

4-20-2018

Theoretical Layouts for Golf Clubhouse

Justin Matticx

Iowa State University, jmatticx@iastate.edu

Mitchell Rosburgh

Iowa State University, mrosburg@iastate.edu

Christopher Weldon

Iowa State University, cjweldon@iastate.edu

Joseph R. Vanstrom

Iowa State University, vanstrom@iastate.edu

Jacek A. Koziel

Iowa State University, koziel@iastate.edu

Follow this and additional works at: <https://lib.dr.iastate.edu/tsm416>



Part of the [Bioresource and Agricultural Engineering Commons](#), and the [Industrial Technology Commons](#)

Recommended Citation

Matticx, Justin; Rosburgh, Mitchell; Weldon, Christopher; Vanstrom, Joseph R.; and Koziel, Jacek A., "Theoretical Layouts for Golf Clubhouse" (2018). *TSM 416 Technology Capstone Projects*. 37.

<https://lib.dr.iastate.edu/tsm416/37>

This Article is brought to you for free and open access by the Undergraduate Theses and Capstone Projects at Iowa State University Digital Repository. It has been accepted for inclusion in TSM 416 Technology Capstone Projects by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

Theoretical Layouts for Golf Clubhouse

Problem Statement

Homewood Golf Course is one of three golf courses in Ames. It is a 9-hole course that caters to all who are interested in the sport. Like many courses, Homewood also offers a clubhouse for patrons to sit down, socialize, and enjoy some refreshments. They also offer golf cart rentals and are open to reservations for golf events.

The problem is that Homewood's clubhouse is inefficient. It is an old two-story house that was renovated for its current use. The current layout is largely inefficient as employees have difficulties serving the customers due to a cramped concessions area. The golf cart storage area is also problematic as it is cramped, unorganized, and inefficient. The issues may seem small individually but compound quickly as they cause issues for both staff and customers. While the current facility is still usable, the Parks and Recreation Department has budgeted to upgrade the facilities.

Disciplines

Bioresource and Agricultural Engineering | Industrial Technology

Department of Agricultural and Biosystems Engineering (ABE)

TSM 416 Technology Capstone Project

Theoretical Layouts for Golf Clubhouse

Justin Matticx^a, Mitchell Rosburg^b, Christopher Weldon^c, Joseph R. Vanstrom^{d*} and Jacek A. Koziel^{e*}

^a Industrial Technology, ABE, ISU, jmatticx@iastate.edu

^b Industrial Technology, ABE, ISU, mrosburg@iastate.edu

^c Industrial Technology, ABE, ISU, cjweldon@iastate.edu

^d Dept. of Agricultural and Biosystems Engineering, ISU, 2321 Elings Hall, Ames, IA 50011, vanstrom@iastate.edu, 515-294-9955

^e Dept. of Agricultural and Biosystems Engineering, ISU, 4350 Elings Hall, Ames, IA 50011, koziel@iastate.edu, 515-294-4206

*course instructors and corresponding authors.

Client: Homewood Municipal Golf Course, 401 e 20th Street, Ames, IA, 50010,

<http://www.cityofames.org/Home/Components/FacilityDirectory/FacilityDirectory/64/2195?page=2>

- Contact(s): Keith Abraham, Director of Parks and Recreation, kabaraham@city.ames.ia.us, Russ Hoffman, Lecturer, russh@iastate.edu, 515-294-8800

1 PROBLEM STATEMENT

Homewood Golf Course is one of three golf courses in Ames. It is a 9-hole course that caters to all who are interested in the sport. Like many courses, Homewood also offers a clubhouse for patrons to sit down, socialize, and enjoy some refreshments. They also offer golf cart rentals and are open to reservations for golf events.

The problem is that Homewood's clubhouse is inefficient. It is an old two-story house that was renovated for its current use. The current layout is largely inefficient as employees have difficulties serving the customers due to a cramped concessions area. The golf cart storage area is also problematic as it is cramped, unorganized, and inefficient. The issues may seem small individually but compound quickly as they cause issues for both staff and customers. While the current facility is still usable, the Parks and Recreation Department has budgeted to upgrade the facilities.

Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 1

2 GOAL STATEMENT

The goal of this project is to come up with a functional floor plan to implement into the new clubhouse that will be constructed. The client wishes to have a building that can be used year-round, and for more than just golfing. This is impossible with the current building as it is not capable of entertaining large outings while also allowing golfers to go about their game. Our criteria for our designs is as follows:

- Community room, separate from golf area
 - Large area for tables
 - Tech hookup for projecting/music
 - Ability to close off for private rental
- Kitchenette for catered food
- Indoor bathrooms
 - Easily accessible from both areas
- Utility closet
- Concession area
 - More space for ease of access
 - Close to the main desk
- Main desk for check-in
 - Must be first thing customer sees upon entry
 - Check-in desk
 - Register for non-members/food/rentals

With these criteria in mind, we will develop theoretical layout plans to present to the client with the intent of sharing these ideas with an architect in the future. This will allow Homewood to be far more profitable. With the community room, the city will be able to generate income during the golf off-season. The new facility will also be able to entertain large groups while not impeding on normal golf patrons. Overall, this will be a vast improvement over the current facilities. Lastly, with the help and brainstorming of our major professors, we came to the solution of creating a narrated PowerPoint presentation that details our thought processes, ideas implemented, and how we designed the layouts. This will be handed over to the client during Capstone day with the intention of them presenting it to the architect. The team took inspiration from (Biermann et al., 2017), (Christensen et al., 2017), and (Hassel et al., 2017) throughout the development of the project as to how they went about organizing and setting up their reports.

3 PROJECT PLAN/OUTLINE

A. Methods/Approach

- Data collection

Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 2

- *Inspect current infrastructure*
 - *Question employees about inefficiencies*
 - *Have client provide sales numbers for concessions area*
 - **Skills**
 - *Flowplanner in AutoCAD*
 - *TSM 444*
 - *TSM 216*
 - *ABE 273*
 - *TSM 440*
 - **Methods/Tasks**
 - *Develop several potential layouts in AutoCAD*
 - *Test efficiency in Flowplanner*
 - *Meet with client for feedback*
 - *Revise as needed*
 - *Success is determined when we have a working layout with the best efficiency as shown by Flowplanner*
 - **Organization**
 - *Meet with client as needed*
 - *Split group into pairs to tackle the final paper and poster*
 - *Major Milestones: 1. Create Layouts 2. test Layouts 3. Redesign as needed with feedback*
- B. Results/Deliverables**
- *Submit Preliminary Layouts: week of 1/8/2018*
 - *Revise Layouts: week of 3/5/2018*
 - *Oral Presentation: week of 4/16/2018*
 - *Final Report Semester 2: week of 4/23/2018*

4 BROADER OPPORTUNITY STATEMENT

The appeal to the general public with this project is making tasks run quickly and efficiently. As stated before, the project pertains to ensuring more productivity, designing an efficient layout, and improving the clubhouse. The general public may have experienced the frustrations involved in inefficient facilities. This project can provide solutions to bigger challenges as well. Expanding the facility can provide job opportunities for locals in the community. Large and small corporations experience inefficiencies and prioritize finding solutions. It is important to **mitigate** any inefficiencies quickly to ensure the best customer service. Utilizing software also can help reduce the cost for the company. Companies such as: John Deere, Caterpillar, 3M, and many more can apply AutoCAD, FlowPlanner, and other software to **mitigate** inefficiencies. Coldwater Golf Links in Ames addresses inefficiencies by utilizing an open design clubhouse. Coldwater uses their 3,200 square foot pavilion to host their guest. Foot traffic is kept to a manageable level inside the clubhouse because of the open space the pavilion provides. Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 3

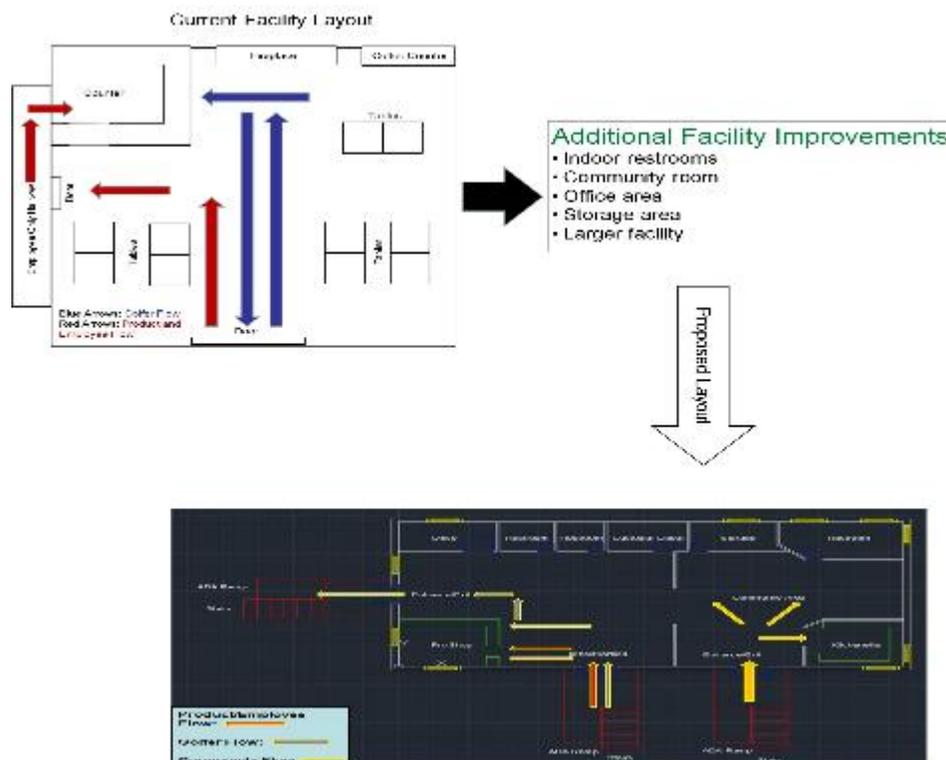
5 PROJECT SCOPE

The Parks and Rec department will be contracting with an architect. The team's job to design several potential building layouts. Then, refine those layouts into one final layout for each of the two possible building locations on the property. We will use tools from past classes to test these plans for efficiency and make sure they fit the requirements of the client.

In making these floor plans, we have several requirements. The new building will be both a golf clubhouse and a rentable community space. The team must ensure the golfers are able to enjoy the amenities without disrupting activities in the community room. The team must also make sure that the employee kiosk, and the friendly smile behind it, is the first thing a customer sees. The employees must also have easy access to the refreshments to reduce time waiting.

The community room must be a large, versatile, open-area that can be used for dancing and/or many tables. There also needs to be a technical cart so that the patrons can hook up music or connect to a projector screen. A kitchenette is required to allow for the warming of food or to allow a space for catered food. Lastly, the employees must be able to move seamlessly between each area.

6 GRAPHICAL ABSTRACT



Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 4

7 REFERENCES

- Blake L. Biermann, Ben A. Burkhart, CJ A. Cheever, Ryan P. Eilertson, Joseph R. Vanstrom and Jacek A. Koziel. Grain Dryer Testing Facility. Final Report. TSM 416 Technology Capstone Project, April 28, 2017.
 - Collin Christensen, Devin Dean, Gerard Hoskins, Jon Westmoe, Joseph R. Vanstrom and Jacek A. Koziel. Facility Layout and Production Flow Plan. Final Report. TSM 416 Technology Capstone Project, April 28, 2017.
 - Wyatt Hassel, Michael Crawl, Brennan Wiest, Cole Schlader, Joseph R. Vanstrom and Jacek A. Koziel. Facility Layout for Puck Custom Enterprises. Final Report. TSM 416 Technology Capstone Project, April 28, 2017.
- Yanchulis, Dave. "Home." *Guidelines and Standards*, www.access-board.gov/guidelines-and-standards.
- LLC - Ames. "Portfolio." *Roseland, Mackey, Harris Architects PC - Architectural Design Services - Portfolio*, www.rmharchitects.com/portfolio/details.cfm?ProjectID=18.

8 APPENDIXES

A.1 Ada Research

Golf courses are public places, therefore ADA standards must be followed. All state and local requirements are to be followed where there are differences, greater accessibility must be followed.

New Construction

There must be at least one type of sales counter provided. Employee work areas must have partial access. Public restrooms, including employee-only restrooms, must comply with regulations.

General Exceptions

Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 1

Machining and maintenance areas are an exception. Mechanical rooms are exempt. Entrance ways greater than 60% of all public entrances must comply. All routes to accessible entrances must follow regulations. Means of egress, exit signs must be well lit and clearly visible.

Floor and Ground Surfaces

Surfaces should be firm, stable, and slip resistant. Outside surfaces are generally concrete, no super smooth surface finishes. For inside surfaces, generally, avoid carpeting. Standard does not set a minimum value for slip resistance.

Routes and Lighting

One or more accessible routes must be provided within the site. Handicap accessible parking and passenger loading zones must be available. Access to public streets and sidewalks must be provided. Access to public transportation stops must be easily available. Interior pull factor must be less than or equal to five pounds.

Ramps

Running slope must be (8.3%), cross slope (2.08%), and should be 36" wide (not including handrails.) All ADA ramps must have handrails.

<http://www.rmharchitects.com/portfolio/details.cfm?ProjectID=18>(website I used for the coldwater golf course information)

<http://www.access-board.gov>

Possible Layouts

Below are possible layout designs for the clubhouse.

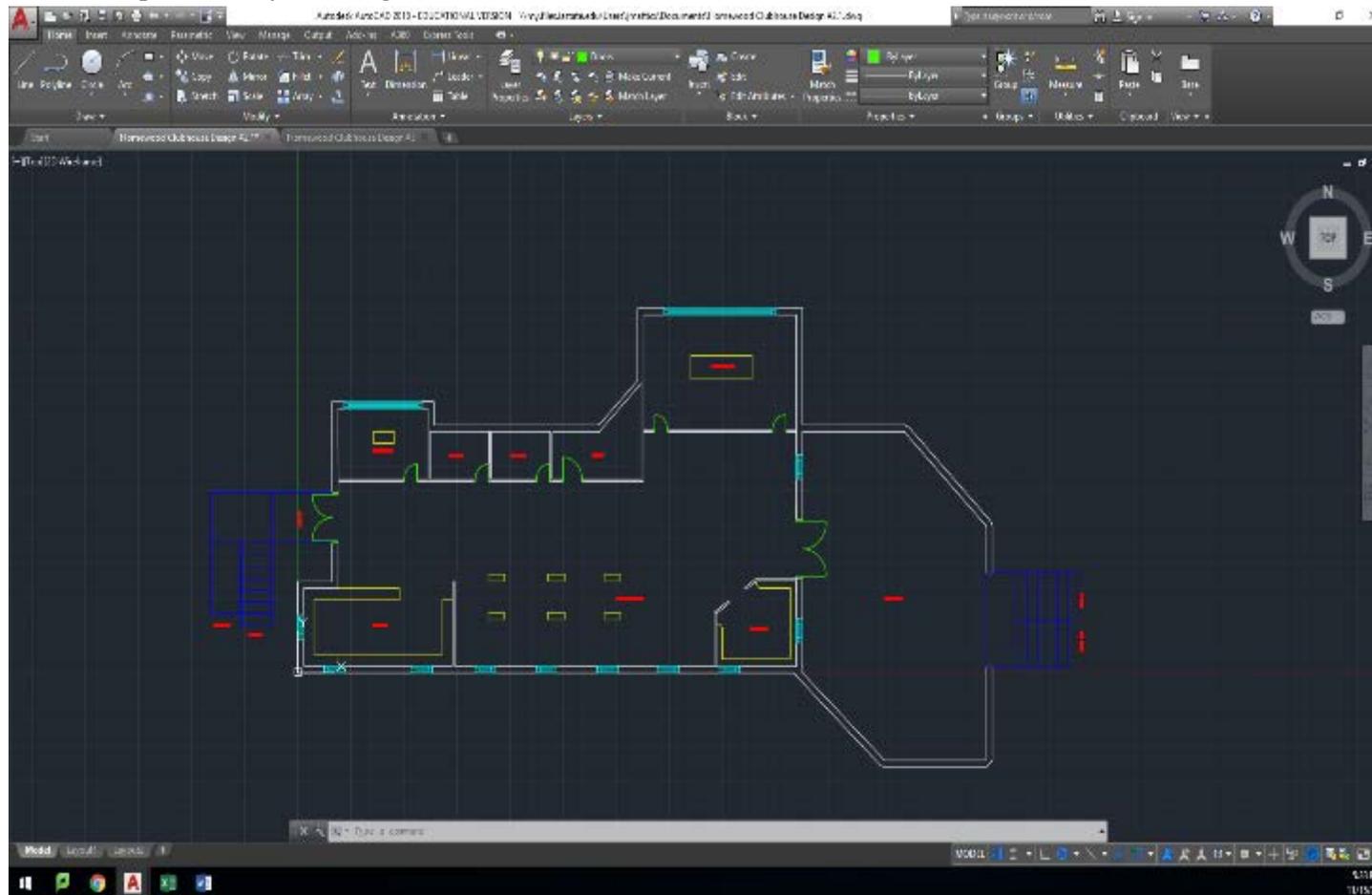


Figure 1. Layout #1

White: Walls; Blue: Stairs/Ramps; Baby Blue: Windows; Green: Doors; Yellow: Furniture

Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 3

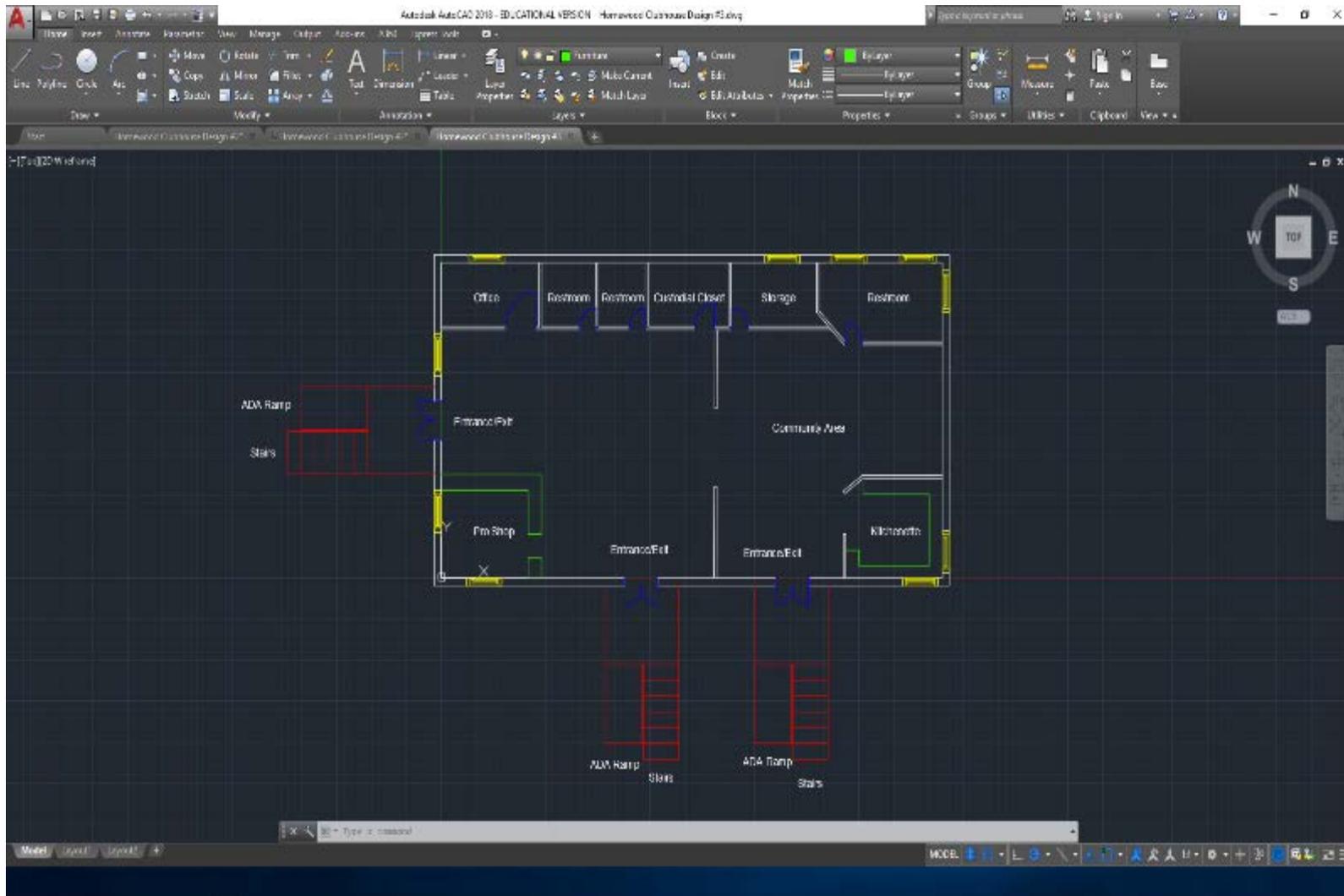


Figure 2. Layout #2

White: Walls; Blue: Doors; Yellow: Windows; Green: Counters; Red: Stairs/Ramps

Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 4

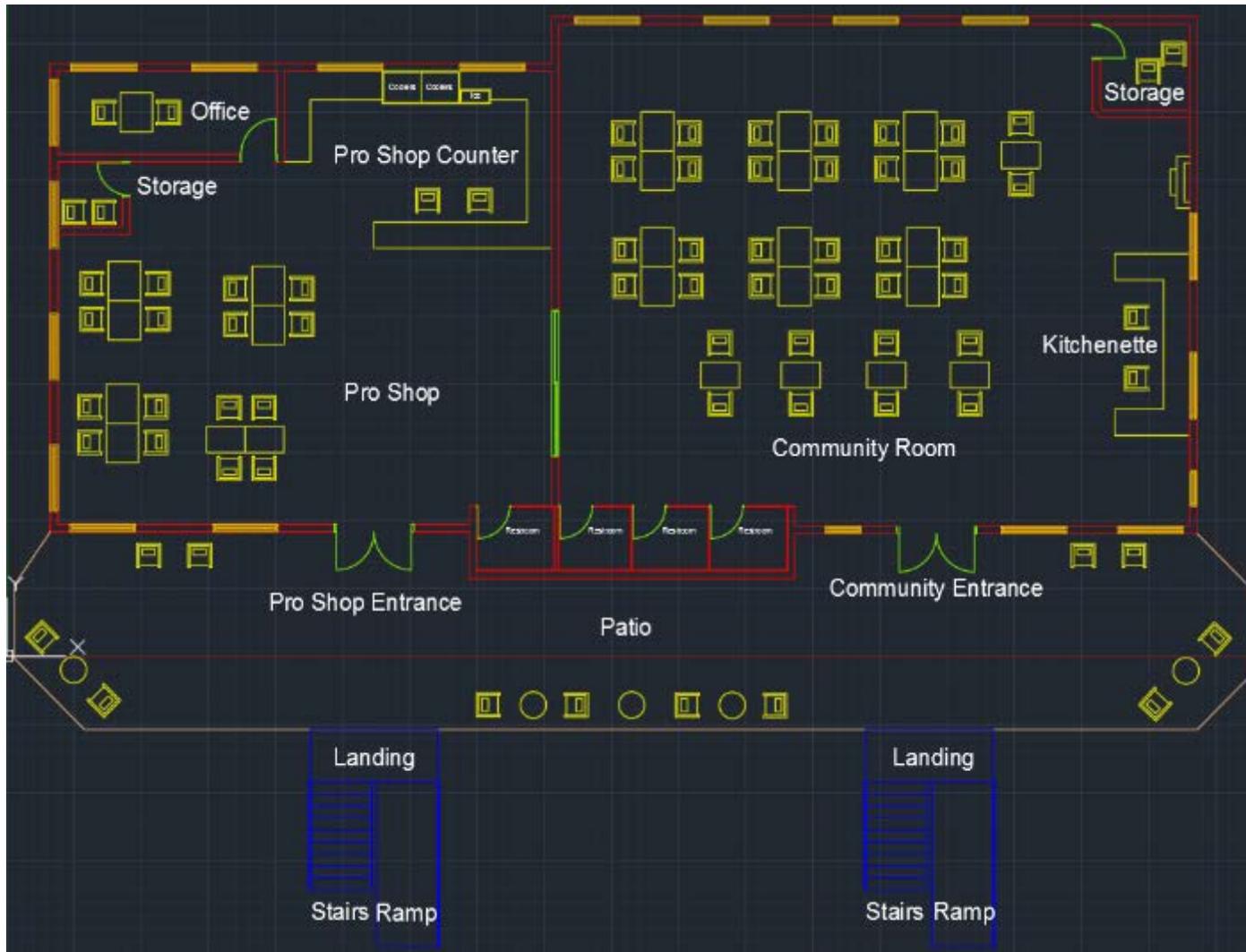


Figure 3. Layout #3

Red: Walls; Blue: Stairs/Ramps; Orange: Windows; Green: Doors; Yellow: Furniture

Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 5

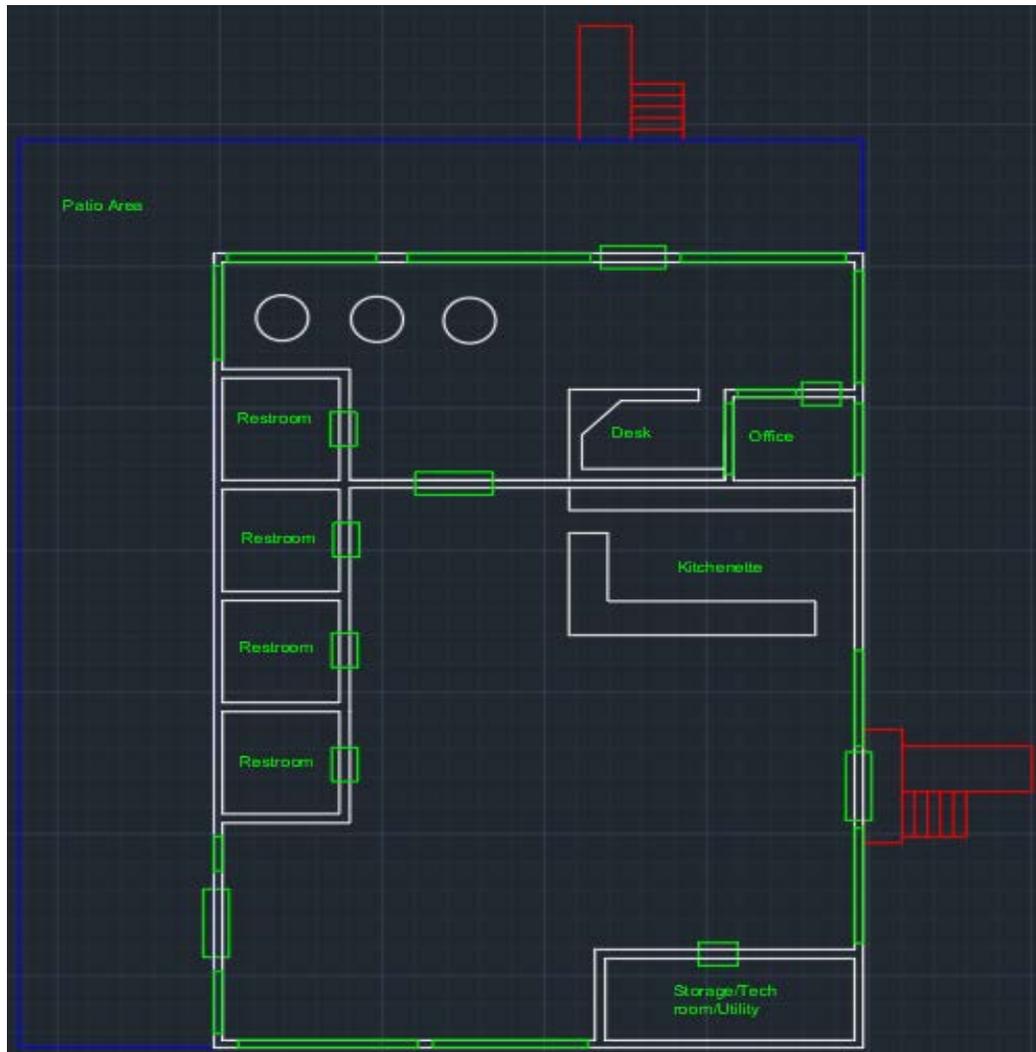


Figure 4. Layout#4

Blue: Patio Area; White: Walls; Green Rectangles: Doors; Red: Stair/Ramp

Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 6

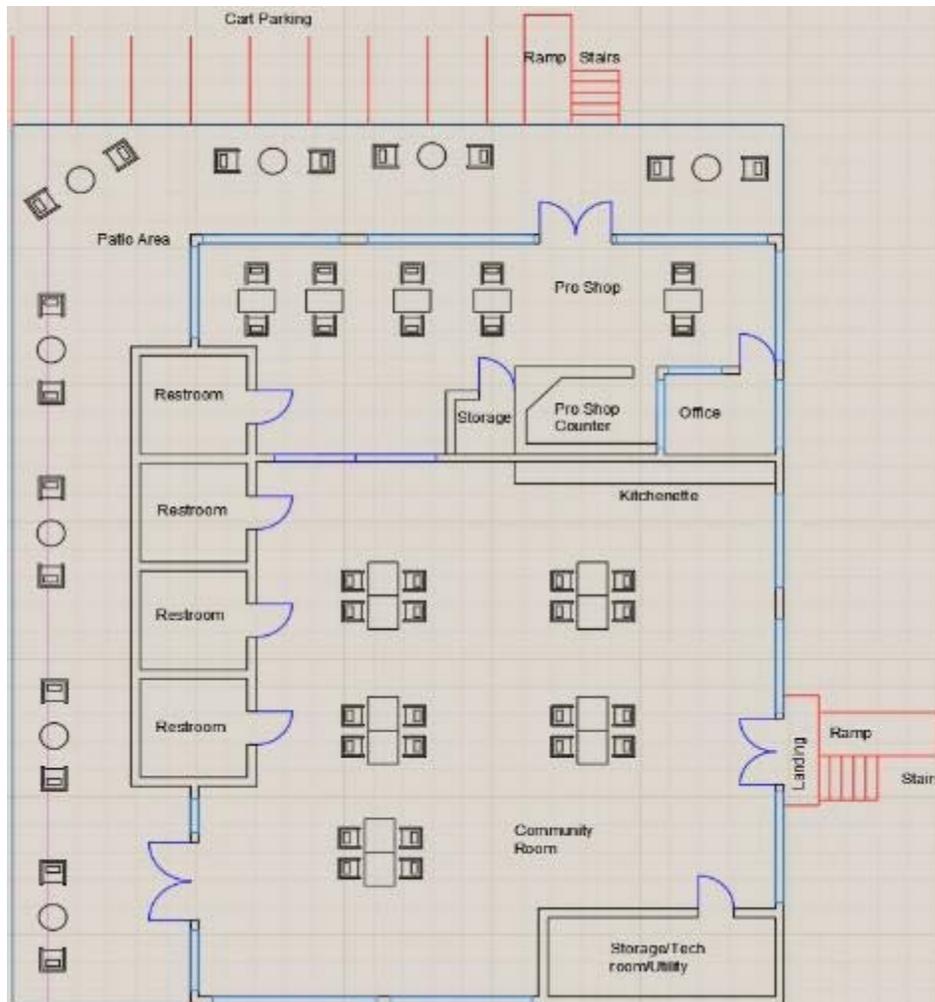


Figure 5 Final Layout# 1 (South Side of Lot)

Black: Walls/Furniture; Red: Stairs/Ramp/Cart Parking; Blue: Doors; Baby Blue: Windows

Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 7

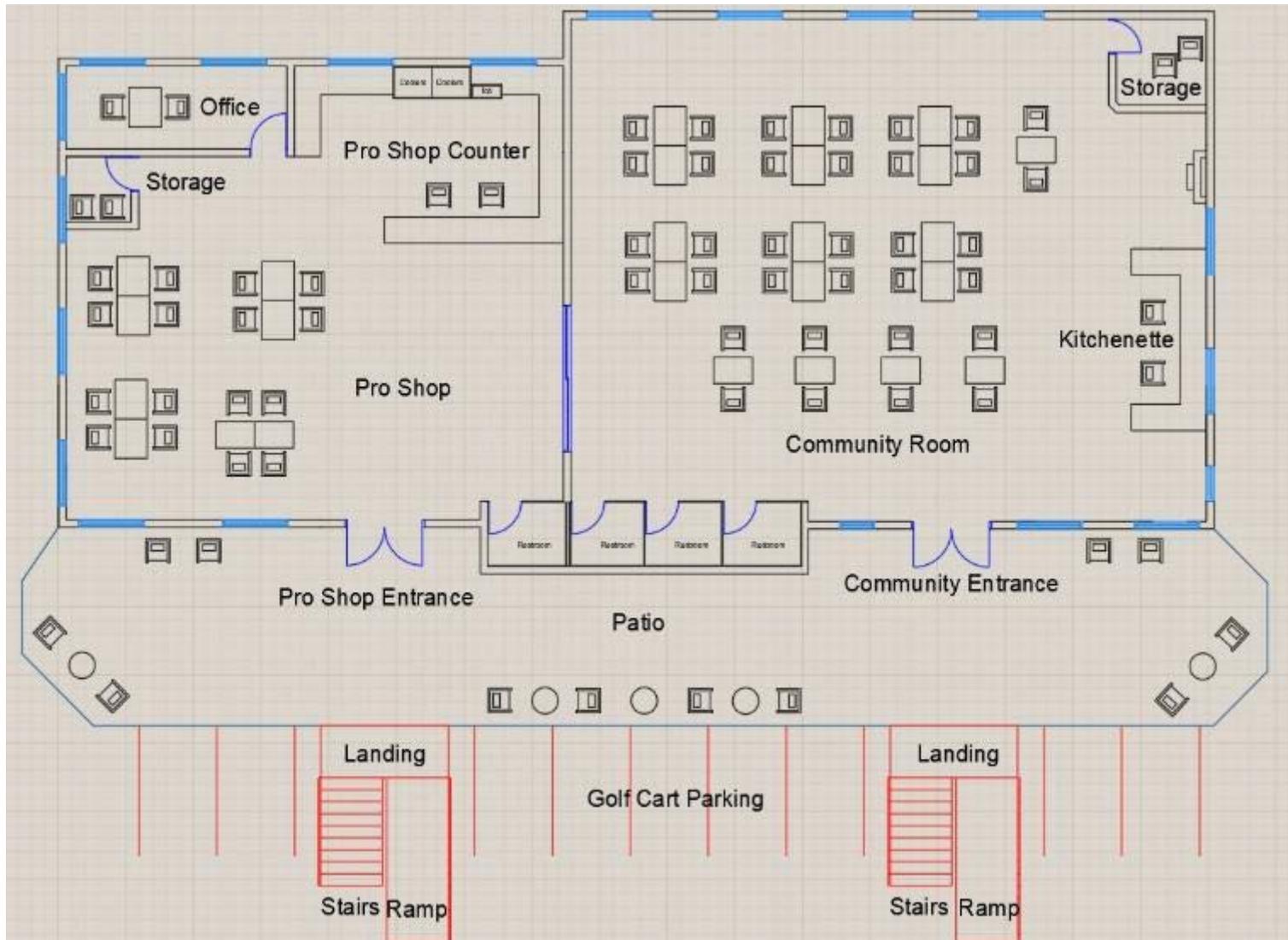


Figure 6 Final Layout# 2 (North Side of Lot)

Black: Walls/Furniture; Red: Stairs/Ramp/Cart Parking; Blue: Doors; Baby Blue: Windows

Department of Agricultural and Biosystems Engineering (abe@iastate.edu) aims to be a premier team serving society through engineering and technology for agriculture, industry and living systems. ABE welcomes opportunities to discover and improve new technologies for all stakeholders. 8