

AEC (UK) CAD Standard

*A practical & pragmatic standard for the Architectural,
Engineering and Construction industry in the UK.*

Version 3.0.1 August 2011

Revised for updated Uniclass
conventions & BS1192:2007
compliance

AEC (UK) CAD Standard

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Contents

Background.....	2
The Committee	3
Committee Members	3
Disclaimer	4
Scope.....	5
The Layer Naming Standard.....	6
Field 1: Role.....	7
Field 2: Classification	9
Field 2: Classifications (Spaces).....	10
Field 2: Classifications (Elements for Buildings).....	12
Field 2: Classifications (Computer Aided Design)	22
Field 3: Presentation.....	25
Field 4: User Description.....	26
Field 5: View	27
Examples	28
Alphabetical Index	29
Spaces (Table F)	30
Elements for Buildings (Table G).....	32
Computer Aided Draughting (Table Z).....	42

Background

The AEC (UK) CAD Standards Initiative was formed in 2000 to improve the process of design information production, management and exchange. Initially the initiative addressed CAD layering conventions as the primary concern for users of design data. As design needs and technology has developed, the initiative has expanded to cover other aspects of design data production and information exchange.

The committee was re-formed in 2009, including new members from companies and consultancies highly experienced in BIM software and implementation, to address the growing need within the UK AEC industry for a unified, practical & pragmatic integrated CAD and BIM standard in a design environment.

The AEC (UK) CAD Standard Basic Layer Code was originally released in 2001, with an Advanced Code released in 2002. The Advanced code is now withdrawn with the release of this update.

The Committee

The group has representatives from architectural, engineering and construction companies in the UK, large and small, hence the adoption of the AEC (UK) moniker. The BIM committee is working together to realise a unified, usable, co-ordinated approach to Building Information Modelling in a design environment.

Committee Members

Nigel Davies (<i>Committee Chair</i>)	Evolve Consultancy
Chris Seymour-Smith (<i>Bentley Sub-Group Chair</i>)	Nightingale Associates
Paul Woddy (<i>Revit Sub-Group Chair</i>)	Revit Guru
Andrew Coombes	Hampshire County Council
David Light	HOK
Gavin Skidmore	Mott MacDonald
Ian John	BDP
Joe Stott	Aedas Architects
Michael Bartyzel	Buro Happold
Ray Purvis	Atkins Global
Stephen Holmes	Foster & Partners
Steve Wright	Ramboll UK

For full contact details and further information on the committee, please refer to www.aec-uk.org.

Disclaimer

All the advice outlined in this document is for information only. The authors and contributing companies take no responsibility for the utilisation of these procedures and guidelines. Their suitability should be considered carefully before embarking upon any integration into your current working practices.

Scope

The AEC (UK) CAD Standard builds on procedures and methodologies from a broad consensus of experienced users from all disciplines, as well as consultants, who represent the leading consulting engineering and architectural organisations in the UK, to address industry best practice irrespective of software platform, in addition to guidelines defined by world-wide standardisation initiatives, with close alignment to BS1192:2007.

In particular, this standard expands upon the principles defined within the recently updated Uniclass conventions and requests driven by the AEC (UK) CAD Standard use in the workplace.

The AEC (UK) CAD Standard aims to build on the guidelines defined in BS1192:2007, and the complimentary AEC (UK) BIM Standards, providing a base starting point for a unified CAD & BIM standard that can easily be adopted “as is” or developed and adapted for implementation within companies that have specific requirements for the structuring of their CAD data. This document provides CAD platform-independent guidelines for layer naming.

Copyright Notice:

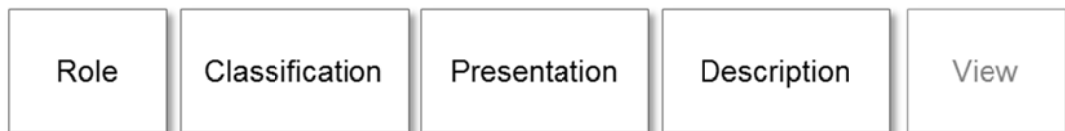
It is important to note that this standard will only become truly useful if as many companies adopt it as possible. To that extent, it may be freely distributed and used in any format necessary.

The Layer Naming Standard

Layers are used in CAD files to logically “group” sets of similar elements in much the same way that file dividers are used to separate logical groups of documents in a traditional filing cabinet. When grouping elements in this manner, it is imperative that the groups can be identified quickly and easily by anyone who needs to access or use the information. This means that the layer names should conform to some kind of standard naming convention so that everyone always knows where to look for the information they require. This is so important that a British Standard, BS1192:2007, was created to “communicate, re-use, and share data efficiently without loss, contradiction or misinterpretation”.

Layer naming should be common throughout all types of CAD data. It should not differ for 2D or 3D elements – that is picked up by the filename.

The AEC (UK) Standard provides five fields to classify a layer based on the conventions outlined in BS1192:2007 for container naming within a file. Viewed complete, it provides a unique reference to a logical collection of CAD elements:



Field 1: Role (1-2 char, required)

The AEC (UK) adopts this field but expanding it to 2 characters in line with ISO13567. Additional standard disciplines have been added that are missing from BS1192:2007.

This is done from a simple list of single or double character codes (refer to the “Field 1: Role” section, page 7).

Field 2: Classification (2+ char, required)

This is the critical field for identification on the content of the layer. The actual code value is taken from the Uniclass system, tables F, G and Z. H is omitted in this version of the standard until the Uniclass convention is expanded and agreed.

Additional codes may be used from table P where materials need to be defined.

Single classification codes only should be used. These are listed on pages 9 – 25.

Field 3: Presentation (1 char, required)

The adoption of this field is revised from earlier versions of the AEC (UK) CAD Standard to comply with BS1192:2007. Refer to page 25.

The above are mandatory in BS1192, the following are optional:

Field 4: Description (variable length, required)

The Description field is adopted but is developed to include standard descriptions not included in BS1192:2007. Guidelines are provided on page 26.

Field 5: View (3 char, optional)

Not provided in BS1192:2007, the optional View suffix defines how the CAD element is viewed. I.e. whether it is shown in elevation, section or hidden. Definitions are listed on page 27.

Field 1: Role

The letters A to Z define the author, or owner, of the data. This allows various disciplines to use the same Classification codes.

<i>Code</i>	<i>Description</i>
A	Architect
AL	Landscape Architects
B	Building Surveyors
C	Civil Engineers
CB	Bridge Engineers
CD	Drainage, Sewage & Road Engineers
CW	Water/Dam Engineers
D	Spare
E	Electrical Engineers
F	Facilities Managers
G	GIS Engineers & Land Surveyors
GA	Aerial Surveyors
H	Heating and Ventilation Engineers
I	Interior Designers
J	Telecommunications
K	Client
L	Lift Engineers
M	Mechanical Engineers
ME	Combined Services
N	Spare
P	Public Health Engineers
Q	Quantity Surveyors
R	Railways
RS	Railways Signalling
RT	Railways Track

Version 3.0

S	Structural Engineers
SF	Façade Engineers
SR	Reinforcement Detailers
T	Town & Country Planners
U	Spare
V	Spare
W	Contractors
X	Sub-Contractors
Y	Specialist Designers
YA	Acoustic Engineers
YE	Environmental Engineers
YF	Fire Engineers
YL	Lighting Engineers (Non-Building Services)
Z	General (Non-Disciplinary)

Field 2: Classification

The Classification code describes the building component and is the most important field.

It uses a single Uniclass value.

The tables below provide recommended classifications and Descriptions for major Uniclass classifications. For full listings of Uniclass codes refer to the CPIC website

<http://www.cpic.org.uk/en/publications/uniclass-listing.cfm>.

Notes

Where the exact type of element is not known or not required, a general code should be used in preference to the exact type. e.g. G25 for Walls, as opposed to G2514 for Walls External Glazed or Curtain walls.

Uniclass provides classifications for certain building components based on whether it is internal or external. In certain cases this may be counter-productive to a CAD layering system. Where internal/external is not required it is recommended the Uniclass value for the location be replaced with 0.

e.g. G2513 = Walls External Reinforced concrete
G2523 = Walls Internal Reinforced concrete
G2503 = Walls Reinforced concrete

Field 2: Classifications (Spaces)

Code	Description	Layer Description (Field 4)
F1	Compound spaces of buildings	Space
F11	Semi-independent parts of a building - blocks	SpaceBlock
F12	Vertically divided parts of buildings	SpaceVertical
F121	Wings	SpaceWing
F122	Bays	SpaceBay
F123	Core	SpaceCore
F13	Horizontally divided parts of buildings - storeys	SpaceStorey
F19	Other compound spaces - zones	Zone
F2	Rooms	Room
F3	Circulation spaces	Circulation
F4	Building sub-spaces	SubSpace
F5	Internal spaces of buildings	SpaceInternal
F6	External spaces of buildings	SpaceExternal
F7	Building spaces by degree and type of enclosure	SpaceEnclosure
F8	Miscellaneous spaces - other spaces	SpaceMiscellaneous
F81	Fire compartments	SpaceFire
F82	Protected space	SpaceProtected
F83	Private space	SpacePrivate
F84	Public space	SpacePublic
F85	Danger area	SpaceDanger
F89	Other spaces	SpaceOther
F9	Building space analysed	SpaceAnalysed
F91	Building space analysed according to ISO 9836:1992	SpaceISO9836
F911	Usable area	SpaceUsable

Version 3.0

F912	Circulation area	SpaceCirculation
F913	Services area	SpaceServices
F914	Structural element area	SpaceStructural
F919	Gross area	SpaceGIA
F92	Building space analysed according to RICS and ISVA Code of measuring practice	SpaceRICS
F921	Net Internal Area	SpaceNIA

Field 2: Classifications (Elements for Buildings)

Code	Description	Layer Description (Field 4)
G1	Site Preparation	SitePreparation
G11	Site Clearance	SiteClearance
G12	Site Preparation Ground Contouring	SiteContouring
G13	Stabilisation	SiteStabilisation
G2	Fabric: Complete Elements	Building
G21	Foundations	Foundation
G214	Foundations Pile Caps	Pilecap
G215	Foundations Piles	Pile
G22	Floors	Floor
G22	Slabs	Slab
G23	Stairs	Stair
G23	Balustrades	Balustrade
G24	Roofs	Roof
G25	Walls	Wall
G251	Walls External	Wall External
G2511	Walls External Brick	WallsExternalBrick
G2512	Walls External Block	WallsExternalBlock
G2513	Walls External Reinforced Concrete	WallsExternalRC
G2514	Walls External Glazed	WallsExternalGlazed
G252	Walls Internal	WallsInternal
G2521	Walls Internal Brick	WallsInternalBrick
G2522	Walls Internal Block	WallsInternalBlock
G2523	Walls Internal Reinforced Concrete	WallsInternalRC
G2524	Walls Internal Glazed	WallsInternalGlazed
G253	Walls Retaining	WallsRetaining
G2532	Walls Retaining Reinforced Concrete	WallsRetainingRC

G26	Frame/Isolated Structural Members	StrucFrame
G261	Beams	Beam
G2611	Beams Reinforced Concrete	BeamRC
G2612	Beams Precast Concrete	BeamPrecast
G2613	Beams Steel	BeamSteel
G262	Columns	Column
G2621	Columns Reinforced Concrete	ColumnRC
G2622	Columns Precast Concrete	ColumnPrecast
G2623	Columns Steel	ColumnSteel
G3	Fabric: Parts Of Elements	FabricPart
G31	Carcass/Structure/Fabric	FabricCarcass
G311	Core Fabric	FabricCore
G312	Coverings/External Finishes	ExternalFinish
G32	Openings	Opening
G321	Windows	Window
G322	Doors	Door
G33	Internal Finishes	InternalFinish
G331	Internal Finishes Floor	InternalFinishFloor
G3311	Floor Finishes - Direct	InternalFinishFloorDirect
G3312	Floor Finishes - Raised	InternalFinishFloorRaised
G332	Internal Finishes Ceilings Or Soffit	Ceiling
G332	Internal Finishes Ceilings Or Soffit	Soffit
G3321	Ceilings/Soffit Finishes - Direct	CeilingFinishDirect
G3322	Ceilings/Soffit Finishes - Suspended	CeilingFinishSuspended
G333	Internal Finishes Wall	WallInternalFinish
G334	Other Internal Finishes	InternalFinishOther
G34	Other Parts Of Fabric Elements	FabricPartOther
G4	Fittings/Furniture/Equipment (FFE)	Fitting
G4	Fittings/Furniture/Equipment (FFE)	Furniture

G41	Circulation FFE	FittingCirculation
G42	Rest - Work FFE	FittingFurniture
G43	Culinary FFE	FittingCulinary
G44	Sanitary - Hygiene FFE	FittingSanitary
G45	Cleaning - Maintenance FFE	FittingCleaning
G46	Storage - Screening FFE	FittingStorage
G47	Works Of Art - Soft Furnishings	FurnitureArtSoft
G471	Works Of Art	FittingArt
G472	Soft Furnishings	FurnitureSoft
G48	Special Activity FFE	FittingSpecial (use custom description)
G49	Other FFE	FittingOther (use custom description)
G5	Services: Complete Elements	Services
G50	Water Supply	WaterSupply
G501	Cold Water	ColdWater
G502	Hot Water	HotWater
G503	Bore Hole	BoreHole
G504	Water Reclamation	WaterReclamation
G509	For Special Activity	WaterSpecial
G51	Gas And Liquid Fuel Supply	Gas
G511	Gas Supply	GasSupply
G512	Fuel Supply	FuelSupply
G513	Steam Supply	SteamSupply
G52	Heating - Ventilation And Air Conditioning	HVAC
G521	Heating	Heating
G522	Heating And Cooling	HeatingCooling
G5221	Heat Pump	HeatPump
G5222	Variable Refrigerant Flow	Refrigerant
G5223	Underfloor Heating And Cooling	HeatingCoolingUnderfloor

G523	Air Conditioning	AirCon
G5231	Air Conditioning	AirCon
G5232	Chilled Water	WaterChilled
G5233	Climatic Ceiling And Beam	Climatic
G5236	Untinterruptible Power	PowerUninterruptable
G524	Ventilation	Ventilation
G5241	Supply And Extract Ventilation	VentilationSupply
G52411	Smoke And Heat Control	HeatControl
G5242	Extract Ventilation	VentilationExtract
G52421	Washroom Ventilation	VentilationSanitary
G52422	Kitchen Ventilation	VentilationKitchen
G52423	Car Parking Ventilation	VentilationCarpark
G529	For Special Activity	Special (use custom description)
G5291	Cold Room	ColdRoom
G5292	Ice Pad	IcePad
G5293	Dust Collection Systems	Dust
G5294	Safety Cabinet And Fume Cupboard Extract Systems	SafetyExtract
G5295	Industrial Fume Extract Systems	FumeExtract
G53	Electric Power	Electric
G531	Electricity Supply	ElectricSupply
G5311	High Voltage	ElectricHV
G5312	Low Voltage	ElectricLV
G5313	Generator	Generator
G5314	Wind Power	PowerWind
G5315	Photovoltaic	Photovoltaic
G532	Distribution	PowerDistribution
G5321	High Voltage	PowerDistributionHV
G5322	Low Voltage	PowerDistributionLV

G5323	Small Power	PowerDistributionSmall
G5324	Extra Low Voltage Power	PowerDistributionELV
G5325	Direct Current Power	PowerDistributionDC
G539	For Special Activity	Special (use custom description)
G54	Lighting	Lighting
G541	General Lighting	LightingGeneral
G5411	Internal Lighting	LightingInternal
G5412	External Lighting	LightingExternal
G542	Emergency Lighting	LightingEmergency
G55	Communications	Communications
G551	Public Address	PublicAddress
G5511	Voice	Voice
G552	Visual Display	VisualDisplay
G553	Radio	Radio
G554	Audio Visual	AudioVisual
G5541	Television	Television
G5542	Presentation And Conferencing	Conference
G555	Telecommunications	Telecommunications
G5551	Telephones	Telephones
G556	Data Networks	Data
G5561	Computer Network	Network
G559	For Special Activity	Special (use custom description)
G5591	Induction Loop	InductionLoop
G5592	Infra Red	InfraRed
G5593	Sound Field	SoundField
G56	Transport Systems	Transport
G561	Lifts/Hoists	Lift
G562	Escalators	Escalator

G5622	Travelators	Travelator
G563	Conveyors	Conveyor
G564	Travelling Cradles	Cradle
G57	Fire - Security And Protection	Fire
G571	Security	Security
G5711	Access Control Systems	Access
G5712	Intruder Detection And Alarm Systems	Intruder
G5713	Closed Circuit Television Systems	CCTV
G5714	Detection Arch Systems	Detection
G572	Fire	Fire
G5721	Fire/Smoke Alarms	FireAlarm
G5722	Fire Fighting	FireFighting
G57221	Fire Hose	FireHose
G57222	Fire Hydrant	FireHydrant
G57223	Dry Riser	RiserDry
G57224	Wet Riser	RiserWet
G57225	Sprinkler Fire-Extinguishing	FireSprinkler
G57226	Deluge Fire-Extinguishing	FireDeluge
G57227	Water Mist Fire-Extinguishing	FireWater
G57228	Gaseous Fire-Extinguishing	FireGas
G57229	Foam Fire Fighting`	FireFoam
G5723	Smoke Extraction/Control Installations	SmokeExtraction
G573	Other Protection	ProtectionOther
G5731	Lightning Protection	Lightning
G5732	Cathodic Protection	Cathodic
G574	Safety	Safety
G5741	Detection	Detection
G57411	Gas Detection	DetectionGas
G57412	Water Leak Detection	DetectionWater

G5742	Communcations	Communcations
G57421	Evacuation	Evacuation
G57422	Assistance Call	CallAssistance
G57423	Incident Call	CallIncident
G57424	Nurse Call	CallNurse
G58	Disposal Systems	Disposal
G581	Drainage	Drainage
G5811	Foul Drainage	DrainageFoul
G5812	Surface Water Drainage	DrainageSurfaceWater
G582	Refuse Disposal	Refuse
G59	Other Services Elements	ServiceOther
G6	Services: Parts Of Elements	ServicesPart
G61	Source (Energy Generation/Storage/Conversion)	Energy
G611	Heat Output	Heat
G6111	Heat Generation	HeatGenerator
G6112	Heat Conversion	HeatConversion
G612	Electricity Output	ElectricOutput
G6121	Electricity Generation	ElectricGenerator
G6122	Electricity Conversion	ElectricConversion
G61221	Transformers	Transformer
G61222	Converters	Converter
G613	Cooling Output	Cooling
G6131	Refrigeration Plant	Refrigeration
G6132	Heat Pumps	HeatPump
G614	Combined Heat/Power/Cooling	HeatPowerCooling
G6141	Combined Heat/Power/Cooling Plant	HeatPowerCoolingPlant
G62	Non-Energy Treatment/Storage	NonEnergy
G621	Tanks	Tank

G6211	Water Tanks	TankWater
G6212	Gas Tanks	TankGas
G6213	Fuel Tanks	TankFuel
G63	Distribution	Distribution
G631	Ductwork	Ductwork
G632	Pipework	Pipework
G6321	Water	Water
G6322	Gas	Gas
G6323	Fuel	Fuel
G633	Cables And Cable Containment	Cable
G6331	Cables	Cable
G6332	Conduit	Conduit
G6333	Trunking	Trunking
G6334	Cable Tray	CableTray
G634	Pumps	Pumps
G635	Fans	Fans
G64	Terminals	Terminals
G641	Heat Emitters	HeatEmitters
G6411	Radiators	Radiators
G6412	Fan Convectors	FanConvectors
G6413	Natural Convectors	NaturalConvectors
G6414	Radiant Panels	RadiantPanels
G6415	Unit Heaters	UnitHeaters
G642	Supply And Extract Ventilation	Ventilation
G6421	Grilles	Grilles
G6422	Diffusers	Diffusers
G6423	Louvres	Louvres
G643	Electrical	Electrical
G6431	Luminaires	Luminaires

G6432	Power Outlets	PowerOutlets
G6433	Switches	Switches
G65	Package Units	PackageUnits
G66	Monitoring And Control	Monitor
G661	Control Systems	Control
G662	Monitoring Systems	Montor
G663	Building Management Systems	BMS
G69	Other Parts Of Services Elements	ServicesPartOther
G7	External/Site Works	Site
G71	Surface Treatment	SurfaceTreatment
G711	Hard Surfaces	HardSurfaces
G712	External Works Surface Treatment Landscaping	Landscaping
G72	Enclosure/Division	Division
G721	External Works Fencing And Walling And Hedges	Fence
G722	Retaining Walls	WallRetaining
G73	Special Purpose Works	Special (use custom description)
G731	Water Features - Pools	Pool
G732	Shelters And Minor Buildings	Shelter
G733	Bridges - Underpasses	Bridge
G739	Other	Other (use custom description) (use custom description)
G74	Fittings/Furniture/Equipment	ExternalFittings
G75	Mains Supply	MainsSupply
G751	Water Mains	MainsWater
G752	Fire Mains	MainsFire
G753	Hot Water/Steam Mains	MainsSteam
G754	Gas Mains	MainsGas
G755	Electric Mains	MainsElectric

Version 3.0

G756	Communications Cable Mains	MainsCable
G76	External Distributed Services	MainsServices
G761	Lighting	SiteLighting
G762	Other	Other (use custom description) (use custom description)
G77	Site/Underground Drainage	SiteDrainageUnderground

Field 2: Classifications (Computer Aided Design)

The AEC (UK) classifications below expand and revise Uniclass Table Z (originally adopted from the AEC (UK) documentation), providing a more structured provision specifically for non-physical, CAD-based elements.

Code	Description	Layer Description (Field 4)
Z1	Title sheet	Title
Z11	Drawing border	Border
Z111	Outlines	Outline
Z112	Title annotation	TitleAnnotation
Z12	Status stamps	Status
Z13	Revisions	Revision
Z132	Revision annotation	RevisionAnnotation
Z133	Revision clouds	RevisionCloud
Z14	Hold clouds and notation	HoldCloud
Z2	Annotation	Annotation
Z21	Drawing-specific annotation	DrawingAnnotation
Z22	General annotation	Annotation
Z221	General text	Text
Z2211	Tags	Tag
Z2212	Labels	Label
Z2213	References	Reference
Z22131	Room references	RoomReference
Z22132	Door references	DoorReference
Z22133	Window references	WindowReference
Z222	General notes	Note
Z223	Keynoting	Keynote
Z224	Legends	Legend
Z225	Cross references	CrossReference
Z226	Key plan	Keyplan
Z227	Scale bars	Scale

Z23	Dimensions	Dimension
Z3	Insertions	Insertion
Z31	External references	Xref
Z33	Tables and schedules	Table
Z34	Images	Image
Z4	Setting out	SettingOut
Z41	Points	Point
Z411	North point	North
Z412	Setting out points	SOP
Z413	Survey control points	Survey
Z4131	OS trigonometrical station	OSStation
Z4132	Site survey control station	SurveyStation
Z4133	OS bench mark	OSBenchMark
Z4134	Site bench mark	SiteBenchMark
Z4135	Spot heights	SpotHeight
Z42	Gridlines	Grid
Z421	Structural grid	GridStructural
Z4212	Secondary structural grid	GridStructuralSecondary
Z422	Ceiling grids	GridCeiling
Z423	Survey grids	GridSurvey
Z4231	OS grids	GridOS
Z45	Alignments and super elevations	Alignment
Z451	Horizontal alignment	AlignmentHorizontal
Z452	Vertical alignment	AlignmentVertical
Z453	Super elevation	SuperElevation
Z46	Zones and boundaries	
Z461	Zones	Zone
Z462	Boundaries	Boundary
Z463	Parcels	Parcel

Z464	Lots	Lot
Z5	Symbols	Symbol
Z51	Levels	Level
Z52	Markers	Marker
Z521	Section marks	SectionMark
Z522	Break marks	Breakline
Z523	Span direction markers	Span
Z524	Void and opening markers	Void
Z53	Detail call ups	Detail
Z54	Match lines	Matchline
Z55	Fall indicators	Fall
Z56	Joint lines	Joint
Z561	Construction joints	JointConstruction
Z562	Contraction joints	JointContraction
Z563	Expansion joints	JointExpansion
Z7	Presentation	Presentation
Z71	Vehicles	Vehicle
Z72	People	People
Z73	Trees and planting	Tree
Z74	Hatching	Hatch
Z241	Hatch boundaries	Outline
Z75	Area fill	Area
Z751	Wipeouts / Masks	Wipeout
Z76	Pattern	Pattern
Z8	Readme and non-plotting	NonPlot
Z81	Construction lines	Construction
Z82	Readme	Readme
Z83	External reference information	XRefInfo
Z84	Drawing viewports / clip boundaries	Viewport

Field 3: Presentation

Presentation indicates the type of CAD data associated with the layer.

Code	Description
D	Dimensions
H	Hatching, Shading, Fill, Patterning
M	Model-related elements
P	Paper-related elements
T	Text

Field 4: User Description

Used to describe any part of the previous fields or any other aspect of the CAD data. Usually used as an English text string to clarify the Element codes used in Field 2. It is advised to use "CamelCase" (i.e. each word begins with a single capital, the remainder in lowercase and any words are concatenated without spaces) for clarity and comprehension.

It is recommended that only singular descriptions are used for consistency.

e.g. Wall instead of Walls, Lift instead of Lifts, DataNetwork instead of DataNetworks

Where Uniclass does not provide a classification, additional layers can be created using the generic Uniclass value and a unique description field.

e.g. For Curtain Walls, use a Classification of G2514 (Wall External Glazed) with a Description of WallCurtain

For Cladding, use a Classification of G312 (External Finish) with a Description of Cladding.

Field 5: View

Common to many practices, and added as part of the User Description field, although not covered in BS1192:2007, the optional View field allows a CAD user to define whether the elements are shown as cut (as a wall in section or a column in plan), forward (as a window in elevation), hidden (as beams below a slab) or reflected (as anything shown behind the direction of view, such as any part of a reflected ceiling plan).

This can be especially useful when defining layers of varying properties for 2D views from 3D models.

Code	Description
Cut	Information lying on the cut line. e.g. walls in plan or floors in a section.
Fwd	Elements viewed forward of the section cut line. e.g. a kerb edge or floor outline in plan; walls in an elevation.
Hid	Elements hidden from view by another object, but still shown. e.g. a structural beam below a floor or buried drainage runs.
Rfl	Reflected information above the section cut line. e.g. ceiling layouts.

Examples

To help clarify the use of these conventions, the examples below demonstrate some applications of the Basic Convention to everyday items:

Layer Name	Description
A-G22-M-Floor-Fwd	An architect's floor outline (optional: in plan)
S-G22-M-Floor-Fwd	A structural engineer's floor outline (in plan)
S-G22-M-Floor-Cut	A structural engineer's floor outline (in section)
A-G5411-M-LightingInternal-Rfl	Architectural ceiling light (in a reflected plan)
E-G5411-M-LightingInternal-Fwd	An electrical engineer's ceiling light (in plan)
I-G42-M-FittingFurniture-Fwd or I-G42-M-Desk-Fwd	A desk (in plan)
M-G52-M-HVAC-Fwd	A mechanical engineer's HVAC duct (in plan)
M-G52-M-HVAC-Cut	A mechanical engineer's HVAC duct (in section)
C-G77-M-SiteDrng-Fwd	Civil engineering drainage (in plan)
A-Z221-T-Text	An architect's text layer
YA-Z23-D-Dimension	Acoustic engineering dimension layer

Version 3.0

Alphabetical Index

Spaces (Table F)

Description	Layer Description (Field 4)	Code
Bays	SpaceBay	F122
Building space analysed	SpaceAnalysed	F9
Building space analysed according to ISO 9836:1992	SpaceISO9836	F91
Building space analysed according to RICS and ISVA Code of measuring practice	SpaceRICS	F92
Building spaces by degree and type of enclosure	SpaceEnclosure	F7
Building sub-spaces	SubSpace	F4
Circulation area	SpaceCirculation	F912
Circulation spaces	Circulation	F3
Compound spaces of buildings	Space	F1
Core	SpaceCore	F123
Danger area	SpaceDanger	F85
External spaces of buildings	SpaceExternal	F6
Fire compartments	SpaceFire	F81
Gross area	SpaceGIA	F919
Horizontally divided parts of buildings - storeys	SpaceStorey	F13
Internal spaces of buildings	SpaceInternal	F5
Miscellaneous spaces - other spaces	SpaceMiscellaneous	F8
Net Internal Area	SpaceNIA	F921
Other compound spaces - zones	Zone	F19
Other spaces	SpaceOther	F89
Private space	SpacePrivate	F83
Protected space	SpaceProtected	F82
Public space	SpacePublic	F84
Rooms	Room	F2
Semi-independent parts of a building - blocks	SpaceBlock	F11

Version 3.0

Services area	SpaceServices	F913
Structural element area	SpaceStructural	F914
Usable area	SpaceUsable	F911
Vertically divided parts of buildings	SpaceVertical	F12
Wings	SpaceWing	F121

Elements for Buildings (Table G)

Description	Layer Description (Field 4)	Code
Access Control Systems	Access	G5711
Air Conditioning	AirCon	G523
Air Conditioning	AirCon	G5231
Assistance Call	CallAssistance	G57422
Audio Visual	AudioVisual	G554
Balustrades	Balustrade	G23
Beams	Beam	G261
Beams Precast Concrete	BeamPrecast	G2612
Beams Reinforced Concrete	BeamRC	G2611
Beams Steel	BeamSteel	G2613
Bore Hole	BoreHole	G503
Bridges - Underpasses	Bridge	G733
Building Management Systems	BMS	G663
Cable Tray	CableTray	G6334
Cables	Cable	G6331
Cables And Cable Containment	Cable	G633
Car Parking Ventilation	VentilationCarpark	G52423
Carcass/Structure/Fabric	FabricCarcass	G31
Cathodic Protection	Cathodic	G5732
Ceilings/Soffit Finishes - Direct	CeilingFinishDirect	G3321
Ceilings/Soffit Finishes - Suspended	CeilingFinishSuspended	G3322
Chilled Water	WaterChilled	G5232
Circulation FFE	FittingCirculation	G41
Cleaning - Maintenance FFE	FittingCleaning	G45
Climatic Ceiling And Beam	Climatic	G5233

Closed Circuit Television Systems	CCTV	G5713
Cold Room	ColdRoom	G5291
Cold Water	ColdWater	G501
Columns	Column	G262
Columns Precast Concrete	ColumnPrecast	G2622
Columns Reinforced Concrete	ColumnRC	G2621
Columns Steel	ColumnSteel	G2623
Combined Heat/Power/Cooling	HeatPowerCooling	G614
Combined Heat/Power/Cooling Plant	HeatPowerCoolingPlant	G6141
Communications	Communications	G55
Communications Cable Mains	MainsCable	G756
Communcations	Communcations	G5742
Computer Network	Network	G5561
Conduit	Conduit	G6332
Control Systems	Control	G661
Converters	Converter	G61222
Conveyors	Conveyor	G563
Cooling Output	Cooling	G613
Core Fabric	FabricCore	G311
Coverings/External Finishes	ExternalFinish	G312
Culinary FFE	FittingCulinary	G43
Data Networks	Data	G556
Deluge Fire-Extinguishing	FireDeluge	G57226
Detection	Detection	G5741
Detection Arch Systems	Detection	G5714
Diffusers	Diffusers	G6422
Direct Current Power	PowerDistributionDC	G5325
Disposal Systems	Disposal	G58

Distribution	PowerDistribution	G532
Distribution	Distribution	G63
Doors	Door	G322
Drainage	Drainage	G581
Dry Riser	RiserDry	G57223
Ductwork	Ductwork	G631
Dust Collection Systems	Dust	G5293
Electric Mains	MainsElectric	G755
Electric Power	Electric	G53
Electrical	Electrical	G643
Electricity Conversion	ElectricConversion	G6122
Electricity Generation	ElectricGenerator	G6121
Electricity Output	ElectricOutput	G612
Electricity Supply	ElectricSupply	G531
Emergency Lighting	LightingEmergency	G542
Enclosure/Division	Division	G72
Escalators	Escalator	G562
Evacuation	Evacuation	G57421
External Distributed Services	MainsServices	G76
External Lighting	LightingExternal	G5412
External Works Fencing And Walling And Hedges	Fence	G721
External Works Surface Treatment Landscaping	Landscaping	G712
External/Site Works	Site	G7
Extra Low Voltage Power	PowerDistributionEL V	G5324
Extract Ventilation	VentilationExtract	G5242
Fabric: Complete Elements	Building	G2
Fabric: Parts Of Elements	FabricPart	G3
Fan Convectors	FanConvectors	G6412

Fans	Fans	G635
Fire	Fire	G572
Fire - Security And Protection	Fire	G57
Fire Fighting	FireFighting	G5722
Fire Hose	FireHose	G57221
Fire Hydrant	FireHydrant	G57222
Fire Mains	MainsFire	G752
Fire/Smoke Alarms	FireAlarm	G5721
Fittings/Furniture/Equipment	ExternalFittings	G74
Fittings/Furniture/Equipment (FFE)	Fitting	G4
Fittings/Furniture/Equipment (FFE)	Furniture	G4
Floor Finishes - Direct	InternalFinishFloorDirect	G3311
Floor Finishes - Raised	InternalFinishFloorRaised	G3312
Floors	Floor	G22
Foam Fire Fighting`	FireFoam	G57229
For Special Activity	WaterSpecial	G509
For Special Activity	Special (use custom description)	G529
For Special Activity	Special (use custom description)	G539
For Special Activity	Special (use custom description)	G559
Foul Drainage	DrainageFoul	G5811
Foundations	Foundation	G21
Foundations Pile Caps	Pilecap	G214
Foundations Piles	Pile	G215
Frame/Isolated Structural Members	StrucFrame	G26
Fuel	Fuel	G6323
Fuel Supply	FuelSupply	G512

Fuel Tanks	TankFuel	G6213
Gas	Gas	G6322
Gas And Liquid Fuel Supply	Gas	G51
Gas Detection	DetectionGas	G57411
Gas Mains	MainsGas	G754
Gas Supply	GasSupply	G511
Gas Tanks	TankGas	G6212
Gaseous Fire-Extinguishing	FireGas	G57228
General Lighting	LightingGeneral	G541
Generator	Generator	G5313
Grilles	Grilles	G6421
Hard Surfaces	HardSurfaces	G711
Heat Conversion	HeatConversion	G6112
Heat Emitters	HeatEmitters	G641
Heat Generation	HeatGenerator	G6111
Heat Output	Heat	G611
Heat Pump	HeatPump	G5221
Heat Pumps	HeatPump	G6132
Heating	Heating	G521
Heating - Ventilation And Air Conditioning	HVAC	G52
Heating And Cooling	HeatingCooling	G522
High Voltage	ElectricHV	G5311
High Voltage	PowerDistributionHV	G5321
Hot Water	HotWater	G502
Hot Water/Steam Mains	MainsSteam	G753
Ice Pad	IcePad	G5292
Incident Call	CallIncident	G57423
Induction Loop	InductionLoop	G5591
Industrial Fume Extract Systems	FumeExtract	G5295

Infra Red	InfraRed	G5592
Internal Finishes	InternalFinish	G33
Internal Finishes Ceilings Or Soffit	Ceiling	G332
Internal Finishes Ceilings Or Soffit	Soffit	G332
Internal Finishes Floor	InternalFinishFloor	G331
Internal Finishes Wall	WallInternalFinish	G333
Internal Lighting	LightingInternal	G5411
Intruder Detection And Alarm Systems	Intruder	G5712
Kitchen Ventilation	VentilationKitchen	G52422
Lifts/Hoists	Lift	G561
Lighting	Lighting	G54
Lighting	SiteLighting	G761
Lightning Protection	Lightning	G5731
Louvres	Louvres	G6423
Low Voltage	ElectricLV	G5312
Low Voltage	PowerDistributionLV	G5322
Luminaires	Luminaires	G6431
Mains Supply	MainsSupply	G75
Monitoring And Control	Monitor	G66
Monitoring Systems	Montor	G662
Natural Convectors	NaturalConvectors	G6413
Non-Energy Treatment/Storage	NonEnergy	G62
Nurse Call	CallNurse	G57424
Openings	Opening	G32
Other	Other (use custom description) (use custom description)	G739
Other	Other (use custom description) (use custom description)	G762
Other FFE	FittingOther (use	G49

	custom description)	
Other Internal Finishes	InternalFinishOther	G334
Other Parts Of Fabric Elements	FabricPartOther	G34
Other Parts Of Services Elements	ServicesPartOther	G69
Other Protection	ProtectionOther	G573
Other Services Elements	ServiceOther	G59
Package Units	PackageUnits	G65
Photovoltaic	Photovoltaic	G5315
Pipework	Pipework	G632
Power Outlets	PowerOutlets	G6432
Presentation And Conferencing	Conference	G5542
Public Address	PublicAddress	G551
Pumps	Pumps	G634
Radiant Panels	RadiantPanels	G6414
Radiators	Radiators	G6411
Radio	Radio	G553
Refrigeration Plant	Refrigeration	G6131
Refuse Disposal	Refuse	G582
Rest - Work FFE	FittingFurniture	G42
Retaining Walls	WallRetaining	G722
Roofs	Roof	G24
Safety	Safety	G574
Safety Cabinet And Fume Cupboard Extract Systems	SafetyExtract	G5294
Sanitary - Hygiene FFE	FittingSanitary	G44
Security	Security	G571
Services: Complete Elements	Services	G5
Services: Parts Of Elements	ServicesPart	G6
Shelters And Minor Buildings	Shelter	G732

Site Clearance	SiteClearance	G11
Site Preparation	SitePreparation	G1
Site Preparation Ground Contouring	SiteContouring	G12
Site/Underground Drainage	SiteDrainageUnderground	G77
Slabs	Slab	G22
Small Power	PowerDistributionSmall	G5323
Smoke And Heat Control	HeatControl	G52411
Smoke Extraction/Control Installations	SmokeExtraction	G5723
Soft Furnishings	FurnitureSoft	G472
Sound Field	SoundField	G5593
Source (Energy Generation/Storage/Conversion)	Energy	G61
Special Activity FFE	FittingSpecial (use custom description)	G48
Special Purpose Works	Special (use custom description)	G73
Sprinkler Fire-Extinguishing	FireSprinkler	G57225
Stabilisation	SiteStabilisation	G13
Stairs	Stair	G23
Steam Supply	SteamSupply	G513
Storage - Screening FFE	FittingStorage	G46
Supply And Extract Ventilation	VentilationSupply	G5241
Supply And Extract Ventilation	Ventilation	G642
Surface Treatment	SurfaceTreatment	G71
Surface Water Drainage	DrainageSurfaceWater	G5812
Switches	Switches	G6433
Tanks	Tank	G621
Telecommunications	Telecommunications	G555
Telephones	Telephones	G5551

Television	Television	G5541
Terminals	Terminals	G64
Transformers	Transformer	G61221
Transport Systems	Transport	G56
Travelators	Travelator	G5622
Travelling Cradles	Cradle	G564
Trunking	Trunking	G6333
Underfloor Heating And Cooling	HeatingCoolingUnderfloor	G5223
Unit Heaters	UnitHeaters	G6415
Uninterruptible Power	PowerUninterruptible	G5236
Variable Refrigerant Flow	Refrigerant	G5222
Ventilation	Ventilation	G524
Visual Display	VisualDisplay	G552
Voice	Voice	G5511
Walls	Wall	G25
Walls External	Wall External	G251
Walls External Block	WallsExternalBlock	G2512
Walls External Brick	WallsExternalBrick	G2511
Walls External Glazed	WallsExternalGlazed	G2514
Walls External Reinforced Concrete	WallsExternalRC	G2513
Walls Internal	WallsInternal	G252
Walls Internal Block	WallsInternalBlock	G2522
Walls Internal Brick	WallsInternalBrick	G2521
Walls Internal Glazed	WallsInternalGlazed	G2524
Walls Internal Reinforced Concrete	WallsInternalRC	G2523
Walls Retaining	WallsRetaining	G253
Walls Retaining Reinforced Concrete	WallsRetainingRC	G2532
Washroom Ventilation	VentilationSanitary	G52421

Version 3.0

Water	Water	G6321
Water Features - Pools	Pool	G731
Water Leak Detection	DetectionWater	G57412
Water Mains	MainsWater	G751
Water Mist Fire-Extinguishing	FireWater	G57227
Water Reclamation	WaterReclamation	G504
Water Supply	WaterSupply	G50
Water Tanks	TankWater	G6211
Wet Riser	RiserWet	G57224
Wind Power	PowerWind	G5314
Windows	Window	G321
Works Of Art	FittingArt	G471
Works Of Art - Soft Furnishings	FurnitureArtSoft	G47

Computer Aided Draughting (Table Z)

Description	Layer Description (Field 4)	Code
Alignments and super elevations	Alignment	Z45
Annotation	Annotation	Z2
Area fill	Area	Z75
Boundaries	Boundary	Z462
Break marks	Breakline	Z522
Ceiling grids	GridCeiling	Z422
Construction joints	JointConstruction	Z561
Construction lines	Construction	Z81
Contraction joints	JointContraction	Z562
Cross references	CrossReference	Z225
Detail call ups	Detail	Z53
Dimensions	Dimension	Z23
Door references	DoorReference	Z22132
Drawing border	Border	Z11
Drawing viewports / clip boundaries	Viewport	Z84
Drawing-specific annotation	DrawingAnnotation	Z21
Expansion joints	JointExpansion	Z563
External reference information	XRefInfo	Z83
External references	Xref	Z31
Fall indicators	Fall	Z55
General annotation	Annotation	Z22
General notes	Note	Z222
General text	Text	Z221
Gridlines	Grid	Z42
Hatch boundaries	Outline	Z241
Hatching	Hatch	Z74

Hold clouds and notation	HoldCloud	Z14
Horizontal alignment	AlignmentHorizontal	Z451
Images	Image	Z34
Insertions	Insertion	Z3
Joint lines	Joint	Z56
Key plan	Keyplan	Z226
Keynoting	Keynote	Z223
Labels	Label	Z2212
Legends	Legend	Z224
Levels	Level	Z51
Lots	Lot	Z464
Markers	Marker	Z52
Match lines	Matchline	Z54
North point	North	Z411
OS bench mark	OSBenchMark	Z4133
OS grids	GridOS	Z4231
OS trigonometrical station	OSStation	Z4131
Outlines	Outline	Z111
Parcels	Parcel	Z463
Pattern	Pattern	Z76
People	People	Z72
Points	Point	Z41
Presentation	Presentation	Z7
Readme	Readme	Z82
Readme and non-plotting	NonPlot	Z8
References	Reference	Z2213
Revision annotation	RevisionAnnotation	Z132
Revision clouds	RevisionCloud	Z133
Revisions	Revision	Z13

Version 3.0

Room references	RoomReference	Z22131
Scale bars	Scale	Z227
Secondary structural grid	GridStructuralSecondary	Z4212
Section marks	SectionMark	Z521
Setting out	SettingOut	Z4
Setting out points	SOP	Z412
Site bench mark	SiteBenchMark	Z4134
Site survey control station	SurveyStation	Z4132
Span direction markers	Span	Z523
Spot heights	SpotHeight	Z4135
Status stamps	Status	Z12
Structural grid	GridStructural	Z421
Super elevation	SuperElevation	Z453
Survey control points	Survey	Z413
Survey grids	GridSurvey	Z423
Symbols	Symbol	Z5
Tables and schedules	Table	Z33
Tags	Tag	Z2211
Title annotation	TitleAnnotation	Z112
Title sheet	Title	Z1
Trees and planting	Tree	Z73
Vehicles	Vehicle	Z71
Vertical alignment	AlignmentVertical	Z452
Void and opening markers	Void	Z524
Window references	WindowReference	Z22133
Wipeouts / Masks	Wipeout	Z751
Zones	Zone	Z461
Zones and boundaries	ZoneBoundary	Z46