Digital Preservation Business Case Plan

The Architectural Design Archival Process of the University of Texas:

The ADAPT Project

Plans for preserving the digital records generated by a design project at the School of Architecture as a model for the Alexander Architectural Archive

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Table of Contents

Executive Summary:

> *"It is widely accepted that information technology is revolutionizing our concepts of documents and records in an upheaval at least as great as the introduction of printing, if not of writing itself. The current generation of digital records therefore has unique historical significance; yet our digital documents are far more fragile than paper. In fact, the record of the entire present period of history is in jeopardy," (Rothenberg, 1999, p.1).*

As architectural firms continue to embrace advances in technology, such as 3D modeling, to assist throughout the design process, architectural archives must adapt in order to preserve their legacy. Current architectural education both helps to shape and reflect current practices in the field. This phenomenon is evident at the University of Texas in the School of Architecture (UTSOA). As it stands now, there is little in the way of standards or agreed upon practices for collecting and archiving the rich digital process materials of architectural design. The ADAPT Project aspires to enable the long term preservation and access of these born-digital files through a strategic partnership between key institutions at the University of Texas.

Primarily, the project aims to provide a means of collaboration between the School of Architecture and the University of Texas Libraries' Alexander Architectural Archive to meet the challenges inherent to long-term digital preservation. To accomplish this task, the following report covers the vision of the ADAPT Plan, the background information that is necessary to consider within the scope of this project, the Business Plan, and an Appraisal Section. Specific goals of the ADAPT Project include:

- Work with UTSOA to integrate archival research more fully into curriculum; maintain dialogue with faculty to facilitate collecting of student work, faculty work and understanding of UTSOA goals.
- Advocate and adapt proposed collection program to needs/desires of UTSOA with the goal of voluntary adoption, ideally by 50% of advanced studio classes.
- Use collected student work to increase use and recognition of the Archive and the reputation of the UTSOA.
- Adapt student digital record workflow to the collection of digital architectural records as produced by private architects and firms.
- Refine UTDR user interface to permit browsing of collections and increased discovery of non-standard collection types and file formats.

This project was authored by Jaclyn Georges, Dylan Maltby, Emily McDonald, Marisa Mendez-Brady, Kathleen O'Connell, Amelia Parks, and Andres Ramirez, all of whom are students in Dr. Patricia Galloway's Fall 2013 course *Introduction to Electronic and Digital Records*. We developed this project by consulting with Elizabeth Danze, John Blood, and Stephen Sonnenberg and with the friendly and creative minds in their Advanced Studio course. Additionally, we consulted with the staff of UT Libraries' Alexander Architectural Archive. Their help was essential in drafting this plan.

Over the course of several weeks, the authors of this report observed the students working in the Advanced Design Studio, monitored their digital activity and interviewed them concerning their creative processes. To develop the vision for the ADAPT Project; we met with Beth Dodd, the Curator of the Alexander Architectural Archive and Head Librarian of the Architectural & Planning Library, who provided insight into her expectations for this report. To generate a feasible business plan we partnered with UT Libraries' Digital Archivist, Jennifer Hecker, and Digital Repository Librarian, Colleen Lyon. The resulting report is the culmination of each person's contribution to providing a complete plan for implementing a born-digital record management and preservation plan at the Alexander Architectural Archive.

Goals of the ADAPT Project

1. Strategic Vision

1.1 Vision

The Architectural Design Archival Process of the University of Texas (ADAPT) Project proposes a forward-looking foundational partnership initiative facilitating the collection and archiving of the architectural process. As it stands now, there is little in the way of standards or agreed upon practices for collecting and archiving the rich digital process materials of architectural design. As formats, files and technology proliferate we can assume that the problem of managing the product of this creativity will only become more complex.

With these challenges in mind, the ADAPT Project proposes a flexible system which standardizes the collection of born-digital design files. This project recognizes the diversity of approaches within the School of Architecture, therefore a key feature of the ADAPT Project is its extensibility to accommodate the essential variety and spontaneity of the creative process. Furthermore, the ADAPT Project aspires to enable the long term preservation and access of these born-digital files through a strategic partnership between key institutions at the University of Texas at Austin. A fundamental consideration of this plan is refining and utilizing current practices and existing resources in order to provide an orderly and intuitive digital environment for enabling the optimal design of the physical environments of tomorrow.

1.2 Collection and Preservation

Central to this plan is the proposal to integrate simple, practical standardized documentation strategies, which architecture students may easily adopt into their individual workflows. These include a basic standardized file naming convention, a standard deliverable file format, and systematic checkpoints for collecting the design process. Also crucial to this plan is normalizing the setup of a single file sharing service for each studio course, accessible by faculty, students and Archive staff. This will draw on and elaborate existing course checkpoints and practices in order to collect intermediate design work at timely stages in the development of the students' projects.

While the file sharing service is only the temporary collection point it is highly recommended to select one which is supported by the UT system for the purposes of practical sustainability. The proposed system of standardization will enable both an ease of adding the materials to the Archive and for accessing them in the future, as well. Collected files will be initially stored on the Archive's servers, and eventually migrate to the UTDR and magnetic tape backups. Another feature of the standardizing process will be the opportunity to request permission from every student to allow the collection and preservation of the products of their design work.

1.3 Collaboration

In order to strike a balance between the various interests involved in this project, this plan will be accomplished through a strategic partnership between the UT School of Architecture, the UT Libraries' Alexander Architectural Archive, the School of Information, and UTDR. An added benefit

of this plan is the opportunity to foster an evolving dialog between the School of Architecture faculty and Archive staff to ensure the fulfillment of their common goals.

The success of this initiative will largely depend on voluntary student and faculty participation; therefore it is crucial that this plan meets the needs of those involved in the design studios. Detailing the complex development process of architectural design will rely on the expert curation of the faculty and staff of the Archive, and their active collection of materials, as well as allowing them a foundational voice in how these records are managed. In addition, this project will provide valuable opportunities for iSchool students to gain experience in archives and client interaction. In an ever-changing digital landscape, the UTDR will provide a safe and reliable storehouse for the eventual preservation and access to these collected materials.

1.4 Goals

The goals of the ADAPT program are incremental. Initial materials from the Fall 2013 Theatre of War, Advanced Studio Design course, will be collected and appraised in order to measure the impact on the Alexander Architectural Archives operations. This preliminary collection will be key to developing expectations and providing evidence to ensure the participation and investment by both the Archives and UTSOA faculty. For the first planned implementation in the Spring 2014 semester, simple proposed guidelines for file organization will be introduced to faculty and students. Archives staff will gain familiarity with the workflow of the project and begin collecting files from the assigned checkpoints designated by the course instructors. As the parties become familiar with plan procedures, Archive staff will expand the reach of their collection practices. Once dedicated server space has been allocated to the Archive, materials will be housed on the Archive's servers. Implementation of this plan will allow for the eventual migration of digital files to an affiliated digital repository, such as UTDR, within 5 years.

Following this initial 5 year phase, the ADAPT plan proposes more extensive possibilities which may be implemented if a sufficient budget and resources become available. One of the long-term goals of the project is the creation of a dedicated Digital Archivist position for the Alexander Architectural Archive to manage the wealth of digital records collected, and to serve as the liaison between the partnering institutions involved. Furthermore, there is room for expanding the scope of the processes collected, which may include the wide variety of foundational materials the design process begins with, a system to document intermediate versions of process files, as well as documenting the final review presentations which conclude studio design courses.

1.5 Benefits

While the UT Digital Repository will eventually gain a wealth of material, jointly, the School of Architecture and the Archive stand to benefit a great deal from their cooperation on this project. Participation in this plan will allow students and faculty improved access to past work, which may aid faculty in developing future studio courses and aid students completing their online portfolios or recovering lost work. Furthermore, this plan may contribute to the Architecture program's renewal of accreditation as well as assist with recruiting prospective students and serve development and advancement support initiatives by providing a wealth of student work to draw upon for

presentation. As the UT Architecture program is a leading institution in the architecture field, adopting this plan will further demonstrate their forward-thinking contributions.

This project will be of immense benefit to the Archive, which at the moment does not collect students' digital material. Collecting student work will increase the use of the Archive and allow for the development of relationships with these future architects. Finally, this plan will encourage a move toward a standard practice for managing the growing spectrum of digital records created in the design process by providing a model for collecting and managing the output and workflows of both student and professional architects. By charting this course the ADAPT Project ultimately endeavors to contribute to the improvement of collection procedures of all architectural design materials, both digital and physical.

Background and Context

External Context

2. Current State of Practice

2.1 Creation of Digital Architectural Records: Architecture Firms and Schools

"Firms and members of the architectural community have been using computers for the past thirty to forty years as an integral part of the design process, as well as in the management of their practice." (Pierce 2011, p. 43)

In addition to the common kinds of digital records produced by most professions and individuals (emails, digital photographs, word documents, pdfs), architects also create complex digital drawing files using CAD (computer aided design) programs like AutoCAD, Revit and Rhino. These CAD files, which generally take the form of 2D drawings and 3D models, act as a replacement for the traditional drawing process. In 2002, "an estimated 85 percent of working architects [were] us[ing] CAD exclusively," (Armstrong 2006, p. 15) and that number will have increased since then.

Schools of architecture are following this trend, increasing their emphasis on and use of CAD programs in conjunction with the creation of more traditional kinds of architectural records. There has not yet been a complete switch, but students are encouraged to learn and use these programs as part of their professional training, and tools that provide different capabilities than hand-drawing and physical models. As one of the top-ranked graduate and undergraduate architecture programs in the country, the UT Austin School of Architecture (UTSOA) provides access to AutoCAD, Revit, Rhino, and InDesign and encourages using a mix of traditional and computer-based techniques in its advanced design studios. Students move between hand-made drawings and models and a variety of CAD programs, with the tendency to work more and more in the digital space as their project nears completion.

There are numerous CAD programs on the market. Most of these programs, the ones with the most functionality, are proprietary, closed-source programs, with frequent updates that render older versions (and their file extensions) obsolete and often unreadable. The proprietary file formats they create are rarely compatible and generally cannot be opened without a software license. The UTSOA purchases licenses for several different programs for the use of its students, and they routinely switch between the programs using a neutral file format.

2.2 Archiving and Preserving Digital Architectural Records

Until fairly recently, archivists who dealt with architectural records focused almost exclusively on physical records. There have been considerable efforts dedicated to digitizing physical records and making them available through the internet, but born-digital records have only become a concern of archivists in the last 15 years, even though architects have been using CAD software since the 1970s. As of 2000, several archivists and architects have voiced concerns about the possibility of a 10-25 year gap between traditional paper and current digital records because early digital records and related documentation were not systematically saved (Armstrong 2006, p. 15).

2.2.1 Archival Projects: AIC and DAarch, FACADE, GAUDI

Despite the increased use of digital records by architects and the increased expectation of users to have instant access to born-digital as well as digitized records, the architectural archival field has moved slowly since 2000. There has been little new literature on the subject and only three major projects attempting to deal with born-digital architectural records.

The Digital Design Data Project, led by the Department of Architecture at the Art Institute of Chicago beginning in 2003, attempted "to understand how architecture and design firms create and use digital data in order to determine best practices for archiving this data within archives and museums," (Pierce 2011, p. 44). They were able to create a proposed workflow for the ingest of born-digital architectural records, as well as open source software to aid in the accessioning and description of digital records, called DAarch. The software was successfully implemented by the AIC and released as open source software; though they had (and continue to have) considerable problems with proprietary file formats.

The FACADE project, started by MIT in 2007, was an investigation into "ways of creating a structure for preserving digital CAD files and the use of open-source solutions to store and provide access to the architectural record," (Pierce 2011, p. 46). They also encountered problems with proprietary formats, recommending identifying, migrating and emulating 3D CAD models. The project also recommends a shift in focus from the final products of an architectural project, to the context of design work and the relationships of CAD models to other documentation created by architects and firms (Pierce 2011, p. 46).

The GAUDI group "was a European collaborative of participating institutions focused on architectural issues, such as preservation, community involvement, and contemporary design," as well as digital file creation and architectural practice. Their main goal was to investigate current architectural and archival practice and see if individual practices and innovations could be adapted for use across different contexts and institutions, opening the door for collaborative efforts to find solutions to problems facing the professions as a whole (Pierce 2011, p. 45). The group was instrumental in creating a space to share problems and possible practices in a way that would reach a larger audience.

2.2.2 Efforts by Architects

Architects have been the most vocal in promoting efforts to preserve their digital records, increasingly advocating collaboration with archives. Architectural firms are already concerned with records management, mainly based on legal requirements and marketing potential, although documenting the history of the firm is also a consideration. The American Institute of Architects published a resource guide on records management for architectural firms, which includes a section on creating an archives program, with resources for retaining and archiving records and for partnering with a cultural heritage institute (Hadley, 2013). Even in the 1990s, before most archives were concerned with born-digital architectural records, some architects were suggesting that digital records created by firms be "organized with an archivist in mind," (Armstrong 2006, p. 15).

3. Compatibility with Mission Statements

3.1 Alexander Architectural Archive

The mission of the Alexander Architectural Archive is to support "instruction in the School of Architecture through the doctoral level in architectural design, history, preservation and community and regional planning; and the master's degree level in Interior Design. The Archive also supports research in history, art history, American Studies, anthropology, and engineering, as well as that undertaken by design professionals, governmental agencies, and others involved in the preservation and restoration of buildings," (Alexander Architectural Archive, 2012). One of ways the Archive fulfils this mission is through partnership with the iSchool. ISchool students have the opportunity to enhance their education through hands-on practice, capstone experiences, and major course projects. The partnership benefits the Archive through innovative student work, which helps keep the archive technologically current, and enhances access and preservation solutions.

The proposed collection program, which requires a close two-way relationship with the School of Architecture, is true to the core of the Archive's mission to support all levels of learning and teaching at the School of Architecture. The collected works will join the long established collection of – primarily analog – student work from the UTSOA as a resource for new and continuing students, a teaching touchstone and retrospective for faculty members, and a record of architectural trends and education for outside researchers.

3.2 UT Libraries

The mission of the University of Texas Libraries, "as a research library of the first tier, [is to] advanc[e] teaching, learning and research excellence by providing expansive collections and innovative services to support critical inquiry and knowledge creation for the benefit of society," (University of Texas Libraries, 2012). The proposed collection program supports this mission by providing a record of the academic output of the University of Texas, specifically of the School of Architecture, as well as a record of the evolving nature of architectural education in the US. It proposes to add research value to the collections of the UT Libraries: the foundational knowledge included in the student records will help document trends and influences in modern architecture, part of the mandate of the Architectural Archive. The Architecture and Planning Library, a branch of UT Libraries, currently collects *Issue*, an annual publication put out by of the School of Architecture profiling student work. The collection of more student work would both support the creation of this journal, and provide considerable context for it.

More generally, this collection program provides an opportunity for UT Libraries to reconfigure their current resources in a way that would permit the Architectural Archive to increase their support for the School of Architecture. This branch of the UT Libraries would be more fully integrated into the educational aspect of the University of Texas, in a way that would aid students, teachers, alumni, and outside researchers.

3.3 School of Architecture

As stated by the dean, the School of Architecture offers "rigorous, exciting programs in architecture, community and regional planning, landscape architecture, interior design, architectural history,

historic preservation, sustainability, and urban design in a supportive, well-equipped environment. [They] are engaged in exciting, important activities and committed to creating the built environments of the future," (Steiner, n. d.).

The proposed collection program would support education in the School of Architecture by improving their relationship with the Archive and its resources; by providing students with an extra incentive for effort and creativity and by creating a new source of foundational knowledge and inspiration from which they can draw. It also supports administrative needs by a resource for accreditation, faculty tenure reviews, student and faculty recruitment, and fundraising and development.

3.4 University of Texas at Austin

"The mission of The University of Texas at Austin is to achieve excellence in the interrelated areas of undergraduate education, graduate education, research and public service. [...] The university contributes to the advancement of society through research, creative activity, scholarly inquiry and the development of new knowledge. The university preserves and promotes the arts, benefits the state's economy, serves the citizens through public programs and provides other public service," (University of Texas at Austin, 2013).

The proposed collection program is very much in line with the mission of the University of Texas. The intent of the program is to aid education by collecting student work, preserving it and providing access to it, thereby creating a trusted storage space for the creating students, a learning and inspirational resource for other students, and a retrospective for the faculty members. With this program, the Archive would be preserving the output of the School of Architecture and therefore the activities of the University of Texas, the product of creative activities and the development of new ideas. All of these are valuable in their own right, but they can also provide considerable scope for scholarly and practical inquiry. Increased contact between the UTSOA and the Archive has the potential to produce ideas of considerable benefit to the public. Supporting this program would give the University of Texas an opportunity to make full use of the resources represented by the School of Architecture and the Archive, and help them reach their full potential as institutions of learning, creativity, inquiry, and inspiration.

3.5 School of Information

The School of Information's mission statement includes the following goals: "discovering new and vital knowledge about information, educating the next generation of leaders in the information professions, developing new scholars who will advance knowledge, improving society through service and collaboration, applying human-centered values to all our work." (University of Texas at Austin School of Information). This project supports these goals by providing opportunities for iSchool students to engage in the archival process and preserve an important part of their larger institution's academic achievements, as well as demonstrating the importance of outreach to their local community.

4. Legal and Ethical Concerns

4.1 Intellectual Property

According to UT System Regents' Rules and Regulations, General Rules for Intellectual Property, Series 90101, Section 4, all "professional-, faculty-, researcher- or student-authored scholarly, educational (i.e. course materials), artistic, musical, literary or architectural work" (The University of Texas System, n.d.) is the intellectual property of the faculty member, researcher or student that authored it, even if it was created using UT system resources or done while in the employ of the UT system. These works are protected by copyright the instant they exist in a fixed form, with no further action taken on the part of the author.

In order for the Archive to collect, preserve and provide access to student-authored materials, the Archive will need a waiver signed by each student whose work is to be collected, giving the Archive non-exclusive rights to their work, and specific permission for the above activities. In order for the works to be submitted to the UTDR, the waiver will also need to extend those permissions to UT Austin.

When items are submitted to the UTDR, the Repository requires the submitter to warrant the following:

- They are either the copyright owner of the work, or they have permission from the copyright owner(s) to submit the work.
- The work does not infringe any copyright, patent, or trade secrets of any third party, and does not contain any libelous matter, nor invade the privacy of any person or third party.
- The work has not been sold, mortgaged, or otherwise disposed of, and is free from all exclusive claims, EXCEPT in the case of a thesis or dissertation with pending patent(s). If a thesis or dissertation has a patent pending, the author has the option to request a one year embargo on display and distribution rights through the UT Digital Repository and TDL's online repository. (University of Texas Libraries n.d.)

(See Appendix A & B)

4.2 Privacy and Security

4.2.1 FERPA

The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99) is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. Generally, schools must have written permission to release any part of a student's educational record, though certain kinds of "directory" information (including student's name, address, telephone number, date and place of birth, honors and awards, and dates of attendance), may be shared without permission, provided that the school gives the student a reasonable amount of time to request that this information not be shared. (US Department of Education, n.d.)

In order to comply with FERPA, the Archive must redact certain personal information from the students' works that are made accessible through the UTDR, particularly the biographical sketches collected with the course work. Also, the intellectual property waiver can include a section waiving FERPA protection for personal information purposefully and/or inadvertently collected by the Archive.

4.2.2 UT Institutional Review Board: Privacy and Security

The IRB is a body that ensures that the "rights and welfare of human subjects who choose to participate in biomedical or socio-behavioral science research" conducted at or by the University of Texas are protected (Office of Research Support, UT Austin, n. d.).

Though the collection program does not fall precisely under the purview of the IRB, the IRB's guidelines regarding privacy and security should be considered to be certain that the practices adopted by the Archive fall within methods approved by the University of Texas.

Section 4.11.2, "Considerations and Provisions to Protect Human Subjects Privacy," outlines the circumstances the IRB takes into consideration when determining whether a subject's privacy is adequately protected in a specific study. These include: the methods used to obtain data about and from the subjects; the nature of the information being sought, and whether or not an invasion of privacy is involved; the nature of information being obtained about third parties that may result in an invasion of privacy; whether or not the information is publicly available; whether or not information about the subject is recorded in such a manner as to prevent identification; whether subject consent will be sought and obtained or the requirement to obtain consent meets criteria for waiver; and whether signed consent forms will be kept in locked cabinets or other secure location separate from subjects' data. (Office of Research Support, UT Austin, n. d.)

Section 4.11.3, "Confidentiality Data Security Considerations" outlines potential criteria used to determine whether or not a subject's confidentiality is adequately and appropriately protected. These include: the methods used by the investigator to ensure that information obtained is not improperly divulged; the nature and adequacy of the safeguards that will be used to ensure protection of sensitive data; the methods used to de-identify data; removing names from survey instruments containing data; proper disposal of identified data at the earliest possible time; and limiting access to data in locked file cabinets or password protected computer files. (Office of Research Support, UT Austin, n. d.)

Considering these UT guidelines, students should be encouraged but not compelled to archive their materials. The first day of class, faculty will discuss the benefits of participating in the program and the students willing to include their work in the project will fill out the donor agreement during the first week of the term. It will be stressed that their participation will not affect their grade in the course.

4.2.3 UT Medical District

The advanced architecture studio class that served as the major source of information for this business case and may serve as its test case, ARC 560R/ARC696, Theatre of War / The Veterans Park and Pavilion Project, is an aspect of the UT Medical District plan. The Medical District is a major planned addition to the UT campus, created in conjunction with Seton and Central Texas Healthcare. The Veterans Park and Pavilion is not an overly central part of the Medical District plan, but it is intended as part of a large-scale, ongoing project, not only as an intellectual exercise. For this studio class, and for any others working with real-world projects, this raises questions of building security, plan confidentiality, and the political considerations of dealing with records that could affect the university and its academic and business partners. The Archive will have to take

these factors into consideration when choosing which works to collect, which to provide open access to and when.

4.2.4 HIPAA

To help gain sufficient background for the Veterans Park and Pavilion Project, students were shown video recordings of veterans being interviewed by psychiatrists. As these recordings are part of the veterans' medical records and contain personally identifiable health information, they are protected under the Privacy Rule of HIPAA (45 CFR Part 160 and Subparts A and E of Part 164). The Privacy Rule protects "individually identifiable health information," which is information that relates to the individual's past, present or future physical or mental health or condition, the provision of health care to the individual, or the past, present, or future payment for the provision of health care to the individual, and either identifies the individual or provides enough information the individual could be reasonably expected to be identified (e.g. contains names, birthdates, Social Security Numbers, addresses). The Privacy Rule states that this health information may not be disclosed unless permitted by the Privacy Rule or the individual identified in the information gives written permission. There are no restrictions on the use or disclosure of de-identified health information. (U.S. Department of Health & Human Services, 2003)

In order to comply with the HIPAA Privacy Rule, the Archive must redact any personally identifiable information from these videos if they are collected and made accessible or secure waivers from the veterans who were recorded. This specific instance raises the more general concern of third-party privacy, particularly in the collection of background/foundational materials. UTDR policy also requires the submitter to warrant that no submission invades the privacy of a third party.

4.3 Professional Mandates

4.3.1 Core Values of the Society of American Archivists

In collecting student works and adding them to the collections of the Archive, it is incumbent on the staff to act in accordance with the core ethical and professional values of the SAA. While all of these core values are relevant, considerations of access, advocacy, accountability, preservation, professionalism, responsible custody and service are particularly important for this project, (Society of American Archivists Council, May 2011-January 2012). Because the proposed program to collect and preserve student works on an ongoing basis requires extensive cooperation between institutions, considerable concerns over privacy and security, intellectual property, and preservation are raised. The core values of the SAA can provide a guide to ensure that the Archive meets all of its obligations to the records' creators, its users, the School of Architecture and the University of Texas as a whole.

4.3.2 Trusted Digital Repository

"A trusted digital repository is one whose mission is to provide reliable, long-term access to managed digital resources to its designated community, now and in the future," (RLG-OCLC, 2002, p. 13). The following guidelines help determine if a repository is capable of providing secure and responsible custody for collection materials. The guidelines are specifically for digital repositories, but are generally helpful in assessing the health and stability of a repository. The Archive may not

meet all of the criteria of a trusted digital repository on its own, but it can with support of other aspects of the UT Libraries, including the UTDR.

An OCLC report from 2002 listed the following attributes of a trusted digital repository:

- Compliance with the *Reference Model for an Open Archival Information System* (OAIS)
- Administrative responsibility
- Organizational viability
- Financial sustainability
- Technological and procedural suitability
- System security
- Procedural accountability

(RLG-OCLC, 2002, 13)

It also defined the responsibilities of such a repository:

- Negotiates for and accepts appropriate information from information producers and rights holders
- Obtains sufficient control of the information provided to support long-term preservation
- Determines, either by itself or with others, the users that make up its designated community; ensures that the information to be preserved is "independently understandable" to the designated community
- Follows documented policies and procedures that ensure the information is preserved against all reasonable contingencies and enables the information to be disseminated as authenticated copies of the original or as traceable to the original
- Makes the preserved information available to the designated community
- Works closely with the repository's designated community to advocate the use of good and (where possible) standard practice in the creation of digital resources(RLG-OCLC, 2002, 21)

NARA, in collaboration with OCLC and the Center for Research Libraries, produced a checklist for the certification of trusted digital repositories: *Trustworthy Repositories Audit & Certification: Criteria and Checklist (TRAC)*, in 2007. TRAC goes into deeper and more practical detail concerning the attributes of a trusted digital repository. (OCLC and CRL, 2007)

5. Economic Considerations

The Archive is funded by the UT Libraries through the UT System, by the Blake Alexander Architectural Library Endowment, and by private donors. A considerable portion of the Archive's funding depends on its relationships with outside sources, and therefore on maintaining the reputation of the Archive and the happiness of those sources. The Archive's relationship with donors is particularly important to the acquisition of new collections and work on special projects. The increased value and reputation the Archive can gain from the collection of student works and the preservation of a complex type of digital record will provide a new motivating incentive for donors.

The UT System already expends a considerable amount of resources on activities that support this business case. The UT Libraries' digital repository, the UTDR, can provide storage, access and discovery, preservation and security. In taking over the most expensive and long-term activities

proposed by the business case, the UTDR would lighten the burden of training and maintenance on the Archive staff. The UTSOA spends part of its resources on the software licenses that the studio classes use to create the records which the Archive is proposing to collect. Capturing the output of these programs would provide an opportunity to recoup investment in software licenses, as the records provide considerable value to both the UTSOA and the Archive.

Understanding the Collection

6. Current State of Architectural Records

Collecting items for the architectural record is of a unique nature; items collected are representations of the physical building, landscape, or structure and not the final product (Dougherty, 2007). Collection material is a smattering of concepts, plans, drawings and models realized through different mediums. The variety of work produced in creating building designs is alarmingly evident in the "Theater of War" advanced studio class.

The Alexander Architectural Archive is aware of material diversity in design representations, evidenced in their collections policy. The "types of material" section reads:

> "Architectural records in all formats are collected with the intent of documenting the design process from conception to completion and to record any subsequent changes, commentary or criticism" (http://www.lib.utexas.edu/apl/aaa/aaa_coll_dev_policy.html).

In light of this reality, the Archive has ample experience collecting and preserving a wide variety of physical mediums used when creating building designs.

Techniques to store and care for physical materials are well documented and a thorough disaster preparedness plan is available. Staff is well equipped to deal with issues that damage and deteriorate physical items (http://www.lib.utexas.edu/apl/aaa/storagecare.html). However, architects and architectural students are moving away from creating physical representations and instead are creating digital models.

6.1 Digital Materials

CAD software creates digital models of physical objects. The sheer number of applications developed over the last decade to support CAD modeling speaks to this fact. There are over two dozen 3D modeling applications known, supporting over 140 types of file formats (Kenton & Bajcsy, 2010).

While the Archive regularly preserves digitized material, they have never before ingested CAD models. In order to continue preserving the architectural record, the Archive must carefully evaluate the nature of the digital assets themselves. Correspondingly, it is important to examine the role that a collecting archive must assume when preserving CAD models. Different affordances from those billeted in traditional archives must exist to feasibly accommodate 3D digital objects.

7. Structure and Materials of Proposed Digital Assets

Materials generated during the course of the semester are a hybrid of digital and physical objects. Students created a wide variety of material, centered around the different phases of the class structure.

7.1 Foundational Knowledge

The preliminary work of the students is to show how they will attempt "creating a place of healing, engagement and connection and develop a prototype building that merges architecture and psychoanalysis" (Danze, Blood, & Sonnenberg, MD, 2013). This is a true creative enterprise and each student in the class comes away with individualized records during their preliminary work. Some of the documented file types are video files, audio files, textual files, interviews and introspective notes. In architectural firms, this pursuit is often known as "Job Files" (Lowell, 2006, p. 61). In the Advanced Studio class[es], students referred to these files as either "Research" or "Precedence".

7.2 Site Analysis

Following the foundational knowledge files created in the class, students conduct a "site analysis". According to Lowell (2006), "the main focus is the land itself, and not the structure or landscape that will be constructed" (p. 44). Materials produced for presentation during the site analysis included pdfs of digital booklets containing the student's digital models, contributing site data, records of observation, physical models, drawings, and objects from the Architecture School's "Materials Collections". However, the material listed above was only the material generated with the intent to share content on the class' *Dropbox* shared storage.

Physical material generated ranged from textiles, sketches, traces, tiny working models and large scale models. 3D digital objects generated were created in Illustrator, Google Sketchup, AutoCAD, Rhino, Revit and InDesign. These are known as computer-aided designs, or CAD, and are used to assist in the production of complex architectural designs (Ball, 2013). CAD file formats used in the studio class include, but are not limited to, ai, dwf, dxf, fbx, dwg, dws, dwt, 3dm, skp, rvt, rte, rfa, obj, and stl. Documenting the entire range of digital objects created is extremely difficult, as most of the students work on their personal computers.

7.3 Concept

At this point, students concentrate their work on the particulars of their proposed structure. Information about their design may include plans, elevations, sections and details. Lowell (2006) defines plans as "drawings or diagrams showing the relative positions of parts of the projects or any floor of the building" (p. 46-48). She further defines elevations as the vertical surface of the buildings as a cross-section, or a vertical slice of the structure (Lowell, 2006, p. 54). Worth noting here is that, "the terminology used is up to the individual designer" (Lowell, 2006, p. 54). Finally, details are defined as any aspect of the building that needs further explanation or special attention and may include items such as railings, columns, roof structure, beams, treads, risers, etc. (Lowell, 2006).

As the students move into this phase of design, individual tendencies and differences are extremely evident. Some students prefer to generate the building concept through drawings and physical models, while others exclusively use 3D modeling software. Additionally, not every student completes every aspect of the traditional building concept Lowell outlines; the number of CAD files varies from student to student in an Advanced Studio class. Students are encouraged to be creative with their work. Thus, there was little uniformity in records created.

Despite the disparity between students' concept materials, there are some identifiable products common to each designer. Almost every student generates a pdf booklet of designs rendered digitally, as well as CAD files and/or physical models.

7.4 Mid-Review

As the creative process coalesces into "Mid-Review", uniqueness in record creation techniques diminishes. The "Mid-Review" in the Advanced Studio classes is treated as a final review. Students present their building to a body of architecture professors and outside local architects. During this phase, students exclusively present their work as pdfs and physical models.

The difficulty in documenting the collection lies in the steps taken between "building concept" and "mid-review". Students frequently convert digital objects between file types so that they may use different types of software to create a final product. What's more, students generally do not document the sequence in which digital objects are produced, which object was generated in which program, and what conversions took place. The amount of data loss is immeasurable throughout this process, as students rarely save the various versions of CAD files.

7.5 Final Review

By the time the students reach their "Final Review", the files produced are saved as pdfs and the physical materials used to design their structure. Unfortunately, the *Dropbox* shared space used for the class to share files and to present materials is frequently deleted at the end of the semester. In order for the Alexander Architectural Archive to ingest the records, one of the archivists would either have to administer the class *Dropbox* or be added to the *Dropbox* already in existence. Otherwise, the context for the final products will be lost.

7.6 List of Proprietary Software Used

- AutoCAD - Autodesk, Inc.
- Rhinoceros 3D - Microsoft, Inc.
- Revit - Autodesk, Inc.
- InDesign - Adobe Systems, Inc.
- Illustrator - Adobe Systems, Inc.
- Google Sketchup - Google, Inc.
- Adobe Acrobat - Adobe Systems, Inc.

7.7 List of File Format Extensions Observed

- ai - Adobe Illustrator file format
- indd - Adobe InDesign file extension

- indl - Adobe InDesign file extension
- dwf - AutoDesk proprietary software: compresses AutoCAD files into smaller files
- dxf - AutoDesk Propriety format: enables compatibility between AutoDesk software
- fbx - AutoDesk Proprietary format: used to convert between AutoDesk software applications
- dwg - AutoCAD Object file
- dws - AutoCAD Drawing File
- dwt - AutoCAD Template Design
- 3dm - Rhinoceros 3D
- skp - Google Sketchup
- rvt - AutoDesk Revit
- rte - AutoDesk Revit
- rfa - AutoDesk Revit
- obj - The OBJ file format is a simple data-format that represents 3D geometry alone
- stl - **STL** (**STereoLithography**) CAD software created by 3D Systems. This file format is supported by many other software packages
- .pdf - Adobe Acrobat standard file format

8. Alexander Architectural Archive's Role

In support of the Alexander Architectural Archive's mission statement, the archivists will have to take a much more active role during the acquisition process. This strategy is referred to in the archival community as "documentation strategy" (Malkmus, 2008). The Society for American Archivists defines documentation strategy as such.

> Documentation strategies are typically undertaken by collaborating records creators, archives, and users. A key element is the analysis of the subject to be documented; how that subject is documented in existing records, and information about the subject that is lacking in those records; and the development of a plan to capture adequate documentation of that subject, including the creation of records, if necessary. (Society of American Archivists, 2013)

Malkmus (2008) describes the theory and practice revolving around documentation theory as a way for archivists to create more usable records, they need to take an active role in identifying pertinent records and retrieve them for archival storage, rather than passively ingest through traditional acquisition practices.

8.1 Approach to Acquisition

Creating the context for the materials produced during final review requires a different approach to current practices at the Alexander Architectural Archive. They will need to take an active role in obtaining the material, identifying pertinent records located on the class' *Dropbox* shared spaces to create a meaningful record of the Advanced Studio activities. Documentation strategy is the only viable alternative to passively ingesting potentially incomplete and unusable records given the small size and limited resources of the Archive.

Furthermore, the extremely fluid processes evident during the creating of architectural records in the UTSOA do not lend themselves to passive acquisition. Students are not likely to document their process as they move between CAD formats, nor are they likely to stop what they are doing to save versions of their projects. However, in order for users to access the full body of work comprising each architectural design, context must be developed through documenting each stage of the design process. In this respect, the Archive has no other choice but to take a more active role in the acquisition of student work in order to preserve its context and allow researchers to benefit from the retention of students' architectural designs.

9. School of Architecture's Role:

Considering that the provenance of the architectural records produced in "Theater of War" directly support the mission of the Alexander Architectural Archive, the School of Architecture must embrace their role in creating a historical record of its studio classes. While the intent of this Digital Preservation Business Case Management Plan is not to stifle the creativity of the architecture students and faculty members, certain steps can be taken with little additional work on the part of the School of Architecture.

9.1 Cooperation with the Archive

An archivist at the Alexander Architectural Archive must be able to access the digital objects throughout the semester to collect process files and digital objects. As the students move towards their final project, the CAD models created will be lost if an archivist is not allowed this active role in the accession process. Simple steps such as this will enable the Alexander Architectural Archive to document provenance and effectively preserve these materials, in the interests of fulfilling its mission statement.

The UTSOA must also acknowledge the intellectual property laws integral to providing access to personal records. Students have to give legal permission for the Archive to preserve their records. In doing so, the archive can grant access to researchers wishing to explore both the physical and digital objects comprising an architectural design. The School of Architecture would benefit greatly from this type of collaboration. Primarily, future architects' work can be documented while their processes and designs evolve during their time at UT. In addition, the SOA can develop a reputation for cutting-edge work with technology through this documentation of student work, which illuminates how students are working with CAD. Ultimately this improves faculty instruction and enhances the student professional profile and marketability.

Institutional Readiness

10. Current Statuses

10.1 University of Texas School of Architecture

The UTSOA has a very different institutional culture and workflow than the Archive. Effective collaboration is possible, but would require efforts on the part of both institutions to form a middle ground. Below are aspects of the UTSOA's current practices with which the Archive should concern itself:

- No set use of file management system, no common directory structure, naming conventions or consistent use of file types
- Little documentation of workflow, transitions between software programs or file types by students
- Little or no communication with Archive by faculty or students as a whole
- Use of Architecture Library and Archive for research on individual basis, but no systematic use/training in use of archives

10.2 Alexander Architectural Archive

The acquisition and preservation plan laid out in this business case can be accomplished with the resources available to the Archive, with the collaboration of the UTSOA and UT Libraries as a whole. There are however, limitations on the resources and expertise available to the Archive at present:

- 3 full-time staff, though only one is dedicated to full-time processing: limited staff time can be devoted to special projects, dependence on student workers/interns for special projects
- Little room in budget for additional staff or intensive training
- No experience with born-digital records: ingest, description, preservation
- Limited experience with UTDR: submission, linking of files, creation of collections
- Minimal/no experience with tape-based backups
- Experience with creating/normalizing metadata, specifically for analog or digitized materials

10.3 University of Texas Digital Repository

The UTDR is central to efforts to effectively ingest, describe, preserve and provide access to the student-created works the Archive wishes to collect. The current status of the UTDR speaks to its ability to support this project, though adjustments may be needed to support the specific needs of the Archive:

- 5 years of staff and institutional experience in preserving, migrating, storing and providing access to digital records
- No loss of records, no corruption or checksum problems
- Can provide persistent URLs and usage statistics for objects in repository
- No limits on space available, but effective size limits on individual files due to submission/access interface (over 600MB is problematic, over 1GB unworkable)
- Experience with variety of stable file formats, but limited/no experience with 3D model files or neutral file types (stl, obj) used by students at UTSOA
- Metadata standard used (Dublin Core) not optimal for describing architectural records
- On the verge of changing to another repository platform

10.4. The School of Information (iSchool)

There is both interest and recourses available through the School of Information to assist the implementation of the ADAPT Project. Graduate students will be available throughout the academic year to work on archiving born-digital material produced at UTSOA.

11. Institutional Goals

11.1 Short Term Goals (3 months – 1 year)

Below are short term goals for the implementation of the proposed preservation plan, including staff training and adjustment of institutional workflows. The implementation will be led by the Archive in collaboration with the UTSOA and the UTDR:

- Migrate Fall 2013 Theatre of War files from *Dropbox* to Alexander Archive server
- Improve familiarity of UTSOA students and faculty with Archive, potential research value, and proposed collection program
- Introduce proposed file directory structure, naming conventions, preferred file types and necessary waivers with the hope that these recommendations will be used
- Allocate staff time/create liaison position with UTSOA (student worker/intern) to ensure consistent application of Archive preferred standards/conventions.
- Gain familiarity with file management systems, work with IT staff (UT Libraries and/or UTSOA) to use file management systems as link between UTSOA studio courses and the Archive

The following short term goals may change as UTDR introduces their new platform:

- Create/finalize workflows for ingest of digital records, metadata standardization and submission to UTDR.
- Gain familiarity with requirements and functionality of UTDR; finalize metadata types, naming and linking of works, privacy concerns.
- Gain general understanding of UTDR preservation practices: checksums, server mirroring
- Investigate viability of creating tape-backups for ingested digital records; begin necessary staff training through UTL Services
- Adapt UTDR's Dublin Core metadata standard to architectural metadata standards
- Observe behavior of non-standard file formats in UTDR; begin to investigate potential migration formats and begin to investigate file formats for viewing documents

11.2 Ongoing Goals (To be started immediately)

Below are ongoing goals for the solidification and expansion of the preservation plan:

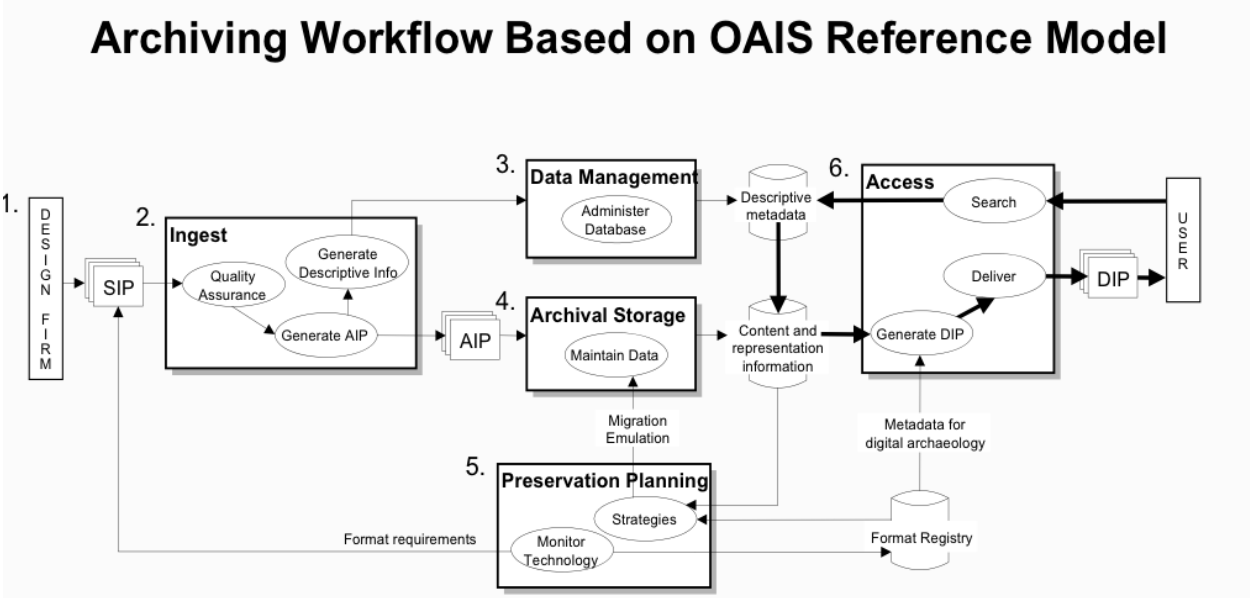
- Work with UTSOA to integrate research in Archive more fully into curriculum; maintain dialogue with faculty to facilitate collecting of student work, faculty work and understanding of UTSOA goals
- Advocate and adapt proposed collection program (directory structure, naming conventions, etc.) to needs/desires of UTSOA with the goal of voluntary adoption by at least 50% of advanced studio classes
- Use collected student work to increase use and recognition of the Archive and the reputation of the UTSOA, specifically the persistent URLs for works/subject terms and the file/work usage statistics
- Adapt student digital record work flow to the collection of digital architectural records produced by private architects or firms

- Refine UTDR user interface to permit browsing of collections and increased discovery of non-standard collection types and file formats

Digital Preservation Risks

12. The OAIS Model

The current standard for preserving digital objects is the Open Archival Information System (OAIS) model of ingesting the material, storing it, data management, administrative overview, preservation planning and access (Research Library Group, 2012). Below is a graph demonstrating the specific steps included in the OAIS model (Fallon & Kristine Fallon Associates, Inc., 2008):



SIP= Submission Information Packet, AIP=Archival Information Packet, DIP= Dissemination Information Packet

Given this model, there are formidable risks involved at each stage of the OAIS model. An inescapable risk at ingestions is that the Archive has no way to control the type of files they are getting from UTSOA. At best, recommendations for file formats and standard naming conventions can be issues. However, in not wanting to stifle the creative freedom fostered at the School of Architecture, the Archive can only collect what is made accessible to them.

12.1 Acquisition

The lack of control in the record creation and throughout the acquisition process poses some very real risks. The risk posed in not having control over the digital files is that the staff may acquire incomplete or unreadable data to create a useful submission information package (SIP). If a student were to fail to convert their CAD models into a standard file extension, the archive might have no way of viewing the file. In the future, the archive may have access to software programs, if provided through UTSOA. Conversely, if students convert all of their CAD models into pdf, and never make their 3D models accessible as object files, there will be inadequate metadata to sufficiently document the context of their designs.

12.2 Data management

Dougherty (2007) notes that "architecture firms vary so widely in their file naming, organizational, and workflow procedures that it is extremely difficult to impose any kind of consistent standards" (p. 3). Even with some imposed standards, in order for the archivists to be able to store and retrieve files, the staff will have to deal with inconsistency and gaps in the descriptive metadata. In order to ensure the long term survival of digital records, the Archive should use the Online Computer Library Center (OCLC) Preservation Metadata: Implementation (PREMIS) strategies (http://www.loc.gov/standards/premis) as a guide for generating the appropriate metadata. PREMIS can also act as a guide for the organization of the records.

Complete and consistent metadata ensures that the object retains its authenticity and renderability throughout its life (Vermaaten, Lavoie, & Caplan, 2012). Currently, the Archive only has three full time staff members, further extenuating volume and consistency issues. Of these three staff members, only one is responsible for processing collections.

12.3 Access

Unless each student signs a document legally authorizing the Alexander Architectural Archive to grant access to their work, researchers will not be able to view any of their digital models. With passive accessioning, a gift agreement grants the Archive rights to a collection. However, with a documentation strategy, IP rights must be given during active record use. While the Archive can distribute an Intellectual Property Waiver to each student allowing access for archival accessioning and researcher access, they should not force anyone to sign it. It should be made clear that signing or not signing the waiver has no impact on their grade for the class. No material will be used for publication. Even if appropriate measures are taken, the Archive remains liable for IP rights infringement.

Risks associated with access go far beyond IP complications. Lack of persistence and renderability of a digital object are associated with inefficient storage space, hardware failure, obsolete software, and incompatible file formats as software develops. Essentially, "all digital objects exist as a series of bits stored on some form of physical medium, such as magnetic tapes, optical discs such as CDs and DVDs, or hard drives on servers or personal computers" (Vermaaten et al., 2012). If the bit stream is corrupted or becomes unreadable due to software issues or obsolescence, researchers will not be able to view the digital objects, or create a Dissemination Information Package (DIP) for the access metadata.

12.4 Archival Storage

Any digital material collected in the immediate future will be stored on the Alexander Architectural Archive servers, which are hosted through the University of Texas Libraries. The issue with storing digital objects on the Archive's server is how much space each CAD file requires. Digital objects using 3D modeling applications generate enormous files. They take up considerable server space and using an internal server may result in an eventual lack of storage capabilities (Kenton & Bajcsy, 2010, p. 3). In order to circumvent potential storage issues, the Archive can potentially transfer their digital assets into the University of Texas Digital Repository (UTDR).

The UTDR is a digital repository servicing the University of Texas research community, tasked with the long-term preservation of digital objects in its care (University of Texas Libraries, n.d.). Once material is uploaded to the UTDR, the UTDR becomes responsible for all aspects of metadata maintenance over time. Primarily, staff at UTDR would preserve the provenance of the collection and the authenticity of the records; once files are moved to the UTDR, the digital repository becomes responsible for authenticating the file over time. It is also responsible for maintaining the contextual information, or provenance, of the digital records in its holdings (Research Libraries Group, 2012). The Archive would have no way of controlling the frequency of checksums[1] to verify authenticity or ways to prevent metadata becoming separated from the object it describes.

Another risk posed by the UTDR is that it uses DSpace, which is a cloud storage server. The risk with cloud storage is that it is always connected to the Internet, creating potential security issues. However, UTDR does have a dark archive; permissions to collections can be set by the archive owning the collection. There is a possibility that the object or its associated metadata could be changed due to the nature of DSpace. However, so far, UTDR has had no security breaches, nor have they returned an incorrect checksum.

12.5 Preservation Planning

The fact that 3D modeling software is developed and distributed through proprietary companies creates even more threats to the long-term preservation of the digital objects collected from the School of Architecture. Proprietary software companies do not make their codes accessible and frequently change the file format used to render the bit stream. These same software companies often create the CAD viewers that accompany the modeling software. In most instances, CAD software is not compatible across platforms. These applications are extremely expensive and there is absolutely no way to predict how these formats will change over time or whether the software company will enable legacy content to be viewed in future applications.

The task of preservation planning must acknowledge these realities to provide for best practice in caring for ingested digital records. Issues inherent to proprietary formats may be avoided through taking a more active role with the Architecture School. Providing a standard for students to export their CAD models into *Dropbox* in an open source file format would help safeguard against future access issues. Still, the Archive should not prescribe which file format to use, only issue guidelines and suggestions.

13. Information Loss

The risk posed when collecting material that has been converted into an open source platform is the unavoidable data loss that occurs during the conversion process. Still, it is one of the most feasible ways to ensuring access to the digital objects. Creating an emulation space would be the ideal solution; however, the archive believes they do not have the bandwidth to support emulation.

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[1] [1] A checksum is a sum derived from the bits of a segment of computer data that is calculated before and after transmission or storage to assure that the data is free from errors or tampering. (http://www.merriam-webster.com/dictionary/checksum)

It is veritably impossible to stave off information loss when dealing with 3D content. Since each type of 3D file stores information differently, moving across platforms is problematized (McHenry & Bajcsy, 2008). Each time the data is converted, the original bit stream is pulled apart and recreated as a new file, resulting in a lossy conversion (Kenton & Bajcsy, 2010). Lossiness when migrating 3D objects must be accounted for when planning for long-term access to 3D digital objects. Data loss risks will have to be assessed throughout the lifecycle of the records as software continues to develop.

The user will also have to be made aware of the data loss during access. With the complex nature of architectural digital records, the only way to plan for 3D object preservation is to maintain the bit stream originally collected from each student file. In the future, information loss should be studied and quantified so that the bit stream can be migrated with the least amount of data loss possible. Migration should only be done on-demand and original bit stream should be preserved so that it may be emulated in the future.

The ADAPT Project Plan

14. ADAPT - Business Activity

Based on the research we have compiled from on-site observations and interviews with students and professors of the Advanced Design Studio course as well as an interview with the Alexander Architectural Archive staff, we have outlined a series of steps for an archive staff member to follow when collecting these courses' materials for preservation. These steps may also be applied to other architecture courses as well. It is preferable that the task of documentation and collection of materials be carried out by either an archive staff member or their student worker so as to ensure accurate data capture.

14.1 Appraisal

The first step the archive staff member must take to properly document these courses is to conduct a Preliminary Appraisal. Currently, due to staff and budget constraints of the Archive, we recommend that the Archive's digital repository focus solely on the capture and ingestion of materials from the Advanced Design Studio courses.

Since the Advanced Design Studio course ideas and themes are first "pitched" by the Architecture faculty to their entire student body during the student lottery process, we recommend that the archive staff member begin documentation during these sessions in order to gain a better understanding of the full scope of courses that professors want to pursue with their students. It would also give greater insight into current trends of study and thought circulating in the field of Architecture.

Once courses are chosen as part of the ADAPT project, the archivist should give the participating professors information handouts to help explain the process. These handouts will be contained in a file folder kept on the server. The handouts will include, the Deed of Gift form, the UTDR Distribution License, a student instruction handout, and the student *Box* instructions (see appendix). As this project progresses the archive may find other useful information to add to the folder.

14.2 Setup of File Sharing Service

Once the professors have made their "pitches" to the Architecture student body and students have selected which proposed course sounds most appealing to them; the archive staff member should meet with the professor(s) to gather more background information about the course as well as obtain the course syllabus, course description and student roster. Meeting with the professor will allow the archive staff member to gain a better understanding of the class structure and objectives. It will also aid the archive in the next step of capturing the course's digital objects for ingestion into the digital archive: creation of the course's chosen file sharing system. It is recommended the file sharing system is one already approved by the University of Texas System. Examples of such systems are *Dropbox* and UT's *Box* Service. A future investigation should be conducted to measure the impact of *Box* on the digital files. At this point in time, there is not enough information to thoroughly research how the platform affects the files. These two file sharing systems will be referred to throughout the rest of this section and will act as general examples of the type of system

that is recommended for digital object capture of Architecture courses. Using DSpace would be optimal; however the Archive currently does not have access to an account.

Currently, in some Advanced Design Studio courses, students are using *Dropbox* accounts in order to work collaboratively on class projects. However, it has been observed that it is the students enrolled in the course, rather than their professor, who are constructing and implementing these file sharing programs in their coursework. Since the structure of a *Dropbox* account has been left up to students with no archival or records management backgrounds, it has led to an inadequate creation of a file sharing system and file naming conventions. It is therefore recommended that with assistance from a University of Texas Information Technology Specialist, the professor of the course or their teaching assistant, who has completed his or her FERPA certification, create the *Dropbox* or *Box* account for the course. It is further urged that the account creation take place preferably before the first day of the term. It is crucial that once the account is created, an archives staff member be granted full access to it, so that the digital objects that the students generate can be harvested throughout the semester for archival preservation. Though we highly recommend the system be created by an archive staff member, we realize that due to budget and staff constraints the Archive is unable to create the file sharing accounts for architecture classes at this time and therefore the responsibility for system's creation and application falls to the professor(s) of the course or may be delegated to their TAs or GRAs. It is strongly advised that the Alexander Architectural Archive have a say in the design and decision-making process for the file sharing system of the course as the Archive will provide future access to the digital records for researchers, School of Architecture's donors, stakeholders, the archive itself and any other interested parties.

Every time an enrolled student uploads his or her work to *Box, Dropbox,* or other approved system, their digital object will be stamped with their name, date and time of upload. However it should be noted with *Box*, when you begin to look at the properties of the document's metadata, that the owner's name will be the name of the person who has created the course's account. Students should name their files in a systematic way such as:

LastnameFirstinital_assignmentversion#.

As the semester progresses students will upload their objects into the appropriate folders on the file sharing service. If the file structure does not provide all the necessary categories for the class, students and professors are welcome to create additional folders to the system. When students create shared folders they have the option to grant certain levels of access to their class, thereby giving them more control over what and how they share information with others. They also have the capability to withdraw or create expiration dates for those levels of authorization granted. It is requested that students upload their work in non-proprietary file formats such as pdf, stl, tiff, and jpeg. If students are creating objects in other types of file formats, those formats can be uploaded as well. This system should allow enough flexibility that the creative workflow is not impeded.

It is recommended that an instruction manual be created to aid student navigation through the course's file sharing account. The manual should also emphasize the importance of using stl and pdf file formats when uploading student work to the course account. If an archive staff member is

available should act as a representative for the Archive and explain the manual, requesting participation. It is advised that students then be urged to review the manual and given the option to sign an intellectual property rights waiver form the first week of class. The manual, along with the syllabus and waiver form, should be located in a folder titled “Course Documents” on the chosen file sharing system for ease of access to the students.

14.3 File Structure Guidelines

Once the course’s account is created in *Dropbox*, *Box* or similar system and the enrolled students and the Archives staff member have all been given access to the course’s account*,* five main folders to which the students will upload their work will need to be created by either the professor(s), TA, GRA .Through our on-site observations and interviews with Advanced Studio students, we have come to the conclusion that that these courses are divided into five main phases: Foundational Knowledge (or “Precedents”), Site Analysis, Concept, Mid-Review and Final Schematic Work. It is suggested that the five main folders be titled as such. As these phases are reached throughout the semester, it is recommended that the digital objects uploaded into these files follow a structured naming convention, such as:

LasttnameFirstintial_assignmentversion# (example: SmithB_siteanalysis1).

The file extension will be added automatically. The version number is optional, but highly recommended. Adding a version number will allow students to save their project each time they migrate the file to another program or make significant changes within the same program. Giving the file a version number will serve to document the creative process without having to invent new file names at every step.

During the beginning of the term, students are given foundational knowledge about the class project through assigned readings, guest lecturers and the professor(s)’ insights. Ideas and thoughts that are generated by the students from the foundational knowledge should be uploaded into the Foundational Knowledge folder. Preserving this initial student work allows researchers to gain better insight into how architecture students think about the information being given to them and how their understanding aids the formation of their preliminary design concepts. Early on, students conduct a site analysis and their observations should be uploaded to the Site Analysis folder. Examples of objects that could be uploaded to the file sharing system folders are drawings, sketches, 3D scans, photos, etc.

Based on the preliminary knowledge acquired in the beginning of the course, students will begin to further develop their concept designs for the project. These exploratory ideas should then be uploaded to the Concept folder. After uploading, initial feedback will be given by the professor on each student’s concepts. Students will then make adjustments to their ideas and begin constructing their designs.

At Mid-Term, students present their various design ideas to the class for Mid-Review. These presented designs should be uploaded to the course’s Mid-Review folder. If they have physical models, the student should take photographs and then upload them to the folder. This will allow

further understanding into the students' unique and creative design and thought processes. During the presentation, the faculty will critique the students' designs, and pick out the strongest design they believe the student should focus on. Students then make further improvements to the chosen design for the Final Review.

The final phase of the course is dedicated to the student's refinement of their chosen designs to be presented at the Final Review. The final refined designs should be uploaded to the Final Schematic Work folder. Since the work is also presented in a public forum, an archive staff member or their student worker should document the event, as it is the culmination of the body of work produced by the course during the term. If proper documentation fails throughout the semester, the Final Review will be most important event to cover for documentation purposes.

14.4 Compiling Student Bio

During the first week of the course students should provide information within the *Student Bio* folder or if using *Box* fill out the *Student Profile* page. This information will provide important context for the materials produced in this class. The archive is striving to preserve a holistic view of studio classes and this is an important component. Student biographical information can inform the Archive of class and program demographics, the points of view influencing class products, as well as providing a record of student ideology and work.

14.4.1 For Students:

For a file sharing service such as *Dropbox,* students should create a document containing their full name, email, and a short statement describing their area of emphasis and year of study. Any other information about the student is welcome such as; what attracted them to this studio class, sources of inspiration, or additional contact information. If the class is using *Box*, students should fill out the profile sections. Students can also upload a document to this page if it is easier.

14.4.2 For Archivists:

After the first week of class, the archivist needs to check the file sharing site to ensure all students have entered their biographical information. If students have not, the archivist needs to contact the professor or the students to remind them.

14.5 Archival Retrieval

Ideally as the semester progresses, archivists will periodically collect records from the five main files of the course file sharing account. For now, due to staffing and budget concerns, data collection should take place at the end of the semester; after all of the student records have been generated. A deadline should be agreed upon by all staff members handling the collection. It is imperative that the files be collected as close to the end of the semester as possible. Since the Archive will not be the creator or owner of the file sharing site, they will have no control over how long the course site will exist. If the files are not retrieved in a timely manner by the archive, the information may be lost. It is therefore advised that as the archivist reviews the files during the semester, it is also a good time for them to email reminders to any students who appear to have work missing from the folders.

The archivist should also remind students who create physical objects or drawings in their design processes, to document their work with a camera, then upload the images as tiff or jpeg file formats to the proper folder within the file sharing system. If students prefer to use a camera that uses analog film to document their work, remind them that when they scan the image to the computer, to make sure that the format is set to tiff or jpeg with the dpi set to 600.

Once the course is over and the digital objects have been collected, the course files will be transferred to the AAA server. When this task is performed, it is recommended that checksums be created to ensure data integrity. For this task, programs such as HashCheck Shell Extension or ExactFile may be useful. The course documents should be transferred and arranged in a way that mirrors the original order of the *Box* or *Dropbox* site. Creating a mirror of the file sharing site will help keep the context of the record creation and use intact.

Once all of the material has been ingested, an archivist will need to redact information that infringes on rights to privacy. Although this type of record will be closed, the archive still wishes to collect such records; even if the only part of the records available are the title or a general description, this will help give future researchers a more holistic view of what the course entailed and what type of information influenced the materials produced.

The next step is to add metadata to the files. Adding metadata to the documents should be as simple as going into the file's properties. In the *Details* tab the archivist will enter metadata for the creator, author, course title, year, semester, professor, assignment, or any other metadata the archives decides is important to record. If the Archives decides that creating metadata for each individual file is too time consuming, it is recommended that a METS wrapper be created for the course files using recommended UT software.

These two steps should be performed after ingest, this will ensure that the archivist still has access to the records in their original form (within the file sharing site) just in case data is accidentally changed or deleted. If the students have uploaded proprietary files without the requested stl or pdf version, the archivist should convert the proprietary files to the preferred format when requested for viewing. If the UTSOA grants the Archive permission to use the appropriate software licenses, this step is not needed. It should also be noted that the archive may need to download certain additional programs in order to view the ingested records and to convert proprietary files. These include but are not limited to: GoogleSketch and MeshLab both of which are free. It is recommended that version 7 of GoogleSketch is downloaded since it can read some AutoCAD files whereas later versions cannot. The archivist should save a version of the original file along with the stl or pdf version.

It should be noted that the Fall 2013 Theatre of War studio records will be ingested on December 16, 2013.

14.6 Future Goals

The proposed business activity takes into account the Alexander Architectural Archive's limited staff and funding resources. The plan should allow the students and professors to take control of some

of the tasks in order to streamline the workflow for the archive. There are, however, some steps that the archive could take in the future that would increase the quality, quantity, and security of the digital records ingested.

- Arrange for a license to the design software used in the School of Architecture. Some of these programs are free and have been mentioned above. Other, costly programs such as Revit or AutoCAD could possibly be obtained by requesting the School of Architecture to provide the Archive with access to the software license.
- Record and ingest either audio or visual recordings of mid-review and final review sessions. These reviews are perhaps the most important part of the courses, recording the process of these reviews would be invaluable in describing the scope and content of the courses.
- Store digital files on the UTDR. The archive is currently undertaking a project to make the digital materials hosted on the UTDR more accessible. It is hoped that within five years this project will be completed and the digital files from the studio classes can be hosted here. Placing the files on the UTDR will make the information more visible and accessible.
- Transfer files to tape or use UTDR's dark archive. According to digital preservation standards, copies of digital files should be stored in a way that will keep them safe from disasters and prevent viewers from changing the information within.
- Contact professors and gather records from past classes. There is a wealth of information from past classes that professors are currently storing on their computers and other various file storage systems. It would be advantageous to collect and store these files in a similar way to the ADAPT project outlined above.
- Create a workflow and file structure for courses other than advanced studio. For more competitive class structures, establish ways students can keep records private on the file sharing system. The UTL Digital Archivist should be consulted when creating file permissions.

Options Appraisal

15. Options

When deciding what materials to collect for the Archive, there is a broad spectrum of possibilities. Options include everything from acquiring nothing to collecting every file, sketch, and model from every step of the creative process. We will provide three options for implementing the ADAPT Project: acquire nothing (current activity), a minimum level of collection, and the recommended optimum level of collection. The costs and benefits of each approach will be examined, which will clarify what makes the optimum level the most desirable choice and why the minimum level includes the objects recommended for minimal collection.

15.1 Collect Nothing (Current)

The Alexander Architectural Archive does not currently collect the digital materials created in advanced studio classes.

15.2. The Minimal Collection Plan

The minimal collection option is to collect the syllabus, course descriptions, faculty reference files (if available), and the deliverables from two of the five checkpoints established for all advanced studios. The two checkpoints used for the minimal collection are the first and the last, Foundational Knowledge and the Final Schematic Work. The goal is to collect the deliverables that each student submits through *Box*. The preferred file formats of these deliverables are pdf, stl, jpeg, and tiff formats, but the archive will collect any format.

15.3. The Optimal Collection Plan (Recommended)

The optimal collection opts to collect the product from all five checkpoints:

1. Foundational Knowledge
2. Site Analysis
3. Concept
4. Mid-Review
5. Final Schematic Work

Again, the materials collected will be the ones each student submits through Box. It will be simple to collect the objects from the three middle checkpoints in addition to the first and last checkpoints collected in the minimal collection plan. The design files should be saved in both the pdf and stl file formats, and images should be saved as tiff files. This will also collect the background materials that the faculty consulted in preparation for their section of the advanced studios. In addition to digital materials, this level of collection has the ability to acquire a sample of physical objects, such as sketches, models, or textiles, if it provides context to the digital objects. The optimal collection plan provides the most context in which the objects were created.

15.4. TACC Potential

The Texas Advanced Computing Center (TACC) is a viable option for digital preservation. Each UT faculty member are allowed access to TACC Services. TACC is capable of providing advanced storage systems for large amounts of data. They have been providing digital storage space without

complications or data loss for over ten years. At this time, future investigation into TACC as a possible option for long-term digital preservation needs to be conducted. Currently, the Alexander Architectural Archive is unsure of unsure of its qualification as a trusted preservation method for digital records. Until further investigation, the Archive will continue to use UTDR. More information about TACC can be found here: www.tacc.utexas.edu.

16. Benefits

Implementing the recommended option will benefit all of the stakeholders. The students and faculty will have the capability of accessing their past work because it will be preserved in the Alexander Architectural Archive. This is beneficial for students because it can help them build an online portfolio and they can recover information that was lost by accessing their past work through UTDR. The faculty will be able to reflect on past work and will have the potential to view the products of past advanced studio classes, which might influence a semester project. In addition to online access to these works, UTDR collects and displays usage data that is useful to both students and faculty. By including *Box* in our plans, it allows a secure space for both students and faculty to collaborate and submit assignments during the semester. Students will be able to access these documents after their access to *Box* is removed because it will be in the Alexander Architectural Archive. By placing the records in the archive, it provides evidence of what is created in the advanced studio classes in the School of Architecture.

UTSOA is currently ranked fourth in the country for undergraduate degrees in architecture and tenth for graduate degrees in architecture (Stephens, 2013). Accreditation by the National Architectural Accrediting Board (NAAB) is evidence that the program is and should be highly ranked. In order to maintain accreditation, student performance needs to be evaluated (National Architectural Accrediting Board, 2013). By collecting and preserving the work created by students in these advanced studios, the Archive can produce the work to be evaluated by the NAAB. The school will also be able to show prospective students the early work of alumni and what is generated within the advanced studios. This project will show the value of the Archive to UTSOA, facilitating increased collaboration between the two institutions.

The Alexander Architectural Archive will see many benefits by implementing the recommended option. The archive will be able to collect the early works of architects before they are out in the field. By collecting the work of current students and faculty, the archive has the opportunity to form and develop relationships with the current creators. The relationships formed through this initial contact could potentially help the archive bring in collections created by alumni or faculty from UTSOA. The collection of work created in the advanced studio provides the opportunity for scholars to analyze trends in architectural education and the processes taught at UT at Austin. The recommended plan also provides access to a new area of collection development. After the archive has successfully implemented the recommended preservation plan, the archive can begin collecting digital records created by architects and firms that could not be collected from a lack of digital preparedness. The digital collection plan can serve as a case-study that other repositories can consult, which can improve the reputation of the Archive in the field. The attention the archive receives from donors can be expanded by an increase in reputation.

The University of Texas Digital Repository is a great asset that the Archive will be using for our recommended plan. The UTDR is ideal for access and discoverability, but not for preservation. The files uploaded can be blocked for privacy reasons, such as FERPA, but the metadata of the work can still be viewed. UTDR does run nightly checksums to insure that all the files remain the same and have never had a checksum report file alteration. The archive has the ability to create workflows within UTDR, which allows for task allocation from students to supervisors. The archive can also create URLs to display specific works. For example, an URL can be created for a single advanced studio and all of the works from the studio will be accessible from that single URL instead of a single URL per work. The archive has the ability to create URLs that best fit current naming conventions for the collection and to select what works should be displayed under certain URLs.

17. Costs

These benefits do not come freely. There is a price to pay for accessing past works of students and faculty, maintain accreditation, and bring these records into the collection at the Alexander Architectural Archive. The cost of these advantages is split between the various parties that make preservation possible. Each of these groups must give something to gain the rewards of preservation.

The students' share of the cost is heavily focused on the output they generate. They must ensure their files are saved to a format that the archive can access and use. They will likely need to follow a different file-naming convention than they are used to - at least for the files sent to the archive. The archive would probably accept files that do not conform to these requirements, but they might not be able to preserve them as well as they would like to if the format is one they cannot access or if the files are named in a way that obscures the content. Thus, by skimping on the cost the students will also receive reduced benefits.

The other major cost to the students is they must grant the archive permission to use and preserve their intellectual property. At the beginning of the semester the students will need to sign waivers giving these rights to archive.

The brunt of costs for ingesting digital records is shouldered by the Archive. The first is financing the staff members working on the project. The archive must maintain their staff to process and preserve the materials. Some of this cost can be lightened by employing student workers for the less demanding tasks, but paying employees is only the beginning. Archival projects will need to be worked on collaboratively by the AAA staff and UTL Digital Archivist due to staffing restraints. In addition, the financial burden of ingesting digital records can be offset through allowing the iSchool to take on projects throughout the year.

There is an opportunity cost involved with processing a collection. Archivists investing time in this project will not be able to spend as much time on other endeavors. In addition, the archivists must put in time to learn the software used to read and process the digital files taken from the architecture students.

The final major cost to the archive is storage. Digital storage is getting more and more affordable each day, but it is not free. Even favorable rates for storing digitally can run up quickly if the volume

of materials to be stored is high. Some of this cost is offset by utilizing the UTDR, which is already part of UT Libraries and will not incur extra cost. In accordance with OCLC's LOCKSS standard, materials should be backed up on magnetic tape. And, of course, additional copies should be kept off-site in case in case a disaster or emergency renders the archive's local records inaccessible.

Finally, UTSOA must share some of the cost. The main cost is their cooperation and support. They must be willing to let the archive have access to their professors, and through the professors, the classes. The leaders and professors at UTSOA will need to get behind the project for it to ever achieve its potential.

On a more practical note, we recommend that UTSOA also take on the cost of one extra license for their AutoCAD program so the archive can have a machine with the software for use in preserving and accessing the digital records they collect from the studio classes.

18. Implementation Risks

Collaboration is of the utmost importance if the ADAPT Project is to succeed. The ADAPT Plan relies heavily on the full participation of both the Alexander Architectural Archive and UTSOA for this success. If either or both departments do not work together, especially in the initial phases of implementation, then the project is at risk for failure. To avoid failure, there must be communication of needs and expectations, which have been explored in the business plan, the willingness to take charge of delegated tasks, and teamwork.

Another potential risk involves metadata. Accurate and complete metadata is crucial to any preservation effort. It will be critical to guarantee that metadata is properly captured and recorded prior to, or at the time of, transfer to the Archive. The students whose work we capture will only be in the same studio together for the duration of the semester. If holes in the metadata are discovered later on it may be difficult to track down the missing information, especially if we need to contact multiple students. In addition, Metadata storage must be handled carefully so the correct metadata is linked to the correct artifacts.

File preservation is another risk the ADAPT Project has to take into consideration. The UTDR has a recommended list of preservation formats, but a commonly used file, stl, is not included on this list. The lossiness of these files has not been determined. The files that have been submitted by the students have gone through multiple conversions during their active lifecycle, which can affect how lossy the files are. This is an area of concern that should continue being researched as new information is released. The iSchool would serve as a good candidate to conduct this research.

Object readability can be lost when software is updated. We need to be mindful of the software used by the archive to view and manipulate these digital objects. Proprietary software updates can leave files unreadable if not migrated. Care needs to be taken to safeguard against the obsoletion of our file formats or we risk losing the content of the files we are working to preserve. Regardless of the file format, the original bit stream should be persevered for all ingested records. The Archive should work towards creating a emulation space in which the original bit stream can be rendered.

Updates are not the sole concern in regards to software. An important risk to consider is the possibility that the Archive will not get the requested license for the software UTSOA runs. If UTSOA is not able to include a seat for the Archive in their budget, access to the objects can be limited. It can also prevent the Archive from providing important metadata for discoverability. Should this happen the Archive will need to decide how best to maintain files for which they do not possess the creation software.

The amount of files ingested is another potential risk that the ADAPT Project faces upon implementation. Students will all contribute varying amounts of objects to the collection and the total number of objects cannot be determined until the final deliverable has been ingested into the Archive. If there are more files than anticipated, the availability turnover rate could be much longer. A large volume of objects will take much longer to process in the Archive. The staff might not be able to efficiently process the collection without addition staffing. If the ADAPT Project reaches its goal of collecting objects from the advanced studios at UTSOA, the Archive will need to adjust staffing and processing concerns to match the volume of the ingest.

Some minor risks of digital collections involve availability from the server that hosts the objects; in this case it is UTDR. Unplanned down time due to network outage can hinder users from accessing the collections. Software or hardware failure can cause a loss of data from statistics generated from visitors or data created during ingest. This loss is why it is important to maintain an archival master of the objects.

Human error is another risk that can occur when implementing the ADAPT Project. Incorrectly uploading the objects to *Box* or uploading the files to UTDR can potentially happen. After the objects are ingested into the Archive, the metadata must be added to the objects. Including the wrong metadata or not enough of it can cause issues with discoverability. The authenticity of the records can be at risk if the metadata is not done correctly.

Finally, a large risk in implementing this project is that a disaster could occur. The University of Texas Digital Repository runs a mirror server; however, all the servers are kept in the same location. A natural disaster would place the records at risk of being completely lost. Writing the files onto tape for backups is encouraged and off-site storage is the recommended practice to prevent data loss in case of any disasters. As previously mentioned, TACC should be investigated as a potential alternative to UTDR.

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Appendix A: Deed of Gift

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University of Texas Libraries
THE UNIVERSITY OF TEXAS AT AUSTIN

Explanation of Deed of Gift

The Deed of Gift is designed to transfer ownership of and legal rights in personal property donated to University of Texas Libraries to be administered in accordance with established University policies. The Deed of Gift constitutes the transfer of title and serves to define the terms of the transfer.

It is recommended that, whenever possible, the Deed of Gift shall be entered into when significant gifts of personal property are made to University of Texas Libraries (UT Libraries). For questions or assistance in completing this form, please contact Gift and Data Services at 475-9710.

Do not complete a Deed of Gift if the donated property is accompanied with a contract or places legal obligations, conditions or restrictions upon UT Libraries. Please confer with the UT Libraries Financial Office if the donated property is software or Legal Affairs for other gifts of property with a contractual obligation.

Description of the Gift: This section shall be completed by a UT Libraries representative with the assistance of the Donor. The Description of the donation will describe the property being conveyed to UT Libraries and the date it was received.

Appraised Value: The responsibility of appraising the property donated to UT Libraries remains with the Donor. UT Libraries is not authorized to provide appraisals for tax purposes. The Donor shall be advised that if a tax deduction on a gift is to be taken, the Internal Revenue Service has regulations for filing tax-deductible contributions valued at $250 or more. If the value of the donation is greater than $5000, an independent professional appraisal is required and a copy of the appraisal should be attached to the Deed of Gift. Additionally, other IRS restrictions may apply such as filing Form 8283. The Donor is advised to consult with their professional advisors for further guidance.

Disposition of Property: In order to make the most effective use of resources, UT Libraries reserves the right to determine the disposition of donated property.

Terms and Conditions: Although most Donors will have no need to limit access to property which they are conveying to UT Libraries, the option of placing reasonable restrictions on access to the property or a portion of the property is available to the Donor. The Development Officer will discuss the terms of restrictions with the Donor.

Copyright Interests: Because assignment of copyright is often complex, the Development Officer will work with the Donor to clarify questions of copyright control. Copyright in writings and original creations contained in the donated property is controlled by the individuals or organizations that created them unless the copyright has been conveyed legally to the Donor or other party.

If the Donor controls the copyright in all or some of the property being donated, the first box in this section of the Deed of Gift should be checked and an explanation of the extent of their copyright control shall be given.

If the Donor does not control copyright in any of the donated property, the second box should be checked.

If the Donor has any information about the holder of the copyright, the third box should be checked and as much of the requested information as possible should be provided.

Copyright Conveyance: UT Libraries encourages Donors to transfer any copyright they may control whenever possible. Copyright ownership by UT Libraries facilitates use by scholars. If the Donor wishes to do so, they should initial the first paragraph in the Copyright Conveyance section of the Deed of Gift.

Assignment of copyright may be conditional. For example, the Donor may wish to stipulate Copyright retained during their lifetime or something similar in the Limitations space provided on the Deed of Gift.

Change in Provisions: If the Donor feels that any terms in the Deed of Gift should be modified or deleted, the Donor should discuss the matter with the Development Officer to verify that the desired change in terms is allowable and feasible. Modifications or deletions must be approved by the office of the Vice President of Development before the Donor executes the Deed of Gift.

Delivery Required: The gift must be "delivered" to be complete. Delivery means an actual transfer of possession.

Acknowledgment of Receipt of Gift: This section of the Deed of Gift serves to formally acknowledge the receipt of a donation under the terms mutually agreed to by University of Texas Libraries. The Donor will receive a copy of the Deed of Gift signed by the Vice Provost and Director of the University of Texas Libraries. The Donor will also receive an official receipt from The University of Texas at Austin.

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THE UNIVERSITY OF TEXAS AT AUSTIN

DEED OF GIFT

I, the undersigned Donor, hereby donate and convey to University of Texas Libraries, all rights, title, and interest that I possess in the following:

Description of Gift:

Library/Branch to benefit:

Date Material Received on Site:

Appraised Value (if Donor has had gift appraised):*
Please attach copy of independent appraisal if available.

If you do not intend to take a tax deduction, please initial here:

I understand that the location, retention, cataloging, and preservation of the property, or other considerations relating to the use or disposition are at the discretion of University of Texas Libraries in accordance with institutional policy.

* **Terms and Conditions for Use of Gift:**
Must be reviewed and approved before the Donor executes the Deed of Gift.

Copyright Interests

☐ I represent and warrant that I control the copyright in some or all of the donated property. (Please indicate below the property for which you control the copyright and the nature of your copyright control, e.g., sole/joint owner, heir, literary executor, trustee.)

☐ I do not control copyright in any of the donated property.

☐ To the best of my knowledge, the copyright is controlled by:

Name:
Address:
Phone Number:
E-mail address:
Copyright Conveyance:

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If you wish to transfer, convey, and assign to University of Texas Libraries, any copyright which you control in the above-named property, subject to the limitations, if any, stated below, please initial here: _____

If you do not wish to transfer copyright, but give permission for University of Texas Libraries to make copies for users of the property, please initial here: _____
* **Limitations:** (*Must be reviewed and approved before the Donor executes the Deed of Gift).* _____

The terms of this Deed of Gift shall apply to all items as further described in an Appendix to be completed subsequent to the effective date of this Deed of Gift and subsequently attached.

I understand that all references to a specific academic unit shall include any successor unit should the unit be reclassified for academic purposes.

I represent and warrant that I am the sole owner of the property described above and that I have full right, power, and authority to give the property to University of Texas Libraries. I have received an Explanation of all terms and conditions of this Deed of Gift and agree to them as indicated by my signature below.

If applicable, I understand the sections on Copyright Interests and Copyright Conveyance and acknowledge that the information I have provided is accurate.

_____ _____
Donor's Signature Date

_____ _____
Donor's Name (PLEASE PRINT) Address

The gift herein above described is accepted on behalf of University of Texas Libraries, subject to the terms, conditions, and restrictions herein set forth and subject to the acceptance by the Board of Regents.

_____ _____
Vice Provost and Director Date
University of Texas Libraries

* *Any modifications to this section must be approved by the Office of the Vice President of Development before the Donor executes the Deed of Gift. As with any decision involving personal assets,* University of Texas Libraries *strongly urges individuals to seek the advice of your professional counsel when considering a gift to University of Texas Libraries.*

Appendix B: UTDR

DISTRIBUTION LICENSE

I grant the University of Texas at Austin, the UT School of Architecture, the Alexander Architectural Archive, and the Texas Digital Library ("TDL") the non-exclusive rights to copy, display, perform, distribute and publish the content I submit to this repository ("Work") and to make the Work available in any format in perpetuity as part of an Institution, Department, or TDL repository communication or distribution effort.

I understand that once the Work is submitted, a bibliographic citation to the Work will remain visible in perpetuity, even if the Work is updated or removed.

I understand that the Work's copyright owner(s) will continue to own copyright outside these non-exclusive granted rights.

I warrant that:

(1) I am the copyright owner of the Work, or
(2) I am one of the copyright owners and have permission from the other owners to submit the Work, or
(3) My Institution or Department is the copyright owner and I have permission to submit the Work, or
(4) Another party is the copyright owner and I have permission to submit the Work.

Based on this, I further warrant to my knowledge:

(5) The Work does not infringe any copyright, patent, or trade secrets of any third party,
(6) The Work does not contain any libelous matter, nor invade the privacy of any person or third party, and
(7) That no right in the Work has been sold, mortgaged, or otherwise disposed of, and is free from all exclusive claims.

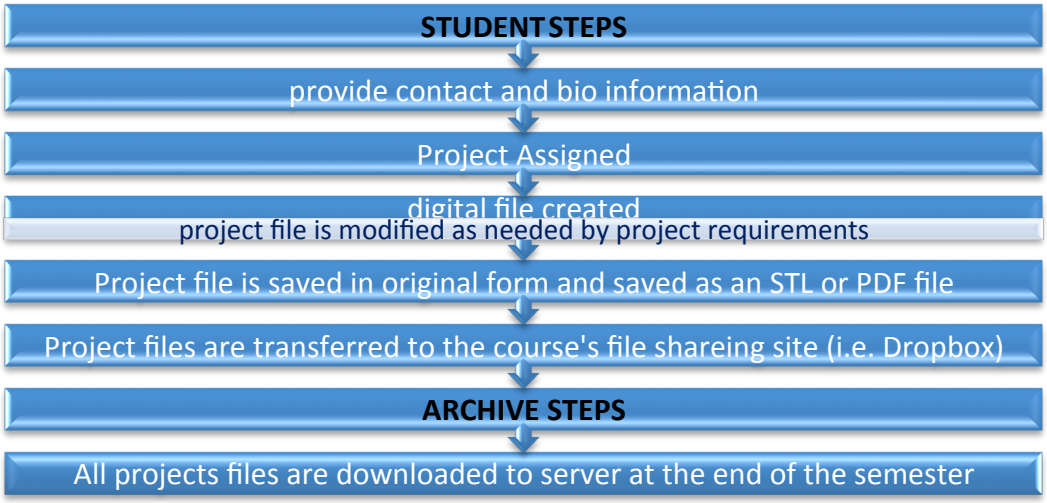
I agree to hold Institution, Department, TDL and their agents harmless for any liability arising from any breach of the above warranties or any claim of intellectual property infringement arising from the exercise of these nonexclusive granted rights.

_____ _____

Signature Date

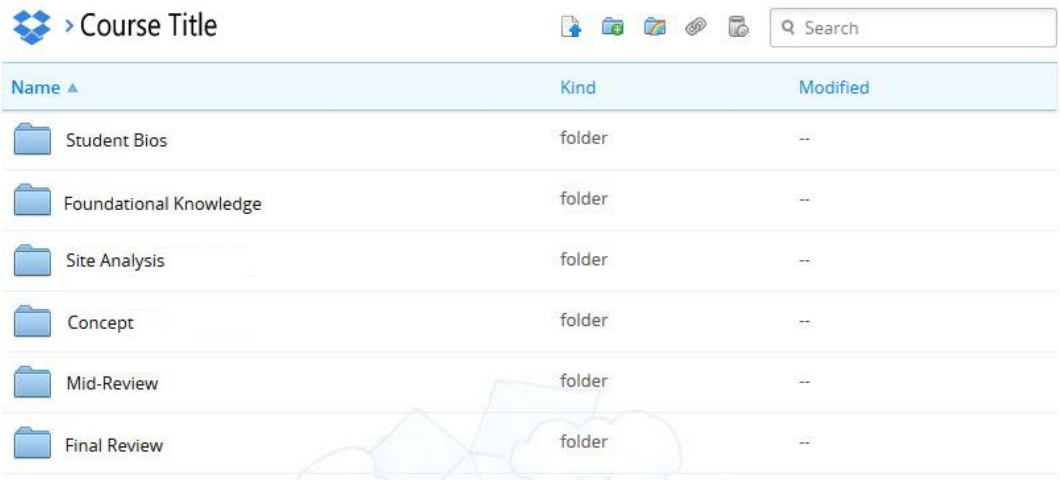
Appendix C: Student Instruction Sheet

Your Advanced Studio course has been selected by the Alexander Architectural Archive to be a part of a project to preserve student work. The proposed collection program requires a closer, two-way relationship with the School of Architecture, and follows the Archive's mission statement to support all levels of learning and teaching at the School of Architecture. Your collected works will provide a resource for new and continuing students, a teaching touchstone and retrospective for faculty members, and a record of architectural trends and education for outside researchers.



How does it work?

Your course will have a file sharing system (i.e. Box or Dropbox) accessible to all course students, professors, and the Archive. Inside this system you will see 6 folders set up similar to this:



*If in the course of the semester you find additional folders are needed feel free to add to this file stem.

This folder structure should account for the main checkpoints you have in your studio class. Over the semester you will deposit all your digital files into the appropriate folders. This cloud storage system will provide an efficient way for you to collaborate and store your work. At the end of the semester, the Archive will download all your student work onto their server. Eventually these files will be put into the UTDR where they can be searched and retrieved.

When naming your files the Archive asks that you use this naming convention:
LasttnameFirstinital_assignmentversion# (example: SmithB_siteanalysis1).

The version number is optional, but highly recommended. Adding a version number will allow you to save your project each time it is migrated to another program or significant changes are made within the same program. Giving the file a version number will serve to document your creative process without having to invent new file names at every step.

What do we put in the folders?

Student bio - If using a cloud service like Dropbox, create a document to upload with your full name, email, and a short statement describing your area of emphasis and year of study. Any other information you want to add is welcome such as; what attracted you to this studio class, sources of inspiration, or additional contact information. If the class is using *Box*, fill out the profile sections. Students can also upload a document to this page if it is easier.

Foundational Knowledge - This folder will contain all your preliminary research that influences your design creation. File types can include video, audio, text, interviews and introspective notes. In architectural firms, this pursuit is often known as “Job Files”. In Advanced Studio classes, students sometimes refer to these files as either “Research” or “Precedence”.

Site Analysis - This folder will contain all project files that relate to the land or site.

Concept - Here your project files will concentrate on the particulars of your proposed structure. Information about your design might include plans, elevations, sections and details. There will be a wide range of file types, and the Archive requests that you migrate your files to pdf or stl when you upload them.

Mid-Review - Any project files that are part of the mid-review process. If any of your review materials are physical object, we request that you photograph them and upload the jpegs or tiffs to this folder.

Final Review - Any project files that are part of the final review process. Again, if any of your review materials are physical object, we request that you photograph and upload them.

What types of files do you want us to upload?

The short answer - EVERYTHING! We will take any and all files that you create, however, since the Archive doesn’t own any CAD programs we prefer pdf, stl, jpeg, and tiff files. Please remember to name your files like this: LasttnameFirstinital_assignmentversion#

Appendix D: UT Austin File Sharing System: Instruction Manual

Your Advanced Studio course has been selected by the Alexander Architectural Archive to be a part of a project to preserve student work. The proposed collection program requires a closer, two-way relationship with the School of Architecture, and is true to the core of the Archive's mission to support all levels of learning and teaching at the School of Architecture. Your collected works will provide a resource for new and continuing students, a teaching touchstone and retrospective for faculty members, and a record of architectural trends and education for outside researchers.

Uploading Your Work to Your Course's File Sharing System

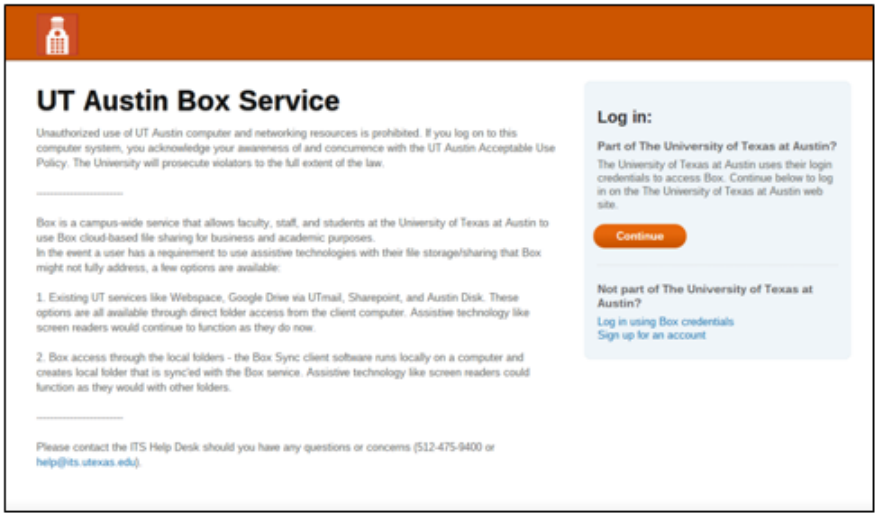
How Does it Work?

First login to your courses file sharing system. As an example, we will be using UT Box Services.

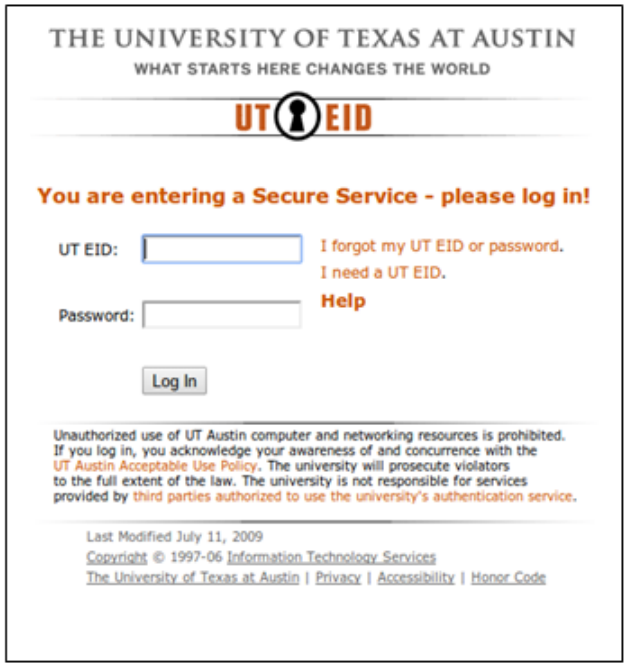
Go to:

https://utexas.app.box.com/login?redirect_url=%2Fs%2F4qj6x5ikafvydgubxb7j.

And click the continue button to log into your Box account.

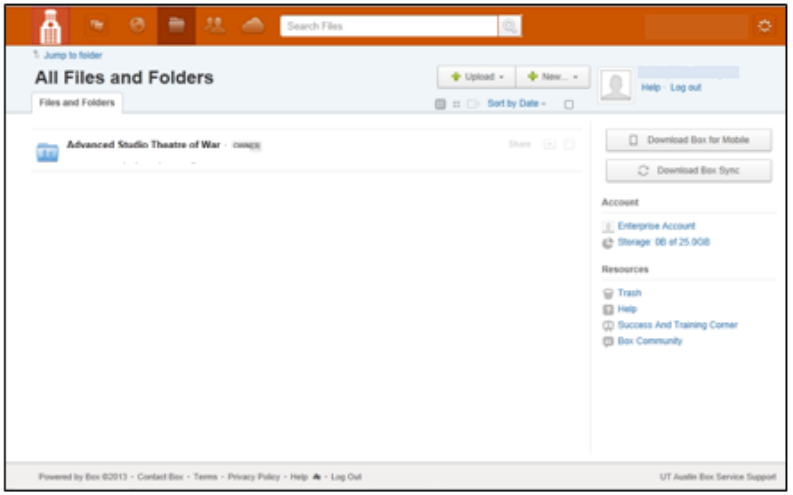


Use your UT EID and password to login to your Box account

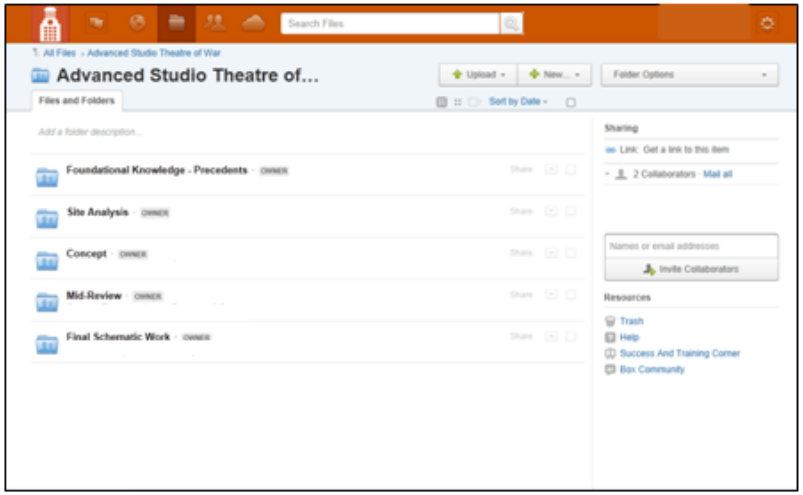


Your course will have a file sharing system (i.e. Box or Dropbox) accessible to all course students, professors, and the Archive.

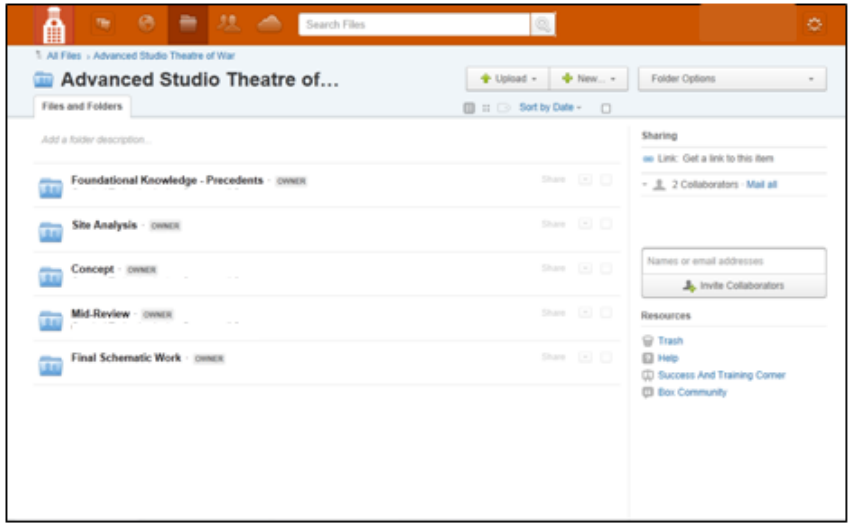
The "All Files and Folders" page will appear once you have logged in. On this page there will be a file for your class listed on this page. Click on the folder to access your class's folders and documents.



Once you have opened the file for your class, you will see folders set up similar to this:



This folder structure should account for the main checkpoints you have in your studio class. Over the semester you will deposit all your digital files into the appropriate folders. This cloud storage system will provide an efficient way for you to collaborate and store your work. At the end of the semester, the Archive will download all your student work onto their server. Eventually these files will be put into the UT Digital Repository (UTDR) where they can be searched and retrieved.



Your course's file sharing system

UTDR

Explanation of File Folders in Your Course's File Sharing System

Foundational Knowledge Folder

This folder will contain all your preliminary research that influences your design creation. File types can include video, audio, text, interviews and introspective notes. In architectural firms, this pursuit is often known as "Job Files". In Advanced Studio classes, students sometimes refer to these files as either "Research" or "Precedence".

Site Analysis Folder

This folder will contain all project files that relate to the land or site.

Concept Folder

Here your project files will concentrate on the particulars of your proposed structure. Information about your design might include plans, elevations, sections and details. There will be a wide range of file types, and the Archive requests that you migrate your files to pdf or stl when you upload them.

Mid-Review Folder

Any project files that are part of the mid-review process. If any of your review materials are physical objects, we request that you photograph them and upload the jpegs or tiffs to this folder.

Final Review

Any project files that are part of the final review process. Again, if any of your review materials are physical object, we request that you photograph and upload them.

Remember to use pdf and stl file formats when saving and uploading your work to your course's file sharing system!

And don't forget to name your files:

First initialLastname_assignmentversion#

EXAMPLE

JBrown_precendents2

The version number is optional, but recommended. Adding a version number will allow you to save your project each time it is migrated to another program or significant changes are made within the same program. Giving the file a version number will serve to document your creative process without having to invent new file names at every step.

What if I can't convert my file to pdf or stl format?

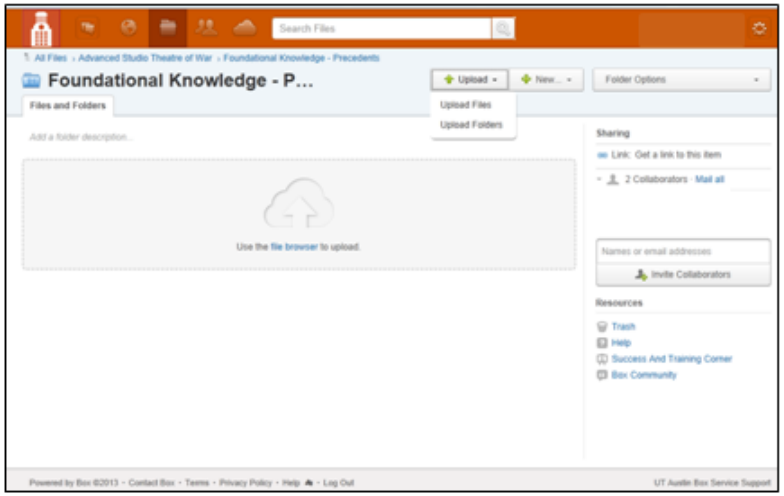
If for some reason you are unable to convert your files to pdf or stl format, just upload the format that you have your items saved in with the correct naming convention:

EXAMPLE: Jbrown_midreview2.ai

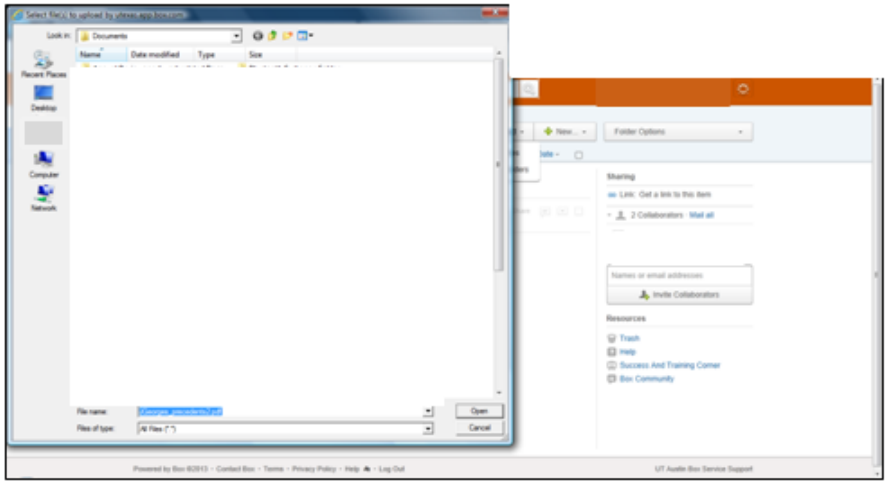
We will take any and all files that you create, however, since the Archive doesn't own any CAD programs we prefer pdf, stl, jpeg, and tiff files.

Uploading Your Work

To up load a new document, click the upload button at the top of the page, then “Upload Files”. If nothing has been added to the file yet, simply click inside the blue the box.

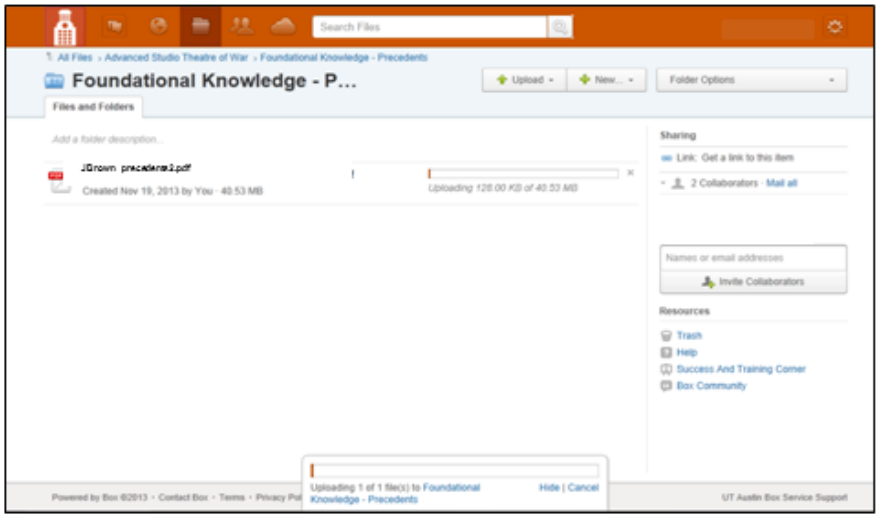


Now select the file you would like to upload. It is recommended you upload files in either a pdf or stl file format

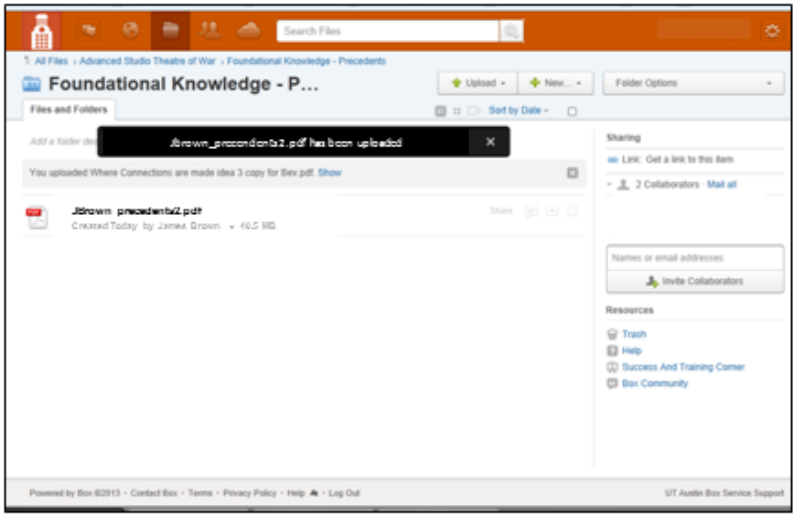


Uploading Your Work

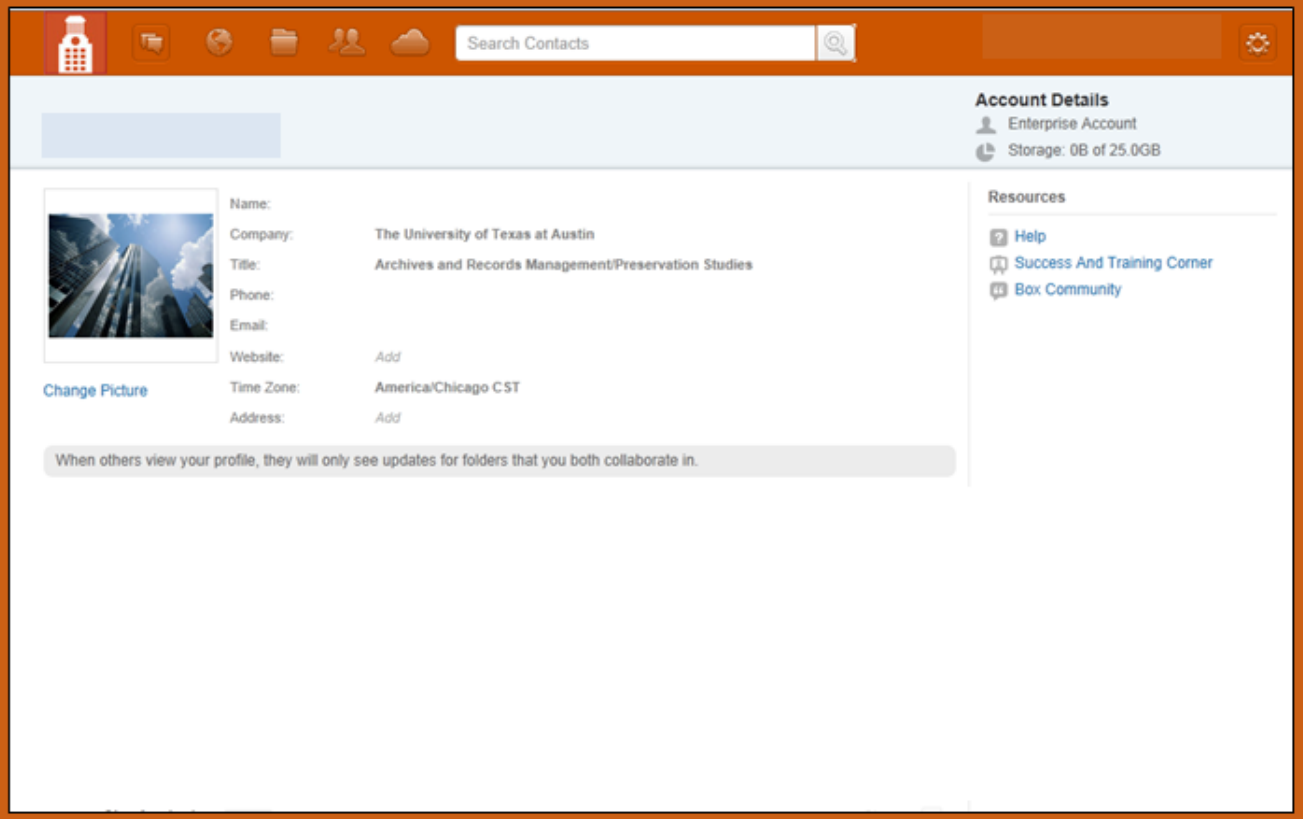
The file will upload.



Once your file has been uploaded, a black box will appear stating that your document has been uploaded.

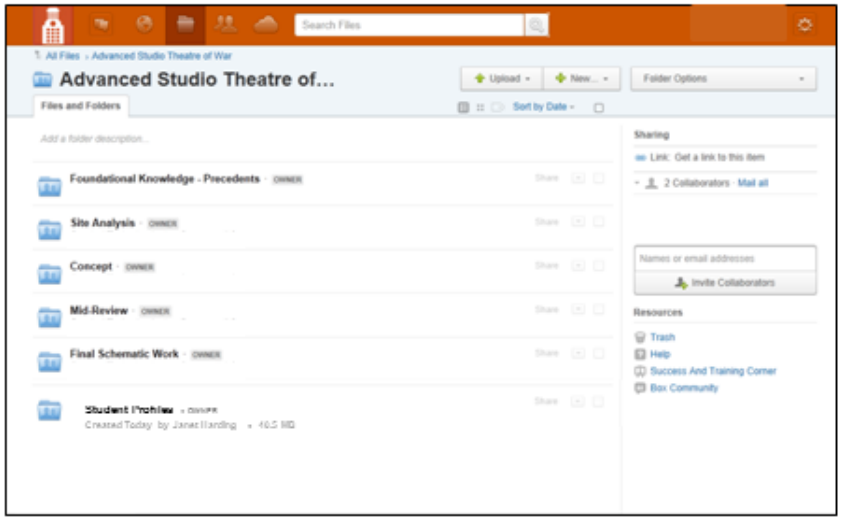


Editing Your Profile Page



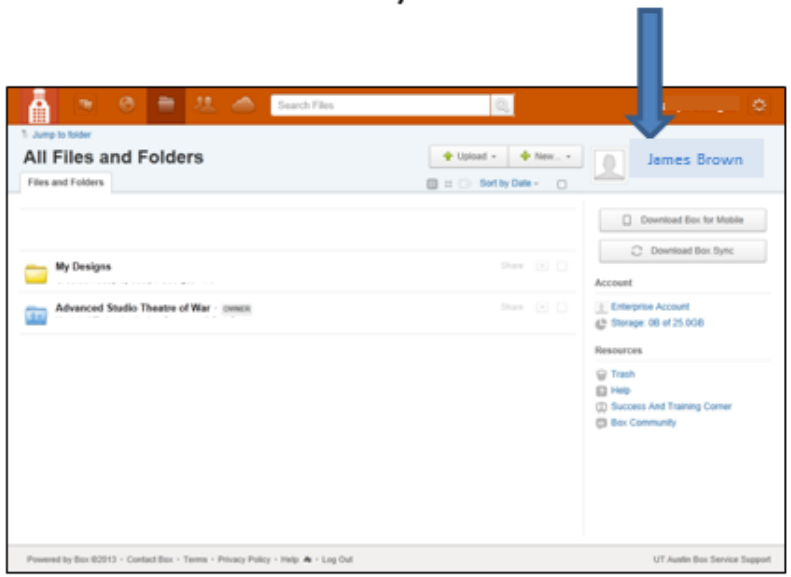
What if I Don't Have a Profile Page in My Course's File Sharing System?

If your particular system does not include a profile page, there will be a file within your course's File sharing folder where you may create and upload a document with your full name, email, and a short statement describing your area of emphasis and year of study. Any other information you want to add is welcome such as; what attracted you to this studio class, sources of inspiration, or additional contact information. If the class is using *Box*, fill out the profile sections. Students can also upload a document to this page if it is easier.

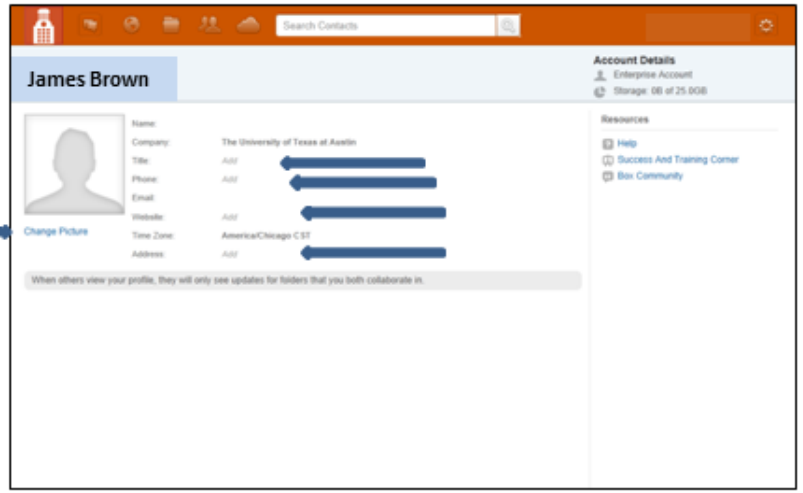


Editing Your Profile Page

Click on your name in blue.

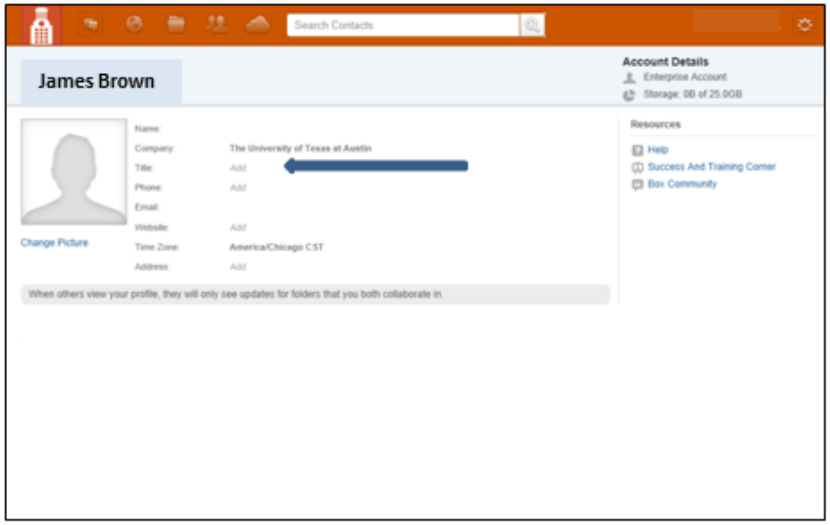


On your Profile Page, click on “Add” to enter any extra information you would like to add to your page or change your picture.

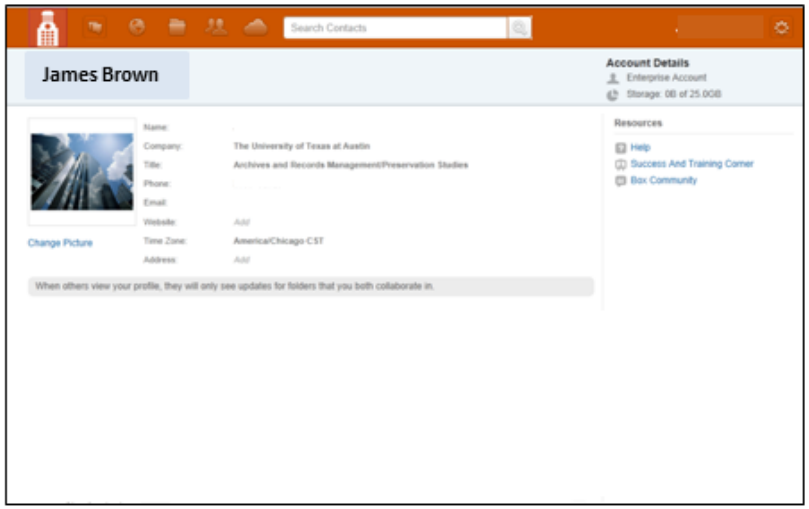


Editing Your Profile Page

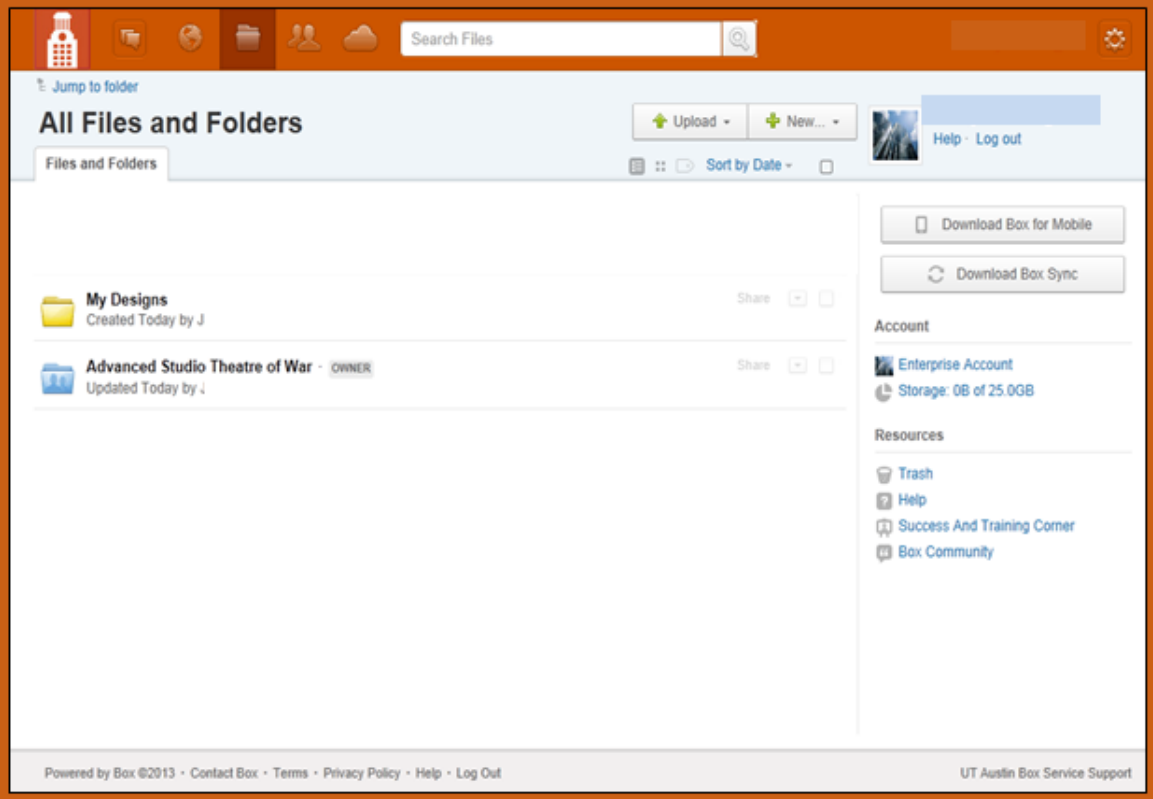
For the "Title," simply put your major and area of interest.



Finish filling in the other sections, add a picture (optional), and you're done.

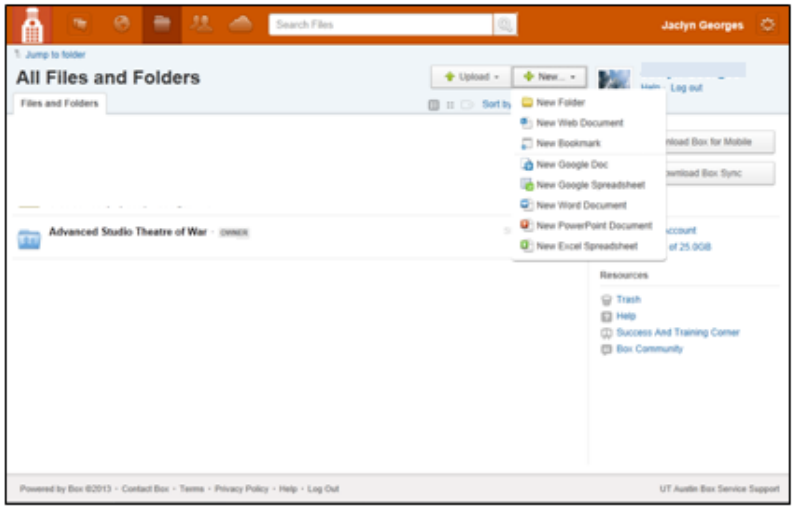


Create your own shared and private files.

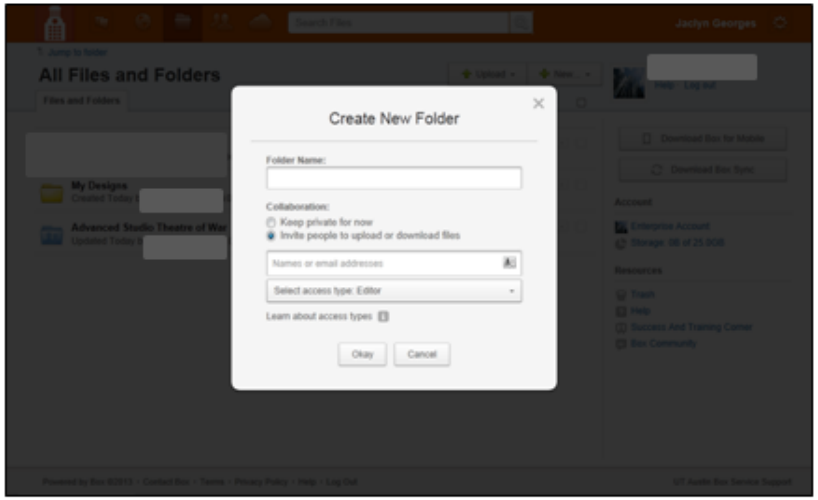


Create your own shared and private files.

On your “All Files and Folders” page you can also add folders you would like to share with your classmates or your own private folders. Just click on the “+New” then “New Folder” button.

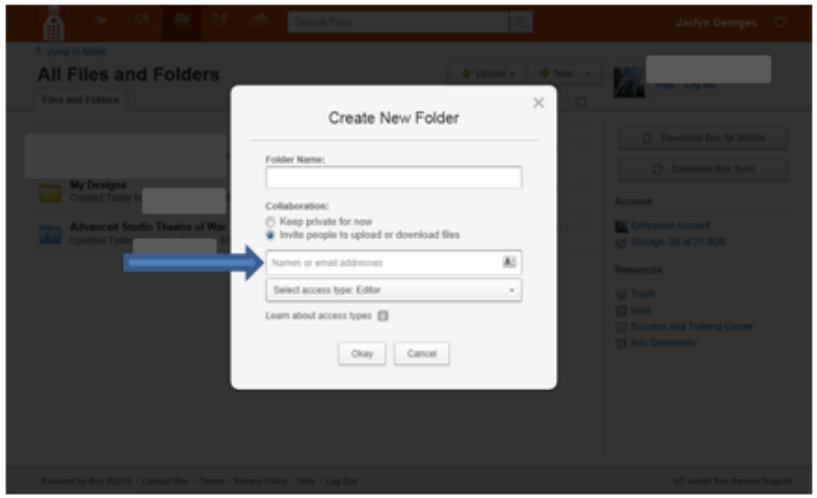


The Create New Folder box will popup. Enter the folder’s name, click whether or not you would like to share the folder.

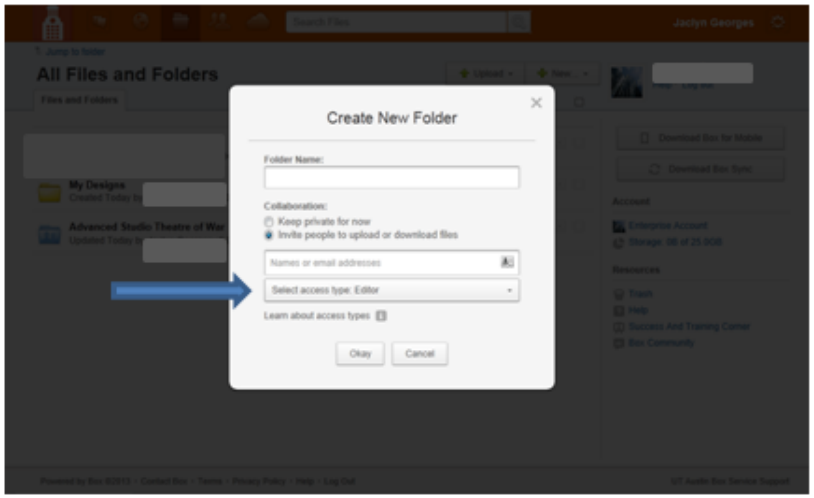


Create your own shared and private files

If you want to share the folder, start typing the name of the person you want to share with, and if they are in the database their name should popup. If they don't enter their email address.

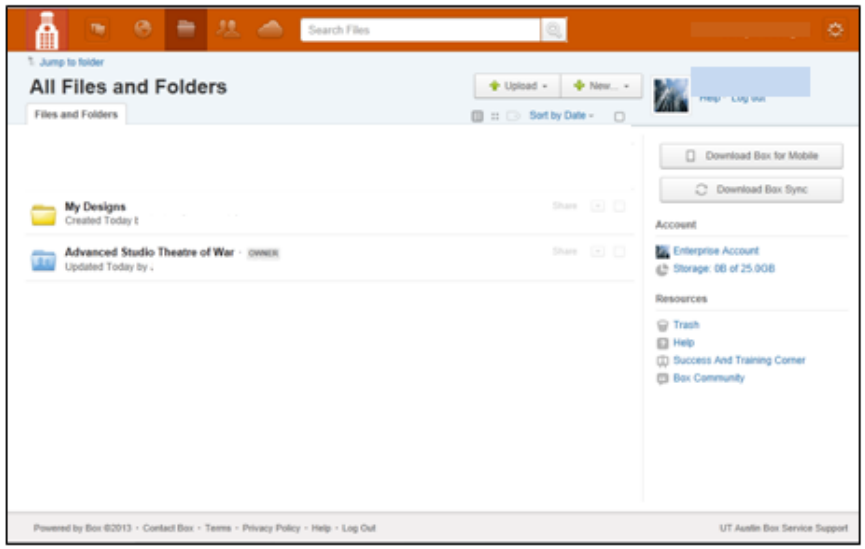


In the drop down menu select what level of access you would like the person to have to the folder, then click ok. If you have any technical difficulties, contact UT IT Services for Assistance.



Create your own shared and private files.

Your private folders will appear yellow and your shared folders will be blue.



If you have further questions about using Box,
Please contact UT IT Services Help Desk:

512-475-9400

www.utexas.edu/its/helpdesk