The AIA CAD Layer Format – Methodology

The CAD Layer Guidelines are organized as hierarchy. This arrangement accommodates expansion and 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.

Codes, Groups and Fields

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

Layer Name Format - Character Fields

A A A A A A A A A A A A A A
Discipline Designators

A A A A AA A A A A A A A A
Major Group

A A A A A A **A A A A** A A A A
Minor Group

A A A A A A A A A A **A A A A**
Status Field

Layer Name Examples

The following section gives examples of the use of the various groups.

Layer name with Major group and Minor Group. (Status Field not used)	A - Wall - Full
Layer name with Major Group and Status Field. (Minor Group not used)	A - Wall - D
Simple layer name with only Major Group. (Minor Group and Status Field not used)	A - Wall
Layer name with Major Group, Minor Group, and Status Field.	A - Wall - Full - D

Explanation of Discipline Code, Groups and Fields

The following section details the use of Discipline Code, Groups and Fields.

Discipline Code

Discipline is the primary method of classification for layer names. The discipline code is intended primarily to identify the author of the graphic information. Thus, a structural column placed by an architect would be A-COLS rather than S-COLS. This accommodates the use of "I" as a discipline code, allowing doors and walls to be recognized in both the Architectural and the Interiors disciplines.

The Discipline Code is a two-character field with the second character either a hyphen or a user-defined modifier. The discipline codes are listed below.

A	**Architectural**
C	**Civil**
E	**Electrical**
F	**Fire Protection**
G	**General**
H	**Hazardous Materials**
I	**Interiors**
L	**Landscape**
M	**Mechanical**
P	**Plumbing**
Q	**Equipment**
R	**Resource**
S	**Structural**
T	**Telecommunications**
X	**Other**
Z	**Contractor/shop Drawings**

Major Group

The Major Group designation identifies the building system. This field must contain four characters. For example, a drawing might contain the following layers.

A-Wall	Walls
A-Door	Doors
A-Lite	Lighting Fixtures
A-Fixt	Plumbing Fixtures

Minor Group

This is an *optional*, four-character field for further differentiation of Major Groups. For example, A-WALL-PART indicates architecture, new, wall partial height. The following modifiers are defined for use in the Minor Group field.

Iden	Identification
Patt	Texture & Hatch Patterns
Part	Partial Height Partition

Status Field

The Status Field is an optional four-character designator that differentiates new construction from remodeling and existing to remain. It is only needed when phases of work must be differentiated. Defined values for these fields are listed below.

The Status Field is always placed as the last field of the layer name. In a simple layer name such as A-WALL, the Status Field would be the third field (A-WALL-D). In a more detailed layer name, the Status Field would be the fourth field (A-WALL-FULL-D).

N	New Work
E	Existing To Remain
D	Existing To Demolish
F	Future work
T	Temporary Work
M	Items To Be Moved
R	Relocated items
X	Not in contract

A remodeling plan might contain the following layers.

A-Wall-N	New Walls
A-Wall-D	Walls To Be Demolished
A-Wall-E	Existing Walls To Remain

Annotation

Annotation comprises *text, dimensions, sheet borders*. Detail references, and other elements on CAD drawings that don't represent *physical aspects* of a building. The major group "ANNO" designates annotation.

Annotation can be placed in both paper and model space (Model files/Titleblock files). Dimensions, symbols, and keynotes would typically be placed in model space. Legends, schedules, borders, and title blocks would typically be placed in paper space. The same layer names would be used in both cases Types of annotation are as follows:

* represents Discipline Code

*-Anno-Dims	Dimensions
*-Anno-Keyn	Keynotes
*-Anno-Legn	Legends And Schedules
*-Anno-Note	Notes
*-Anno-Nplt	Construction Lines, Non-Plotting Information
*-Anno-Redl	Redline
*-Anno-Revs	Revisions
*-Anno-Symb	Symbols
*-Anno-Text	Text
*-Anno-Ttlb	Border And Title Block

Layers for Elevations, Details, Sections, and Vertical Drawings

Special Groups of layers within each discipline are defined for elevations, sections, details, and three-dimensional views. Defined layer groups are as follows. The Minor Group "*-ELEV" can be added to any Major Group layer (A-WALL, A-DOOR, Etc.)

* represents Discipline Code

Elevations	*-Elev	Elevations
	*-Elev-Iden	Component Identification Numbers
	*-Elev-Otln	Building Outlines
	*-Elev-Patt	Textures And Hatch Patterns With Different Pens
Sections	*-Sect	Sections
	*-Sect-Iden	Component Identification Numbers
	*-Sect-Mbnd	Material Beyond Section Cut
	*-Sect-Mcut	Material Cut By Section
	*-Sect-Patt	Textures And Hatch Patterns With Different Pens
Details	*-Detl	Details
	*-Detl-Iden	Component Identification Numbers
	*-Detl-Mbnd	Material Beyond Section Cut
	*-Detl-Mcut	Material Cut By Section
	*-Detl-Patt	Textures And Hatch Patterns With Different Pens

Listing of Groups and Codes

Major Group Codes

No Customization is allowed.

Major Code	Description
Ablt	Anchor Bolt
Accs	Access
Acid	Acid
Anno	Annotation
Area	Area
Beam	Beam
Bldg	Building
Brin	Brine Systems
Cabl	Cable
Chim	Chimney
Clng	Ceiling
Cmpa	Compressed Air Systems
Co2s	CO2 Systems
Code	Code
Cols	Columns
Comm	Communications
Cont	Controls
Cwtr	Chilled Water
Deck	Floor Decks
Detl	Detail
Domw	Domestic Water
Dust	Dust
Elev	Elevation
Elht	Electric Heat
Ener	Energy Management
Eqpm	Equipment
Evac	Evacuation
Exhs	Exhaust
Fire	Fire
Fixt	Fixture
Flor	Floor
Fndn	Foundation
Fuel	Fuel
Furn	Furniture
Glaz	Glass
Grid	Grids
Grnd	Grouding
Haln	Halon
Hotw	Hot water
Hvac	H.V.A.C
Igas	Inert Gas
Irrg	Irrigation

Major Code	Description
Jois	Joists
Lgas	Labratory Gas
Lite	Lighting
Ltng	Lightning Protection
Mach	Machine Shop
Mdgs	Medical Gas
Metl	Miscellaneous Metal
Ngas	Natural Gas
Nurs	Nursing
Pgng	Paging Systems
Pipe	Pipe
Pkng	Parking
Plan	Plans
Plnt	Plant
Powr	Power
Proc	Process
Prop	Property
Prot	Protection
Rcov	Recover
Refg	Refrigeration
Risr	Risers
Road	Road
Roof	Roof
Sanr	Sanitary
Sect	Sections
Sert	Security
Site	Site
Slab	Slabs
Soun	Sound
Spcl	Special
Sprn	Sprinklers
Stan	Standpipe Systems
Stem	Steam
Strm	Storm
Test	Test
Topo	Topography
Tvan	Television Antenna
Walk	Walks
Wall	Walls
Watr	Water
Xref	External References

Minor Group Codes

To be used whenever possible. Limited customization allowed.

Minor Code	Description
##	Pen#, Xref#, etc.
2way	2-way
Aban	Abandoned
Accs	Equipment Access
Adag	Disabled Access Guides
Alrm	Fire Alarm
Appl	Appliances
Area	Area Calculations
Asbs	Asbestos
Bbl#	Basketball Bleachers
Beds	Beds
Blr1	Bleachers - Closed Partitions
Blr2	Bleachers - Opened Position
Bnch	Benchmarks
Bore	Test Borings
Brdg	Bridges
Brng	Bearing and Distance Labels
Busw	Busways
Cabl	Cable Trays
Cars	Graphic Illustration of Cars
Case	Casework
Catv	Cable TV
Cdff	Hvac Ceiling Diffusers
Chil	Chilled Water
Circ	Circutting
City	City
Clhd	Sprinkler head (Ceiling)
Cntr	Center Lines
Coax	Coax
Code	Code Information
Cols	Columns
Conp	Condensate Piping
Cons	Construction Controls
Cpip	Compressed Air Piping
Cprf	Copper Feeder
Cprh	Copper Horizontal
Cprr	Copper Riser
Curb	Curb
Data	Data
Date	Date Stamp
Deck	Decks
Desc	Descriptive Text
Dims	Dimensions

Minor Code	Description
Dran	Parking Lot Drainage Slope
Duct	Exhaust System Ductwork, Hvac.
Edge	Edge of Slab
Elev	Elevations, Elevation text, 3D, etc.
Emer	Emergency Lighting Devices
Eqpm	Equipment
Esmt	Easements, Row, and Setback Lines
Etcx	Ethernet 10base2 Coax
Extr	Exterior
Feed	Feeders
Fenc	Fencing
Fh1h	One Hour Fire Wall
Fh2h	Two Hour Fire Wall
File	File Cabinets
Fire	Fire Wall
Fixd	Fixed
Fixt	Fixtures
Fldr	Floor Drains
Flor	Floor
Fnsh	Finish
Free	Freestanding
Full	Full
Ggep	Fuel Gas General Piping
Gopr	Fuel Oil Process Piping
Grid	Grid
Grnd	Bushes, Ground Covers and Vines
Grrp	Fuel Gas Process Piping
Grtr	Greater
Head	Door and Window Headers
Hpip	High Pressure Steam Piping
Hral	Stair/Balcony Handrails & Guard Rails
Hvel	Electric Lines - High Voltage
Hvsl	Street Lights Lines-HIgh Voltage
Hydr	Hydrants
Iden	Misc. Annotation Symbols & Text
Igas	Inert Gas
Intr	Interior
Irrg	Irrigation
Isld	Parking Islands
Jack	Data/Telephone Jacks
Jamb	Door and Window
Jbox	Junction Box
Join	Slab Control Joints

Minor Code	Description
Keyn	Key Notes
Kple	Kpl Electric Lines
Kpsg	Kps
Legn	Schedule, Legend, Table Border
Less	Asbestos Quantity Less Than
Levl	Level Changes, Ramps, Pits, and Depressions
Lpip	Low Pressure Steam Piping
Lvel	Electric Lines - Low Voltage
Lvsl	Street Lights Lines - Low Voltages
Main	Water Main
Mbnd	Material Beyond Section Cut
Mcut	Material Cut by Sections
Metr	Meters and Valves
Mhol	Manholes
Misc	Miscellaneous
Mmff	Multi-Mode Fiber Feeder
Mmfh	Multi-Mode Fiber
Mmfr	Multi-Mode Fiber Riser
Move	Movable
Nicn	Not in Contact
Note	Notes
Nplt	Non-Plotting Information
Numb	Power Circuit Numbers
Occp	Occupant or Employee Names
Odff	Other Diffusers
Ogep	Fuel Oil General Piping
Open	Ceiling and Roof
Othd	Sprinkler Head (Other)
Otln	Outlines
Ovhd	Overhead Communication Lines
Ovhd	Overhead
P#	Detail Outlines or Detail Using Different Pens or Colors
Panl	Power Panels
Pat(1-9)	Textures and Hatch Patterns, Certain Construction Lines (1-9)
Pave	Roads That Have No Curb and Gutter but Are Pave
Peop	People
Peqp	Process Air Equipment
Pfix	Plumbing Fixtures

Minor Code	Description
Pile	Piles, Drilled Piers
Pipe	Piping
Plan	Plans
Play	Play Structures
Plnt	Plants
Pnls	Furniture System Panels
Pole	Electric Poles and Street Lights on the Poles
Pool	Pools and Spas
Powr	Furniture System Power
Ppip	Process Air Piping
Prht	Partial Height
Rais	Raised
Rbar	Re-bar
Rdff	Return Air Diffusers
Rfeq	Rooftop Exhaust Equipment
Risr	Risers
Roof	Roof
Rtwl	Retaining Walls
Satv	Satelite TV
Sdff	Supply Diffusers
Serv	Service
Sign	Signage
Sill	Sills
Site	Site
Slev	Sleeves Under University Roads
Smff	Single-Mode Fiber-Feeder
Smfh	Single-Mode Fiber, Horizontal
Smfr	Single-Mode Fiber Riser
Smok	Smoke Detectors or Heat Sensors
Spcl	Architectural Specialties
Spkl	Irrigation Sprinklers
Spot	Spot Elevations
Sprt	Playing Fields and Text
Step	Steps
Stor	Storage
Strp	Floor/Parking Lot Striping & Handicapped Symbol
Strs	Stairs, Treads, Escalators, and Ladders
Susp	Suspended Elements

Minor Code	Description
Swbd	Switchboards
Swbt	Swb
Swch	Switches
Swng	Door Swing Arc
Symb	Symbols
Tank	Tanks
Tees	Main Tees
Tele	Telephone
Texl	Large Text
Texts	Small Text
Text	Legends and Schedules Text
Ther	Thermostats
Tptn	Toilet Partitions
Ttbl	Title Blocks

Minor Code	Description
Tunn	Tunnels
Turf	Lawn Areas
Ucpt	Under Carpet Wiring
Undr	Underground
Unpv	Roads That Are Unpaved
Urac	Under Floor Raceways
Util	Utilities
Vbl#	Floor Striping for Volleyball Courts
Vhcx	Catv Video Feeder
Vprt	Paper Space Viewports
Vrcx	Catv Video, Feeder Riser`
Wdwk	Architectural Woodwork (Field Built Cabinets & Counters)
Wire	Wiring