

CAD Tools Committee Meeting

Monday
19 Sept. 2005

Larry Carpenter, P.E.
Lab CAD Manager

CAD Improvements

In order to,

Improve the CAD user experience,

Provide commonality,

Maximize productivity, and

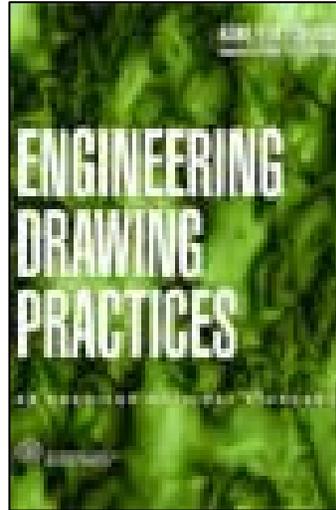
Present a unified professional image to
outside vendors & partner institutions,

the following changes to the I-DEAS
FERMI TDM CAD environment should be
considered:

CAD Improvements

ASME Y14 Standards

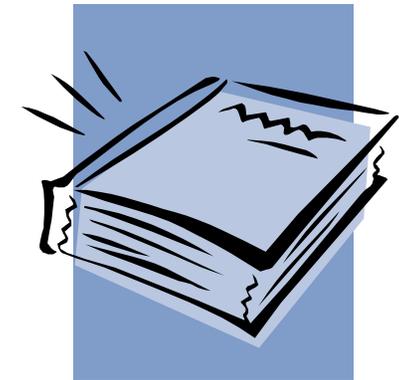
- Industry standard for working with vendors
- Very similar to ISO standard



Recent survey:

52 of 76 Engineers Responded		
41	YES	78.8%
3	NO	5.8%
8	No Pref.	15.4%

I have a personal copy of the current ASME Y14 series of standards at my desk if anyone is interested in seeing what it covers.



CAD Improvements

Master Drafting

- Icon Panel Additions
 - Would contain time-saving macros for repetitive tasks such as:
 - Flagging out-of-date dimensions
 - Inserting view titles, standard notes, finishes, etc...
 - Representing tapped holes
- Utilize layers to control line weights, line fonts, & colors
 - Creates a common look & feel for all drawings
 - Allows for better onscreen selection & filtering ability
 - Allows for better use of time-saving macros
 - Eliminates dependence on IPLOT configured plotters to generate line weights
 - Allows for WYSIWYG viewing and file creation (paper dwg or in an image file like TIF, JPEG, etc...)
- Drafting Defaults
 - Drafting software defaults will be configured to comply with ASME Y14 series drafting standards as called out on drawing title blocks.

CAD Improvements

Icon Panel Additions

Switch to
other panels

Group plotting panels

SDI GUI

Misc macros to improve end
user experience and
increase productivity



CAD Improvements Layers

Each drawing template to have pre-defined layers describing line weight, line font, & line color for each entity type.

Examples:

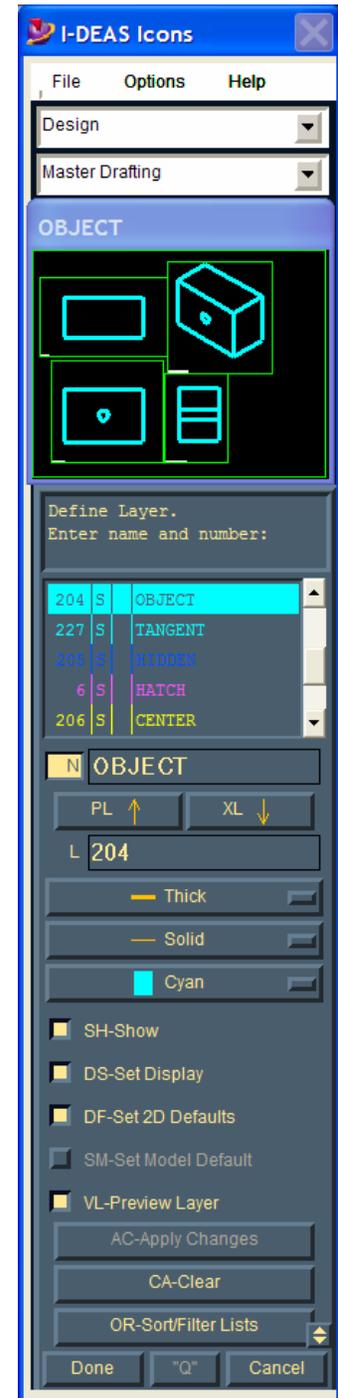
Object Layer = thick weight, solid font, cyan color

Hidden Layer = thin weight, hidden font, grey blue color

Center Layer = thin weight, center font, yellow color

Advantages to using layers:

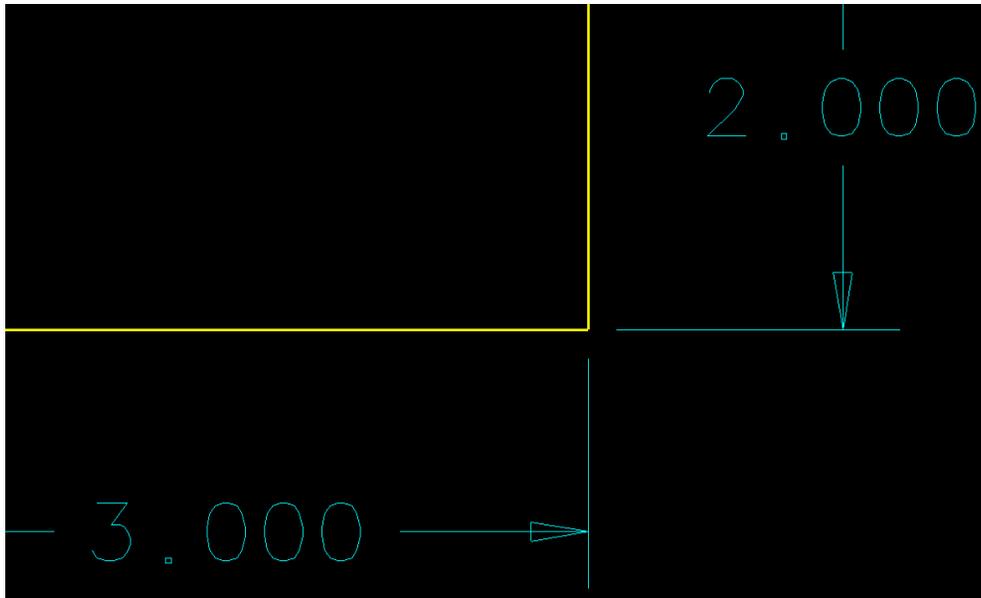
- No pen plotter issues
- Standardizes look & feel for drawings
- Allows for easier entity selection & filtering
- Partners well with time-saving macros



CAD Improvements

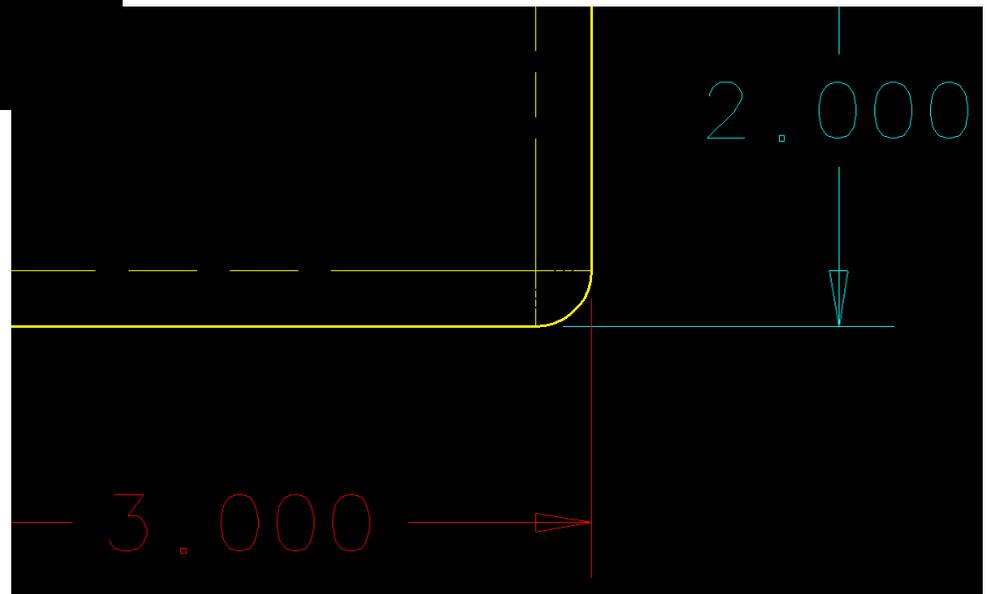
Layer Example – Flagging Nonassociative Dimensions

BEFORE



Useful when updating
an out-of-date drawing

AFTER

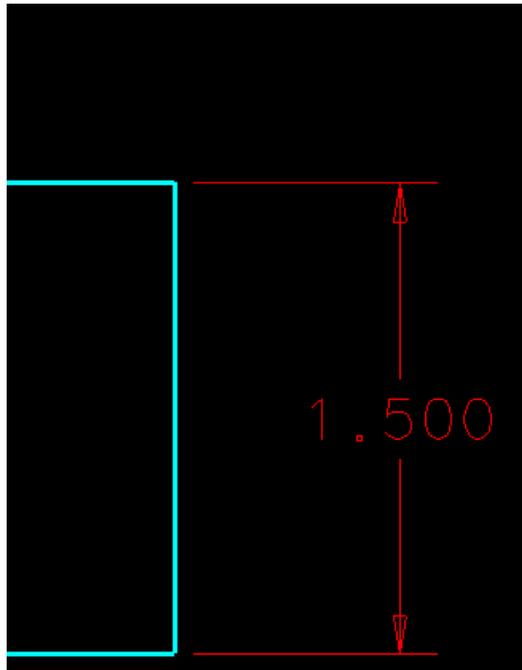


Dimension that lost associativity
are moved to a different layer
and color.

CAD Improvements

Layer Example – Flagging Changed Dimensions

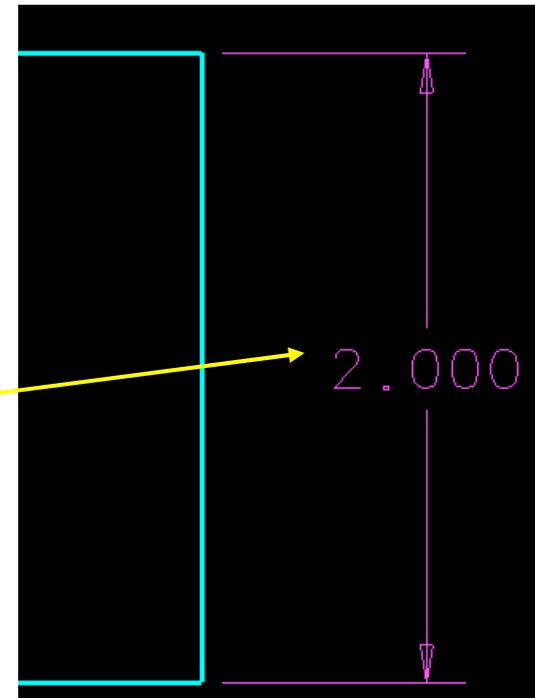
BEFORE



Red

Magenta

AFTER



Useful when documenting changes to drawings (ECOs)

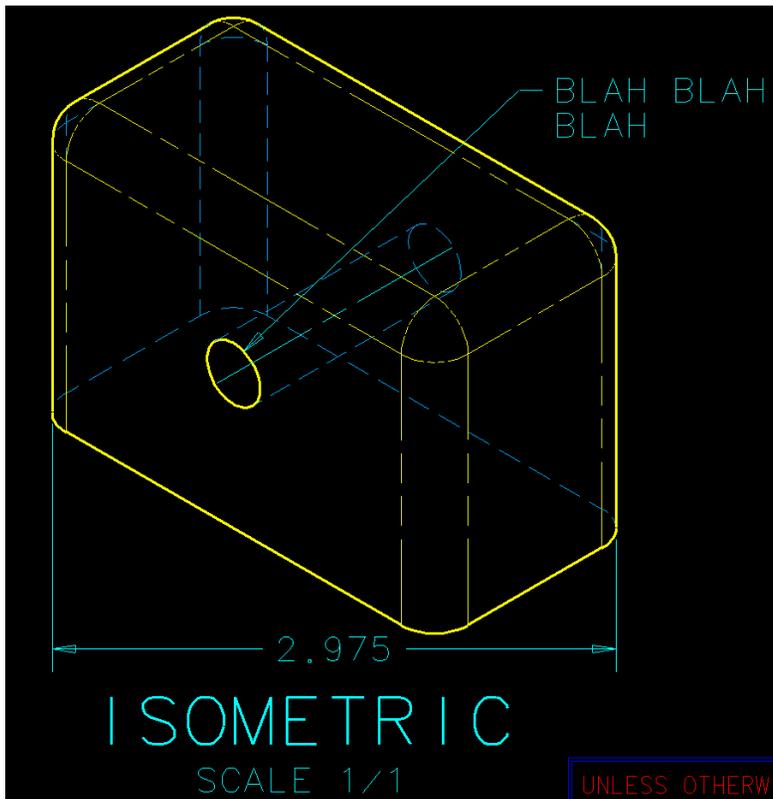
CAD Improvements

Layer Example - Plotting

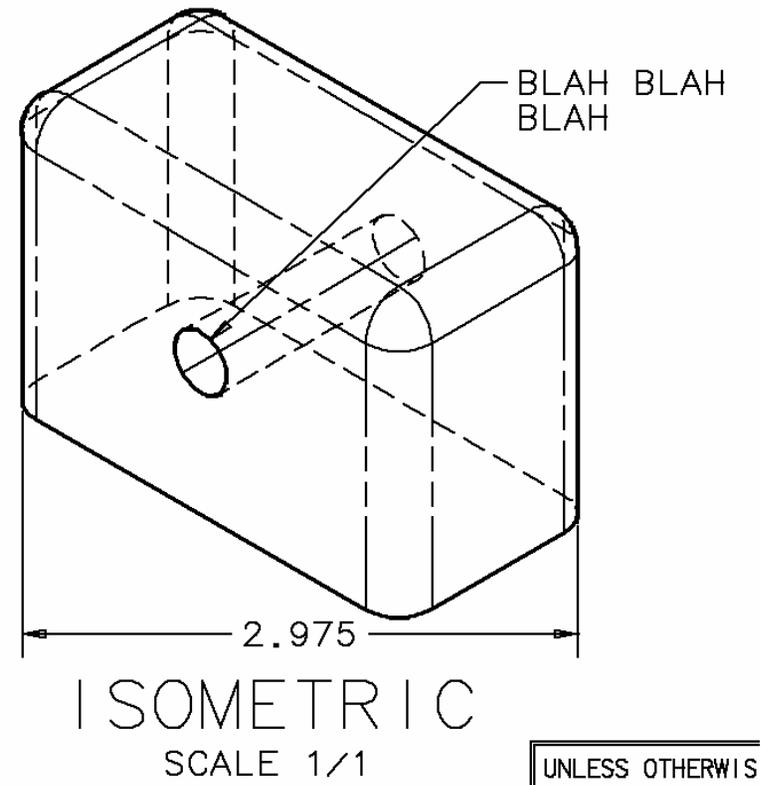
Eliminates pen plotter configuration

Object Layer = Always thick weight

All other lines = Always thin weight



WYSIWYG



CAD Improvements

Master Drafting: Title Block & Borders

Add ZONE column

W.I.P. label to appear on all dwgs that are not yet released.

Add CAD note

Change Borders

Add Date/Time stamp to every plot

DWG Size Block

View Projection Block

Work-in-Progress
CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

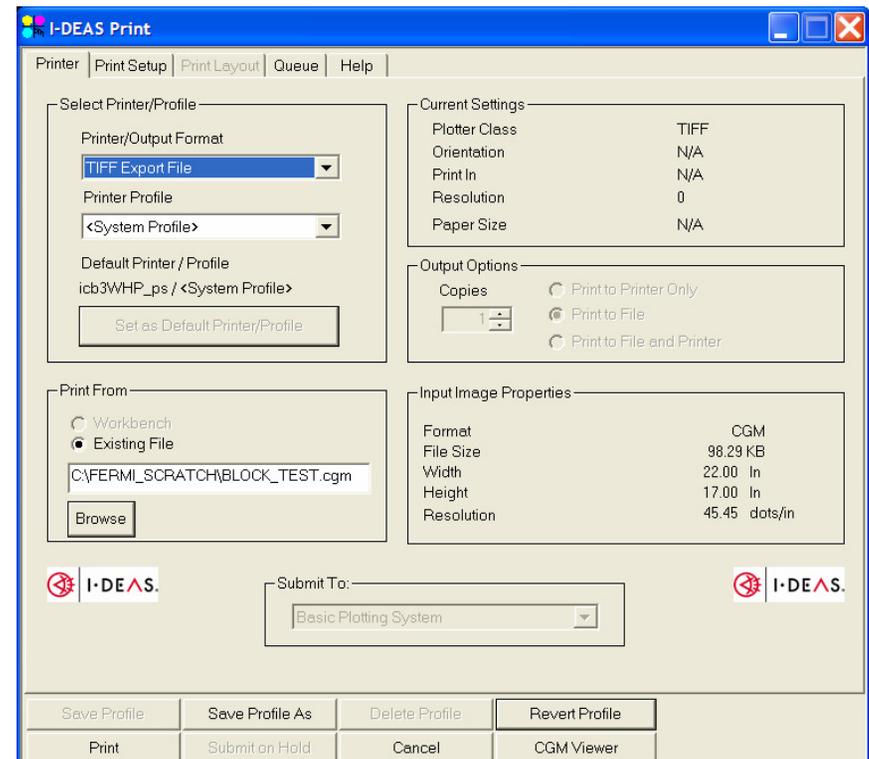
UNLESS OTHERWISE SPECIFIED			ORIGINATOR		
			DRAWN		
±	±	±	CHECKED		
1. BREAK ALL SHARP EDGES MAX.			APPROVED		
2. DO NOT SCALE DRAWING.			USED ON		
3. DIMENSIONS BASED UPON			MATERIAL		
4. MAX. ALL MACH. SURFACES					
5. DRAWING UNITS: <input checked="" type="checkbox"/>					
 FERMI NATIONAL ACCELERATOR LABORATORY UNITED STATES DEPARTMENT OF ENERGY					
THIRD ANGLE PROJECTION					
SCALE	SIZE	DRAWING NUMBER		SHEET	REV
	B	. - -		1 OF 1	
CREATED WITH :				GROUP :	

created: 12:53:27 p.m. 09-14-05

CAD Improvements

SDI Plotting

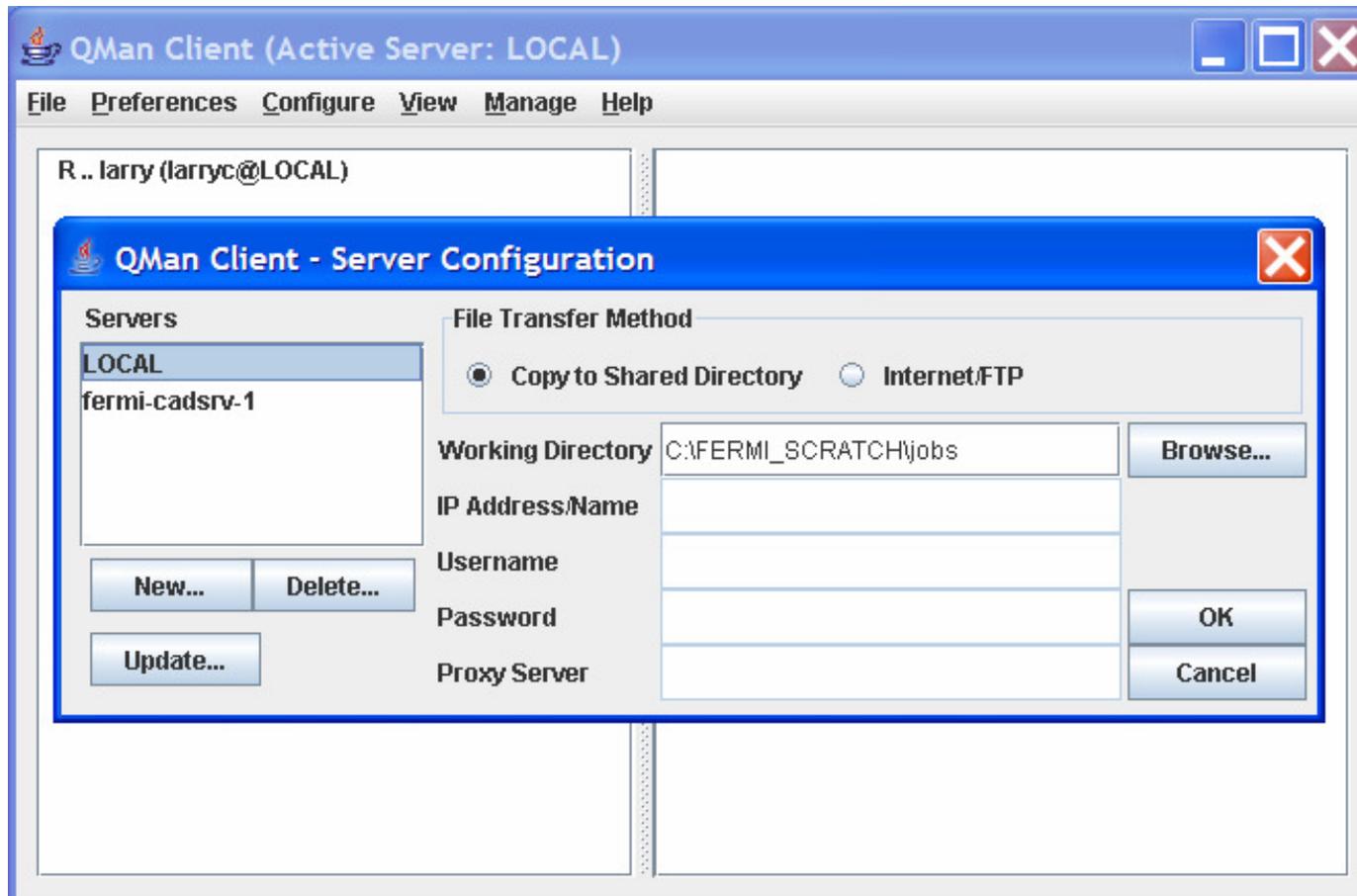
- SDI can do more than IPLOT
 - Image output (TIF, JPEG, EMF)
 - Allows “Quick Print” button to work
 - Allows personal preferences for plotting
- Same Interface for Modeling & Drafting
- IPLOT is unsupported and considered obsolete by UGS
- SDI is UG NX3+ plotting solution
- Allows for WYSIWYG viewing and file creation
- Will need to switch eventually
 - Switch now and avoid having to learn it AND UG NX at the same time.
- Can co-exist with IPLOT to allow smoother transition



CAD Improvements

Configure QMan

Assists FEA users in submitting solves in batch mode either locally or remotely.



CAD Improvements

Miscellaneous

- Suggestions always welcome
- Currently have programs written to do other stuff
 - Drafting Macro Examples
 - Tapped holes
 - Standard Note Groups
 - Show/Clean Non Associative Dims
 - View Titles
 - Batch import of 2D IGES, DXF, AutoCAD DWG, or I-DEAS DWG files