Norms and standards for computer-aided design (CAD) for Bell Canada

(Version Française disponible)

Version 6.2
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** TABLE OF CONTENTS **

1. Introduction

This document is written for all Bell Canada consultants, who, in accordance with their contracts, must use the software AutoCAD as a tool for computer-aided design. This user manual explains the technical standards required to comply with the requirements of Bell Canada's computer-aided design.

Bell Real Estate Services (BRES) generates approximately 2000 projects every year. These projects require about 1400 drawings; they include architectural, mechanical, electrical, and/or furniture. It goes without saying that the whole procedure must be regulated. Throughout the course of this document, you will find a detailed explanation regarding layers, their respective nomenclature, and the use of official title blocks, electrical legends and furniture plans. In addition, we have included techniques for technical drawings that one must respect, the process to follow when sending drawings, frequently asked questions and a list of common mistakes.

**In order to avoid loss of time and unnecessary work, it is very important to consult the section entitled "Important guidelines to follow". In addition, it is imperative to read all notes which are written in blue and in red.
Please note that after trying unsuccessfully twice to get the drawings up to standards you will be referred to your SNC Lavalin O&M Project Manager.

All necessary tools needed to implement Bell Canada's drawing standards can be found on SNC Lavalin O&M's web site in the 'CAD Standards' section. The direct link is: http://www.snclavalinom.com/en/cad.aspx . This site contains, among others, the title blocks, menus, standards (PDF version), electrical legends & symbols, Bell Canada's CTB and the LAS files for each discipline.

For all questions related to standards, please do not hesitate to contact us at the following coordinates:

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2. About Bell Canada's Archives

In order to interpret and apply the norms and standards in our drawings, it is essential to understand Bell Canada's system of archives. Following receipt of your project, all pertinent information is entered into the database. The information entered in the database includes, and is not limited to: the project number, the drawing title, the sequence of drawings, the discipline, etc.

Locati	Year	Type	Project #	Page	of Page	Floo	Floc	Floo	File Typ	Description
413155	2011	A	10189004	0	22	03			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - COVER PAGE 3RD FLOOR PLAN
413155	2011	A	10189004	1	22	04			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - COVER PAGE 4TH FLOOR PLAN
413155	2011	A	10189004	2	22	05			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - COVER PAGE 5TH FLOOR PLAN
413155	2011	A	10189004	3	22	07			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - COVER PAGE 7TH FLOOR PLAN
413155	2011	A	10189004	4	22	09			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - COVER PAGE 9TH FLOOR PLAN
413155	2011	A	10189004	6	22	10			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - COVER PAGE 10TH FLOOR PLAN
413155	2011	A	10189004	7	22	07			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - DEMOLITION PLAN 7TH FLOOR
413155	2011	A	10189004	8	22	10			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - DEMOLITION PLAN 10TH FLOOR
413155	2011	A	10189004	9	22	09			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - DEMOLITION PLAN 9TH FLOOR
413155	2011	A	10189004	10	22	07			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - PARTITION PLAN 7TH FLOOR
413155	2011	A	10189004	11	22	09			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - PARTITION PLAN 9TH FLOOR
413155	2011	A	10189004	12	22	10			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - PARTITION PLAN 10TH FLOOR
413155	2011	A	10189004	13	22	07			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - REFLECTED CEILING PLAN 7TH FLOOR
413155	2011	A	10189004	14	22	09			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - REFLECTED CEILING PLAN 9TH FLOOR
413155	2011	A	10189004	15	22	10			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - REFLECTED CEILING PLAN 10TH FLOOR
413155	2011	A	10189004	16	22	07			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - MILLWORK, WALL TYPES, DETAILS, ELEVATIONS & SECTIONS
413155	2011	A	10189004	17	22	09			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - MILLWORK, WALL TYPES, DETAILS, ELEVATIONS & SECTIONS
413155	2011	A	10189004	18	22	10			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - MILLWORK, WALL TYPES, DETAILS, ELEVATIONS & SECTIONS
413155	2011	A	10189004	19	22	07			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - DOOR & FINISH SCHEDULE 7TH FLOOR
413155	2011	A	10189004	20	22	09			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - DOOR & FINISH SCHEDULE 9TH FLOOR
413155	2011	A	10189004	21	22	10			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - DOOR & FINISH SCHEDULE 10TH FLOOR
413155	2011	A	10189004	22	22	09			AUTOCAD	50 EGLINTON AVE EAST - BRS STRATEGY 2010 - POWER & COMMUNICATION PLAN 9TH FLOOR PLAN

Bell Canada Real Estate has more than 100,000 drawings in its archive, where the oldest ones date back to the 1920's. Project plans dating from before 1998 and which are hand drawn, have been scanned and stored as TIFF files. The TIFF format allows us to keep the maximum quality while having reasonable file sizes. In addition, TIFF files can be viewed on any computer using the Windows operating system. Simply use Microsoft Paint or Microsoft Picture Manager for those who have the Microsoft Office suite. Upon request, we are able to conduct a database search using specific keywords in order to quickly obtain the desired information. Do not hesitate to contact us if you need to reference specific plans within your project framework; for example: wall sections and details, structural plans, details of the original generator installation, amongst more. This also applies to all projects made after 1998 with AutoCAD.

For the above-mentioned reasons, it is very important to email us your drawings in separate files; that is to say, *one drawing file (.dwg) per one drawing sheet*. For example, if your project contains 15 sheets, please send us 15 separate .dwg files plus your title page. Your files will then be named as seen in the following table: project number, followed by the discipline, and then the page number, in sequential order, for the series of drawings. The sequence will not include the title page 00.

Mecanical Project	Electrical Project	Architectural Project	Furniture Layout Project
10065837m00	10065837e00	10065837a00	10065837fu00
10065837m01	10065837e01	10065837a01	10065837fu01
10065837m02	10065837e02	10065837a02	10065837fu02
10065837m03	10065837e03	10065837a03	
10065837m04	10065837e04	10065837a04	
10065837m05	10065837e05	10065837a05	
10065837m06		10065837a06	
10065837m07			

**Please note that projects not conforming to our structure of 'one .dwg file per one drawing sheet' as well as file names, will be returned to you for corrections.

3. Master-plans – *the structure*

For each of the 1,200 buildings in Quebec and Ontario as well as everywhere else in Canada there is a master plan for the architectural, furniture, mechanical, and electrical sets including a single line diagram. As described above, these plans are found in separate AutoCAD files as opposed to one drawing file.

Currently, these plans are not complete; however, over time, our goal is to have a comprehensive collection of master plans by floor, building and discipline. With your help, this has become a reality in several buildings. We started with partial plans that have become, over the years and throughout the projects, thorough master plans.

At the beginning of your project, depending on your needs, we are able to send you either a complete or partial set of plans. If the plan does not exist, we will send you the architectural master plan (we have them all) and thereafter, we will create a new plan reflecting your project. Our goal is to either create a new master plan or to update existing master plans from the information contained in your project. It is essential to work with the architectural master plan that we send you, and especially, to never move it from its point of origin (0,0,0) which is found in the center of the environment. This origin point is the fundamental link of our reference system as it determines the master plan locations of all disciplines as well as the title blocks. For all the disciplines, the architectural master plan must be placed in the drawing using the 'Bind / Insert' command. **No Xrefs will be accepted**. The title blocks must be inserted in 'Paper Space' view. Please note that all our plans are saved in AutoCAD 2010 version.

**Please note that all projects with reference files will be returned. In other words, XREF's will be sent back for corrections without even opening them first.
**Pease note that master plans which have been moved from their origin point will be returned for correction.
**Please note that incomplete master plans, which are found to have deleted parts, will be returned for corrections.

3.1 The system and the layer names

The plans that you return to us will be used to update or create master plans relating to your particular discipline. When a partial or complete master-plan is sent to you, it will have specific layers such as: ARINTE, ARDIME, ARBASE, AMTECK, FUTEKN, ELSERV, ELEQUI, MEGAIN. These names are structured in such a way to identify a discipline and its content.

- Layer names for architecture begin with AR.
    - ARINTE = Interior walls/architecture
    - ARAXES = Axes/architecture
    - ARSYMB = Room & Door numbers/architecture
- Layer names for electricity begin with EL.
    - ELSERV = Services/electricity
    - ELALAR = Alarm equipment/electricity
    - ELLIGH= Lighting equipment/electricity
- Layer names for mechanical begin with ME. *Please refer to the section 'Layers in details', as there are sub-categories for this discipline.*
    - MVDIFF = Diffusers/mechanical
    - MENOTE = General notes/mechanical
    - MCSUPP = Supply/mechanical
- Layer names for furniture begin with FU.
    - FUTEKN = Teknion Furniture Systems/furniture
    - FUSCRE= Acoustical panels/furniture
    - FUCOLU= Columns/furniture

In the following section entitled 'Layers', you will find the primary layers used, along with their detailed names and their respective meaning. Our system is user-friendly and easy to understand. This allows for new layers to be created, as long as they respect the nomenclature of our system. Examples of layers that conform to our nomenclature are as follows:

- ELNOTE-CHGC: = Notes/electricity
- ELNOTE-UNIL = Notes/electricity
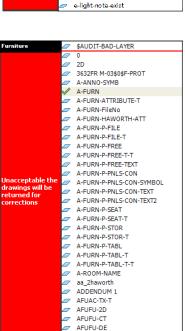- MVNOTE-DUCT-SUPP- = Notes/ventilation
- MVNOTE-DUCT-RETU = Notes/ventilation

o *MPSANI-PP = Drainage/plumbing*
 o *ARDETA-3M = Details/architecture*

This process allows for considerable leeway when organizing your various entities in a simple and comprehensible manner within our system.
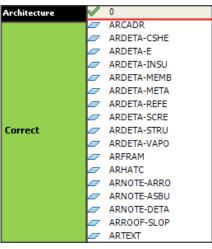
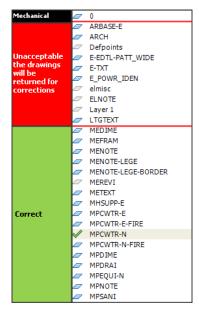***Please note that projects which do not meet our nomenclature standards will be returned for corrections.*

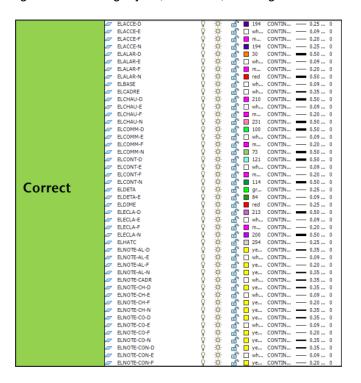Here are a few examples to follow (in green) and to avoid (in red);

3.2   **The system and the layer names – *continued***

In order to standardize the drawings created by different users, and to allow for easy access as well as to maintain a bank of master plans for each discipline; everyone must meet the following method.

The first step is to identify all elements to be demolished and transfer these to a new layer with the same name and add the letter –D (for demolition) at the end. For instance, partitions to be demolished would be named: ARINTE-D. Similarly, all newly designed elements (walls, electrical services, ventilation ducts…) must be drawn on layers labelled –N (for new construction). For example, new sprinkler heads must be drawn on a layer name MSHEAD-N. This system allows us to quickly identify the items to be removed and those to merge to the existing layers, therefore, creating the new master plan.

Correct	Layer			Color	Linetype	Lineweight	Plot
	ELACCE-D			194	CONTIN…	0.25 …	0
	ELACCE-E			wh…	CONTIN…	0.09 …	0
	ELACCE-F			m…	CONTIN…	0.20 …	0
	ELACCE-N			194	CONTIN…	0.25 …	0
	ELALAR-D			30	CONTIN…	0.50 …	0
	ELALAR-E			wh…	CONTIN…	0.09 …	0
	ELALAR-F			m…	CONTIN…	0.20 …	0
	ELALAR-N			red	CONTIN…	0.50 …	0
	ELBASE			wh…	CONTIN…	0.09 …	0
	ELCADRE			wh…	CONTIN…	0.35 …	0
	ELCHAU-D			210	CONTIN…	0.50 …	0
	ELCHAU-E			wh…	CONTIN…	0.09 …	0
	ELCHAU-F			m…	CONTIN…	0.20 …	0
	ELCHAU-N			231	CONTIN…	0.50 …	0
	ELCOMM-D			100	CONTIN…	0.50 …	0
	ELCOMM-E			wh…	CONTIN…	0.09 …	0
	ELCOMM-F			m…	CONTIN…	0.20 …	0
	ELCOMM-N			73	CONTIN…	0.50 …	0
	ELCONT-D			121	CONTIN…	0.50 …	0
	ELCONT-E			wh…	CONTIN…	0.09 …	0
	ELCONT-F			m…	CONTIN…	0.20 …	0
	ELCONT-N			114	CONTIN…	0.50 …	0
	ELDETA			gr…	CONTIN…	0.25 …	0
	ELDETA-E			84	CONTIN…	0.09 …	0
	ELDIME			red	CONTIN…	0.25 …	0
	ELECLA-D			213	CONTIN…	0.50 …	0
	ELECLA-E			wh…	CONTIN…	0.09 …	0
	ELECLA-F			m…	CONTIN…	0.20 …	0
	ELECLA-N			200	CONTIN…	0.50 …	0
	ELHATC			254	CONTIN…	0.25 …	0
	ELNOTE-AL-D			ye…	CONTIN…	0.35 …	0
	ELNOTE-AL-E			wh…	CONTIN…	0.09 …	0
	ELNOTE-AL-F			ye…	CONTIN…	0.20 …	0
	ELNOTE-AL-N			ye…	CONTIN…	0.35 …	0
	ELNOTE-CADR			wh…	CONTIN…	0.35 …	0
	ELNOTE-CH-D			ye…	CONTIN…	0.35 …	0
	ELNOTE-CH-E			wh…	CONTIN…	0.09 …	0
	ELNOTE-CH-F			ye…	CONTIN…	0.20 …	0
	ELNOTE-CH-N			ye…	CONTIN…	0.35 …	0
	ELNOTE-CO-D			ye…	CONTIN…	0.35 …	0
	ELNOTE-CO-E			wh…	CONTIN…	0.09 …	0
	ELNOTE-CO-F			ye…	CONTIN…	0.20 …	0
	ELNOTE-CO-N			ye…	CONTIN…	0.35 …	0
	ELNOTE-CON-D			ye…	CONTIN…	0.35 …	0
	ELNOTE-CON-E			wh…	CONTIN…	0.09 …	0
	ELNOTE-CON-F			ye…	CONTIN…	0.20 …	0

Upon receipt of your project, all layers labelled –D are deleted. All layers labelled –N are merged to existing layers. All new layers which you have created, in accordance with the nomenclature as described above will remain as is. This method will be use to create new Master Drawing and will replace the old one. It will be archived for future needs and to serve as reference.

**Do not hesitate to download the project examples present in our toolbox found on our web site. With these, you will have a clear understanding of how to perfectly apply Bell Canada's drawing standards. In addition, many of your questions will surely be answered.

4. Layers in detail

The following pages outline the method of implementing the official nomenclature for the different disciplines.

4.1 Guidelines

4.1.1 Layer names must always be capitalized

4.1.2 You can download the .LAS file ('layer state') for each discipline on SNC Lavalin O&M's web site ('Cad Standards' on the Home page). The contents of these files can then be directly inserted into your drawing in order to create all the official layers at once.

4.1.3 When you start a project, it is not necessary to rename the existing layers; however, it is pertinent that you add extensions to the new layers. If you wish to rename existing layers, add the extension –E.

4.1.4 The following convention applies to all layers for all disciplines:

Layers	Description
XXXXXX-N	New construction
XXXXXX-D	Demolition
XXXXXX-E	Existing

4.2 Mechanical layers

Mechanical general- *Mechanical.las*

Mechanical Layers	Description
MEBASE	Insert architectural drawing on this layer
MEDETA-XXXX	Details – may be sub-divided into multiple layers
MEDIME	Dimensions
MEHATC	Hatch
MENOTE-TEMP	General notes which are not found on master plans. (*For the construction only*).
MENOTE-XXXX	Notes on drawing – *may be divided into sub-layers and must always start with MENOTE, e.g.: MENOTE-REVI, MENOTE-DEMO, MENOTE-CONS…*
MENOTE-LEGE	Schedules and legends
MEREVI	Guide lines, revision clouds
METEXT	Text and attributes for title block

Mechanical sprinklers - *Mechanical.las*

Sprinkler Layers	Description
MSDIME-XXXX	Dimensions related to sprinkler (can be sub-divided)
MSEQUI	Equipment (pump, valves...)
MSHATC	Hatch
MSHEAD	Sprinkler heads
MSNOTE-XXXX	General notes which are not associated to the sprinkler network but related to sprinklers
MSPIPE	Piping network

Mechanical ventilation - *Mechanical.las*

Ventilation Layers	Description
MVACCE	Accessories
MVCONT	Controls
MVDIFF	Diffusers
MVDIME	Dimensions
MVDUCT-RETU	Return Ductwork
MVDUCT-SUPP	Supply Ductwork
MVEQUI	Equipment
MVHATC	Hatch
MVNOTE	General notes which are not associated to ventilation network but related to ventilation
MVSYST	Systems

Please note:

**Duct work must be drawn in its entirety – that is to say, 2 lines must be used. Nothing else will be accepted.
**Mechanical plans showing ventilation shafts drawn with one line will be returned for correction.

Mechanical cooling - *Mechanical.las*

Cooling Layers	Description
MCDIME-XXXX	Dimensions related to cooling equipment; can be sub-divided
MCEQUI	Cooling equipment
MCGLYC	Glycol
MCHATC	Hatching related to the cooling system
MCNOTE-XXXX	General notes that are not associated with the cooling network but related to cooling
MCRETU	Return
MCSUPP	Supply
MCWICE	Ice Water

Mechanical heating - *Mechanical.las*

Heating Layers	Description
MHDIME-XXXX	Dimensions related to heating equipment; can be sub-divided
MHEQUI	Heating equipment
MHHATC	Hatching related to the heating system
MHNOTE-XXXX	General notes that are not associated with the heating network but related to heating
MHRETU	Return
MHSUPP	Supply

Mechanical plumbing - *Mechanical.las*

Plumbing Layers	Description
MPCOMP	Compressed air piping network
MPCOMB	Combined
MPCOND	Condensed
MPCWTR	Cold water piping network
MPDIME-XXXX	Dimensions related to plumbing equipment; can be sub-divided
MPDRAI	Rain water drainage
MPEQUI	Equipment
MPFREO	Freon
MPFRDR	French drain
MPGAZN	Natural gas piping network
MPGAZP	Propane gas piping network
MPHATC	Hatching related to the plumbing system
MPHWTR	Hot water piping network
MPNOTE-XXXX	General notes that are not associated with the plumbing system but related to plumbing
MPOIL	Fuel oil piping network
MPRWTR	Recycled water piping network
MPSANI	Sanitary drainage
MPULTS	Ultrasound
MPVALV-XXXX	Valves – *can be sub-divided into multiple layers*
MPVAPE	Vapour
MPVENT	Vents

4.3   Architectural Layers

Architecture - *Architecture.las*

Architectural Layers	Description
ARACCE	Accessories, ladders, cable holes, concrete foundation for equipment, foot grilles…
ARAXES	Column grid
ARBASE	All structural elements- exterior walls & doors, windows, columns, staircases, elevators, vertical shafts, fire cabinets…
ARBUIL	Built-in furniture
ARCEIL	Ceiling grid
ARDETA-XXXX	Details – *can be sub-divided*
ARDIME	Dimensions
ARFRAM	Title block, key plan, north arrow
ARFLOR	Raised floor
ARHATC	Hatching
ARINTE	Non-structural interior walls & doors
ARINTE-FENC	Interior fence partitions
ARINTE-TEMP	Temporary walls
ARNOTE-TEMP	General notes which are not found on master plans. (*For the construction only*).
ARNOTE-XXXX	Notes on drawing- *can be sub-divided and must always begin with ARNOTE e.g. ARNOTE-PLUM, ARNOTE-DEMO, ARNOTE-CONS…*
ARPLUM	Plumbing fixtures found on architectural plans e.g. WC, sink…
ARREVI	Revision clouds, guide lines
ARROOF-XXXX	Roofing elements – *can be sub-divided and must always begin with ARROOF e.g. ARROOF-DRAI for roof drains*
ARSYMB-DOOR	Door numbers
ARSYMB-ROOM	Room numbers
ARTEXT	Title block text

Architecture – *Site.las*

SITE PLAN LAYERS	Descriptions
ARSITE	Site Plan
ARSITE-BASE	Concrete base
ARSITE-BLDG	Building outline
ARSITE-BORD	Border
ARSITE-DIME	Dimensions
ARSITE-ELEC	Electrical - *Streetlights, outlets, etc…*
ARSITE-EQUI	Equipment – *manholes, petrol pumps, telephone poles, etc…*
ARSITE-FENC	Fence
ARSITE-HATC	Hatching
ARSITE-NOTE	Notes
ARSITE-PAVE	Parking lots
ARSITE-PLNT	Plants & landscaping
ARSITE-PROP	Property line, survey benchmark

4.4 Electrical layers

Electrical - *Electrical.las*

ELECTRICAL LAYERS	Description
ELACCE	Accessories
ELALAR	Alarm equipment & devices
ELBASE	Insert the architectural plan on this layer
ELCHGC	UPS & DC equipment related to telecommunications
ELCOMM	Communication equipment & devices
ELCONT	Control
ELDETA-XXXX	Details – *may be sub-divided*
ELDIAG	Single line diagram
ELDIAG-XXXX	Single line diagram- *may be sub-divided*
ELDIME	Dimensions
ELEQUI	Panels, transformers, distribution center
ELEMER	Emergency equipment
ELHATC	Hatching
ELHEAT	Heating equipment and wiring
ELLIGH	Lighting equipment
ELMALT-AC	MALT Network– grounding of the alternating current
ELMALT-DC	MALT Network– grounding of the direct current
ELMONI-BATT	Monitoring system of UPS batteries
ELMONI-BCPM	Monitoring system of UPS circuit panels
ELMONI-ELEC	Monitoring system of the electrical network
ELMONI-UPS	Monitoring system of UPS
ELNOTE-TEMP	General notes which are not found on master plans. (*For the construction only).*
ELNOTE-XXXX	Notes on the drawing- *may be sub-divided and must begin with ELNOTE e.g. ELNOTE-BATT, ELNOTE-DEMO, ELNOTE-CONS…*
ELNOTE-LIGH	Lighting notes
ELNOTE-CONT	Control notes
ELNOTE-COMM	Communication notes
ELNOTE-SECU	Security notes
ELNOTE-LEGE	Schedules and legends
ELNOTE-UNIL	Notes or dimensions relating to the single line diagram
ELREVI	Revision clouds, guide lines
ELSECU	Security
ELSERV	Feeder or Bypass panels only, electrical transformers and electrical distributions
ELTEXT	Text and attributes in title block

Please note:
For electrical legends and symbols, a menu will be required. This can be found in our toolbox and inserted directly into the drawing. Follow the installation instructions found at http://www.snclavalinom.com/en/cad.aspx .

Download ELECTRICITY menus revised 04/12/2010	Extract file nex2000eng.ZIP on your hard drive ex; C:/ (the directory nexe2000eng will be created automatically) In AutoCAD, click the command 'appload', load file, select the file C:/nexe2000eng/insnexeeng.vlx and click OK A dialogue box 'Select installation nexacor add on' will open Select the file 'Get_env_nex.VLX' in the directory C:/nexe2000fre/Install-Nexacor and click OPEN

4.5 Furniture Layers

Furniture - *Furniture.las*

Furniture Layers	Description
FUBASE	Insert the architectural plan on this layer
FUDETA	Details
FUDIME	Dimensions
FUELEC	Electrical furniture components
FUELEC-POLE	Electrical pole layout
FUEQUI	Equipment
FUFINI	Finishes
FUHATC	Hatching
FUHAWO	Haworth Furniture
FUORGA	Organization Code
FUNAME	Individuals' names
FUNOTE-TEMP	General notes which are not found on master plans. (*For the construction only).*
FUNOTE-XXXX	Notes on the drawing- *may be sub-divided and must begin with FUNOTE e.g. FUNOTE-EQUI, FUNOTE-DEMO, FUNOTE-CONS…*
FUPOSI	Workstation number
FUREVI	Guide lines, revision clouds
FUSCRE	Acoustical panels
FUSCRE-TEKN	Acoustical panels Tecknion
FUSCRE-STEE	Acoustical panels Steelcase
FUSCRE-HAWO	Acoustical panels Haworth
FUSTAN	Standard furniture & equipment (all other furniture)
FUSTEE	Steelcase Furniture
FUTEKN	Teknion Furniture
FUTEXT	Text & attributes for the title block
XXXXXX-ATT	Attributes- can be added to any layer

Please note:

For furniture legends and symbols, a menu will be required. This can be found in our toolbox and inserted directly into the drawing. Follow the installation instructions found at http://www.snclavalinom.com/en/cad.aspx *.*

Download FURNITURE menus *revised 04/12/2010*

Extract file nex2000eng.ZIP on your hard drive ex; C:/ (the directory nex2000eng will be created automatically) In AutoCAD, click the command 'appload', load file, select the file C:/nex2000eng/insnexaeng.vlx and click OK A dialogue box 'Select installation nexacor add on' will open Select the file 'Get_env_nex.VLX' in the directory C:/nex2000fre/Install-Nexacor and click OPEN

4.1　　Structure layers

Structure- *Structure.las*

Structure layers	Descriptions
STSTEE-COLU	Steel columns
STSTEE-CONT	Steel braces
STSTEE	Steel general
STSTEE-META	Metallic deck
STSTEE-BEAM	Steel beams
STSTEE-GIRD	Steel girders
STFRAM-STRI	Columns strips
STFRAM-BARS	Framework bars
STCONC	Concrete general
STCONC-BASE	Concrete bases and pilasters
STCONC-COLU	Concrete columns
STCONC-PAVI	Concrete paving stones
STCONC-HATC	Hatching for concrete cross sections
STCONC-WALL	Concrete walls
STCONC-BEAM	Concrete beams
STCONC-SAW	Saw cuts in the concrete slab
STCONC-WIRE	Wire-mesh in the concrete slab
STWOOD-COLU	Wooden columns
STWOOD	Wood general
STWOOD-BEAM	Wooden beams
STWOOD-TRUS	Wooden joists and trusts
STAXES	Axes lines and bubbles
STDETA	Cross sections and details
STDIME	Dimensions
STHATC	Hatch general
STOPEN	Opennings
STTEXT	Text, annotations
STNOTE	General notes
STFOND-EMPA	Footings
STFOND-PICK	Pickets
STREVI	Révisions

5. Colour code- *optional*

When you receive a master plan, all layers will have the properties set to "ByLayer" and all objects/lines/points/annotation will be in white. The choice of colours for layers is left to the discretion of the individual user. We suggest that you use the following table.

Colour	Code	Thickness (mm)	Thickness (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
Grey	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 Grey	252	0.180	0.007

6. Delivery of drawings

By email - *directions:*

When returning files by email, they must be sent to the following address:
support-cad.toronto@snclavalinom.com

When sending an email, please write the following information (exactly as shown) in the Subject line:
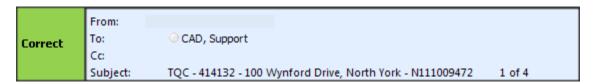
AsBuilt – Location Code – Address, City –SNC Lavalin O&M's project number

Correct	From: To: ○ CAD, Support Cc: Subject: TQC - 431105 - 76 Adelaide Street, Toronto - N102130123	

This guideline is very important as we archive all emails received. This allows us to easily search for information using the project number and/or address.

Will be returned for corrections	From: To: ● Laberge, Francois Cc: Subject: Project new generator 100 Dundas	

For large files, send the plans into sequential emails and mark them as such:

Correct	From: To: ○ CAD, Support Cc: Subject: TQC - 414132 - 100 Wynford Drive, North York - N111009472 1 of 4	

** Sent items that do not strictly comply with this directive will be returned for corrections.

7. Important guidelines to follow – *very important*

7.1 At the beginning of a new project, consultants from all disciplines must ask for a new master plan. This ensures that they will work with the most current information.

7.2 You should never crop or delete parts of the master plan. Use the 'Layout' mode in order to isolate sections thereof.
**Please note that incomplete master plans where parts have been deleted will be returned for corrections.

7.3 All Bell Canada drawings have an insertion point of 0,0,0 and this should not be modified. The plans are not to be moved as our system is based on this insertion point. Due to this insertion point, all plans, from all disciplines, fit perfectly within the architectural plan. Furthermore, the insertion point allows for our plans to be perfectly aligned within our title blocks A0 and A1.
**Please note that master plans displaced from their origin point will be returned for corrections.

7.4 Some consultants like to work with different floors on one sheet, you will understand that our master drawing system does not aloud that practice, therefore do not hesitate to create more sheet even though the real estate isn't fully used.
**Please note that any drawing that uses more than one floor will be returned for corrections.

7.5 Some consultants like to work using multiple copies of the architectural plans within model space; for example, *construction & demolition* or *existing & proposed*. This kind of layout is unacceptable since this will move the origin point of the plan, see section 7.3. Please work with one single plan, with all information found within it. This is possible due to the layer tool (filter/freeze layers in "Layout" mode). It is very important to use the following system: construction, demolition, existing.
** Plans which do not follow this direction will be returned for corrections.

7.6 All Bell Canada projects must be drawn with the official title blocks available at the following address: http://www.snclavalinom/en/cad
**Plans not respecting this direction will be returned for corrections.

7.7 The measurement system for Bell Canada's projects is the official system declared by the Canadian Government, that is to say, the metric system.
** Plans drawn to the imperial system will be returned for corrections.

7.8 If you create blocks, they must have properties of 'ByLayer'. Each element inside the block must be on a standard layer and not on layer 0.

7.9 Standard blocks found in the furniture and electrical menus have been created to be able to modify them without having to explode them. Therefore, leave them intact as much as possible as this keeps the drawing light.

7.10 Hatches or fills must be set to the layers relating to the corresponding discipline; for example: architecture ARHATC, furniture FUHATC, electrical ELHATC…

7.11 SNC Lavalin O&M's project number, address, location code, project and drawing title must all be included in the title block in order to ease the archiving of drawings.

7.12 Bell Canada's title page and title blocks (available online 'Toolbox') must be used for all projects.

7.13 One copy of each file must be in .DWG 2010 format. Each page of the As Built project must be saved separately; that is to say, if the project has 5 pages, you must send us 5 separate files.

7.14 Please purge completely your drawings before sending it to us.

7.15 The drawings must not contain 3D Items of any kind (3D faces, 3D solids, 3d...)
**Please note that drawings containing 3D items will be returned for corrections

8. The most common mistakes.

8.1 **The master plan has been moved.** Please do not move the insertion point or the drawing. Mecanical, electrical, architectural and furniture plans are aligned on this point.

8.2 Use the furniture and electrical menus available to you. This is important because when you insert the block, it will create the proper layers automatically.

8.3 **The system of units has been changed and the plan is drawn with the imperial system.** Do not change the system of units as all our drawings use the metric system.

8.4 **There is more than one floor on the same drawing**. It is imperative to place one floor per drawing. You may only place parts of other floors for reference only.

8.5 **There is more than one drawing per file at delivery.** Please use one file per drawing (12 drawings = 12 Autocad files)

8.6 Use the 'Bind' command and check 'Insert' to import the architectural plan in each drawing.

8.7 **Parts of the master plan have been deleted.** It is very important not to delete parts of a floor. The entire floor must be present in the 'model space'. You may select certain parts in 'paper space'.

8.8 **The nomenclature for layers has not been respected.** It is very important to respect the convention created for the organization of layers.

8.9 **Ventilation ducts were drawn using only one line.** All ventilation ducts must be drawn using 2 lines.

8.10 **Project information does not conform to the required format in the 'Subject' line of an email message.** Details in the subject zone must be formatted as follows :
AsBuilt – location code - Address – City – SNC LAVALIN O&M's project number

9. Frequently asked questions F.A.Q.

9.1   *Is there a drawing prototype for SNC Lavalin O&M?*

No, because the protocol gives the consultant the freedom to choose his own method of working when it comes to colours and/or thickness of lines.

9.2   *Must I respect the colour chart?*

No, however, if you do not respect the colour codes and we must plot, the monochrome setting will be used. The purpose of the colour code is to be able to plot plans with the proper modulation.

9.3   *Can I create new layers?*

Yes, layer names can be created in order to allow for a better understanding and usage of your plans. While doing so, it is essential to respect the nomenclature as described in the section 'Layer names'.

9.4   *When I use the blocks from the furniture and electrical menus, may I explode them in order to modify them?*

No, blocks have been designed to allow for modifications without having to explode them. All the modification tools are found in the menu bar. If you do happen to explode a block, please regroup all unnecessary lines as these clutter the drawing.

9.5   *Can I modify the title block?*

No, these title blocks have been approved by our client (Bell) and must remain as such.