New Employee Handbook

SCJ² & Co.

Sean Patterson

Christian Garrett

Jeremy Graham

Jen Wahlquist

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Glossary of Terms

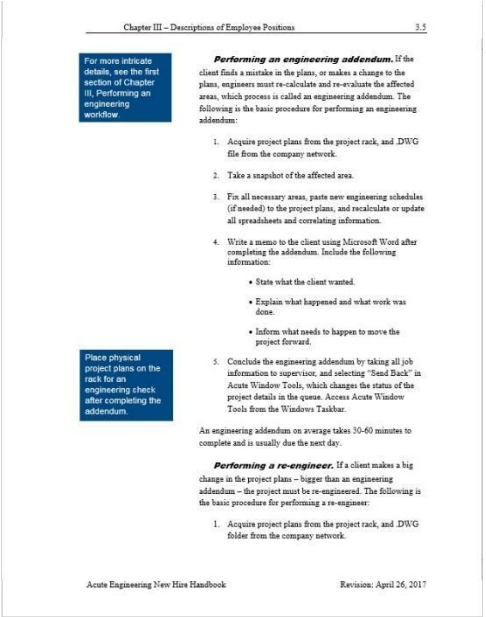
Acute University:	Digital textbook for general continued education for engineers and drafters.
Acute Messages:	Computer program component of the Acute Tools software. Enables employees to send electronic messages to each other individually, or en masse. Each employee name links to a specific computer.
Acute Outlook Tools (aka Pumpkin):	Computer program component of the Acute Tools software. Shows employee metrics report. Click on any employee name to run a report which shows all completed projects, progress reports, and other information.
Acute Time Keeper:	Computer program component of the Acute Tools software. Tracks how long employees work on a project. The office manager uses this number to bill the client for time.
Acute Time Tracker:	Computer program component of the Acute Tools software. Allows employees to clock in and out.
Acute Tools:	Company software containing various programs for everyday tasks such as job queue management, employee time keeping, or sending electronic messages.
Acute Window Tools (aka Black Widow):	Computer program component of the Acute Tools software, the project queue. It shows details of all projects such as the status and the name of employees working on each project. Access the various tools from the Windows Taskbar

Calcbook:	Word document linked to an Excel spreadsheet containing all calculations.
Check Set:	Set of printed plans with applied marks ready for verification of work.
Dedicated Structurals:	Separate drawing file created specifically for engineering marks by Acute Engineering.
Engineering-Addendum:	Engineering procedure re-calculating and re-evaluating affected areas of a project after a client has made changes or finds a mistake.
Engineering-Check:	Engineering procedure reviewing all engineering work and making necessary changes and corrections.
Engineering-Scale or Drafting-Scale:	Three-dimensional ruler used for drawing on project plans. One-quarter inch equates to one foot on the plans.
Engineering-Schedules:	Table of all structural details of a job, such as beams, foundation, anchors, and so forth.
Light Table:	Piece of equipment used to make project plans semi-transparent. Stack a project plan sheet on top of another and turn on the light table. The paper becomes translucent, allowing marks on the bottom sheet to be visible on the top sheet.
Project Rack:	The shelf on which all physical project plans are placed.
Project Plans:	The sheets of paper containing the blueprint and any applicable information – plus marks made by employees – of a client's job.

Redlining:	Part of the engineering process. Using a red pen to transfer information from schedules onto the physical project plans. Red marks notify the drafters of what to put on the project plans.
Re-Engineer:	Engineering process. If a client makes a big change(s) in the project plans, bigger than an engineering addendum, the project must be re-worked to properly account for all changes made.
Visual Basic for Applications (VBA):	Excel coding language.
.DWG:	AutoCad drawing file format.
Windows Taskbar:	Monitor screen bar, which holds the Start menu button, the time and date, along with other program shortcuts such as the Internet browser and Acute Tools.
Workflow:	The standard procedure for engineers to acquire a project, perform the necessary engineering work, then submit all information to be checked, drafted, and sent to the client.

How to Use This Handbook

New employees may use this handbook to enhance their acclimation to a new position at Acute Engineering. Employees are expected to know a great deal of information regarding their position's requirements. This book organizes all general tasks, expectations, and procedures, and correlates with the Acute University textbook, to provide exact and clear instruction. If an employee has questions or needs clarification, access to this handbook allows the employee to independently handle and solve the issue. Employees must utilize the Table of Contents, List of Illustrations, and the Glossary to maximize effectiveness of the information within the handbook. Shown below is an example page layout for the handbook.



Chapter III – Descriptions of Employee Positions 3.5

For more intricate details, see the first section of Chapter III, Performing an engineering workflow.

Performing an engineering addendum. If the client finds a mistake in the plans, or makes a change to the plans, engineers must re-calculate and re-evaluate the affected areas, which process is called an engineering addendum. The following is the basic procedure for performing an engineering addendum:

1. Acquire project plans from the project rack, and .DWG file from the company network.
2. Take a snapshot of the affected area.
3. Fix all necessary areas, paste new engineering schedules (if needed) to the project plans, and recalculate or update all spreadsheets and correlating information.
4. Write a memo to the client using Microsoft Word after completing the addendum. Include the following information:
   - State what the client wanted.
   - Explain what happened and what work was done.
   - Inform what needs to happen to move the project forward.
5. Conclude the engineering addendum by taking all job information to supervisor, and selecting "Send Back" in Acute Window Tools, which changes the status of the project details in the queue. Access Acute Window Tools from the Windows Taskbar.

Place physical project plans on the rack for an engineering check after completing the addendum.

An engineering addendum on average takes 30-60 minutes to complete and is usually due the next day.

Performing a re-engineer. If a client makes a big change in the project plans – bigger than an engineering addendum – the project must be re-engineered. The following is the basic procedure for performing a re-engineer:

1. Acquire project plans from the project rack, and .DWG folder from the company network.

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Figure 0.1. Example of a page layout.

Callouts in the left margin will highlight any information which requires extra attention, specificity, or clarification. Page numbers specify first the chapter number, then the page number within the chapter.

Introduction

The goal of this handbook is to provide employees of Acute Engineering with a resource to describe new positions and help increase efficiency and success. The handbook has a wealth of knowledge that enables employees to answer questions they may have or solve problems they might encounter. The contents of this handbook include a description of each job, a list of duties expected, and a detailed list for performing tasks. This handbook also includes information regarding the benefits offered to employees of Acute Engineering, overviews of all company software and tools, along with general expectations of all employees.

Chapter I
Introduction to Acute Engineering

Welcome to the Acute Engineering firm. To incorporate the friendly and inclusive work atmosphere, the following chapter highlights the key points of the rich Acute story.

Company History

Since the founding in 2002, Acute Engineering has steadily grown, even after the setback from the 2008 recession. The following briefly covers information on the founder, Paul Thorley, the inspiration behind the founding of Acute Engineering, and the development of Acute Tools.

Figure 1.1: Portrait of Paul Thorley.

Information on the founder. Home-grown Paul Thorley founded Acute Engineering in 2002. After graduating in 1989 with Bachelor's and Master's degrees from Brigham Young University in mechanical engineering. Thorley worked for two or three big corporations and traveled frequently. He became frustrated with the lack of ability to develop deeper and personal connections and relationships with the clients to whom he traveled.

Inspiration behind the company. Thorley realized the importance of developing relations with clients and customers. After founding the firm, he worked with his mentor, a retired civil engineering professor from BYU, for about a year. They established the firm within the community in which they

lived, and continue to live, Orem City, Utah. Thorley requires all Acute locations to be within close proximity of clients, allowing frequent meetings and surpassing their expectations for customer service.

Development of Acute Tools. Thorley hired the first employee in August of 2003, a UVU drafting student. The student eventually obtained his degree in information systems. Throughout the three to four years of the student's employment with Acute, he established the technology tools still used today, called Acute Tools.

Company Vision

Acute Engineering maintains the requirement and model of working within close proximity of the clients and customers. Acute looks to expand the firm while continuing the local-oriented business model.

General company hiring model. Acute Engineering consists of two offices, corporate in Orem, Utah, and the first satellite office in Sandy, Utah. The corporate office is exactly halfway between Utah Valley University and Brigham Young University. A key component of the business model is accessing the best talent from both universities: drafters from UVU and engineers from BYU. Acute hires students to work part time during the school year and full time during the summer. Ultimately, when students graduate, they are offered a full time position.

General company standards. Most company standards are determined and handled by supervisors. Acute enjoys a friendly and social working environment; therefore, the company does not go to great lengths to determine restrictive and definitive corporate policies, such as a dress code. The company expects every employee to uplift and contribute to our positive environment and keep behavior and demeanor within professional appropriateness. In addition to these expectations, employees must sign non-compete and non-disclosure agreements.

Chapter II
General Company Information

Acute Engineering maintains a friendly and sociable atmosphere. The company holds various Halloween, Christmas, and summer parties, plus supports various sports teams such as soccer or volleyball. All employees are encouraged and invited to participate in all parties, teams, community charity events, and activities. Acute feels that it is important to cultivate a positive environment to ensure a productive and happy staff, which also leads to a productive and happy clientele. The following sections highlight benefits which Acute offers employees, including payment and overtime options, and human resources issues.

Company-Provided Benefits

Employees are grouped into two categories: part-time/hourly, and full-time/salary. The following sections describe benefits offered to employees. The benefits may pertain to only one category, and not the other, which each section will specify.

Details regarding time off. Acute Engineering offers full-time employees two weeks each year of paid time off, which constitutes vacation and sick time. Employees gain one additional day of paid time off for each year worked at the company. Part-time employees do not receive paid time off. The company observes all major local and federal holidays.

Details regarding insurance options. Acute Engineering offers full-time employees medical and dental benefits. Employees work with the supervisor to determine the best route for the options provided.

Supervisors will supply the Tuition Reimbursement Policy and application forms upon request.

Details regarding tuition reimbursement. If they meet the eligibility requirements, after one year of employment with Acute, employees become eligible for tuition reimbursement. Further eligibility requirements must be met, which the Tuition Reimbursement Policy specify. Employees may submit tuition and book expenses, for which the company will reimburse up to $5,000 per year. Employees must submit the

tuition reimbursement form to their supervisor.

Details regarding profit sharing. Profit sharing is Acute Engineering's bonus program. The company sets a "break even" point to pay all expenses for the business per month. When exceeding this point, all members of the company receive a bonus based on the percentage by which the company exceeds the "break even" threshold. The bonuses are paid out on a monthly basis.

Employee Payment Options

Hawkins, a local accounting firm, manages Acute's payroll. Direct-deposit compensation is disbursed bi-monthly at the end of the X and Y weeks of the month. Hawkins also provides tax preparation services. More information is available at www.mycpa.com. Employees use Acute Time Tracker at their work station to clock in and out.

Overtime Details

Acute offers limited-to-no overtime options. A supervisor must authorize any overtime prior to an employee working extra hours.

Issues for Human Resources

Acute Engineering manages all Human Resources issues through the office manager and president of the company. If any issue arises, employees must first talk with their immediate supervisor. If the issue cannot be resolved, the office manager, or president will step in to enable a resolution.

Chapter III
Descriptions of Employee Positions

Chapter III specifies the following three positions at Acute Engineering: engineer, drafter, and office manager. The chapter will cover general day-to-day procedures, the different programs and software, and other details such as weekly meetings or managing the work schedule.

Information for Engineers

Information for engineers is organized into two sections: relevant procedures and engineer expectations.

Relevant procedures for engineers. The procedures covered for engineers include the following: engineering workflow, check, addendum, re–engineer, and printing project plans and schedules.

Performing an engineering workflow. A workflow is the standard procedure for engineers to acquire a project, perform the necessary engineering work, then submit all information to be checked, drafted, and sent to the client. The following is the basic process for performing an engineering workflow:

Navigating Acute Tools main window. Figure 3.1 shows the main window of Acute Tools. The different sections of the color code are visible: red for engineering, purple for drafting, burgundy for holds, and black for proposals.

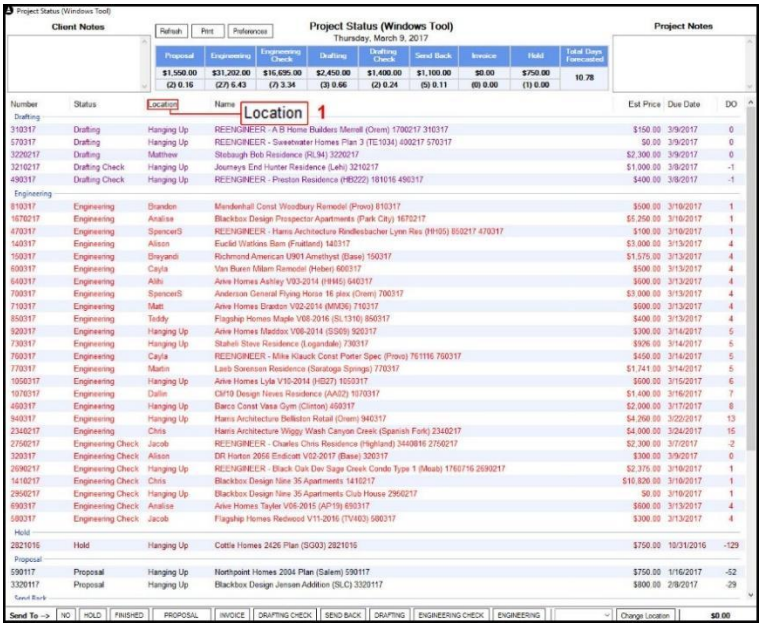


Figure 3.1. Example of the Acute Tools (Black Widow) project status screen.

The light blue title on the left side specifies the beginning of a new section. The color-coded sections are also specified with light blue titles on the left side at the beginning of each new section. The status of each project is displayed in the second column (such as Engineering, Engineering Check, Drafting, Drafting Check). Users may change the status of a project by using the "Send To" toolbar at the bottom. Other information displayed includes project numbers (used for finding project folders on the company network) in the first column titled "Number," examples of project titles in the "Name" column, and due dates on the right side.

Acquiring a project. Supervisors will change the status of a project in Acute Tools to assign it to an engineer. The following steps explain how to acquire a project:

1. Ask a supervisor to find a project from the Acute Window Tools queue (nicknamed the Black Widow). Supervisor will place the project under your name, which changes the job details in the project queue to the color red. Your name will also appear under the "Location" column.

You may need to ask a supervisor for the location of the rack.

2. Find the physical plans for the project on the project rack. The plans are first organized by type (such as workflow, addendum, re-engineer), then chronologically.

3. Open Acute Tools from the Windows taskbar and type the project number into the search toolbar. The project number appears on the physical project plans.

If the project plans are not yet printed, see Chapter III, "Printing Project Plans" for more information.

4. Select the "Drawings Folder." This folder (.DWG folder) holds all applicable files from the client in correlation with the physical plans.

Performing the necessary engineering work. Engineers are now responsible to do the following:

1. Use various programs while engineering a project such as the following:

- TrueView for measuring

- Excel for general equations (utilizing Visual Basic for Applications (VBA) coding language)

- StruCalc for unique beams

- Simpson Connector Selector (the digital version of Simpson Connector book) for specific types of walls and anchors

- Microsoft Word for calculations, memos, and other writing requirements

Confirm with supervisor which printer to use.

2. Complete all engineering requirements for the specified job, then print the engineering schedules using the Kyocera 5501i printer.

3. Paste the schedules to the project plans within logical proximity to the correlating information.

Concluding engineering workflow. After the engineer completes all necessary work, he/she performs all necessary steps in order to complete the process.

1. Update the calcbook – Word document with calculations linked to the Excel spreadsheet found in the .DWG folder – by clicking "Update Links."

2. After the links are updated, convert the Word and Excel documents to .pdf format (File > Export > Create PDF/XPS > Publish) and save both in the project's .DWG folder.

Engineers must place physical project plans on the rack for an engineering check.

3. Conclude workflow by taking all job information to the supervisor, and "Send Back" the project in Acute Window Tools, which action changes the status of the project details in the queue.

Clients will typically send plans for engineering a week in advance. Smaller jobs are expected to take 2~ hours to complete, average jobs 5-6~ hours, and big jobs 20+ hours. The client manager sends the plans to the client after the receiving final approval.

Performing an engineering check. The engineering supervisor will check all project plans after the engineering process (engineering workflow) is completed. Engineers may need to perform preliminary engineering checks if the

supervisor's workload is backed up. The following is the basic procedure for performing an engineering check:

1. Acquire physical plans from the project rack and .DWG folder from the company network.

2. Check all engineering work, including calculations and marks. Make necessary changes in the project spreadsheet(s) and redlines on the physical plans if any errors exist.

3. Convert all Word and Excel files (such as plumbing, architectural, and electrical) to a .pdf format by selecting File > Export.

4. Create and send a memo to the original project author with explanations of any changes made, with a copy to the supervisor.

5. Send all information back to the supervisor to be checked again. If the supervisor moved the project under your name in Acute Window Tools, select "Send Back" to change the status of the project in the queue. Access Acute Window Tools from the Windows Taskbar.

After the project has passed an engineering check, the supervisor will send the plans for drafting.

For more intricate details, see the first section of Chapter III, Performing an engineering workflow.

Performing an engineering addendum. If the client finds a mistake in the plans, or makes a change to the plans, engineers must re-calculate and re-evaluate the affected areas, which process is called an engineering addendum. The following is the basic procedure for performing an engineering addendum:

1. Acquire project plans from the project rack, and .DWG file from the company network.

2. Take a snapshot of the affected area.

3. Fix all necessary areas, paste new engineering schedules (if needed) to the project plans, and recalculate or update all spreadsheets and correlating information.

4. Write a memo to the client using Microsoft Word after completing the addendum. Include the following information:

- State what the client wanted.
- Explain what happened and what work was done.
- Inform what needs to happen to move the project forward.

Place physical project plans on the rack for an engineering check after completing the addendum.

5. Conclude the engineering addendum by taking all job information to supervisor, and selecting “Send Back” in Acute Window Tools, which changes the status of the project details in the queue. Access Acute Window Tools from the Windows Taskbar.

An engineering addendum on average takes 30-60 minutes to complete and is usually due the next day.

Performing a re-engineer. If a client makes a big change in the project plans – bigger than an engineering addendum – the project must be re-engineered. The following is the basic procedure for performing a re-engineer:

1. Acquire project plans from the project rack, and .DWG folder from the company network.

2. Perform all necessary calculations and adjustments based on any changes to the plans.

3. Paste new engineering schedules to the project plans (if needed), update the calcbook, and convert all Word and Excel files to .pdf format and save to the .DWG folder.

Place physical project plans on the rack for an engineering check after completing the addendum.

4. Conclude the re-engineer by taking all job information to supervisor and selecting “Send Back” in Acute Window Tools, which changes the status of the project details in the queue. Access Acute Window Tools from the Windows Taskbar.

Re-engineering a project is a condensed version of the general engineering workflow.

Printing project plans. The office manager will typically print project plans in preparation for engineering. If the plans are not printed and waiting on the project rack, use TrueView to open the plans from the .DWG folder and choose the KIP7570 printer to print only the structural sheets.

Note: Multiple projects for the same client may be similar. If the original marks are not included, drafters may also print out plans, instead of the office manager.

Confirm current printer name with supervisor.

Printing engineering schedules. An engineering schedule contains details of all structural components of a project–such as beams, walls, foundation, anchors, and so forth–in the form of an Excel spreadsheet. These schedules must appear on the physical project plans. Each spreadsheet tab has a "Print Schedules" button. Press this button and select the Kyocera 5501i printer. The schedule will print on standard 8.5" x 11" paper. Cut out, or trim down, the schedule and paste it on the specific project plan page to which it applies.

Engineer expectations

The following sections explain the information and procedures engineers are expected to know and perform, such as scheduling work hours, using types of software, or working on side projects.

Scheduling engineer work hours. All employees use Acute Time Tracker to clock in and out of work. They can access the Time Tracker in the Windows Taskbar.

Full-time engineer hours. Full-time engineers are expected to work full–time hours, a minimum of forty hours per week. This can be eight hours per day, but is ultimately up to individual discretion as long as minimum standards are met.

Part-time engineer hours. Part-time engineers simultaneously studying at university must work a minimum of twenty hours per week with a minimum of two hours per day during the fall and winter semesters. Student-engineers must work with the engineering supervisor one week before the beginning of each semester to determine the work schedule for the duration of the semester. During the spring and summer semesters, student-engineers must work full time hours – a minimum of forty hours per week – which is typically eight hours per day, but is ultimately up to individual discretion.

Engineering-required materials. Engineers use the following materials on a day-to-day basis:

1. Engineers use color-coded pens for the following purposes:

a. Red = Shows drafters what to put on the plans

b. Blue/Green = Draw on framing

2. Highlighters coincide with their respective pen counterparts and are used to highlight specific information (Red coincides with pink).

3. Engineering Scale is a three-dimensional ruler used for drawing on project plans. One quarter inch equates to one foot on the plans.

4. Scissors and glue are used for pasting engineering schedules on project plans

5. "Simpson Connectors" is the Simpson manual regarding beam hangers.

Contact a supervisor with any issues regarding these materials.

Engineering-specific software. The following lists the different applicable software or programs engineers utilize on a day-to-day basis:

1. Microsoft Excel

2. Microsoft Word

3. Adobe Acrobat Reader

4. TrueView for measuring

5. Acute Tools, which encompasses the following programs:

- Acute Window Tools (aka "Black Widow") is the project queue. It shows details of all projects such as the status and the name of employees working on each project. Access the various tools from the Windows Taskbar. This program utilizes the following color code:

- Black: proposal
- Blue: ready to be sent back to supervisor
- Red: engineering (workflow) or engineering check
- Purple: drafting procedures
- Burgundy: on hold-waiting for information from client

● Acute Time Tracker allows employees to clock in and out.

● Acute Messages enables employees to send electronic messages to each other individually, or en masse. Each employee name links to a specific computer.

● Acute Outlook Tools (aka "Pumpkin") shows employee metrics report. Click on any employee name to run a report which shows all completed projects, progress reports, and other information.

● Acute Time Keeper tracks how long employees work on a project. The office manager uses this number to bill the client for time.

6. StruCalc (used to calculate load amounts for large beam sizes which Excel cannot compute)

7. www.acute.com is a website that only works on company network. Shows company progress report, which staff are currently clocked in, or information for specific projects.

8. Simpson Connector Selector is the digital version of the Simpson Connector Book. Use "Simpson Strongwall" to calculate specific types of walls which are more strong. Use "Simpson Anchorage" to calculate different types of anchors.

Engineers are expected to have the knowledge and familiarity with these programs. More detailed information is available in Chapter V: Basics of Company Software.

Engineering side projects. Acute Engineering expects engineers to spend time on side projects to elevate their

Examples of possible side projects are increasing knowledge by doing research on concepts or procedures, or building standardized spreadsheets to help the company become more streamlined and efficient.

skills and knowledge. Much of the work done on side projects includes honing and practicing experience and capabilities within Excel, and generally practicing Excel coding.

Holding weekly engineer meeting. Weekly engineer meetings are used to discuss or disburse information regarding changes in the company. This is also an open space to present side projects. The engineering supervisor determines meeting times weekly. The common time is 10:30 a.m. on Tuesdays or Thursdays, but is subject to change.

Information for Drafters

The following sections present information regarding drafting procedures, drafting expectations, and required materials. Drafters should begin the work-day by logging into the computer (using last name and password), checking Outlook for emails, and Acute Messages for messages.

Drafting procedures. The following sections explain how to create dedicated structural and general plans. Before continuing ensure you have been assigned a project number and have entered this number into the Acute Tools project number box.

Creating dedicated structural. Dedicated structurals are a .DWG file that is created specifically for engineering marks. The following steps explain how to create a dedicated structural file:

If the customization process crashes, delete the extra pages not in use.

For example: if using ¼ scale, delete the other tabs not including SN1, or SD(#) tabs, then type command GD in AutoCAD and change the fields to match the project's details.

1. Right click on Acute Tools, then select "Open Project Folder DRAFTING FOLDER." A folder explorer window will appear. Make sure Acute Tools displays the correct project number.

2. Open a .DWG file located in opened folder Explorer window.

3. Click a blank section of the Autocad taskbar, then enter the command SSD, which creates a structural details file directly in the drawings folder.

4. A popup will indicate customization (this process might crash if so, re-open the structural file). Place correct XReff files in correct squares and use command "LayFr" to freeze off any

unneeded layers.

5. Start transferring marks. Refer to command list to place marks and follow directions in command line. Points are selected in a counterclockwise manner.

Reference the Acute Drafting Handbook for a complete command list available on the Acute network.

6. Plotting/Sheets depend on the required size. Typically, most projects will be 24” x 36” at a ¼ inch scale.

a. Select the first layout sheet. Hold “Shift” and select the last page to be published

b. Right click on any of the selected tabs and select “publish selected layouts” on the menu

If the “Publishing” option is not visible, your computer may need some options changed. Talk to a drafting supervisor.

c. A window will appear. Select the needed sheets using the “Shift” key in the same manner as before. Select the first layout’s “Publishing” option and change to desired page size making sure size selected ends in “Final 1-1”

d. Before publishing, create a new folder located in the drawings folder named with the format “PDF YYYY-MM-DD”

e. Publish using the same filename as the project client’s name

f. Open this DWF and print the pages thereby creating a “Check Set”

g. With a highlighter, write “Check Set’ and the current day’s date on the right edge

Creating general plans. The following steps explain how to create general plans.

Make sure Acute Tools displays the correct project number.

1. Right click on the Acute Tools, then select “Open Project Folder DRAFTING FOLDER.” A folder explorer window will appear.

2. Start opening (.DWG) files, matching each file to a physical page (with engineering marks) shown in the project documents. Take note of each file with a matching page.

3. Return to the folder explorer window and create copies of the noted documents. Rename each file by just adding “~ ACUTE” to the end of each file name.

Reference the Acute Drafting Handbook for a complete command list available on the Acute network.

4. Start transferring marks. Refer to command list to place marks and follow directions in command line. Points are selected

in a counterclockwise manner.

5. Plotting/Sheets depend on the required size. Typically, most projects will be 24” x 36” at a ¼ inch scale.

a. Select the first layout sheet. Hold “Shift” and select the last page to be published

b. Right click on any of the selected tabs and select “Publish Selected Layouts” on the menu

If the “Publishing” option is not visible, your computer may need some options changed. Talk to a drafting supervisor.

c. A window will appear. Select the needed sheets using the “Shift” key in the same manner as before. Select the first layout’s “Publishing” option and change to desired page size making sure size selected ends in “Final 1-1”

d. Before publishing, create a new folder located in the drawings folder named with the format “PDF YYYY-MM-DD”

e. Publish using the same filename as the project client’s name

f. Open this .DWF and print the pages creating a “Check Set”

g. With a highlighter, write “Check Set” and the current day’s date on the right edge

How to perform a drafting check. A supervisor may ask drafters to perform drafting checks if the supervisor is backed up on work. The following steps explain how to perform a drafting check.

1. Acquire physical plans from the project rack and .DWF folder from the company network.

If no corrections, check the correct page size by opening up the DWF file in the PDF folder.

2. Remove check set from project holder.

3. Read project details and make sure the list of created drawings matches the created drawings on the physical plans.
4. Reference engineering marks and highlight the created mark on the check set with an orange highlighter. If any mistakes and/or missing marks exist, write the correction with a purple pen.

Be sure to correct title block details (GD command)

5. Publish the drawing after making all necessary corrections. Follow the same manner as drafting publishing, making sure to create the correct sheet size. The left column

includes a section showing sheet size.

If project is a *Dedicated Structurals*, drafters must create a "bound" copy.

- Type xref into Autocad
- Highlight the loaded referenced drawings, right click, and select "Bind"

Save with the addition of "~BOUND" to the file name.

6. If this is correct, select all sheets using the shift+click technique. Right click, then select "Print" from the menu.

7. Select the AcutePDF printer. Change the paper size to match the published size, and make sure the scale size is set to 100%.

8. Now select "Print" and save the file to the same folder as the .DWF.

All plans and files must be sent back to the supervisor to be checked again. Proceed to "How to perform a project send-back" for additional information.

How to perform a project send-back. The send-back process is different for each project manager. The following explains steps for sending back a project to each drafting supervisor:

1. Chris Yates

a. Right click on the Acute tools.

b. Select "Send to SEND BACK." A dialog box will appear.

c. Enter the number of printed 24x36 pages, then select "OK."

d. Take all physical documents and place on project rack located in Yates' office.

2. Brandon Decker

a. Right click on the Acute tools.

b. Select "Send to SEND BACK." A dialog box will appear.

c. Enter the number of printed 24x36 pages, then select "OK."

d. Take all physical documents and place on Decker's office desk.

3. Paul Thorley

a. Right click on the Acute tools.

b. Select “Send to SEND BACK”. A dialog box will appear.

c. Enter the number of printed 24x36 pages, then select “OK.”

d. Staple all physical documents except the accompanying manila folder.

e. Roll plans and place rubber band over roll to secure papers.

f. Take all physical documents and place on shelf located in Yates’ office.

Any time drafters complete a work-process, the drafter must send all files back to the supervisor.

Drafter Expectations

This section begins by explaining what Acute Engineering expects of its drafters before and after on-the-job training. The sections afterwards cover submitting a work schedule, training meetings, and understanding drafting production numbers.

Before on-the-job training. New drafters must do the following:

- Shadow current drafters.
- Perform a Drafting Check with supervision from an experienced drafter.
- Study “Acute University” documents.
- Study “construction of Timber Homes” on the Internet.

Acute is working on an interactive online training program.

Supervisors will assign projects until otherwise noted.

After initial on-the-job training. Drafters must periodically check-in with lead drafter for status updates. Until otherwise noted, drafters must not perform “Check Sets” created by less experienced drafters. Check Acute Tools (aka Black

Widow) for available projects to begin independently working. New drafters should continue to study either Acute University or pertinent material during free time.

Submitting drafter work schedule. Full-time drafters work full-time hours on a salary. Drafters still studying at a university must work with their supervisor to establish the work schedule for the semester. After discussing and establishing work hours, drafters must write a memo detailing their schedule and give it to the drafting manager.

Training meetings for drafters. Drafters hold different types of meetings. Weekly meetings deliver training on recurring issues. Lunch-time meetings happen once a month to update employees on the current status of the company.

Understanding drafting production numbers. This section expounds on the following topics: total employee time spent drafting, engineering time to drafting time ratio, drafting to drafting check ratio, and OPS (On-base plus Slugging).

Drafting production numbers consist of the following:

- Total Employee Time Spent Drafting: This Percentage takes a month's total hours an employee spends drafting then divides this by the total work hours an employee drafts to get a percentage. All drafters must have greater than 70% to meet drafting department standards.

- Engineering Time to Drafting-time Ratio: This decimal takes a month’s average of the total time an employee has spent on drafting projects, and divides this number by all engineering hours spent on the same projects. All drafters must have a less than .7 ratio to be at drafting department standards.

- Drafting to Drafting Check Ratio: This decimal takes a month’s average of the total time an employee has spent on drafting projects, and divides this number by all drafting check hours spent on the same projects. All drafters must have a less than .3 ratio to be at drafting department standards.

- OPS: A term based on the baseball statistic, On-base plus Slugging. The main idea derived here is that two semi-related statistics are added together to create a new statistic. In the case of Acute Drafting Department's OPS, the numbers added are Engineering Time to Drafting Time Ratio and Drafting to Drafting Check Ratio. All drafters must have less than 1 to be at drafting department standards.

Drafters must understand these terms and concepts to function properly within the department and within the company.

Drafter materials. Materials for drafters consist of two categories: software and physical tools.

Drafter-specific software are the following:

- AutoCad (Autodesk)
- Adobe Acrobat Reader
- AcutePDF
- DWF Viewer (Autodesk)

Drafter-specific tools are the following:

- Computer workstation
- Highlighters
- Scale

Drafters should notify their supervisor if any problems with these items arise, such as repairs or missing items.

Information for Office Manger

The office manager is integral to the day-to-day functionality of the company, handling and participating in processes ranging from preparing projects to taking payments. This section illustrates the following office manager duties: general duties, preparing projects, in/outbound calling, managing QuickBooks, and taking customer payments.

General office manager duties. The office manager has three general duties: managing employee time cards, maintaining office supplies, and ordering food for lunchtime training meetings.

Managing employee time cards. The Hawkins accounting firm handles the company's payroll, and designates days for employees to submit hours. All employees must submit time cards to the office manager by the end of the designated day. The office manager must record the employee work hours on the time-card spreadsheet provided by Hawkins, return the time cards to each manager for review, then correct any issues as notified by the manager. After this process the office manager, submits the spreadsheet to Hawkins.

Acute also expects all employees to be responsible for their own supplies. In addition to keeping tabs on all supplies, employees should notify the office manager if a new, or more of a supply is required.

Maintaining office supplies. Each department utilizes various supplies such as color-coded pens and highlighters. In addition to the department-specific supplies, the office also requires general materials such as sufficient stock of printer paper, printer ink, and most importantly snack bar items. The office manager oversees the restocking of supplies using CEO approved purchase locations and the company provided card.

Remember to estimate sufficient time for preparation and delivery of the lunch order.

Organizing lunch for training meetings. Lunchtime training meetings occur once every month. Using the company-provided card, the office manager must purchase pick-up and deliver enough food for all managers, and the engineering and drafting departments. Mangers collectively plan designated times for lunch time trainings.

Preparing projects. To prepare a project, the account manager assigned to the project must give approval via email, which will indicate the project type. Each type of project requires unique steps, explained in the following sections.

New project preparations. This process contains two main items: printing the project, and assembling the project folder.

Print the following items:

1. Copy of the email received from account manager.

2. Drawing tag from the Acute Outlook Tools.

3. Project editor in Acute Windows Tools.

4. All applicable drawings attached to the email. These must be in a 24x36in size.

If preliminary red lines exist on physical plans, scan these using a plotter.

For information on using a plotter, see Chapter IV.

Assemble the project folder:

1. Obtain a new manila folder; paste the "Project Editor" page on the front.

2. Laminate and cut out previously printed project tags.

3. Tape larger tags to upper right-hand corner of printed drawings.

4. Place all documents in the manila folder, including the original printed email.

After printing and assembling the new project information, clamp using a project clip and place on the engineering rack in the engineering manager's office. Also, move the original email from the account manager to the "Completed Projects Folder" in Microsoft Outlook.

Re-engineer preparations. To avoid any mistake and confusion, the office manager should double check the email received from the engineering manager, verifying that the project is indeed a re-engineer. The office manager should follow these steps to prepare the project folder and create a new drawings folder for a re-engineer:

1. Print the original email with all the details of the re-engineer.

2. Copy/paste the re-engineering number from the email to the Acute Tools search bar.

3. Select "Project Editor," then select "Print" in the upper right corner of the window.

4. Staple the newly printed "Project Editor" page onto the original manila project folder, and place the copy of the new email inside.

The next step is to create a new drawings folder in Acute Tools, as follows:

1. Click on the Acute Tools (Black Widow), Select “Open Project Folder (ENGINEERING).”

2. Double click on the “Drawings” folder.

3. Create a new folder here with the format “OLD DRAWINGS yyyy-mm-dd,” changing the date to the current date.

4. Copy files under the old drawings folder, excluding the new folder just created, then paste copied files inside the new folder created.

Windows may prompt a file overwrite: if so select yes.

5. Copy the new drawing files from the project email, then paste these files in the “Drawings” folder where the old drawings folder was created.

6. Take project folder and place on top of printed drawings then clamp together using a project clip.

To conclude preparing a re-engineering project, first place the new project folder on the engineering rack located in the engineering manager’s office. Then, move the original email to the “Completed Projects Folder” in Microsoft Outlook.

Re-Use preparations. To avoid any mistake and confusion, the office manager should double check the original project re-use email, verifying that the engineers can indeed re-use the project information. The following steps explain how to set up a project re-use:

1. Select “Project Re-use” in Acute Outlook (Orange Pumpkin), and enter the project number found in the original email.

2. Click the Acute Tools (Black Widow), and select the project editor.

3. Edit the sections with information given in the email, for example:

- Project name, only changing the information in the parenthesis to the abbreviated name and lot number. Example: (SE8675309).

- Address, making sure to spell out location with the lot number. Example: (Sky Estates - LOT # 8675309)

- Zip code by selecting the 3-dots (...) and entering the new zip code.

4. Click the "Re-use" button at the top of the Acute Tools window.

5. Go back to the email and select "Reply" to type the re-use number at the top of the email. A new folder window will appear with all the default files located inside.

6. Copy all drawings from the original email to the newly created folder, then select the "Up a Directory" button and open the "Structural Analysis" file.

7. Under the "Input" sheet at the upper right hand corner, a baby-blue box will appear with a number adjacent to a cell with "number" written inside. Select this box, making a window pop-up.

8. Enter the re-use number here, then select "OK" and save the Excel sheet without closing the document.

9. Under the folder window, open the "Structural Report" doc file. Word will prompt you to update references; select in the affirmative.

10. After the update is complete, click on "File," "Export," "Create PDF/XPS." Save this PDF under the default directory and save the Word file.

After setting up a project re-use, do not forget to send the reply email and give the stamped drawings to the appropriate project manager.

If an employee needs to call back the customer, click on Acute Messages and select "New Message." Collect as much information from the client as possible, including a call back name and number. Transfer this information to the Acute Messages and then send the message to the correct employee.

Handling inbound and outbound calls. The individual calling will determine how the office manager handles the call, typically transferring clients directly to their appropriate

manager. Depending on the caller or client's needs, the drafting manager handles drafting questions, the engineer manager handles engineering questions, and the office manager handles invoices and payments.

Note: If a solicitor calls the office, it is the office manager's responsibility to use a stern tone, tell the solicitor "we are not interested," and abruptly hang up.

Managing QuickBooks software. No individual should perform financial tasks unless given authorization. Handling the software depends on the type of account: accounts payable, accounts receivable, and taking payments.

Accounts payable (entering charges). Acute uses two types of accounts payable: non-recurring charges and bills.

If the desired vender is not listed: select the new vendor option and enter the appropriate requested information.

To handle a non-recurring charge:

1. Select "Vendor" under the home screen, then select the intended vendor.

2. Select the payment method used.

3. Enter the amount and any extra applicable information.

To handle paying a bill:

1. Enter a bill received.

a. Select "Enter Bill" under the QuickBooks home screen.

b. Enter the amount, due date, and other applicable information. QuickBooks will auto-populate some fields. Correct any errors, before finalizing the bill-entering process.

2. Pay a bill.

Review the options: check paper, check number, and

a. Select "Pay Bill" on the QuickBooks home screen. This screen will show all previously entered bills which are due.

b. Select bill(s) wanting to pay.

c. Insert check paper into the printer.

d. Click "Pay Selected Bill." A window will appear.

e. Select “Print.”

f. Another window will appear asking for a review of check numbers and to ensure the checks are correctly printed.

After printing checks for the associated bills, place the bill and check in an envelope and mail to the correct recipient.

Note: As a reminder: bills are time sensitive; ensure they are given to the mail carrier in a timely manner.

Accounts receivable (money in). Project managers create invoices as a PDF in the project folder and place a saved copy in the company database. They create these invoices with Acute Outlook Tools, which manages all copies. This section explains how to enter an invoice, display due invoices, and accept different types of payments.

Follow these steps to enter an invoice into QuickBooks:

1. Select the Acute Outlook Tools on the Windows task bar.

2. Select “Export all Invoices to QuickBooks.” A popup window will appear, displaying all previously exported invoices.

Check for newly created invoices at least three times per day.

Acute Outlook Tools automatically exports invoices created by project managers. The office manager must check for newly exported invoices frequently throughout the day to stay as current as possible.

Displaying due invoices. The office manager can view due invoices in multiple ways. The calendar shows all invoices for a specific day, payments, and transactions due. The “Client” window of QuickBooks also filters invoice results by different criteria such as a defined data range. The office manager should find invoices in this manner when taking client payments.

Taking a payment. The office manager takes payments using the QuickBooks software. If a client pays over the phone, the office manager writes down the payment information, invoice information, and customer information on a payment slip.

The following steps explain how to take a payment by card: credit or debit or cash:

1. Select “Receive Payment” located on the QuickBooks home screen.

If this process is performed with payment slip information, shred the payment slip

2. Enter the customer name. If the individual calling is not a direct customer, then ask what designer or architect the customer is currently working with.

3. After locating the customer, select invoice(s) the customer would like to pay.

4. Enter the payment amount.

5. Select payment type

Note: Over-phone transaction will generally be credit card payments.

6. Enter card information then “Run Transaction.” If the customer pays in person at the office, select “Swipe Card.”

QuickBooks will try to auto locate the correct invoices; if needed, reselect the correct invoices.

The following steps explain how to take a payment by check or cash:

1. Select “Receive Payment” located on the QuickBooks home screen.

2. Enter the customer name. If the individual calling is not a direct customer, ask what designer or architect the customer is currently working with.

3. After locating the customer, select the invoice(s) customer would like to pay.

4. Enter the payment amount.

5. Select “Payment Type” as check or cash.

6. Select the “Pay” button.

If the customer paid with cash or a check, put the funds in the company bank bag. Thorley will instruct on who delivers the cash funds collected, and how this is handled.

Chapter IV
General Company Tools

Engineering a project requires a basic knowledge of tools Acute engineering supplies to its employees. This section gives information on how to use these essential tools.

How to Use Company Hardware

This section is dedicated to step-by-step instructions for using plotting equipment and light table

How to print plans with the Acute KIP plotter. Printed project plans enable Acute engineers manually to mark up plans. These plans are not only used in every step of the engineering process, but plans are also archived in case of any future need for retrieval. Project plans can be printed in two major ways, either from a .PDF file or from a .DWG file.

To print from a .PDF:

1. On a computer, navigate to the “DRAWINGS” folder of the project in need of printed plans.

2. Open the .PDF file containing the project plans with Adobe Acrobat Reader.

3. Select “File,” then select “Print,”. A print window will appear.

4. In the print window, change the following settings as shown in Figure 4.1.

- Change printer to KIP 7170K (use Kyocera 5501i for prints 11x17 or 8.5x11)

- Enter desired pages to be printed

- Ensure page sizing is set to “Actual Size” and the setting, “Choose paper source by .PDF page size”

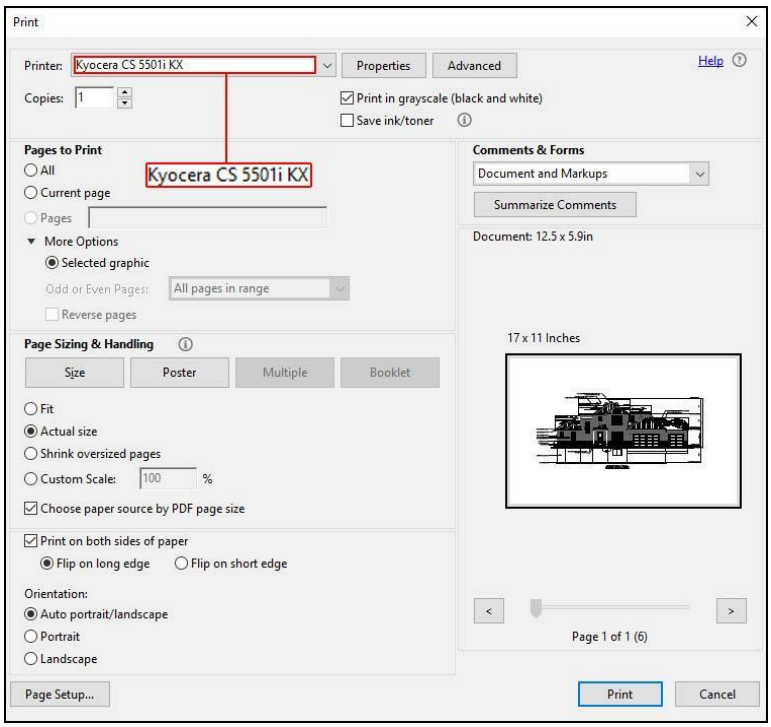


Figure 4.1. Adobe print dialogue window.

5. Left click on “Print.” Prints will deposit on top of the KIP plotter.

6. After collecting prints, use an engineering scale to ensure the prints are to scale. If prints are not the correct scale, move on to printing from a .DWG file.

To print from a .DWG:

1. On a computer navigate to the “DRAWINGS” folder of the project in need of printed plans.

2. Open the .DWG files containing the project plans. Autodesk TrueView will open with the selected drawing.

Depending on the client some drawings may come with pre-configured layout pages.

3. Navigate to a desired layout tab.

Figure 4.2. displays an example of TrueView tabs.

Figure 4.2. .DWG tabs.

4. Select the green TrueView icon located in the upper right hand corner of the screen, then select "Print." A print window will appear, as shown in figure 4.3.

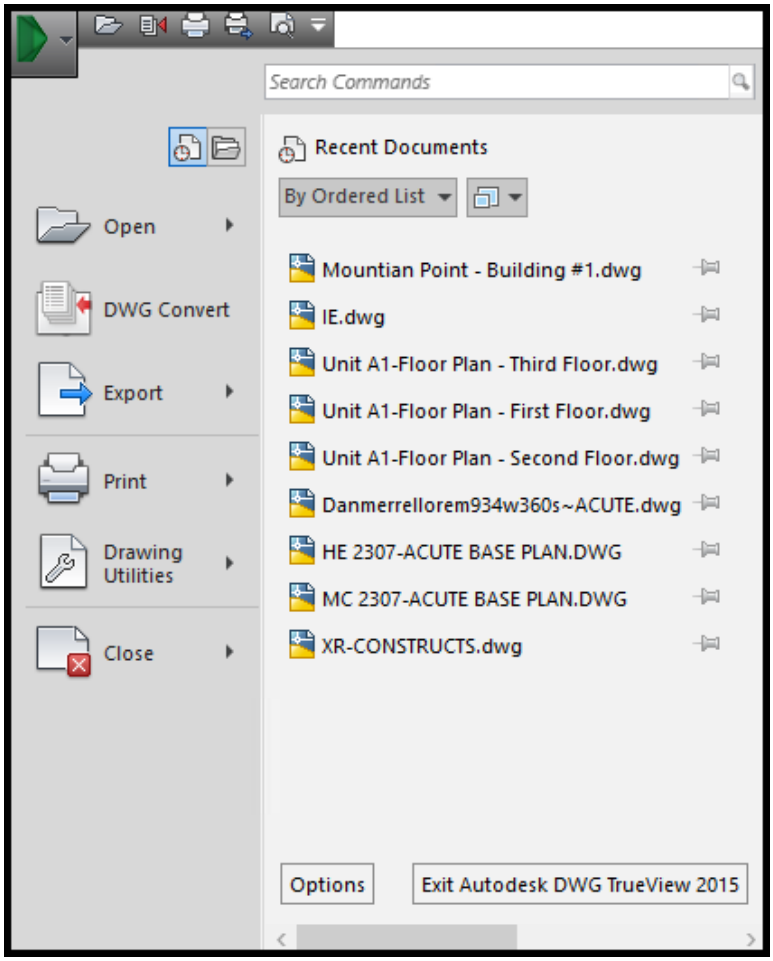


Figure 4.3. TrueView print button location.

5. Change the following setting as shown in Figure 4.4.

- Change printer name to KIP 7170K (Use Kyocera 5501i for prints 11x17 or 8.5x11)

- Set paper size (generally paper size will be ARCH. D 24x36)

- Set plot scale

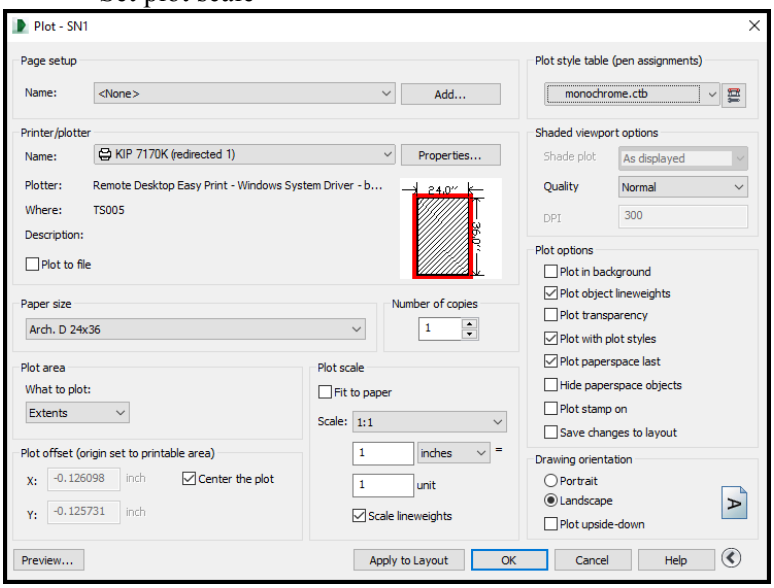


Figure 4.4. plot print window.

6. Keep all other settings the same.

7. Left click “Print.”

If no employee previously configured layout pages for the drawing, follow these steps to print directly from model space:

1. With the “Model” space tab open (or active), select the green TrueView icon located in the upper right-hand corner of the screen, then select “Print.” A print window will appear.

2. Change the following setting as shown in Figure 4.5:

- Change name printer to KIP 7170K (use Kyocera 5501i for prints 11x17 or 8.5x11).

- Set paper size (generally paper size will be ARCH. D 24x36).

- Set plot scale.

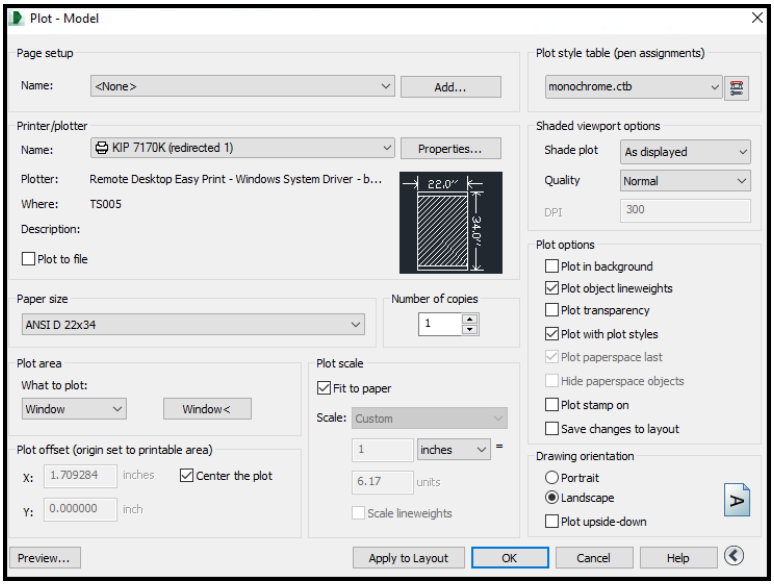


Figure 4.5. Plot material window.

3. Select plot area and switch the selection to window.

The KIP will go into sleep mode when it is not in use. There is no need to turn the machine off.

4. Left click on the “Window <” button and create a rectangle around the desired section of the plans by selecting the upper right-hand corner of the rectangle, then selecting the opposite corner.

5. Left click “Print.”

How to scan using the KIP plotter. These steps are a guide for scanning large color documents with the KIP (KIP 7170K). These settings yield the lowest possible scan size and should be set as default.

Figure 4.6 highlights the user interface screen on the KIP plotter.

Figure 4.6. KIP plotter.

1. Wake KIP plotter by tapping on screen.

2. Select the color scan icon on the home screen as shown with a square highlight on Figure 4.7.

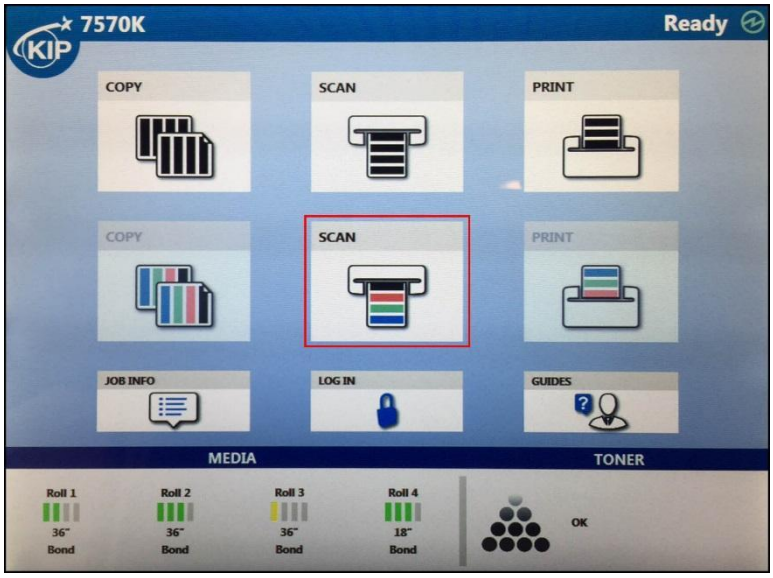


Figure 4.7. KIP plotter screen.

3. Ensure the option “ORIGINAL TYPE” is selected as line. If this is not the case select the “ORIGINAL TYPE” option and at the lower section of the screen select “Line.”

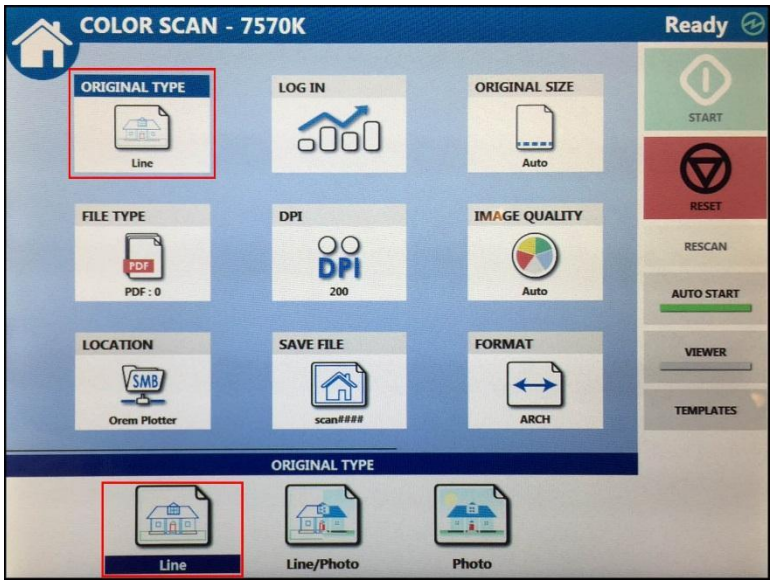


Figure 4.8. Line button.

4. Select the “FILE TYPE” option and ensure the “.PDF” option is selected as shown on Figure 4.9. In the case of scanning multiple sheets, an option is available to have all scanned sheets merged into a single .PDF file. To use this feature, select “Enable” located on the lower right-hand side of the screen when the “FILE TYPE” option is selected, as shown in Figure 4.9.

Figure 4.9 shows normal defaults. In the rare case the options on the screen do not match appears in Figure 4.9, set all options to match those shown. Tap each icon and select the similar option to the description on each icon.

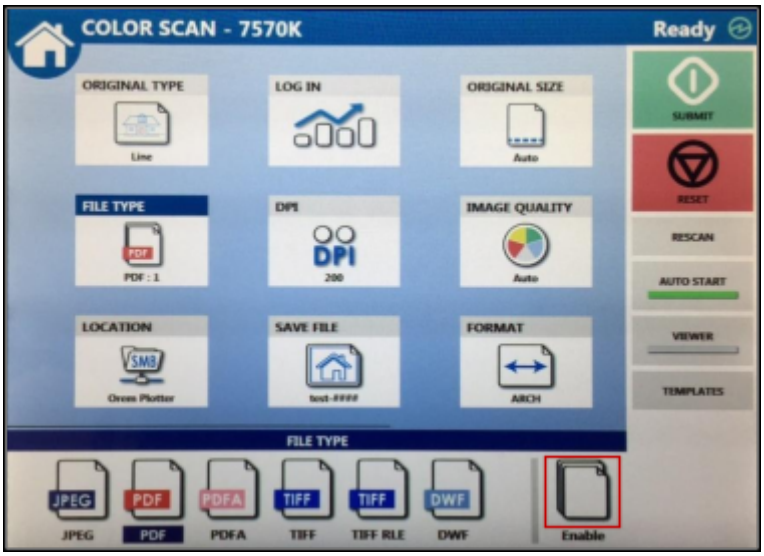
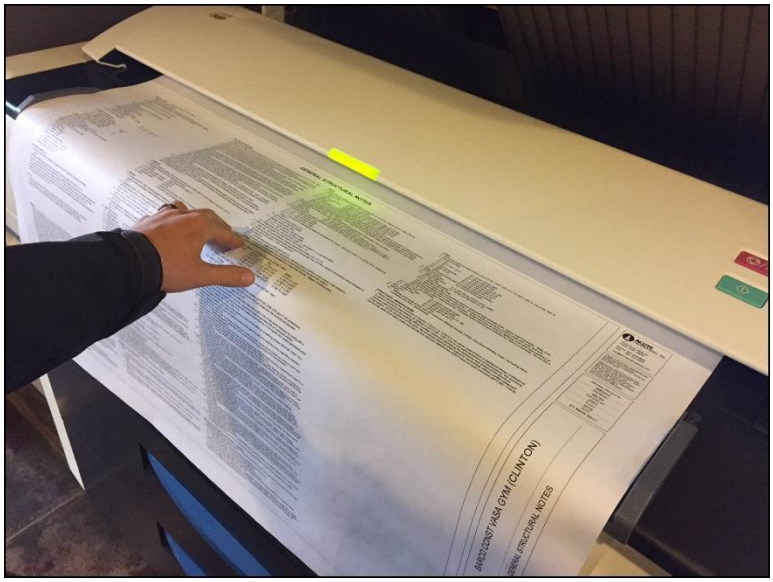


Figure 4.9. Enable icon.

5. Ensure all options are set as desired, then begin feeding documents into the plotter as shown in Figure 4.10. The KIP will automatically take document when it is fed into the correct area.

Figure 4.10. Scanning process.



6. A dialog box will appear on the screen requesting a file name to be given. Enter a file name here and select the return key, as shown in Figure 4.11.

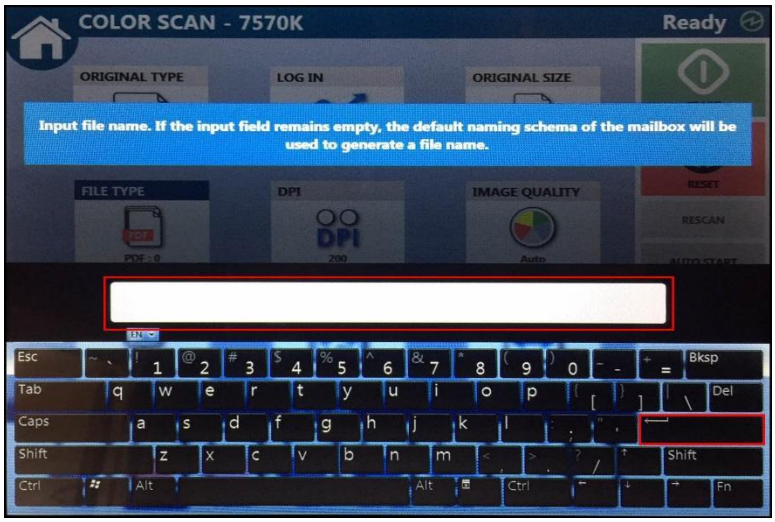


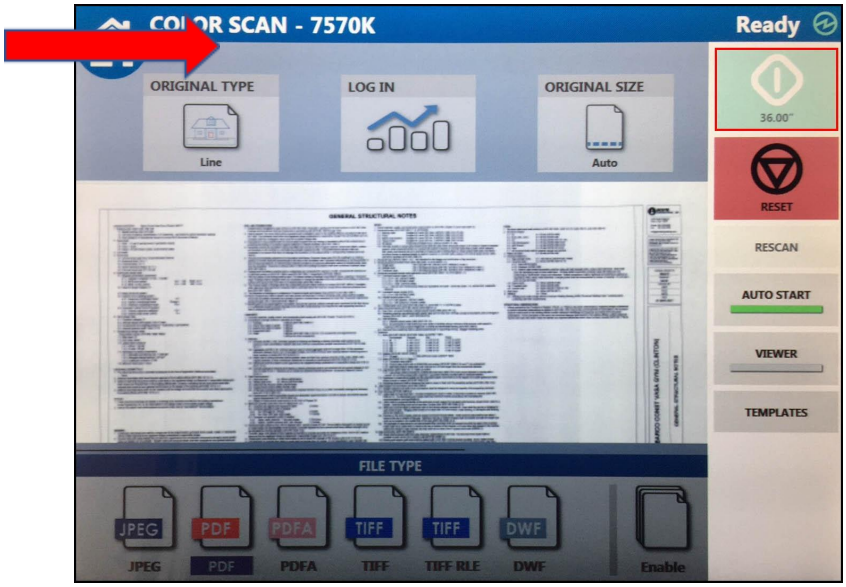
Figure 4.11. File naming screen.

The KIP will go into sleep mode when it is not in use. There is no need to turn off the machine.

7. The KIP deposits scanned documents on top of the machine. After scanning each page, remove the completed scan page and insert the next page. Repeat this step until scanning all pages (or all pages desired to be in one .PDF file).

8. After scanning all pages (per .PDF file desired), select the green button located on the top-right hand corner, which should now be highlighted with a deeper green and will display "SUBMIT." Highlighted is the location of the submit button as shown Figure 4.12. The document scanned will now be in the (\\fileserver\COMMUNITY \Plotter Scans) folder located on the server.

Figure 4.12. Submit button.



How to print documents with the Acute printer. The Acute printer in the Orem location prints 8.5x11 or 11x17 documents. To use this printer, locate the print option in any computer program and change the selected printer to Kyocera 550i. This printer contains many print features. To use these features, a user must select the printer preferences for a window to appear as shown in Figure 4.13.

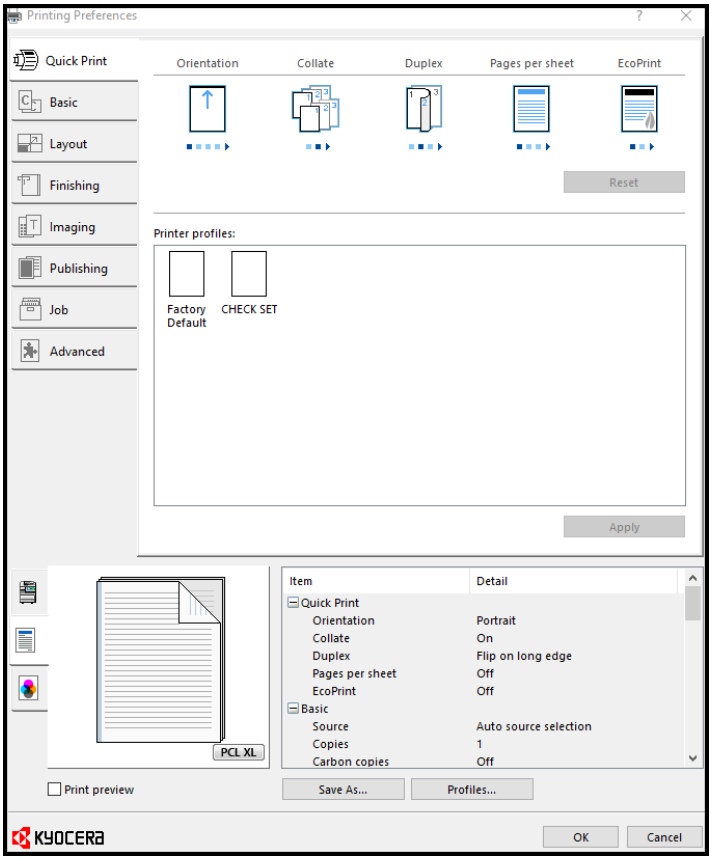


Figure 4.13. Printing process screen showing option tabs at left.

The most-used option tabs are the “Basic,” “Finishing,” and “Publishing” tabs.

- The “Basic” tab gives options for the following:
  - Print size
  - Orientation
  - Duplex
  - Copies
- The “Finishing” tab gives options for stapling. The “Publishing” tab gives options for the following:
  - Cover mode
  - Page insert

How to use the Acute light table. A light table allows users to stack plans and view all pages placed on the light table as if they were printed as one page. As an example, stacking allows an individual to view where loads may or may not support certain spaces in a house.

Figure 4.14 Light table

To use the Acute light table, locate the light table power switch on the wall directly in front of the light table, as shown in Figure 4.14.

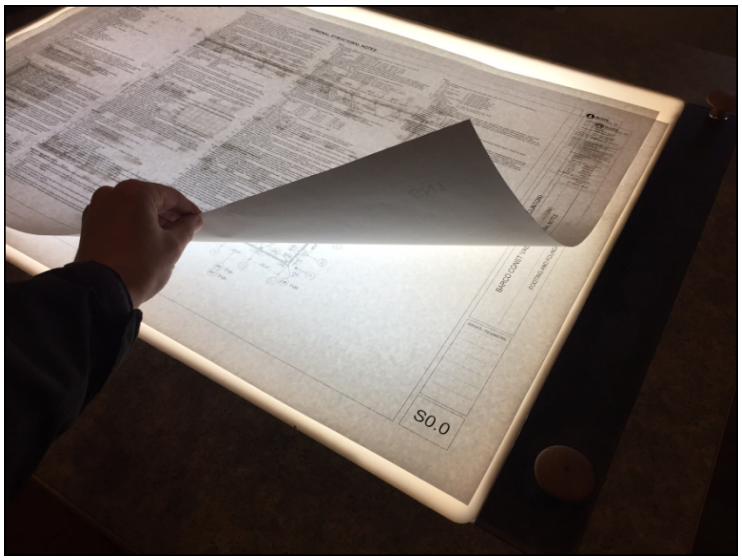


Figure 4.15. Light table in action.

After locating the power switch, stack plans on the illuminated surface and align plans based on drawing orientation in a similar fashion as shown in Figure 4.15.

How to Use Company Drafting Tools

The following sections explain usage guides for company drafting tools.

Using drafting pens and color references.

Acute Engineering provides a large variety of pens, pencils, and highlighters for the drafting process. Different types and colors of writing utensils organize and differentiate the large amount of information that must be conveyed.

Using drafting scales. Drafters use scales for measuring drawings at multiple drawing ratios. Drafters generally create architectural drawings at a non-one-to-one scale, an example being ¼ inch representing 1foot of actual distance. In this case, the scale has a ¼ inch mark. When used, the numbers are pre-converted to represent the scaled length. Figure 4.16. displays a drafting scale.

Figure 4.16. Drafting scale.

To use a drafting scale, determine the scale of the drawing in need of a measurement. Locate the same scale printed on the drafting scale then line up the scale with the line needing measuring in a manner similar to using a ruler. Read the number opposite the zero at the end of the line.

Using drafting hangers. Drafting hangers are clamps which hold plans and associated paperwork in one location. These hangers are then hung on project racks. These racks are located around the office generally in a department or project manager's office. Markings on the racks organize the projects by process. An example being: when in drafting check, paperwork must hang on the associated drafting-check side of a project rack.

Chapter V
Basics of Company Software

Chapter V explains the basics of the various pieces of software Acute Engineering employees use. The Acute University handbook explains certain details of these more intricately.

Basics of Acute Custom Software

This section will present the basics of the custom software used at Acute Engineering.

Using Acute Tools software. Acute Tools is a custom project-management software. Functionalities of Acute Tools include searching the system to find a project, tracking locations, and making estimates for a project.

Figure 5.1 is the first screen a user will encounter while using Acute Tools.

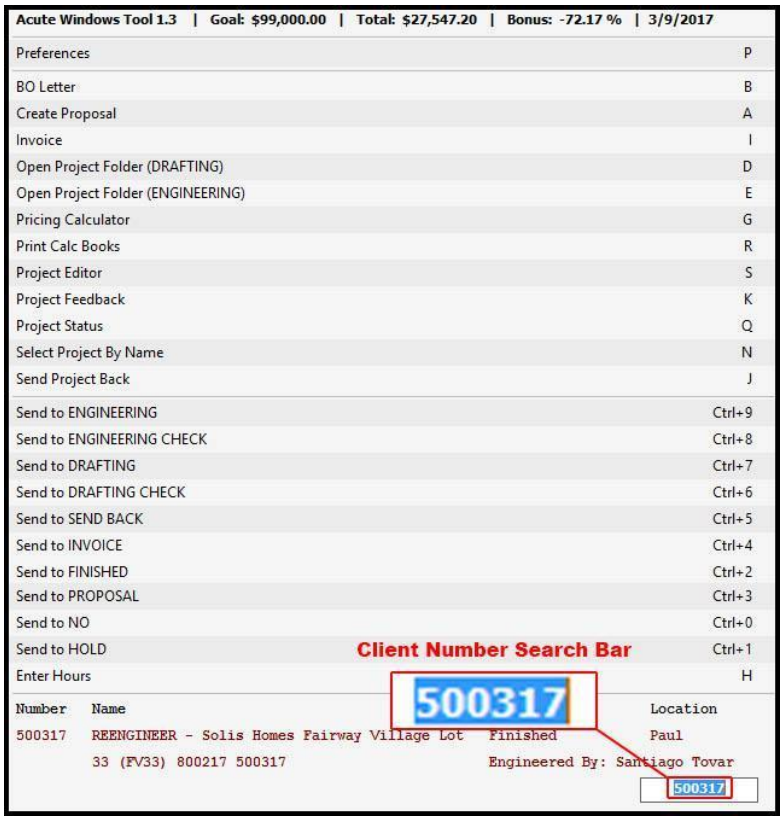


Figure 5.1. Acute Tools home screen.

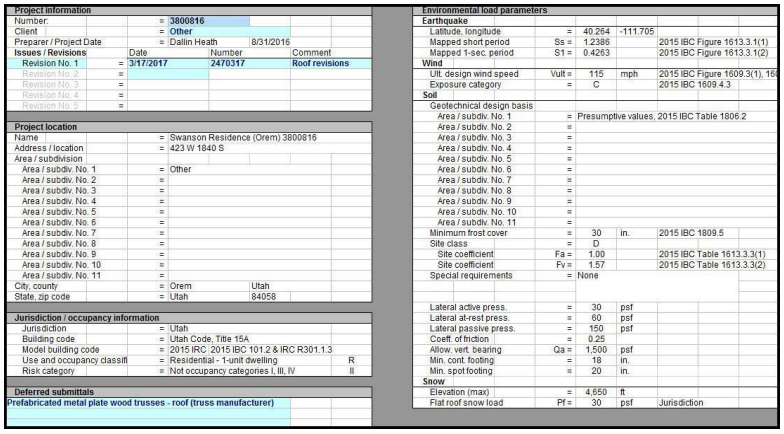
Please note the client number search bar in the lower right side

of figure 5.1. Clients can be search for in this bar.

Using Acute Timer software. Engineers keep track of time spent on a project with Acute Timer. Engineers must clock in and out of the Acute Timer as they begin and finish working on a project.

Using Acute Time Tracker software. Acute Time Tracker is Acute Engineering's custom software for employees to clock in and out of work.

Using structural analysis spreadsheet. The structural analysis spreadsheet is a custom Excel spreadsheet. Engineers keep track of beam types, beam amounts, and schedules for a project. Figure 5.2 is a screenshot of a structural analysis spreadsheet.



Project information				
Number:	=	3800816		
Client	=	Other		
Preparer / Project Date	=	Dallin Heath	8/31/2016	
Issues / Revisions		Date	Number	Comment
Revision No. 1	=	3/17/2017	2470317	Roof revisions
Revision No. 2	=			
Revision No. 3	=			
Revision No. 4	=			
Revision No. 5	=			

Project location			
Name	=	Swanson Residence (Orem) 3800816	
Address / location	=	423 W 1840 S	
Area / subdivision			
Area / subdiv. No. 1	=	Other	
Area / subdiv. No. 2	=		
Area / subdiv. No. 3	=		
Area / subdiv. No. 4	=		
Area / subdiv. No. 5	=		
Area / subdiv. No. 6	=		
Area / subdiv. No. 7	=		
Area / subdiv. No. 8	=		
Area / subdiv. No. 9	=		
Area / subdiv. No. 10	=		
Area / subdiv. No. 11	=		
City, county	=	Orem	Utah
State, zip code	=	Utah	84058

Jurisdiction / occupancy information			
Jurisdiction	=	Utah	
Building code	=	Utah Code, Title 15A	
Model building code	=	2015 IRC 2015 IBC 101.2 & IRC R301.1.3	
Use and occupancy classifi	=	Residential - 1-unit dwelling	R
Risk category	=	Not occupancy categories I, III, IV	II

Deferred submittals
Prefabricated metal plate wood trusses - roof (truss manufacturer)

Environmental load parameters					
Earthquake					
Latitude, longitude	=	40.264	-111.705		
Mapped short period	Ss =	1.2386			2015 IBC Figure 1613.3.1(1)
Mapped 1-sec. period	S1 =	0.4263			2015 IBC Figure 1613.3.1(2)
Wind					
Ult. design wind speed	Vult =	115	mph		2015 IBC Figure 1609.3(1), 16
Exposure category	=	C			2015 IBC 1609.4.3
Soil					
Geotechnical design basis					
Area / subdiv. No. 1	=	Presumptive values, 2015 IBC Table 1806.2			
Area / subdiv. No. 2	=				
Area / subdiv. No. 3	=				
Area / subdiv. No. 4	=				
Area / subdiv. No. 5	=				
Area / subdiv. No. 6	=				
Area / subdiv. No. 7	=				
Area / subdiv. No. 8	=				
Area / subdiv. No. 9	=				
Area / subdiv. No. 10	=				
Area / subdiv. No. 11	=				
Minimum frost cover	=	30	in.		2015 IBC 1809.5
Site class	=	D			
Site coefficient	Fa =	1.00			2015 IBC Table 1613.3.3(1)
Site coefficient	Fv =	1.57			2015 IBC Table 1613.3.3(2)
Special requirements	=	None			
Lateral active press.	=	30	psf		
Lateral at-rest press.	=	60	psf		
Lateral passive press.	=	150	psf		
Coeff. of friction	=	0.25			
Allow. vert. bearing	Qa =	1,500	psf		
Min. cont. footing	=	18	in.		
Min. spot footing	=	20	in.		
Snow					
Elevation (max)	=	4,650	ft		
Flat roof snow load	Pf =	30	psf		Jurisdiction

Figure 5.2. Structural analysis spreadsheet example.

Figure 5.2 provides an idea of how the spreadsheet should look. The spreadsheet contains information on the project, location, and environmental load parameters.

Using Microsoft Outlook software. Acute Engineering uses Microsoft Outlook as a personal information manager. Acute Outlook functions as an email application. Outlook also possesses the following functions: note taking, task managing, web browsing, contact managing, journal, and calendar.

Figure 5.3 is the home screen of Microsoft Outlook.

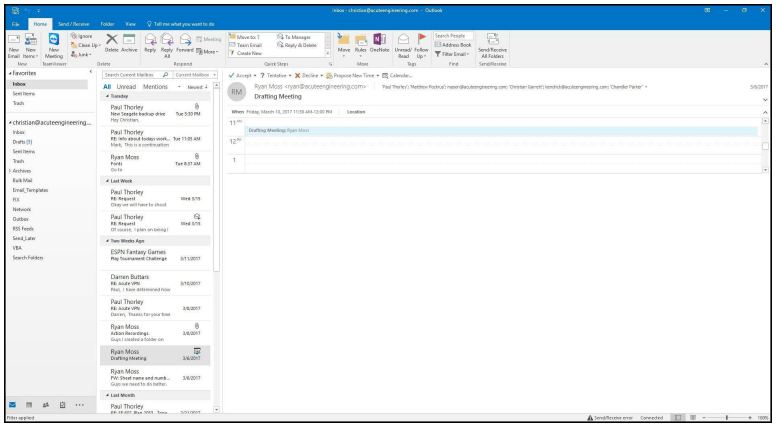


Figure 5.3. Microsoft Outlook home screen.

This image provides an idea of the how home screen will appear. Acute Engineering uses Outlook as an email platform for communication.

Basics of Drawing Programs

The software under this section lists the drawing programs used by Acute Engineering.

Using TrueView software. TrueView is a DWG reading software. Employees may also use TrueView to markup and convert .DWG file versions. Figure 5.4 is the home screen of TrueView.

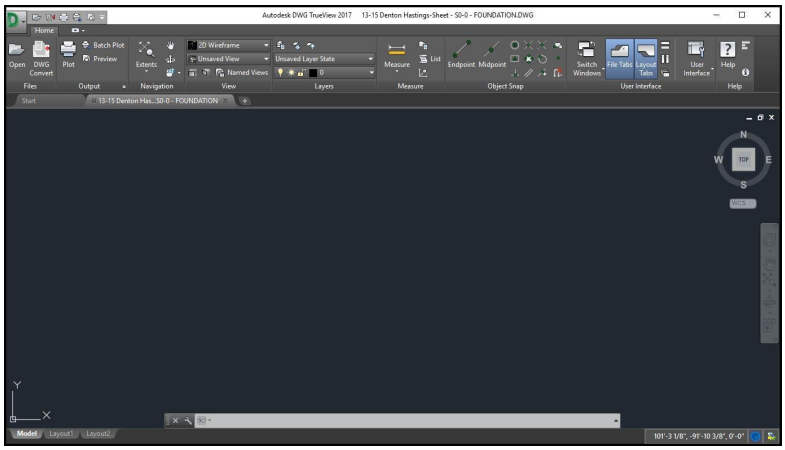


Figure 5.4. TrueView home screen.

For more information about how to use TrueView, consult the Acute University handbook. This book is available digitally.

Using AutoCAD 2014 software. AutoCAD (Computer Assisted Design and Drafting) is software used to create visuals of design concepts. AutoCAD achieves this through renderings and simulations of how the design would work in the real world. Figure 5.5 is the home screen of AutoCAD.

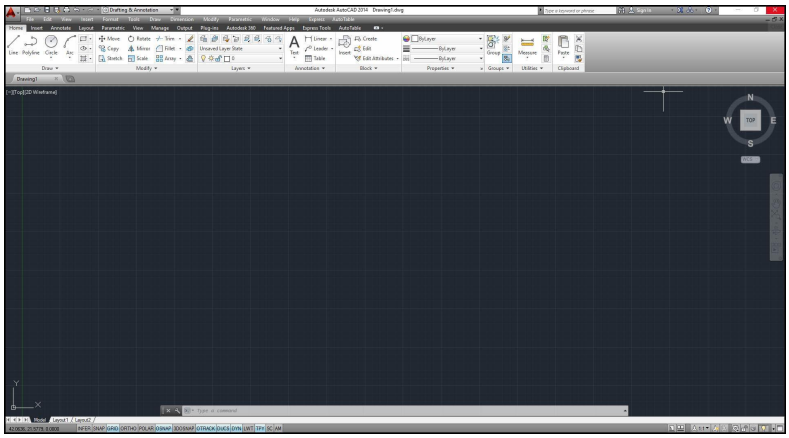


Figure 5.5. AutoCAD home screen.

For more information about how to use AutoCAD, consult the Acute University handbook.

Using Adobe PDF Reader software. Acute Engineering uses Adobe .PDF Reader, a program capable of reading .PDF files. Aside from viewing .PDF, Adobe .PDF Reader can also print, annotate, and sign .PDF files. Figure 5.6 is an example of Adobe .PDF Reader.

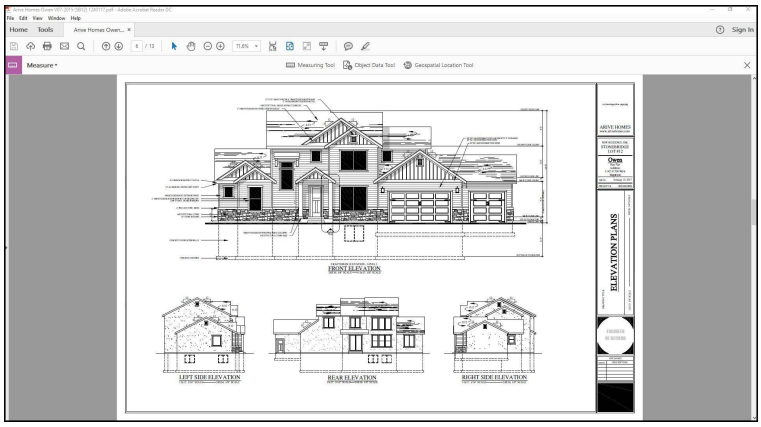


Figure 5.6. Adobe .PDF Reader example.

For more information about how to use Adobe PDF Reader, consult the Acute University handbook.

Using Design Review software. Design Review is a DWF file reader. Design Review is also capable of marking up, printing and versioning a file.

Figure 5.7 is the home screen of Design Review.

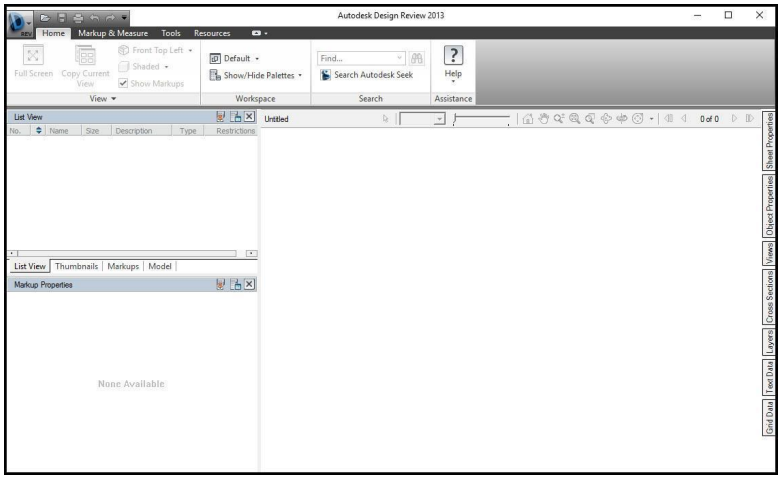


Figure 5.7. Design Review home screen.

For more information about how to use Design Review, consult the Acute University handbook.

Basics of Engineering Software

The software under this section encompasses the engineering programs Acute Engineering uses.

Using StruCalc software. StruCalc is a software used to calculate and design structures and support beams. StruCalc is capable of calculating structural analysis of a variety of different building materials. Figure 5.8 is the home screen of StruCalc.

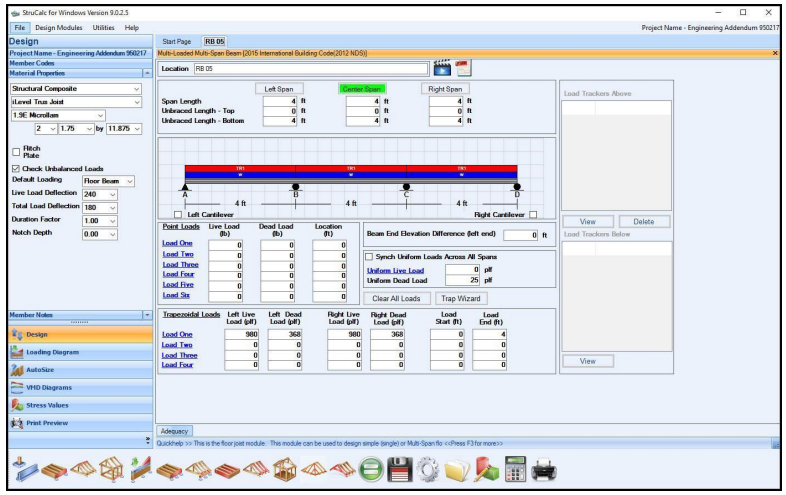


Figure 5.8. StruCalc home screen.

For more information about how to use StruCalc, consult the Acute University handbook.

Using Retain Pro software. Retain Pro is software used to design and calculate the needs for retaining walls. Engineers can use it to calculate the needs of most common retaining-wall types, including segmental walls with geogrids.

Using Simpson software. The Simpson software helps identify the needs of a project and required materials. Acute Engineering uses three different flavors of Simpson software: Strong Wall, Strong Frame, and Connector Selector.

Figure 5.9 is the home screen of Connector Selector. It is used to calculate the needed strength of the connection material for a project.

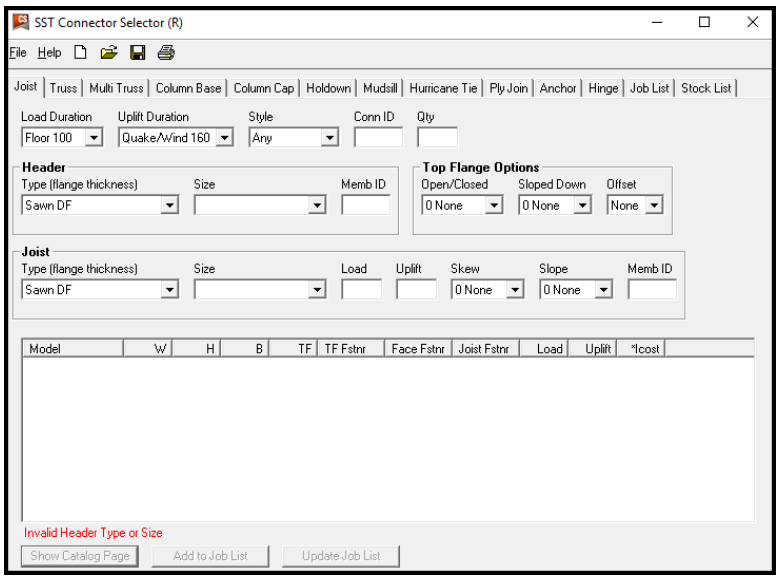


Figure 5.9. Connector Selector home screen.

For more information about how to use Connector Selector, consult the Acute University handbook.

Figure 5.10 is the home screen of Strong Frame. It is used to calculate the needed strength of the frame construction material for a project.

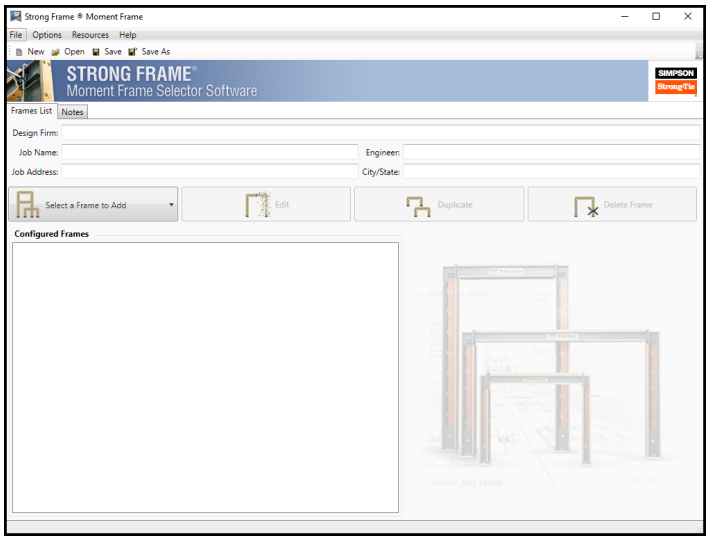


Figure 5.10 Strong Frame home screen

For more information about how to use Strong Frame, consult the Acute University handbook.

Figure 5.11 is the home screen of Strong Wall. It is used to calculate the needed strength of the wall construction material for a project.

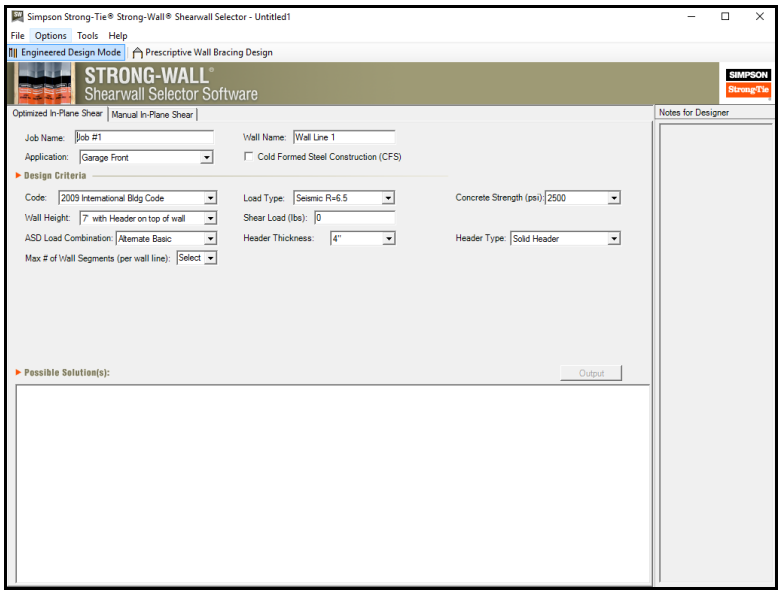


Figure 5.11. Strong Wall home screen.

For more information about how to use Strong Wall, consult the Acute University handbook.

Basics of Creating an IT Help Desk Ticket

To create an IT Help Desk ticket, send an email to IT at the following email address: it@acuteengineering.com. Include information in detail about the issue and if possible, screenshots of the error.

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