

MOBILE WELLNESS CENTER DESIGN COMPETITION

J. Wunderlich, PhD

Director of the Design and Technology-Transfer Studio
Engineering, Computing, and Architectural Programs

Elizabethtown College

FLYER (LINK)



Mobile Wellness Center Design Competition

"To Elevate the Dignity of the Individual"

Architecture and Engineering (Updated 4/24/14)

- 1ST PRIZE \$3000
- 2ND PRIZE \$1500
- 3RD PRIZE \$750
- 4TH PRIZE \$375
- 5TH PRIZE \$165

Teams of two to four students to design prototype for 100 Mobile Wellness Centers for truck stops throughout the United States. Designs must include facilities for:

- Private psychological counseling
- Private medical check-ups (Primary Care)
- Public and Private spiritual guidance
- Public physical well-being



JUDGING CRITERIA:

- 20% Functionality
- 30% Space Utilization (Interior, Exterior, Surface, Site)
- 20% Aesthetics (Cultural, Messaging, Exterior, Interior)
- 10% Sustainability (Energy, Water, Repairs, Maintenance)
- 10% Versatility
- 10% Constructability

DETAILS (See Dr. Wunderlich's Public Folder for all documents):

- 1) **BUDGET:** \$80,000 using Lowes.com and Bestbuy.com whenever possible. Labor costs paid by others and not in budget. Also use Grainger, Harbor Freight (for specialty items like hydraulics), and Conestoga Wood Specialties (for custom high-quality cabinetry if desired). Look at the following websites for product materials that could enable a creative solution to the space constraints:
 - Ameltrung World Industries www.ameltrung.com
 - SPI @ www.wincospi.com/and
- 2) **STANDARDS:** US standards (ADA, HIPPA, AIA, ASHRAE, building and vehicle codes). See Primary Care design criteria: <https://www.transformed.com/>
 - Review documents in Dr. W.'s Public Folder regarding Primary Care exam room design:
 - FILE 2_midmark_804_manual_exam_table.pdf
 - FILE Patient Centered Design in the Exam or Procedure Room.pdf
- 3) **SPACE:** Design space EXTERIOR: 53' - 0" long, 8' - 6" wide (NOT 9'-6"), 13' - 6" high; but you can design sections that extend out and up automatically (like an RV), and design as many windows and skylights as you wish. However, must collapse to 53' - 0" long, 8' - 6" wide, 13' - 6" for transporting. Trailer INTERIOR dimensions: Finished floor is 48 inches above ground. Interior box is 52' - 8" long, 8' - 4" wide, 9' - 2" high
- 4) **SITE DESIGN:** Use of surroundings will vary in size and degree, so design for varied site conditions and lot configurations, a typical site plan is in the documents folder -- assume rest-stop will supply bathrooms, food, etc. 50 foot turning radius for trucks. Assume truck will be located away from truck traffic flow.
- 5) **HVAC:** Environmental conditions should be similar to that of a typical U.S. office building during working hours. Trailers must operate in a variety of climates (from the 120°F+ degrees heat of Death Valley in summer, to the sub-zero tundra of the Yukon in winter). A refrigerator must be included for medical supplies (not food). Consider insulation R-values and required thicknesses for Walls, Floor, and Ceiling
- 6) **PLUMBING:** Medical Professional will need a sink, and you may not have access to water and wastewater from the Travel Center. Other plumbing may be designed (sink, shower, dishwasher, etc) if you can fit it into your budget.
- 7) **INFORMATION TECHNOLOGY:** Assume high-speed Internet available. A high-def large teleconferencing capability must be designed into trailer (for televised sermons, group-counseling, exercise & wellness classes, etc.)
- 8) **ELECTRICAL:** Assume 10 watts per square foot supplied to trailer, and 120 volts AC provided, however you can propose alternate (maybe renewable) energy generation and storage. When trailer connects to tractor, need standardized trailer connector for low-voltage power, compressed air, etc. High voltage feed to be fed into trailer near tractor connection. Assume 200AMP service available at trailer. Don't run wires or ductwork under trailer (All Electrical and Mechanical integration must be inside trailer)
- 9) **WEIGHT:** Total finished trailer can't weight more than 80,000 pounds (existing trailer is 10,000 pounds)
- 10) Truck doesn't stay with trailer once delivered to site (so don't rely on it for Compressed Air, Hydraulics, alternative power generations, etc)
- 11) Assume floors need to be resilient, for easy cleaning (i.e., no carpeting)
- 12) Sleeping accommodations for staff is optional in your design
- 13) Remember that onsite facilities will provide restrooms, food, showers, etc.
- 14) Don't worry about structural implications of how you penetrate shell of trailer for windows, doors, space-extensions, etc (that will be addressed during follow-up A&E)

Present your design in a 20 minute multimedia presentation (must include a poster) on Wednesday, May 7th at 11:00am in Gibble Auditorium. Contact Dr. Joseph Wunderlich (wunderj@ETOWN.EDU) for further information

MOBILE WELLNESS CENTER DESIGN COMPETITION

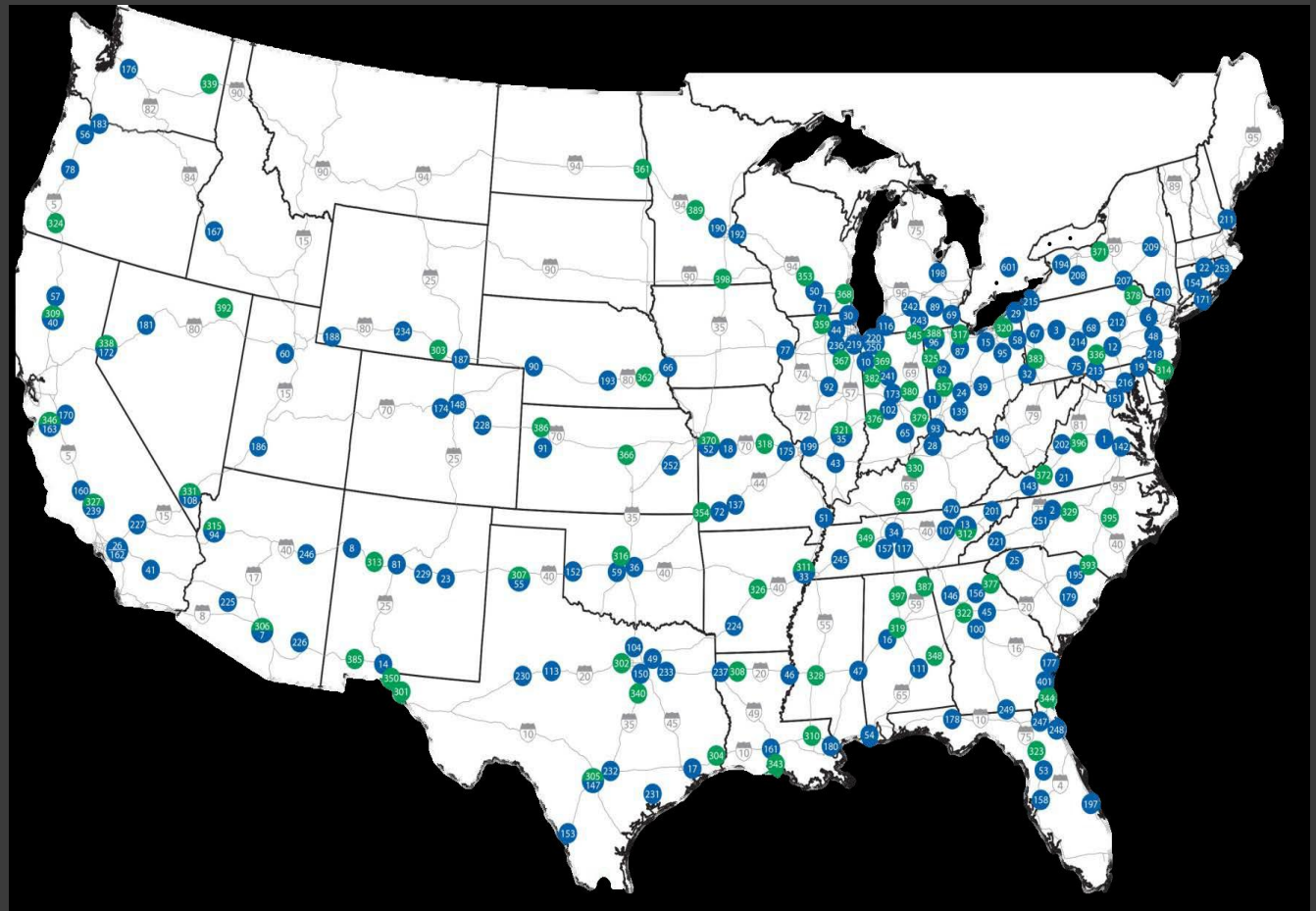


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To Elevate the Dignity
of the Individual

MOBILE WELLNESS CENTER DESIGN COMPETITION



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Five teams created conceptual designs including:

- Spiritual guidance
- Psychological counseling
- Medical check-ups
- Physical well-being
 - (Somewhat optional)



MOBILE WELLNESS CENTER DESIGN COMPETITION

1ST PRIZE \$3000

2ND PRIZE \$1500

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4th PRIZE \$375

5th PRIZE \$180



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MOBILE WELLNESS CENTER DESIGN COMPETITION

BUDGET:

\$80,000

Using Lowes.com , Bestbuy.com, Grainger, Harbor Freight (for specialty items like hydraulics), and Conestoga Wood Specialties (for custom high-quality cabinetry if desired)

Labor costs paid by others and not in budget.

MOBILE WELLNESS CENTER DESIGN COMPETITION

STANDARDS:

US : ADA, HIPPA, AIA, ASHRAE, building and vehicle codes

Primary Care Medical design criteria:

<https://www.transformed.com/>

MOBILE WELLNESS CENTER DESIGN COMPETITION

SPACE:

Finished floor is 48 inches above ground

EXTERIOR: 53' - 0" long, 8' - 6" wide , 13' - 6" high

INTERIOR: 52' - 6" long, 8' - 4" wide, 9' - 2" high

Can design sections that extend out and up

Websites for creative solutions to the space constraints:

- Armstrong World Industries www.armstrong.com
- SPI @ www.winrocspi.com



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SITE DESIGN:

Use of surroundings will vary in size and degree

Design for varied site conditions and lot configurations

Assume rest-stop will supply bathrooms and food

50 foot turning radius for trucks

Assume truck located away from truck traffic flow



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HVAC:

Must operate in a variety of climates (from 120F+ degrees of Death Valley, to sub-zero tundra of the Yukon)

A refrigerator must be included for medical supplies (**not food**)

Consider insulation R-values and required thicknesses for Walls, Floor, and Ceiling



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PLUMBING:

Medical Professional will need a sink

May possibly not have access to water and wastewater from the
Travel Center

MOBILE WELLNESS CENTER DESIGN COMPETITION

INFORMATION TECHNOLOGY:

Assume high-speed internet available.

A high-def large teleconferencing capability must be designed into trailer (for televised sermons, group-counseling, exercise & wellness classes, etc.)

MOBILE WELLNESS CENTER DESIGN COMPETITION

ELECTRICAL:

Assume 10 watts per square foot supplied to trailer

Can propose alternate (maybe renewable) energy generation and storage.

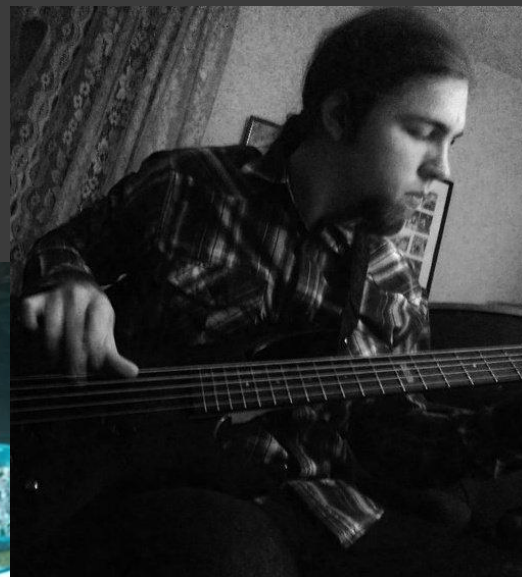
CONCERT STAGE DESIGN

A RELATED TALK JUST BEFORE
PRESENTATIONS BY MOBILE
WELLNESS CENTER CONTESTANTS

By Anthony M. Bird

birda@etown.edu

THE COMBINATION OF TWO PASSIONS



STAGING

- Temporary platform
- Tait Towers: One of the biggest names in stage production 10 MILES FROM ETOWN – in LITITZ



STAGING

- Physical staging
- Lighting
- Sound
- Control system

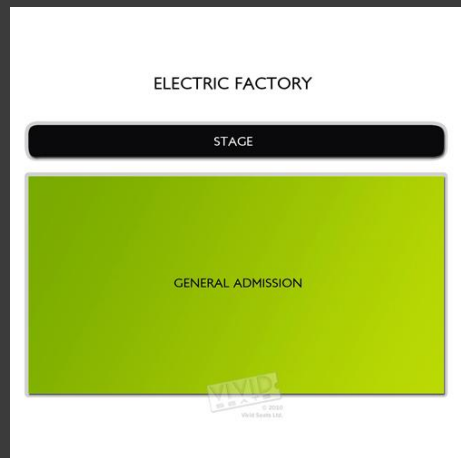




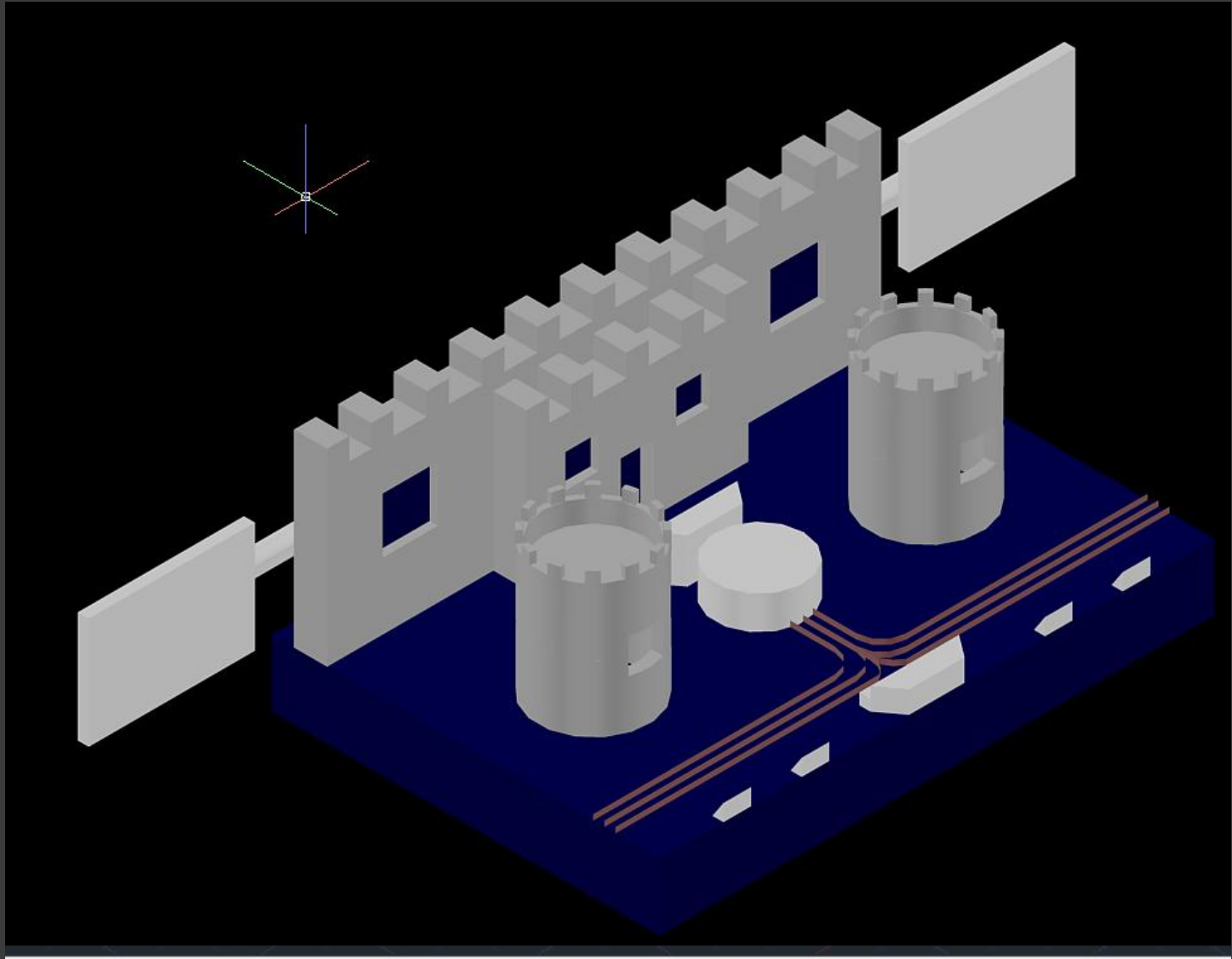
Electric Factory
 - Indoor
 - Capacity: 3,000

Starland Ballroom
 - Indoor
 - Capacity:
 EXPANDABLE

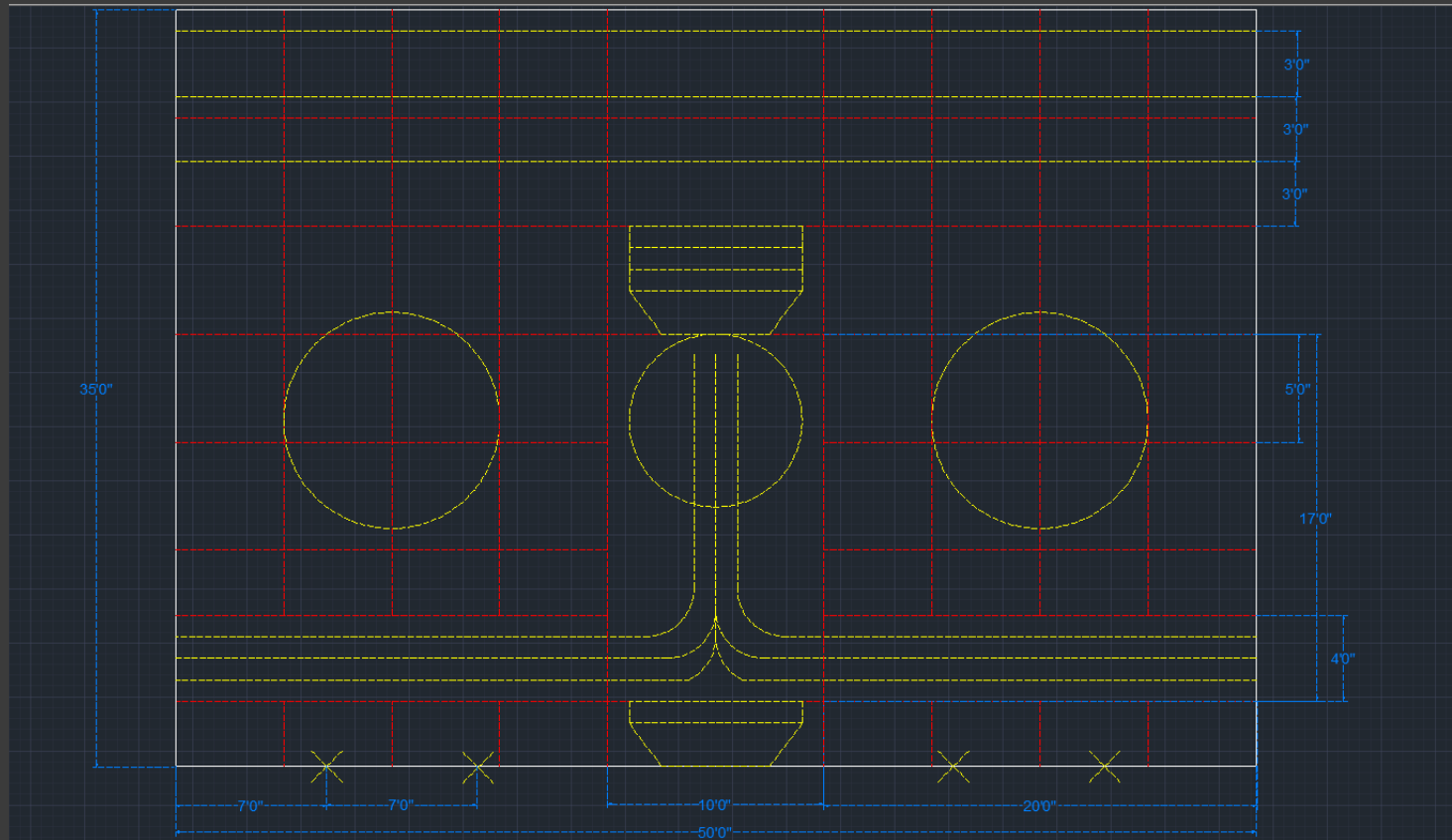
Hershey Arena
 - Outside arena
 - Capacity: 7,200



THE FINAL DESIGN



STAGE DISSECTION



- Modular Tower Design for easier transport and setup
- Non-interactive backdrop
- Screens
- Speaker placement inside towers

MOBILE WELLNESS CENTER DESIGN COMPETITION

5th PRIZE \$180



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5th PRIZE \$180

- Student interviewed 150 truckers !



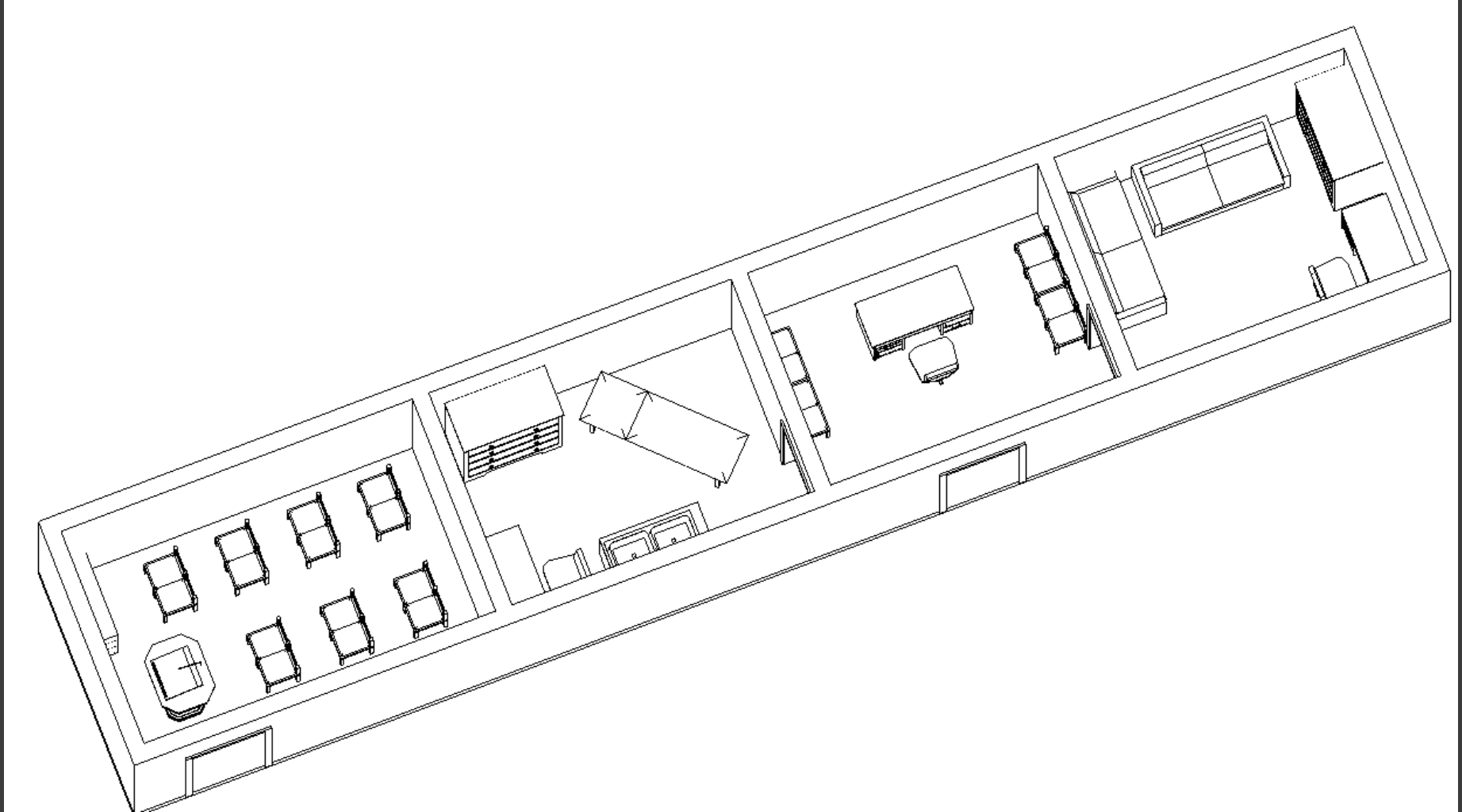
MOBILE WELLNESS CENTER DESIGN COMPETITION

4th PRIZE \$375



MOBILE WELLNESS CENTER DESIGN COMPETITION

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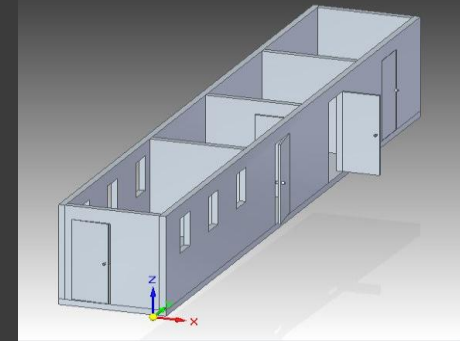
MOBILE WELLNESS CENTER DESIGN COMPETITION

3rd PRIZE \$750



MOBILE WELLNESS CENTER DESIGN COMPETITION

3rd PRIZE \$750



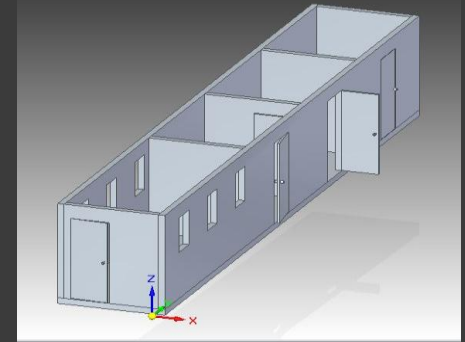
MOBILE WELLNESS CENTER DESIGN COMPETITION

3rd PRIZE \$750



MOBILE WELLNESS CENTER DESIGN COMPETITION

3rd PRIZE \$750



MOBILE WELLNESS CENTER DESIGN COMPETITION

2ND PRIZE \$1500



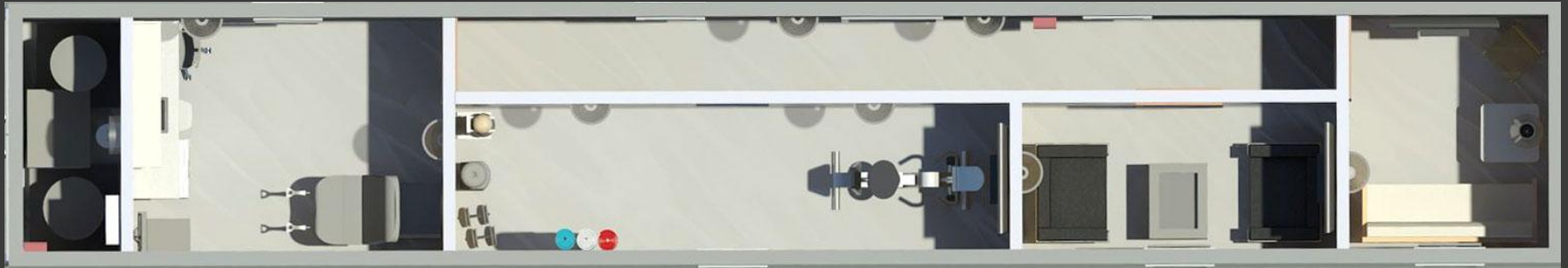
MOBILE WELLNESS CENTER DESIGN COMPETITION

2ND PRIZE \$1500



MOBILE WELLNESS CENTER DESIGN COMPETITION

2ND PRIZE \$1500



MOBILE WELLNESS CENTER DESIGN COMPETITION

2ND PRIZE \$1500



MOBILE WELLNESS CENTER DESIGN COMPETITION

1ST PRIZE \$3000



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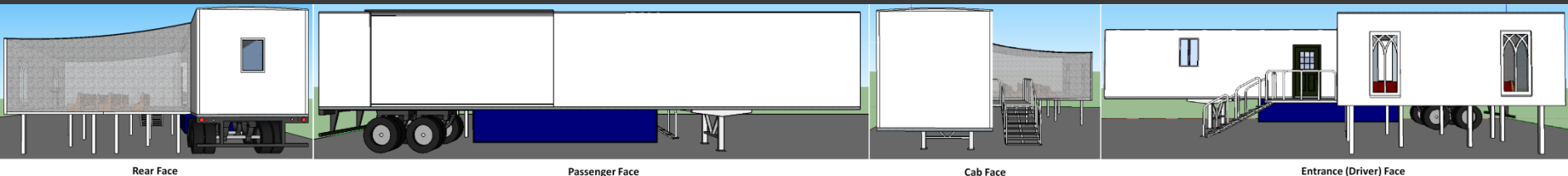
1ST PRIZE \$3000



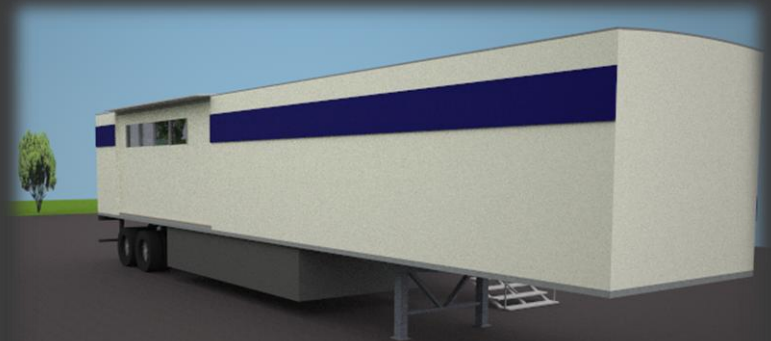
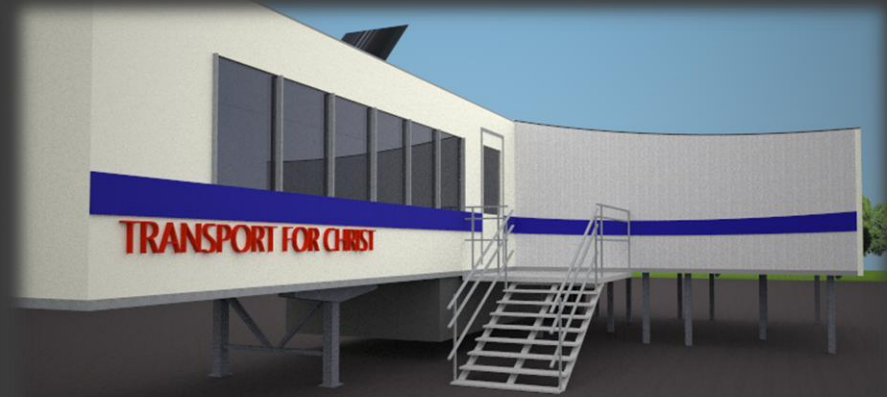
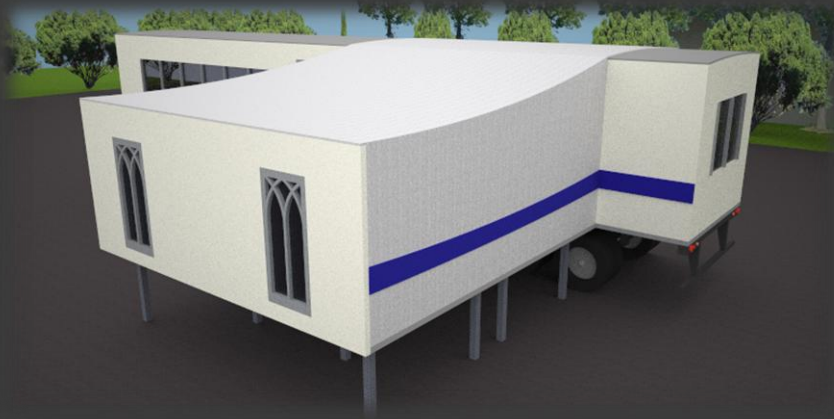
ORIGINAL DESIGN

- Movable trailer walls that will unfold into a raised floor for the chapel space.
- What looks like a transparent sheet over the chapel area will actually be a fabric membrane that is insulated and will be attached to the solid structure.

Exterior



NEWEST DESIGN

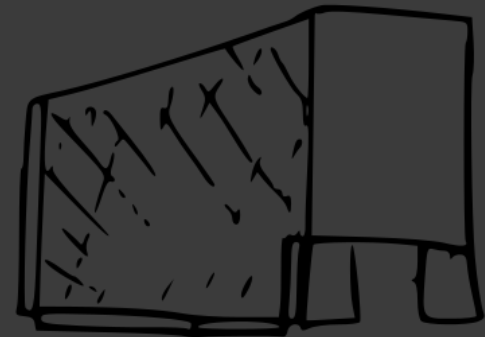
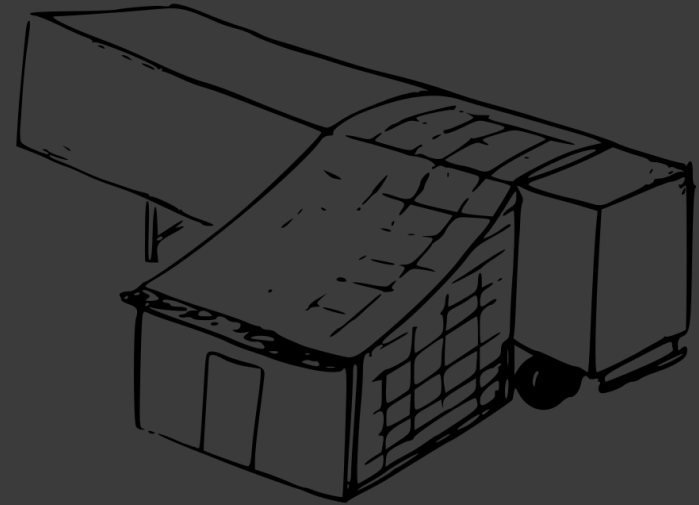
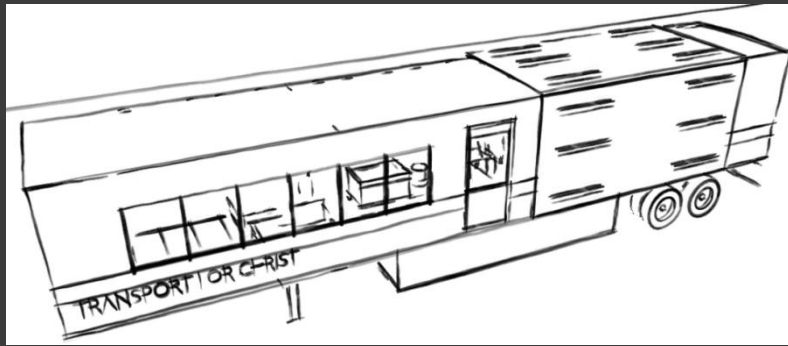


EXAMPLE

The Mobile Wellness Center will be placed in an area that will be easily accessible to all the drivers, as seen below.



FOLDING PROPERTIES







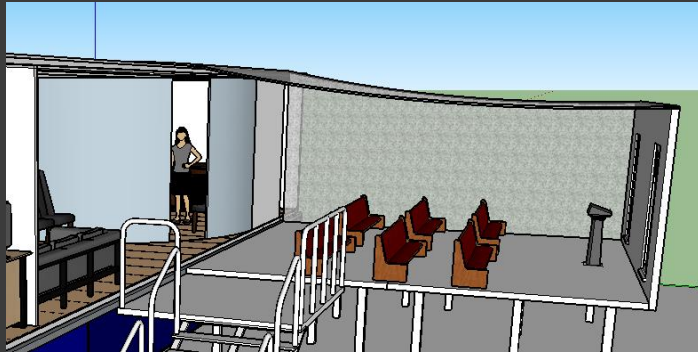
DESIGN

Roof and Walls of Chapel

- Light-weight fabric membrane with insulation properties for easy set-up and tare-down, and also functional for detachable shelter.

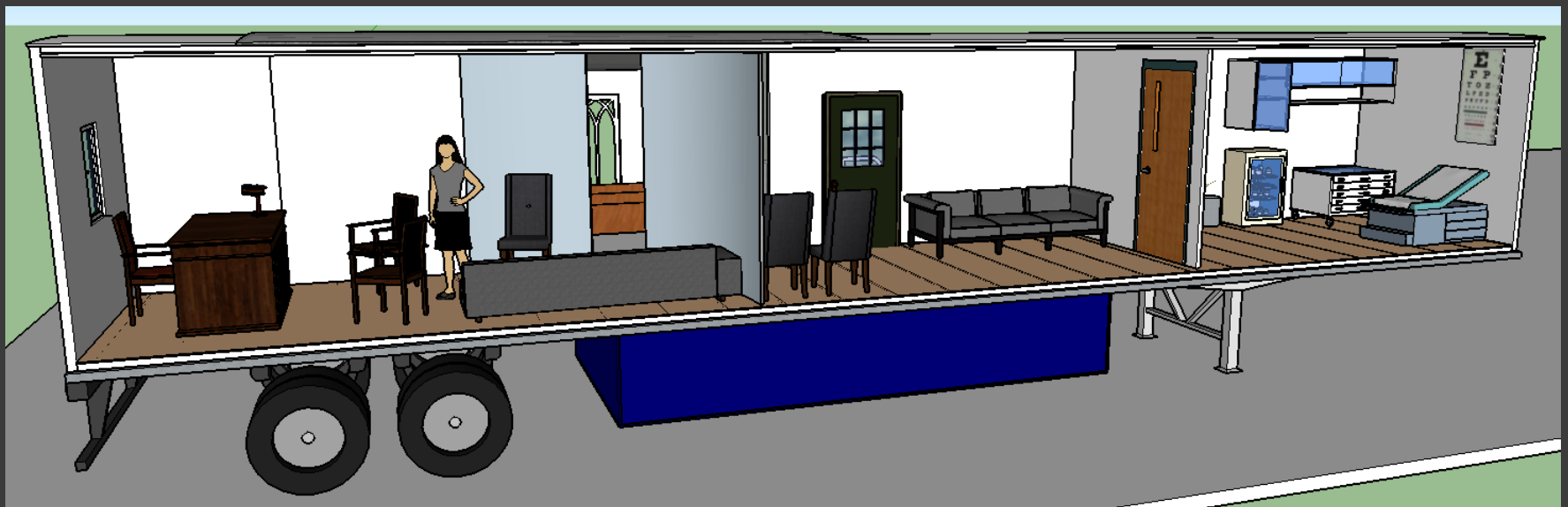


DESIGN



Interior

Mobile
Chapel/Doctors office/Psychological
Counseling

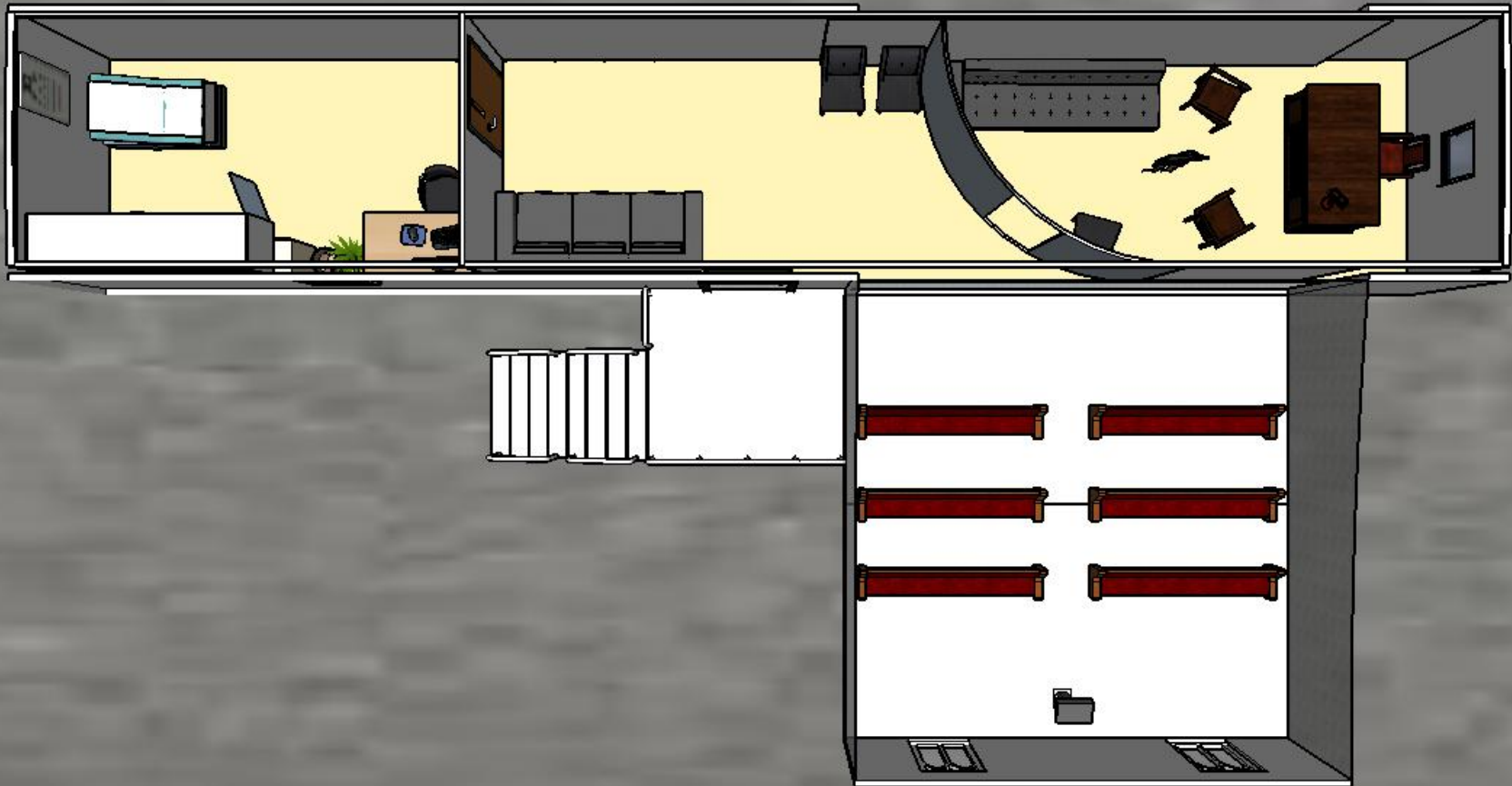


DESIGN

Space utilization

Physical Health

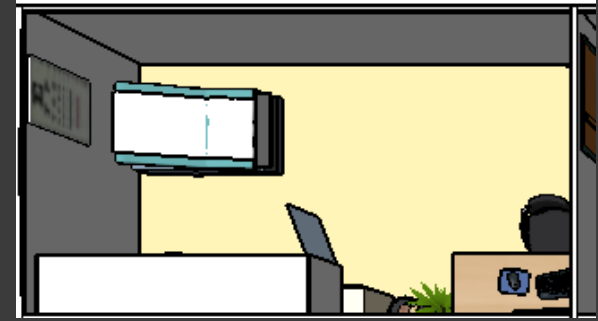
Mental Health



Spiritual Health

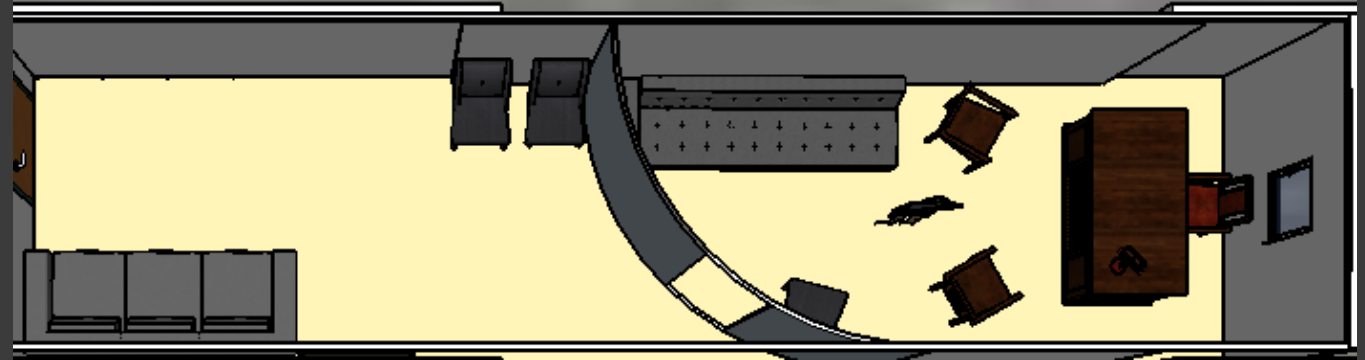
PHYSICAL HEALTH

Water-saving sink and Biohazards disposal containers for working with patients and medicines. The water tank will be placed on the cab face of the trailer. This is an attempt to be eco-friendly and medically safe.





MENTAL HEALTH



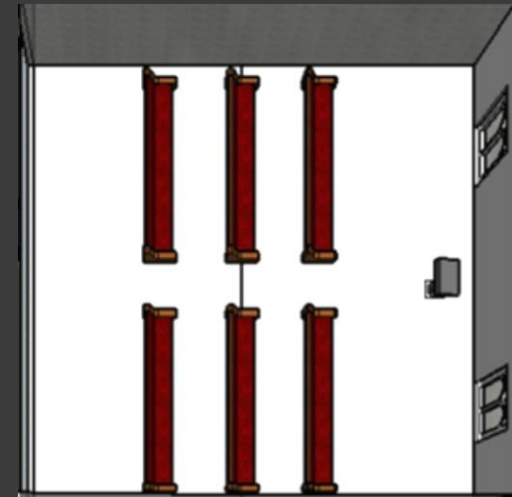
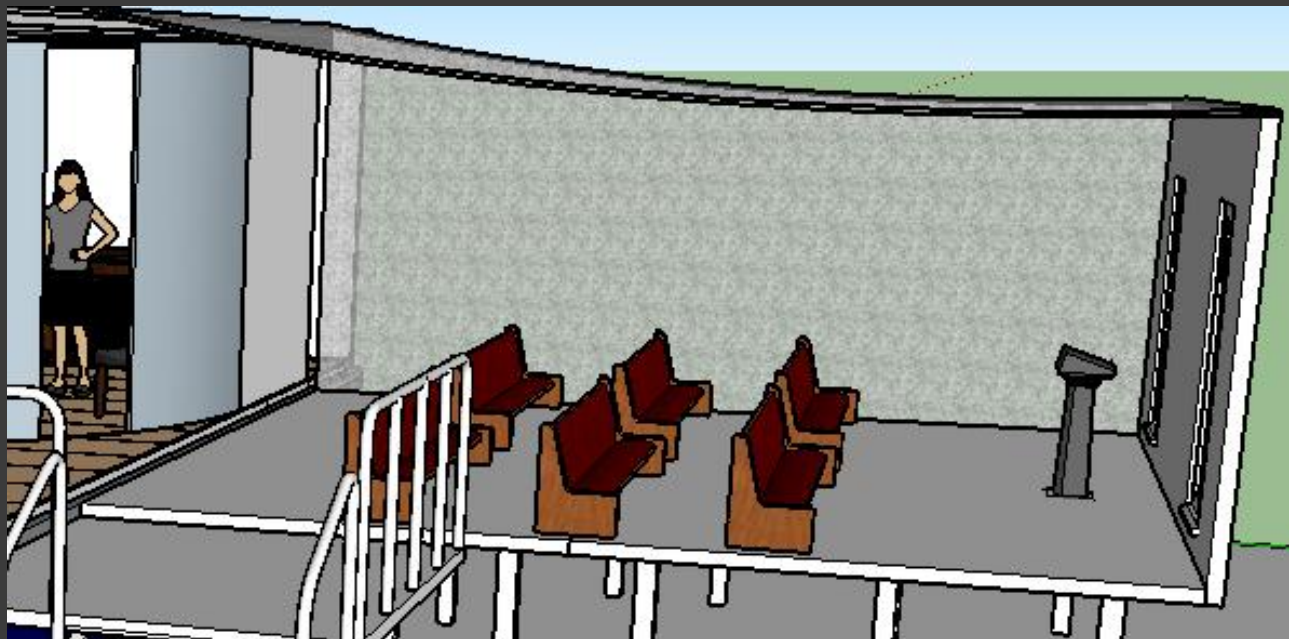
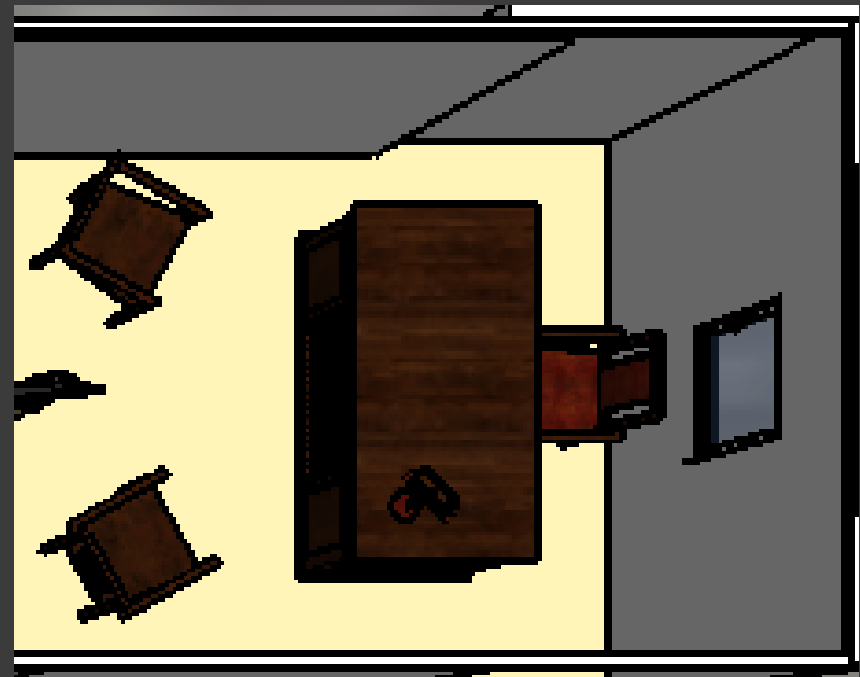
Psychological
Counseling
room/Chaplin's office

Main Lounge/Waiting
room



SPIRITUAL HEALTH

A nondenominational sacred space for the truck drivers





2014/15

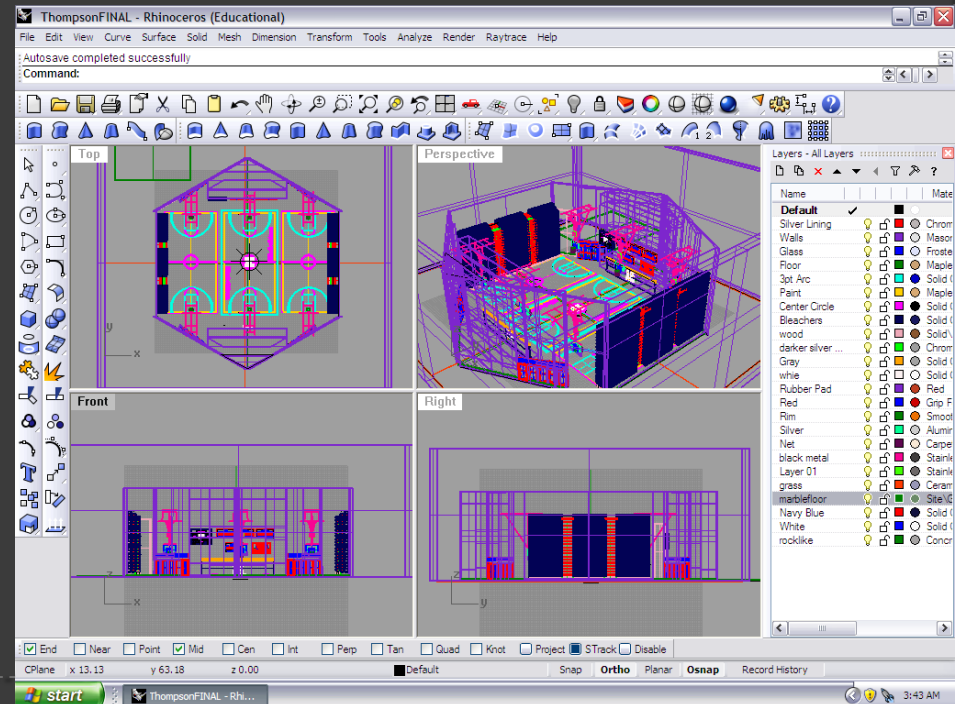
ETOWN COLLEGE WELLNESS CENTER DESIGN COMPETITION

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MANY YEARS OF RELATED PROJECTS IN OUR DESIGN STUDIO



Wunderlich, J.T. and Wunderlich, J.J. (2013). **Green architecture and environmental design using rapid-prototyping social-networking sandbox tools, followed by professional architectural software.** *Asian Conference on Sustainability, Energy & the Environment (ACSEE 2013)*, June 6-9, Osaka, Japan. [TALK PAPER](#)

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2014/15

WELLNESS CENTER DESIGN COMPETITION

MANY YEARS OF RELATED PROJECTS IN OUR DESIGN STUDIO



2014/15

Etown College Wellness Center Design Competition

[Green Architectural Engineering](#) (EGR343)

[Conceptual Architecture](#) (FYS100)

[Architectural Design Studio I & II](#) (EGR/ART499 A&B)