



ECE CAD & IT Guideline

Section 0:

Preliminary technical note

Revision 1.0

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Change Log

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1.0	n.a.	Marc Scherer	Contents of the "CAD organizational structure" extracted from the document "Planning directory"

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General Introduction

The ECE CAD & IT Guideline has been developed to improve the quality of Computer-Aided Design (CAD) standardization efforts within ECE. The purpose of this manual is to set a basic CAD standard to ensure consistent electronic deliverables to and within ECE.

All externally produced documents delivered to ECE must be submitted in accordance with these standards.

The ECE CAD & IT Guideline is broken down into separate sections as follow:

- Section 0 defines the general CAD organizational structure.
- Section 1 addresses the general DWG Specifications for drawings.
- Section 2 addresses the Layer standard that will be used at ECE and that should be used when creating CAD files for ECE.
- Section 3 addresses the plan- and file naming convention and shows some examples (according to the requirement and rules for usage of a project room).
- Section 4 defines basic topics around BIM models

Each section was created to stand alone. Sections 0, 1 & 2 represent the complete ECE CAD Standard. It is expected that external architectural design firms use sections 0, 1 & 2 for general CAD rules and Section 3 for file naming and file organisation in general, especially if a project room is used for a project. Section 4 is to be considered in the case of project execution according to the BIM method.

This regulation does not specify any detailed definitions for projects conducted with the BIM method. For projects in which the BIM method is used, the project specific documents Client-Information Requirement (German: AIA, Auftraggeber Informationsanforderung) and BIM-Plan of Procedure (German: BAP, BIM-Ablaufplan) are created and provided to all project participants.

Acronyms

ACA	AutoCAD Architecture
ACA 2018	AutoCAD Architecture, Version 2018
AEC	Architecture, Engineering and Construction (or Civil)
AIA	American Institute of Architects related to CAD/Layer-Context or
AIA	German: Auftraggeber Informationsanforderung in BIM-Context (English: Client-Information Requirement)
BAP	German: BIM-Ablaufplan (English: BIM-Plan of Procedure)
BIM	Building Information Modeling (Method)
CAD	Computer aided Drafting / Design
DWG	Drawing (AutoCAD file format)
ECE	ECE Projektmanagement G.m.b.H. & Co. KG
FM	Facility Management
IAI	International Alliance for Interoperability
IFC	Industry Foundation Classes
ISO	International Organization for Standardization
LEED	Leadership in Energy and Environmental Design
NCS, USNCS	United States National CAD Standard
NIBS	National Institute of Building Sciences
UDS	Uniform Drawing System

General

In order to ensure an effective, loss-free exchange of CAD files the CAD organizational structure defined in the Planning Directory must be adhered to by all persons involved in planning and execution in the framework of their project work.

Furthermore, the CAD files shall form the basis for

- an effective building operation,
- possible re-planning and changes in usage,
- maintenance planning,
- facility management data in the broadest sense.

For this the described requirements are to be adhered to as well.

As far as project communication and documentation as well as the exchange of documents is realized via an internet-based project room platform then the contractor shall adhere to the conventions defined by the client for the project room.

Coordination of data exchange (initialization phase)

A possibly smooth exchange of data plays an important role in project management. For this purpose, the contractual parties should nominate a team of competent CAD administrators and/or key users. This team discusses all relevant questions regarding data exchange between the contractual parties' CAD systems. A short workshop (or a similarly close cooperation) regarding the framework conditions and the expected problems when exchanging data has proven successful. In this way, the best result can be achieved with the least possible efforts for everyone participating in exchanging data. The workshop results will be summarized in a short record and accepted by both contractual parties as binding rules for CAD data exchange.

If needed it is possible to draw up a CAD-specific project manual in which additional or deviating regulations are documented. The regulations in the project manual are to be understood as supplement to the explanations made herein. In case of contradictions, the regulations of the CAD-specific project manual shall prevail. The coordination of data exchange is realized by the ECE Design Manager / Planning Manager in cooperation with the ECE CAD administrators.

File formats

The following file formats are permitted:

Verwendung	Erweiterung	Version
Drawings	dwg	See attachment "DWG specifications"
Status drawings	plt	HPGL/2
Status drawings	pdf	1.5 oder higher
Image files	jpg	ISO/IEC 10918-1
Image files	png	ISO/IEC 15948:2004
Image files	tif	Fax Group 4 only
Others	doc, docx, xls, xlsx, ppt, pptx	MS Office 2010

For all service phases the original DWG format from the company Autodesk is requested as file format.

Details regarding DWG file version and type can be found in Section 1 of the CAD-Guideline "DWG specifications".

To update the architectural plans the client uses "AutoCAD Architecture" (ACA) based on AutoCAD. The file and property structure of the files submitted by the contractor must be processable with this application without further editing.

All relevant norms, rules, guidelines, provisions, and regulations related to the processing of CAD files in the broadest sense shall be complied with.

Thereby, the widest possible requirement shall be deemed agreed.

For all documents that are no drawing, plot file or image file are all formats from MS Office 2010 permitted. To exchange files from databases the exchange is to be organized in MS Excel.

If project communication is not realized via a project room then the exchange of data is to be organized via suitable data carriers such as recordable CDs, DVDs or USB storage devices.

A data handover record according to the enclosed template is to be attached to the data carrier containing all relevant data.

In order to reduce the risk of erroneous information in DWG drawings, a plot file in HPGL/2 or as PDF must be created and submitted for each DWG drawing.

For more information, see Section 1 of the CAD-Guideline: "DWG Specifications".