School of Architecture Computer Requirement

Updated August 15, 2016

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 have their own computer for their coursework.
- 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.
- WE RECOMMEND THAT FIRST-YEAR UNDERGRADUATE STUDENTS in the School of Architecture DEFER PURCHASE of a computer until their second year of our program whenever possible. MSU provides numerous global computing labs across campus with the software that a first year student might need for their classes. However, we recognize that circumstances will sometimes lead to first year students buying or receiving a computer as a gift. With this in mind, we ask that they understand that the computer requirement listed below applies to the second-year and beyond.

See the Buying a Computer and Software section, listed later in this document, 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 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 student entering your **FIRST YEAR** at Montana State University and intend to study Environmental Design in the School of Architecture, we recommend that you **delay purchasing a brand new laptop computer** until the second year of our program. 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 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 undertaking more intense computer-

related work. However, if a first year student or their family chooses to purchase a new laptop computer, the following guidelines for our second year students will serve as a guide. We would strongly recommend that you carefully consider those things which can be expanded in the future (hard drive, external monitor, etc.) versus those items that cannot be upgraded 2-3 years later such as the processor and video card. It may be worthwhile to meet the higher requirements for those non--expandable items if you choose to purchase your laptop in your freshman year.

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. n the spring semester of the second year, students will begin working with graphics, 30 modeling, digital fabrication and other digital applications in their architecture courses. Deferring computer purchase to the second year 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

f you are in the market for buying a new computer, there are a few things to consider before purchasing. Please note that computer specifications are listed on page 4 of this document.

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 your computer to start with, 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. But you should always keep in mind your budget. All computers are eventually replaced so you should keep that in mind.

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, 30 Building information Modeling (BIM) 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 intensive graphics and building information modeling work introduced in the third year and 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 BIM, 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 the Windows platform.

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 three software titles:

- Adobe Creative Cloud (Student price $19.99/month, through Adobe)
- http://www.adobe.com/education/students/how-to-buy-eligibility.edu.html?
- 3D Rhinoceros (Student price $95 through the MSU Bookstore)

Adobe Creative Cloud, as well as 3D Rhinoceros 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 $239.88 per year, which comes out to $19.99 per month.

Students should also have some kind of word processing, spreadsheet and presentation software (PowerPoint, Keynote, etc.). the most commonly used software by the students is Microsoft Office which is available to students free of charge at http:// http://www.montana.edu/office365/student/office.html.

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

Yes. Through free downloads and other contracts with vendors, all students can get a range of specialty software products, including BIM CAD, G S, 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. I n general, students will be required to download Autodesk Revit for use in their third year graphics courses. The School has able 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 on page 5 of this document, for details about available software and how to access them.

REQUIRED COMPUTER CONFIGURATION

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 used in the school.

- Intel I series processor (i3, i5 or i7) (Windows or Macintosh*)
- Windows 7, Windows 8.1, Windows 10 or Mac OS.
- 8-16 GB RAM ***
- 250 GB hard drive or greater
- 10/100/1000 Mbps Ethernet Network
- Wireless Network card
- 15"+ laptop screen size
- 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 10 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 recommended. 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.

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 the software you will be running at the school.

- 2 GHz + (single) processor speed
- Windows 7 (Professional or Home) / Windows 8 or Mac OS X.
- 2 GB RAM absolute minimum (more RAM is highly recommended)
- 160 GB hard drive or greater
- 10/100/1000 mbps Ethernet
- Recommended Wireless Network Card
- 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:

- Microsoft Office 365
- 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: Revit / 3ds Max Design or 3ds Max as well as: Autodesk Civil 3D / Maya, etc.
FREE Download for students and faculty
Download and register through Autodesk Student Engineering & Design Community *4*

Rhino

$95 perpetual student license (PC Only) Purchased through MSU Bookstore.
Get updates and plugins through Software Downloads.

SketchUp Pro

SketchUp Pro is available to students through the school at no cost. The School of Architecture purchases 15 floating licenses for student use. Please speak with the HelpTech office in regards to location of installation files, which are on the Architecture server.

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

EDUCATIONAL 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.