progeCAD for AutoCAD Users

autoCAD is popular, but it expensive. Over its lifetime, Autodesk quadrupled the price to $4,195, and now it is available only by subscription, meaning users pay every year to use it, instead of just once. At time of writing, Autodesk charges $1,680/year; by contrast, progeCAD Professional has a one-time purchase price of $499.

And so we have a software package, progeCAD, that provides much of AutoCAD's drafting capabilities for a fraction of the cost. The cost/benefit ratio is attractive, especially as for many drafters much of what AutoCAD adds is inconsequential.

This chapter describes some of the similarities and differences between progeCAD and AutoCAD. Terminology between the two is virtually identical; the only significant difference is progeCAD's use of the words "esnaps" or "entity snaps" in place of AutoCAD's "osnaps" and "object snaps."

In This Chapter

- User Interface Comparison
- Command Name Differences
- Commands Enhanced in progeCAD
- Reading and Writing DWG Files
- Customizing and Programming progeCAD
- Commands and System Variables
- Additional Commands & System Variables
- AutoCAD Commands Missing from progeCAD
- progeCAD-AutoCAD Dictionary
- Folder Structure

AutoCAD 2017
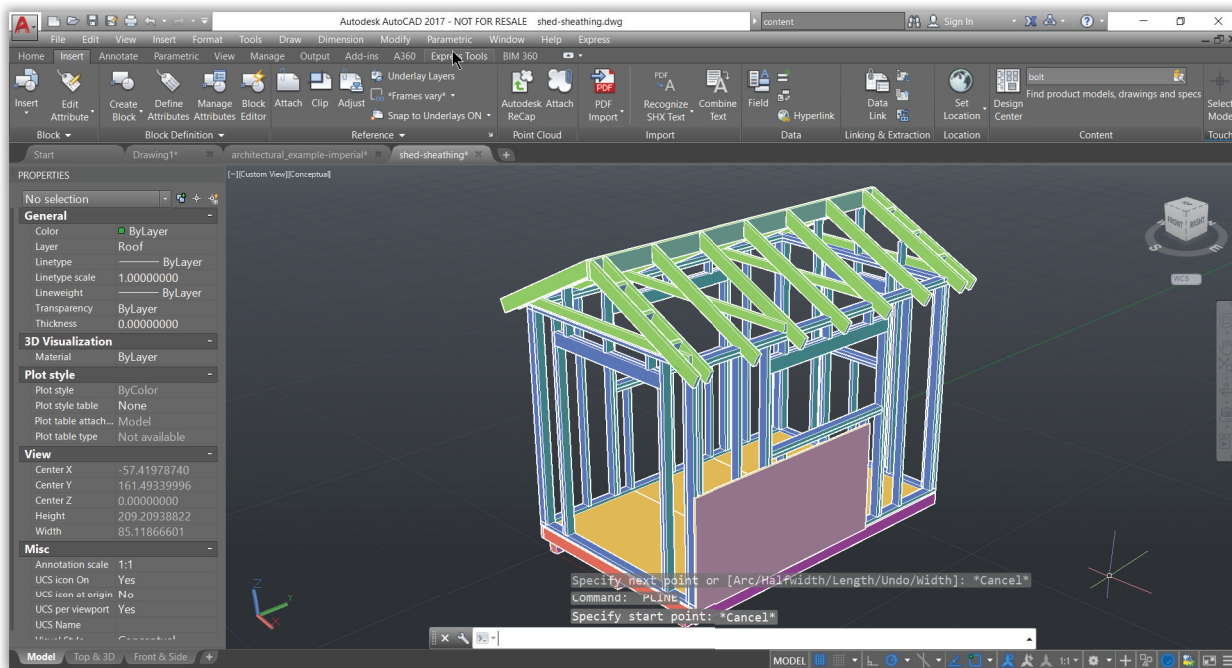
AutoCAD and progeCAD Share Similarities

Many aspects of AutoCAD and progeCAD are the same or very similar. Theses include the user interface, 3D and ACIS, paper space and layouts, and UCSs; the names of commands and system variables; the types of fonts, linetypes, and hatch patterns; the use of macros, scripts, LISP, and VBA programming; and basing drawings on *.dwg* and *.dwt* files.

For example, the names of commands, options, and system variables names are entered identically in both CAD packages. To draw a polyline in progeCAD, you enter the **PLine** command and press **Enter** — just as in AutoCAD. The prompt with its options looks identical, too:
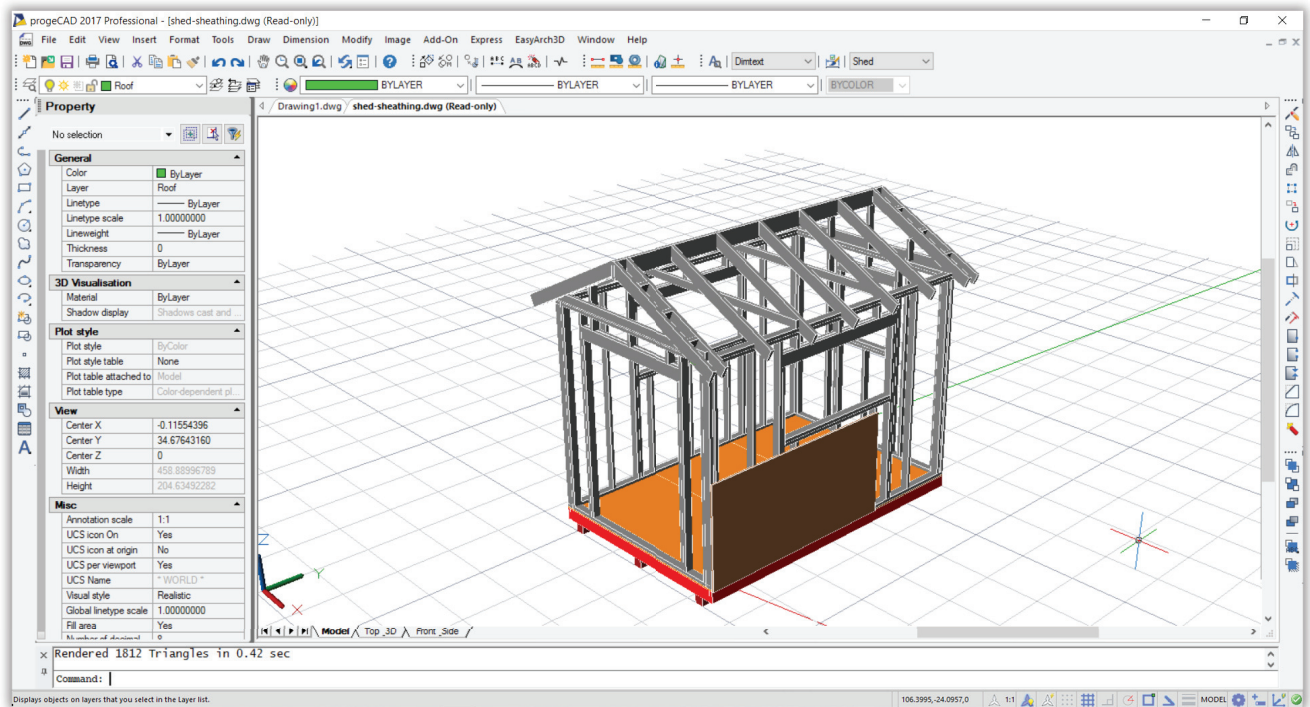
```
Command: pline
Start of polyline: (Pick a point)
Specify next point or [Arc/Distance/Follow/Halfwidth/Width]: (Pick another point or enter an option)
```

Some aspects, however, differ and that's what this chapter concentrates on. Both programs are constantly updated, and so these lists cannot be exhaustive.

progeCAD 2017

Highlighting progeCAD Advantages

While progeCAD is meant to be similar to AutoCAD in operation, the program nevertheless provides a package of functions to that give progeCAD an advantage. Here is a summary of some of progeCAD's special functions and how they compare with AutoCAD.
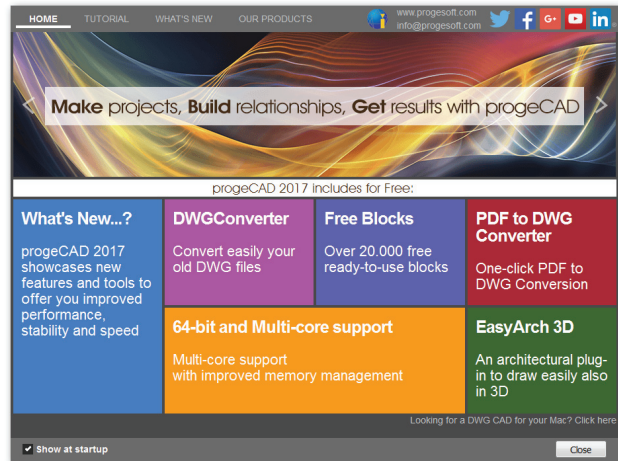
- Explorer
- iCADLib
- Cloud Storage
- Raster to Vector
- EasyArch 3D
- Google Earth
- Table Editing
- Audio Notes
- Express Tools

progeCAD Intro

The progeCAD Intro window is your gateway to learning more about the program and its add-ons.

To access it, enter the **ShowIntro** command. In AutoCAD, the equivalent is the Start tab.

progeCAD Explorer

The progeCAD Explorer palette provides visual access to all design resources in drawings that are open — layers, layer states, linetypes, text styles, coordinate systems, views, layouts, blocks, dimension styles, groups, and external references. Being a palette, you can keep it open at all time.

To access it, enter the **Explorer** command. In AutoCAD, the equivalent is the DesignCenter palette.
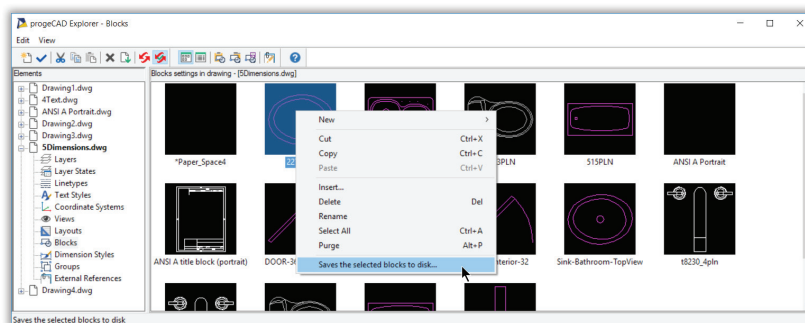
iCADLib

The iCADLib block library extends the Explorer to create libraries of blocks: specify the name of a folder with your blocks, and they are added as a library. In addition, progeCAD includes hundreds of 2D and 3D blocks free, which AutoCAD does not. iCADLib also accesses the mammoth part libraries hosted by Cadenas and Trace Parts. Being a palette, you can keep iCADLib open at all time.

To access it, enter the **IcadLib** command. In AutoCAD, the equivalent are the Content Server and an online parts library named Seek.
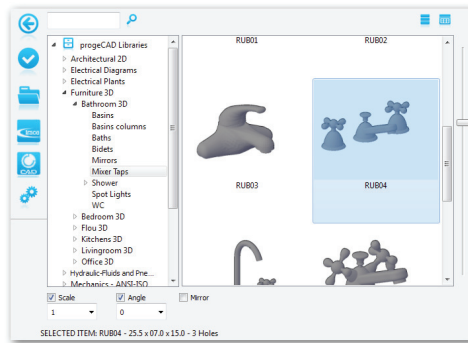
Cloud Storage

Cloud storage is a handy way of accessing your drawings when you are on the road, as well as giving other people access to drawings over the Internet — without sending them by email or mailing them on a USB thumbdrive. progeCAD supports a number of popular cloud storage providers, such as Dropbox, Google Drive, and Microsoft Onedrive. To use these services with progeCAD, they must be installed on your computers. Autodesk does not allow direct access to Dropbox and the other popular providers.

To open and save files from and to the cloud, enter the **OpenCloud** and **SaveCloud** commands. In AutoCAD, the equivalent is A360.
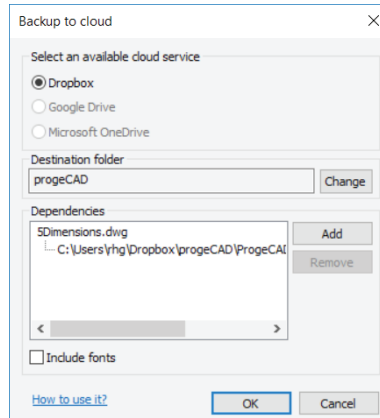

Raster to Vector Conversion

WinTopo converts raster images into vector entities. The images can be in common raster files, such as PNG, TIFF, and JPEG, or else captured from hardware like a scanner or digital camera attached to the computer. After conversion, the vectors can be saved in DXF and a half-dozen other formats. (To convert PDFs to vector, use progeCAD's PDF2CAD command.)

To access it, enter the **WinTopo** command. Autodesk charges for its raster-to-vector conversion software.
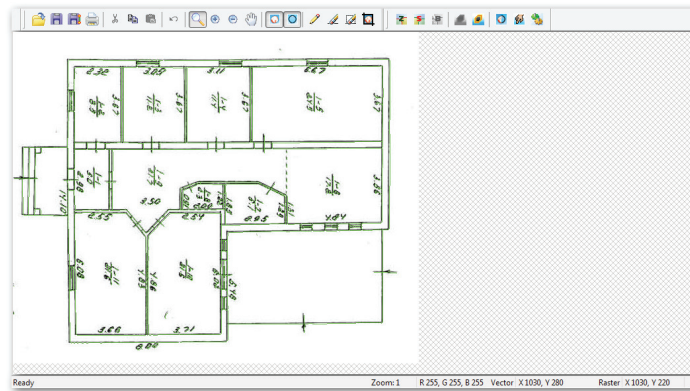
EasyArch 3D

The EasyArch 3D add-on allows you to create architectural drawings in 2D (floor plans) and 3D. It provides commands for drawing walls with automatic cleanup, inserting parametric doors and windows, place stairs and balconies, add roofs, and do area calculations.

You access EasyArch 3D's command through the EasyArch3D menu or ribbon tab. AutoCAD charges extra for its architectural design software.
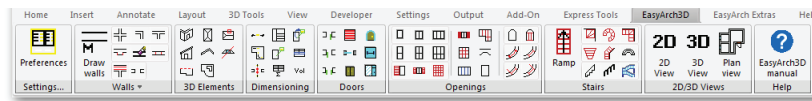
Google Earth

The Google Earth add-on lets you place "tiles" (mapping images) from Google Earth in drawings appropriate to the location of the model. This lets you see the project in the context of its surroundings. Conversely, you can upload models to Google Earth as progeCAD converts them to KML format.

To access mapping images and save models to Google Earth, enter **ImportGeImage** and **PublishKml** commands; they require that Google Earth is installed on your computer. Auto-CAD includes a mapping service, but it requires that you have an account with A360.
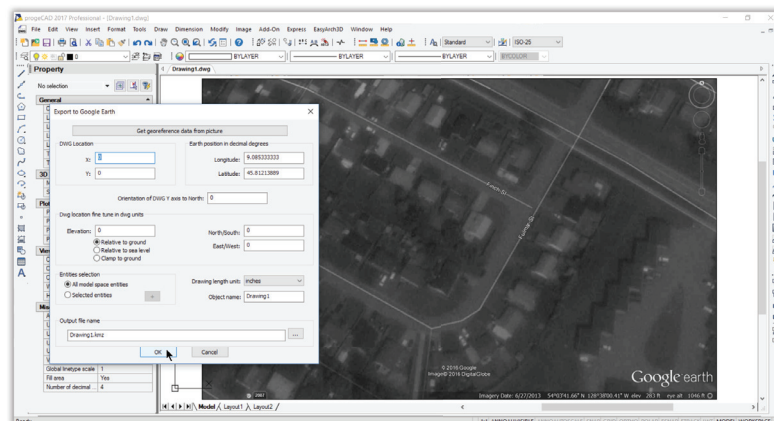
Table Editing

Not only does progeCAD provides many of the commands found in AutoCAD, sometimes it also extends the commands with additional useful functions. For example, the **Circle** command's **Arc** option extends the angle of an arc to a full 360 degrees, making it a circle; the Circle command in AutoCAD does not do this.

Especially impressive are the additions progeCAD made to the **TablEdit** command. Editing a cell presents a dialog box with cursor keys for easy navigation between cells, as well as all options for formatting cells. AutoCAD provides the cell formatting options, but not the easy cell navigation.
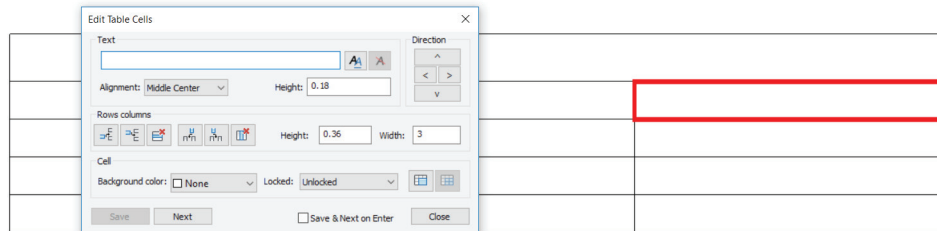
Audio Notes

It can be useful to attach voice messages to drawings, particularly when working in the field. progeCAD lets you do this through its Audio Note function, which records, plays back, or attached WAV audio files.

Attach audio notes with the **AudioNote** command. AutoCAD does not offer this function.
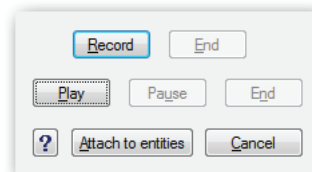
Express Tools

progeCAD offers an extra set of commands that perform unusual functions and so are not used as often. These include placing text along an arc, placing a break line, and exploding text into entities like lines and arc.

You access Express Tools through the Express menu or Express Tools ribbon tab. AutoCAD offers a similar set of Express tools.
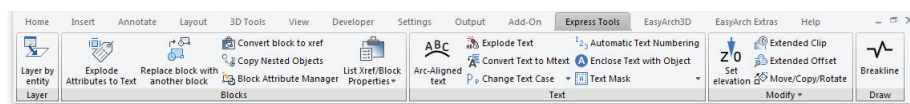
Comparing Commands and System Variables

For the most part, commands, options, and system variables operate identically in both CAD packages. There are some differences between the two, and this section describes them.

Command Differences

The core commands between progeCAD and AutoCAD are identical. Each CAD program seeks to differentiate itself from competitors, and so progeCAD includes an additional set of commands not found in AutoCAD. Some progeCAD commands have names that differ from those in AutoCAD. Sometimes progeCAD has commands where AutoCAD has only keystrokes; for example, AutoCAD has no Coordinate command like progeCAD has, but provides users Ctrl+D and F6 instead.

progeCAD	AutoCAD	Action in progeCAD different from AutoCAD
audionote	No equivalent	Creates and plays audio notes attached to entities.
cmdbar	No equivalent	Positions the command window.
coordinate	Ctrl+D *or* F6	Changes the display of coordinates on the status line.
copyedata	No equivalent	Copies extended entity data from one entity to another.
customize	cui	Displays the Customize dialog box.
editedata	No equivalent	Edits extended entity data found in an entity.
esnap	-osnap	Sets entity snaps from the command line.
expblocks	insert	Displays the progeCAD Explorer - Blocks.
expdimstyles	ddim	Displays the progeCAD Explorer - Dimension Styles.
expfonts	style	Displays the progeCAD Explorer - Styles.
explayers	layer	Displays the progeCAD Explorer - Layers.
explorer	rename	Displays the progeCAD Explorer.
expltypes	linetype	Displays the progeCAD Explorer - Linetypes.
expucs	dducs	Displays the progeCAD Explorer - UCS.
expviews	view	Displays the progeCAD Explorer - Views.
moveedata	No equivalent	Moves extended entity data from one entity to another.
mslide	mslide	Also makes EMF and WMF files of the current view.
qprint	No equivalent	Quickly prints the current viewport with no options.
reassocapp	No equivalent	Reassociates extended entity data with an application.
recscript	No equivalent	Starts the Script Recorder.
rtrotx	No equivalent	Rotates the view of entities while maintaining the x-axis.
rtroty	No equivalent	Rotates the view of entities while maintaining the y-axis.
scrollbar	No equivalent	Toggles the scroll bars
selgrips	No equivalent	Select objects to display grips
statbar	No equivalent	Toggles the status bar
stopscript	Esc	Stops running the script.
vmlout	No equivalent	Exports drawings in VML format
vslide	vslide	Also displays EMF and WMF files in the current viewport.

Additional progeCAD System Variables

To provide greater flexibility in configuring the program, progeCAD includes additional system variables that are not found in AutoCAD. Some of theme include the following ones:

Command	Action in progeCAD
AutoMenuLoad	Determines whether default menu or menu associated with drawing is loaded
BaseFile	Name of default prototype drawing used to create new drawings
CmdLnText	Specifies the command bar prompt
ColorX	Color of x axis in the cursor and UCS icon
ColorY	Color of y axis in the cursor and UCS icon
ColorZ	Color of z axis in the cursor and UCS icon
ExplStBlk	Column width of block settings in Explorer
ExplStLay	Column width of layer settings in Explorer
ExplStLt	Column width of linetype settings in Explorer
ExplStTs	Column width of text styles settings in Explorer
ExplSstUcs	Column width of UCS settings in Explorer
ExplStVw	Column width of named view settings in Explorer
IcadVer	Reports the progeCAD version number
LastCmdPt	Stores the last point entered relative to the current UCS
LastPrompt	Stores the last prompt string displayed by command bar
LtSclWblk	Specifies whether global linetype scale is applied to inserted blocks
MacroRec	Toggles macro recorder
MacroTrace	Toggles macro tracer
MakeBak	Renames drawing as .bak with each save
NFileList	Number of most recently used files in File menu
ProgBar	Toggles display of the progress bar
PromptMenu	Toggles display of the prompt menu
SaveRoundtrip	Determines whether unknown entities are saved R14 format
ScrlHist	Specifies number of command lines to track in command bar
SrchPath	Specifies the search path for support files
TbColor	Switches toolbar color between color and monochrome
TbSize	Switches toolbar size between small and large
Tipofday	Toggles Tip of the Day dialog box
ViewAspect	Aspect ratio of the view
WndBtExp	Specifies width of the list pane in Explorer
WndLCmd	Toggles command bar visibility
WndLMain	Toggles display of the main window
WndLMdiW	Controls display of MDI child window
WndLStat	Toggles display of the status bar
WndLtExp	Toggles display of the Explorer window

WndLText	Toggles display of the prompt history window
WndPCmd	Screen coordinates of the command bar when floating
WndPMain	Screen coordinates of drawing window position
WndPPmenu	Screen coordinates of the prompt menu
WndPtExp	Screen coordinates for Explorer window
WndPText	Screen coordinates for prompt history window
WndSCmd	Size of command bar, when floating
WndSMain	Size of the drawing window
WndStExp	Size of the Explorer window
WndSText	Size of the prompt history window
ZoomPercent	Incremental zoom percentage

Commands Enhanced in progeCAD

Going along with the theme of providing greater value to users, some of progeCAD's commands provide more options than do those in AutoCAD. Here is a selection of them.

Command	Action in AutoCAD	Additional Action in progeCAD
Circle	(Use Join command)	**Arc** option converts arcs to circles
Line	(Use direct distance entry)	**Angle** option specifies angle, followed by a length **Length** option specifies length, followed by an angle.
MSlide	Saves screen Autodesk's proprietary SLD format.	Also saves in Microsoft's WMF (windows meta file) and EMF (enhanced meta file) formats
Offset	Copies to one side at a time	**Bothsides** option copies to both sides at once
Solid	Draws filled quadrilaterals and triangles.	**Rectangle** option draws solid-filled rectangles **Plane Square** draws solid-filled squares **Plane Triangle** draws solid-filled triangles

Expanded Capabilities in progeCAD

In addition to the larger number of options, progeCAD provides users with additional flexibility in how some commands are carried out. Here are some of these:

- progeCAD's entity (object) snaps can be entered directly at the command prompt. AutoCAD's requires that its **-OSnap** command be employed as a type of prefix.
- progeCAD uses the + and **-** keys to add and remove objects from selection sets.
- progeCAD's **Select** command has additional selection options not found in Auto-CAD:

Select	Meaning	Comment
CC	Crossing Circle	All entities within and crossing a circular area
O	Outside Window	Selects all entities outside a rectangular window
OC	Outside Circle	Selects all entities outside a circular area
OP	Outside Polygon	Selects all entities outside a polygonal area
PRO	Properties	Selects all entities with specific properties
WC	Window Circle	Selects all entities within a circular area

AutoCAD Commands Missing from progeCAD

Each release of AutoCAD adds more commands, some of which progeCAD also adds, some of which progeCAD already boasted, and some of which are not added. For example, AutoCAD 2017 added the ability to import vector entities and embed TTF fonts from PDF files; progeCAD already did this. On the other hand, progeCAD does not import point cloud data from 3D laser scanners, because most users have no need to works with billions of points in 3D space.

Reading and Writing DWG Files

progeCAD reads and writes drawings created by AutoCAD through to 2017. Because progeCAD does not support everything in AutoCAD, some objects are difficult to handle. Tables, for instance, are displayed but as anonymous blocks and cannot be edited in progeCAD.

The addition of ObjectARx to AutoCAD Release 13 enabled Autodesk and third-party developers to create "custom objects" that can be created and edited only when the associated ObjectARx programming code is present. When the code is missing, then a *proxy* object is displayed instead. Autodesk provides *object enablers* that provide sufficient code to edit custom objects. progeCAD converts proxy entities into blocks using their exclusive proxy conversion technology built into the software.

In general, AutoCAD imports and exports a larger number of formats than progeCAD, with a couple of notable exceptions:

- progeCAD reads and converts *.dwf* files, but AutoCAD does not.
- progeCAD and AutoCAD both read, write, and convert vector data in 2D *.pdf* files, but AutoCAD does not export 3D models in 3D PDF format.

Customizing and Programming

progeCAD works with most of the support files used by AutoCAD, including *.lin*, *.pat*, *.mnu*, *.fmp*, *.unt*, *.dcl*, *.lsp*, *.shx*, and *.sld* files. progeCAD reads and writes AutoCAD's *.cui* menu files.

progeCAD mimics AutoCAD in writing menu and toolbar macros, scripts, DCL (dialog control language), LISP routines, i-drop, and VBA applications (visual basic for applications).

Unlike present-day AutoCAD, progeCAD can work with programs that use the SDS API (solutions development system applications programming interface), called "ADS" in AutoCAD until it was removed with Release 13.

AutoCAD's rarely-used side-screen menu is not included in progeCAD. progeCAD's prompt menus replace some of the functions provided by the side-screen menu.

progeCAD also works with Diesel, the pseudo-programming language used with macros and for customizing part of the status bar.

Pricing

progeCAD is 8x cheaper than AutoCAD (using the most recent permanent license pricing). To put the math another way, your office can be outfitted with eight seats of progeCAD Professional instead of one seat of AutoCAD — and have sufficient money left over to buy a computer!

List prices at time of writing are as follows:

List Price[1]	AutoCAD	progeCAD Professional
Perpetual License[2]	$4,195	$499
Maintenance	$ 545/year	$275/year
Network License	$	$540 - $675
Subscription[3]	$1,680/year	...

Note 1   US$ pricing; price may be different in other currencies.
Note 2   Single-user license; lower pricing available for multi-seat purchases, networked versions, and educational sites. Perpetual licenses are no longer available from Autodesk; price shown is last published one for comparison with progeCAD.
Note 4   Only subscriptions are available from Autodesk as of 2106.

progeCAD saves you money through lower pricing, less stringent hardware requirements, and allowing you to decide whether to upgrade (or not) or to subscribe (or not).

System Requirements

progeCAD and AutoCAD both run on Windows and Mac OS computers. Here are the minimum system requirements:

Hardware	AutoCAD	progeCAD
CPU	2.0GHz dual-core SSE2 3GHz dual-core (Windows 7/8/10)	Intel Pentium IV or AMD equivalent
Minimum RAM	2GB	2GB
Hard Disk Space	6GB for installation	4GB
Monitor Resolution	1024x768 minimum	...
Graphics Board	32-bit 128MB minimum Pixel Shader 3.0+ for 3D Direct3D for 3D	...
Pointing Device	Mouse	Mouse

progeCAD-AutoCAD Dictionary

This brief progeCAD-AutoCAD dictionary explains some progeCAD jargon:

progeCAD Term	AutoCAD Equivalent
command bar	command prompt area
edit length	lengthen
entity	object
entity snap	object snap
entity snap precision	aperture
edata	xdata
fixed attribute	constant attribute
follow	continue
freehand	sketch
hidden attribute	invisible attribute
infinite line	xline
insert	draw
orthogonal	ortho
parallel	offset
plane	solid (2D)
point snap	node snap
predefined attribute	preset attribute
prompt box	context menu
prompt history window	text screen
reference grid	grid
snapshot	slide
validate attribute	verify attribute