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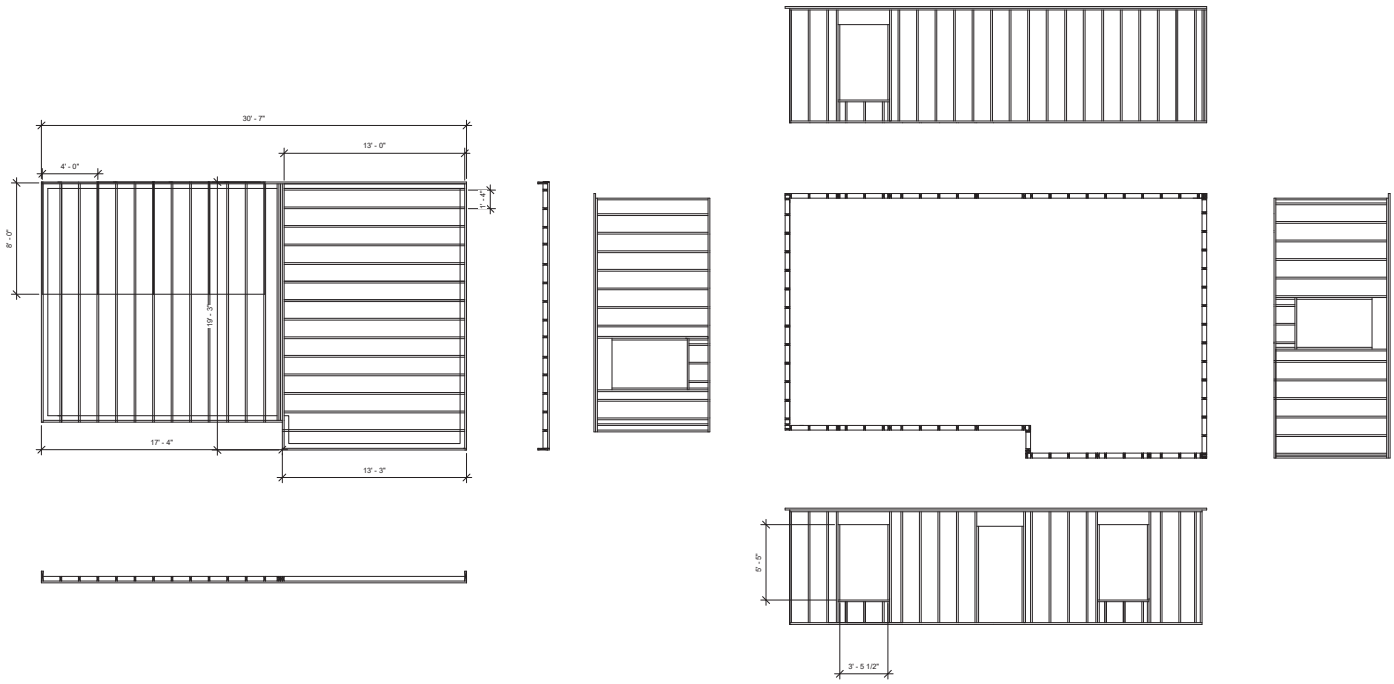
Architectural Technology
2016-2018

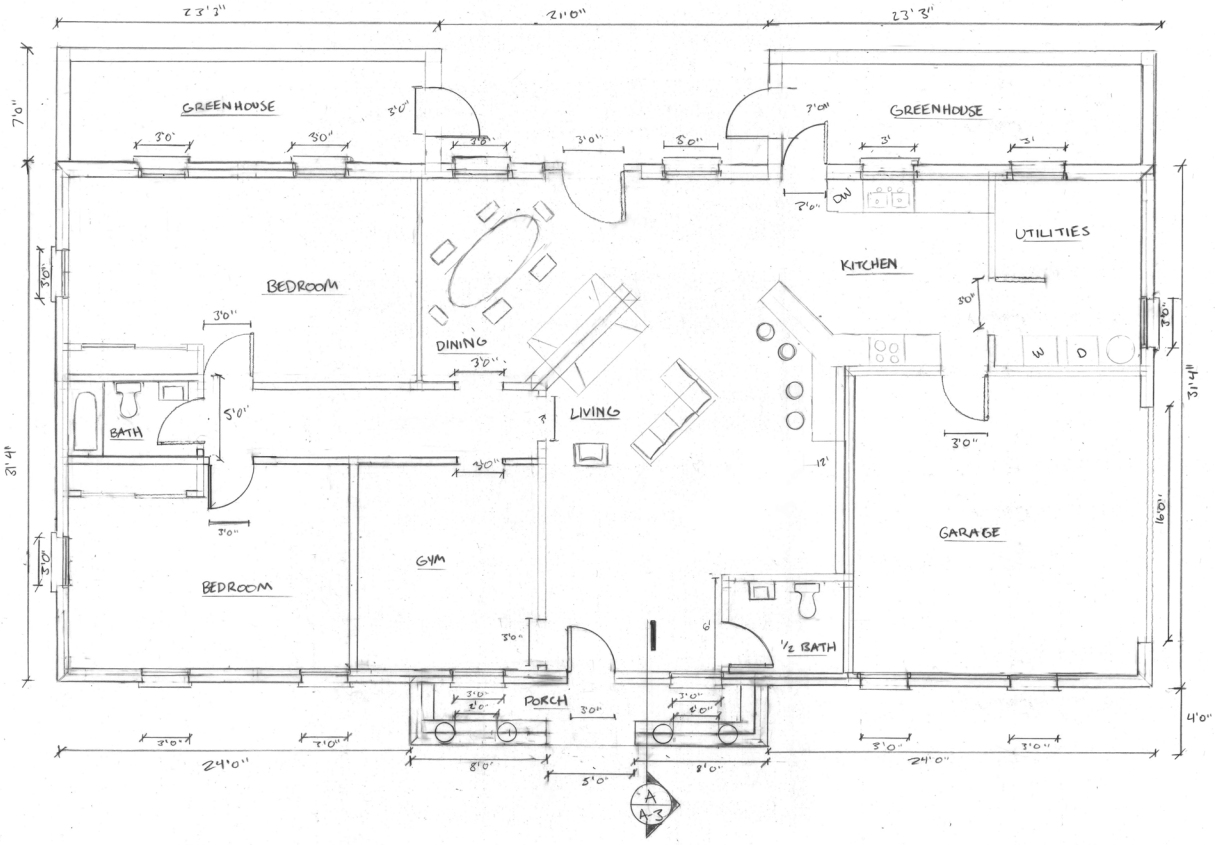
ACH 100//Construction Documents I

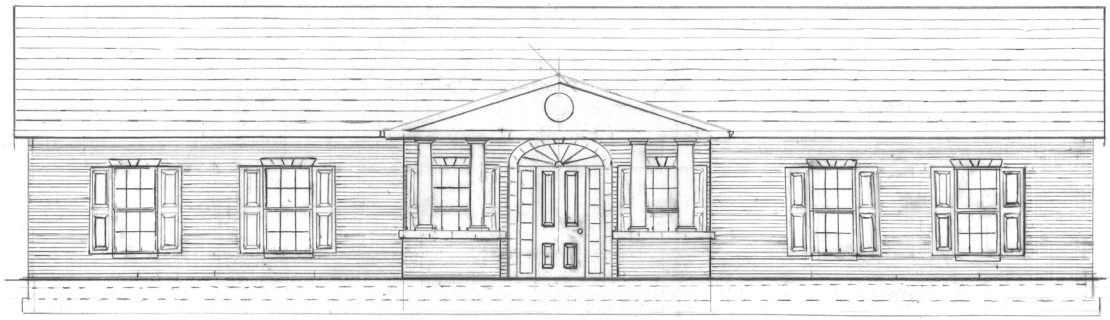
This was my first construction documents class at Bluegrass Community and Technical College and it focused on hand drafting and residential design. ACH 100 started out with basic drawing, lettering, and learning how to use an architectural drafting tool set. I was taught line-weights, how to label plans legibly, and how to design a residential space.

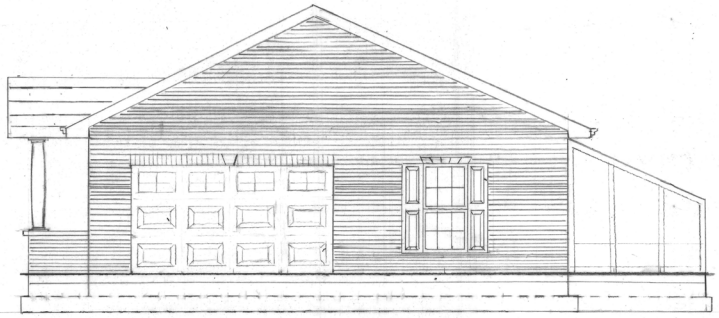
One of my main projects in that class required me to design and draw a floor plan and elevation views for a single story residential home. The residential home we designed was based on a building footprint. We started with an AutoCAD drawing of a footprint, then determined which direction the floor joists would go. We learned the basics of kitchen and bathroom design and where their components would go. I was allowed to add one feature that made my design unique. My feature for this project was a greenhouse which can been seen in the rear of the floor plan.

Another large project in this class was to build a scale-framing model of a portion of the residential home template. Building this model helped me understand the basics of the structural framing including the floor joists, wall framing, and roof system. The model was made to scale, and furthermore helped me understand the space and design my own floor plan for the final project.




23' 3"
21' 0"
23' 3"
GREENHOUSE
GREENHOUSE
BEDROOM
DINING
KITCHEN
UTILITIES
DW
W
D
BATH
LIVING
GYM
BEDROOM
GARAGE
½ BATH
PORCH
7' 0"
31' 4"
31' 4"
16' 0"
4' 0"
24' 0"
24' 0"
8' 0"
8' 0"
5' 0"
A
A-3





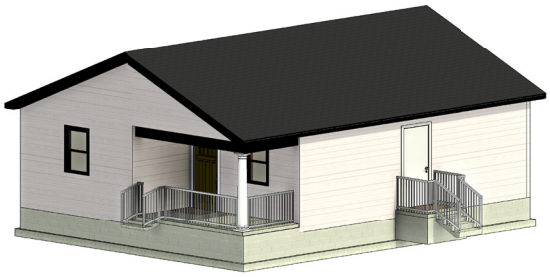
ACH 150//Construction Documents II

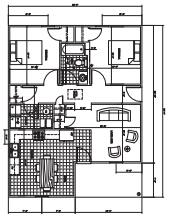
For my second construction documents class, we focused on creating and understanding spaces as well as designing our own residential home in Revit. The class started out by being given a specific building program and trying to design an office building based on the specific requests, which helped me understand how to make a functional space.

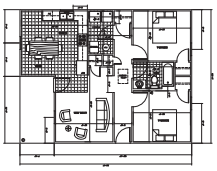
Our next assignment was to add structural features to an Autocad plan of a single story residential model. I brought this Autocad model into Revit and used the 2D plans to make a 3D model.

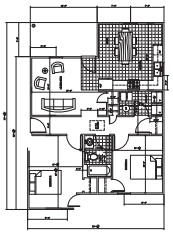
The structural systems in our custom residential home in Revit were based on the AutoCAD model we started out with. This was a Revit-heavy class that also included some knowledge of AutoCAD. I implemented floor joists, spanning beams, and structural roof systems in the original model I brought in. I used the knowledge about structural systems gained from that exercise on my customized residential home. This class helped me further understand the many features of Revit and AutoCAD.

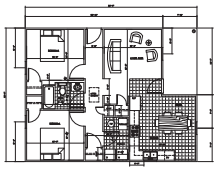
In my customized residential home I focused on creating a functional space as well as aesthetics. My design also included details such as lighting fixtures, gutters, and furniture.

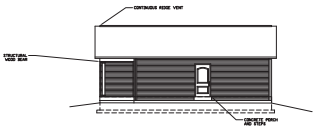


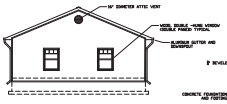


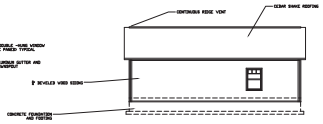


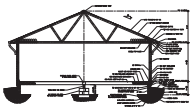


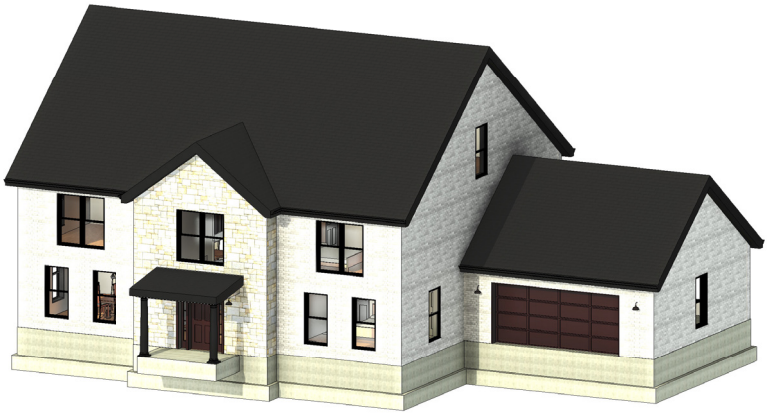


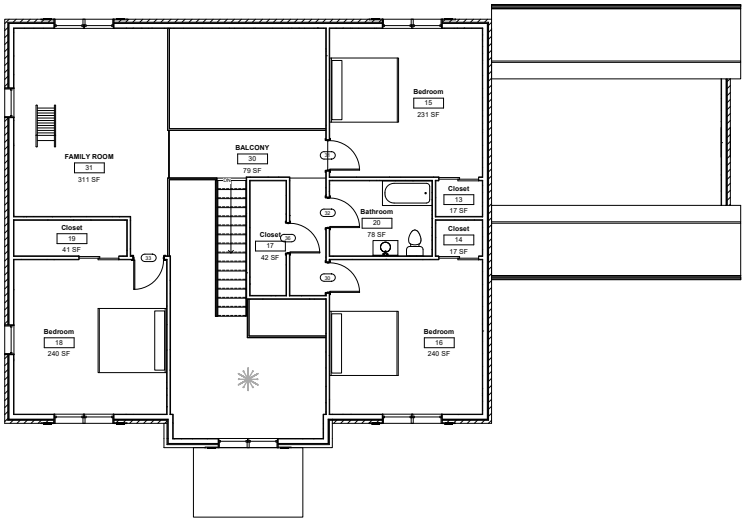


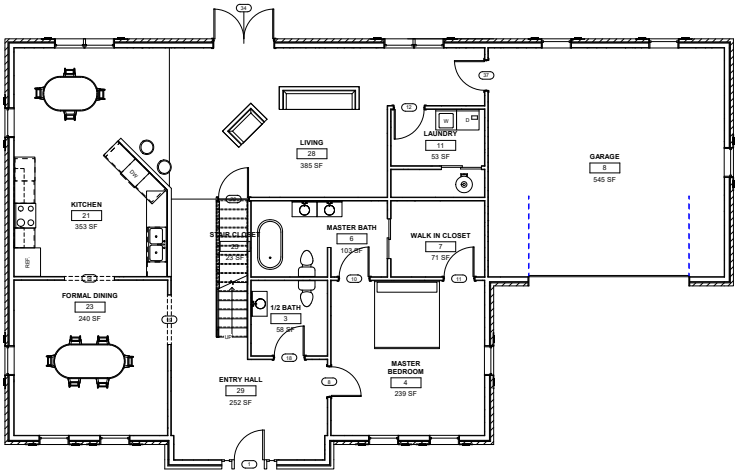









FAMILY ROOM
31
311 SF
BALCONY
32
79 SF
Bedroom
15
231 SF
Closet
19
41 SF
Closet
17
42 SF
Bathroom
20
78 SF
Closet
13
17 SF
Closet
14
17 SF
Bedroom
18
240 SF
Bedroom
16
240 SF


KITCHEN
21
353 SF
FORMAL DINING
23
240 SF
LIVING
28
385 SF
STAIR CLOSET
25
22 SF
1/2 BATH
3
58 SF
ENTRY HALL
29
252 SF
MASTER BATH
6
103 SF
LAUNDRY
11
53 SF
WALK IN CLOSET
7
71 SF
MASTER BEDROOM
4
239 SF
GARAGE
8
545 SF

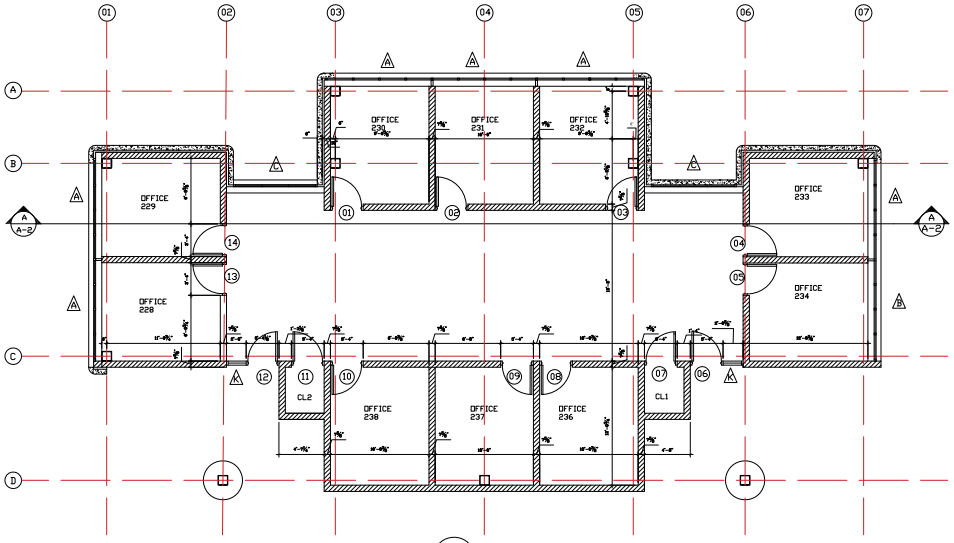
ACH 200//Construction Documents III

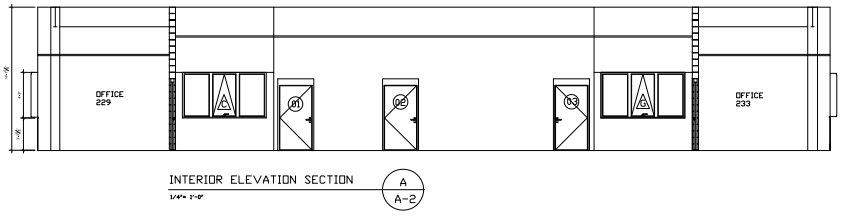
In Construction Documents III we used Autocad to make 2D plans that would be understood by contractors. We were taught how to measure on site, how to make elevations, sections, and other details in AutoCAD.

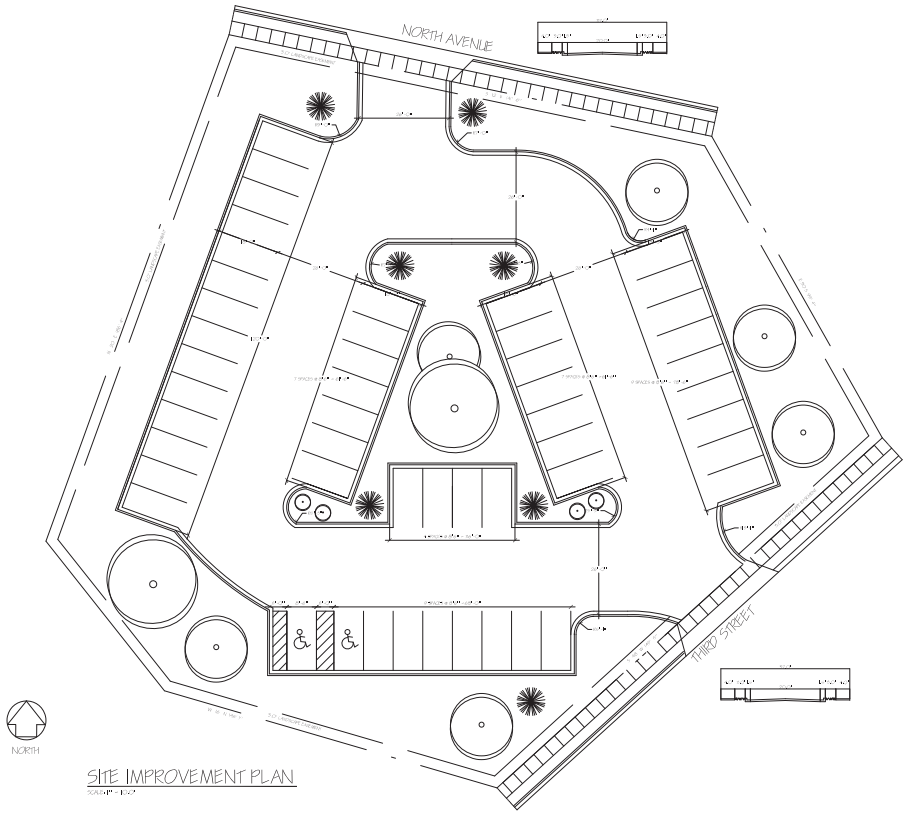
For our first project we created a plan for an already existing office suite, which required me to field measure distances between elements on site. In creating these plans we figured out why the office suite is laid out the way it is. This office suite is designed to save time, cost on CMU construction, and have an overall efficient layout based on modular CMU dimensions.

In the second project we designed a parking lot based on program and design standards. The lot had to front two streets, have 50 spaces (two of which were ADA compliant). We learned what space is adequate for vehicles, setback requirements, and green space requirements.

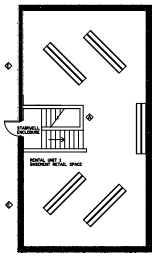
For the final project we took an already existing building and redesigned it to meet a style of architecture we were given. I was given romanesque architecture so I had to give the retail space a pre-gothic feel while keeping the space functional also while meeting ADA requirements. When presenting our designs at the end of the semester we had a building code officer give us advice on our designs regarding ADA requirements and building code requirements, which included means of egress.

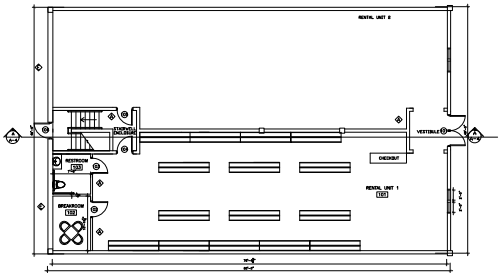


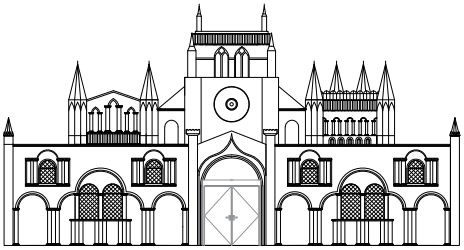


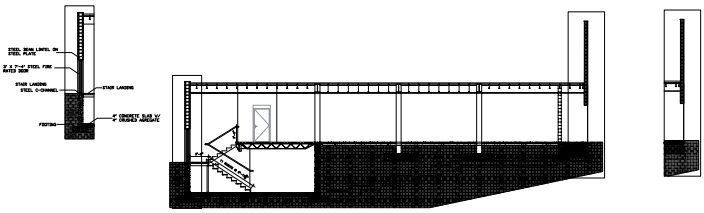


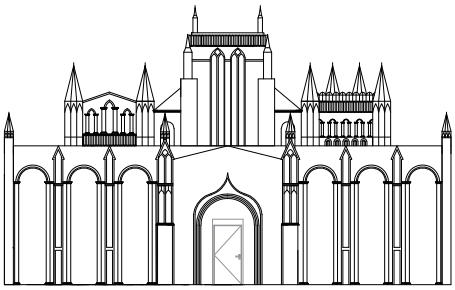
SITE IMPROVEMENT PLAN









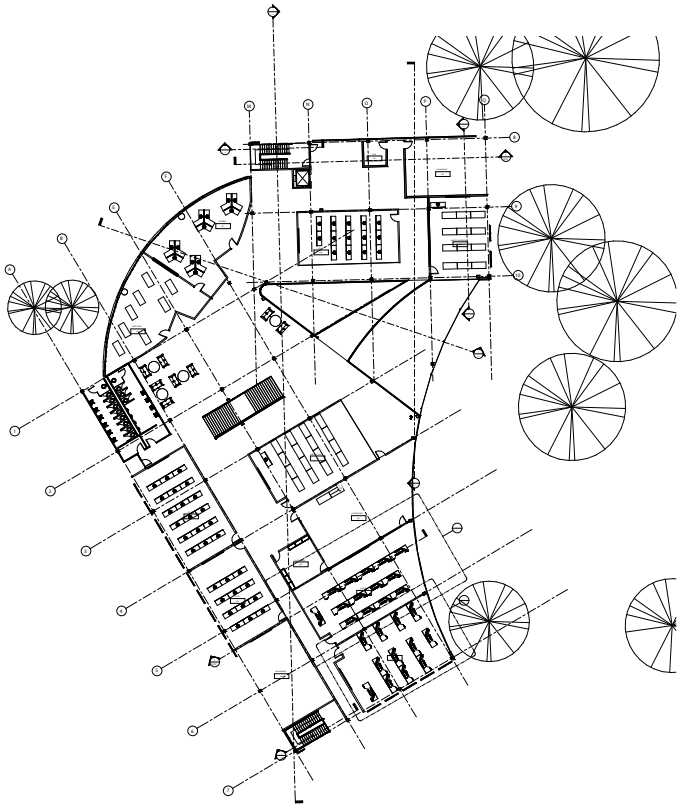


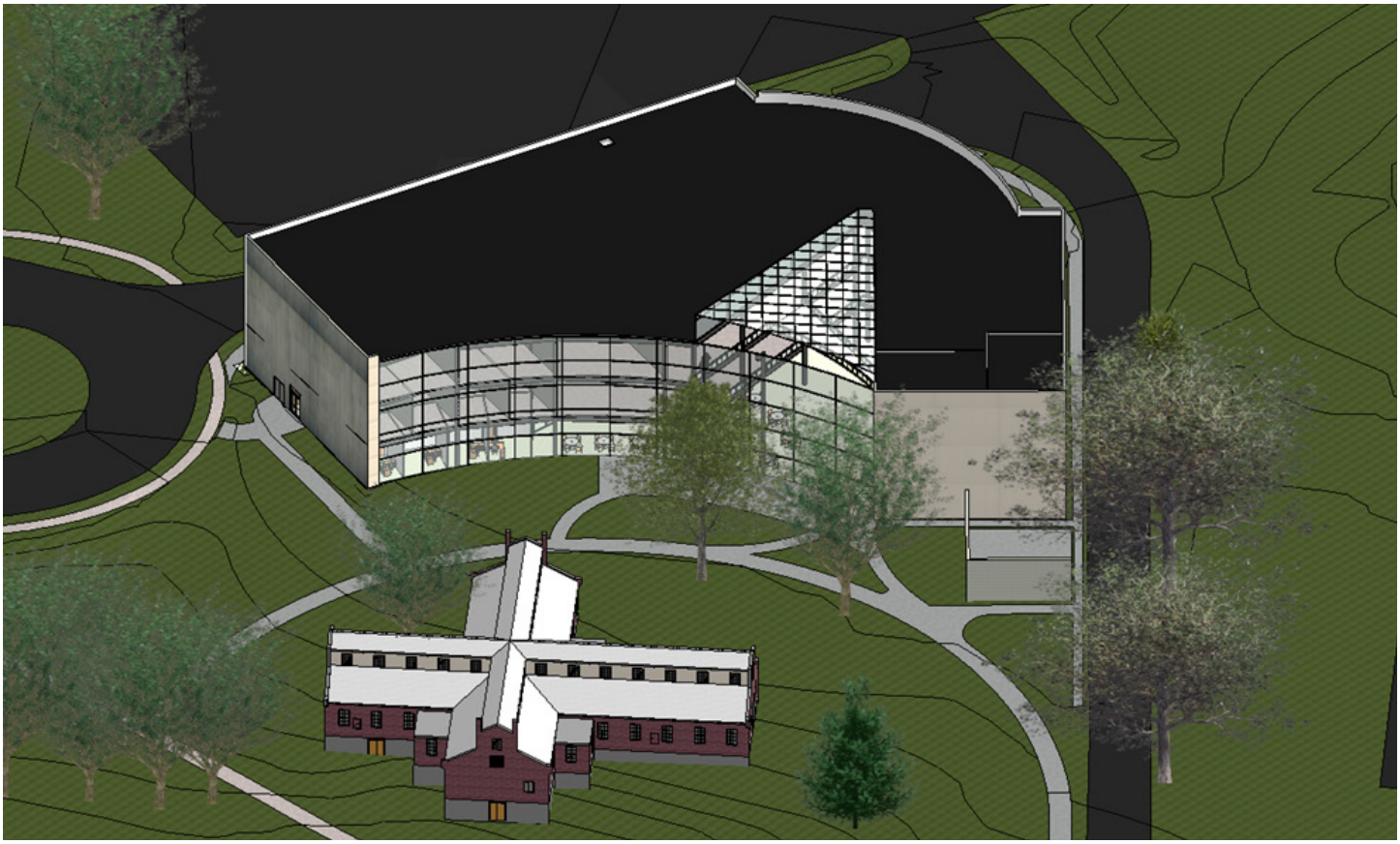
ACH 250//Construction Documents IV

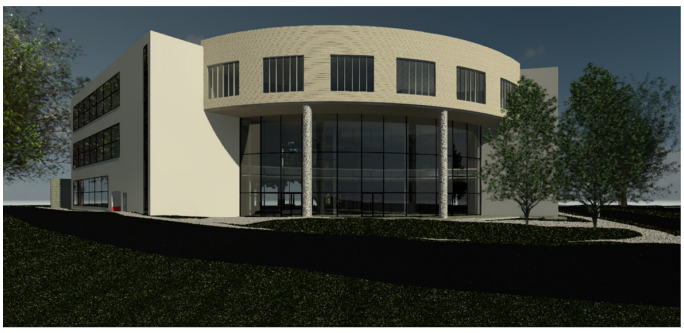
In Construction Documents IV, we used Revit to create an educational building for a developing campus that is part of BCTC. We were assigned this project in teams to learn how to collaborate on large projects and to simulate an office environment.

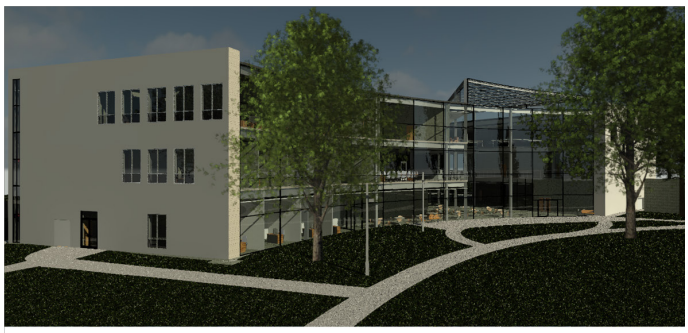
To start the project our team decided on a basic footprint, we combined ideas. We chose the buildings placement on the campus to draw attention to the building as well as to draw attention to a historical building on the site. We were given a program of the rooms, square footages, and which level some of the rooms should be on. Our group decided which rooms would be best on each floor and each of us determined their specific location on our floor. We had to align the plumbing, stairs, elevators, mechanical rooms on each floor.

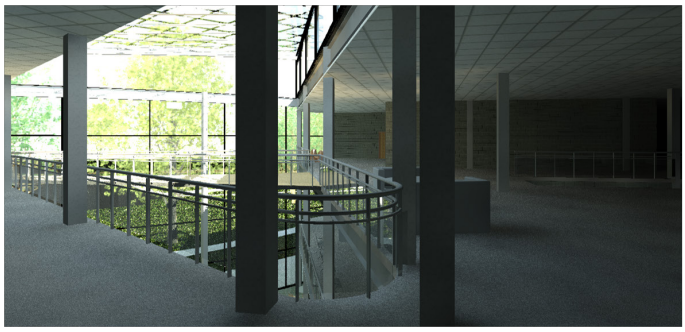
We created an efficient column grid based upon the design while also implementing beams, joists, and metal decking. In this project, we also learned how to change materials to create an interesting facade. We also focused on the outside walkways and landscaping. Collaborating using Revit we were able to create a set of architectural and structural construction documents.

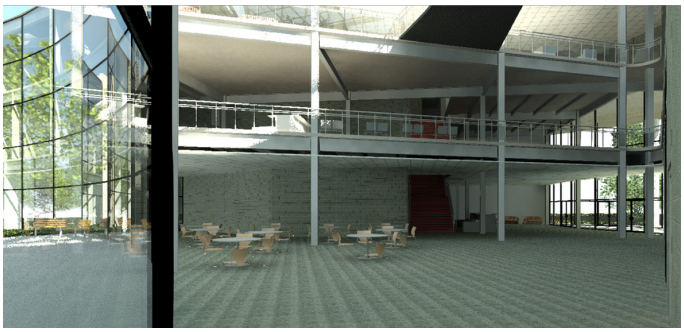






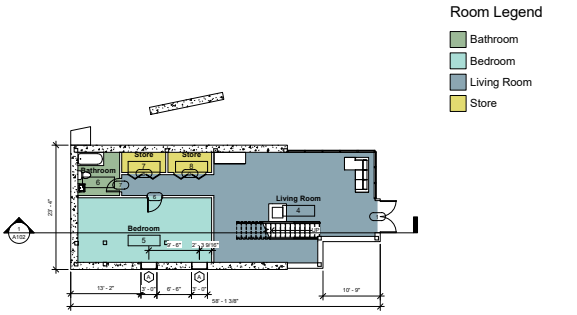






Electives

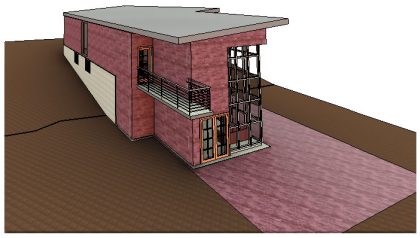
I chose to take electives that focused on software at BCTC such as Revit, AutoCAD, 3DS Max, and Navisworks.
The electives resulted in the knowledge of:
Drawing, presentation, 3D modeling, a basic understanding of construction documents, reflected ceiling plan/lighting, mechanical equpiment, and understanding how to create riser diagrams.



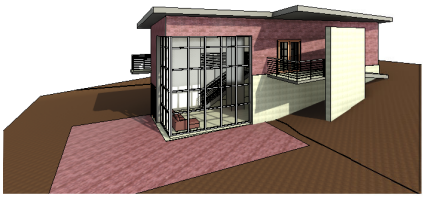
1 01 Lower Level
1/8" = 1'-0"

Door Schedule			
Mark	Family and Type	Height	Width
1	Double-Glass 2: 72" x 84"	7' - 0"	6' - 0"
2	Double-Glass 2: 72" x 84"	7' - 0"	6' - 0"
3	Single-Glass 2: 36" x 84"	7' - 0"	3' - 0"
4	Single-Flush: 32" x 84"	7' - 0"	2' - 8"
5	Single-Flush: 32" x 84"	7' - 0"	2' - 8"
6	Single-Flush: 32" x 84"	7' - 0"	2' - 8"
7	Single-Flush: 30" x 84"	7' - 0"	2' - 6"
8	Bifold-4 Panel: 72" x 84"	7' - 0"	6' - 0"
9	Bifold-4 Panel: 72" x 84"	7' - 0"	6' - 0"

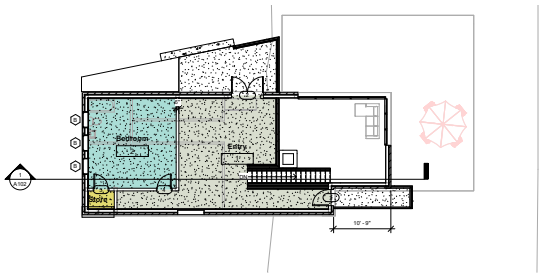
Room Schedule		
Area	Name	Number
459 SF	Entry	1
281 SF	Bedroom	2
17 SF	Store	3
633 SF	Living Room	4
305 SF	Bedroom	5
64 SF	Bathroom	6
31 SF	Store	7
31 SF	Store	8



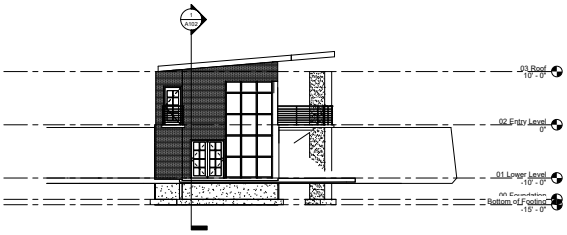
3 View 1



4 View 2

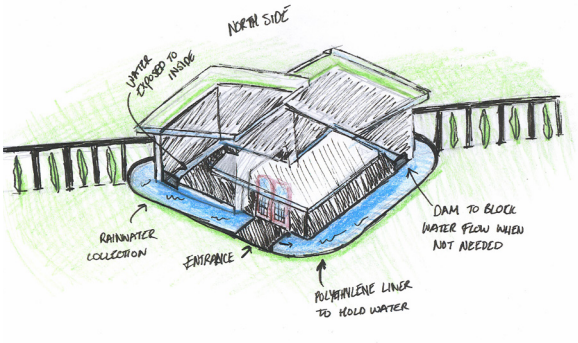


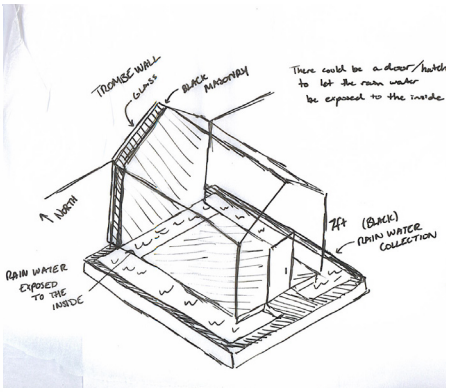
2 02 Entry Level
1/8" = 1'-0"

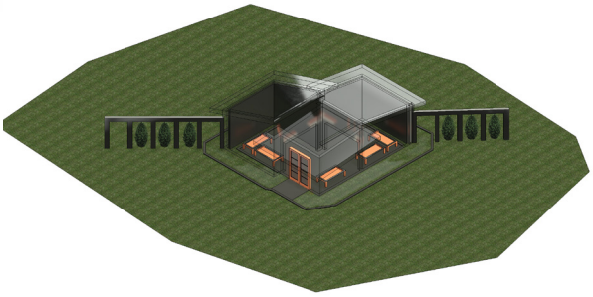


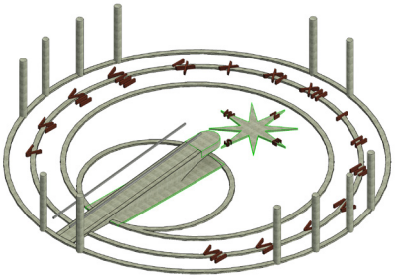
6 East
1/8" = 1'-0"

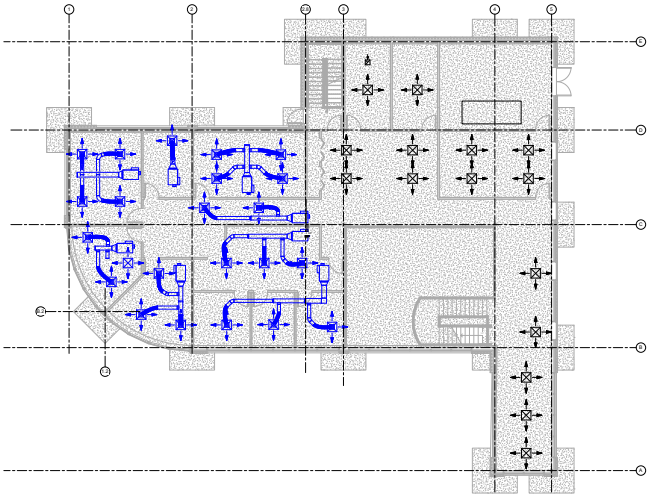
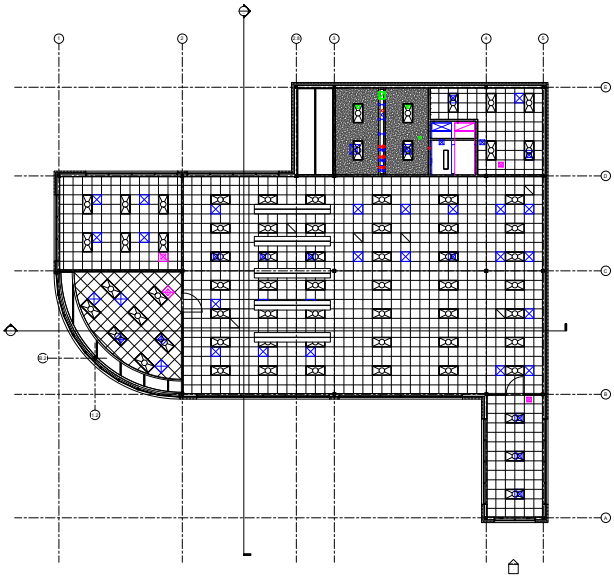
7 North
1/8" = 1'-0"









ACH 195

This was a class that followed along with a book that covered different tools of Revit. This class covered placing mechanical equpiment (HVAC), reflected ceiling plans (placing lighting fixtures).