CAD Layering Guidelines
University of California, Santa Cruz
Physical Planning & Construction

The PP&C CAD Layering Guidelines are based upon the AIA National CAD Standards, and are designed to make our CAD files more accessible to users and consultants. Layer names are created using a pattern based upon the discipline and content of an individual layer. This structure makes the list easier to use and accommodates future expansion. Hyphens are used to separate major group, minor group and modifier to improve readability. Please note that this convention ensures short layer names that are easy to read and sort well.

The layers listed in this document are examples of typical layer names, and should be followed as closely as possible. When required, unique layers not listed here should be generated using this same format.

This document includes typical layer names for the following disciplines:

Architectural
Structural
Mechanical
Plumbing
Fire Protection
Electrical
Civil Engineering and Site Work
Landscape Architecture

Layer names pertaining to additional disciplines not listed here should be created using the same format. A list of typical layer name modifiers is provided at the end of this document.

A template file containing the typical layers (and conforming to PP&C CAD Standards) is available from PP&C by request.

Architectural:

a-wall	**Walls**
a-wall-exst	Existing walls
a-wall-demo	Walls to be demolished
a-wall-full	Full height walls, stair and shaft walls, walls to structure
a-wall-prht	Partial height walls
a-wall-move	Movable partitions
a-wall-head	Door, window and opening headers
a-wall-jamb	Door & window jambs
a-wall-patt	Pouche, hatching, insulation, and fill
a-wall-elev	Wall surfaces (3d views)
a-door	**Doors**
a-door-full	Full height (to ceiling) doors and swing
a-door-prht	Partial height door: swing & leaf
a-door-iden	Door number, hardware group, etc
a-door-elev	Doors (3d view)
a-glaz	**Windows, window walls, curtain walls, glazed partitions**
a-glaz-full	Full height glazed walls and partitions
a-glaz-prht	Windows and partial height glazed partitions
a-glaz-sill	Window sills
a-glaz-iden	Window number
a-glaz-elev	Glazing & mullions (elevation views)
a-flor	**Floor information**
a-flor-area	Net square footages
a-flor-otln	Floor or building outline
a-flor-levl	Level changes, ramps, pits, and depressions
a-flor-strs	Stair treads, escalators, and ladders
a-flor-risr	Stair risers
a-flor-hral	Stair and balcony handrails and guard rails
a-flor-evtr	Elevator cars and equipment
a-flor-tptn	Toilet partitions
a-flor-spcl	Architectural specialties (toilet room accessories, display cases)
a-flor-wdwk	Field built cabinets and counters
a-flor-case	Casework (manufactured cabinets)
a-flor-appl	Appliances
a-flor-ovhd	Overhead skylights & overhangs
a-flor-rais	Raised floors
a-flor-iden	Room numbers, names, targets, etc.
a-flor-patt	Paving, tile, and carpet patterns
a-eqpm	**Equipment**

a-eqpm-fixd	Fixed equipment
a-eqpm-move	Movable equipment
a-eqpm-nic	Equipment not in contract
a-eqpm-accs	Equipment access
a-eqpm-iden	Equipment Identification
a-eqpm-elev	Equipment surfaces (3d views)

a-furn	**Furniture**
a-furn-free	Freestanding furniture
a-furn-char	Chairs and other seating
a-furn-file	File cabinets
a-furn-pnls	Furniture system panels
a-furn-wksf	Furniture system work surface components
a-furn-stor	Furniture system storage components
a-furn-powr	Furniture system power designations
a-furn-iden	Furniture numbers
a-furn-plnt	Plants
a-furn-patt	Finish patterns
a-furn-elev	Furniture (3d views)

a-clng	**Ceiling information**
a-clng-grid	Ceiling grid
a-clng-open	Ceiling and roof penetrations
a-clng-tees	Main tees
a-clng-susp	Suspended elements
a-clng-patt	Ceiling patterns

a-roof	**Roof**
a-roof-otln	Roof outline
a-roof-levl	Level changes
a-roof-strs	Stair treads and ladders
a-roof-risr	Stair risers
a-roof-hral	Stair handrails, nosings and guard rails
a-roof-patt	roof surface patterns (hatching)
a-roof-elev	roof surfaces (3d views)

a-area	**Area calculation boundary lines**
a-area-patt	Area cross-hatching
a-area-iden	Room numbers, tenant identifications and area calculations
a-area-occp	Occupant or employee names

a-elev	**Interior and exterior elevations**
a-elev-otln	Building outlines
a-elev-fnsh	Finishes, woodwork and trim
a-elev-case	Wall mounted casework
a-elev-fixt	Miscellaneous fixtures

a-elev-sign	Signage
a-elev-patt	Textures and hatch patterns
a-elev-iden	Component identification numbers

a-sect	**Sections**
a-sect-mcut	Material cut by section
a-sect-mbnd	Material beyond section cut
a-sect-patt	Textures and hatch patterns
a-sect-iden	Component identification numbers

a-detl	**Details**
a-detl-mcut	Material cut by section
a-detl-mbnd	Material beyond section cut
a-detl-patt	Textures and hatch patterns
a-detl-iden	Component identification numbers

a-shbd	**Sheet border and title block line work**
a-shbd-text	Titleblock text
a-shbd-ttlb	Project titleblock
a-shbd-logo	Office or project logo
a-pflr	Floor plan
a-plgs	Large scale floor plan
a-pclg	Reflected ceiling plan
a-prof	Roof plan
a-pxfu	Fixtures and furniture plan
a-peqm	Equipment plan
a-pmfn	Materials and finish plan
a-pdem	Demolition plan
a-pare	Area calculations
a-pocc	Occupancy Plan
a-schd	Schedules and Titles

a-anno	**Annotations**
a-anno-dims	Dimension lines used in annotations
a-anno-symb	Symbols, bubbles and targets used in annotations

Structural:

s-grid	**Column grid**
s-grid-extr	Column grid outside building
s-grid-intr	Column grid inside building
s-grid-dims	Column grid dimensions
s-grid-iden	Column grid tags

s-fndn	**Foundation**
s-fndn-pile	Piles and drilled piers

s-fndn-rbar	Foundation Reinforcing
s-slab	**Slab**
s-slab-edge	Edge of slab
s-slab-rbar	Slab reinforcing
s-slab-join	Slab control joints
s-ablt	**Anchor bolts**
s-cols	**Columns**
s-wall	**Structural bearing or shear wall**
s-metl	**Miscellaneous metal**
s-fram	**Framing plan (beams, joist)**
s-fram-beam	Beams
s-fram-jois	Joist
s-fram-deck	Structural floor deck
s-elev	**Elevations**
s-elev-otln	Building outlines
s-elev-patt	Textures and hatch patterns
s-elev-iden	Identification numbers
s-sect	**Sections**
s-sect-mcut	Material cut by section
s-sect-mbnd	Material beyond section cut
s-sect-iden	Indentification numbers
s-detl	**Details**
s-detl-mcut	Material cut by section
s-detl-mbnd	Material beyond section cut
s-detl-patt	Textures and hatch patterns
s-detl-iden	Identification numbers
s-shbd	**Sheet border and title block line work**
s-shbd-ttlb	Project title plock and project name
s-shbd-logo	Project or office logo
s-pfnd	**Foundation plan**
s-psfr	Structural framing plan
s-pcol	Column plan
s-p***	Other structural plans
s-schd	Schedules and title block sheets

Mechanical:

m-cont	**Controls and instrumentation**
m-cont-ther	Thermostats
m-cont-wire	Low voltage wiring

m-dust	**Dust and fume collection system**
m-dust-eqpm	Dust and fume collection equipment
m-dust-duct	Dust and fume duct work
m-ener	**Energy management system**
m-ener-eqpm	Energy management equipment
m-ener-wire	Energy management wiring
m-exhs	**Exhaust system**
m-exhs-eqpm	Exhaust equipment equipment
m-exhs-duct	Exhaust system ductwork
m-exhs-rfeq	Rooftop exhaust equipment
m-hvac	**HVAC systems**
m-hvac-cdff	HVAC ceiling diffusers
m-hvac-odff	HVAC other diffusers
m-hvac-duct	HVAC ductwork
m-hvac-eqpm	HVAC equipment
m-hotw	**Hot water heating system**
m-hotw-eqpm	Hot water equipment
m-hotw-pipe	Hot water piping
m-cwtr	**Chilled water systems**
c-cwtr-pipe	Chilled water piping
c-cwtr-eqpm	Chilled water equipment
m-refg	**Refrigeration systems**
m-refg-eqpm	Refrigeration equipment
m-refg-pipe	Refrigeration piping
m-spcl	**Special systems**
m-spcl-eqpm	Special systems equipment
m-spcl-pipe	Special systems piping
m-test	**Test equipment**
m-elev	**Elevations**
m-elev-otln	Building outlines
m-elev-patt	Textures and hatch patterns
m-elev-iden	Identification numbers
m-sect	**Sections**
m-sect-mcut	Material cut by section
m-sect-mbnd	Material beyond section cut

m-sect-patt	Textures and hatch patterns
m-sect-iden	identification numbers

m-detl	**Details**
m-detl-mcut	Material cut by section
m-detl-mbnd	Material beyond section cut
m-detl-patt	Textures and hatch patterns
m-detl-iden	Identification numbers

m-shbd	**Sheet border and title block line work**
m-shbd-ttbl	Project title block and project name
m-shbd-logo	Project or office logo

m-ppip	**Piping plan**
m-pduc	Duct plan
m-pexd	Exhaust duct plan
m-phva	HVAC plan
m-pstm	Steam piping plan
m-pwch	Chilled water piping plan

Plumbing:

p-domw	**Domestic hot and cold water systems**
p-domw-eqpm	Domestic hot and cold water equipment
p-domw-pipe	Domestic hot and cold water piping
p-domw-risr	Domestic hot and cold water risers

p-sanr	**Sanitary drainage**
p-sanr-pipe	Sanitary piping
p-sanr-fixt	Plumbing fixtures
p-sanr-fldr	Floor drains
p-sanr-risr	Sanitary risers

p-fixt	**Plumbing fixtures**

p-elev	**Elevations**
p-elev-otln	Outline
p-elev-patt	Textures and hatch patterns
p-elev-iden	Identification numbers

p-sect	**Sections**
p-sect-mcut	Material cut by section
p-sect-mbnd	Material beyond section cut
p-sect-patt	Textures and hatch patterns
p-sect-iden	Indentification numbers

p-detl	**Details**
p-detl-mcut	Material cut by section
p-detl-mbnd	Material beyond section cut
p-detl-patt	Textures and hatch patterns
p-detl-iden	Identification numbers
p-shbd	**Sheet border and title block line work**
p-shbd-ttlb	Project title block and project name
p-shbd-logo	Project or office logo
p-pplm	Plumbing plan
p-pdra	Storm Drainage
p-psan	Sanitary drainage plan
p-risr	Plumbing riser diagram
p-schd	Schedules and title block sheets

Fire Protection:

f-co2s	**CO_2 system**
f-haln	**Halon**
f-sprn	**Fire protection sprinkler system**
f-sprn-clhd	Sprinkler head (ceiling)
f-sprn-othd	Sprinkler head (other)
f-sprn-pipe	Sprinkler piping
f-stan	**Fire protection standpipe system**
f-prot	**Fire protection systems**
f-prot-eqpm	Fire system equipment
f-prot-smok	Smoke detectors or heat sensors
f-elev	**Elevations**
f-elev-otln	Building outlines
f-elev-patt	Textures and hatch patterns
f-elev-iden	Identification numbers
f-sect	**Sections**
f-sect-mcut	Material cut by section
f-sect-mbnd	Material beyond section
f-sect-patt	Textures and hatch patterns
f-sect-iden	Identification numbers
f-detl	**Detail**
f-detl-mcut	Material cut by section
f-detl-mbnd	Material beyond section cut
f-detl-patt	Textures and hatch patterns

f-detl-iden   Identification numbers

f-shbd   **Sheet border and title block line work**
f-shbd-ttlb   Project title block and project name
f-shbd-logo   Project or office logo
f-pspr   Sprinkler Plan
f-risr   Sprinkler Riser Diagram
f-pfpe   Fire protection equipment plan

Electrical:

e-lite   **Lighting**
e-lite-spcl   Special lighting
e-lite-emer   Emergency lighting
e-lite-exit   Exit lighting
e-lite-clng   Ceiling mounted lighting
e-lite-wall   Wall mounted lighting
e-lite-flor   Floor mounted lighting
e-lite-otln   Lighting outline for background (optional)
e-lite-numb   Lighting circuit numbers
e-lite-roof   Roof lighting
e-lite-site   Site lighting
e-lite-swch   Lighting switches
e-lite-circ   Lighting circuits
e-lite-iden   Luminaire identification and text

e-powr   **Power**
e-powr-wall   Power wall outlets and receptacles
e-powr-clng   Power ceiling receptacles and devices
e-powr-panl   Power panels
e-powr-eqpm   Power equipment
e-powr-swbd   Power switchboard
e-powr-circ   Power circuits
e-powr-urac   Under floor raceways
e-powr-ucpt   Under carpet witing
e-powr-cabl   Cable trays
e-powr-feed   Feeders
e-powr-busw   Busways
e-powr-numb   Power circuit numbers
e-powr-iden   Power identification and text
e-powr-site   Site power
e-powr-roof   Roof power
e-powr-otln   Power outling for backgrounds

e-ctrl   **Electrical control systems**
e-ctrl-devc   Control system devices
e-ctrl-wire   Control system wiring

e-grnd	**Ground system**
e-grnd-circ	Ground system circuits
e-grnd-refr	Reference ground system
e-grnd-equi	Equipotential ground system
e-grnd-diag	Ground system diagram
e-elev	**Elevations**
e-elev-otln	Building outlines
e-elev-patt	Textures and hatch patterns
e-elev-iden	Identification numbers
e-sect	**Sections**
e-sect-mcut	Material cut by section
e-sect-mbnd	Material beyond section cut
e-sect-patt	Textures and hatch patterns
e-sect-iden	Identification numbers
e-detl	**Details**
e-detl-mcut	Material cut by section
e-detl-mbnd	Material beyond section cut
e-detl-patt	Textures and hatch patterns
e-detl-iden	Identification numbers
e-auxl	**Auxiliary systems**
e-ltng	Lightning protection system
e-fire	Fire alarm and fire extinguishers
e-comm	Telephone and communication outlets
e-data	Data outlets
e-soun	Sound or PA systems
e-tvan	TV antenna system
e-cctv	Closed circuit TV
e-nurs	Nurse call system
e-sert	Security
e-pgng	Paging system
e-dict	Central dictation system
e-bell	Bell system
e-clok	Clock system
e-alrm	Miscellaneous alarm
e-intc	Intercon system
e-shbd	**Sheet border and title block line work**
e-shbd-ttlb	Project title block and project name
e-shbd-logo	Project or office logo
e-plit	Lighting plan
e-ppow	Power plan

e-pcom	Communication systems plan
e-paux	Auxilliary systems plan
e-prof	Electrical roof plan
e-legn	Legend of symbols
e-1lin	One line diagrams
e-risr	Riser diagram
e-schd	Schedules and title block sheets

Civil Engineering and Site Work:

c-prop	**Property lines and survey benchmarks**
c-prop-esmt	Easements, right-of-ways, and setback lines
c-prop-brng	Bearing and distance labels
c-prop-cons	Construction controls
c-topo	**Proposed contours**
c-topo-exst	Existing contour lines and elevations to remain
c-topo-demo	Existing contour lines and elevations to be changed
c-topo-spot	Spot elevations
c-topo-bore	Test borings
c-topo-rtwl	Retaining wall
c-bldg	**Proposed building footprints**
c-bldg-exst	Footprint of existing
c-bldg-demo	Footprint of existing buildings to be demolished
c-pkng	**Parking lots**
c-pkng-strp	Parking lot striping and handicapped symbol
c-pkng-cars	Graphic illustration of cars
c-pkng-isld	Parking islands
c-pkng-exst	Existing parking lot to remain
c-pkng-demo	Existing parking lots to be demolished
c-pkng-dran	Parking lot drainage slope indications
c-road	**Roads**
c-road-cntr	Center lines
c-road-curb	Curbs
c-road-exst	Existing parking road to remain
c-road-demo	Existing road to be demolished
c-strm	**Storm drainage catch basins and manholes**
c-strm-undr	Storm drainage pipe (underground)
c-ectr	**Site electrical, substations and poles**
c-ectr-lite	Site lighting
c-ectr-undr	Underground electrical lines
c-ectr-pole	Electrical poles

c-ectr-ovhd	Overhead lines
c-comm	**Site communications (telephone poles, boxes, towers)**
c-comm-under	Underground communication lines
c-comm-ovhd	Overhead communication lines
c-watr	**Domestic water (manholes, pumping stations storage tanks)**
c-watr-undr	Domestic water (underground lines)
c-fire	**Fire protection hydrants and connections**
c-fire-undr	Fire protection (underground lines)
c-ngas	**Natural gas manholes, meters and storage tanks**
c-ngas-undr	Natural gas (underground lines)
c-sswr	**Sanitary sewer (manholes, pumping stations)**
c-sswr-undr	Sanitary sewer (underground lines)
c-elev	**Elevations**
c-elev-otln	Building outlines
c-elev-patt	Textures and hatch patterns
c-elev-iden	Identification numbers
c-sect	**Sections**
c-sect-mcut	Material cut by section
c-sect-mbnd	Material beyond section cut
c-sect-patt	Textures and hatch patterns
c-sect-iden	Identification numbers
c-detl	**Details**
c-detl-mcut	Material cut by section
c-detl-mbnd	Material beyond section cut
c-detl-patt	Textures & hatch patterns
c-detl-iden	Identification numbers
c-shbd	**Sheet border and title block line work**
c-shbd-ttlb	Project title block and project name
c-shbd-logo	Project or office logo
c-psit	Site plan
c-pelc	Site electrical systems plan
c-putl	Site utility plan
c-pgrd	Grading plan
c-ppav	Paving plan
c-p***	Other site, landscape, or civil plans
c-schd	Schedules and title block sheet.

Landscape Architecture:

l-plnt	**Plant and landscape materials**
l-plnt-tree	New trees
l-plnt-txst	Existing trees to remain
l-plnt-tdmo	Existing trees to be removed
l-plnt-grnd	Grounds cover and vines
l-plnt-beds	Rock, bark, and other landscaping beds
l-plnt-turf	Lawn areas
l-plnt-plan	Schematic planting plans
l-irrg	**Irrigation system**
l-irrg-spkl	Irrigation sprinklers
l-irrg-pipe	Irrigation piping
l-irrg-eqpt	Irrigation equipment
l-irrg-covr	Irrigation coverage
l-walk	**Walks and steps**
l-walk-patt	Walks and steps cross hatch patterns
l-site	**Site improvements**
l-site-fenc	Fencing
l-site-wall	Walls
l-site-step	Steps
l-site-deck	Decks
l-site-brdg	Bridges
l-site-pool	Pools and spas
l-site-sprt	Sports fields
l-site-play	Play structures
l-site-furn	Site furnishings
l-elev	**Elevations**
l-elev-otln	Building outlines
l-elev-patt	Textures and hatch patterns
l-elev-iden	Identification numbers
l-sect	**Sections**
l-sect-mcut	Material cut by section
l-sect-mbnd	Material beyond section cut
l-sect-patt	Textures and hatch patterns
l-sect-iden	Identification numbers
l-detl	**Details**
l-detl-mcut	Material cut by section
l-detl-mbnd	Material beyond section cut
l-detl-patt	Textures and hatch patterns
l-detl-iden	Identification numbers

Typical modifiers, for further differentiation of minor groups:

*-****-note	Notes, call-outs and key notes
*-****-text	General notes and specifictions
*-****-symb	Symbols, bubbles and targets
*-****-dims	Dimensions
*-****-patt	Cross hatching and poche
*-****-ttlb	Title block sheet name and number
*-****-nplt	Nonplot information and construction line
*-****-plot	Plotting targets and windows
*-****-elev	Elevations
*-****-exst	Previously existing