

# Guidelines for the CAD-data exchange with BMS

Version: 31.08.2020

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## 1. INTRODUCTION

This document manages the transfer of CAD data between BMS and the external planners.

To manage this data transfer smoothly it is necessary to maintain the described settings and conventions.

Deviation of and differences with the described settings and conventions have to be coordinated with BMS in advance, and an authorization/approval is required.

## 2. DATA EXCHANGE FORMAT

As exchange format only the AutoCAD compatible DWG-format, version 2015 or earlier, should be used. BMS has to be notified in case of deviation of this version before the first transfer of data starts and everything has to be brought in agreement with BMS.

## 3. CONVENTIONS

### 3.1 General transfer parameters

- Only 2D-data are transferred
- Measurement Unit: centimeters
- Scale: 1:100

The Import/export should only be carried out from the "Model" area (no plans/layouts).

### 3.2 Transferable elements

The following elements will be transferred and therefore could be used:

- Point symbol
- Line
- Polygon
- Circle / ellipse
- Spline
- Text
- Labeled attribute
- Dimension line
- Hatching
- Pattern (with restrictions, see item 3.4.6)
- Macros / blocks
- Construction Lines

Detailed specifications to the individual elements are indicated under the items 3.4.2 through 3.4.10.

### 3.3 Complex elements / links

These are elements which can be composed of multiple individual elements (e.g. groups, blocks, etc.), or include additional non-graphical definitions (e.g. attributes) or their visual presentation and/or formatting are controlled by a higher instance (assignment: "From Layer", "From Blocks").

When exchanging data with BMS the following elements and links are dissolved and thus cannot be used:

- Elements which are dissolved are: *non-graphical attributes*
- Links which are dissolved are: „*From Blocks*“

### 3.4 Specific transferable attributes of elements (assignments)

In the following the element properties, the layers and the codifications are described in detail (e.g. colors, type of lines, fonts etc.). They all are referring to the AutoCAD system if it is not otherwise indicated

Attributes and codifications, which are listed in this document, have to be used mandatory. A complete data transfer is not possible should the elements be defined differently. Deviation and differences of the described settings and conventions have to be coordinated with BMS in advance and require their authorization.

BMS reserves the right to decline not conformable files and to demand the generation of files once again.

Format properties like line weight, line types and line colors must be assigned to the objects from layers. The setting "From Layer" has to be used (see item 3.3).

### 3.4.1 Layer

The following layer structure and the associated format properties have to be used. In principle these can be found in the data, which is made available by BMS. If the structure in the provided data files is not complete, it can only be amended by the layers listed-below, including their respective brief descriptions and format properties.

Own layer descriptions are forbidden or require the confirmation of BMS.

Only the layer's brief description can be used as layer name.

The used layer structure at BMS is based on the layer structure of "Building Construction" & "Building Services" of the Magistrate of the City of Vienna, issue 1998. The brief description of layer is to use as actual layer description in the AutoCAD system.

Type of line and number of color correspond to the AutoCAD-system and are specifically described under the items 3.4.2 through 3.4.4.

<u>Layer brief description</u>	<u>Layer long name</u>	<u>Thickness</u>	<u>Type of line</u>	<u>Color no.</u>
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#### CAD-building construction Magistrate of City of Vienna

##### Mauerwerk

M_A29	Tragende+konstrukt.Elemente	0.50	continuous	6
M_A28	Draufsicht tr.+ konst.Elem.	0.25	continuous	7
M_V29	Fassadenverkleidung	0.35	continuous	4
M_A26	Deckenspruege, Gewoelbe,...	0.25	verdeckt	7
M_U29	Unterzuege und Gurtboegen	0.25	verdeckt	7
M_R26	Achsraster und -beschriftung	0.25	continuous	250
M_R26\$	Achsraster Untergeschoss	0.25	continuous	250
M_R26D	Raster abgehaengte Decke	0.25	continuous	7
M_R26DB	Raster Doppelboden	0.25	continuous	250
M_R26K	Aufstellungsraster Einricht.	0.25	continuous	7
M_R26Z	Zentralpunkt	0.25	continuous	7
M_A27	Wandebauten(Rauchfaenge)..	0.25	continuous	7
M_A27-\$	Wandebauten (vorh. Plaene)	0.25	continuous	7
M_Z29	Mauerwerk nicht tragend	0.50	continuous	3
M_Z28	Draufsicht ntr. Mauerwerk	0.25	continuous	7
M_L29	Leichtwaende	0.35	continuous	4
M_L28	Draufsicht Leichtwaende	0.18	continuous	7
H_L27	Einbauten (Aufzug,Rigol...)	0.25	continuous	7
H_L27\$	Aufzugsverkleidung	0.25	continuous	7
H_L26	Einbauten (Vordaecher...)	0.25	verdeckt	7
H_L26-\$	wie vor (vorh. Plaene)	0.25	verdeckt	7

##### Decken

DE_29	Deckenkonstruktion (Schnitt)	0.50	continuous	3
DE_29-\$	Deckenkonstr. (vorh. Plaene)	0.25	continuous	7
DE_28	Deckenkonstruktion (Ansicht)	0.25	continuous	7
DE_27	Fussbodenaufbau+abgeh.Decken	0.25	continuous	7
DE_27-\$	Fussbodenaufbau(vorh.Plaene)	0.25	continuous	7
DE_26DB	Deckendurchbrueche	0.25	continuous	30

<u>Layer brief description</u>	<u>Layer long name</u>	<u>Thickness</u>	<u>Type of line</u>	<u>Color no.</u>
<b>Stiegen</b>				
S_S29	Stiegen+Rampen (Schnitt)	0.35	continuous	4
S_29	Umriss+Gehlinie,Podestkanten	0.25	continuous	1
S_26	unsichtbar darzustellende BT	0.18	verdeckt	250
S_27	Gelaender+Handlauf	0.25	continuous	7
SB_26	Beschriftung Stiegen+Rampen	0.25	continuous	7
<b>Dachkonstruktionen</b>				
DA_29	Dachkonstruktionen Schnitt	0.35	continuous	4
DA_28	Dachkonstruktionen Ansicht	0.25	continuous	7
DA_29S	Sparren Schnitt	0.35	continuous	4
DA_28S	Sparren Ansicht	0.18	continuous	250
DA_29D	Dachhaut Schnitt	0.18	continuous	250
DA_28D	Dachhaut+Verblechung Ansicht	0.25	continuous	7
DB_26	Beschriftung	0.25	continuous	1
DAR26	Achsen Hauptgespaerre	0.25	strichpunkt	7
<b>Fenster</b>				
O_F26	Graf.Darst. Fensteroeffnung	0.25	continuous	1
O_F26J	Fensterjalousien	0.25	continuous	250
OBF26	Achsbeschr. Fensteroeffnung	0.25	continuous	7
OUF26	Sturzdarst. Fensteroeffnung	0.25	verdeckt	1
<b>Tueren, Durchgaenge</b>				
O_T26	Graf.Darst. Tueroeffnung	0.25	continuous	1
OBT26	Achsbeschr. Tueroeffnung	0.25	continuous	7
OUT26	Sturzdarst. Tueroeffnung	0.25	verdeckt	1
<b>Beschriftung</b>				
B_328	Texthoehe 5,0 mm	0.50	continuous	7
B_227	Texthoehe 3,5 mm	0.35	continuous	7
B_126	Allgemeine Beschriftung	0.25	continuous	7
B_026	Nummerierung Deckenpanele	0.25	continuous	7
MODUL	Modulnummer	0.25	continuous	22
ST_TK	Beschriftung Tragkerne	0.25	continuous	7
<b>Bemassung</b>				
V_328	Bemassung 5,0 mm	0.18	continuous	250
V_227	Bemassung 3,5 mm	0.18	continuous	250
V_126	Bemassung 2,5 mm	0.18	continuous	250
<b>Raumwidmungen</b>				
B_127W	Mitarbeiter	0.25	continuous	7
B_127N	Raumnummer	0.25	continuous	7
B_227Z	Raumbezeichnung	0.35	continuous	7
B_127B	Bodenbelag	0.25	continuous	7
B_127M	Flaeche	0.25	continuous	7
B_127H	Raumhoehe	0.25	continuous	7
B_127V	Raumvolumen	0.25	continuous	7
B_127R	Raumbuchnummer	0.25	continuous	7
B_127I	Zusatzinformationen	0.25	continuous	55

<u>Layer brief description</u>	<u>Layer long name</u>	<u>Thickness</u>	<u>Type of line</u>	<u>Color no.</u>
Flaechenermittlung				
Z_009	Polylinie (Raumbegrenzung)	0.70	continuous	5
LUFTRAUM	Polylinie Luftraum	0.70	continuous	3
ARTIKEL	Artikellager	0.25	continuous	7
Einrichtungen				
E_B26	Beschriftung Einrichtung	0.25	continuous	1
E_S26	Graf.Darst. Sanitaereinr.	0.25	continuous	1
E_M26	Graf.Darst. Moebel	0.25	continuous	1
Plankopf/Planrahmen				
KOPF	Planrahmen,-kopf,...	0.25	continuous	7
Brandschutz				
BRA_SYMB	BMA Symbole	0.25	continuous	7
BRANDABS	Brandabschnitte	0.25	continuous	30
BRA_TEXT	Beschriftung Brandschutz	0.35	continuous	7
BRA_VERM	Bemassung und Hilfslinien	0.18	continuous	250
BRA_KOPF	Plankopf Brandschutz	0.25	continuous	7
BRA_WAND	Wandinformation (Schraffur)	0.25	continuous	7
BRA_GANG	Schraffur Verkehrsflaeche	0.25	continuous	7
Asbest				
ASBS_CA	Asbestfundstelle Cafco	0.25	continuous	2
ASBS_CA\$	Bestand Asbest Cafco	0.25	continuous	2
ASBS_DB	Auszug Fundstellendatenbank	0.25	continuous	7
ASBS_E	Fundstelle nur entsorgt	0.25	continuous	94
ASBS_E_S	Fundst. entsorgt und subst.	0.25	continuous	60
ASBS_SC	Asbest schwach gebunden	0.25	continuous	1
ASBS_SC\$	Bestand Asbest schwach geb.	0.25	continuous	1
ASBS_ST	Asbest stark gebunden	0.25	continuous	30
ASBS_ST\$	Bestand Asbest stark geb.	0.25	continuous	30
ASBS_TXT	Fundstellen Beschriftung	0.25	continuous	7
BRA_ZUS	Ergaenzungen Brandschutz	0.25	continuous	4
Kanal				
I_S27KR	Regenwasserkanal	0.35	getrennt	4
I_S27KRE	Regenwasser Einlaeufe...	0.25	continuous	7
I_S27KS	Schmutzwasserkanal	0.35	strichpunkt	4
I_S27KSE	Schmutzwasser Einlaeufe...	0.25	continuous	7
IB_27	Beschriftung Kanal	0.25	continuous	7
Flaecheninformation				
0_BESTAN	bestehende BT allgemein	0.25	continuous	253
0_NTW_SC	Schraffur nichttrag. Waende	0.18	continuous	250
0_STB_SC	Schraffur Stahlbetonwaende	0.18	continuous	250
0_WD	Waermedaemmung, Schraff+Symb	0.18	continuous	250
0_FA1	Fassade 1	0.18	continuous	250
0_FA2	Fassade 2	0.18	continuous	250
0_FA3	Fassade 3	0.18	continuous	250
0_FA4	Fassade 4	0.18	continuous	250
BEL_1KN	Belastungsangabe (1 KN/m2)	0.18	continuous	94
BEL_2KN	Belastungsangabe (2 KN/m2)	0.18	continuous	94

<u>Layer brief description</u>	<u>Layer long name</u>	<u>Thickness</u>	<u>Type of line</u>	<u>Color no.</u>
BEL_3KN	Belastungsangabe (3 KN/m2)	0.18	continuous	94
BEL_4KN	Belastungsangabe (4 KN/m2)	0.18	continuous	94
BEL_5KN	Belastungsangabe (5 KN/m2)	0.18	continuous	94
BEL_6KN	Belastungsangabe (6 KN/m2)	0.18	continuous	94
BEL_7_5	Belastungsangabe (7,5 KN/m2)	0.18	continuous	94
BEL_8KN	Belastungsangabe (8 KN/m2)	0.18	continuous	94
BEL_10KN	Belastungsangabe (10 KN/m2)	0.18	continuous	94
BEL_1015	Belastungsangabe(10-15KN/m2)	0.18	continuous	94
BEL_12KN	Belastungsangabe (12KN/m2)	0.18	continuous	94
BEL_15KN	Belastungsangabe (15KN/m2)	0.18	continuous	94
BEL_30KN	Belastungsangabe (30KN/m2)	0.18	continuous	94
BEL_EINZ	Einzellasten	0.18	continuous	94
Symbole				
H_XSYMBO	zus.Symbole (Heizkoerper...)	0.25	continuous	7
Lageplaene (Aussenanlagen)				
G_G29	Gebaeude- und Bauteilumriss	0.50	continuous	6
G_V29	Daecher (Dachvorspr., First)	0.18	verdeckt	250
GB_29	Beschriftung (inkl. Bemass.)	0.35	continuous	4
G_A29	Aussenanlagen (Str.,Weg,Sti)	0.25	continuous	7
G_B29	Baeume und Bepflanzung	0.18	continuous	250
G_E29	Gestaltungselem.+Hilfslinien	0.18	continuous	250
G_K29	Grundstuecksgrenzen+Beschrif	0.25	continuous	1

## CAD-Haustechnik Mag Wien

### Heizung

B_026IH	Texthoehe 1.8 mm	0.25	continuous	7
B_126IH	Beschriftung Heizkoerper	0.25	continuous	7
B_227IH	Texthoehe 3.5 mm	0.35	continuous	7
B_328IH	Texthoehe 5.0 mm	0.50	continuous	7
I_H26AR	Armaturen, Pumpen, etc.	0.25	continuous	1
I_H26HZK	Heizkoerper	0.25	continuous	7
I_H26WVL	Warmwasserheizung Vorlauf	0.25	continuous	22
I_H26WRL	Warmwasserheizung Ruecklauf	0.25	gestrichelt	174
I_H26HVL	Heisswasserheizung Vorlauf	0.25	continuous	1
I_H26HRL	Heisswasserheizung Ruecklauf	0.25	gestrichelt	174
I_H26KW	Kaltwasserleitung	0.25	continuous	94
I_H26LU	Luftleitung	0.25	continuous	250
I_H26Z	Zirkulationsleitung	0.25	continuous	202
I_H26KUE	Kuehlwasserleitung	0.25	continuous	134
I_H26DAM	Nieder-, Hochdruckdampf	0.25	continuous	1
I_H26KON	Heizung - Tropfwasserleitung	0.25	continuous	73
I_H26SB	Sinnbilder	0.25	continuous	1
I_H26W	Wirkleitung	0.25	gestrichelt	7
I_H26WW	Warmwasserleitung	0.25	continuous	30
I_H26ABG	Abgasleitung	0.25	continuous	250
I_H26G	Kessel, Behaelter, etc.	0.25	continuous	1
I_H26GAS	Brennbare Gase	0.25	continuous	55
I_H26OEL	Brennbare Fluessigkeiten	0.25	continuous	36



<u>Layer brief description</u>	<u>Layer long name</u>	<u>Thickness</u>	<u>Type of line</u>	<u>Color no.</u>
V_026IH	Bemassungslinie,-Text 1.8 mm	0.18	continuous	250
V_126IH	Bemassungslinie,-Text 2.5 mm	0.18	continuous	250
V_227IH	Bemassungslinie,-Text 3.5 mm	0.18	continuous	250
V_328IH	Bemassungslinie,-Text 5.0 mm	0.18	continuous	250
Lueftung				
B_026IL	Texthoehe 1.8 mm	0.25	continuous	7
B_126IL	Beschriftung Lueftung	0.25	continuous	7
B_227IL	Texthoehe 3.5 mm	0.35	continuous	7
B_328IL	Texthoehe 5.0 mm	0.50	continuous	7
I_L26WVL	Klima - Warmwasser Vorlauf	0.25	continuous	22
I_L26WRL	Klima - Warmwasser Ruecklauf	0.25	gestrichelt	174
I_L26KVL	Klima - Kaltwasser Vorlauf	0.25	continuous	22
I_L26KRL	Klima - Kaltwasser Ruecklauf	0.25	gestrichelt	174
I_L26KON	Klima - Tropfwasserleitung	0.25	continuous	73
B_126AKS	AKS-Nummer Brandschutzklappe	0.25	continuous	1
I_L26ABL	Abluftleitung	0.25	continuous	32
I_L26AR	Klappen, Jalousien etc.	0.25	continuous	1
I_L26AUL	Aussenluftleitung	0.25	continuous	73
I_L26FOL	Fortluftleitung	0.25	continuous	32
I_L26K	Kuehleitung	0.25	continuous	4
I_L26MIL	Mischluftleitung	0.25	continuous	30
I_L26SB	Sinnbilder	0.25	continuous	1
I_L26UML	Umluftleitung	0.25	continuous	32
I_L26W	Wirkleitung	0.25	gestrichelt	7
I_L26ZUL	Zuluftleitung	0.25	continuous	214
I_L26G	Geraete	0.25	continuous	1
I_L26LTG	Umriss Luftleitung	0.35	continuous	4
I_26RA	Leistung,Temp. ONORM H 5021	0.25	continuous	1
V_026IL	Bemassungslinie,-Text 1.8 mm	0.18	continuous	250
V_126IL	Bemassungslinie,-Text 2.5 mm	0.18	continuous	250
V_227IL	Bemassungslinie,-Text 3.5 mm	0.18	continuous	250
V_328IL	Bemassungslinie,-Text 5.0 mm	0.18	continuous	250
Sanitaerinstallationen				
B_026IS	Beschrift. Sanitaerinstall.	0.25	continuous	7
B_126IS	Texthoehe 2.5 mm	0.25	continuous	7
B_227IS	Texthoehe 3.5 mm	0.35	continuous	7
B_328IS	Texthoehe 5.0 mm	0.50	continuous	7
I_S26ABW	Abwasserleitungen	0.25	continuous	7
I_S26ALG	Anbindeleitung Gas	0.25	continuous	7
I_S26ALW	Anbindeleitung Wasser	0.25	continuous	7
I_S26AR	Armaturen	0.30	continuous	1
I_S26DL	Druckluftleitung	0.25	continuous	7
I_S26G	Sanitaergeraete	0.25	continuous	1
I_S26KLW	Klimakaltwasser	0.30	continuous	214
I_S26KW	Kaltwasserverrohrung	0.30	continuous	94
I_S26KWE	Kaltwasserver. enthaeret	0.25	gestrichelt	5
I_S26SBA	Symbole f. Putzstuecke, etc.	0.25	continuous	1
I_S26SBG	Auslass-Symbole etc. Gas	0.25	continuous	1
I_S26SBW	Auslass-Symbole etc. Wasser	0.25	continuous	1
I_S26SOL	Destilliertes Wasser	0.25	continuous	1
I_S26STG	Steigleitung Gas	0.25	continuous	7

<u>Layer brief description</u>	<u>Layer long name</u>	<u>Thickness</u>	<u>Type of line</u>	<u>Color no.</u>
I_S26STW	Steigleitung Wasser	0.30	continuous	7
I_S26VLG	Verteilleitung Gas	0.25	continuous	7
I_S26VLW	Verteilleitung Wasser	0.25	continuous	7
I_S26WW	Warmwasserverrohrung	0.30	continuous	30
I_S26Z	Zirkulation	0.30	continuous	202
I_S27HAG	(Haupt-) Anschlussleit. Gas	0.25	continuous	7
I_S27HAW	(Haupt-)Anschlussleit.Wasser	0.25	continuous	7
V_026IS	Bemassungslinie,-Text 1.8 mm	0.18	continuous	250
V_126IS	Bemassungslinie,-Text 2.5 mm	0.18	continuous	250
V_227IS	Bemassungslinie,-Text 3.5 mm	0.18	continuous	250
V_328IS	Bemassungslinie,-Text 5.0 mm	0.18	continuous	250
<b>Energietechnik</b>				
B_026IE	Beschr. Schalter/Beleuchtung	0.25	continuous	7
B_126IE	Beschr. Steckdosen/Auslaesse	0.25	continuous	7
B_227IE	Beschr. StkD/Auslass DB	0.25	continuous	7
B_328IE	Beschr. Fluchtwegbeleuchtung	0.25	continuous	7
B_126IE\$	Beschr. Et/Sub/Ran.Verteiler	0.25	continuous	7
I_E26SE\$	Etagen/Sub/Rangierverteiler	0.25	continuous	1
I_E26JE	Schalter und Beleuchtung	0.25	continuous	1
I_E26JE\$	Sicherheit/Fluchtwegbeleucht	0.25	continuous	1
I_E26AL	Anbindeleitung	0.25	continuous	7
I_E26NOT	Notstromleitung	0.25	continuous	7
I_E26SE	Steckdosen & Auslaesse	0.25	continuous	1
I_E26SED	Steckdose & Auslass DB	0.25	continuous	1
I_E26STL	Steigleitungen	0.25	continuous	7
I_E26VL	Kabeltrassen Verteilleitungen	0.25	continuous	7
I_E26ZLT	Zentrale Leittechnik	0.25	continuous	1
I_E27HA	Hausanschluss, Trafo etc.	0.25	continuous	7
I_E28HS	Hochspannungsleitungen	0.25	continuous	7
V_026IE	Bemassungslinie,-Text 1.8 mm	0.18	continuous	250
V_126IE	Bemassungslinie,-Text 2.5 mm	0.18	continuous	250
V_227IE	Bemassungslinie,-Text 3.5 mm	0.18	continuous	250
V_328IE	Bemassungslinie,-Text 5.0 mm	0.18	continuous	250
<b>Nachrichtentechnik</b>				
B_026IN	Beschriftung Konferenzanlage	0.25	continuous	7
B_026IND	Beschrift. Konf.Anlage DB	0.25	continuous	7
B_126IN	Beschriftung Telefonapparate	0.25	continuous	7
B_227IN	Texthoehe 3.5 mm	0.35	continuous	7
B_328IN	Texthoehe 5.0 mm	0.50	continuous	7
I_N26MOB	Konferenzraum-Moeblierung	0.25	continuous	1
I_N26BMA	Brandmeldeanlage	0.25	continuous	7
I_N26EDV	EDV	0.25	continuous	7
I_N26GEB	Gebaeudeueberwachung	0.25	continuous	7
I_N26S	Klingel,Sprechanl.,Tueroeffn	0.25	continuous	7
I_N26SI	Sicherheitsanlage	0.25	continuous	7
I_N26SIM	Konferenzanlagen	0.25	continuous	7
I_N26SID	Konferenzanlagen Doppelboden	0.25	continuous	7
I_N26TEL	Telefonanlage	0.18	continuous	7
I_N26UHR	Uhrenanlage	0.25	continuous	7
I_N26INT	Interkom	0.25	continuous	7
I_N26PA	Lautsprecheranlage	0.25	continuous	7

<u>Layer brief description</u>	<u>Layer long name</u>	<u>Thickness</u>	<u>Type of line</u>	<u>Color no.</u>
I_N26PAM	PAMEX-Anlage	0.25	continuous	7
I_N26TV	TV-Anlage	0.25	continuous	7
V_026IN	TV-Verkabelung	0.18	continuous	250
V_126IN	Telefonverkabelung	0.18	continuous	250
V_227IN	Alarmverkabelung	0.18	continuous	250
V_328IN	Bemassungslinie,-Text 5.0 mm	0.18	continuous	250
Maschinentechnik				
I_T29G	Aktenfoerderanlage	0.25	continuous	1
I_T29ST	Staubsaugeranlage	0.25	continuous	6
I_T29T	Tragwerke (z.B.Fachwerkstr.)	0.35	continuous	4
Historic				
Inactive	Inactive Components	0.25	continuous	250

### 3.4.2 Colors

The following colors can be used:

#### AutoCAD number

1	"red"
2	"yellow"
3	"green"
4	"cyan"
5	"blue"
6	"magenta"
7	"white / black"
22	"light reddish orange"
30	"very light satiated orange"
32	"light satiated orange"
36	"dark satiated orange"
55	"middle half satiated yellow"
60	"very light satiated yellowish chartreuse"
73	"light half satiated chartreuse"
80	"very light satiated greenish chartreuse"
94	"middle satiated green"
95	"middle half satiated green"
134	"middle satiated cyan"
174	"middle satiated blue"
202	"light satiated purple magenta"
214	"middle satiated magenta"
250	"very dark gray"
253	"light gray"

### 3.4.3 Pens (in mm)

The following pens can be used:

<u>AutoCAD No.</u>				
1013	"13"	-	"0.13"	mm
1015	"15"	-	"0.15"	mm
1018	"18"	-	"0.18"	mm
1025	"25"	-	"0.25"	mm
1030	"30"	-	"0.30"	mm
1035	"35"	-	"0.35"	mm
1050	"50"	-	"0.50"	mm
1070	"70"	-	"0.70"	mm
1140	"140"	-	"1.40"	mm
1211	"211"	-	"2.80"	mm

### 3.4.4 Type of lines

The following line types can be used:

#### AutoCAD terms

"CONTINUOUS"	"_____"
"VERDECKT"	"Verdeckt _____"
"KURZGESTRICHELT"	"Strichliert"
"GESTRICHELT"	"Strichliert"
"STRICHPUNKT"	"Strichpunkt __. __. __. __. __. __. __"
"GETRENNT"	"Getrennt _____"
"MITTE"	"Mitte _____"
"PHANTOM"	"Phantom _____"
"PUNKT"	"Punkt .....
"RAND"	"Rand _____"
"LTYPE_11"	"Dash-dot"
"LTYPE_15"	"Dashed"

### 3.4.5 Fonts

The following fonts can be used:

#### AutoCAD terms

TXT	txt SHX-Font
SIMPLEX	simplex SHX-Font
ISOCP2	isocp2 SHX-Font
ISOCP3	isocp3 SHX-Font
ISOCT3	isoct3 SHX-Font
SCRIPTS	scripts SHX-Font
GOTHICI	gothici SHX-Font
ISOCP	isocp SHX-Font
ROMANS	romans SHX-Font

AutoCAD terms

MONOTXT	monotxt SHX-Font
ITALIC	italic SHX-Font
COMPLEX	complex SHX-Font
ISOCT	isoct SHX-Font
ISOCT2	isoct2 SHX-Font
ROMANC	romanc SHX-Font
ROMANT	romant SHX-Font
ROMAND	romand SHX-Font
ITALICC	italicc SHX-Font
ITALICT	italict SHX-Font
SCRIPTC	scriptc SHX-Font
ARIAL	TrueType ARIAL
STYLU	TrueType STYLU

**3.4.6 Pattern**

Patterns are treated differently in various systems. Therefore they should not be used as far as possible.

However if the use of patterns is necessary, this has to be coordinated with BMS in advance.

Nevertheless, for later differentiation different pattern have to be assigned to different layers since only one standard pattern will be transferred.

**3.4.7 Hatching**

3 hatchings are assigned directly. Please use these hatchings exclusively.

AutoCAD terms

ANSI31	->	for „Walls, nonstructural“
ANSI37	->	for „nonstructural structural Elements“
ANSI33	->	for „reinforced concrete Walls “

**3.4.8 Point Symbols**

The following point symbols (e.g. for dimension lines) can be used:

AutoCAD terms

NSY140	Dimensioning: Arrowhead, line
NSY141	Dimensioning: Arrowhead, arrow
NSY142	Dimensioning: Arrowhead, circle

AutoCAD terms

NSY143 Dimensioning: Arrowhead, cross  
 NSY144 Dimensioning: Elevation, TLF (top level, finished surface)  
 NSY145 Dimensioning: Elevation, TLU (top level, unfinished surface)  
 NSY146 Dimensioning: Elevation, TL half filled  
 NSY147 Dimensioning: Elevation BLF (bottom level, finished surface)  
 NSY148 Dimensioning: Elevation, BLU (bottom level, unfinished surface)  
 NSY149 Dimensioning: Elevation, BL half-filled

**3.4.9 Smart Symbol / Macros / Blocks**

Self-defined new blocks (e.g. symbols for lamps) have to be documented and coordinated with BMS. Only after BMS's approval, they can be used. Block names, block design and layer assignments must be approved by BMS. It is not allowed to use other blocks within a block. Blocks must comprise only one layer.

Should a block be used or placed multiple times, the following should be taken into account (mandatory):

- The "Standard Blocks of BMS" must be used. These can be provided as a dwg template. If new blocks are required, a sample must be made available to BMS in the "dwg" format for approval so that they are then added to the catalog of the standard blocks of BMS and the "dwg" template.
- Blocks must always be created and placed without any scaling factor.
- The use of dynamic blocks is not permitted.
- The same block should always have the same name and labeling.
- Blocks must always be placed with the same placement reference point.
- If blocks are placed rotated, they must always have the same center of rotation.

**3.4.10 Text Strings – special characters**

The following special characters can be used:

AutoCAD terms

<b><u>String</u></b>	<b><u>Description</u></b>
%%%	# Percent symbol
%%u	# Begin underline
%%u	# End underline
%%064	# At character
ü	# Umlaut UE
ä	# Umlaut AE
Ä	# Umlaut AE
ö	# Umlaut OE
Ö	# Umlaut OE
Û	# Umlaut UE
<sup>0</sup>	# Superscript 0
<sup>1</sup>	# Superscript 1
<sup>2</sup>	# Superscript 2
<sup>3</sup>	# Superscript 3

4	# Superscript 4
5	# Superscript 5
6	# Superscript 6
7	# Superscript 7
8	# Superscript 8
9	# Superscript 9

#### AutoCAD terms

<b><u>String</u></b>	<b><u>Description</u></b>
%%d	# Degree character
α	# Alpha
β	# German S or Beta
§	# Paragraph character
%%c	# Diameter character
%%p	# Plus/minus character