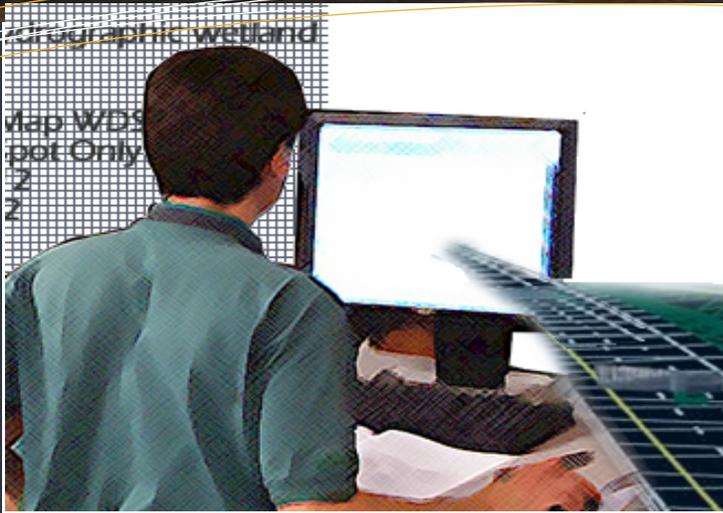


# CADD News



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## How to get CADD How To Documents

A collection of "How To" documents provided by CADD Services are in the NCDOT\_STDS workspace. This workspace is on the C drive of all NC DOT CADD machines. The folder path is:

C:\NCDOT\_V8\_WORKSPACE\Ncdot\_Stds\Standards\help\How To

The user may access the documents by browsing the above path, or by using the CADD Tools shortcut on the machine's desktop.



To use the shortcut, start by launching it. In the resulting browser, double-click the "How To Docs" item. The browser will refresh to the folder containing the How To documents.

## New MicroStation Courses

It is official, CADD Services has added two new courses to our training catalog.

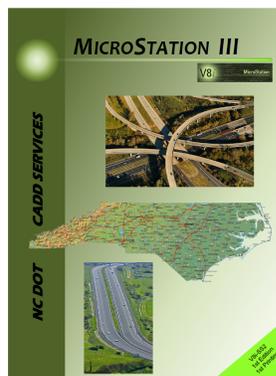
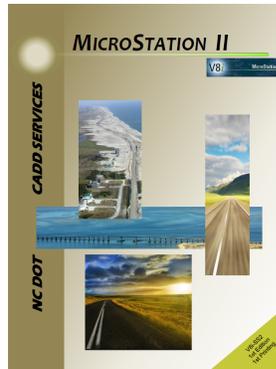
Originally, the courses were to be named "MicroStation Intermediate" and "MicroStation Advanced". But these names imply that material within the courses is segregated by difficulty. Given that this is not completely the case, we named the courses "MicroStation II" and "MicroStation III". To maintain consistency with names, we renamed "MicroStation Basics" to "MicroStation I".

This naming convention indicates the sequence in which to take the courses, without necessarily implying that the material is segregated into basic, intermediate,

and advanced.

MicroStation II contains both basic and intermediate material, while MicroStation III contains basic to advanced material. A list of topics for these two courses, and their prerequisites, are provided in the Learning Management System (LMS).

Briefly, the prerequisites are: MicroStation I is the prerequisite for II, and II is the prerequisite for III. A four month gap is required between taking I and II. Additionally, there are skill and usage prerequisites – see the LMS for details. Please note that II and III are NOT prerequisites for any of our other CADD courses.



## ProjectStore—The DivProj Folder

Rename cell in Lib.  
CR=<old name, new name>

Attach a color table  
CT=<color table name>

Display depth / relative to clipping plane  
DD=<front,back>

Precision input /distance and direction  
Di=<distance, direction>

Precision input/ delta distance & direction  
DL=<Dx,Dy,Dz>

Display depth relative to Z axis  
DP=<front,back>

Display text file  
Dr=<filename>

Delete a saved View  
DV=<view name>

Precision Input / delta on view axis  
DX=<Dx,Dy,Dz>

Set Active depth /relative to Z axis  
DZ=<distance>

Save Fence contents to a file  
FF=<file name>

Set Active font  
FT=<font number>

Set Global origin/ 0,0 set it to lower-left  
Go=<x,y,z>

Set active Grid Reference  
GR=<distance>

Trouble remembering where the upf is located?

You can open the MicroStation menu item Workspace -> About Workspace. In the middle of the dialog it will show the path to the file (hover over it to see the full path).

A new repository under ProjectStore was recently created call **DivProj**. This repository was established to facilitate Division write access to TIP Projects on ProjectStore. Divisions have always had read-only access to ProjectStore but did not have write access. This needed to be changed as more design work is transitioned to Divisions. There are now three repositories that fall under the heading of ProjectStore:

**NSProj** (non-standard folders/permissions)

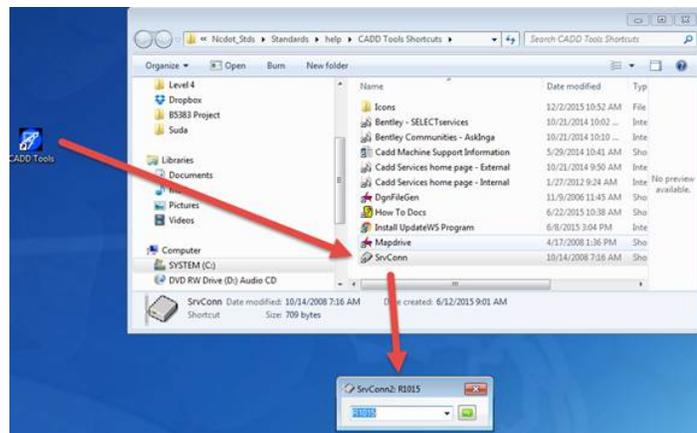
**Proj** (standard folders/permissions)

**DivProj** (standard folders/permissions + Division write-permissions)

Only projects that are in the **DivProj** folder allow write access for Divisions. Only Division Project Managers can request (through the Helpdesk) that a project be migrated from the standard PROJ folder to the new **DivProj** folder.

Along with the creation of a **DivProj** repository, the SrvConn application, which maps a connection from your computer to a specific TIP project, was updated to reflect the new **DivProj** repository. As such, **please make sure to use the new SrvConn application to connect to all TIP projects**. We have had several recent instances where folks were unable to find a specific TIP project because they were "manually" mapping a windows share to the **PROJ** repository. They did not see the TIP they were looking for because it was not in that repository. It was in the **DIVPROJ** repository. And because they didn't see it, they put in a request to have it created and then we ended up with two TIP projects named the same thing but in different locations not good!! **Please ensure that the project does not already exist in one of the above three repositories prior to requesting creation of a TIP project.**

The SrvConn application can easily be found by clicking on the CADD Tools shortcut on your desktop and then double-clicking the SrvConn shortcut.



# CADD News

## NCDOT eSignature Policy

NCDOT requires a digital signature solution in which the "root" digital certificate is provided by a certificate authority that meets assurance and trust requirements by Adobe. Documents with these certificates become automatically trusted by Adobe as this facilitates the ability to validate the signature. More information about Adobe's Approved Trust List and current members of that list can be found at <http://helpx.adobe.com/acrobat/kb/approved-trust-list2.html>.

The benefit of a solution described above is the ability for anyone to open a digitally signed PDF and observe a signature validity confirmation across the top of the file that indicates all signatures are signed and valid.

**The State of NC and NCDOT have selected DocuSign as our solution provider and it uses a root certificate from one of the Adobe Approved Trust List members.** As such, all DocuSign signed PDFs are publically verified and automatically trusted by Adobe.

Professional Engineering Firms and other external NCDOT partners that provide digitally signed materials to NCDOT must also meet these requirements. For digitally signed professionally sealed documents, the submitter is also responsible for ensuring compliance with relevant Board rules pertaining to digital signatures. I

It should be noted that all digitally signed documents received by NCDOT should meet the requirements outlined herein. If NCDOT observes any indication that one or more signatures is invalid when opening the PDF, the PDF will not be accepted by NCDOT. December 2014

Also, some vendors offer the ability to apply an additional password security to the document. Do not apply this additional password security as this prohibits NCDOT's ability to merge these documents into a combined PDF that can be used for viewing purposes only. Any documents that are received with this additional password security will not be accepted.

Updated: September 2015



## MicroStation two letter Key-Ins

While you can use a dialog box or a pull down menu for most things in MicroStation, it can be quicker and easier in most cases to use the old fashion key-in method. In the key-in window simple key-in the correct 2 letter command and hit the enter key. For example to create a cell key in *cc=cellname, description* and hit Enter. See which of the following key-ins you can take advantage of.

Set the active angle  
AA=<angle>

Activate and place a cell absolute  
AC=<cell name>

Attach a menu  
AM=<menu name, type>

Set active pattern cell  
AP=<pattern cell>

Activate and place a cell relative  
AR=<cell name>

Set Active scale  
AS=<scale>

Set active depth relative to the view  
AZ=<depth>

Create cell in current Lib.  
CC=<cell name, desc.>

Delete cell from current Lib.  
CD=<cell name>

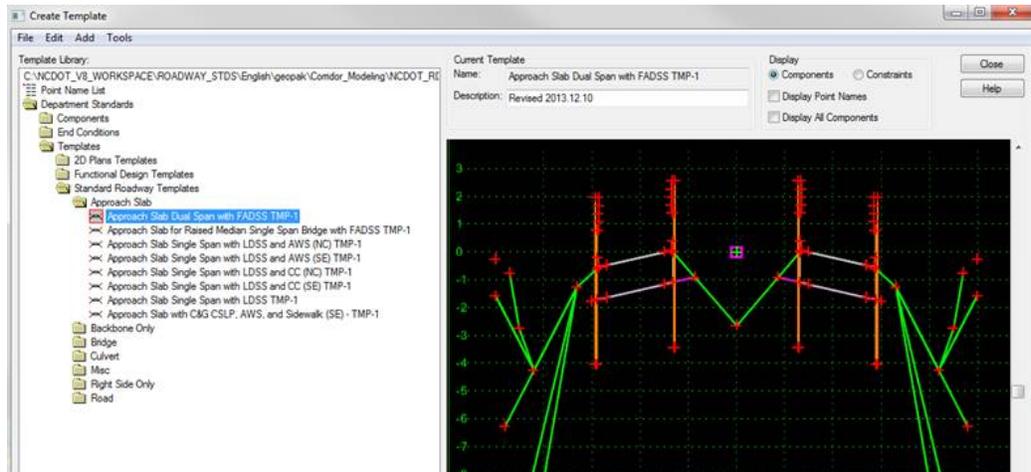
Setup cell matrix for placement  
CM=<rows,columns,row space, column space>

Set active color  
CO=<color number>

## Some things you might have missed

### Where do I find the approach slab template in the template library?

The approach slab templates should be located in the **Approach Slab** folder directly underneath the **Standard Roadway Templates** folder



## Corridor Modeling DTM Notes

- The DTM used by the Roadway Designer is different from the traditional GEOPAK TIN file. The basic principles of the two files are the same. They both use spot elevations, break lines, and other point definitions to build a triangulated model. The biggest difference is that the DTM used by the Roadway Designer stores spot elevations and break lines as features.
- When the results of the Roadway Designer are saved to a DTM, the point names become the name of linear features (breaklines) in the DTM. The features (breaklines) run parallel to the roadway connecting matching template points from one template drop station to the next. For example, a linear feature (breakline) is created for each lane line, the edge of pavement, ditch foreslopes, ditch bottoms, and so on. The feature style defines the graphical appearance of the feature (breakline) when displayed in the graphics file. Therefore, the point names control how each segment in the template is stored in the DTM and is displayed in the graphics file.
- Features do not exist in a GEOPAK TIN. A TIN file still contains the points and breaklines that define the model, just not the features and feature styles.
- The new Drafting Standard assigned to the new chain will be available as a Style for searching within Roadway Designer. Complex elements or Strings cannot be imported as Plan Graphics. You must Drop those elements prior to selecting them for importing.



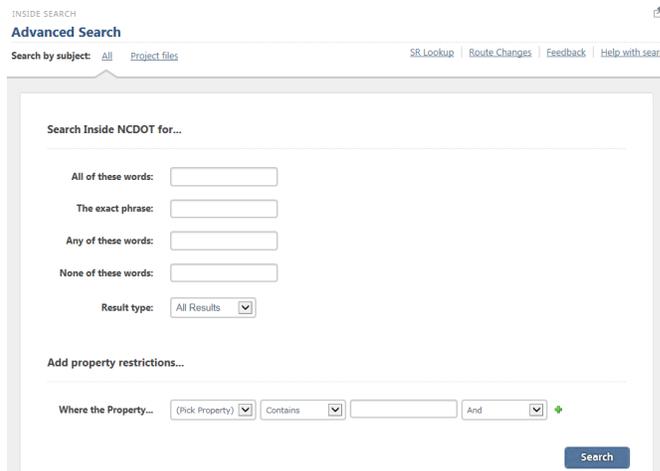
# CADD News

## Advanced Search on Inside NCDOT

Many people may still not know about the Advanced Search Link in the upper right hand corner of an Inside NCDOT webpage. This search spans across the below three repositories:



- As-built plans from all centrally let highway projects as far back as DOT records exist (the 1910s).
- Pre-Construction content for TIP projects (information in Project Store). Note: CADD files are excluded.
- Construction content for projects with Construction sites (accessible only by DOT Construction users).



## DocuSign

**Any DOT employee can get a free DocuSign account and is welcome to use it for any business related signature needs.** Only the person initiating the document needs an account; signers (internal or external to DOT) do not. Email Dean Noland at [dnoland@ncdot.gov](mailto:dnoland@ncdot.gov) to request an account today!

## This month in History (April)

In 1901 the State of New York and the City of Cleveland, Ohio realized that it was time to begin requiring license plates for motorcars. The purpose was not to raise revenue – there weren't enough autos on the road then to matter – but rather to get a grip on the speeders and reckless drivers of the day who were well known for frightening horses and otherwise generally running amuck on city streets.



From – <http://leatherlicenseplates.com/leather-license-plate-history/>

## Key-ins con't

Set grid point distance horizontal  
GU=<distance>

Set Keypoint divisor  
KY=<number>

Set active linestyle  
LC=<level number>

Set active dimension level  
LD=<level number>

Maximum text line length  
LL=<number of char.>

Text Line Spacing  
LS=<distance>

Set active line terminator  
LT=<cell name>

Set Active level  
LV=<level>

Turn off level(s)  
OF=<level(s)>,data pt. view

Turn on level(s)  
ON=<level(s)>,data pt. view

Set point cell element  
PT=<cell name>

Attach a cell library  
RC=<library name>

Open another design file  
RD=<file name>

Rotate view by angle  
RV=<angle>data pt. view

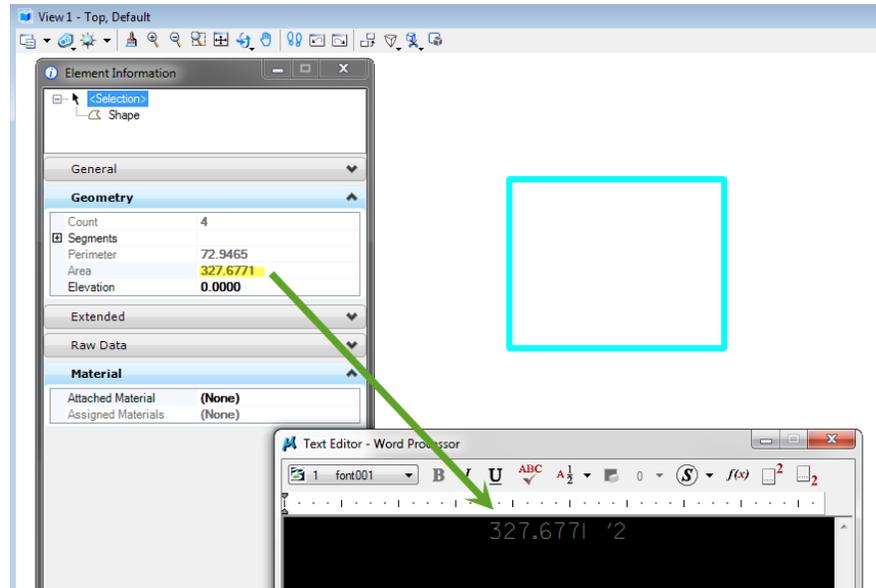
Separate fence constants to new file  
SF=<design file>

Set spaces in tab  
TB=<number of spaces>

Set Text Height  
TH=<text height distance>  
UC=<uc name>

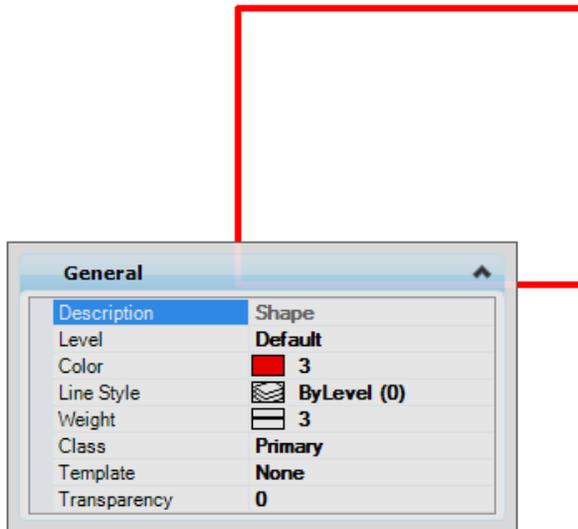
## MicroStation—drag and Drop

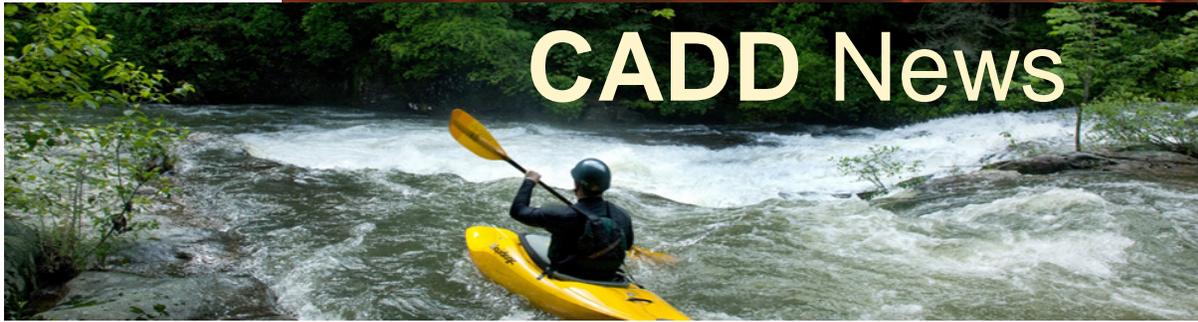
Did you know that you can drag and drop information from the element selection tool into the MicroStation text editor? Simply highlight the desired text and drag it into the text editor.



## MicroStation— Quick Information

Need quick information about an element in a MicroStation drawing? Simple move your cursor over the element, Hold down the <ALT> key on your keyboard and press the reset button on you mouse.





## Engineering Behind the Software—Informational videos

The FHWA Hydraulic Engineering Discipline is pleased to announce the availability of a series of informational videos organized into a YouTube playlist:

[https://www.youtube.com/playlist?list=PL5\\_sm9g9d4T26H-wyM5Xa5GhDyTU2HcOw](https://www.youtube.com/playlist?list=PL5_sm9g9d4T26H-wyM5Xa5GhDyTU2HcOw)

This series of six videos showcases the use of a portable flume to visualize open-channel flow and culvert design concepts. The specific topics covered in the videos are:

- Open Channel Flow Concepts: This video covers basic open channel flow concepts including how flow is classified.
- Grate Inlets: This video demonstrates grate inlets commonly used in storm drain catch basins.
- Culvert Hydraulics: This video shows how culvert design factors influence flow depths and velocities.
- Culvert Liners: This video demonstrates how rehabilitative liners may change culvert hydraulic performance.
- Aquatic Organism Passage: This video introduces aquatic organism passage design concepts for culverts.
- Energy Dissipators: This video demonstrates the hydraulic performance of a number of culvert energy dissipators.

These ideas and approaches are routinely used in completing highway drainage and stream crossing design projects. We hope that you will watch these videos and share the link with your colleagues in other functional disciplines and in partner agencies.

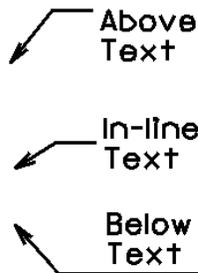


## UltraEdit Issues

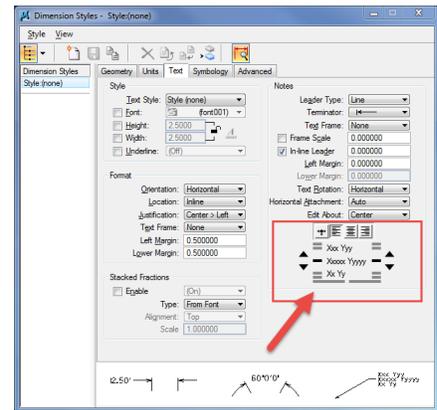
There have been some issues reported with UltraEdit licensing and the ability to open a file with it when right-clicking in windows explorer. If you experience any problems with UltraEdit, please call the helpdesk and place a help ticket.

## MicroStation tip

Changing the orientation of the in-line leader for Place Note tool



The Place Note tool places lines of text with a leader line and arrow as a dimension element. The optional in-line leader is an extra segment of the leader aligned with the text. The inline leader can be orientated above, below, in line, and either left or right of the note.



The orientation of the in-line leader can be adjusted with the settings in the Dimension Styles Text tab, in the Notes section.

## CADD IMAGES AND SUPPORTED MACHINES

### Desktops

HP 6005pmt (2<sup>nd</sup> purchase serial numbers start with 2UA22 .)  
HP 6305pmt (1<sup>st</sup> purchase serial numbers start with 2UA31 .)  
HP 6305pmt (2<sup>nd</sup> purchase serial numbers start with 2UA42 .)  
Dell op3020

NOTE: support for the HP 6005pmt (1<sup>st</sup> purchase serial numbers start with 2UA14 .) is in the process of being discontinued, as these machines are currently being replaced with new Dell op3020 CADD machines. HP 6005pmt (2<sup>nd</sup> bulk purchase) replacements will start 2<sup>nd</sup> half of 2016 and support for the PC will probably cease before the end of 2016.

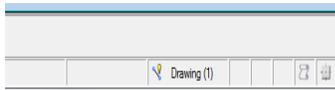
### Laptops

HP 6460b (Support scheduled to cease in the second half of 2016.)  
HP 6560b (Support scheduled to cease in the second half of 2016.)  
HP 6470b  
HP 640  
Lenovo L440

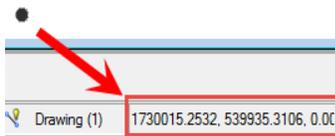
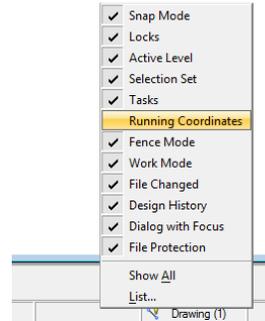
Note: next laptop models to be replaced are the HP 6460b and 6560b. Replace PCs if not available now, should be available soon. Support for these models will probably cease before the end of 2016.

# CADD News

## Status Bar — Running Coordinates

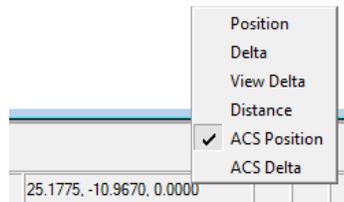


To enable the display of running coordinates, right-click on the status bar and turn on Running Coordinates from the list of options.



As you move your cursor, the coordinates of your current cursor position display according to the active tentative point mode.

When you left-click, a menu displays six options. When dealing with a Geocoordinate System, such as latitudes and longitudes, choose ACS Position.



## Improved File Exchange with Design Consultants

from the 2016-04 DOT CM Newsletter

**Preconstruction Project Sites** are being developed to improve this situation. The new sites will be developed and expanded in phases. The first phase will roll out this summer, allowing Division PMs to request sites be set up for any division managed project. Each will have a “From DOT” repository and a “To DOT” repository set up with appropriate access for Division personnel and the prime design consultant partner for that project.

Internal DOT personnel from the various design disciplines will be able to view the contents as well. Project I-5886 in Division 13 will serve as the first pilot, in May. Division Planning Engineer Kristina Solberg and Division DDC Troy Wilson are looking forward to trying this out! Troy says “The new system will give quick, easy access to all NCDOT units and Design Consultants involved with the projects. Having instant access to the most updated project information enhances communication and tracking while increasing efficiency and productivity of all parties.”

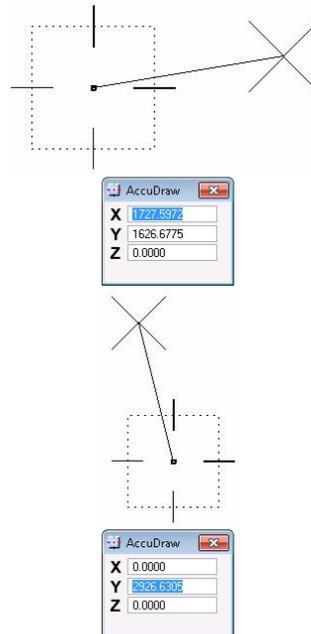


### Previewing and Constraining Data Points

AccuDraw, via tentative points, lets you preview and constrain pending data point locations. In response to your input in the AccuDraw window, dynamic update in view windows lets you visualize the results. This gives you the option of accepting the displayed tentative point, or trying another location. That is, you have the flexibility to unconstrain a pending data point at any time. It is only when you actually enter a data point that you are committed to the values in the AccuDraw window and their results.

### How AccuDraw reacts to pointer movement

When active, AccuDraw reacts to pointer movement by trying to anticipate your intent.



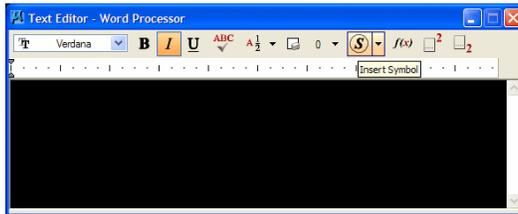
*Moving the pointer (Rectangular coordinates). Top: Toward the x-axis; Bottom: Toward the y-axis.*

As you move the pointer, the fields in the AccuDraw window automatically update to reflect the drawing plane coordinates of the current pointer location (expressed as either relative x, y, and z offsets, or as a distance and an angle) with respect to the location of the AccuDraw compass.. Furthermore, the AccuDraw window's input focus automatically adjusts, based on the general direction of the pointer movement. As you move the pointer in the same direction as either drawing plane axis the focus moves to the field that you would use to precisely locate the data point along that axis.

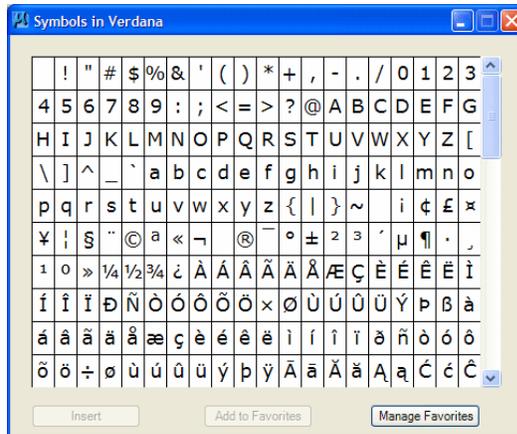
# CADD News

## Placing Text Symbols

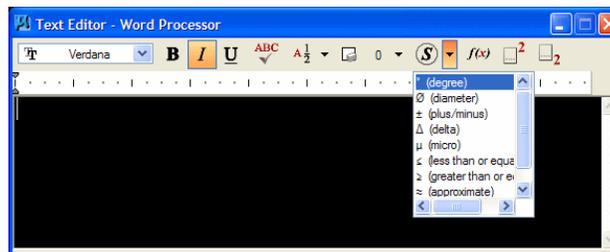
To place non-keyboard text symbols in MicroStation, use the *Insert Symbol* icon in the MicroStation Text Editor.



This brings up a dialog showing all of the symbols available for the active font. This listing is identical to what can be found in the Windows Character Map. Either select a symbol and hit the Insert button OR double click on the desired symbol.



Some commonly used symbols have been placed in the Symbols favorites list. This can be obtained by selecting the down arrow next to the Insert Symbol icon. Just select the desired symbol from the pull-down list.





# CADD News

## Last Word - Recognizing Malware Tips from the Information Office

NCDOT Information Technology  
Engineering Technology Systems  
Engineering Applications Service  
CADD Services

<https://connect.ncdot.gov/resources/CADD/Pages/default.aspx>

Century Center Complex Bldg. A  
1597 Mail Service Center  
Raleigh, NC 27699-1597

Phone: 919.707.7030  
Fax: 919.212.3072

IT West / co: Bridge Maintenance  
1296 Prison Camp Road  
Newton, NC 28658

Phone: 828.466.5526  
Fax: 828.466.5579

On the NCDOT Intranet at

<https://inside.ncdot.gov/Business/technology/Pages/Tech-CADDServices.aspx>

**CADD News**  
Issue 01 Volume 16  
April 2016

**CADD News Quote  
of the Issue**

“Some problems are so complex that you have to be highly intelligent and well informed just to be undecided about them.”  
-Laurence J

Here are a few tips on how to recognize malware, and what you can do to keep you and your family safe.

### Trojan Horses

As we just said, cybersecurity is an ongoing battle, and one of the weapons that attackers may try to use is malware known as “Trojan Horses.” Trojan Horses are a type of malware that misrepresent themselves to look legitimate, much like the Trojan Horse the Greek army used to enter Troy. Trojan Horses may be apps in smartphone stores, freeware and shareware, or even attachments to emails.

The last is a very common spam technique, and is often used alongside spam email campaigns telling you that you have a notification waiting. When you click an attached document to hear a supposed voicemail, see an alleged fax, or find out who has shipped you a package, the file opens to show you what you expect to see or hear, but in the background malware is downloading on to your computer.

### Drive-by Downloads and Malvertising

Drive-by downloads occur when a program is downloaded onto your device without your permission. One way this happens is through malicious advertising or malvertising. You know the advertisements that appear on the edge of many webpages? When malicious actors purchase advertising space there, they can install malware in the advertisement. That means that if you see that malicious advertisement, which looks like any legitimate advertisement, the malware hidden in the advertisement will automatically try to download onto your device.

### Social Engineering

Social engineering relies on tricking you into taking an action, such as clicking on a link. As the malicious website opens, malware can be installed on your device. Simply visiting these websites is enough to infect your device.

### How to Minimize Risk:

- Only open an email attachment or click on a link if you’re expecting it. Do not open email attachments or click on the links from unknown or untrusted sources.
- If something looks suspicious in an email from a trusted source, call and verify the email is legitimate.
- Use up-to-date anti-virus protection and apply recommended patches/updates to your device.
- When at work, do not install applications which you do not need for business functions. Only install trusted applications onto your personal mobile device, such as those apps from the Apple App Store or Android Marketplace.
- Use discretion when posting personal information on social media. This information is a treasure-trove to scammers who will use it to feign trustworthiness.

