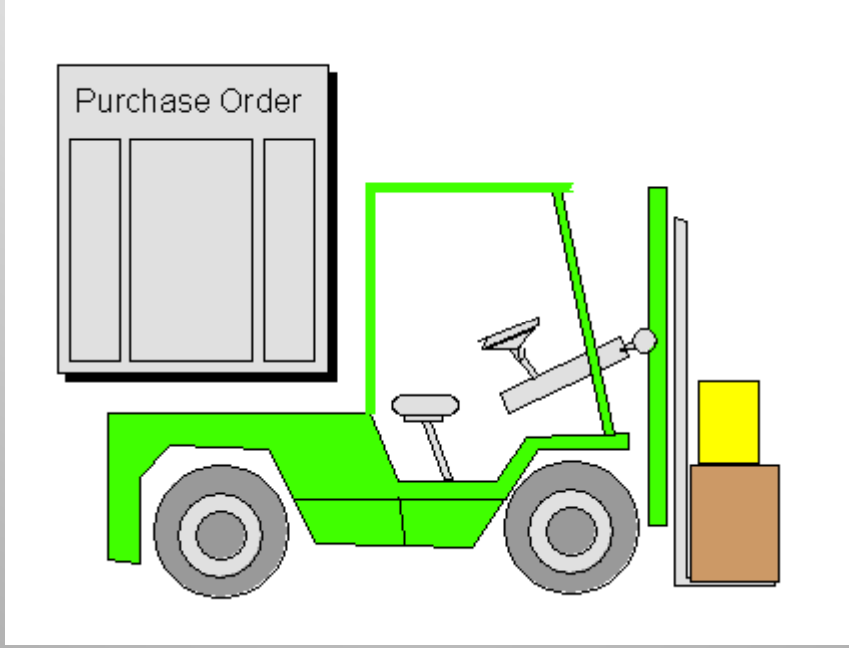
PERCEPTION MAT-PAC



The Material Management Module

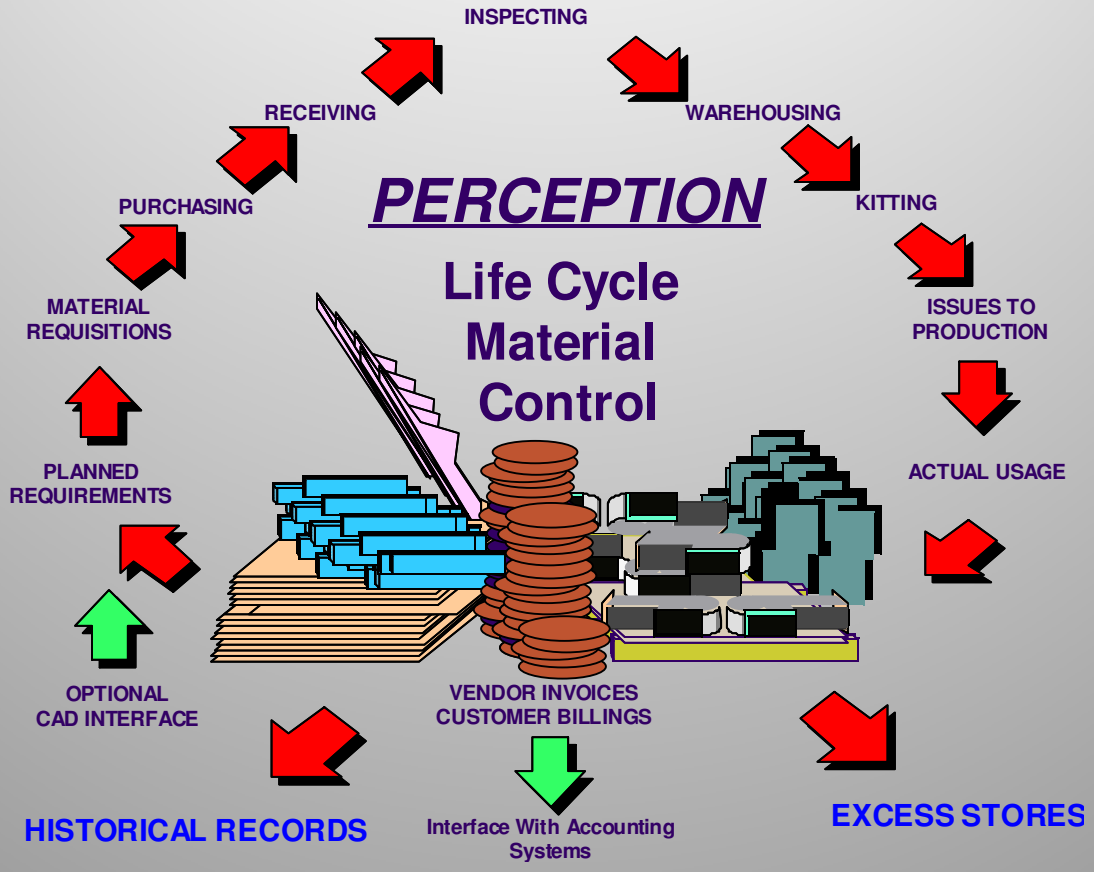
PERCEPTION manages and coordinates all material control functions:

- 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:

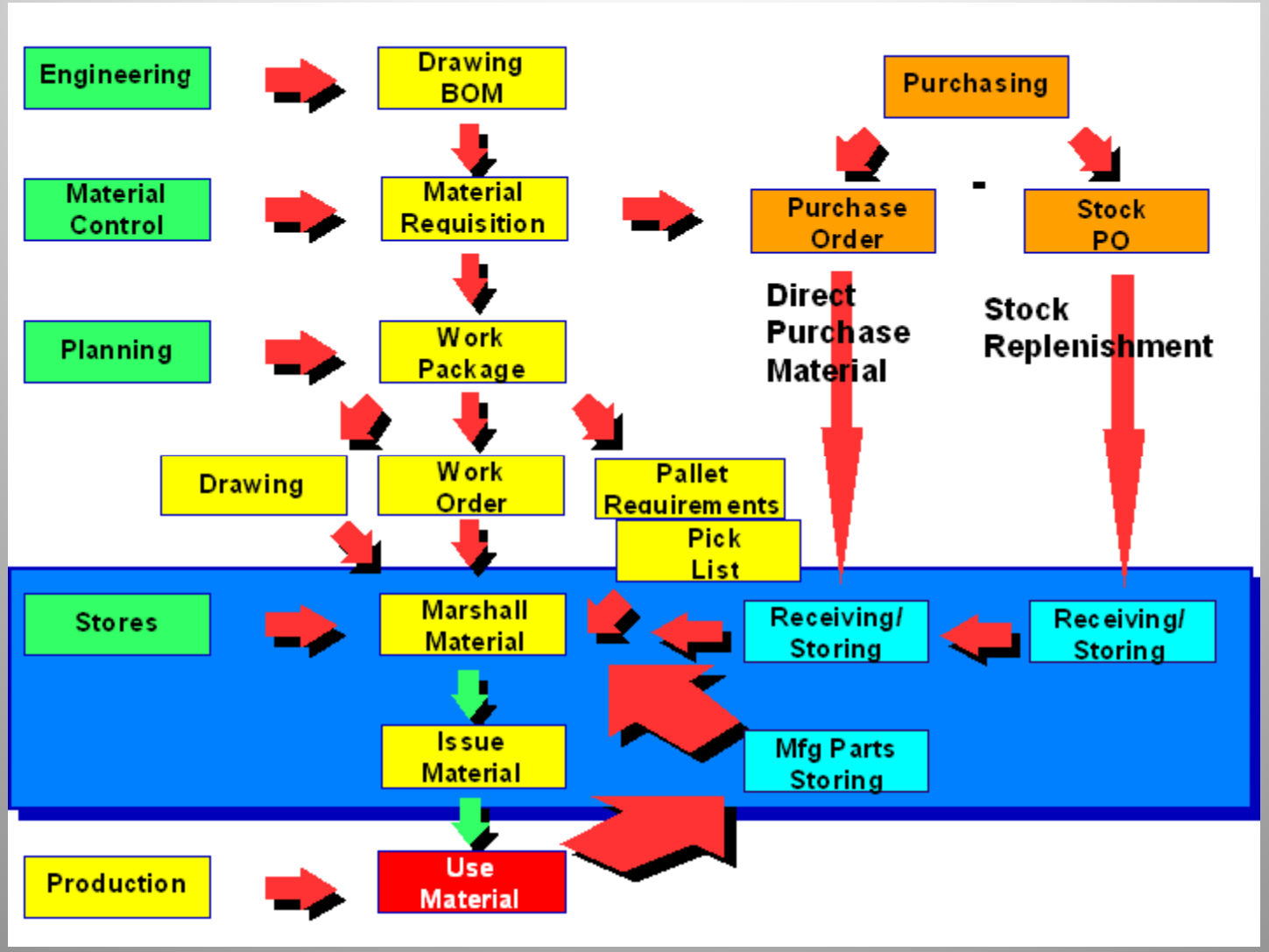
New Construction: Detailed engineered bills of material requiring careful time-phased scheduling and integration within the construction work plan.

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

Sources of Ship Materials

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

Flexible Steps for Processing Material



New Construction

Material requirements for new construction is typically determined and scheduled according to a detailed production plan.

This plan details the stages of manufacturing and assembly from parts manufacturing to sub-assemblies, assemblies, hull blocks and finally to on-board zone outfit.

New construction material purchasing schedules material availability in time to meet detailed production schedules.

Ship Repair

Material requirements for ship repair is typically determined and scheduled at a much quicker pace than possible for new construction. Often times the full scope of repair work is not known until after the ship arrives and detailed inspections are made.

For ship repair, there is less advanced time available for planning and scheduling material purchasing. Ship repair depends more upon on-hand general stock inventories and short-term deliveries as a source for most material requirements.

PERCEPTION's
Standard Parts Catalog

The Parts Catalog groups parts into the following part types:

- General 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

Metals, Steel Gr. D	Metals, Steel Gr. AH36	Metals, Aluminum Gr. B928	Pipe, Copper Nickel. Welded	Pipe, Copper Nickel. Seamless

Parts Sub Class

Metals, Steel Gr. D	Metals, Steel Gr. AH36	Metals, Aluminum Gr. B928	Pipe, Copper Nickel. Welded	Pipe, Copper Nickel. Seamless
Angle	Angle	Angle	SCH 40	SCH 40
Bar	Bar	Bar	SCH 80	SCH 80
Bulb Flats	Bulb Flats	Bulb Flats	SCH 160	SCH 160
El	Channel	Channel	SCH 100	SCH 100
Plate	Plate	Plate		
Sheet	Sheet	Sheet		
Tee	Tee	Tee		

Catalog Parts

Metals, Steel Gr. D	Metals, Steel Gr. AH36	Pipe, Copper Nickel. Welded
ST-L- 6" x 3.5" x 1/2"	ST-BULB-120x8	6 "SCH80
ST-L- 6" x 3.5" x 3/8"	ST-BULB-140x7	8 "SCH80
ST-L- 6" x 3.5" x 5/16"	ST-BULB-140x8	10 "SCH80
ST-L- 6" x 4" x 7/8"	ST-BULB-140x9	12 "SCH80
ST-L- 6" x 4" x 3/4"	ST-BULB-160x7	14 "SCH80
ST-L- 6" x 4" x 5/8"	ST-BULB-160x8	16 "SCH80
ST-L- 6" x 4" x 9/16"	ST-BULB-160x9	18 "SCH80
ST-L- 6" x 4" x 1/2"	ST-BULB-180x8	20 "SCH80
	ST-BULB-180x9	22 "SCH80
	ST-BULB-180x10	24 "SCH80

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

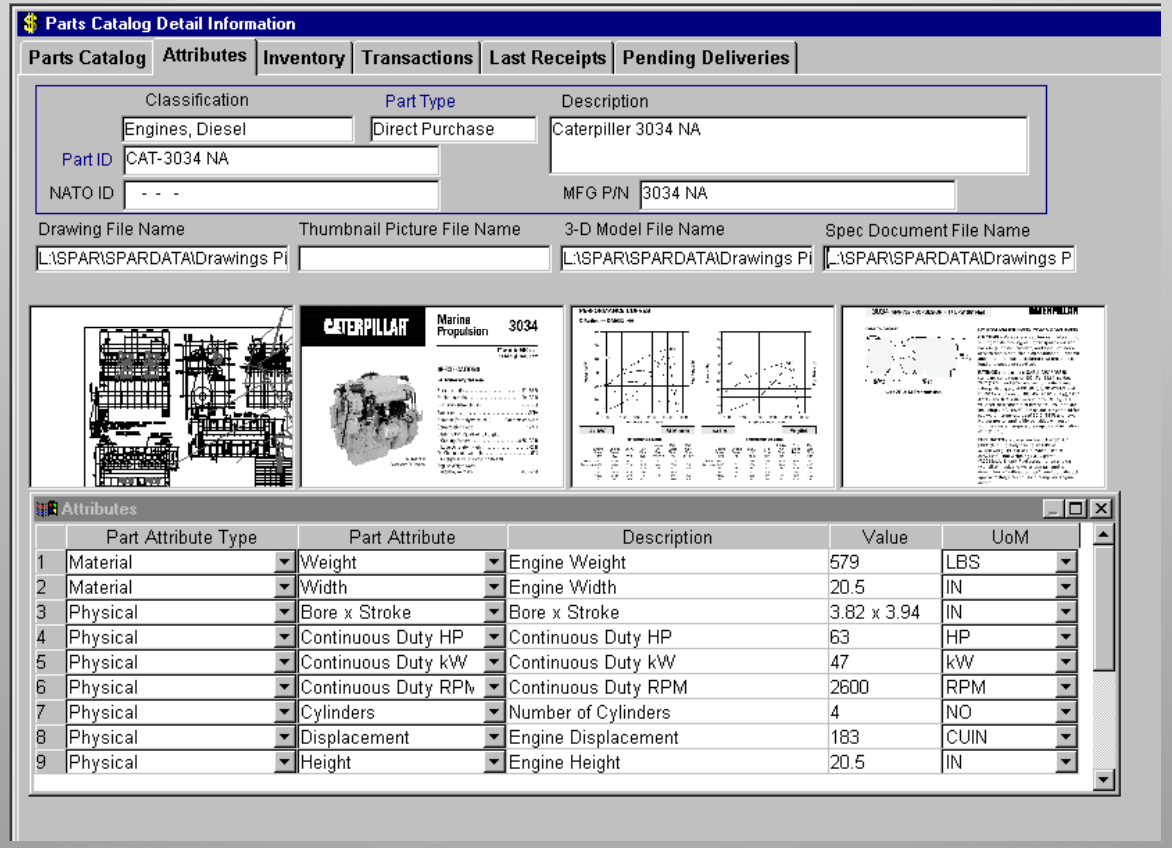
Once the default part type attributes have been defined for the Part Classification, the system will automatically copy this set of attribute names to each part entered under this classification.

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.

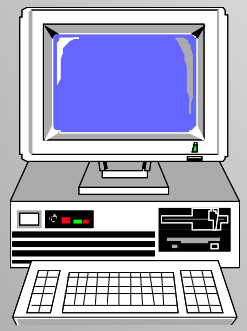


Integrating

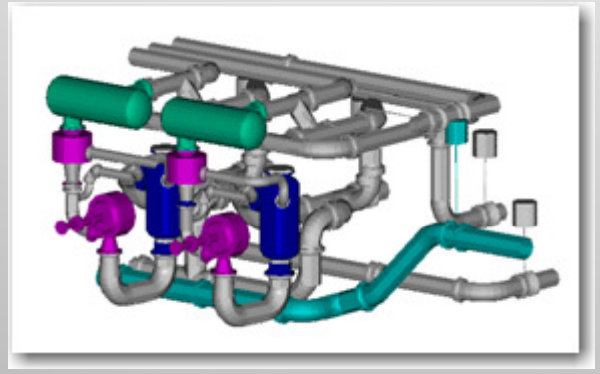
With CAD/CAE Systems for Bills of Material ("BOM")

Options to Automate Transfer of BOM from CAD systems.

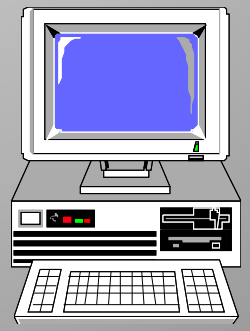
AutoCAD



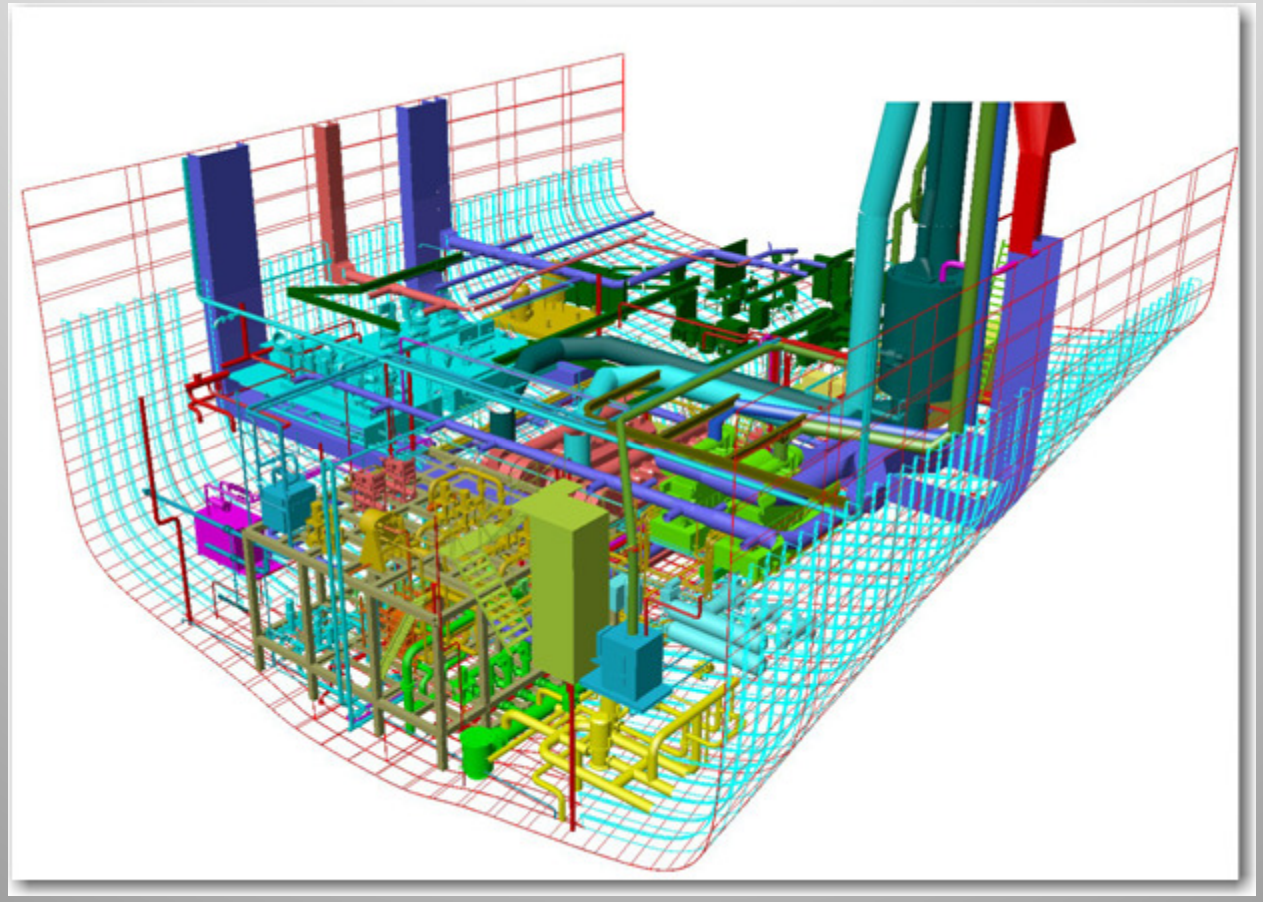
CAD System

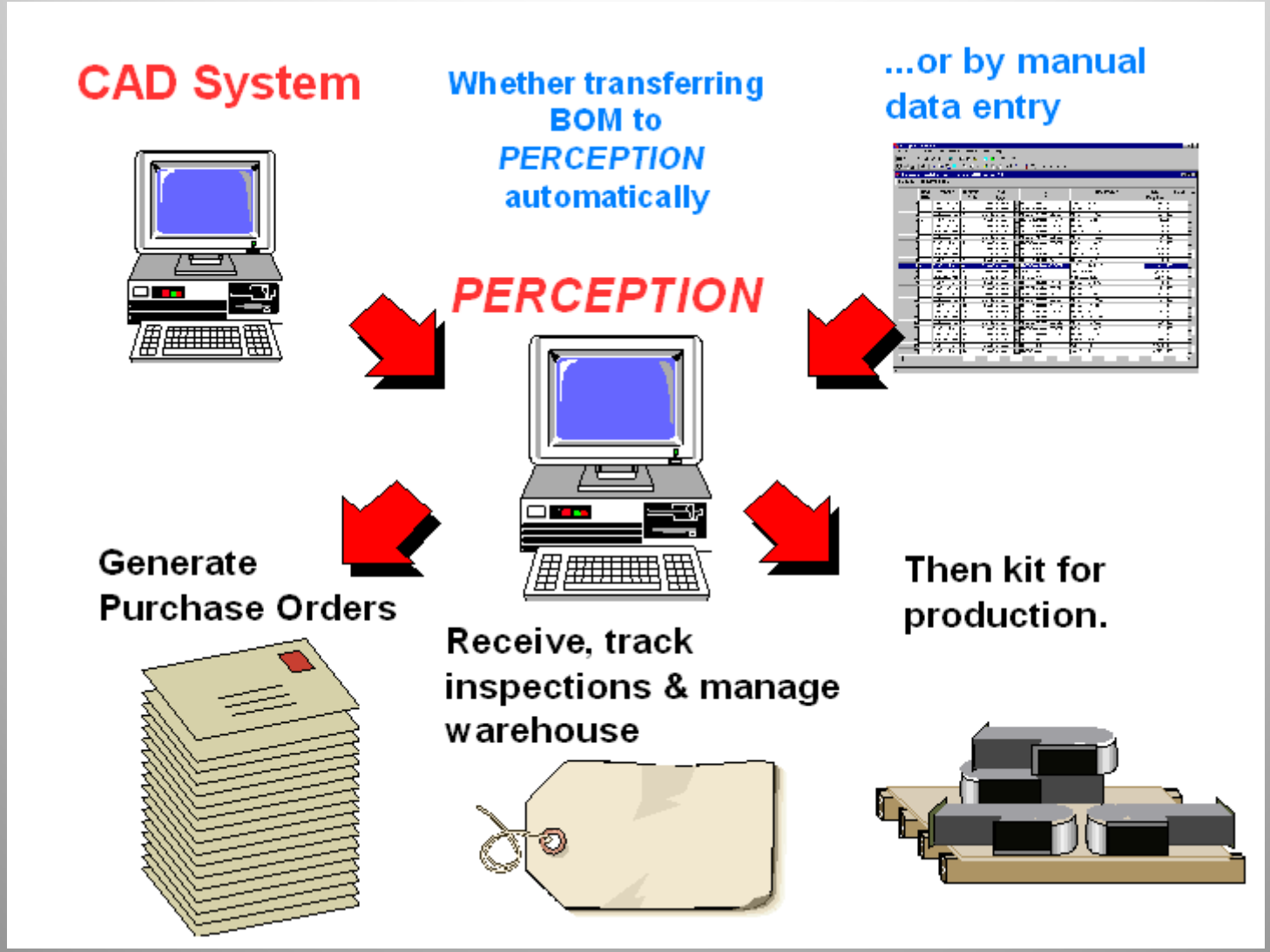


PERCEPTION
MAT-PAC



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

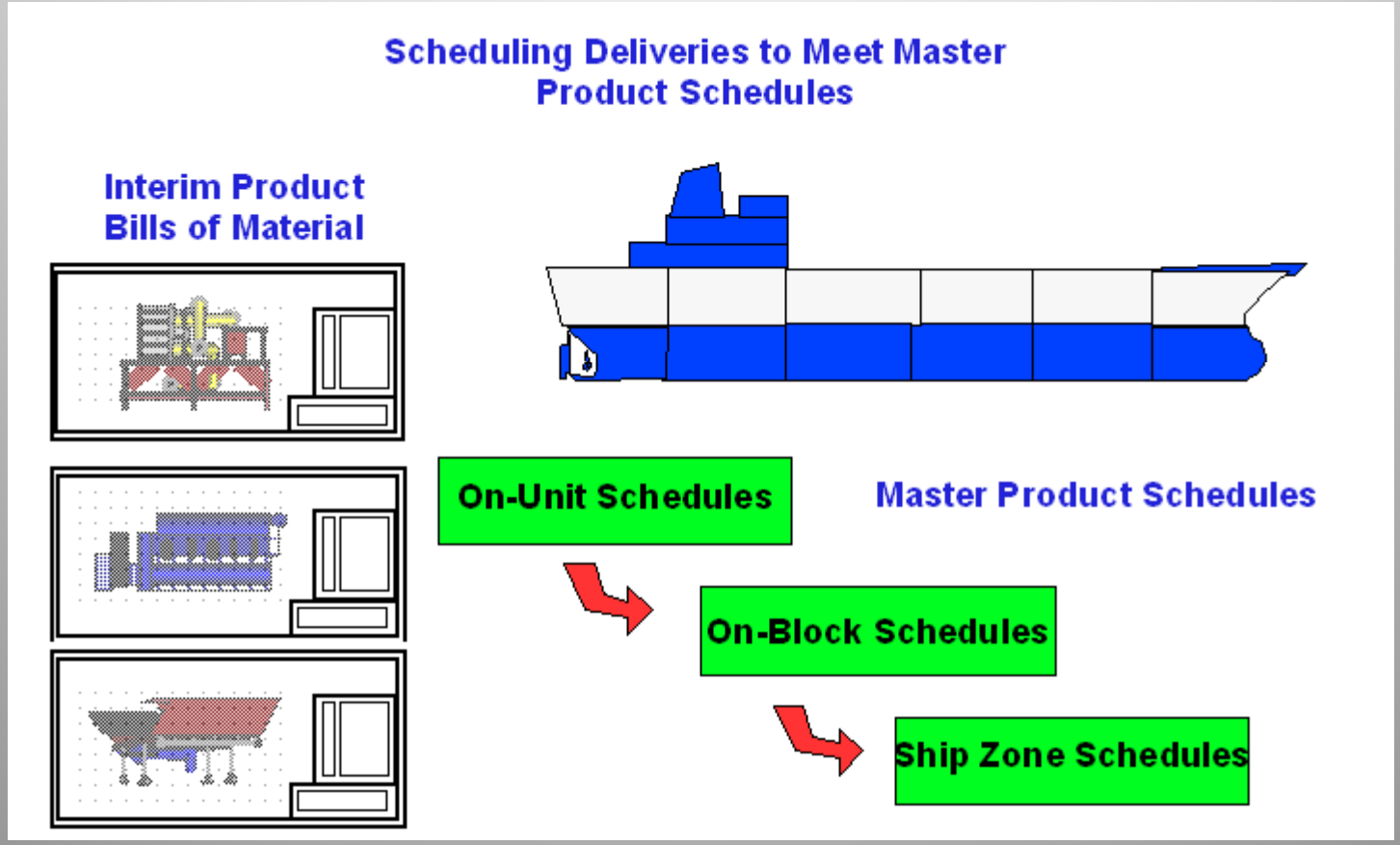
- Header & Footer Paragraphs
- Standard Header & Footer Library
- All Foreign Funds & Currencies
- Automated Multiple Sales Taxes At Item Level
- Amendments & Change Orders
- Customized Purchase Order Forms Available
- Email communictons of purchase orders

Purchase Order Options:

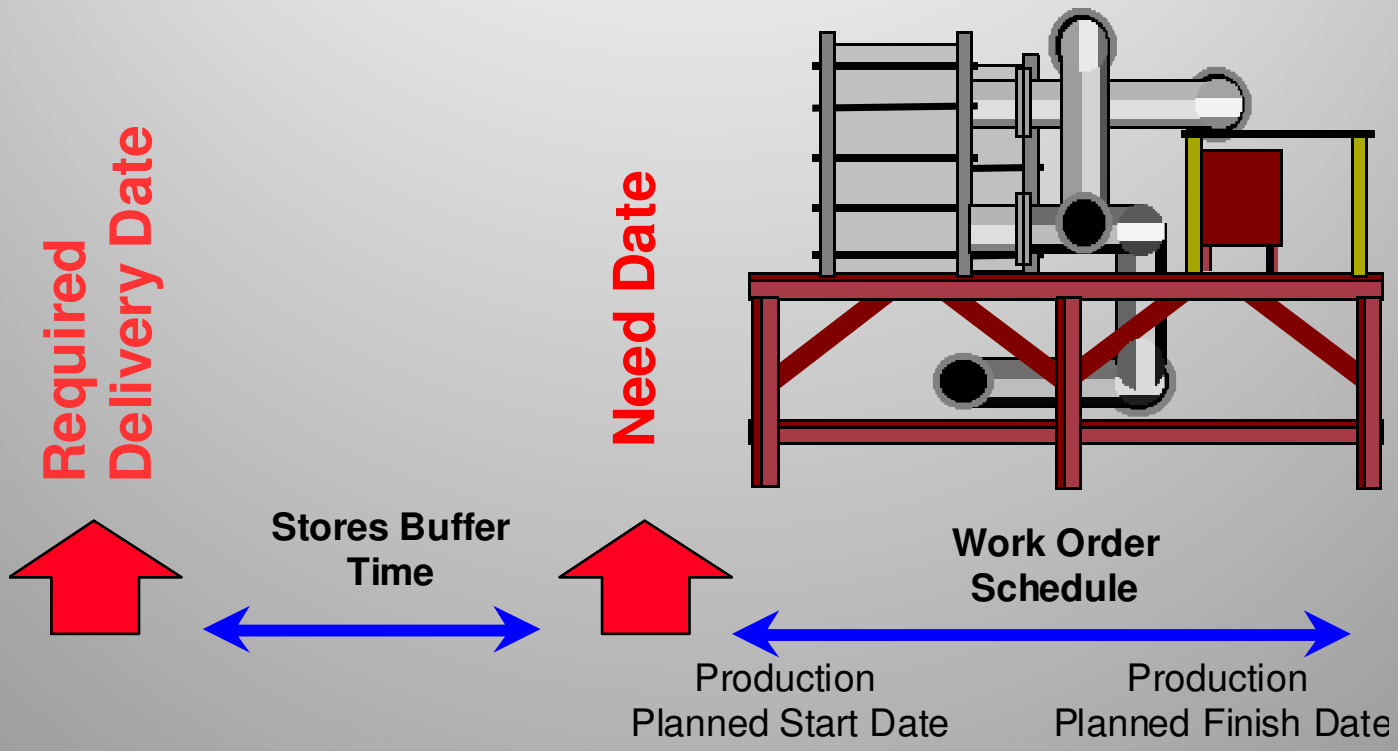
- Send hardcopy to vendor
- Send via fax linked to system network
- Send via email direct from *PERCEPTION*

Managing Material Schedules

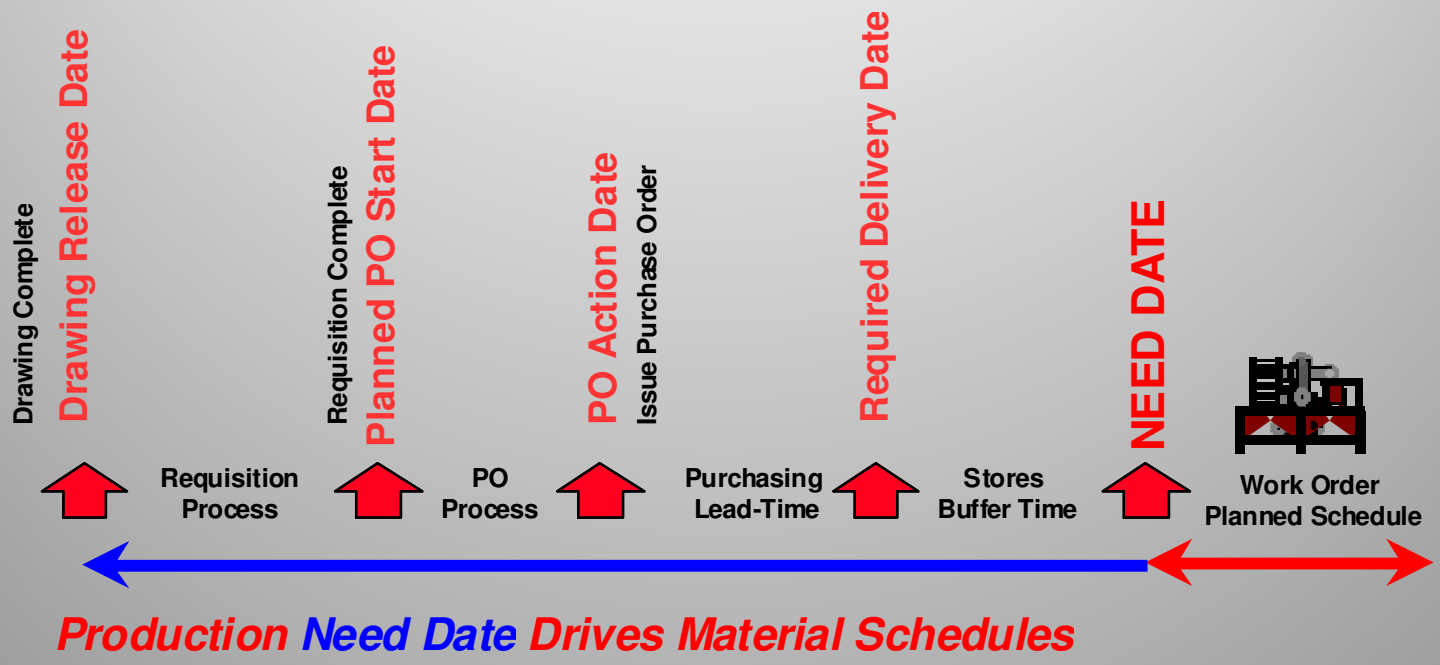
Planning & Scheduling
Material Purchases & Deliveries



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.

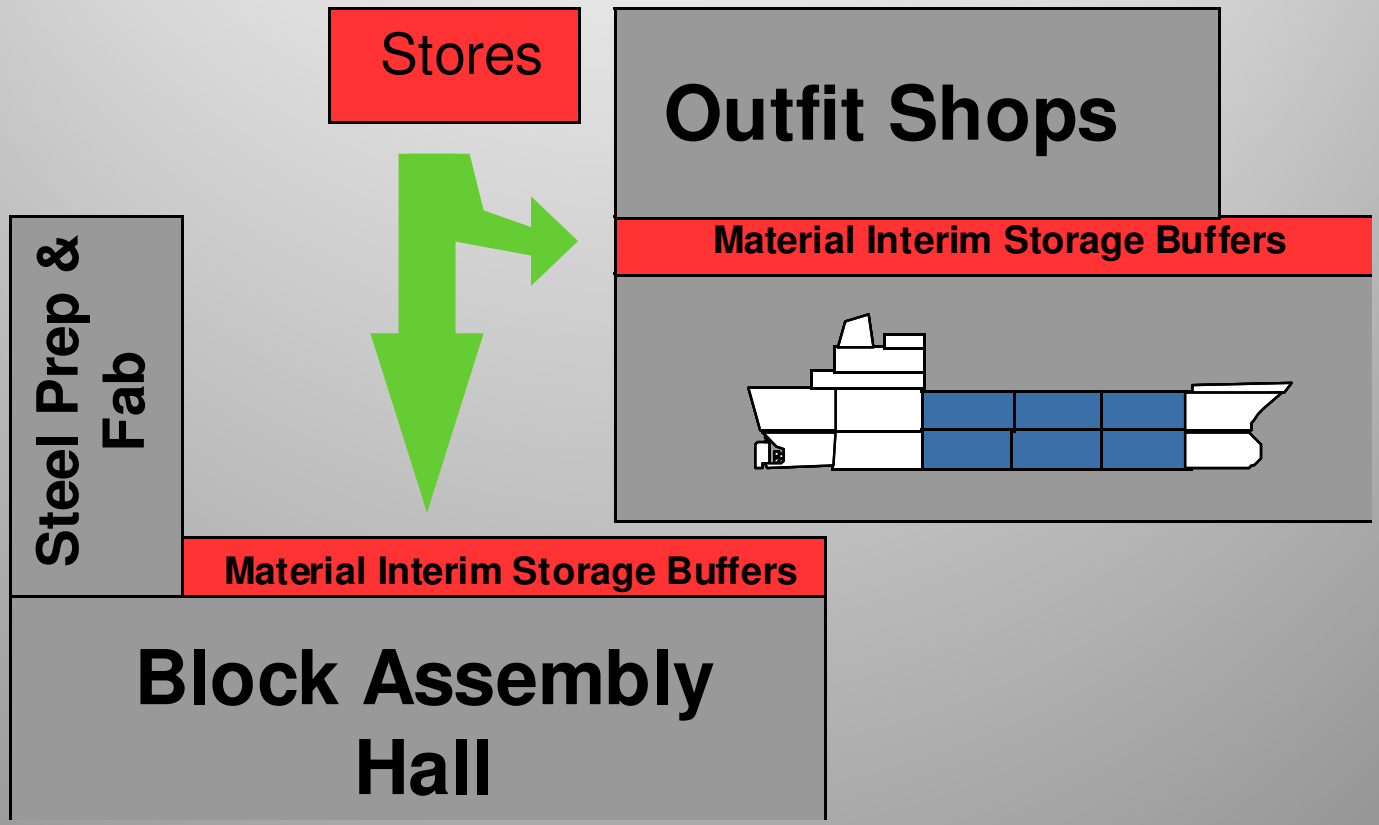
PERCEPTION provides a series of important delivery expediting reports to help ensure deliveries are made on time.

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

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

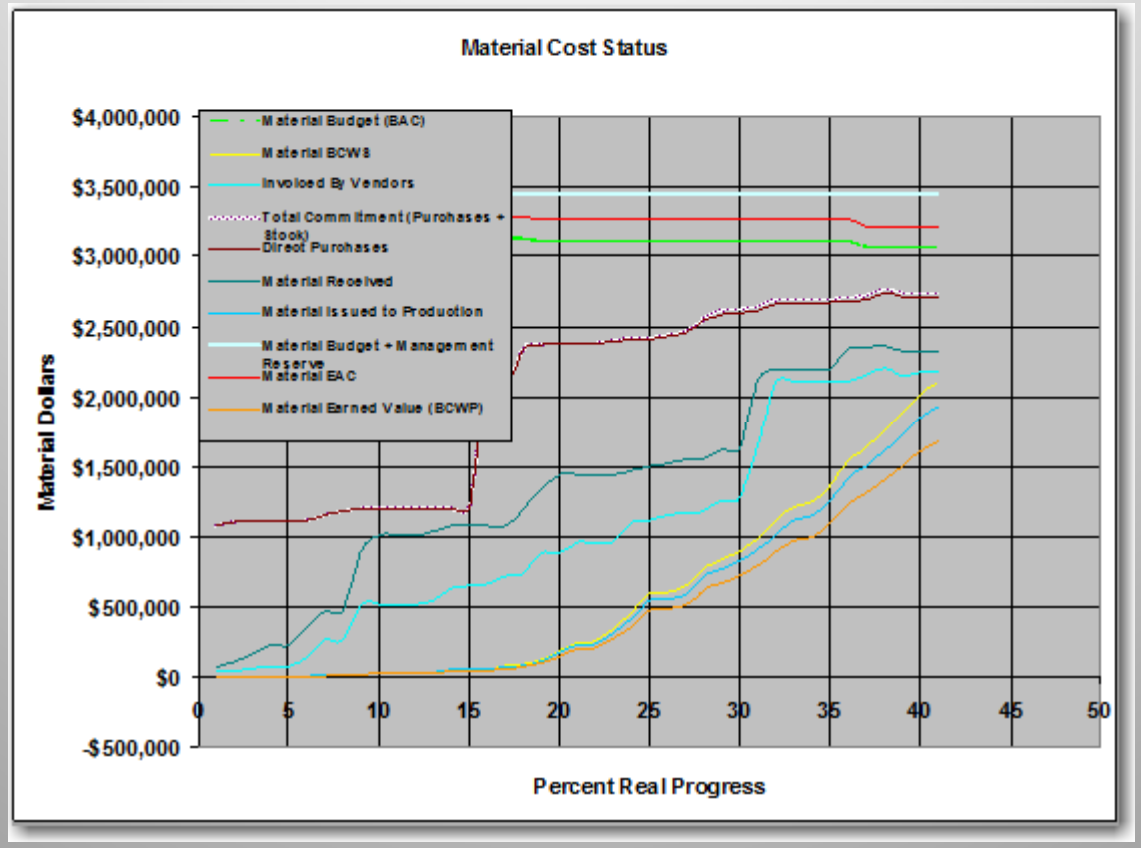
Cost & Schedule Performance Reporting

- 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

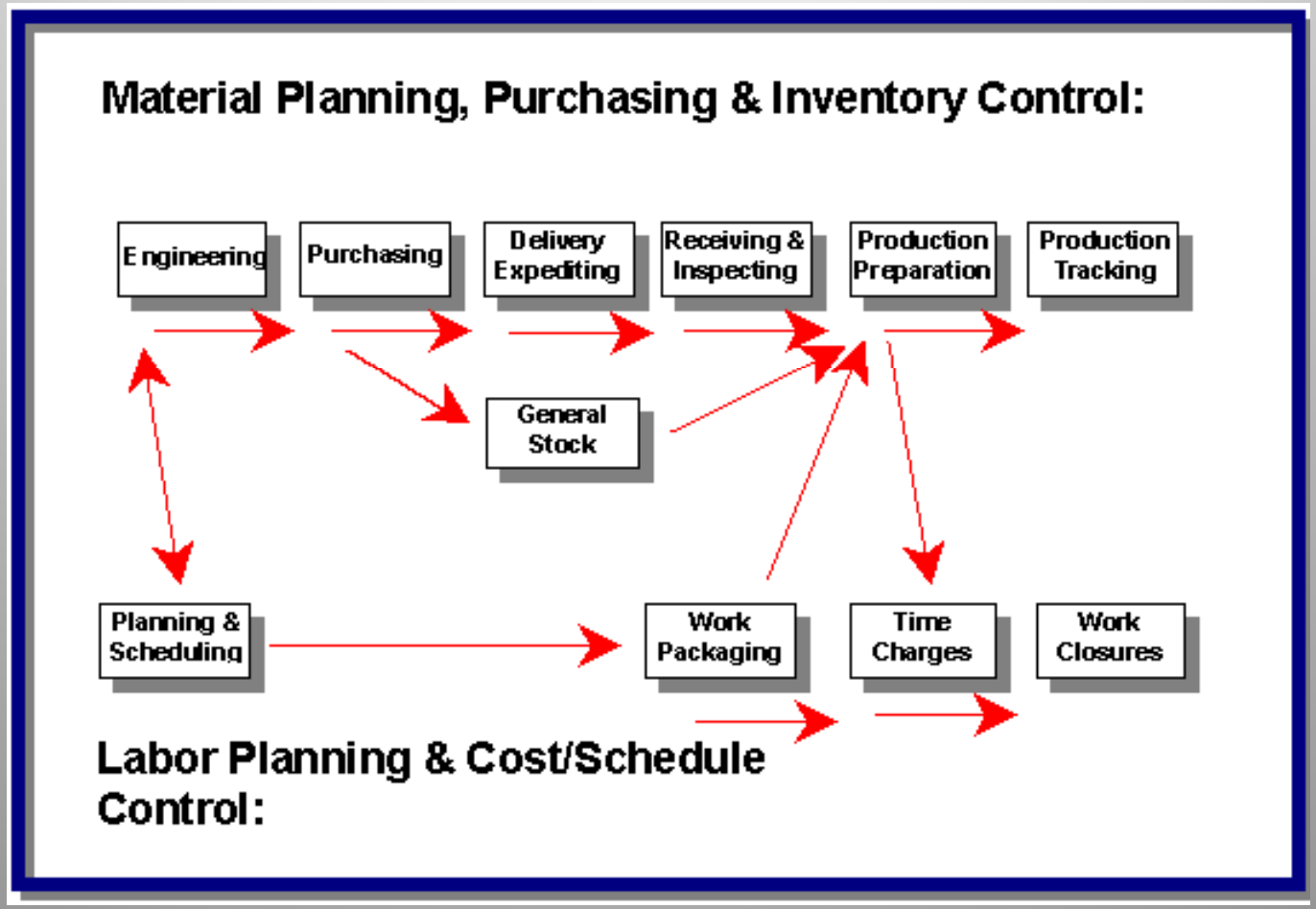


Detail Transaction Reporting

- 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

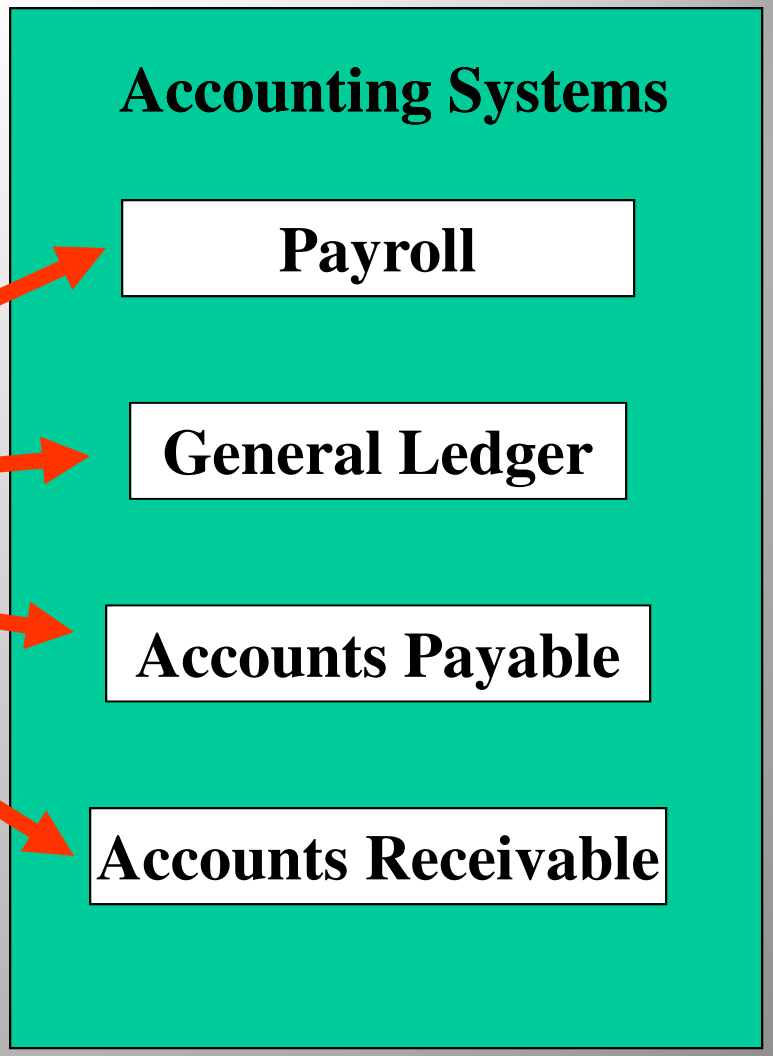


Integrating With Accounting Systems

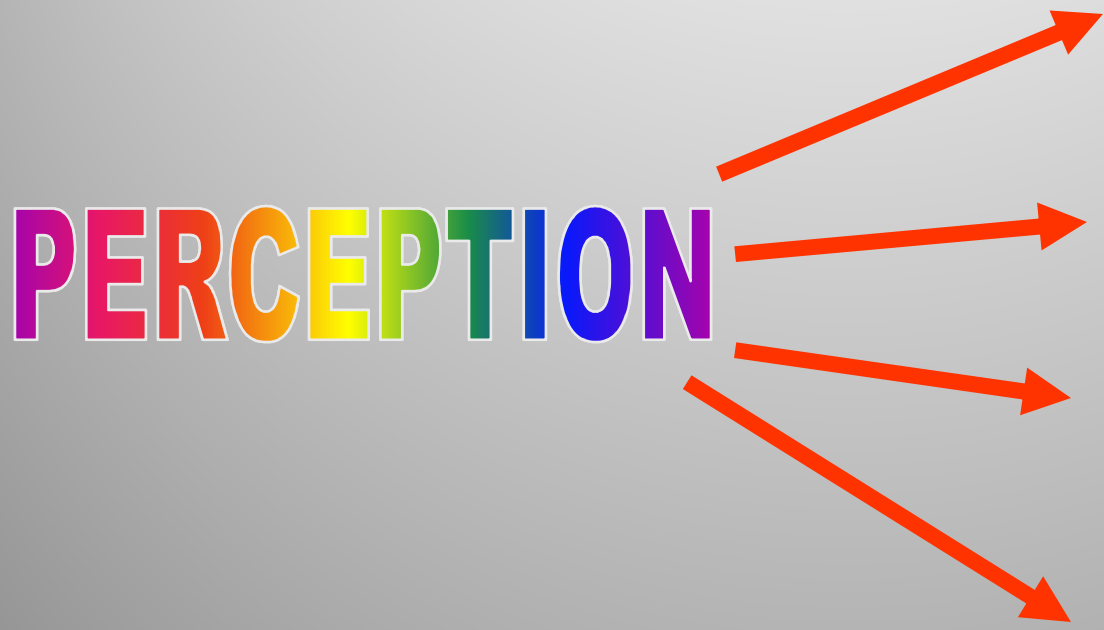
Interfaces With Accounting Systems

System Transactions

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



Established Interfaces With Popular Accounting Systems



Great Plains

ACC-PAC

Peachtree

Quick Books

Generic Export Transactions for other 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

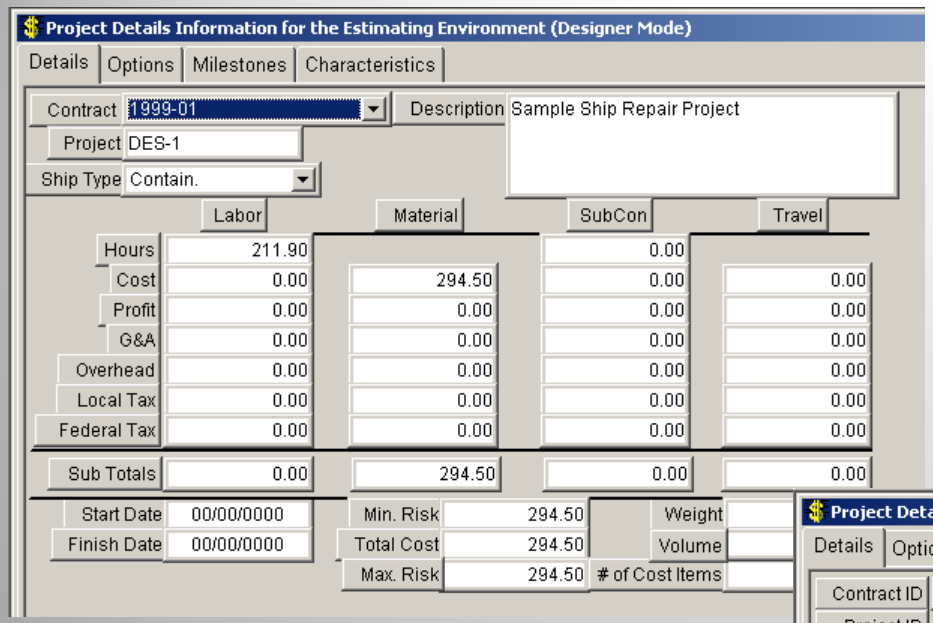
PERCEPTION **offers a number of features that allows the user to customize the system.**

Data Window Designer

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

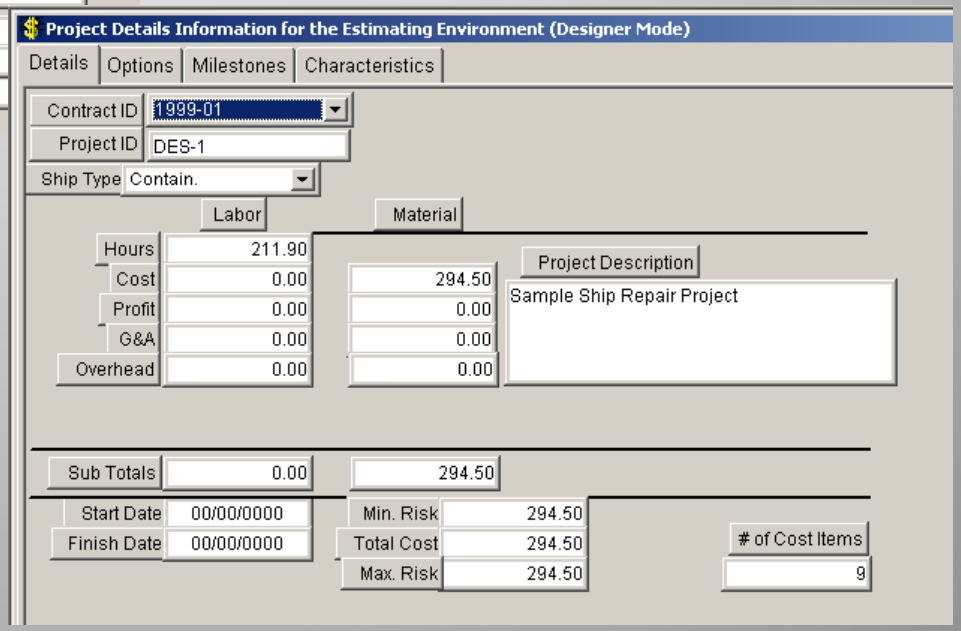
1. **Text Headings & Data Field Labels can be modified to suit specific user requirements. This includes using non-English text and Windows-supported non-English alphabetic characters.**
2. **Un-needed data columns and free-form data fields can be hidden from displayed view.**
3. **Data Fields re-arranged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

Before Data Window Designer Changes



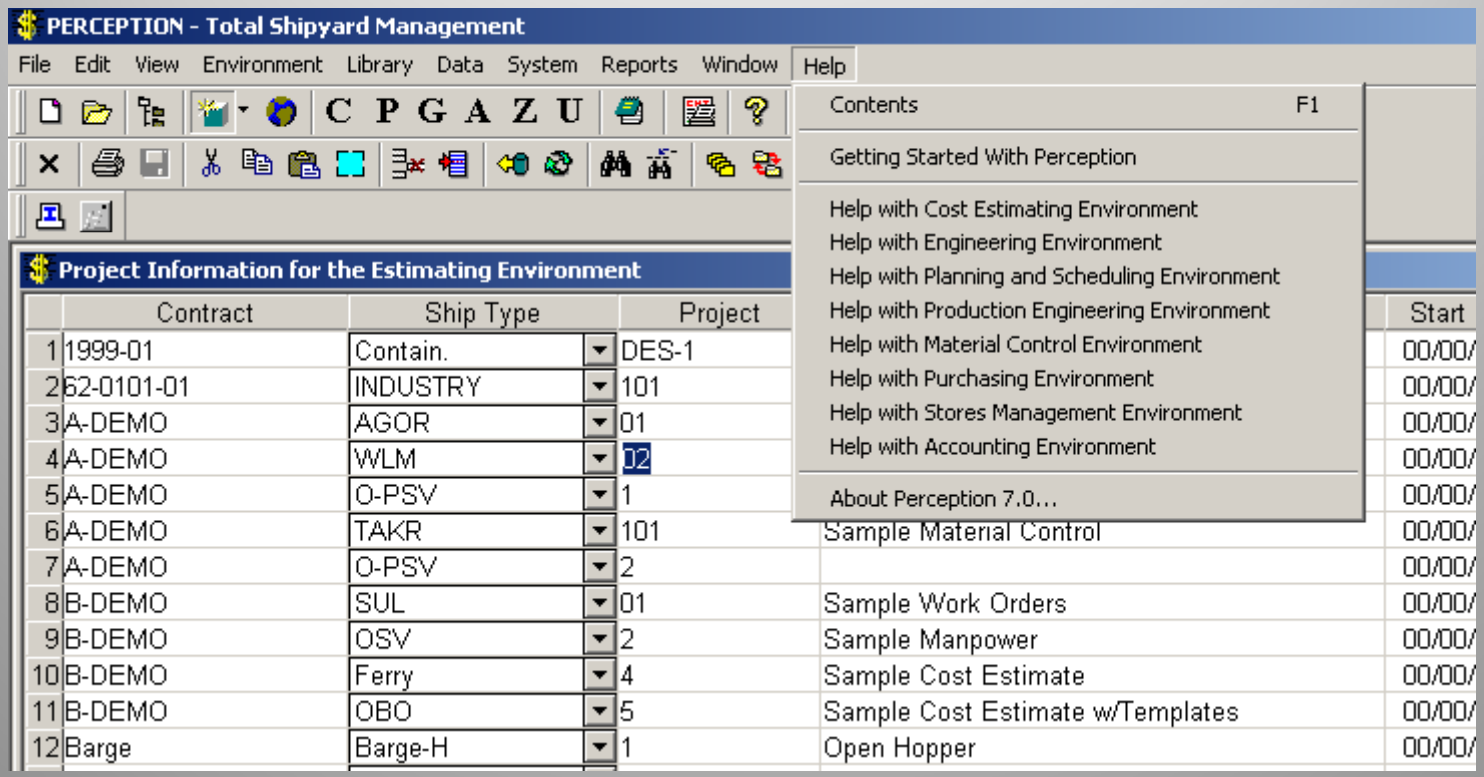
After Data Window Designer Changes:

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

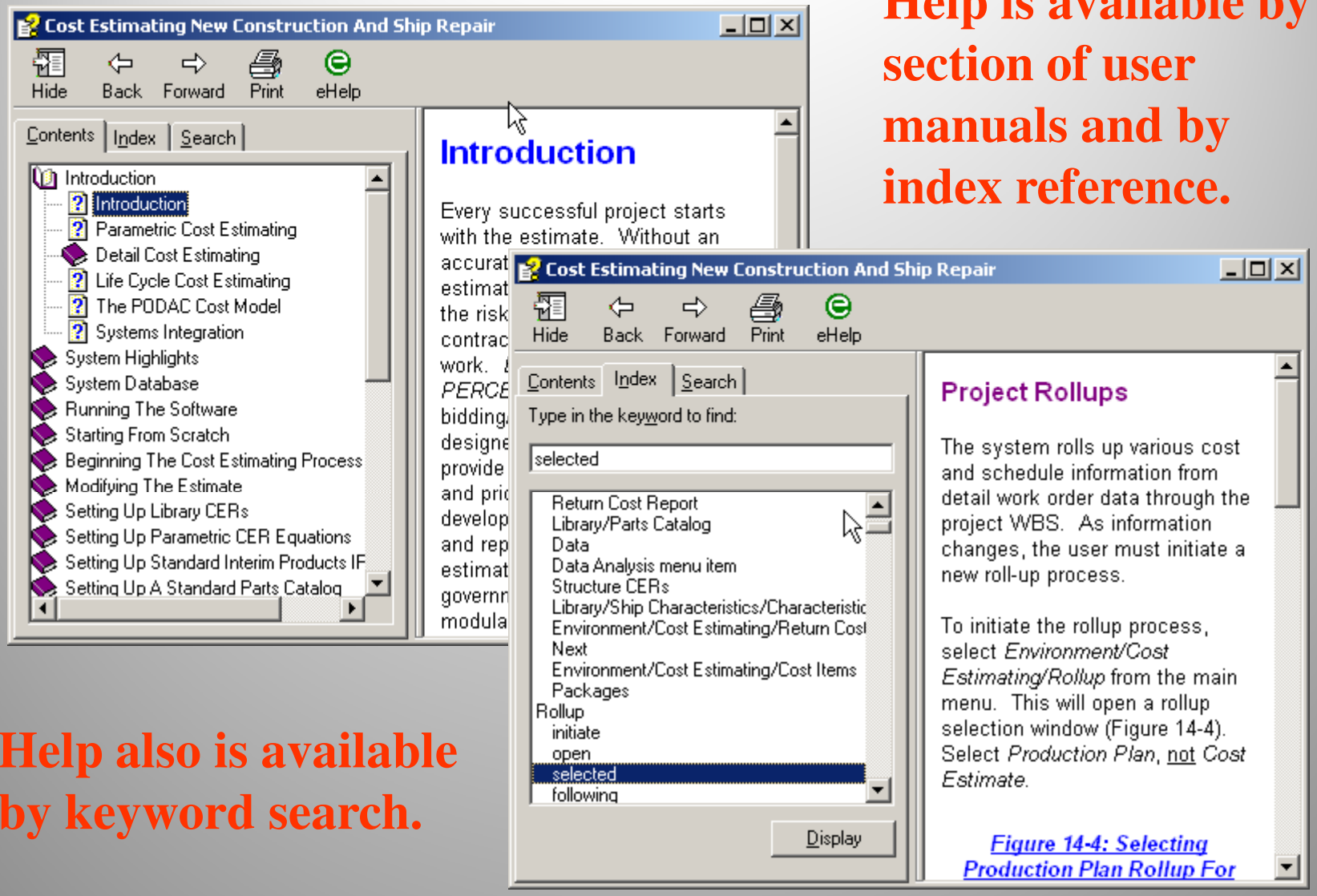


On-Line User Help

On-Line Help is only a click away:



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



Help also is available by keyword search.

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

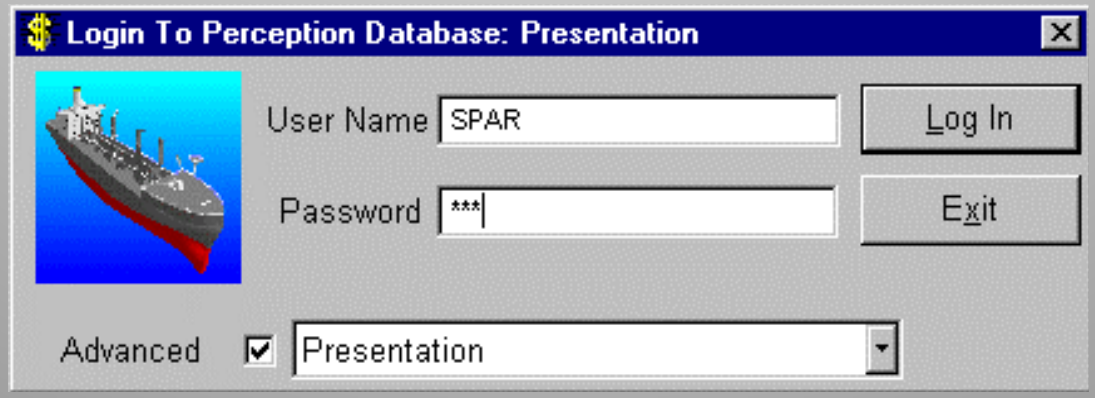
Accounting Time Charges

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.



SPAR Associates, Inc.

Over 35 Years Providing

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

Over 35 Years Serving the Shipbuilding & Repair Industry