

Structure Description

- EDIGRAPH Version 1.51 -

Valid from 1st August 2006

Introduction:

Electronic data transfer (order or order response) between retailers and manufacturers not only requires relevant business data (article, quantity, variants etc.), but also graphical information (room description, article positioning) in order to describe the pertinent planning situation.

While business data is described in the "ORDERS" or "ORDRSP" EANCOM formats, the following document specifies the structure of the EDIGRAPH format for transmitting graphical data.

In this context, the informational content of a plan arises from combining the contents of the EANCOM file with that of the corresponding EDIGRAPH file.

Format Definition:

Version:

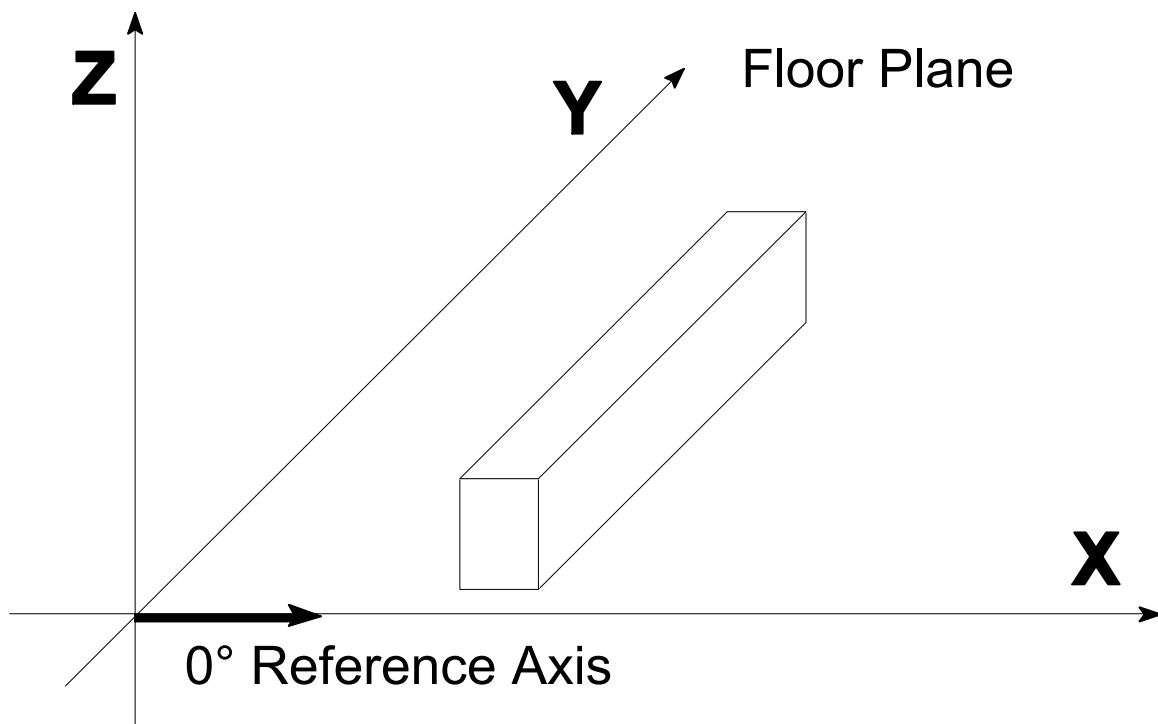
- This is version 1.51 of the graphics format.
- Format name: -EDIGRAPH-

Plan:

- A plan is a structured arrangement of objects within a room.
- A room is described by walls as well as room elements (door, windows etc.)
- A 3D coordinate system determines the positioning and alignment of the objects and walls within a room.
- Exactly one plan can be stored per file.

Coordinate System:

- Cartesian Coordinate System (right-handed system).
- The X/Y axis is the floor plane.
- The Z axis specifies the height.
- Both positive and negative coordinates are permitted.



Objects:

- Up to this point, the following objects have been defined:
 - Wall
 - Door
 - Window
 - Recess
 - Hindrance
 - Radiator
 - Roof Slope
 - Articles Relevant to Planning

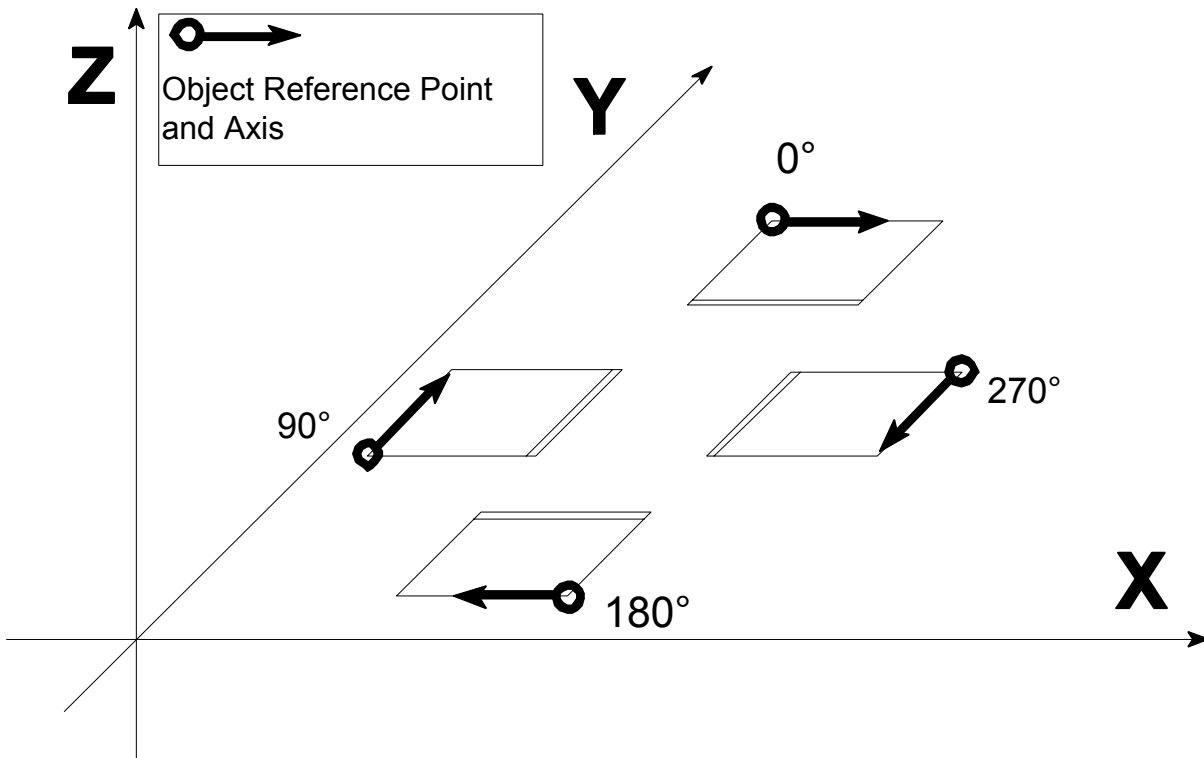
- Each object has a reference point, spatial orientation, maximum extension and any additional special characteristics. The object's position is determined by the absolute coordinates of the reference point.

- In addition, objects with a reference to a wall (door, window, recess, hindrance, radiator, roof slope, installation icon) can be positioned relative to the wall's reference point. This generally facilitates allocation of such objects for the importing system.

- Articles in the EANCOM and EDIGRAPH files are linked by unique references creating the connection between an article's business and graphical data. Data relevant to both business and graphical content and thus included in both formats should, of course, be identical in both files, which is ensured by the exporting system.

- If necessary, additional objects (e.g. installation icons) will be added to subsequent versions of the format.

- An object's alignment is determined by rotation around the Z axis. The angle results from the X axis as well as the object's reference axis.



Segments and Items:

- The segments used in an EDIGRAPH file, along with their corresponding items, are defined in the following.
- An individual segment is created for each object. Since a segment key should be unique, the segments are indexed where necessary. An index key has a [**<Segment>_<Number>**] structure, with <Number> ranging from 1 to 9999, leading zeros are added if the number consists of less than 4 digits.
Example: [Object_0023]
- Within each segment, the items required to describe objects are specified as follows:

Key=Value Status/Type

In EDIGRAPH, Keys have English names that indicate the meaning of the transmitted Value.

Status=M indicates a mandatory field, *Status=C* indicates a conditional field.

Type:

Abbreviation	English Name	Explanation
Sn	String	String, n maximum length
B	Boolean	Yes/No Value
D	Date	Date
T	Time	Time
M	Measure	Measure
I	Integer	Integer
A	Angle	Angle
H	Hinge	Hinge
C	Construction Type	Construction Type
O	Opening	Opening Direction
W	Walltype	Walltype

Example :

Name=Smith M/S35

Key : "Name"
 Value : "Smith"
 Status : Mandatory Field
 Type : String, maximum length 35 characters

- Comments are preceded by "#" (hash sign); they end at the line break. The content of comments is not evaluated.
- Please refer to Appendix A for an extensive, syntactical description of segments and items.

General Data:

In order to uniquely identify the file, information about the commission, date and manufacturer is specified in this segment. The only graphic relevant field in this segment is the "Room Height" field.

[Global]	M
Version=<Format Version: "EDIGRAPH_V1.51">	M/S15
Name=<Commission Name>	M/S35
Number=<Commission Number>	M/S35
DrawDate=<Date of Creation>	M/D
DrawTime=<Time of Creation>	M/T
Manufacturer=<IDM Manufacturer ID according to IDM Format>	M/I
RoomHeight=<Room Height>	M/M
System=<Name and Version number of transmitting system>	M/S35

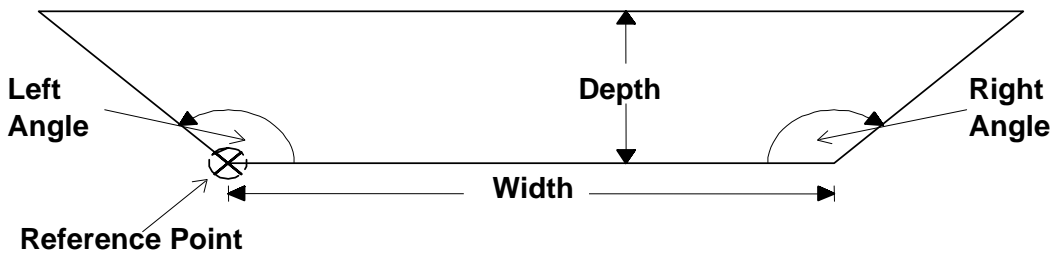
Important: Basically, the name and the version number of the **last sending system** are to be communicated.

Walls:

Since it is usually inside walls that are decisive for planning, they are used to describe a room. Walls are specified as wall area (width x height); it is not required to specify wall depth. In order to more precisely describe walls, especially with inside walls, the mitre square at both wall ends can be optionally specified.

- Intersections of several walls is permitted.
- The reference point is located at the bottom left of the inside wall.
- The walls of a plan can have different heights.
- Depth is optional (default value=0) and is cleared to the back.
- The walls of a plan can have different depths.
- Mitre squares can be optionally specified.
If mitre squares are specified, however, both angles as well as the wall depth must be specified.
- Round walls can be added in a subsequent version, if necessary.

[Wall_nnnn]	C
#nnnn specifies the wall index, starting with 1.	
RefPntX=<Reference Point X Coordinate>	M/M
RefPntY=<Reference Point Y Coordinate>	M/M
RefPntZ=<Reference Point Z Coordinate>	M/M
Width=<Wall Width>	M/M
Height=<Wall Height>	M/M
Depth=<Wall Depth>	C/M
AngleZ=<Rotational Angle around Z Axis>	M/A
AngleLeft=<Left Wall Corner Mitre Square>	C/A
AngleRight=<Right Wall Corner Mitre Square>	C/A
Walltype=<Description of Walltype („S“,“O“) >	C/S1



Doors:

Doors are defined In this segment,

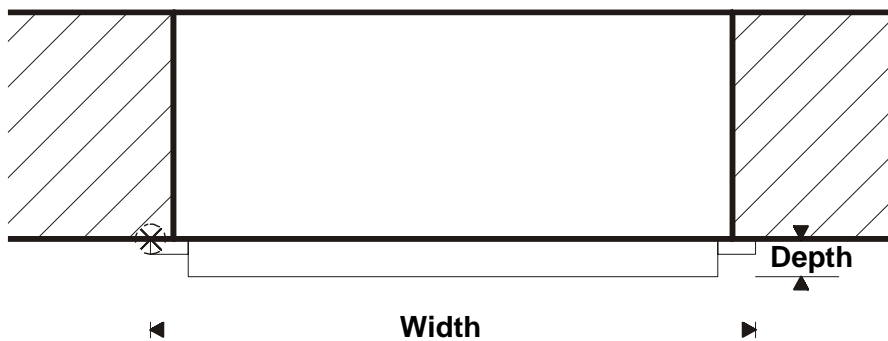
- Doors are rectangular, other shapes can be added in a subsequent version, if necessary.
- The measure specifies the door leaf incl. the door frame, not the required wall opening.
- Width and height include the door frame.
- Depth (optional) specifies the depth of the door leaf (default value=0).
- The reference point is located left/bottom/rear.
- In addition to absolute positioning, relative positioning can be optionally specified:
 - The wall reference specifies the wall in which the object is located.
 - The object's angle is identical to the wall angle.
 - The relative coordinates describe the distance from the object reference point to the wall reference point. In this context, the origin of the underlying relative coordinate system is located in the wall's reference point, the X axis runs along the inside wall.
 - If relative positioning is used, the "WallRefNo", "RefPntXRel", "RefPntYRel" and "RefPntZRel" fields are mandatory.

[Door_nnnn]

C

#nnnn specifies the door index, starting with 1.

RefPntX=<Reference Point X Coordinate>	M/M
RefPntY=<Reference Point Y Coordinate>	M/M
RefPntZ=<Reference Point Z Coordinate>	M/M
Width=<Door Width>	M/M
Height=<Door Height>	M/M
Depth=<Door Depth>	C/M
AngleZ=<Rotational Angle around Z Axis>	M/A
Hinge=<Door Hinge ("N", "L", "R")>	M/H
Opening=<Door Opening Direction ("N", "I", "O", "S")>	M/O
WallRefNo=<Reference to Wall>	C/M
RefPntXRel=<Reference point relative to X coordinate>	C/M
RefPntYRel=<Reference point relative to Y coordinate>	C/M
RefPntZRel=<Reference point relative to Z coordinate>	C/M

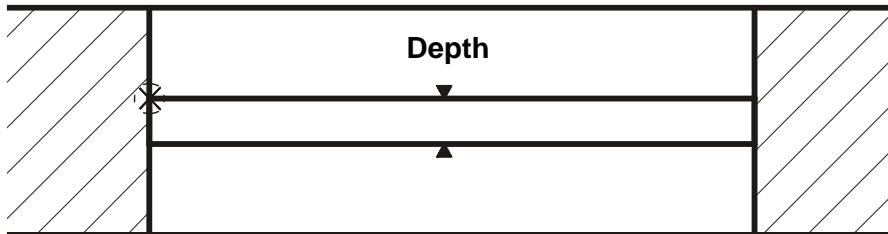


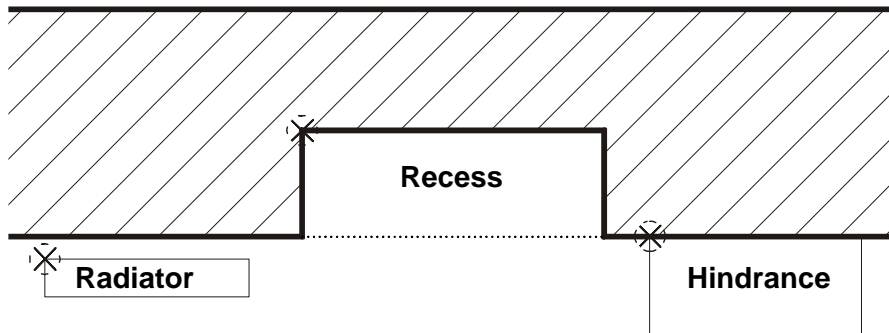
Windows:

Windows are defined in this segment; most items correspond to the "Doors" segment.

- Windows are rectangular, other shapes can be added in a subsequent version, if necessary.
- The measure specifies the window as well as the required wall opening.
- Depth specifies the window frame depth (default value=0).
- The reference point is located left/bottom/rear.
- In addition to absolute positioning, relative positioning can be optionally specified:
 - Please refer to "Doors".
 - The significant recess depth measure is calculated as follows: "RefPntYRel" – "Depth".

[Window_nnnn]	C
#nnnn specifies the window index, starting with 1.	
RefPntX=<Reference Point X Coordinate>	M/M
RefPntY=<Reference Point Y Coordinate>	M/M
RefPntZ=<Reference Point Z Coordinate>	M/M
Width=<Window Width>	M/M
Height=<Window Height>	M/M
Depth=<Window Depth>	C/M
AngleZ=<Rotational angle around Z axis>	M/A
Hinge=<Window Hinge ("N", "L", "R", "T", "B")>	M/H
Opening=<Window Opening Direction ("N", "I", "O", "S")>	M/O
WallRefNo=<Reference to Wall>	C/M
RefPntXRel=<Reference point relative to X coordinate>	C/M
RefPntYRel=<Reference point relative to Y coordinate>	C/M
RefPntZRel=<Reference point relative to Z coordinate>	C/M





Recess:

Recesses specify cut-outs located within a wall.

- Recesses are rectangular parallelepipeds.
- All measures should be specified; there are no optional measures.
- The reference point is located left/bottom/rear.
- In addition to absolute positioning, relative positioning can be optionally specified:
 - Please refer to "Doors".

[Recess_nnnn]	C
#nnnn specifies the recess index, starting with 1.	
RefPntX=<Reference Point X Coordinate>	M/M
RefPntY=<Reference Point Y Coordinate>	M/M
RefPntZ=<Reference Point Z Coordinate>	M/M
Width=<Recess Width>	M/M
Height=<Recess Height>	M/M
Depth=<Recess Depth>	M/M
AngleZ=<Rotational angle around Z Axis>	M/A
WallRefNo=<Reference to Wall>	C/M
RefPntXRel=<Reference point relative to X coordinate>	C/M
RefPntYRel=<Reference point relative to X coordinate>	C/M
RefPntZRel=<Reference point relative to X coordinate>	C/M

Hindrance:

Hindrances are usually located in front of a wall (e.g. fireplaces, wall projections), but can also be located in open floor space.

- Hindrances are rectangular parallelepipeds.
- All measures should be specified; there are no optional measures.
- The reference point is located left/bottom/rear.
- In addition to absolute positioning, relative positioning can be optionally specified:
 - Please refer to "Doors".

[Hindrance_nnnn]

C

#nnnn specifies the hindrance index, starting with 1.

#Items correspond to the "Recess" segment.

Definition of a hindrance is enlarged, so that hindrances may be transmitted in the polygon depiction as well.

For the object [Hindrance_nnnn] those keys already used for transmittance of generating articles are applied.

Use of Polytype is not required, for reasons of unities „polytype=99“ is defined as hindrance type.

Fields defined in section „[Article_nnnn]“ are used for description of the polygon – see listing below.

For the polygon's transmittance all entries „Poly...“ are mandatory fields, except of „PolyHeight“. As for the polygons absolute coordinates are transmitted, the entry „AngleZ“ is deleted.

For description of entries please see section generating

[Article_nnnn]

PolyType=<Character of polygon hindrance>	M/I	Value=99
PolyCounter=<Number of polygon points>	M/I	
PolyPntX_iiii=<i. Polygon-point X-coordinate>	M/M	
PolyPntY_iiii=<i. Polygon-point Y-coordinate>	M/M	
PolyPntZ_iiii=<i. Polygon-point Z-coordinate>	M/M	
PolyHeight_iiii=<i. Polygon-point height>	C/M	

Radiator:

As a rule, radiators are also located in front of a wall, but they can also be located in recesses or open floor space.

- Radiators are rectangular parallelepipeds.
- All measures should be specified; there are no optional measures.
- The reference point is located left/bottom/rear.
- In addition to absolute positioning, relative positioning can be optionally specified:
 - Please refer to "Doors".

[Radiator_nnnn]

C

#nnnn specifies the radiator index, starting with 1.

#Items correspond to the "Recess" segment.

Roof Slope:

In this segment, a roof slope is specified according to the sketch.

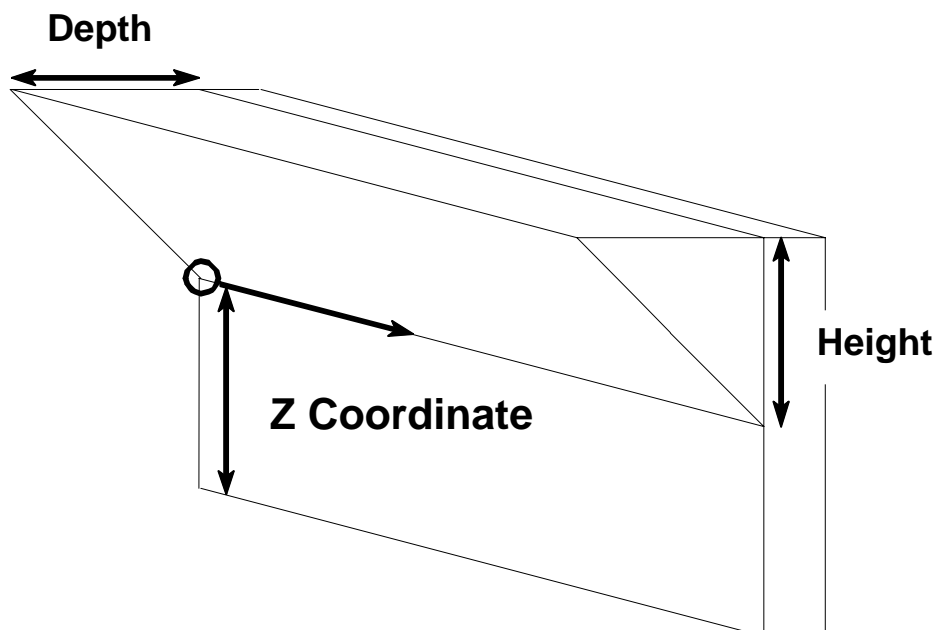
- The reference point is located left/bottom/rear.
- All measures should be specified; there are no optional measures.
- In addition to absolute positioning, relative positioning can be optionally specified:
 - Please refer to "Doors".
- The roof slope is described by a prism. In this context, the Z coordinate specifies the flap tile height. The slope angle is defined by the height and depth.

[Roof_nnnn]

C

#nnnn specifies the roof slope index, starting with 1.

#Items correspond to the "Recess" segment.



Articles Relevant to Planning:

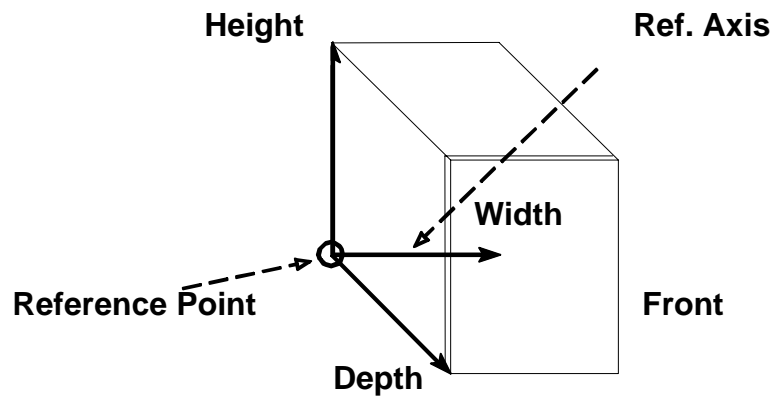
Planning relevant articles are specified in this segment. On the one hand, these are “conventional” cabinets, but also parts to be generated, such as work tops, light pelmets, cornices, etc.

- Decorative articles are not relevant to planning and are not transmitted.
- **Please refer to IDM format, for specifications of article carcass measures, basic shapes, reference points and reference axis.**
- The bounding box measure (W x D x H) should always be specified.
- It is only in the case of customised articles that all measures should be specified according to the IDM basic shape. For this, a “Measure_xxx=Value” item type is used, with “xxx” corresponding to the “Parameter” field of IDM data record type 500.
- The “RefPntZ” item specifies the distance to floor level, i.e. a base cabinet with a base height of 100 mm has a “RefPntZ” value of “100”.
- Relative positioning of an article is not possible.
- The “RefNo” item should correspond to the article’s reference number in the EANCOM file (“RFF+LI”, please refer to EANCOM-ORDERS).

[Article_nnnn]	C
#nnnn specifies the article index, starting with 1.	
Manufacturer=<Manufacturer ID according to IDM format>	M/I
Name=<Article type according to IDM format>	M/S15
RefNo=<Reference to EANCOM "RFF+LI">	M/S35
RefPos=<Reference to EANCOM "RFF+ON">	C/S35
RefPntX=<Reference Point X Coordinate>	M/M
RefPntY=<Reference Point Y Coordinate>	M/M
RefPntZ=<Reference Point Z Coordinate>	M/M
AngleZ=<Rotational angle around Z axis>	M/A
Hinge=<Hinge according to IDM format>	C/H
Shape=<Basic shape number according to IDM format>	M/I
ConstructionType=<Construction type according to IDM format>	C/C
Measure_B=<Article Width>	M/M
Measure_T=<Article Depth>	M/M
Measure_H=<Article Height>	M/M
Measure_xxx=<IDM Measure Parameter Value xxx>	C/M
PolyType=<Type of polygon part to be generated>	C/I
PolyCounter=<Number of polygon points>	C/I
PolyPntX_nnnn=< Polygon Point X Coordinate>	C/M
PolyPntY_nnnn=< Polygon Point Y Coordinate>	C/M
PolyPntZ_nnnn=< Polygon Point Z Coordinate>	C/M
PolyHeight_nnnn=<Polygon Point Height>	C/M

Note: The article measures (units) principally refer to the carcass measures, depth is to be indicated without front.

Sketch using IDM basic shape 1:



Depth = Carcase depth (without front)

Articles to be Generated:

In order to describe the order structure of such articles, articles to be generated (light pelmets, cornices, etc.) are always transmitted as polygons. This means that the polygons transmitted by the retail software indicate where the retailer has placed the respective article to be generated. However, due to manufacturer-specific production parameters, the manufacturer software will usually re-generate this article; nevertheless, retailer specifications help avoid (necessary) queries. To describe polygons, the fields specified in the “[Article_nnnn]” segment are used as explained below.

All “Poly...” items, with the exception of “PolyHeight”, are mandatory fields for polygon transmission. Since absolute coordinates are transmitted for polygons, the “AngleZ” item is not applicable.

[Article_nnnn]

PolyType=<type of polygon part to be generated>	M/I
PolyCounter=<Number of polygon points>	M/I
PolyPntX_iiii=<i. X Coordinate Polygon Point>	M/M
PolyPntY_iiii=<i. Y Coordinate Polygon Point>	M/M
PolyPntZ_iiii=<i. Z Coordinate Polygon Point>	M/M
PolyHeight_iiii=<i. Polygon Point Height>	C/M

PolyCounter specifies the number of polygon points for an object.

There are “**PolyCounter**” instances of **PolyPntX,Y,Z**; **PolyPntX,Y,Z** are consecutively numbered.

PolyPnts should be numbered in order of their appearance:

- PolyPntX_0001** is the first point's X coordinate;
- PolyPntY_0001** is the first point's Y coordinate;
- PolyPntZ_0001** is the first point's Z coordinate;
- PolyPntX_0002** is the second point's X coordinate, etc.

PolyHeight specifies the “**Height**” of the line from point **i** to point **i+1**.

The height specifies the perpendicular distance between the centre of the edge and the circle segment. If the height is 0 (or not specified), it is a straight line. Polygon alignment is pre-defined as counter-clockwise, thus the following rules apply:

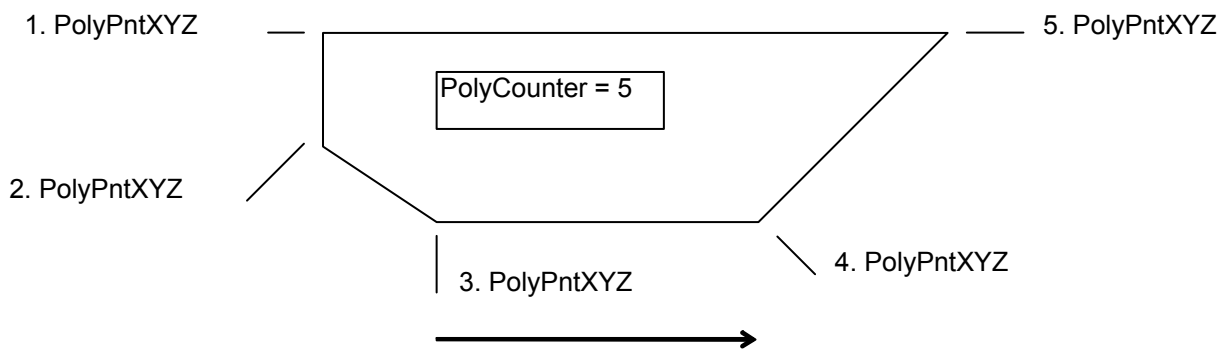
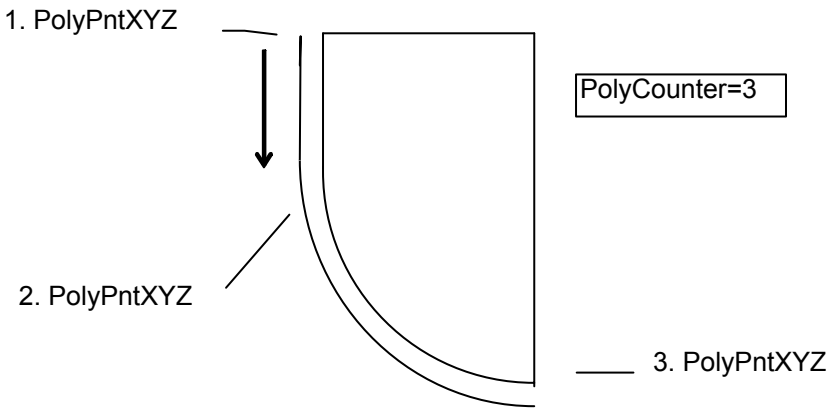
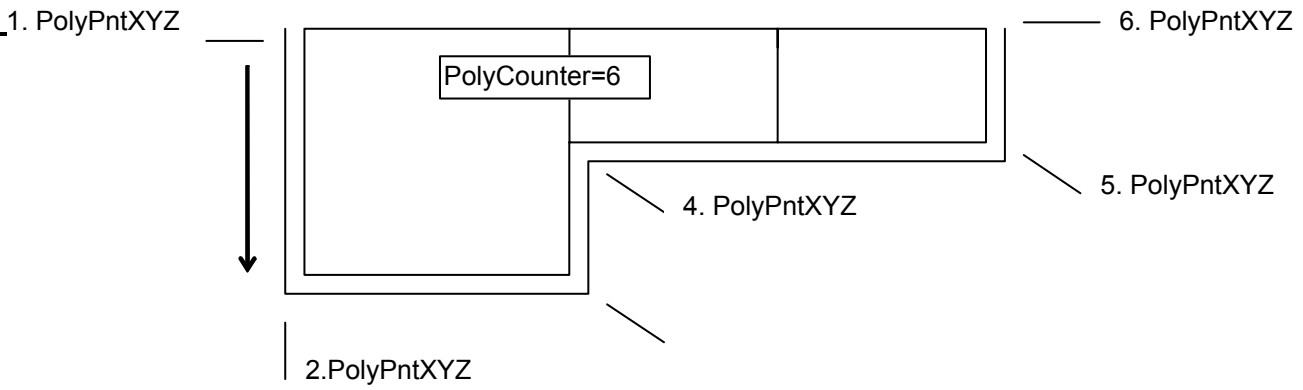
- Positive height describes a convex curve.
- Negative height describes a concave curve.

PolyType specifies the part to be generated. The **PolyType** pre-defines whether it is an open or closed polyline. Moreover, it pre-defines whether the Z coordinate specifies the top or bottom edge of an article.

PolyType	Meaning	Z Coordinate	Polyline
1	Base	Top Edge	Open
2	Work Top	Bottom Edge	Closed
3	Wall Connection	Bottom Edge	Open
4	Light Pelmet	Top Edge	Open
5	Cornice	Bottom Edge	Open
6	Moulded Floor	Bottom Edge	Closed
7	Railing	Bottom Edge	Open
99	Hindrance	Bottom Edge	Closed

With closed polylines, the endpoint is **NOT** transmitted **twice**, i.e. for **n** object edges only **n** PolyPoints are transmitted. With open polylines, **n+1** PolyPoints are transmitted for **n** object edges.

POLYGONS: Example of Light Pelmet, Cornices and Work Tops:



Appendix A

Conventions

- Pointed brackets highlight variables.
- All ASCII codes are entered as decimals.

File Level

- Type : String
- Character Set : ASCII (printable characters only)
- End of Line : CR/LF
- Decimal Separator : "." is the decimal separator (ASCII code 46).
- Negative Sign : "-" (ASCII code 45)
- Positive Sign : "+" (ASCII code 43), the positive sign is optional.
- Comment : If a line is preceded by "#" (ASCII code 35), it will be treated as a comment up to the line break.

File Structure

- Data are specified in segments which contain any number of items, but at least one item.

Segments

- Segments can be freely ordered within a file.
- A segment starts with a key enclosed in square brackets "[" and "]" (ASCII codes 91 and 93).
- Example: [Segment]
- Keys are not case sensitive.
- A key may not contain any special characters or blanks (ASCII code 32). The only exception is the underscore character "_" (ASCII code 95).
- Each segment is only permitted to appear once in each file.
- A segment has to contain at least one item.
- A segment ends where another one begins or when the file ends.

Items

- Each item has a specific data type.
- Items can be freely ordered within a segment.
- An item consists of a key, the equal sign "=" (ASCII code 61) and a value.
- An item has the following format:
- <Key>=<Value>
- Keys are not case sensitive.
- A key may not contain any special characters or blanks (ASCII code 32). The only exception is the underscore character "_" (ASCII code 95).
- Each key is only permitted to appear once in each segment.
- The equal sign serves as a delimiter between the key and value and should be placed immediately after the key, followed by immediate placement of the value.
- The value consists of all characters between the equal sign and the line break.
- The value may contain all characters permitted for its data type
- The maximum value length arises from its data type.
- A value may not be empty. If no value corresponds to a key, the key shall not be used in this segment.

Data Status

It is possible to specify whether segments or items are mandatory (mandatory fields) or conditional (conditional fields):

- "MANDATORY" Fields : "M"
- "CONDITIONAL" Fields : "C"

If a conditional segment is used, all mandatory items in this segment should be filled in.

Data Types (Basic Types)

String

- Identifier : "S"
- Default : <Empty>
- Maximum string length is 65536 characters, if not limited in field definition.
- Length limitation by specification following the identifier.
- Example : "S10"
- Character set: see above.

Integer

- Identifier : "I"
- Default : 0
- Range from -99999999 to 99999999
- Integers only.
- Exponentials are not permitted.
- Values should be indicated as decimals.
- Leading zeros are permitted, but not necessary.
- Signs (see above) are permitted.
- Thousands separators are not permitted.

Float

- Identifier : "F"
- Default : 0
- Range from -1.7×10^{38} to 1.7×10^{38}
- Any number of digits and decimal places is allowed.
- Decimal digits: see above.
- Exponentials are not permitted.
- Values should be indicated as decimals.
- Leading zeros or zeros after the decimal point are permitted, but not necessary.
- Signs (see above) are permitted.
- Thousands separators are not permitted.

Boolean

- Identifier : "B"
- Default : NO
- Value for "YES", "TRUE" : "Y" or "YES"
- Value for "NO", "FALSE" : "N" or "NO"

Time

- Identifier : "T"
 - Default : 00:00:00
 - Time Display Format "HH:MM:SS"
- H : Hours
M : Minutes
S : Seconds

Date

- Identifier : "D"
 - Default : 16000101
 - Date Display Format "YYYYMMDD"
- Y : Year
M : Month
D : Day
Y : Year

Week

- Identifier : "W"
 - Default : 160001
 - Week Display Format "YYYYWW"
- Y : Year
W : Week

Data Types Derived from Above Basic Types**Measure**

- Identifier : "M"
- Default : 0
- Basic Type : Float
- Unit : Millimetre
- Range : -999999 to 999999

Angle

- Identifier : "A"
- Default : 0
- Basic Type : Float
- Unit : Degree
- Range : $0 \leq \text{Angle} < 360$
- Unsigned (signs are not permitted)
- Angles should be indicated as mathematically positive values (counter-clockwise).

Hinge

- Identifier : "H"
- Default : NONE
- Basic Type : Text
- Possible Values :
L orLEFT
R orRIGHT
T orTOP
B orBOTTOM
N orNONE

Construction Type

- Identifier : "C"
- Default : NONE
- Basic Type : Text
- Possible Values :
L orLEFT
R orRIGHT
N orNONE

Opening Direction

- Identifier : "O"
- Default : NONE
- Basic Type : Text
- Possible Values :
I orINWARDS
O orOUTWARD
S orSLIDE
N orNONE

Description of walltype

- Identifier : "W"
- Default : NONE
- Basic Type : Text
- Possible Values:
S or **Separator** (Partition wall, balustrade)
O or **Outside** (exterior wall)