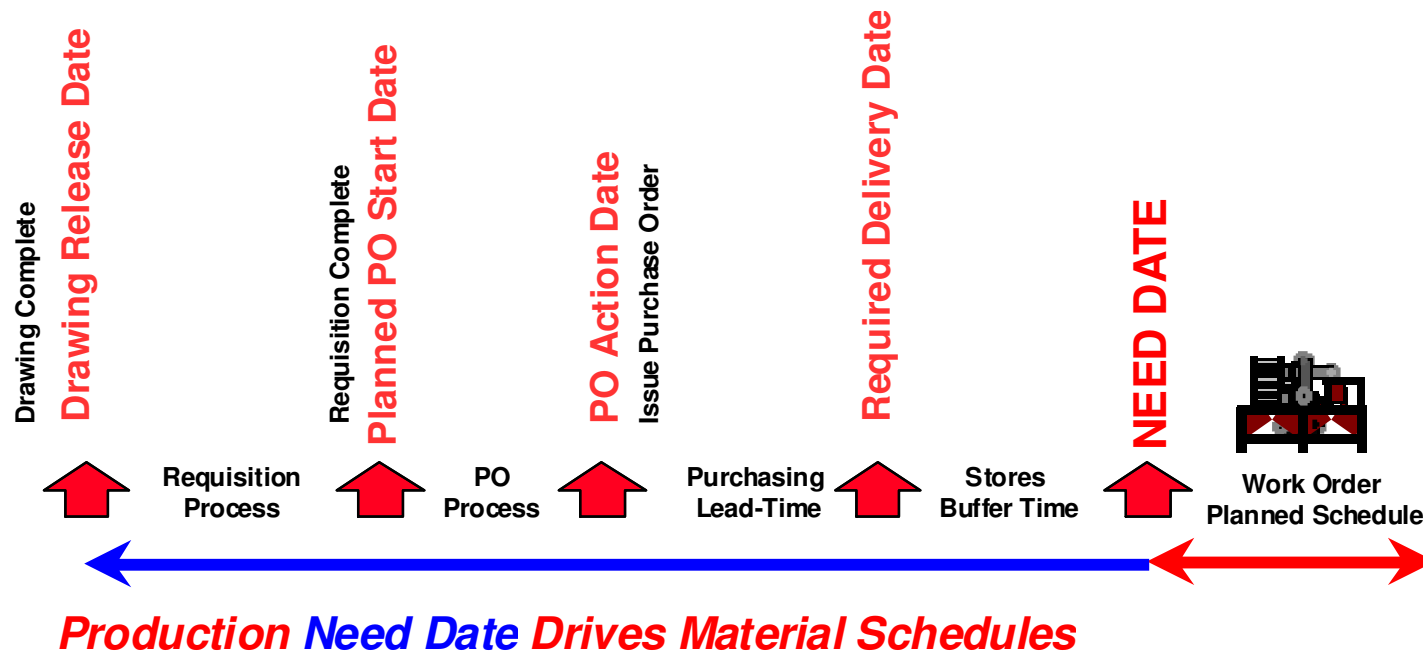
Scheduling Deliveries to Meet Master Product Schedules



Material Deliveries Must Be Scheduled to Meet Required Delivery Dates



Production Need Date Drives Material Schedules



Major categories of purchase schedules:

- Long Lead Items
- Standard Parts for Bulk Purchase
- Spec Items
- Non-Spec, Non-Standard Items
- General Stock Items
- Subcontracted Work

PERCEPTION also provides features for managing engineering drawing schedules, their bills of materials and tracks levels of reviews and approvals.

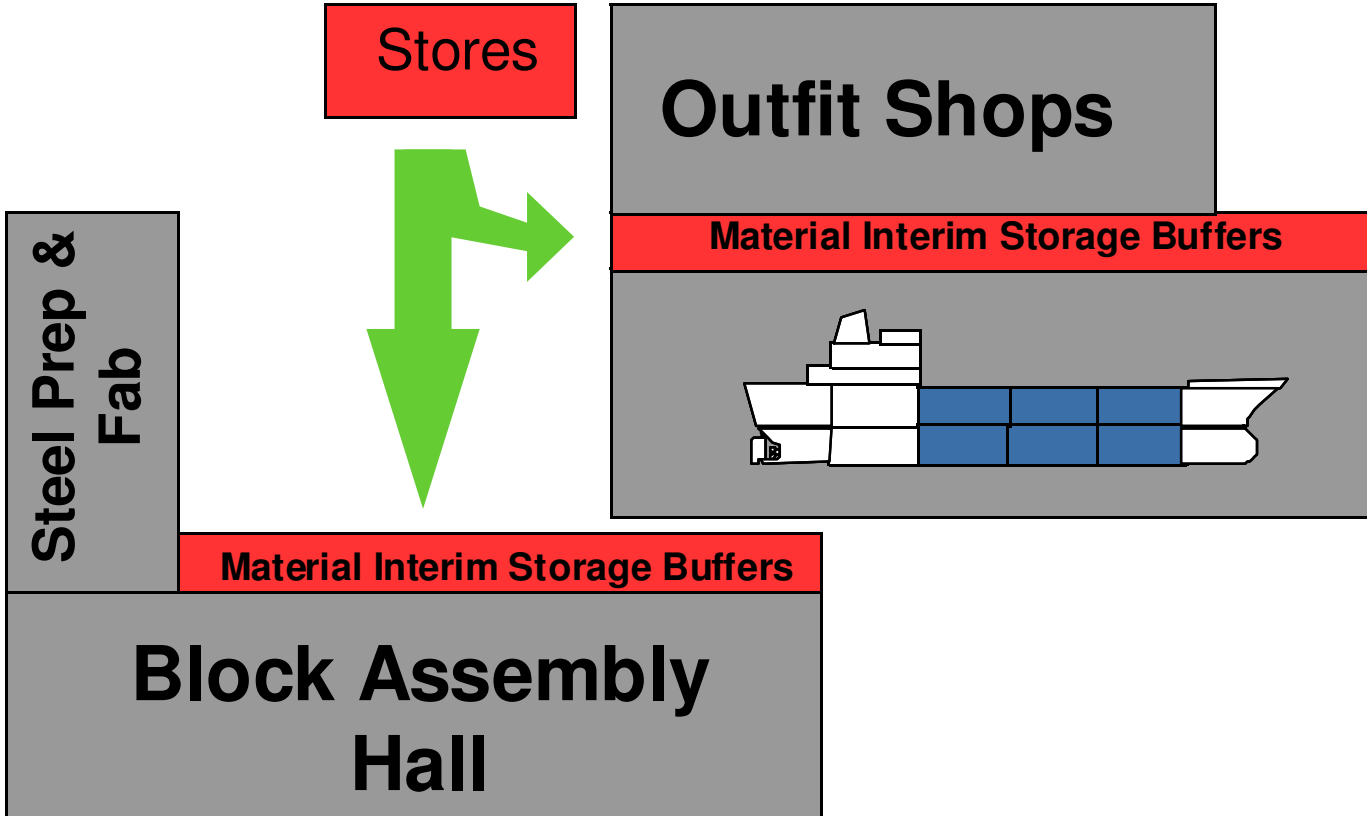
PERCEPTION provides a series of important delivery expediting reports to help ensure deliveries are made on time.

Issuing Material to Production

Several Methods To Issue Material:

- By Engineering Requisition**
- By Pallet**
- By Foreman Requisition
("Quick" Issue)**

Pre-Marshalling Pallet Materials to Work Site Buffer Storage Areas

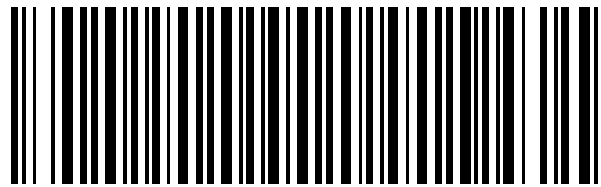


Minimizing Material Handling Costs:

- Store material nearby work areas
- Store material ready for fork lift pickup
- Vendors pre-mark, label & tag material
- Vendor deliver direct to work areas
- Vendors remove all packing and cartage material

Bar Code Options

- Tool Room Control
- Production Issues
- Physical Inventory



123 123 123 123



Tracking Material Quantity Requirements

Tracking Item Quantities

Quantity Required Versus:

- Purchased Quantity
- Quantity Reserved From Stock Inventory
- Quantity Received
- Quantity Pending QC Inspection
- Quantity Accepted & Rejected By QC Inspection
- Quantity Issued To Production

Automatic Units-of-Issue Conversion:

- Purchased UOI Versus Production UOI

Stock Inventory Management

Stock Inventory Control Management

- **Multiple Stores Location Control**
- **Automated Reorder Reporting & Requisitioning**
- **Reorder To Minimum or Maximum Options**
- **Alternate Minimum Levels For Slow Business**
- **Stock Pricing For Contracts**
- **Stock Costing For Asset Accounts**
- **Time-Phased Physical Inventory**
- **Monthly & Yearly Usage Recording**
- **Tracking Last 3 Purchases From Last 4 Vendors**

Material Cost Management

PERCEPTION tracks costs against budgets
and material reserves

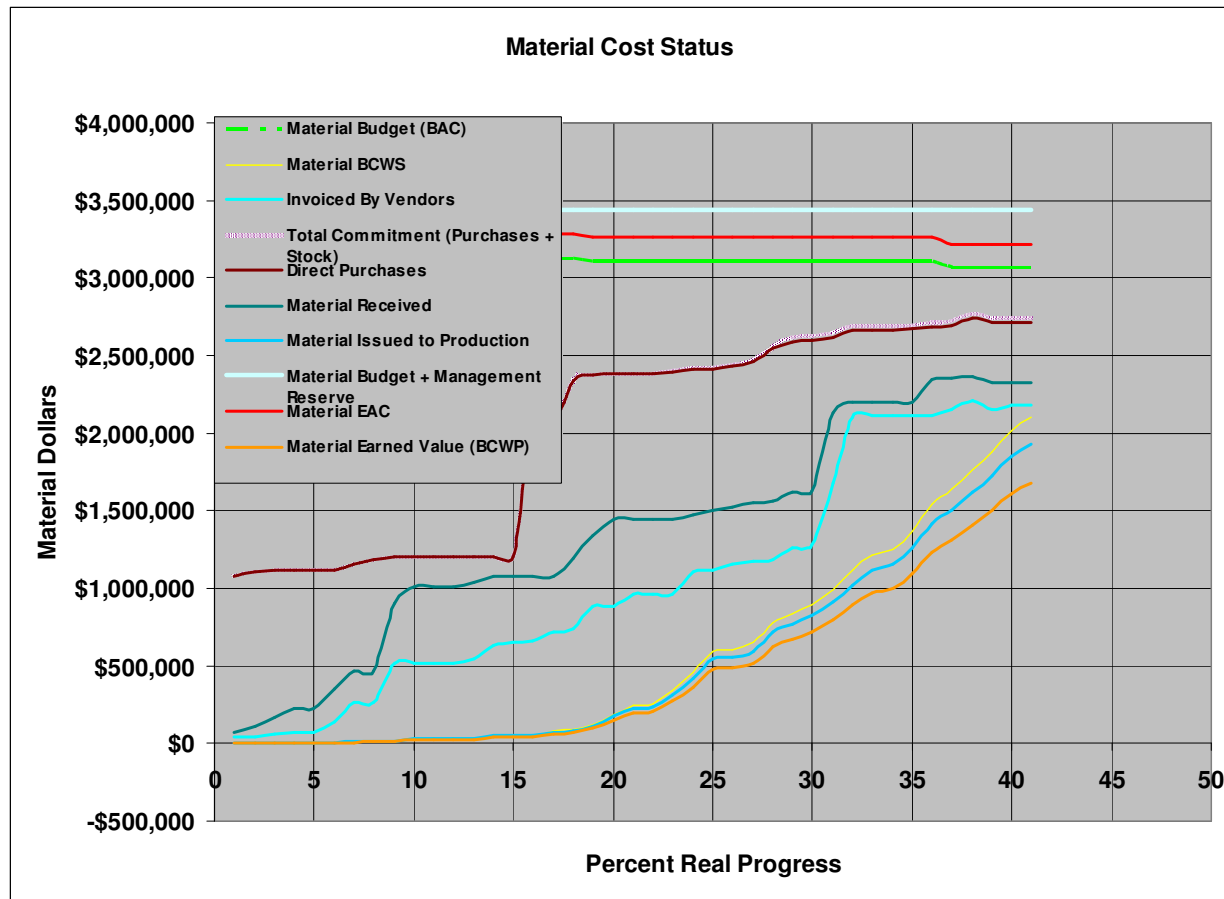
Cost & Schedule Performance Reporting

- **By Ship System (SWBS)**
- **By Interim Product (PWBS - Zone & Unit Module)**
- **By Shipyard Process (Chart of Accounts, COA)**
- **By Shop Trades & Skill Group**
- **By Work Order**

Contract Cost Management

- **Contract Budget At Completion ("BAC")**
- **Actual Costs of Material Committed (POs + Stock)**
- **Delivered Costs (Purchased Materials)**
- **Used Costs (Issued to Production)**
- **Current Liability: Delivered + Stock Used ("ACMP")**
- **Estimated Total Cost At Completion ("EAC")**
- **Total Paid Costs**
- **Earned Value of Material Spent ("BCMP")**
- **Planned Costs As Scheduled("BCMS")**
- **Material Management Reserves**

Graphics Material Cost Status Reports

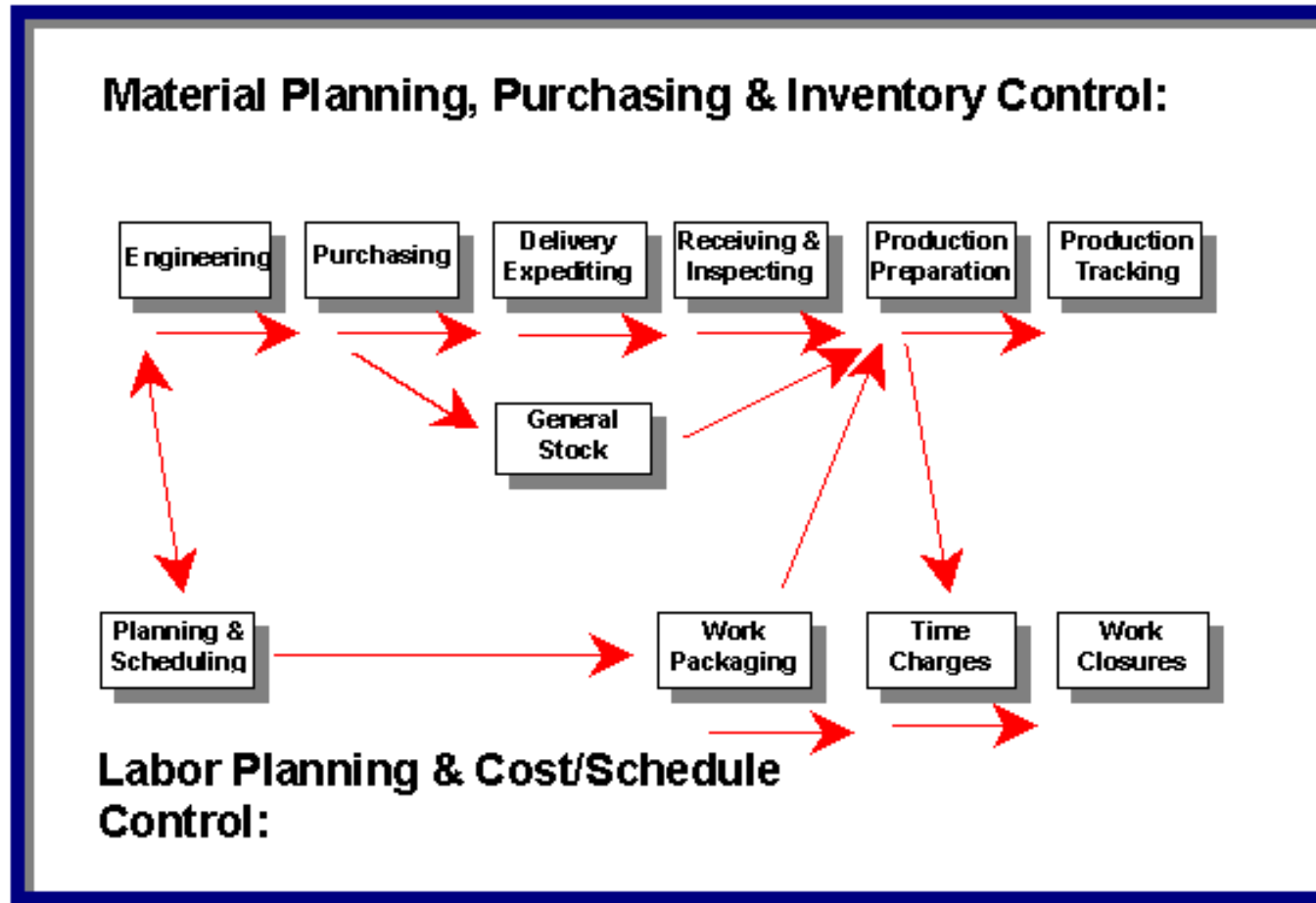


Detail Transaction Reporting

- **Purchase Item Transactions**
- **Purchase Amendment Transactions**
- **Delivery Receipt Transactions**
- **Production Issue Transactions**
- **Vendor Invoice Transactions**

PERCEPTION MAT-PAC is fully integrated
with other *PERCEPTION* System modules.

PERCEPTION ties together information from all areas of the shipyard



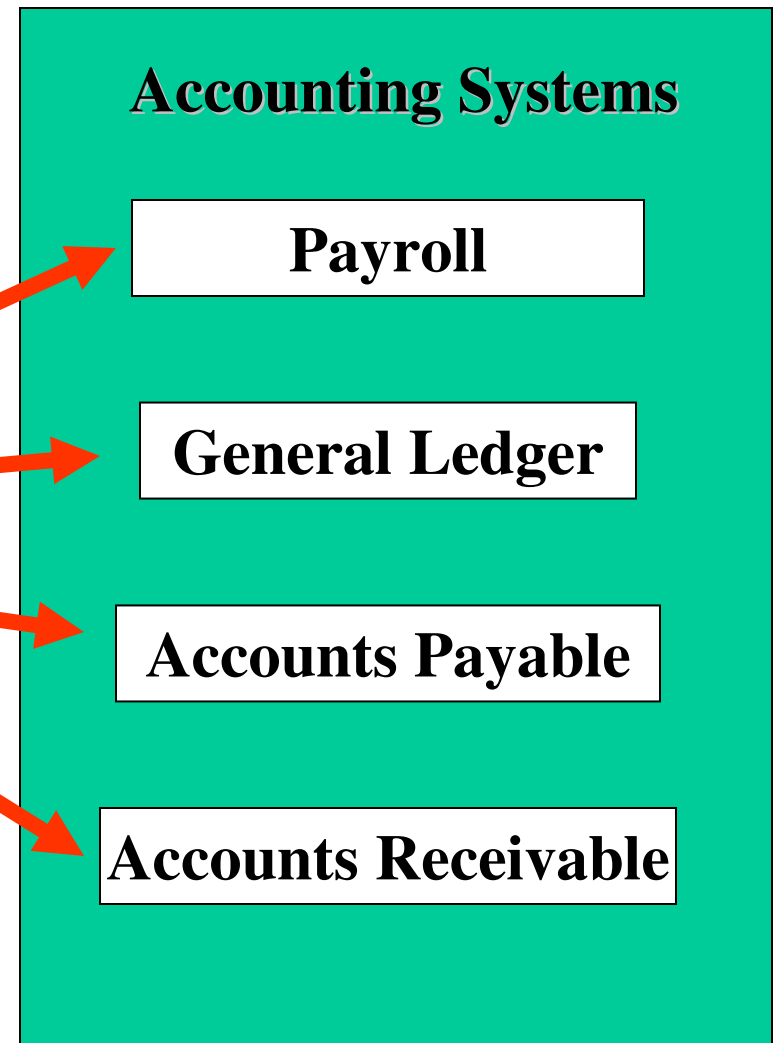
Integrating With Accounting Systems

Interfaces With Accounting Systems

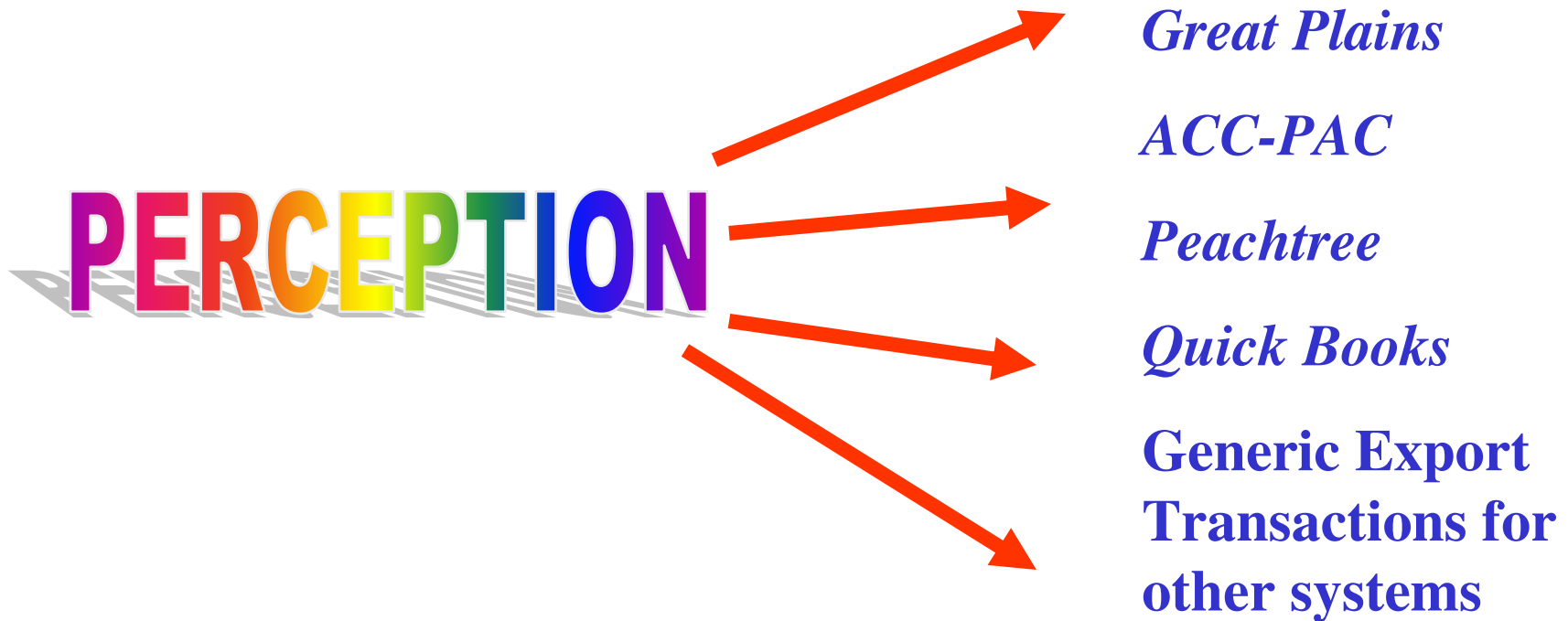
PERCEPTION

System Transactions

- Time Charges
- Purchases
- Stock Usage & Adjustments
- Customer Invoices
- Vendor Invoices



Established Interfaces With Popular Accounting Systems



Tool Room Management

- **Control Check-out & Returns of Small Tools**
- **Track Tool Usage**
- **Track Tool Repairs**
- **Track Tool Costs & Purchasing Sources**

Customizing Display Layouts

PERCEPTION offers a number of features that allows the user to customize the system.

Data Window Designer

All columnar worksheets, free-form data windows and most system reports can be edited & customized by the user:

1. **Text Headings & Data Field Labels can be modified** to suit specific user requirements. This includes using non-English text and Windows-supported non-English alphabetic characters.
2. **Un-needed data columns and free-form data fields can be hidden** from displayed view.
3. **Data Fields re-arranged and re-sized** in free-form data windows.

Project Details Information for the Estimating Environment (Designer Mode)

Details Options Milestones Characteristics

Contract 1999-01 Description Sample Ship Repair Project

Project DES-1

Ship Type Contain.

	Labor	Material	SubCon	Travel
Hours	211.90		0.00	
Cost	0.00	294.50	0.00	0.00
Profit	0.00	0.00	0.00	0.00
G&A	0.00	0.00	0.00	0.00
Overhead	0.00	0.00	0.00	0.00
Local Tax	0.00	0.00	0.00	0.00
Federal Tax	0.00	0.00	0.00	0.00
Sub Totals	0.00	294.50	0.00	0.00

Start Date	00/00/0000	Min. Risk	294.50	Weight	
Finish Date	00/00/0000	Total Cost	294.50	Volume	
		Max. Risk	294.50	# of Cost Items	

Before Data Window Designer Changes

After Data Window Designer Changes:

(Data fields hidden, moved, re-sized, and text headings modified)

Project Details Information for the Estimating Environment (Designer Mode)

Details Options Milestones Characteristics

Contract ID 1999-01

Project ID DES-1

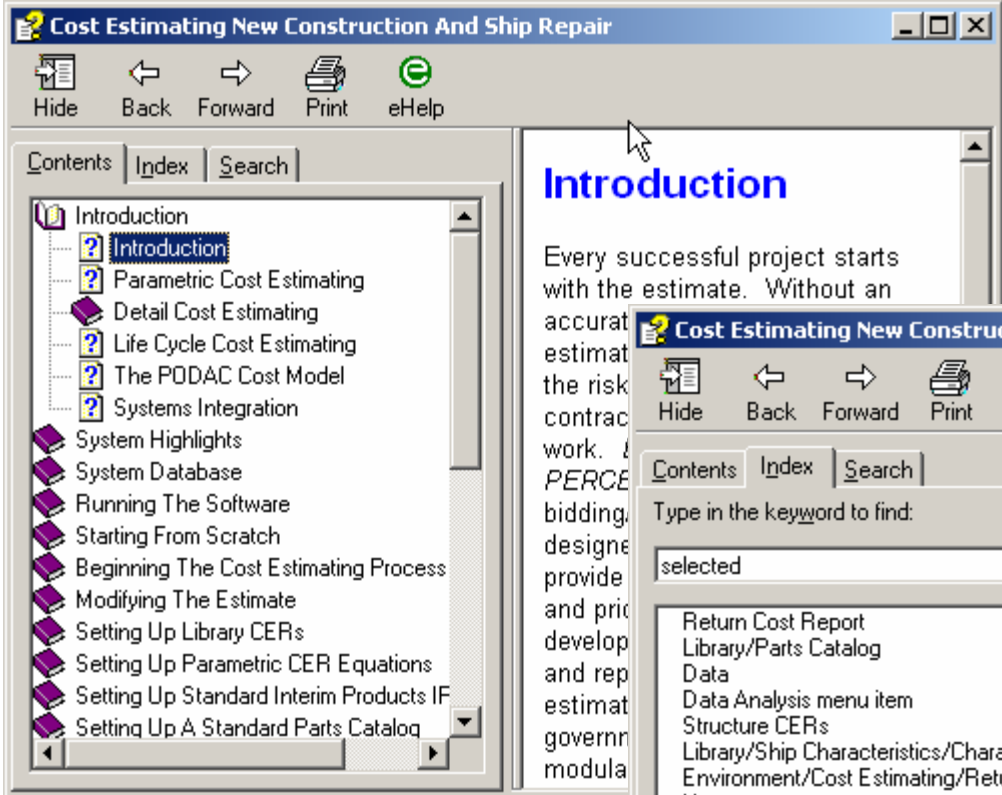
Ship Type Contain.

	Labor	Material	
Hours	211.90		
Cost	0.00	294.50	
Profit	0.00	0.00	
G&A	0.00	0.00	
Overhead	0.00	0.00	

Project Description
Sample Ship Repair Project

Sub Totals	0.00	294.50	
Start Date	00/00/0000	Min. Risk	294.50
Finish Date	00/00/0000	Total Cost	294.50
		Max. Risk	294.50
		# of Cost Items	9

Help is available by section of user manuals and by index reference.



Help also is available by keyword search.

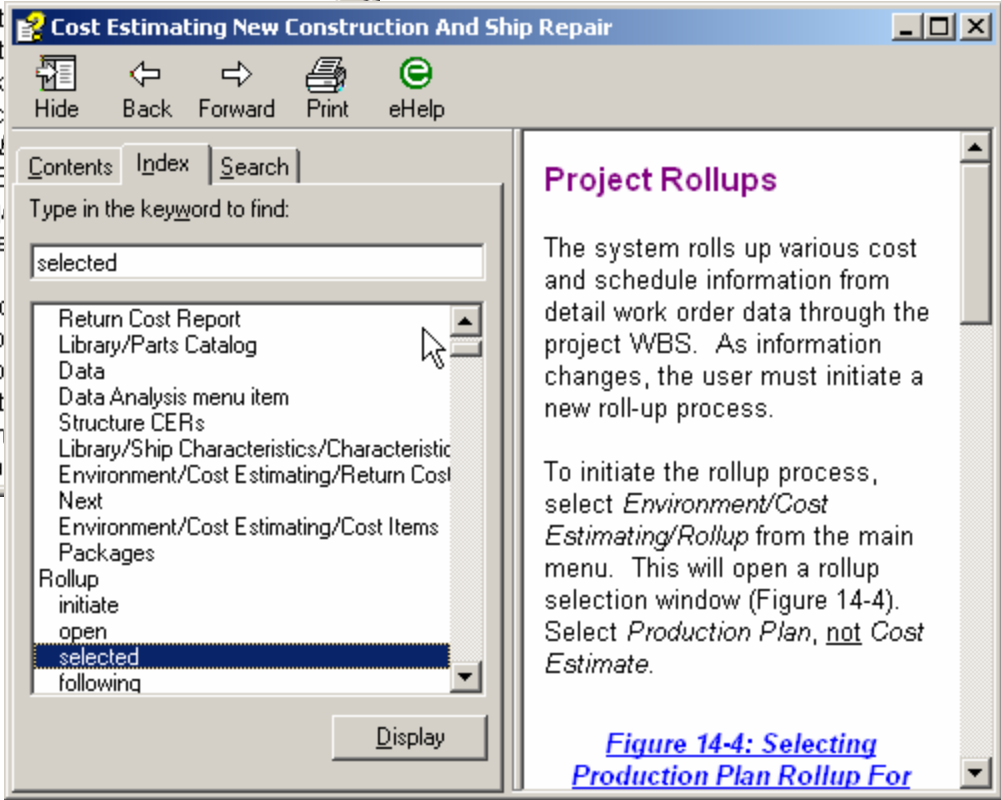


Figure 14-4: Selecting Production Plan Rollup For

Training Tutorials

PERCEPTION system includes a wide range of training tutorials depending upon the user's specific needs and scope of system functions authorized to use.

Training Tutorials:

Getting Started – General System Features

Starting A New Project

ESTI-MATE Cost Estimating Libraries

ESTI-MATE Estimating New Construction

ESTI-MATE Estimating Ship Repair

PERT-PAC Integrated Scheduling

PERT-PAC Scheduling Hull Block Construction

WORK-PAC Starting From Scratch for Work Order
Planning & Management

WORK-PAC Generating Work Orders

WORK-PAC Project Manpower Planning & Forecasting

WORK-PAC Shipyard Total Manpower Modeling

MAT-PAC Starting From Scratch for Material
Planning, Purchasing & Inventory Control.

MAT-PAC Managing Drawings

MAT-PAC Managing Stock Inventories

MAT-PAC Material Requisition

MAT-PAC Purchase Orders

MAT-PAC Receiving & Warehousing

MAT-PAC The Parts Catalog

MAT-PAC Tool Room Management Control

MAT-PAC Withdrawing Material

MAT-PAC Work Order Pallets

Project Manager Activities

Reports - Labor Cost & Work Progress

Reports - Material Cost & Schedule Status

Accounting New Project Setup

Accounting Customer Billings

Accounting Interface Setup

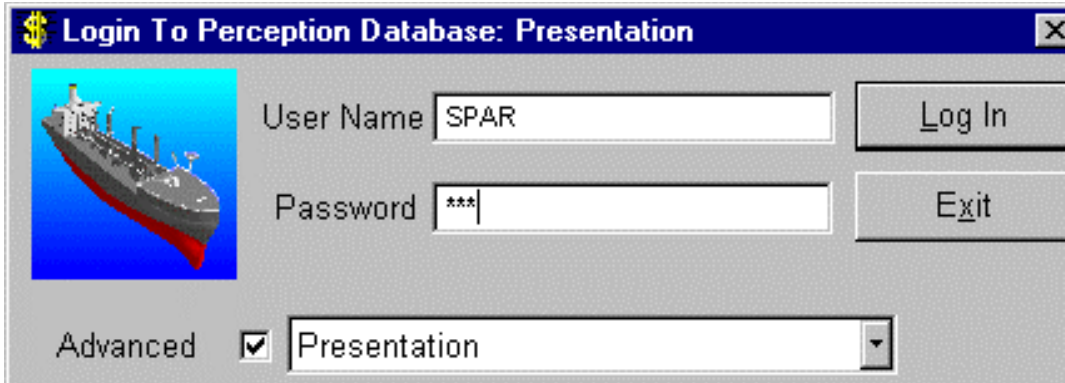
Accounting Time Charges

Accounting Vendor Invoices

System Security

All users are required to log into the system with their name and password.

Each user also is formally assigned authorized areas of the software to access and restricted from all others.



The screenshot shows a Windows-style login dialog box with a blue title bar containing a yellow dollar sign icon and the text "Login To Perception Database: Presentation". On the left side of the dialog is a small image of a red and white cargo ship. To the right of the image are two text input fields: "User Name" containing the text "SPAR" and "Password" containing three asterisks "***". To the right of the "User Name" field is a "Log In" button, and to the right of the "Password" field is an "Exit" button. At the bottom left of the dialog is a checkbox labeled "Advanced" which is checked. To the right of the checkbox is a dropdown menu currently displaying the word "Presentation".

SPAR Associates, Inc.

Over 30 Years Providing

- Shipyard management software**
- Software development services**
- Training & maintenance support**
- Planning & scheduling services**
- Cost estimating services**
- Management consulting**

SPAR Associates, Inc.

Visit our web site: <http://www.SPARUSA.com>

TEL (410) 263-8593

FAX: (410) 267-0503

Email: Info@SPARUSA.com