# MSU School of Architecture Computer Requirement

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**ALL STUDENTS IN THE SCHOOL OF ARCHITECTURE ARE REQUIRED TO PROVIDE THEIR OWN PERSONAL LAPTOP COMPUTER.**

- All ENTERING GRADUATE STUDENTS in the School of Architecture are required to bring a computer.
- All SECOND-YEAR UNDERGRADUATE STUDENTS accepted into the School of Architecture's Environmental Design Program and enrolled in ARCH 262 during Spring Semester are required to have a notebook computer during the Spring Semester of Second Year.
- FIRST-YEAR UNDERGRADUATE STUDENTS in the School of Architecture SHOULD DEFER PURCHASE of a computer until their second year. The computer requirement applies to the second-year and beyond.

See the Buying a Computer and Software section, listed below, for details and specifications.

Academic life in the School of Architecture is dependent upon personal computers for communications, scheduling, research and personal work. Computer use is also required in a number of School of Architecture courses.

MSU provides many software packages for free, such as for virus protection. MSU also makes educationally priced software and hardware available to students. This option can be explored along with other potential suppliers. Additional resources, including computer labs, imaging, scanning, and printing facilities are available in the school. These facilities are important supplements to personally owned computers.

# Buying a Computer and Software

**FOR INCOMING UNDERGRADUATES:**

If you are an incoming undergraduate entering your **FIRST YEAR** at Montana State University and intend to enter the School of Architecture, we recommend that you **DO NOT purchase a brand new computer** right away. Instead, we recommend that you bring with you an older computer — one used in high-school for instance, or a used, smaller, or perhaps a new but inexpensive netbook-style machine — for the first year. Any digital applications that you undertake in the first year of our program can be done on the computers in the university campus student computer labs. As such, the computer requirement and specification listed on this page apply more to the second-year of study, when students begin their design studios and undertake more intense computer-related work.

The first year of undergraduate education does not require a significant computer, or the purchase of one. General email, web, and word-processing uses are prevalent during the first year. The university provides student labs throughout campus which students can use for these types of applications. In the

spring of the second year, students will begin working with graphics, 3D modeling and other digital applications in their architecture courses. Deferring computer purchase to the second year then allows the laptop purchased to last more effectively through the fourth year of study and in some cases through a student's graduate year of study. Historically, many laptops purchased at entry to the first year need to be replaced prior to the fourth year of study to be effective for use with the more intense work of the later years.

**FOR INCOMING GRADUATE STUDENTS:**

Graduate students begin graphics-intense work right away, so the requirement and specifications below apply fully to entering graduate students. The above deferral does not apply to entering graduate students.

## PURCHASING A COMPUTER

If you are in the market for buying a new computer, there are a few things to consider before purchasing.

Computer Specifications are at the bottom of the page.

**How long will you keep this machine?**

The longer you wish to keep this machine viable, the higher (and more expensive) you will likely wish to configure it. Processor, RAM, and hard drive capacities double about every 18 months (Moore's Law). After 2-3 years, your machine may be noticeably slower than the newer ones. *(Note the deferral recommendation for undergraduates above.)* The higher-end you make it to start, the longer it will stay competitive. This of course means more money up front. A good general rule is to buy the most powerful machine that you can reasonably afford if speed and longevity are factors for you.

**What will you primarily do on it?**

Some people will use their computer for email, web research and word processing. Others will be generating complex maps and images, 3D CAD models, and computer animation or digital video. For more graphics intense work, faster machines, larger hard drives, more RAM, and faster/larger graphics cards will be desired. Currently, the second year of the undergraduate design program sees less intense use with more graphics work introduced in the third year requiring much higher levels of computer performance.

**Windows or Macintosh?**

The school and university support both operating systems, and many software packages run on both, but some important packages for CAD, GIS, and building analysis run only on the Windows platform. Students must be able to run Windows-based software to complete work in many required courses. Students preferring the Apple platform will need a model that also runs Windows.

All current Apple hardware is capable of running both operating systems through either BootCamp, or a virtual machine program such as Parallels. The Windows operating system can be purchased at the university bookstore, so there is no need to purchase this at retail prior to coming to MSU.

**Do I need to buy software?**

**Yes**. The School of Architecture requires all incoming second year students to purchase two software titles:

- Adobe Creative Cloud (Student price $19.99/month, for a limited time through Adobe) http://www.adobe.com/products/creativecloud/students.edu.html?
- SketchUp Pro http://www.sketchup.com/buy/student-licenses
- 3D Rhinoceros
- Microsoft Office (Optional)

Adobe Creative Cloud, as well as 3DRhinocerous can be purchased through the University Bookstore by way of a special pricing contract available for students at the university. The Bookstore also offers the Adobe Creative Cloud for an **upfront** payment of $240 per year, which comes out to $19.99 per month.

**Is design and analysis software (CAD / GIS) available?**

**Yes**. Through free downloads and other contracts with vendors, all students can get a range of specialty software products, including CAD, GIS, and graphics software, for free or at specially reduced prices. Not all of these products are required of all students, but may be required or recommended for purchase for individual courses. In general, students will be required to download Autodesk Revit for use in their third year graphics courses. The School has been working to provide Maxwell rendering software and Sefaira energy analysis software as free downloads to students. These downloads are requested of the companies each year.

See Software Distribution, listed below, for details about available software and how to get them.

## REQUIRED COMPUTER CONFIGURATION

### New Computer Purchase

The following is a general configuration for buying a new laptop computer. This is a mid- to high-level configuration suitable to effectively work with the most common graphics software packages used in the school.

- I series processor (i3, i5 or i7) (Windows or Macintosh*)
- Windows 7 or Windows 8 (Professional or Home) or Mac OS X
- 8-16 GB RAM ***
- Dedicated Graphics Card, 1 GB minimum
- 250 GB hard drive or greater
- 10/100/1000 Mbps Ethernet Network
- Wireless Network (Wireless N)
- CD-DVD writer strongly recommended
- 15"+ laptop screen size
- External Hard drive (For storing school related files)
- 3-year warranty strongly recommended

* **Note:** For students choosing Macintosh computers, the Windows operating system needs to be purchased, and can be installed to run through either BootCamp (dual-boot setup) or through a virtual machine like Parallels Desktop (Parallels 9 or better is recommended). Through these, an Apple

computer can run any Windows-based software used in the school. Using Parallels, 8GB RAM is really an absolute minimum. 16GB is good. This is stressed because Apple solders RAM down in their latest models, (a trend which is likely to continue) meaning you CANNOT upgrade RAM after the fact. 4GB or 8GB may feel great in the native computing environments, but later on when you're asking Parallels to run 3ds Max, Revit, Rhino on 2GB or 4GB under the Mac umbrella running Illustrator and Photoshop, etc., you can hit the ceiling really fast. This could just be the kind of issue where your $2000 laptop becomes a $2000 paperweight as the system grinds to a halt.

** **Note:** Though most new Windows computers will come with Windows 8, both Windows 7 and Windows Vista is supported at the school.

*** **Note:** more than 4GB of RAM is helpful for high-end graphics work, but you must have either Mac OS or 64-bit Windows to take advantage of this.

### Existing Computer

If you already have a laptop computer that you wish to bring, this is a minimum standard that you should target to make this machine usable for software you will be running at the school.

- 2 GHz + (single) processor speed
- Windows XP / Vista / Windows 7 (Professional or Home) or MacOS X 10.4 +
- 2 GB RAM absolute minimum
- Dedicated Graphics Card recommended (1 GB)
- 160 GB hard drive or greater
- 10/100/1000 mbps Ethernet
- Recommended Wireless Network Card
- CD-RW/DVD reader
- 15"+ laptop screen size

# Software Distribution

#### SOFTWARE FOR YOUR PERSONAL COMPUTER

Through contracts with vendors, the University and the School of Architecture are able to make certain software available FREE or at reduced prices to students and faculty registered in its programs. These software programs may be installed on a personal computer, whether it is in the school (laptop/studio) or at home. Some licenses are timed and must be renewed.

#### ITC SOFTWARE CENTRAL

MSU ITC makes general purpose software available to anyone in the university. This includes:

- Email clients
- Anti-Virus protection
- Operating System updates and security
- Many other utilities

GRAPHICS SOFTWARE

**Adobe Creative Cloud**

(Includes Photoshop, Illustrator, InDesign, Muse and Acrobat) available through the MSU Bookstore for university students.

CAD SOFTWARE

**Autodesk**

**Autodesk Revit / 3ds Max Design or 3ds Max as well as: Autodesk Civil 3D / EcoTect / Maya, etc.**

FREE Download for students and faculty

Download and register through Autodesk Student Engineering & Design Community

**Rhino**

$95 perpetual student license (PC Only) Purchased through MSU Bookstore.

Get updates and plugins through Software Downloads.

**SketchUp**

Google sold SketchUp to Trimble, and an updated version of the software has just been released. The changes aren't major, as far as the function (and learning how to model in 3D) is concerned, but there are several things worth noting. The first of these is the name. The free version of SketchUp is now called ***SketchUp Make***. As has been the case, this fully functional modeling software is absolutely free for personal use. There has been a change to the license agreement; basically it states that if you're using the software to make money, you need to purchase a license for *SketchUp Pro*. One of the most common questions I get is "what's the difference between the two versions?"

As far as basic modeling is concerned, there isn't a significant difference between the two. SketchUp Pro does contain solid modeling tools, a feature that was introduced a few years ago with the release of SketchUp 8. The biggest difference is that SketchUp Pro includes an add-on program called Layout that makes printing (especially for presentations and large format prints) much easier and better looking than the print functions in the free version. With SketchUp Pro, you can also import and export vector files in dwg, dxf and other formats, so you can use your SketchUp model along with AutoCAD or Adobe Illustrator.

When you download SketchUp Make, it starts as a 30-day free trial of SketchUp Pro. When those days of use are up, it reverts back to SketchUp Make. If you're familiar with SketchUp, it's a good opportunity to take a look at the enhanced features (make sure you don't leave the program open when you go to class). If you're just starting out, sticking with the free version while you learn lets you see if SketchUp will work for you without any expense.

## SketchUp Student Licenses

**Student licenses are distributed through our official SketchUp Pro partner channel.** All

student licenses are fulfilled by our network of Resellers. Within the US/CA, our reseller specializes in educational licensing, outside of the US/CA; our network of commercial resellers can fulfill educational license requests. All EDU licenses are highly discounted from the commercial price.

Find an Educational Reseller

## Important Information

- A Student License costs MSRP US $49.
- You must be a current student at an accredited educational institution to purchase.
- Student Licenses are valid for one year from the date of purchase.
- Student Licenses can be upgraded to the newest version for free.
- The same Student License can be installed on both your desktop and laptop computers.
- Student Licenses cannot be used for commercial (for-profit) work of any kind.

### Optional software that students can download for their use:

**Bentley Architecture / Generative Components / Geopak... Bentley Tas Simulator** – Energy Modeling and Simulation. **Bentley Structural / RAM Elements** - Structural Modeling. Install from School of Architecture secure server.

### Graphisoft ArchiCAD

Building information modeling software
Can be downloaded from www.graphisoft.com

### EDUCATIONALLY DISCOUNTED SOFTWARE

For students, many software companies provide educational discounting. There are many sources for finding these deals, including web sites and storefronts in addition to the manufacturer's sales department. MSU students have access to The Computer Store in the MSU Bookstore. Many titles, including Adobe Creative Suite, can be found here at prices below market retail.