

The City of Peachtree Corners – Electronic Computer Aided Drawing (CAD) Data Submission

PURPOSE

The City of Peachtree Corners CAD Standards Manual establishes requirements and procedures for the preparation and submission of CAD based drawings throughout the project life cycle. Adherence to this standard insures that both City of Peachtree Corners internal staff and consultants involved will receive and produce graphic and tabular data in a consistent format. This consistency will improve the compatibility of these drawings internally and the efficient exchange of data between the City of Peachtree Corners consultants, and client agencies.

The City of Peachtree Corners CAD Standards Manual largely reflects the National CAD Standards. The role of an individual assigned to the project determines the level of understanding required of the CAD Standards. For CAD operators, designers, and supervisors a thorough knowledge of CAD related elements associated with a project is crucial.

The CAD system adopted by City of Peachtree Corners is Autodesk AutoCAD format (various versions) and Bentley Systems format. All deliverables must be compatible with this format. Throughout this manual terminology and references will be made that are unique to this Autodesk and Bentley application.

USING THE STANDARDS FILES

The Standards directory contains two primary types of files: files that do not require ongoing user interaction to utilize and files that do require ongoing user interaction to utilize. The first type refers to files used as AutoCAD support files, which only need to be copied once to the proper support folders. The second type refers to files such as Borders and Title Sheets along with their associated revision blocks. These files do require some user interaction to utilize in a drawing.

FILE NAMING CONVENTION

Model Files: (DWG Folder)

Model files are working drawing files containing actual design geometry. These drawings will be named by providing the discipline code followed by the Project Number; a plan type and a user defined description of the drawings contents.

Please refer to the tables below for the plan type codes. Once defined, a model file's name shall not change through the life cycle of the project. This restriction is required due to the nature of externally referencing Model files.

OPTIONAL - The filename will take the form of:

PN D-FP-User Description.dwg

PN = Project Number

***D** = The Discipline Code

****FP** = Model File Plan Type

User Description = User defined description
of the files contents

Coordinate System Format

All CAD deliverable data should be delivered in the Georgia State Plane Coordinate System, the details are shown below:

Projected Coordinate System: NAD_1983_StatePlane_Georgia_West_FIPS_1002_Feet

Projection: Transverse_Mercator

False_Easting: 2296583.33333333

False_Northing: 0.00000000

Central_Meridian: -84.16666667

Scale_Factor: 0.99990000

Latitude_Of_Origin: 30.00000000

Linear Unit: Foot_US

Geographic Coordinate System: GCS_North_American_1983

Datum: D_North_American_1983

Prime Meridian: Greenwich

Angular Unit: Degree

All final digital data will be delivered in DWG, DGN or DXF format on one CD-ROM or DVD suitable for use with AutoCAD or GIS.

ELECTRONIC DELIVERABLES

Electronic files and documentation are due with the final submission (and any required interim submission) for each project.

This includes studies, data, or graphics, which may or may not include drawings. Final submissions that do not include all files and documentation are incomplete CITY OF

PEACHTREE CORNERS strongly emphasizes the importance of final record drawings. These drawings will be used in the management of CITY OF PEACHTREE CORNERS buildings by CITY OF PEACHTREE CORNERS and by client Facilities Management departments. State buildings typically have significant changes in their configuration over their life span. Accurate record drawings are of vital importance in these building management and alteration processes.

CAD deliverables

In addition to data to be delivered to CITY OF PEACHTREE CORNERS in .dwg format, the following items, described as GIS deliverables, are to be delivered as specified below:

- Parcel boundaries (if a project requirement)
- Building foot prints (if a project requirement)
- Roads (if new) within the survey (if a project requirement)
- Contours and elevation data (if a project requirement)

MEDIA FORMAT REQUIREMENTS

A copy of all electronic files and documentation shall be delivered to City of Peachtree Corners's offices on CD-R, DVD-R, or DVD+R. Media used shall be in a format that can be read and processed by City of Peachtree Corners supported hardware and software. Media jewel cases shall be labeled with the information below. Label the media themselves to contain as a minimum: date, City of Peachtree Corners project name/number

QUALITY CONTROL

The Designer/Contractor is responsible for the quality control of their submissions. City of Peachtree Corners will visually and electronically check these submissions to verify compliance. High quality of drawings is essential, Drawings must be cleaned up before submittal in the matter that lines in corners shall connect; blocks on unnecessary locations shall be deleted or purged.

Suggested References/Online Resources:

<https://thecadgeek.com/blog/2008/01/convert-a-drawings-coordinate-system/>

<http://www.thecadmasters.com/2010/10/08/coordinate-transformations-part-1-translating-point-files-using-civil-3d/>

<http://www.thecadmasters.com/2010/10/26/coordinate-transformations-part-2-re-projecting-drawings/>

<https://www.nh.gov/dot/cadd/microstation/geographic-coordinate.htm>

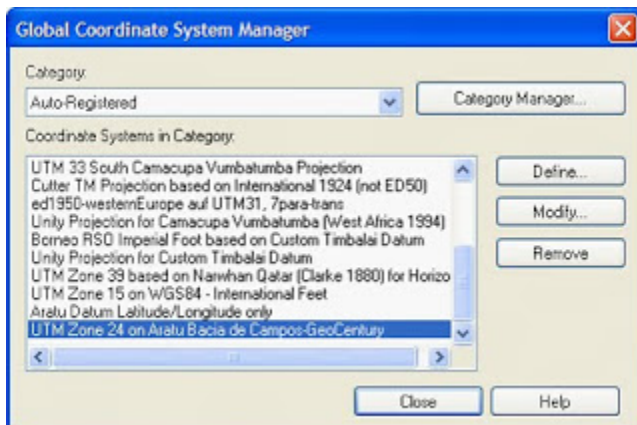
Defining a Coordinate System in AutoCAD MAP

As you may know, AutoChart uses the geodetic functionality of AutoCAD MAP/Civil 3D to perform any geodetic calculation (such as drawing Grids and Graticules, calculation Geodetic distances and Kps or for coordinate transformations). AutoCAD has a multitude of pre-defined coordinate systems but sometimes (particularly with some obscure offshore areas) the correct definition will have to be made by the user to suit the project geodetic parameters.

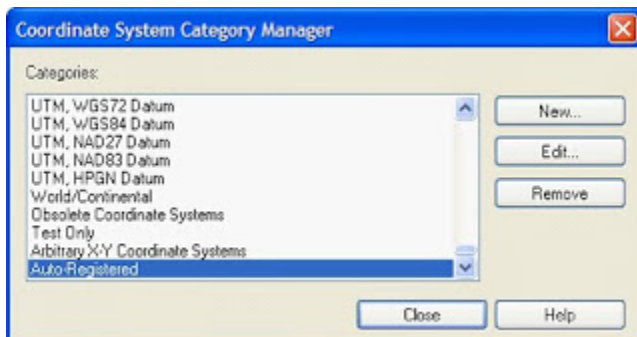
Setting up a Coordinate System is a relatively easy exercise once you understand how AutoCAD defines them, although at first impression the process can appear a little daunting. We are always happy to set up a coordinate system definition for our customers given the appropriate geodetic information and a trial point. It is however a good idea to try and familiarise yourself with the process, even if it is just to check the pre-defined coordinate systems to find the one with the correct parameters.

To Define or Check an AutoCAD MAP Co-ordinate System, use
MAP->Tools->Define Global Coordinate System.

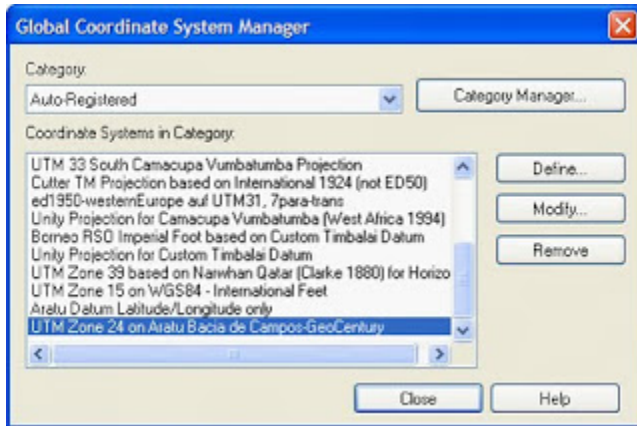
The Global Coordinate System Manager is displayed.



The Category Manager will display the various Categories of Coordinate Systems (in effect the various 'containers' dividing the various systems into type/country).

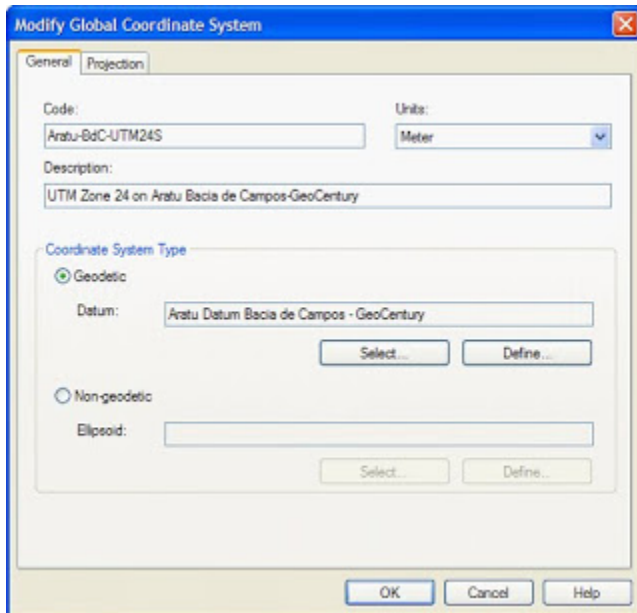


When creating a new CS it can be hard to find the appropriate CS you have made so it can be a good idea to use the Category Manager to Create a New 'Container' holding your user defined parameters.



Use the Category drop down list to select the appropriate place to store the CS definitions.

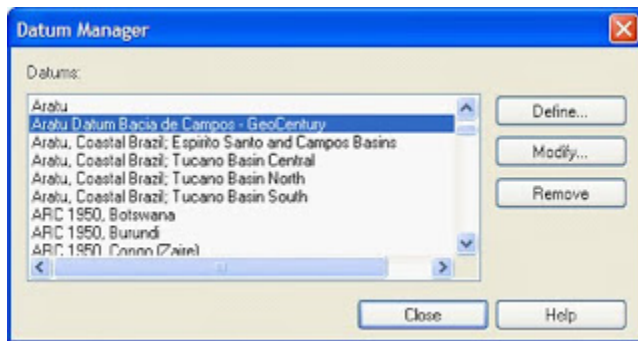
In the Global Coordinate System Manager dialog, clicking on the Define (or Modify) button will bring up a Dialog where the CS parameters can be entered.



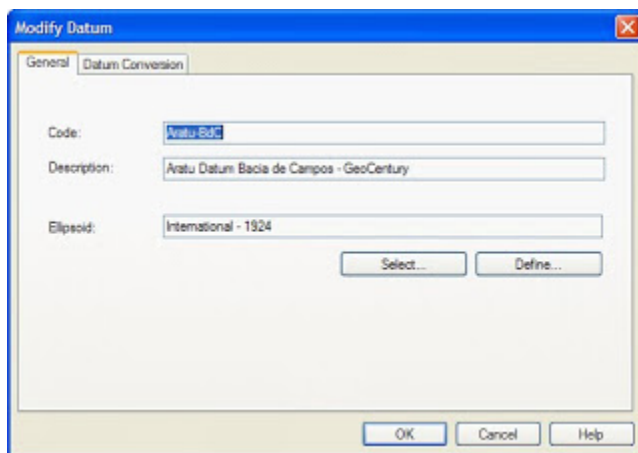
On the General Tab, the Code should be entered in such a way as to indicate what the CS represents and a description should be added to give further information on that CS. Again, it can be useful to use an identifier you are familiar with to help locate the correct CS during AutoCAD/AutoChart operations. Select the Units for the CS appropriately.

The Coordinate System Type should be chosen as Geodetic (select or define the Datum) or Non Geodetic (select or define the Ellipsoid). In either case, you can click on Select or Define and view change or create the appropriate parameters.

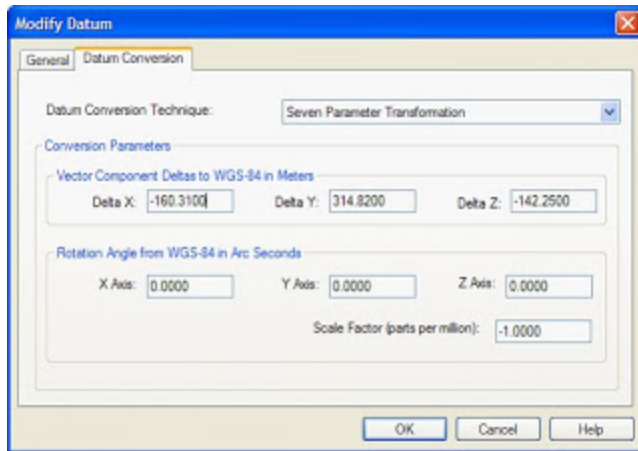
Clicking on Geodetic ->Define brings up the Datum Manager where you can check the parameters in use for defined datums or create a new Datum definition.



Again, Clicking on Define or Modify will allow you to change an existing Datum definition or Define a new one.

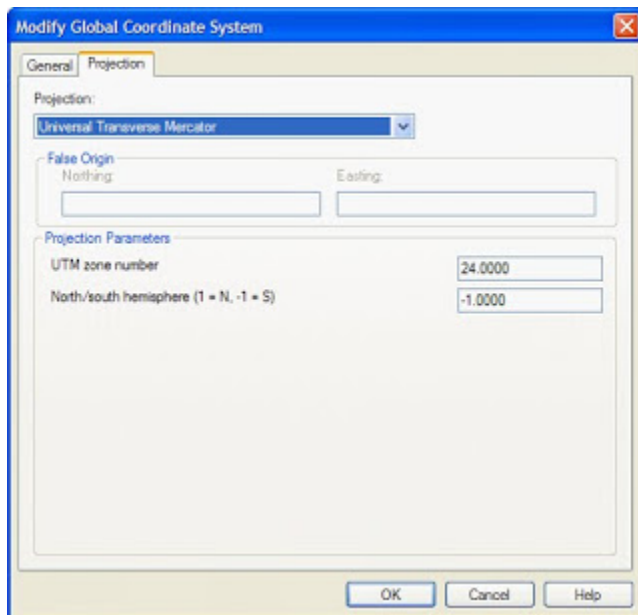


On the General Tab in the Modify/Define Datum Dialog, again enter an identifier Code and Description and select or define the appropriate Ellipsoid (the parameters of which can again be checked or defined using the Select or Define button).

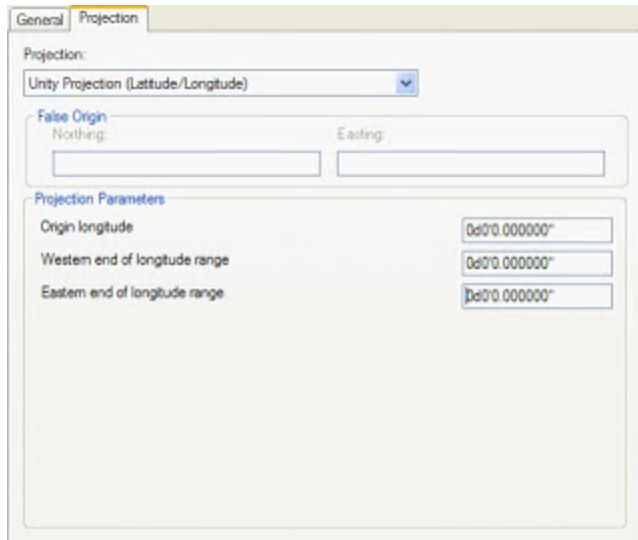


On the Datum Conversion Tab, select the Appropriate Datum Conversion Technique and enter the Conversion Parameters FROM the Datum TO WGS84. Note for pre-defined Datums you can view the parameters they have been set up with.

With the correct Datum defined, you can click ok to get back to the Modify Global Coordinate System Dialog and select the Projection Tab to set up the appropriate Projection parameters.



The Projection Type can be chosen from the Projection drop Down List. According to the Projection Type selected the Parameters section will change so that the appropriate values can be entered.



Note, for a Latitude/Longitude only CS, the Projection Type should be Set to a Unity Projection and the unit type changed accordingly on the General Tab.

With the Projection CS and Geographic CS set up correctly, these can be selected in the various AutoChart commands. The conversion from WGS84 to the Projection in use can be checked with a known point if available and using the AutoChart point ID command with the appropriate Project projection and geographic CS will check the conversion from Easting/Northing to Latitude/Longitude.

Using the MAP->Assign Coordinate System will save the defined CS into a drawing that can be passed to other users. When they open the drawing, if the CS does not exist on their system then they will be prompted to see if they want to Auto-Register it. Doing so, will make that CS available under the Auto-Registered Category.

Note that if you edit an existing Coordinate definition, then you must exit and restart AutoCAD in order for the changes to be used.