

DESIGN SPRINT

COMFORTABLE

LIVING AT

QUINNIPPIAC

UNIVERSITY

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ICM512: Module 1



STEP 1: DEFINE

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PART A: First Interview with Maeve Cox

GATHERED INFORMATION

- Maeve went to QU for her undergraduate degree and is a part of the 3 + 1 program
- She was a Resident Assistant her sophomore and junior year
- The course load in the 3 + 1 program is higher; about 18 credits are required per semester
- Creating a schedule for the course load was difficult to achieve
- Parking is hard to find on campus

STEP 1: DEFINE

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PART A: Digging Deeper with Second Interview

WERE THERE ANY ISSUES WITHIN RESIDENCE LIFE?

- There were communication issues within the department
- Staff bonding and cohesive morals were difficult to achieve
- Rules varied for RAs depending on the student

WERE ANY AMENITIES WITHIN THE RESIDENTS HALLS LACKING?

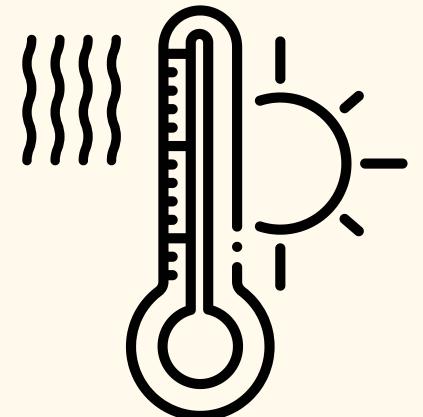
- Some dorms do not have air conditioning
- You can bring an AC unit, but maintenance has to install it
- All dorms have heat turned on year-round

STEP 1: DEFINE

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PART B: Needs and Insights

- 4-person rooms have no AC while 2-person rooms do
- The majority of residence halls do not provide AC
- All residence halls have heat on all year
- Bringing your own AC is allowed, but is an extra expense
- Fans are allowed, but they can be loud and take up outlet space
- Being in uncomfortable temperatures while trying to study/do homework affects student's focus
- Needing to go to alternate locations to be comfortable can be challenging/intimidating to some students



PART C: Define Problem

- No air conditioning is a challenge for on-campus students because it negatively affects their living condition.

PART D: HMW Statement

- How might we provide air conditioning to all students living in residence halls at QU?
- How might we allow students to bring their own air conditioning and also install it?

STEP 2: IDEATE

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PART A: Lightning Demos

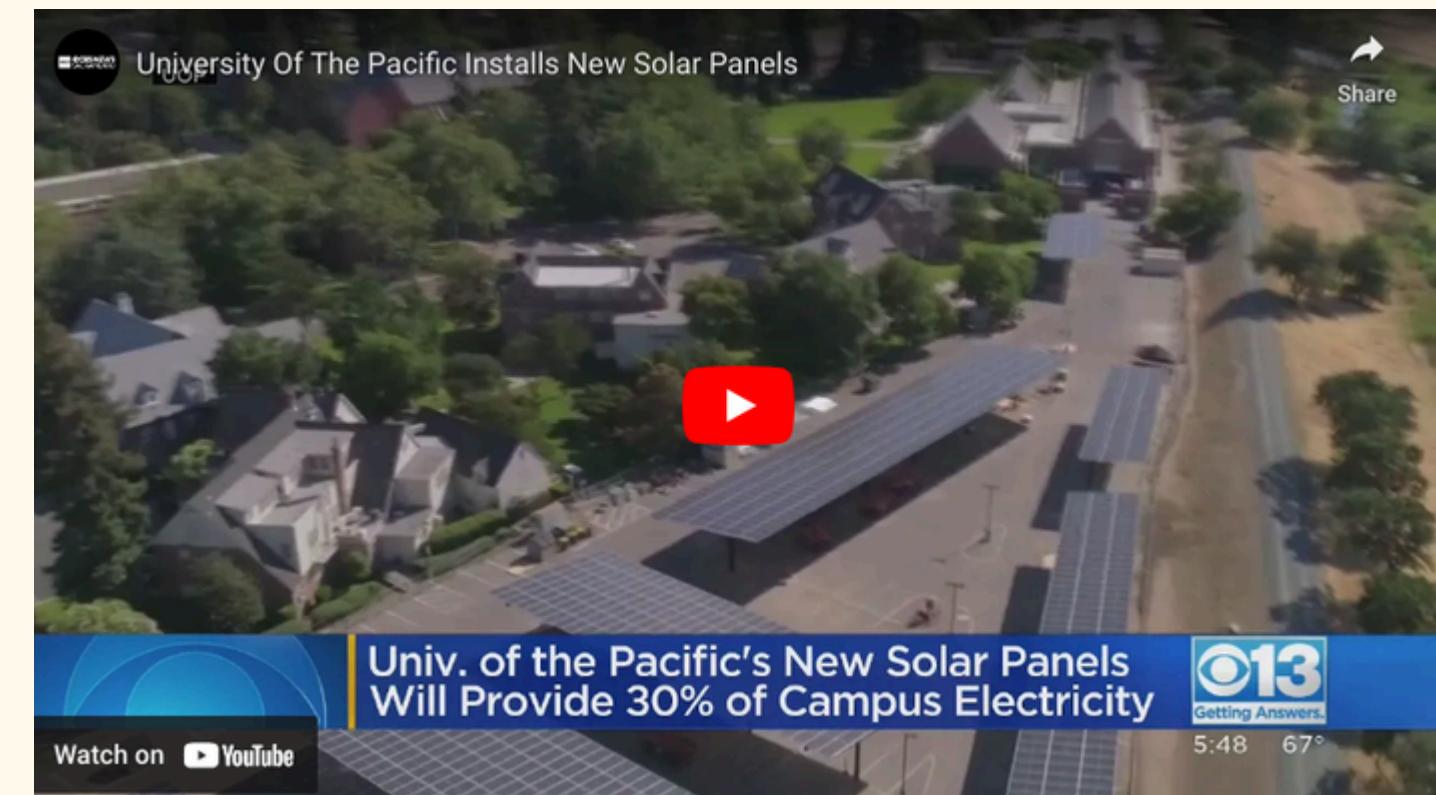
WHAT TYPE OF AIR
CONDITIONING
UNIT IS THE MOST
COST-EFFECTIVE?

"Window air conditioning units are smaller, more portable, and easier to install than most other types of units. They are also the cheapest option for adding air conditioning to your home, especially if you're working with a tight budget." - Meenan.com

WHAT IS THE
AVERAGE COST
OF A WINDOW AC
UNIT?

"Small Units (5,000 – 8,000 BTU): Ideal for cooling rooms up to 350 square feet, with prices ranging from \$150 to \$300."
- Modernize.com

UNIVERSITIES ACROSS THE U.S. ARE INSTALLING SOLAR PANELS TO
DECREASE CARBON FOOTPRINT, PROVIDE LEARNING
OPPORTUNITIES FOR STUDENTS, AND LOWER ENERGY COSTS



- At Maryville College (Maryville, Tennessee), the thermostats are locked behind cases in rooms. Only RAs or those who have access to the master key can change the temperature.

STEP 2: IDEATE

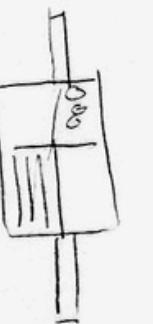
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PART B: Concept Sketches

Individual work 10 min

Create as many concept sketches as you can based on the HMW, lightning demos, and your ideas.

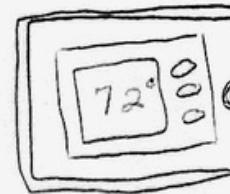
1 Window unit per 3 people (in common area)



- average window unit = \$50

63% of 4,073 live on campus
~5,000 live in university owned housing
- raise R+B by \$30 for every room to receive a unit.

Lock boxes on thermostats



- AC on May-Oct
Heat on Nov - April
- Provide 1 standing/box fan per student
- Provide black-out curtains for every bedroom
- Properly insulate + seal windows
- Students request window units @ time of roommate selection: pay yearly fee if provided a unit
- Install ~~water~~ filtered water dispensers in each dorm
- unit in every common area

STEP 3: DECIDE

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PART A: Present Concepts

Present concept sketches for your user and let them vote on the idea they feel best solves the problem.

Take turns: 5 min each

Concept 1: 1 window unit per 2 people. Sketch shows two stick figures and a window unit.

Concept 2: 1 filtered water dispenser in every residence hall. Sketch shows a water bottle and a flower.

Concept 3: 1 window unit in every common area. Sketch shows a window unit and a master key.

Concept 4: Locked thermostats that only RAs can adjust. (master keys can unlock) Sketch shows a thermostat set to 72°.

| Concept | Description | Notes |
|---|----------------------------|--|
| 1 window unit per 2 people | 1 window unit | ~ 5,000 students live in QU owned housing; avg. cost of window unit: ~\$50 - Raise Room+Board by ~\$30 to ensure every 2 students has one unit. |
| 1 filtered water dispenser in every residence hall. | 1 filtered water dispenser | |
| 1 window unit in every common area | 1 window unit | - Install permanent block-out curtains on every bedroom window and provide 1 standing box fan per student. |
| Locked thermostats that only RAs can adjust. (master keys can unlock) | Locked thermostat | |

STEP 3: DECIDE

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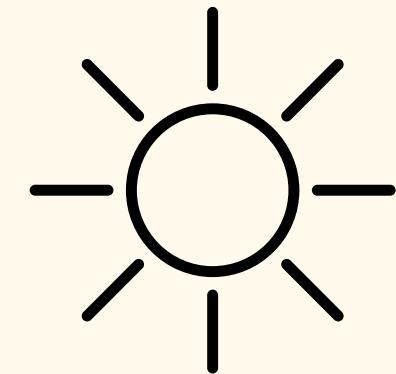
PART B: Capture Feedback

Maeve feels that “the AC per 2 people solution is best.” She suggested watching dorm tours to get an idea of the room layouts to best determine how many AC units were needed: “For the AC unit idea I do think these dorm tours may help you flesh the numbers out: <https://www.youtube.com/playlist?list=PLyJtOrhzeWDvUHvA43PucnbzCUyzVSu-W>

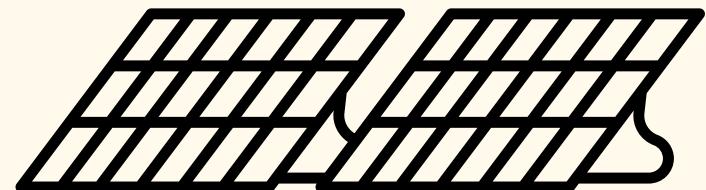
For example the AC Unit per 2 people would need to be altered for the Quad style dorm, Ledges. Also, I would say in the final prototype maybe have ideas based on if the residential hall is a quad, single, doubles, or suite style.”

PART C: Reflect and Iterate

Having access to air conditioning is important for student mental health and well being. Instead of having one unit per two people, there should be one unit per bedroom.



After receiving feedback, the idea of solar panels came to mind. This solution would provide clean energy to the campus, lower utility costs, and provide students with a hands-on learning experience. I did further research and included a video in my Lightning Demos section.



STEP 4: PROTOTYPE

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Build a solution from the revised concepts:

For every one bedroom, a window AC unit should be installed. By raising the Room and Board cost by ~\$150 a person, this would cover the expense of the new units and labor to install over the course of a few years. This would provide every on-campus student with AC for their duration of their time at QU.

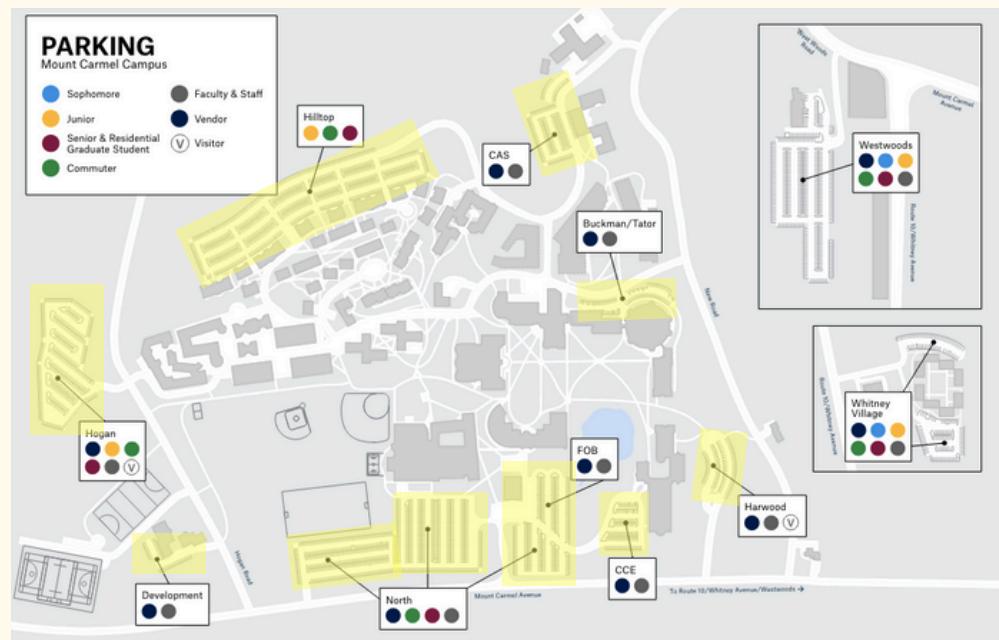
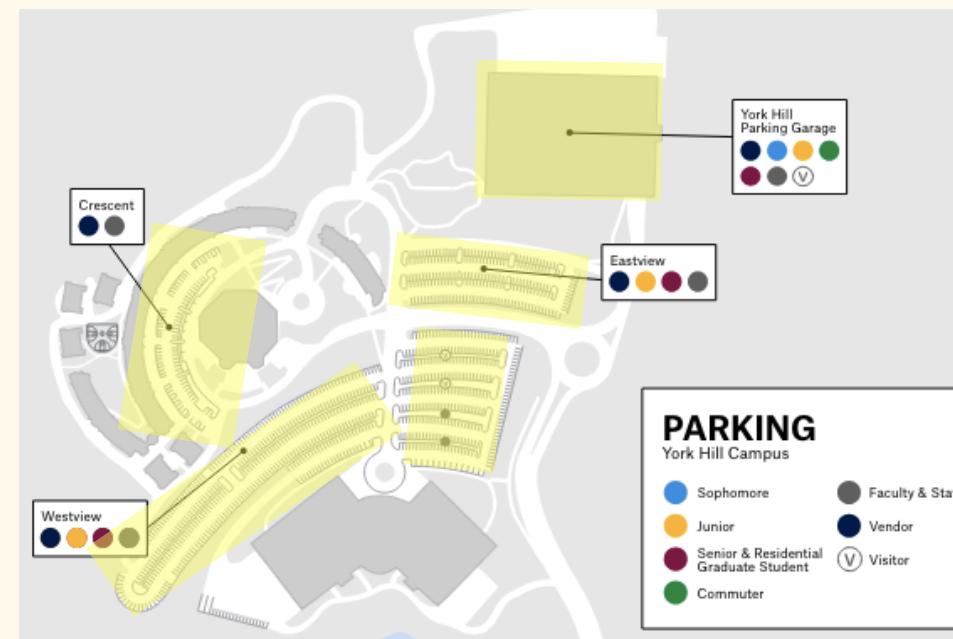
Solar panels should be added over every parking lot across all QU campuses. This would help neutralize the use of AC units on campus. This doubles as shade protection for student and faculty cars. The panels would be easily accessible for maintenance and utilize vertical space.

STEP 5: TEST

Present Prototype
and Get Feedback

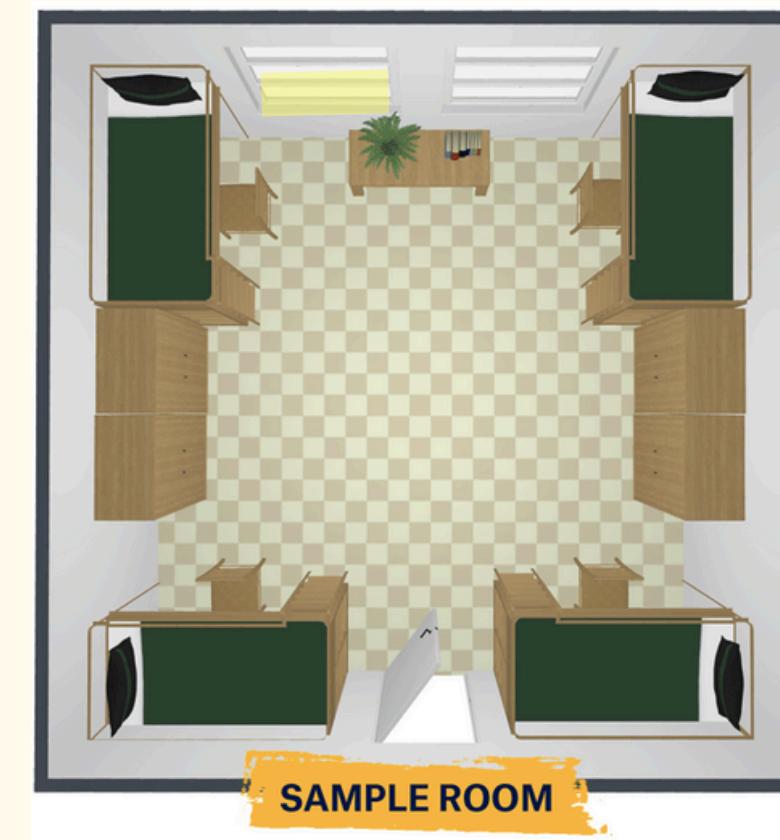
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Solar Panel Placement



- The Complex – 2 singles, 1 double
- The Village – 3 doubles
- Townhouses – 3 doubles
- Westview – 3 singles, 1 double

AC Unit Placement



- The Commons
- The Ledges



- Dana
- Irmagarde
- Crescent

FEEDBACK

"I love the idea of having one Window AC unit per dorm from for the increase of room and board cost. While parents may dislike the idea of cost increasing, I think they dislike their child being uncomfortable more."

Solar panels are also a great idea, and it didn't even cross my mind. I think instead of adding structures for them over every parking lot they could be added to the top of residential buildings. The roofs are still easily accessible for maintenance and utilize vertical space."

