



**SNC•LAVALIN**  
**Nexacor**

# **PROTOCOL**

CAD GUIDELINES

FOR ONTARIO  
CONSULTANTS

VERSION 4.1  
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# **TABLE OF CONTENTS**

<b>1.0</b>	<b>INTRODUCTION</b>	03
<b>2.0</b>	<b>REQUIREMENTS</b>	03
<b>2.1</b>	<b>Layers</b>	04
<b>2.1.1</b>	<b>Disciplines</b>	04
<b>2.2</b>	<b>Architectural</b>	05
<b>2.3</b>	<b>Electrical</b>	06
<b>2.4</b>	<b>Mechanical</b>	07-08-09
<b>2.5</b>	<b>Plumbing</b>	08
<b>2.6</b>	<b>Furniture</b>	09
<b>2.7</b>	<b>Site Plan</b>	10
<b>3.0</b>	<b>COLOR AND SIZES</b>	11
<b>3.1</b>	<b>Color Codes</b>	11
<b>3.2</b>	<b>Text and Text Sizes</b>	11
<b>3.3</b>	<b>Standard Sheet Sizes and Formats</b>	11
<b>4.0</b>	<b>DRAWING LABELING AND FILE CREATION</b>	12
<b>4.1</b>	<b>Title block requirements</b>	12
<b>4.2</b>	<b>File return</b>	13
<b>4.3</b>	<b>E-Mail/CD/ Diskette Labeling</b>	13
<b>4.4</b>	<b>Copy and compression format</b>	14
<b>4.5</b>	<b>Inserting a CAD drawing into MS-Word</b>	15

## 1.0 INTRODUCTION

AutoCAD by Autodesk is the main CADD software used by Nexacor. This user manual is to serve as a template to all Nexacor consultants using Autocad 2004, 2002 or 2000 for CAD drafting. All drawings to be returned in AutoCAD 2000 format.

It contains all technical specifications such as layer naming and pen weights to comply with NEXACOR standards.

Menus have been created for furniture and electrical disciplines. These Autocad 2000 based menus include a bank of objects used by different users and works only with Autocad 2000 or higher.

## 2.0 REQUIREMENTS

Drawings produced by the guidance of these standards should demonstrate a professional and quality appearance. The technical competence and aesthetic judgement of the firm should be appropriately demonstrated at every level, to the point that Nexacor should never find cause to question.

To maintain a certain standard between users, easy access to information, and maintain accurate master drawings , drafters will be required to respect certain basic drawing criterias such as :

- All drawings are to be done in **METRIC** units
- Nexacor drawings all have a 0,0,0 insertion point. This insertion point is not to be moved, scaled or rotated
- Each and every new job for NEXACOR will require new master floor plans to be requested from the NEXACOR cad department.
- Use only standard Auto CAD fonts in the drawing.
- All drawing title blocks are to include the name of the Nexacor project manager.
- Raster to vector conversion is not acceptable
- Hatching has it's own layer
- Drawing entities shall be input on the proper layers and set to by-layer for colour and line-type.
- AutoCad site drawings will be drawn one to one .i.e. ten metres ( 10 m) on the site can be measured as ten metres ( 10 m) in the base drawing
- Site plans shall be drawn in model space and shall follow the conventions in this document

- It will be the responsibility of the outside consultant to verify, on site, that the proposed CAD site utility drawings, when completed are accurate with the existing conditions as of the start of the project.
- Consultant specific layers shall be converted to the correct Nexacor layer standard. Non-standards layers shall be purged prior to product delivery.
- Drawings using reference files are to be listed on the title block layer. This list will give an account of dependent files for the complete document.

## 2.1 LAYERS

### 2.1.1 DISCIPLINES

#### 1. GENERAL :

For new projects please identify the work on a new layer affected with a dash and then the appropriate letter. For example a new wall would be identified as ARBASE-N.

<u>LAYER :</u>	<u>DESCRIPTION :</u>
XXXXXX-N	New construction
XXXXXX-D	Demolition
XXXXXX-F	Future
XXXXXX-E	Existing

## 2.2 ARCHITECTURAL

Layer Name	Description
ARACCE	Accessories, ladders, cable holes, equipment base
ARAXES	Column grid, bubbles and text
ARBASE	All structural elements (structural wall, exterior walls, windows, doors, columns, stair cases, elevators, vertical shafts, fire cabinets)
ARDETA-XXXX	Details (can be divided in multiple layers)
ARDIME	Dimensions
ARFLOR	Raised floor
ARFRAM	Title block, frame and key plan
ARFURN	Counters and other fixed furniture
ARCEIL	Ceiling grid
ARHATC	Hatching
ARLAND	Landscape elements
ARINTE-TEMP	Temporary wall
ARINTE	All non-structural interior walls, windows and doors
ARNOTE-XXXX	Notes on drawings (can be divided in multiple layers)
ARPLUM	Plumbing fixtures
ARREVI	Revisions, guide lines, clouds
ARROOF-XXXX	Roofing elements (can be divided in multiple layers as long as it starts with ARROOF...ARROOF-EQUI, ARROOF-DRAI, etc...)
ARSYMB	Door #, room #
ARTEXT	Text not part of title block (project title, revision #...)

### 2.3 **ELECTRICAL**

For electrical objects a new menu is now available. Please follow the installation instructions and download file from our site; <http://www.nexacor.ca/cad/index.html>

For new projects you must use objects from the new menus available and should never copy an existing object from the drawing because certain objects are on newly created layers.

<b>Layer Name</b>	<b>Description</b>
ELACCE	Accessories
ELALAR	Alarm equipment
ELCOMM	Communication equipments
ELCONT	Control
ELDETA-XXXX	Details (can be divided in multiple layers)
ELDIAG	Single line diagram
ELDIAG-XXX	Single line diagram (can be divided in multiple layers as long as it starts with ELDIAG ex. ELDIAG-UPS, ELDIAG-EMER)
ELNOTE-UN	Notes on single line diagram
ELDIME	Dimensions
ELHATC	Hatch
ELHEAT	Heating equipment and wiring
ELLIGH	Lighting equipment
ELNOTE	General electrical notes
ELNOTE-XX	Notes on drawing ( XX= li-lighting, se-service, co-control, cm-communication,al-ala-control, cm-communication,)
ELNOTE-LEGE	Schedules or legends
ELREVI	Revisions, guide lines, clouds
ELSECU	Security
ELSERV	Service and distribution equipment
ELTEXT	Text and attributes in frame
ELXXXX-EMER	Emergency equipment

## 2.4.1 MECHANICAL

### GENERAL

Layer Name	Description
MEDETA-XXX	Details Single line diagram (can be divided in multiple layers)
MEDIME	Dimensions
MEHATC	Hatch
MENOTE	General notes on drawing
MENOTE-LEGE	Schedules or legends
MEREVI	Guide lines, revisions, cloud
METEXT	Text in the title block (project title, revision #...)

## 2.4.2 VENTILATION

Layer Name	Description	Line type
MVACCE	Accessories	Continuous
MVCONT	Controls	Continuous
MVDIME-XXXX	Dimensions or notes related to ductwork (can be divided in multiple layers)	Continuous
MVDUCT-RETU	Return Ductwork	Dashed
MVDUCT-SUPP	Supply Ductwork	Continuous
MVSYST	Systems	Continuous
MVEQUI	Equipment	Continuous
MVDIFF	Diffusor	Continuous
MVNOTE-XXXX	Notes unrelated to ductwork descriptions (can be divided in multiple layers)	Continuous

## 2.4.3 SPRINKLER

Layer Name	Description	Line type
MSDIME-XXXX	Dimensions or notes related to sprinkler (can be divided in multiple layers)	Continuous
MSEQUI	Equipment	Continuous
MSHEAD	Sprinkler heads	Continuous
MSPIPE	Piping	Continuous
MSNOTE-XXXX	Notes unrelated to sprinkler descriptions (can be divided in multiple layers)	Continuous

#### 2.4.4 HEATING

Layer Name	Description	Line type
MHDIME-XXXX	Dimensions or notes related to heating equipment (can be divided in multiple layers)	Continuous
MHSUPP	Supply	Continuous
MHRETU	Return	Continuous
MHNOTE-XXXX	Notes unrelated to heating descriptions (can be divided in multiple layers)	Continuous
MHEQUI	Heating equipment	Continuous

#### 2.4.5 COOLING

Layer Name	Description	Line type
MCDIME-XXXX	Dimensions or notes related to chilling equipment (can be divided in multiple layers)	Continuous
MCSUPP	Supply	Continuous
MCRETU	Return	Dashed
MCNOTE-XXXX	Notes unrelated to chilling descriptions (can be divided in multiple layers)	Continuous
MCEQUI	Chilling equipment	Continuous

## 2.5 PLUMBING

Layer Name	Description	Line type
MPCOMP	Compressed air	Continuous
MPDIME-XXXX	Dimensions or notes related to piping (can be divided in multiple layers)	Continuous
MPDRAI	Rain water drainage	ACAD_ISO10W100 ISO dash dot
MPSANI	Sanitary drainage	Continuous
MPCWTR	Cold water	Continuous
MPHWTR	Hot water	Continuous
MPRWTR	Recirculated water	Continuous
MPSWTR	Schilled water	Continuous
MPVENT	Vents	Continuous
MPEQUI	Equipment	Continuous
MPNOTE-XXXX	Notes unrelated to piping descriptions (can be divided in multiple layers)	Continuous
MPVAPE	Vapor	Continuous
MPVALV-XXXX	Valve (can be divided in multiple layers)	Continuous
MPGLYC	Glycol	Continuous
MPGAZN	Natural gaz	Continuous
MPFREO	Freon	Continuous
MPCOMB	Combined	Continuous
MPCOND	Condensed	Continuous

## 2.6 FURNITURE PLAN

For FURNISHING objects, a new menu is now available . Please follow the installation instructions and download file from our site;<http://www.nexacor.ca/cad/index.html>  
 For new projects you must use objects from the new menus available and should never copy an existing object from the drawing because certain objects are on newly created layers.

Layer Name	Description
FUFRAM	Title block
FUDETA	Details
FUDIME	Dimensions
FUSCRE	Panels
FUSCRE-XXXX	Panels ( xxxx = tekn, stee, hawo)
FUELEC	Electrical layout
FUELEC-POLE	Electrical pole layout
FUEQUI	Equipment
FUFINI	Finish
FUHATC	Hatch
FUHAWO	Haworth
FUNAME	Individuals' name
FUNOTE	Notes on drawing
FUNOTE-XXXX	(can be separated in different layers Ex; xxxx = lege for legend etc...)
FUPOSI	Position number
FUREVI	Guide lines, clouds
FUSTAN	Standard equipment ( All other furniture)
FUSTEE	Steelcase
FUTEKN	Teknion
FUTEXT	Text in the title block (project title, revision #...)
XXXXXX-ATT	Attributes (can be added to any layer)

## 2.7

### SITE PLAN

Layer Name	Description
SPBASE	Structures
SPBLDG	Building outline
SPDIME	Dimensions
SPELEC	Site electrical substations
SPEQUI	telephone poles, manholes, etc...
SPPAVE	Road, parking lots
SPPLNT	Plant materials
SPPROP	Property line, survey benchmark
SPSITE	Proposed fencing
SPWALK	Walks and steps
SPWATE	Domestic water –, storage
SPNOTE	Notes
SPHATC	Hatch

## 3.0 COLOR AND SIZES

### 3.1 COLOR CODES

All layers are «bylayer » and must remain so. This will permit different users to choose colors at their convenience as follows ;

Color	Code	Width ( mm)	Width (in)
Red	1	0.180	0.007
Yellow	2	0.254	0.010
Green	3	0.300	0.012
Cyan	4	0.350	0.014
Blue	5	0.500	0.020
Magenta	6	0.600	0.024
white	7	0.700	0.028
Gray	8	0.080	0.003
Dark Red	12	0.800	0.031
Dark yellow	50	1.000	0.039
Dark green	106	1.200	0.047
Dark cyan	151	1.400	0.055
Dark blue	172	0.180	0.007
Dark magenta	214	0.254	0.010
Dark Gray	252	0.180	0.007

### **3.2 TEXT AND TEXT SIZES**

All text is to be submitted only with the following standard AutoCAD SHX files.

Simplex.shx Suggested for most text and attribute entries.

Romans.shx Suggested for most text and attribute entries.

Romand.shx May be used for larger text sizes.

Romant.shx Limit use to control regeneration times.

### **3.3 STANDARD SHEET SIZES AND FORMATS**

Sheet sizes are recommended to be ( but not limited to) four standard formats. Required sheet size is specific to each project and should be coordinated with Nexacor's Construction Project manager. They are as follows :

A0 Sized Plot 841 mm x 1189mm

A1 Sized Plot 594 mm x 841 mm

A2 Sized Plot 420 mm x 594 mm

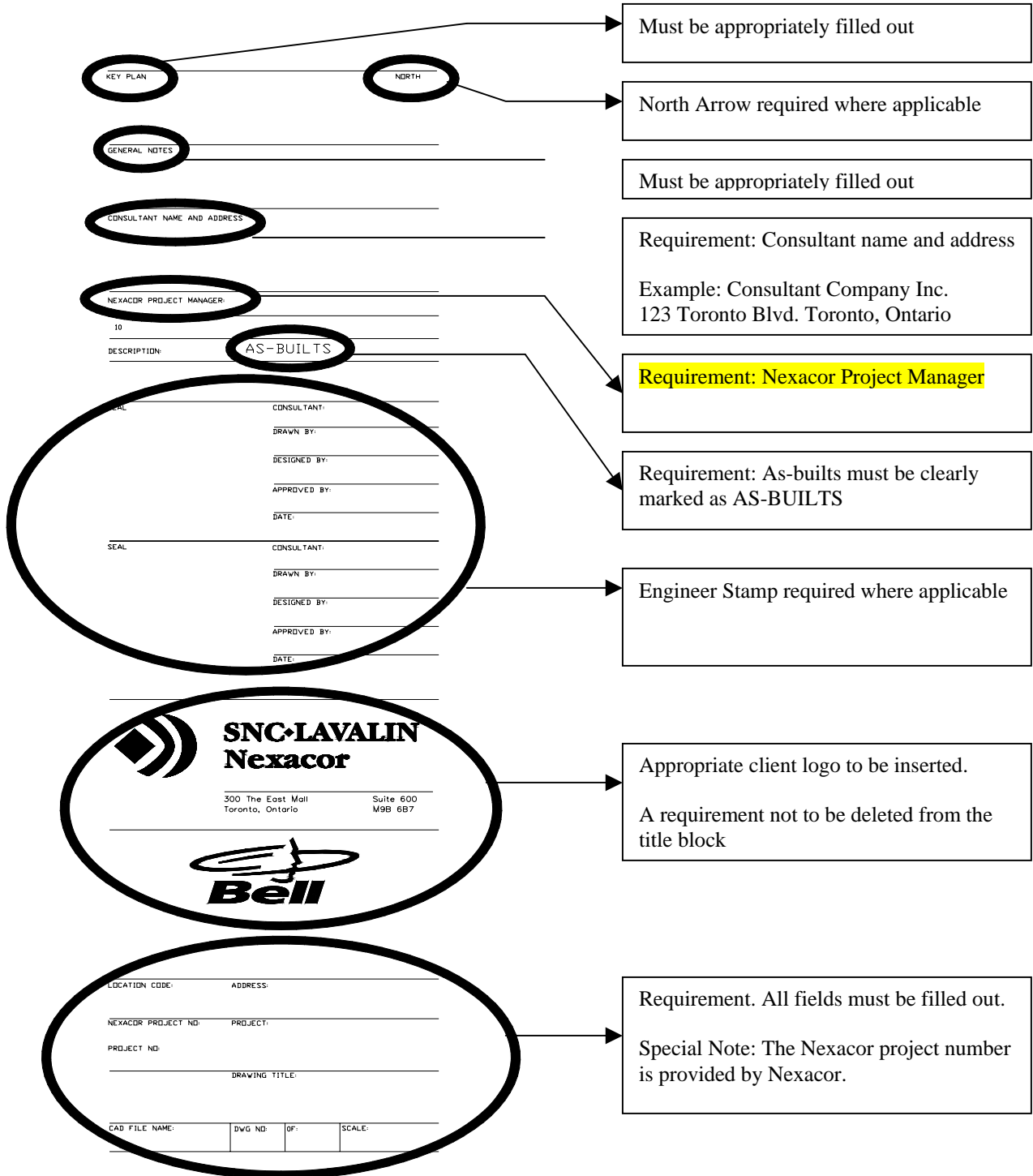
A3 Sized Plot 297 mm x 420 mm

A4 Sized Plot 210 mm x 297 mm

## 4.0 DRAWING LABELING AND FILE CREATION

### 4.1 TITLE BLOCK REQUIREMENTS

The standard Nexacor title block must be used and the appropriate areas filled out.



## 4.2 FILE RETURN

File return should be as followed:

- A set of .DWG format files, **AutoCad 2000**, of each sheet of the as built drawings; demolition and construction. If the project has 5 sheets then 5 different files should be submitted to NEXACOR.
- **(MULTIPLE DRAWINGS ON ONE .DWG FILE WILL NOT BE ACCEPTED)**
- **PAPER COPIES ARE NO LONGER REQUIRED.**
- **NO RASTER FILES WILL BE ACCEPTED**
- **A copy of the .pcp file (if different than NEXACOR's).**
- **NO XREF DRAWINGS WILL BE ACCEPTED.**

## 4.3 E-MAIL /CD

The electronic data deliverable package will include or CD-ROM, with labels and an 8 1/2" x 11" hard copy of the file descriptions.

CD-ROM's are to be labeled as follows :

BELL/NEXACOR ID :	Bell property identification number for the building in which the project is intended. The number may be obtained from the project manager.
BUILDING ADDRESS :	Address of Project location
PROJECT :	Title of the project and floor on which the work was done if applicable.
DATE :	The date the data was delivered to Nexacor for final acceptance.
PROJECT NUMBER :	Project number assigned to each project. Obtained from the Project/Construction Manager.
CONSULTANT :	Name of consultant.
TELEPHONE NUMBER :	Telephone number of the consultant.
DISKETTE NUMBER :	If drawings are delivered on multiple disks, they are to be numbered in coordination with the File Description from the transmittal form.

Emails are to be identified as : **ASBUILT-ADDRESS-NEXACOR PROJECT #**

For example : **ASBUILT-123 NEXACOR ST-12345678**

- Completed files on CD-Rom's may be sent or emailed to the addresses below.

Nexacor Realty Management Inc.  
160 Elgin Street, Room 1421  
Ottawa, Ontario, K2P 2P7

[bdiorio@nexacor.ca](mailto:bdiorio@nexacor.ca) for Ottawa

Nexacor Realty Management Inc.  
300 The East Mall  
Suite 600  
Etobicoke, Ontario, M9B 6B2  
**Attn : CAD Services**

dlee@nexacor.ca for Toronto  
rmckendr@nexacor.ca for Toronto

#### **4.4 COPY AND COMPRESSION FORMAT**

Files larger than 1.44 megabytes may be sent on a CD-ROM or emailed accompanied with the hard copy file description. Large or multiple files for submission may be compressed using the latest version of WinZip. Compressed files are required when sending multiple drawings via email.

## 4.5 INSERTING A CAD DRAWING INTO MS-WORD \*ONLY WHEN REQUESTED

### 1.0 Change the background color from black to white.

- Click on Tools menu
- Scroll down and click on options
- Click on display tab
- Click on color
- Pick the color white
- Click on Apply and close
- Click on apply

Screen changes from black to white assuming the screen was black to begin with

### 2.0 Copying the drawing

- Before copying the drawing change any solid hatch patterns to a normal style of hatch pattern e.g. ansi31 in AutoCAD.
- Avoid using light colors such as yellow as they do not display well on a white background.
- Ctrl + C
- Window the desired drawing or drawing area to be copied
- Click on Enter

### 3.0 Pasting the drawing in MS Word

- Start MS Word
- Click on Edit menu
- Scroll down and select paste special
- Select the picture option
- Drawing will paste into the document

### 4.0 Manipulating the drawing

- If picture tool bar is not open go to the View pull down menu, select Toolbars and choose the Picture tool bar.
- The picture tool bar will appear.
- Select the crop icon from the picture toolbar to manipulate the drawing size.
- After selecting the crop command, click and drag on the middle-resizing handle on each side of the picture to crop to the desired size.
- Click outside of the picture to escape the crop command
- Move the drawing to the upper left hand corner of the page
- Click lower right hand corner of the drawing and drag the resizing handle to enlarge the document to fill most of the page

