Technical Drawing Tutorial

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What is a technical drawing?

- A drawing that displays technical information to the reader through specific visuals, directions, notes, etc…
- A good technical drawing should be informative, clear, NEAT, unambiguous and not cluttered.
Drawing Basics

Profile View
Drawing Basics

Plan View
• Viewed from above
Drawing Basics

FWD View (Bow view)

• FWD looking aft.
Drawing Basics

Section View
• Looking in direction of arrows
Drawing Basics

Station View
• Slice at that section
Type of Ship Drawings

- Lines Plan
- General Arrangements (Profile and Decks)
- Structural Drawings

Other Drawings
- System Drawings
- Fire and Safety Plan
- Escape Plan
- Etc…
Lines Plan

• A collection of lines at well defined positions that are used to define a hull form
• Projections of straight lines on to the hull surface from X-Y-Z planes
• Produce Waterlines, Buttocks and Station curves
Lines Plan

Specifications
Length Overall: 25' 9.544'
Length on DWL: 22' 0.344'
Beam (Max): 6' 4.435'
Draft: 0' 5.560'
Displacement: 2,387 lb
General Arrangement

- General Arrangement of hull, bulkheads, decks and all machinery, equipment and outfitting
- Profile and Decks (sometimes FWD view as well)
General Arrangement

- Profile (outboard Profile)
• Decks
General Arrangement

S.F.V. "PACIFIC CHARMER"

OUTLINE GENERAL ARRANGEMENT

PRINCIPAL DIMENSIONS
L.B.P.: 19.67 m, B.S.N.L.: 7.8 m, B.D.M.L.: 4.0 m.
General Arrangement
Drawing Elements

- Title Block
- Baseline
- Centerline
- Labels
Title Block

- Title
- Name
- Date
- LOGO
- Project Number
- Revision History
- Drawing Number
- Scale
- Etc…
Rhino3D

• Rhino3D is a 3D modeling program
• Can also be a useful tool for technical 2D drawings
• Can be used to produce 2D technical drawings but tailored more towards 3D renderings than 2D line drawings
• Now create hull lines for a canoe hull…. 
• Open "Right" viewport (Y-Z Plane)
• Arrange points that midship section will pass through.
• Place points on X-Y Plane (TOP View) and Move points up to deck edge.
• Then draw polyline through points
• Change lines to separate layer
• Then turn off layer with points
Rhino3D

- Draw 2 lines from midship-centerline to the bow-deck
- Fillet edges
- Then join curves
• Sweep 2 rails with the midship section as the cross curve
• Then mirror surface about the midship
• Then Join 2 surfaces together
• Rename new layers
• Waterlines, Buttocks, Stations
• Select the waterlines layer and place straight lines in the X-Z plane
• Then project curves onto surface using the front view
• Repeat for Buttocks and Stations in the respective views
• Hull lines to define the ship geometry
• Select lines and Make 2-D drawing
• Select 2D lines and export selected as .dwg file
AutoCad

- Import dwg to AutoCad
• Go to paper space (layout1)
• Select viewport
• Open properties window
• Play with scale to get an idea of the scale you will need
• Note: use page setup to set paper size.
• Go to paper space (layout1)
• Select viewport
• Open properties window
• Play with scale to get an idea of the scale you will need
• Note: use page setup to set paper size.
• Add labels to views
AutoCad

- Adjust text height to appear correctly in paper space
AutoCad

• Add Baseline, Centerline, Labels, Station numbering
AutoCad

• After drawing is complete create title block
• Note: Better to draw title block in paper space then scale viewport inside the title block
Technical Drawing

• Questions?