Chapter B: Detailed description of competing alternative conceptual options:

In this chapter we defined our problem through block flow and process flow diagrams. Once we did this we then brainstormed our individual ideas then narrowed those ideas down to what would be each of our proposed ideas that we would bring to the table as a solution for our problem. Below are detailed descriptions of each of our individual proposals.
Xavier Roden:

Aluminum Foam Panels

My idea is to implement the aluminum foam technology in the dorm rooms to decrease sound transfer and provide for a more peaceful time for a resident in his or her room. I feel as though this can be achieved by treating each room like a gymnasium and putting sound absorbing squares around the room. Because of the size of the dorm rooms, the size of the squares can be cut down as well. Placing a couple squares on each wall and ceiling should dramatically reduce the sound output of a resident to appease another who isn’t as loud. Two on each sidewall and two on the ceiling should help this cause. These blocks can reduce sound by half as much as its original decibel level. The material is also flame retardant. So for fire safety, implementation of this technology is not an issue.

Kristy Riley:

Acoustic Foam Panel

- Flammability rating of UL94 HF-1, they will burn
  - Unsafe for dorm buildings
  - Produce toxic gases when on fire
- Variety of colors and shapes
- Flexible
- Put on walls
- Used as ceiling tiles
- Not as affective as foam aluminum at blocking sound
- $416.72 for a 2 ft. x 4ft. and one inch thick
Cory Bonneau:

**Spray Foam Insulation In Walls**

- Minimize sound transfer
- Air seals cavity
- Completely fills irregular areas
- Not a source of mold
- Not damaged by water
- Meets requirements for an environmentally preferred product CHPS E.Q.2.2 Compliant
- Rapidly renewable material (USGBC definition requiring a 10-yr or less re-growth time)
- Exceeds renewable equipment for a bio-based material as per the USDA BioPreferred Program
- Saves energy costs in heating

Carlos Echevarria:

**Aluminum Foam Walls**

My idea is to improve the shunk dorms by making them really sound resilient by adding a layer of aluminum foam throughout the layout of the frame. Because of the metal’s unique form it “sucks” up sound as sound waves pass through the material. Aluminum foam is a lot cheaper than regular aluminum because it’s not as hard to process. It is also really ecofriendly and top grade fire resistant. A test was done to see how much sound is absorbed, the test concluded that 1/2 of the sound frequencies went through the aluminum which is really good because most sound absorbing material only reduces sound by 2/5. Foam aluminum is also really strong and light weight. Aluminum foam with large cells cost $28 for a 6inX10inX.5in