

FDOT

Architectural Design Projects: *Adoption of AutoCAD*

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Special Structures Section

Issues

- Engineering Projects
- Architectural Projects
- MicroStation Use
- AutoCAD Use
- Delineation Between CAD Programs
- CAD Standards for Buildings
- Electronic Deliverables

Engineering Projects

- Roadway Projects
- Bridge Projects Including Bascule Bridge Control Houses
- Civil-Engineering
- Miscellaneous Structures
- Traffic Engineering
- MicroStation is FDOT 'Standard' CAD

Architectural Projects

- Building Projects
 - Work Program Projects
 - Rest Areas
 - Weigh Stations
 - Turnpike Service & Toll Plazas
 - Fixed-Capital Outlay (FCO) Projects
 - Office Buildings
 - Construction & Maintenance Facilities
 - Other 'Off ROW' Facilities

MicroStation

- History of Use at FDOT
- Used by Most Engineering Consultants
- Required Format for Drawing Submittal of Engineering Projects
- PEDDS Electronic Signing & Sealing Originally Developed to Work with MicroStation

AutoCAD

- Limited History at FDOT
 - Utility Projects
 - Building Projects (new)
- Used by Most Architects and their Consultants
- Required Format for Submittal of Building Projects
- Required Format by DMS for All Submittals
- Now Standard format for Building Projects

Benefits of AutoCAD

- Most recognized CAD format
- Most manufacturers supply DWG files
- Availability of architecture trained CAD technicians
- Built-in QA/QC
- Built-in Sheet Indexing

Delineation of When to Use AutoCAD & MicroStation

- For Multi-Discipline Projects
 - Building and Site Work
 - Rest Areas, Office Buildings, Weigh Stations, Service and Toll Plazas
- Delineation at 'foot print' of Building

Delineation of When to Use AutoCAD or MicroStation

- Delineation at 'foot print' of Building
 - Face of Exterior Wall
 - Area enclosed by buildings Columns and/or Walls; i.e. Porticos, Carports, covered Walkways, Covered Patios
 - Roof and Building Overhangs
- Inside Delineation Line – Use AutoCAD
- Outside – Use MicroStation

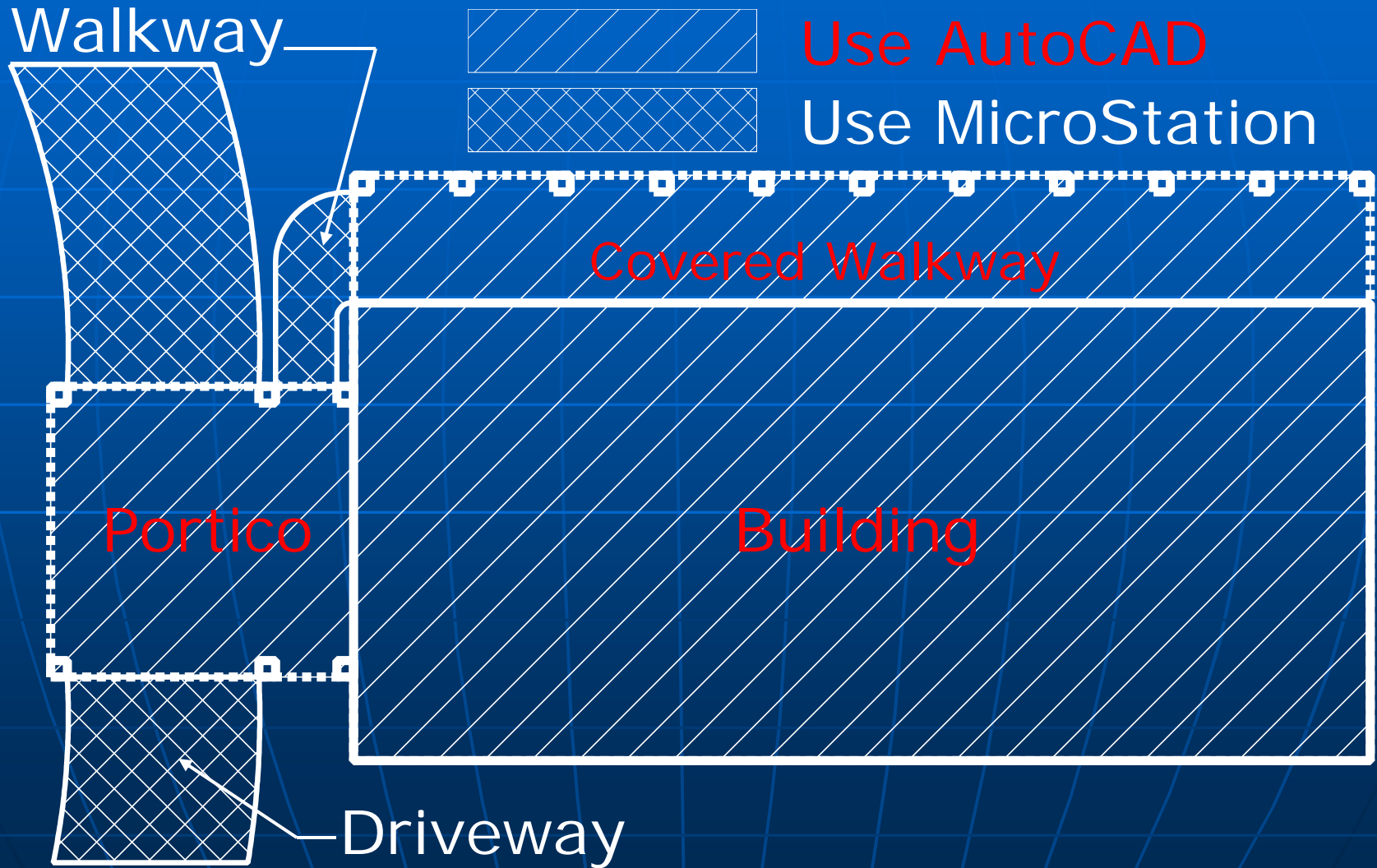
When to Use AutoCAD

- Inside Delineation Line
 - Includes 'Building-Oriented' Facilities & Equipment that are typically designed by an Architect
 - Picnic Shelters
 - Planters which are part of the building
 - Site Furniture in covered areas

When to Use MicroStation

- Outside “foot print” of Building
 - Pavement
 - Driveways, Parking, Sidewalks
 - Landscape Plans
- Site Utilities
 - Electrical, Water, Sanitary Sewer, Storm Sewer, Drainage
- Site Fencing and Walls

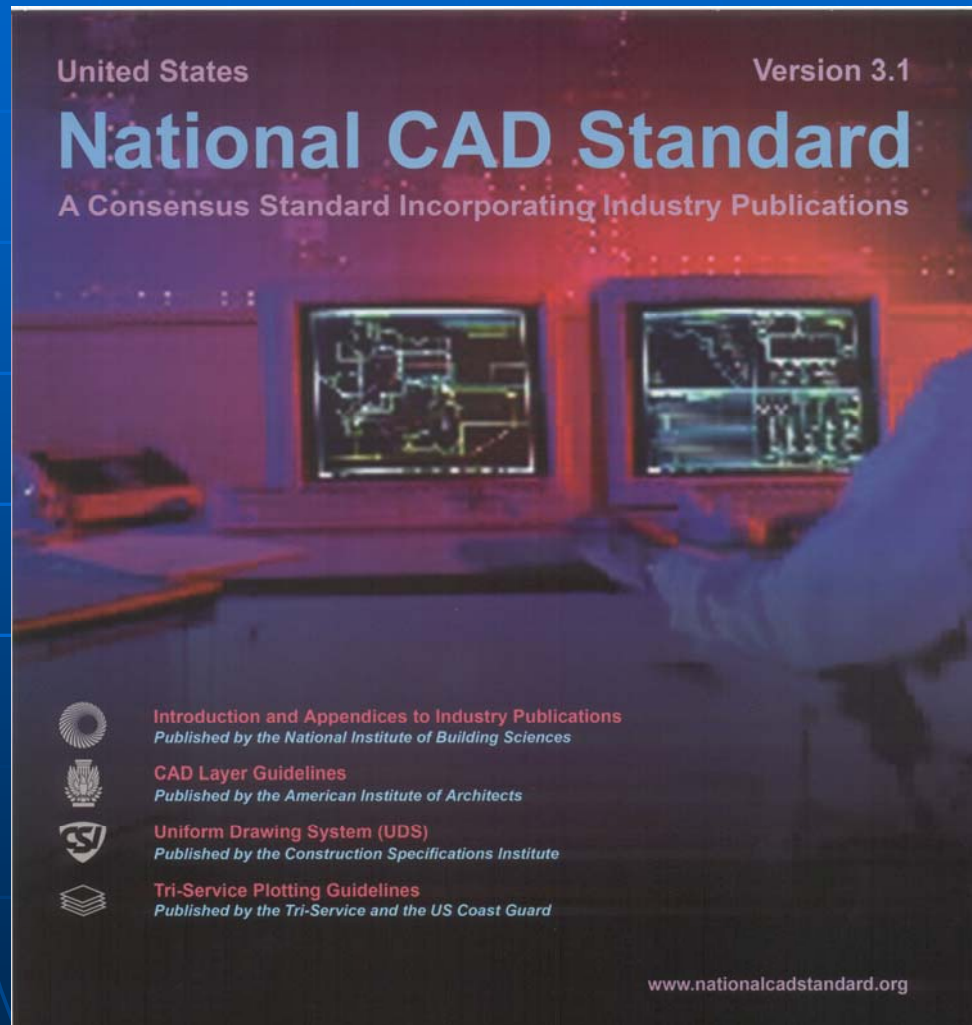
CAD Delineation Example



Landscape Architecture

- MicroStation is the Standard CAD Software for Landscape Architecture
- FDOT Contact
 - Jeff Caster Landscape Architect
 - C.O. Environmental Management Office,
 - Jeff.caster@dot.state.fl.us
 - 850-414-5267
 - s.c. 994-5267

AutoCAD Standards



AutoCAD Standards

- FDOT Adopted National CAD Standard
 - National Institute of Building Sciences
- Included Components
 - CAD Layer Guidelines
 - American Institute of Architects (AIA)
 - Uniform Drawing System (UDS)
 - Construction Specifications Institute
 - Plotting Guidelines
 - U.S.CADD/GIS Technology Center

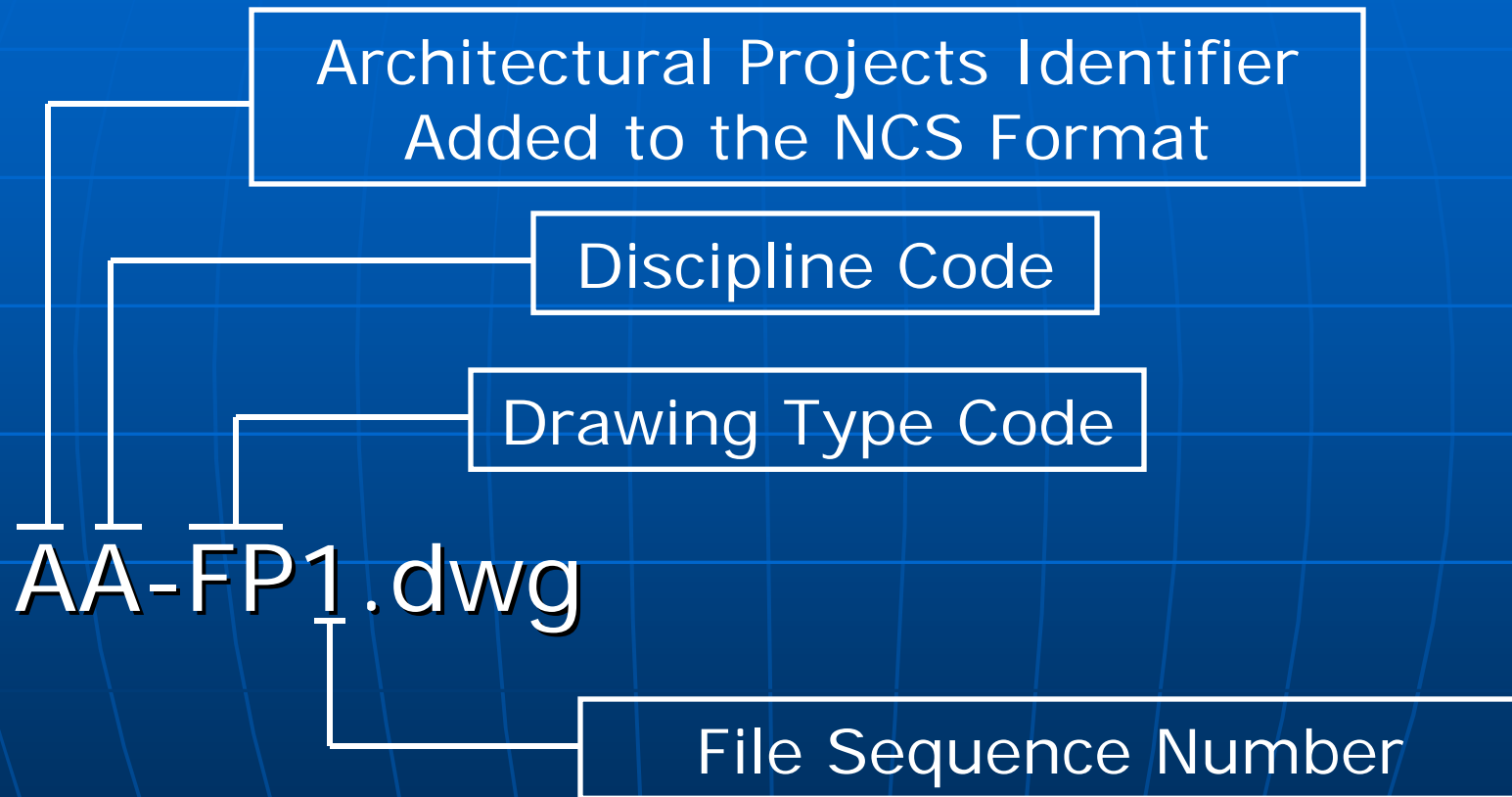
Standardized Drawing Components

- Model File Names
- Sheet File Names
- Detail File Names
- Schedule File Names
- Abbreviations
- Symbols
- Levels
- Line Attributes
- Text

Model File Name Format

- Architectural Projects Identifier
- Discipline Codes
- Drawing Type Codes (General)
- Drawing Type Codes (Discipline related)
- File Sequence Number

Model Files Name Format



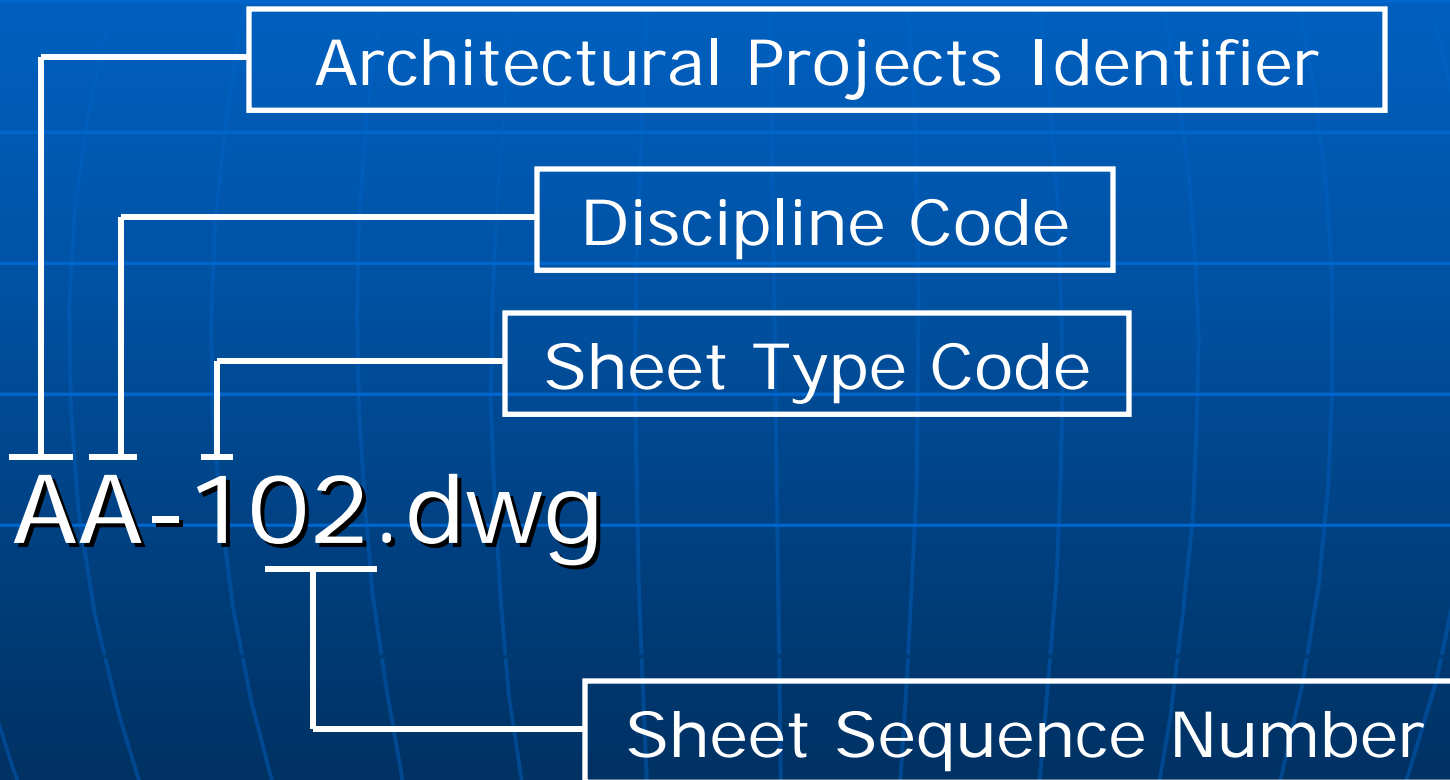
Model Files Name Format

- Architectural Projects Identifier
 - A_ _ _ _ .dwg
 - Add "A" before Discipline Code as published in National CAD Standards. This distinguishes Building drawings from Roadway and Structures drawings

Sheet File Name Format

- Architectural Projects Identifier
- Discipline Code
- Sheet Type Code
- Sheet Sequence Number

Sheet File Name Format

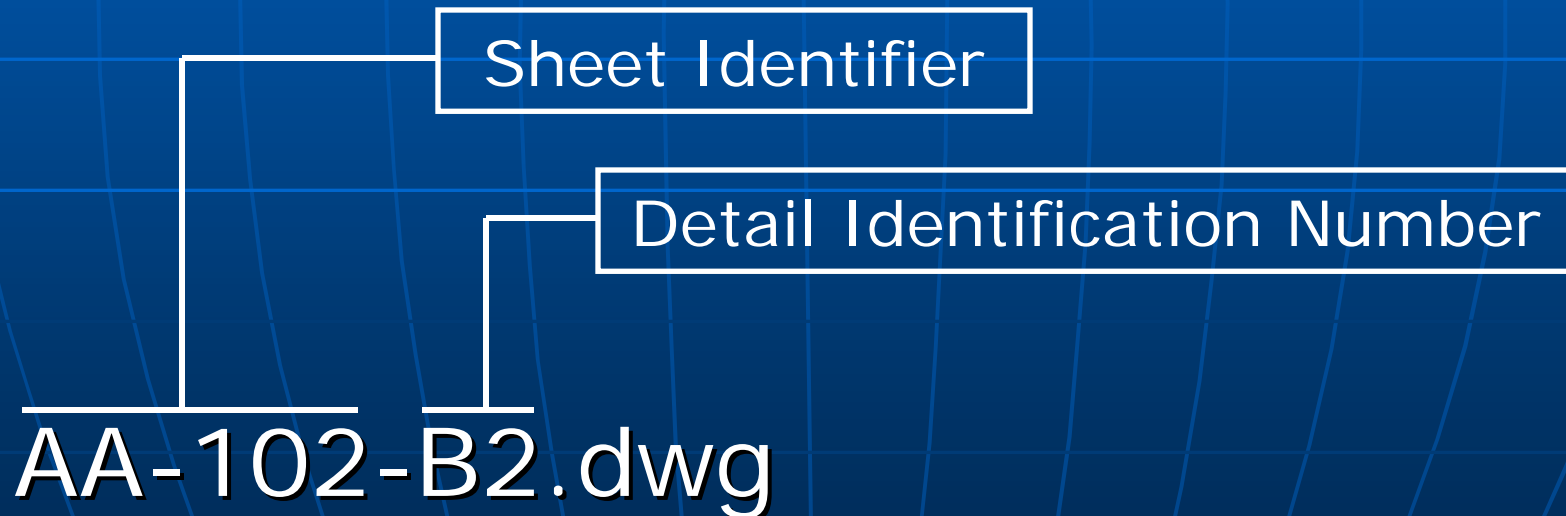


Sheet File Name Format

- Architectural Projects Identifier
 - A_ _ _ _ .dwg
 - Add "A" before Discipline Code as published in CAD Layering Guidelines. This distinguishes Building drawings from Roadway and Structures drawings

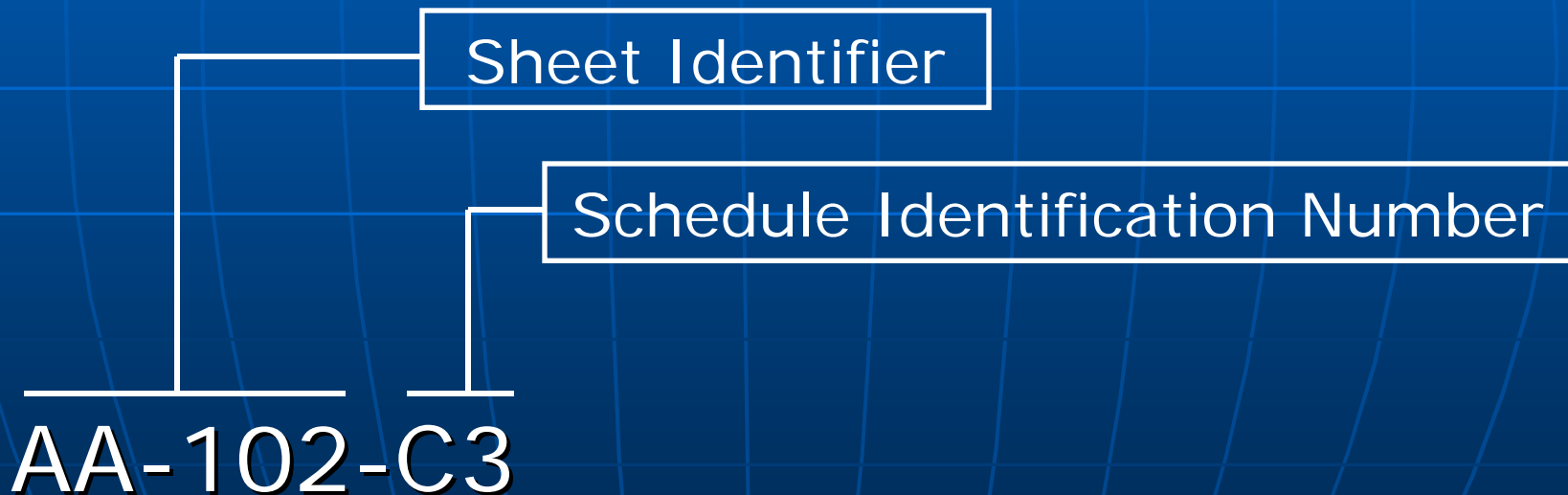
Detail File Name Format

- Sheet Identifier
- Detail Identification Number



Schedule File Name Format

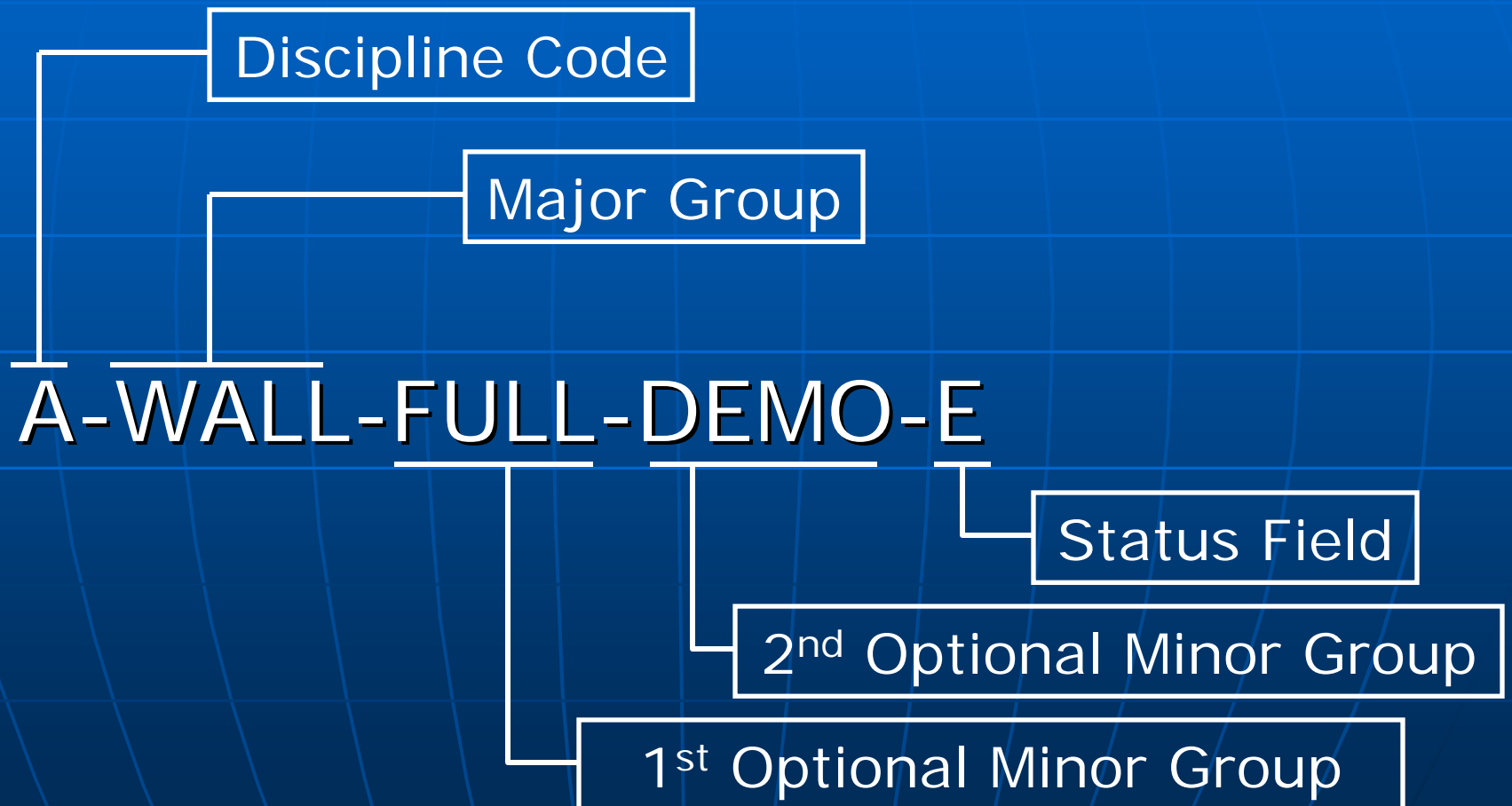
- Sheet Identifier
- Schedule Identification Number



AutoCAD Standards

- Layers
 - Naming conventions
- Element attributes
 - Line style
 - Line color
 - Line weight
 - Available from U.S.CADD/GIS Technology Center

Layering Standards



Layering Standards

■ Discipline Code

- A- _ _ _ _ - _ _ _ _ _ Architectural
- E- _ _ _ _ - _ _ _ _ _ Electrical
- F- _ _ _ _ - _ _ _ _ _ Fire Protection
- M- _ _ _ _ - _ _ _ _ _ Mechanical
- ETC.

Layering Standards

- Major Group

- __-WALL-_____-__ Walls
- __-DOOR-_____-__ Doors
- __-LITE-_____-__ Lighting fixtures
- __-COLS-_____-__ Columns
- ETC.

Layering Standards

- 1st Optional Minor Group
 - -FULL- Full height
 - -DIMS- Dimension
 - ETC.

Layering Standards

■ Status Field

- _ - _ - _ - _ - _ - _ - _ - _ - N New work
- _ - _ - _ - _ - _ - _ - _ - _ - D Demolition
- _ - _ - _ - _ - _ - _ - _ - _ - T Temporary work
- _ - _ - _ - _ - _ - _ - _ - _ - F Future work
- _ - _ - _ - _ - _ - _ - _ - _ - X Not in contract
- ETC.

Text Standards

- Text
 - Font Style
 - Size
 - National CAD Standard
 - Color
 - Weight
 - U.S.CADD/GIS Technology Center

Term and Abbreviations Stds.

- Terms and Abbreviations
 - Standardizes common terms and abbreviations for architecture and other related building disciplines

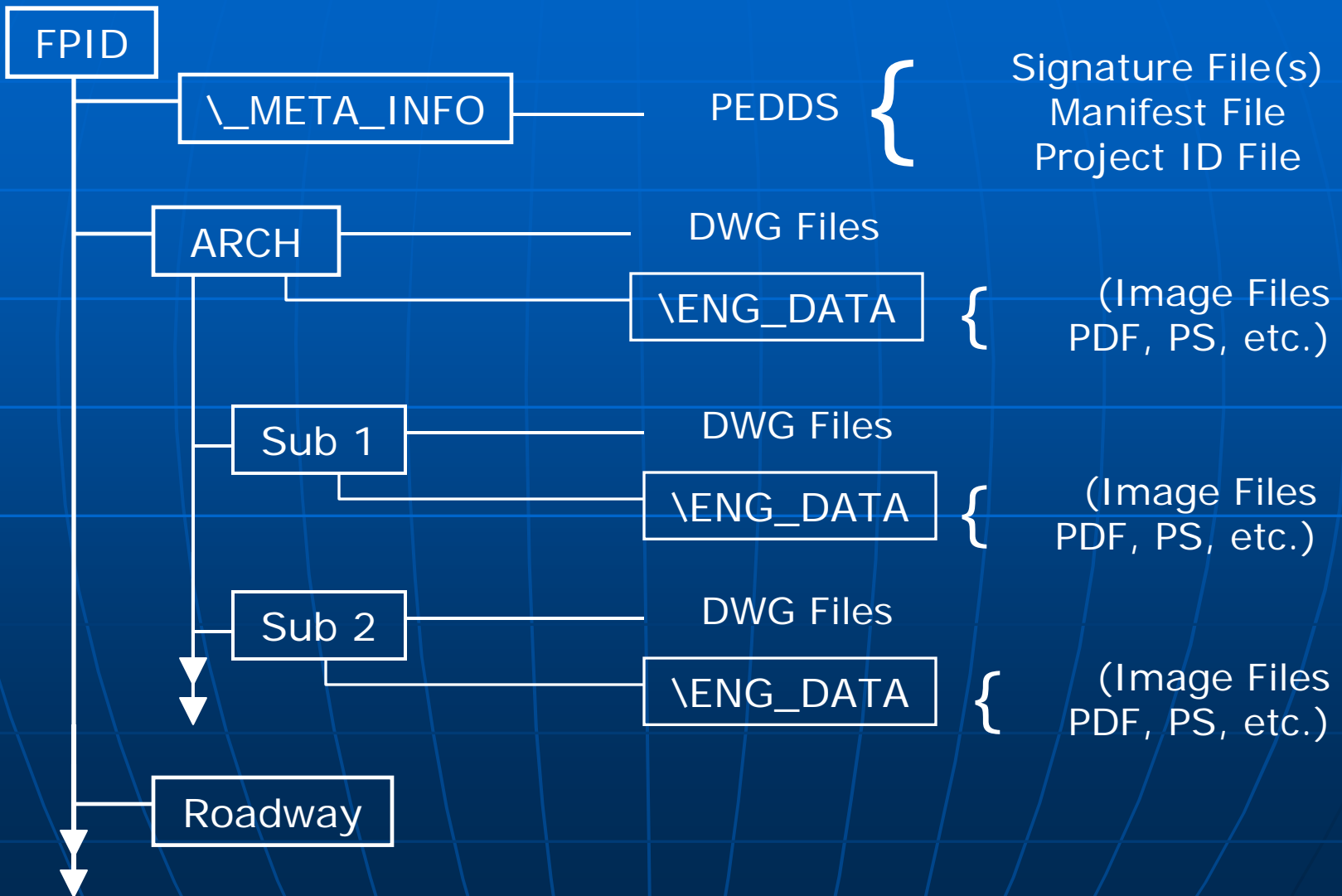
Symbol Standards

- Symbols
 - Standardizes common symbols for architecture and other related building disciplines

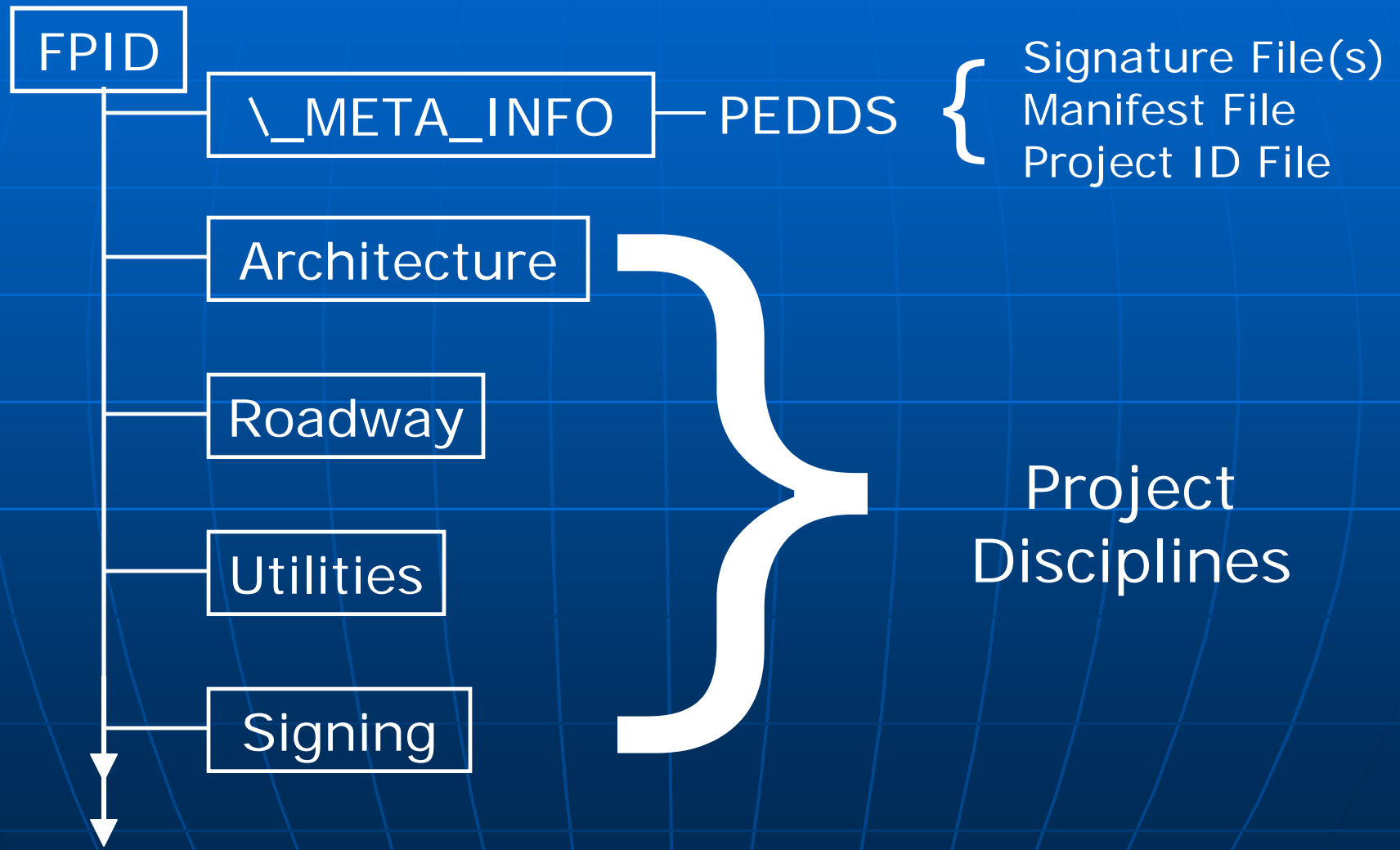
Electronic Deliverables

- Submittals Include
 - DWG's
 - Image files (type to be determined)
 - AutoCAD QA/QC Report
- Electronic Signing and Sealing
- PEDDS

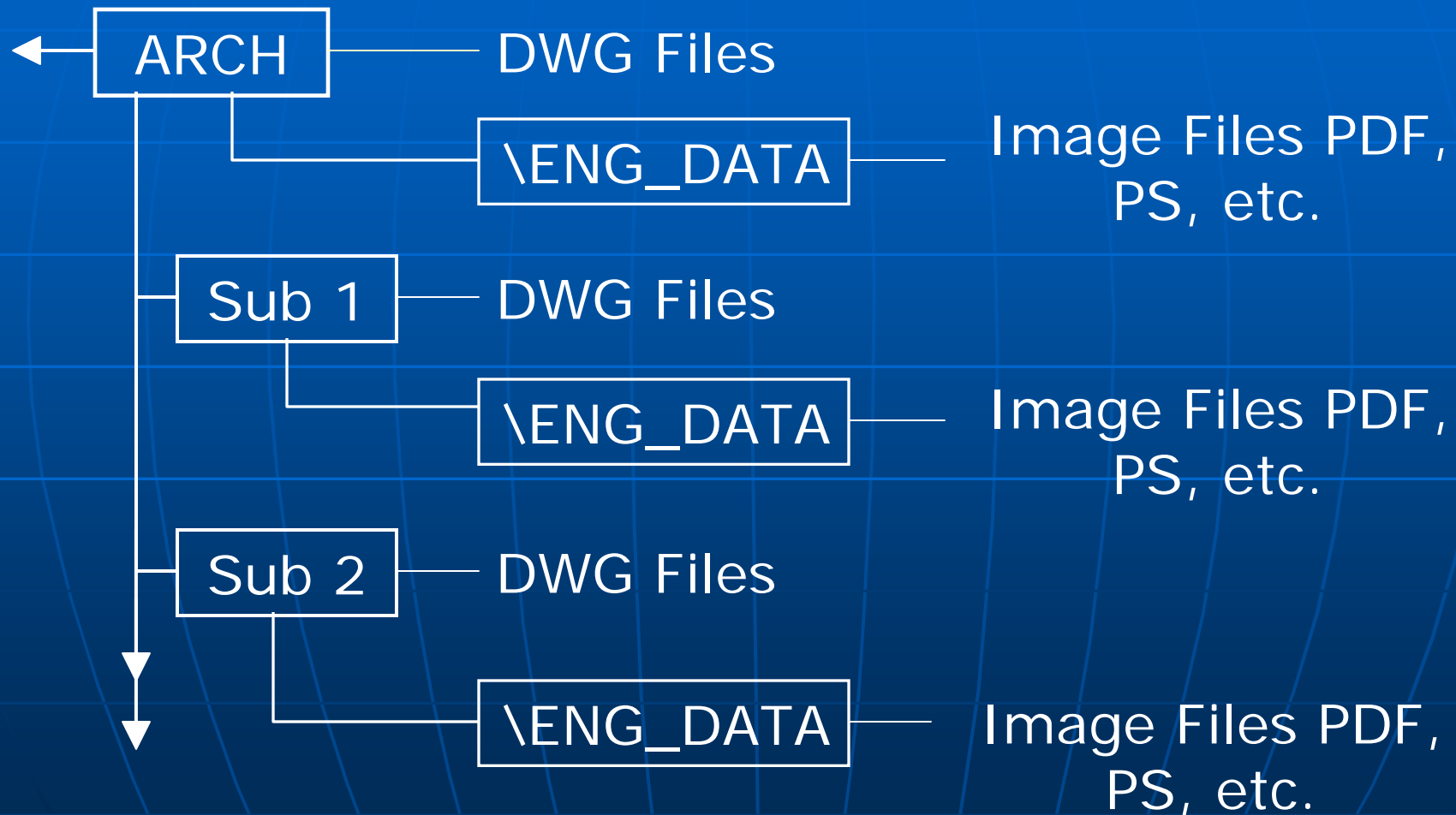
File Structure



File Structure level 1



File Structure Level 2



Electronic Signing and Sealing

■ HB 213

- Allows Architects and Landscape Architects to seal plans and specifications electronically
- Signed by Governor
- Rule being Developed by Board
- 3 to 6 Months to Implementation

Contacts and Information

- National CAD Standard
 - National Institute of Building Sciences
 - 1090 Vermont Ave., NW, Suite 700
 - Washington, D.C. 20005-4905
 - 202-289-1092
 - Website: www.nationalcadstandard.org

Contacts and Information

- CAD Layer Guidelines
 - American Institute of Architects (AIA)
 - 1735 New York Ave, NW
 - Washington, D.C. 20006
 - Website: www.aia.org

Contacts and Information

- Uniform Drawing System (UDS)
 - Construction Specifications Institute
 - 601 Madison Street
 - Alexandria, Va. 22314-1791
 - 800-689-2900
 - Website: www.csinet.org

Contacts and Information

- Plotting Guidelines and Layer Symbology
 - U.S.CADD/GIS Technology Center
 - US Army Engineer Research and Development Center
 - Attn: CEERD-ID (S. Spangler)
 - 3909 Halls Ferry Road
 - Vicksburg, MS 39180-6199
 - Website: <https://tsc.wes.army.mil/>

Contacts and Information

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