

Submittals are required for at least the 50% Construction Document, 100% Construction Document, and Record Drawing phases, but may also be required for the other design phases (as determined by the Project Manager). Submittals shall comply with the following requirements:

I. DESIGN PHASE SUBMISSION REQUIREMENTS

- A. CAD drawings shall be submitted in AutoCAD Versions 14 thru 2002 "DWG" file format. DXF format will *not* be accepted. If another computer aided drafting and design program other than AutoCAD is used to generate the project drawings, the Consultant shall be responsible for all conversion procedures necessary to generate the AutoCAD files for delivery to the University. The Consultant shall also be responsible for maintaining the accuracy and inclusion of all items within the drawings during any translation process.
- B. CAD drawings shall be identical to the hard copy, or paper version, submittals.
- C. CAD drawings shall be submitted on CD complying with the following:
  - 1. Disks shall be labeled with project name, project number, project phase, date and consultant's name.
  - 2. An index in ASCII format naming and describing each CAD file shall be included with the submittal. This may be in the form of a README file and shall also include the name, phone number and email address of a contact person. Drawing files or individual Paper Space layouts should be named identical to hard copy drawings. Zip files should be named [project name].zip.
  - 3. Provide the CTB (color dependant plot style) or STB (named plot style). CTB is the preferred method.
- D. Layering conventions, file names, block usage and other CAD standards should comply with the AIA (American Institute of Architects) Layering Guidelines. Site plan layer standards should conform to AutoCad Land Development default layering. Consultants may use their own layering standards but must provide a spreadsheet that defines the content of each layer. Each drawing should be audited to verify the layering standards are adhered to. The University requires that all objects in the drawing reside on the correctly named layer.
- E. CAD drawings should use standard AutoCad menus, fonts, hatch patterns and linetypes only. Only these TrueType fonts shall be used: Arial, Courier New, Times New Roman. If non-standard entities must be used, they must be provided

with the CAD drawings on diskette. If the entities are copyrighted, the CAD drawings may not utilize those entities. Instead, appropriate non-copyrighted entities should be used. If the Consultant must use copyrighted entities, the consultant must obtain the right for MTU to use and distribute these entities at no additional cost.

- F. Entity Properties: To ensure the integrity of the original drawing when viewing or printing, it's essential that AutoCAD™ entities are created following these standards:
  - Entity colors and linetype shall be **BYLAYER** for all drawings.
  - Blocks shall be defined (created) on layer 0 (zero).
  - All attributes shall be defined on layer 0 (zero).
- G. Nominal dimensions are to be avoided in the generation of electronic drawings. Specifically, all walls will be drawn to the width of the actual building materials to the nearest 1/8 inch. For instance, a wall constructed of 3-5/8 inch metal studs with 5/8 inch gypsum board on each side will be drawn to be 4-7/8 inches thick, and a nominal 8 inch block wall will be drawn to its actual measurement of 7-5/8 inches thick.
- H. If the CAD drawings utilize file references (Xrefs), then the file references must be provided with the CAD drawings on diskette. Files and their attached Xrefs must be located in the same directory.
- I. CAD drawings must be saved with the default ACAD.MNU menu.

## II. FINAL RECORD DRAWING SUBMISSION REQUIREMENTS

- A. At the end of the project, regardless of the process used to generate the original electronic drawings—that is, the use of cross reference files, paper space, or other drawing organization tools—the contents of each sheet in the project plan set shall be written to a separate electronic drawing file in .pdf format. Each electronic file shall have all the information included in it as shown on the respective sheets in the plotted plan set. Each respective file will be named to relate to its sheet number within the plan set—for example, the electronic file for the sheet numbered A1.1 shall be named "A1-1.[pdf]."
- B. The basic site plans, reflected ceiling plans, and basic floor plans for Architectural, electrical, and mechanical shall be submitted in CAD format as described in the CAD SUBMISSION REQUIREMENTS. All layers in each drawing shall be visible with no extraneous information showing. Unused layers and blocks shall be purged from the drawing file.