Hartsfield-Jackson Atlanta International Airport

City of Atlanta
Department of Aviation
Office of Infrastructure Planning & Development

Airport Facilities Landside/ Airside New Construction and Modifications

Design Standards

Computer Aided Drafting (CAD) Standards

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Design Standards
CAD

1.0 OVERVIEW

A. The Hartsfield-Jackson Atlanta International Airport (ATL) CAD (Computer Aided Design and Drafting) Standard is a guideline for preparation of deliverable engineering drawings in the AutoCAD environment.

B. Policies established by this manual are mandatory for employees of the City of Atlanta Department of Aviation Planning and Development Bureau (P&D) and for the information and guidance of architects and engineers providing consulting services supporting P&D and DOA tenants.

C. The CAD Standards must be adhered to in every way when preparing new drawings for P&D (Sheet size, font style and weights, line weights, layer naming conventions, and sheet numbering conventions).

D. Any special conditions which may require a change or variance from these policies and procedures shall be subject to prior approval by the P&D department.

E. These standards will continue to evolve as technology advances. CAD standards for BIM (Building Information Modeling) and or AutoCAD Revit submittals will be developed on a project-by-project basis. The contents of this manual supersede all previous versions published and are subject to change without notice. P&D encourages comments by end users and will consider all requests for revision or clarification of the intent of this document.

F. This document does not explain, nor does it replace the overall requirements of a DOA contract. Always use this manual in conjunction with DOA Contract Specifications and/or agreements. This standard does not apply to projects currently under design or construction.

2.0 DRAWING FORMAT

P&D accepts only submittals prepared with Autodesk products, the files must be “native” formats, fully functional, editable and be completely usable by the Department of Aviation (DOA) in the AutoCAD environment. It is not acceptable to create drawings with any other software and submit translations to AutoCAD.

A. AUTODESK AutoCAD

AutoCAD products version 2018 or higher are accepted by P&D. P&D currently supports the use of Autodesk 2023 products.

1. All title blocks must be placed in paper space.
2. For engineering drawings, drawing units must be set to decimal units with one base unit equal to one foot. For architectural and structural drawing, drawing units must be set to one base unit equal to one inch.
3. Only one copy of the base file should be used throughout the entire contract. Sharing of the base file should be done through XREF instead of INSERT.
4. Drawing entities must be created in full (1:1) scale and placed in model space.
5. The Z coordinates of all elements must be “0” unless the drawing is in three (3) dimensions.
6. The application of line widths and colors should always be set by layer.
7. The name of the general external reference file must begin with an “X”, i.e. XGRID.DWG, XBASEFILE.DWG, etc.
8. The final drawings must be zoomed to extents and purged.
9. All viewports shall be locked.
10. Do not bind or insert external reference files into the base drawings.
11. All incidental drawing work must be deleted.
12. The default coordinate system is the Hartsfield-Jackson International Airport Grid system.

B. SHEET SIZE

1. The P&D standard engineering drawing size is ArchE1 (30” x 42”) for full size sheets. ANSI B (Modified) shall be used when plotting Half Size sheets. Other sizes may be allowed with preapproval by the P&D Project Manager and the P&D

xx. However, all sheets issued as a complete set shall be the same size.

Size Designation	Vertical	Horizontal	Top Margin and Bottom Margin	Lef t Margin	Right Margin
Arch E 1	30"	42"	1/2”	1-1/2 "	1/2 "
ANSI B (Modified)	15”	21”	1/4”	3/4”	1/4”

3.0 DRAWING CONTENT

All Plan sheets provided to P&D shall include and follow the below content and guidelines:

A. Scale bar shown on all site plans

B. North arrow oriented always to right bottom of page or rotated clockwise

C. North arrow maintains the same direction on all plan sheets

D. All Civil site plans shall have airport coordinate grid ticks at a 5” spacing to cover the entire project area

E. The drawing sequence follows baseline direction (where applicable)

F. Details provided by other agencies shall be displayed on single sheets

4.0 FLASH DRIVE OR LINK

P&D will provide a CAD Standard Link for consultants at the time the Project Contract is given that includes:

A. Cover sheet example

B. ATL base map XREF

C. Base Street Names XREF

D. Airport grid ticks XREF’s (for a variety of scales)

E. Title Block Border Sheet

5.0 SHEET NUMBERING/NAMING SYSTEM

Reference the National CAD Standards (NCS), latest edition, Sheet Numbering/Naming System and Appendix B for sheet sequence number and sheet type designator variances.

A. Submit proposed variance to P&D xx/MAPPING Manager for approval.

6.0 FILE NAMING SYSTEM

A. Reference the National CAD Standards (NCS), latest edition, File Naming System.

Submit proposed variance to P&D CAD/MAPPING Manager for approval

7.0 LAYERING

Reference the National CAD Standards (NCS), latest edition, Layering Guidelines.

A. Use only NCS layer names. Any difference must be submitted through DOA, P&D for approval.

B. Use the minimum number of layers necessary to adequately separate entities in each drawing. The number of layers contained in each drawing will vary depending on the scope and complexity of the drawing, however drawings should not contain extraneous, redundant, or overly detailed layer names.

C. Purge each drawing of unused layers prior to submittal. The drawing file should contain only those layers necessary for displaying and plotting the information and drawing entities contained in each drawing. To ensure that subsequent prints made from each AutoCAD drawing match the original, unused or unnecessary layers must be purged from the drawing prior to delivery.

D. Drawings must utilize the layer line type, layer color, and layer line weight outlined by the National CAD Standards.

E. Use DOA .CTB files to print.

8.0 FILE TRANSMITTALS

A. For each submittal you must create a Transmittal.

B. The transmittal package type must be Zipped "(*.zip)" using the E-Transmit Autodesk feature. This will ensure that a copy of all the elements that make up the project files will be captured.

C. All files shall have one root project folder.

D. Save and purge drawings prior to E-Transmit.

E. Include options: fonts, textures from materials, files from data links, photometric web files, and sheet set data and files.

F. All As-Built should be finished in AutoCAD and clearly marked "As-Built". A complete set, hard and soft copy, must be submitted.

G. PDFs of individual sheets should also be included in the electronic file submittal.

H. A Flash Drive or File Share with all associated drawings and files shall be delivered to P&D and include a labeled file with the submitter's name, project title, WBS number, issued for date, issued for stage, and applicable contract number.

Note: Additional or re- submittals may be required during any design phase and those anticipated are scheduled per the DOA Task Order. Revisions to the drawings during the bid phase are made by addenda. Revision clouds are never used to indicate additions/changes to drawings during the design phases. Drawings Issued for Permit and drawings Released for Construction are identical except drawings Issued for Permit are signed and sealed by the registered professional approving the release of the drawings.

9.0 Appendices

Appendix A

Request for CAD Standards Modification

Prepared By: _____Phone Number:_____

Organization/Group: _____FAX Number: _____

Date:_____

Suggested Improvements/Modifications:

_____

_____

_____

_____

_____

Benefits:

_____

_____

_____

_____

_____

For DOA Use Only:

☐ Accepted

☐ Rejected

☐ Accepted with the following modifications:

_____

_____

_____

_____

Action Taken:

☐ Incorporated into Manual ☐ Issue Manual Supplement ☐None Required

Appendix B

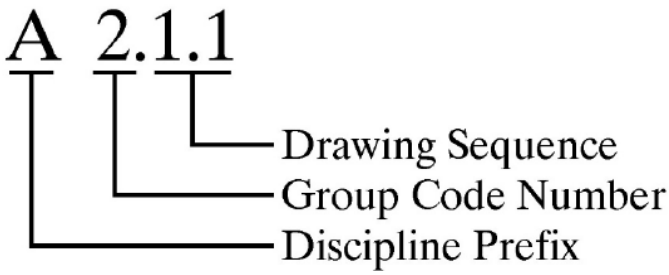
Exceptions to National CAD Standards Table of Contents

1.0 Overview

A. The Hartsfield-Jackson Atlanta International Airport (ATL) CAD Standard is a guideline in general follows the National CAD Standards (NCS), latest edition however there are some Department of Aviation specific exceptions as described below.

2.0 Sheet Number for Drawings

A. In the DOA Sheet number system, every sheet number consists of discipline prefix, group code number, and drawing sequence.



B. The same sheet numbering scheme type should be used for the entire project. An example of the drawing sequence format is as follows: A2.1.1, A2.2.1, A2.3.1… The last number in the sequence should be used to insert new sheets after the release for bid set is released. For example, A2.1.1, A2.1.2 (new sheet), A2.2.1, A2.3.1.

The chart below lists the basic DOA sheet sequence. Special sheets shall be created or combined with Appendix A Request for CAD Standards Modification approval.

Drawing Number		**Description**
G.	**Series**	**General**
G.	0.1.1	Cover Sheet
G	1.1.1	Drawing Index and Release Status
C	**Series**	**Civil Drawings**
C	0.1.1	Summary of Quantities
C	1.1.1	Legend, Abbreviations, General Notes, and Key Map
C	2.1.1	Construction Control Plan and Notes
C	3.1.1	Project Phasing
C	4.1.1	Traffic Control Plans and Details
C	5.1.1	Typical Sections
C	6.1.1	Existing Conditions
C	7.1.1	Demolition Plan
C	8.1.1	Site Plan (Profile may be on this sheet)
C	9.1.1	Geometric Control Plan (Including Curve Tables)
C	10.1.1	Runway, Taxiway or Roadway Profiles
C	11.1.1	Super Elevation Plans or Tables
C	12.1.1	Paving and Joint Plans
C	13.1.1	Paving and Joint Details
C	14.1.1	Grading, Drainage, and Utility Plans (Underdrain may show here)
C	15.1.1	Detailed Pavement Grades
C	16.1.1	Grading, Drainage, and Utility Details
C	17.1.1	Drainage and Utility Profiles
C	18.1.1	Surface Settlement Platform Layout
C	19.1.1	Surface Settlement Platform Details
C	20.1.1	Underdrain Plans
C	21.1.1	Underdrain Details
C	22.1.1	Stripping and Signage Plans
C	23.1.1	Stripping and Signage Details
C	24.1.1	Fencing Plans
C	25.1.1	Fencing Details
C	26.1.1	Miscellaneous Details
C	27.1.1	Erosion Control Plans and Details
C	28.1.1	Boring Location Plan
C	29.1.1	Cross Sections
C	30.1.1	Traffic Signal Plans

A	Series	Architectural Drawings
A	0.1.1	Architectural General Notes and Key Drawings
A	1.1.1	Architectural Site Plan, Site Details, and Demolition Sheets
A	2.1.1	Floor Plans
A	3.1.1	Exterior Elevations and Details
A	4.1.1	Building Sections
A	5.1.1	Wall, Stair, and Elevator Sections
A	6.1.1	Roof Plan and Details
A	7.1.1	Reflected Ceiling Plans and RCP Details
A	8.1.1	Interior Elevations and Details
A	9.1.1	Door Schedule, Door and Frame Types, Door Details, Window Schedule, Window Types, and Window Details
A	10.1.1	Miscellaneous Details
A	11.1.1	Vertical Circulation, Stairs, Elevators, Escalators
I	Series	Interior Drawings
I	0.1.1	General Notes
I	1.1.1	Overall Finnish Plan
I	2.1.1	Finish Schedule
I	3.1.1	Enlarged or Enlarged Finnish Plans or Multistory Plans
I	4.1.1	Finish Details
S	Series	Structural Drawings
S	0.1.1	General Notes
S	1.1.1	Site Work, Foundation Plan
S	2.1.1	Framing Plans
S	3.1.1	Elevations
S	4.1.1	Schedules
S	5.1.1	Concrete
S	6.1.1	Masonry
S	7.1.1	Structural Steel
S	8.1.1	Timber
S	9.1.1	Special Design
S	10.1.1	Foundation Plan
M	Series	Mechanical Drawings
M	0.1.1	General Notes
M	1.1.1	Site Plan
M	2.1.1	Floor Plans
M	3.1.1	Details
M	4.1.1	Control Diagrams

P	Series	Plumbing Drawings
P	0.1.1	General Notes
P	1.1.1	Site Plan
P	2.1.1	Floor Plan
P	3.1.1	Riser Diagrams
P	4.1.1	Piping Flow Diagram
P	5.1.1	Details
FP	Series	Fire Protection Drawings
FP	0.1.1	General Notes
FP	1.1.1	Site Plan
FP	2.1.1	Floor Plan
FP	3.1.1	Riser Diagrams
FP	4.1.1	Details
E	Series	Electrical Drawings
E	0.1.1	General Notes, Legend and Abbreviations
E	1.1.1	Site Plan
E	2.1.1	Electrical Demolition
E	3.1.1	Floor Plans, Lighting
E	4.1.1	Floor Plans, Power
E	5.1.1	Electrical Rooms
E	6.1.1	Riser Diagrams
E	7.1.1	Fixture/Panel Schedules
E	8.1.1	Single Line Diagram
E	9.1.1	Enlarged Plans
E	10.1.1	Cable Routing
E	11.1.1	Miscellaneous Details
E	12.1.1	Plan/ Elevation Telecommunications
E	13.1.1	Details Telecommunications
EA	Series	Airfield Electrical Drawings
EA	0.1.1	General Notes, Legend and Abbreviations
EA	1.1.1	Electrical Demolition
EA	2.1.1	Lighting Plan
EA	3.1.1	Lighting Details
EA	4.1.1	Lighting Schedules
EA	5.1.1	Electrical Vault Lighting Plan
EA	6.1.1	Electrical Vault Power Plan
EA	7.1.1	Electrical Vault Details
EA	8.1.1	Panel Schedules

EA	9.1.1	Power One Line Diagrams
EA	10.1.1	Riser Diagrams
EA	11.1.1	Cable Routing
EA	12.1.1	Cross Sections
EA	13.1.1	Guidance Sign Plans
EA	14.1.1	Guidance Sign Details
EA	15.1.1	Guidance Sign Schedules
EA	16.1.1	Miscellaneous Details
L	Series	Landscaping Drawings
L	0.1.1	Landscape General Notes
L	1.1.1	Landscape Plans
L	2.1.1	Landscape Details
L	3.1.1	Irrigation Plan Sheet
CW	Series	Casework
SS	Series	Security and Access Control Systems
GR	Series	Graphic Signage
W	Series	Wireless Systems
B	Series	Baggage Handling System
APM	Series	Airport People Mover System
PA	Series	Public Announcement System
MU	Series	MUFIDS & BIDS System
CU	Series	CUTE/AIS
FA	Series	Fire Alarm System
MC	Series	Master Clock System
-	Series	Other Agency Drawings (ex. GDOT)

3.0 CAD Layer Guidelines

A. Methodology

1. The CAD Layer Guidelines are organized as hierarchy. This arrangement accommodates expansion and the addition of user-defined extensions to the layer list. Layer names are alphanumeric and use abbreviations that are easy to remember. This legibility is particularly important when CAD files are distributed among architects, consultants, and clients.

B. Codes and Groups

The following section details the methodology behind the layer naming conventions and their general use.

1. Field 1 Discipline Code

```
          |     Field 2 Status
          |   |          Field 3 Major Group
          |   |          |      Field 4 Minor Group
          |   |          |      | X_XX_XXXX_XXXXXX
- - - - - - - - - - - - -
```

4.0 CAD File Naming Convention

A. File naming for Contract/Construction drawings shall match the Sheet number per this document.
B. File names for drawings to be used as external references shall be the single word description of the contents of the file preceded by the letter “X” and a dash i.e.: X- Alignment, X-E Contours, X-P Contours etc.
C. File names for design development drawings or reference drawings not intended to become a part of the contract drawings shall be the single word description of the contents of the file.