

## Meeting minutes

Thursday Sep 19, 2013

Discussed items:

- Rework the contract :
  - Assign group manager: Christopher
  - Finance: Steven and Kyle
  - Team name: Stand Your Ground "SYG".
  
- Plan new questions for the client interview:
  - Where the money come from.
  - The access size.
  - The ventilation system.
  - Client meeting time Tuesday 10:30 am same room "conference room 4<sup>th</sup> floor EP".
  - Life expectation.
  
- Log book what should be on it, and will be collected by Dr. Hess on the first week of October.

Action items:

- Come up with more questions about the design.
- Confirm the Client meeting.
- Set up the time for the Shop Orientation.
- Find out who is in charge for the wind tunnel.
- Facebook group for easier communication.
- Group email.
- Management Schedule.

## Meeting Minuets

Sep-26-2013

### Discussed items:

- Management scheduled, and some changes.
  - Add more time for the testing to resolve possible issues.
  - Overlap the data collection with math modeling.
- Search more about the wind tunnel and testing.
- Think about what we going to have on the EXPO "final model ", "prototype"
- The client phone call:
  - The information we needed to start the researching part.
  - 24" of snow.
  - The failure of the end blow and the snow collapse.
  - High tunnel
  - Weather station and electronic
  - The door enough for small skitter.
  - Break the wind / relief the pressure.

### Action Items:

- Search the building Code for Idaho.
- UV and the material last for a long time "plastic ".
- Generate Ideas for next meeting:
  - Finalized the schedule.
  - Math model.
  - 3-D model.
- Problem statement. (Before Oct 15, 2013)
- Specifications. (Before Oct 15, 2013)
- Search about the structure and sheeting.
- Search about how is the plastic sheet is attached and how they leave it.
- Search more about the material of the plastic sheet.
- Why HDPE pipe (high density poly ethylene) rather than PVC contact.

## Meeting minutes

10/03/2013

### Discussed items:

- Structure:
  - The normal shape V.s the Gothic shape and the Gothic is more common
  - Brain storm some ideas about the door “ flipped or open like a garage”
  - The properties of PVC and the HDPE
  - The other materials can be used such as steel or wood.
  - Some ideas about breaking the wind
- There is no building code for Idaho, but the national code.
- The data for the wind speed and snow load of the area.
- Update the management time line.
- The covering material and some options.
- Snapshot day:
  - Problem statement: Given the high wind speed and the heavy snow load in the Buhl Idaho area, determine the ideal high tunnel greenhouse design to survive the surrounding environment conditions.
  - Title: Environmentally High Tunnel Greenhouse Design
  - Design Goals:
    - Wind speed sustained.
    - Snow Load sustained.
    - 10+ year structure life expectation.
    - Incorporate the client features “ door size and Deliverables”
    - Prototype
    - Design analysis
    - Cost analysis
    - Final Design
  - Specification:

Snow Load	24”
Wind Speed	65-75 mph
Life expectation	10 +
Door size	Enough for Small size skidders
- Project Learning:
  - 3-D modeling.
  - Stress analysis.

### Action Items:

- Keep Searching and summarize you search on one paragraph.
- Add sketches for the snapshot day.
- More search on the covering materials and narrow it down, add the cost as well.
- Log Books are due on Tuesday by the end of the day.

## Meeting Minutes

10/10/2013

### Discussed items:

- Foundation design and the depth “ask the client about it”
- The material for the frame PVC and other material xxsel
- Covering material 11 mil poly
- The design Gothic or half circle and breaking the wind
- Some ideas about the door
- The wind tunnel “we couldn’t find who is on charge of it and we can get access to it”.

### Action items:

- Math model for the snow load
- Math model for the wind
- 3-D analysis for the frame stresses
- Keep searching for more ideas
- Snapshot :
- Type a paragraph on the research u did
- Meet on Monday for finishing the final touches " 2:30 design suites"

## Meeting Minutes

10/17/2013

Discussed items:

Things we learned from Snapshot day

- Flow chart
- Early prototype
- Material sampling
- Solid model
- Good client contact

Design concept

- Solid Modeling and the force math model.
- Snow load calculation
- Wind speed data.
- Cone shape at the end face "break the wind".
- Door ideas.
- More solid modeling and simulations
- Wind force
- Cost of Steel and Aluminum
- Cost of plastic panel
- Hydraulic part, and the cost of it.
- Cost and economic analysis

Client Questions

- Type of foundation?
- How large is the head room on the side?
- How large is the door? " max height"
- What construction methods?
- The used of the HDPE?

Action Items:

- Search on Steel and Aluminum Cost. "Square and cylindrical"
- Search on Plastic panel Cost. " Different thickness "
- The hydraulic cost.
- Economic analysis.
- Meet on Tuesday 10/22, at 12:30 for the wind tunnel.
- Cone shape for the end.
- Solid model.

## Meeting Minutes

10/24/2013

### Discussed Items:

- Math Model:
  - Wind Beaker attached to the end : ( rounded , Square )
  - Ideas for the door.
  - The height.
- The steel Vs. Aluminum tubes.
  - Cost.
  - Strength.
- Specifications for the PVC
- Covering materials
  - The 11 mil
  - The panel
- The wind Tunnel: information that we learned.
- Ways of attaching the wind break to the gothic shape.
- Wiki page:
  - Collect the information that needed from the snapshot.
  - Team picture.
- We are still waiting for the client to answer the question that we emailed him.
- The upcoming presentation.
- Logbooks are due on the 11<sup>th</sup> of Nov.

### Action Items:

- More research in the PCV:
  - Specifications.
  - Cost.
- More search on the Covering materials :
  - Cost.
  - Specifications.
- More search on and data for the gas spring.
- Math modeling of the wind break.
- Look for ways to attach the wind break to the end.
- The cost analysis.
- Finalize the materials that will be used.
- Arrange with the mentor to know more about the wind tunnel for testing.
- Prototype to testing
- Gather the needed information, the pictures for the Wiki page. "email Chris a picture "
- Start working on the PowerPoint for the presentation
- Logbook are due by the end of day of Nov, 11.

## Meeting Minutes

10/31/2013

### Discussed Items:

- Wiki page :
  - Team Picture
  - Form for the adviser
  - Bio
- Wind tunnel:
  - Finish the model and start the experiment.
- Math model:
  - Solid Model
  - Area calculation
- Plastic Covering :
  - Calculate the Cost – EES code to find the cost based on the area
- Gas spring will not be used due to the weather condition
- Plastic Panel will not be used due to:
  - The high cost.
  - No heavy snow load at the edge.
- The roll up film will be used
  - 11 mm
  - The Cost is less than the panel.
  - 10 years life
  - Stronger than the other thinness.
  - Ideal for ventilation
- The spacing size are 12, 16, 24 ft.
- The Gothic design:
  - fitting for the tubes
  - Pending tubes.
- Design Review:
  - Presentation
  - Due Before Thanks Giving Break
- PowerPoint:
  - What we found so far.
  - Some options for the design.
  - Cost analysis. .
  - Materials.
  - Solid model
  - Arrange a Date with client.
- Questions for the client:
  - Rain water Collection for irrigation.
  - Preferred supplier

Action Items:

- More research on the ways of attaching the cover to the structure:
  - Steel and Aluminum.
- snow Load
- Wind speed
- fittings for the pipes:
  - rounded and square pipes
- Wind tunnel testing.



## Meeting Minutes

11/07/2013

### Discussed Items:

- Math modeling :
  - Finish the Solid model.
  - Test the snow load
  - Use the result of 16000 psia, and the 30000 psia yield.
- Wind tunnel:
  - Tested the Gothic shape.
  - The Gothic shape with the wind breaker attached to it.
  - Compare the results.
- Existed frames:
  - Found a round and square frames that meet the specifications.
  - The prices of each of the frames.
  - The windjammer :
    - Roll up.
    - Roll down.
- It is recommended to cement the end for high wind conditions.
- The diagonal support and the need of it.
- Ways to attach the plastic cover :
  - Wiggle Wire and u-shape track.
- Wiki page update.
- Design review:
  - 18<sup>th</sup> -20<sup>th</sup> of this month, should plane for the 18<sup>th</sup>.
  - 20 min max, and then questing time.
  - Set up the exact time.
  - Frames with prices.
  - Economic analysis." Different Costs "
  - Wind Tunnel result.
  - The solid model.
  - Alternative deign.
  - Decision matrix.
  - Recommended Design. "Why?"
  - Propose additional feature. "irrigation"
  - Email to the client before the meeting.

### Action Items:

- Meet on Tuesday 3:30 GJ lab. To start the Design review so bring all the material"
- Logbook are due by the end of next meeting.
- See other team design review" look online for the time and place".
- Look for alternative design that we may include.



## Meeting Minutes

11/14/2013

### Discussed Items:

- Design Review :
  - Monday 11/18/2013
  - Start at 12:30
  - Same room EP 413
  - Meet at 11:30 to finish the set up.
  - Add team picture for the PowerPoint slides.
- Math modeling:
  - Ideas for the rain water collection.
  - Ideas for the door.
  - The wind tunnel result.
- Frame :
  - The supports.
  - The ground anchor.
- Cost analysis.
- End type.
- Adding rob for the hole frame for extra support against the wind.

### Action Items:

- Meet on Friday at 2:30 to finish the PowerPoint GJ lab.

## Meeting Minutes

11/21/2013

### Discussed Items:

- Design Review:
  - Write notes in the logbook.
  - Add notes for the other teams design review
- Model of fitting.
- Sketch different ideas for the windbreaker.
- 3-D model
- Testing
- Schedule ahead for the purchased parts." Contact suppliers"
- Wiki page
- Snapshot 12/9 GJ Lab 8:20-10:30

### Action Items:

- Complete the Team Member Citizenship.
- Sketch ideas

## Meeting Minutes

1-23-2014

### Discussed Items:

- Schedule a time where the model will be built.
- Sketch Ideas for the wind breaker.
- Ideas for how to build a model.
- Materials will be used to build the model.
- How the actual design will be build.
- Ideas for how to attach the windbreak.
- CAD model
- Select material to represent the sheeting in the model.
- The cost of the frame.
- Sheeting materials: using the panel or not.
- Ideas for the model.
- Sectional of the actual frame to represent.
- Ask the client for site pictures for CAD used.
- The idea of having a rob around the whole frame to add extra support for the sheeting.
- The idea of water collection can be done based on time scheduling.
- No need for a full scale model.

### Action Items:

- Meet on Tuesday 1-28-014 , GJ 114 class time:
  - Sketch ideas
  - CAD model of the ideas
- Schedule a time for Detailed Design Review

## Meeting Minutes

1-30-2014

### Discussed Items:

- Ideas for the windbreak and the door.
- Ideas for the movable windbreak.
- Ideas for the side door.
- The space and the size of the windbreaks.
- Ideas for using the windbreak as storage.
- Questions for the client:
  - The final design of the windbreak.
  - The space
  - The skid if it is going to be used frequently or not

### Action Items:

- Finalize the design with the client
- Prototype:
  - Materials
  - Size
  - Windbreak
- Wind tunnel:
  - Exam it to scale
  - More testing
- Wikipage.

## Meeting minutes

2-6-2014

### Discussed Items:

- All the solidWork parts were placed in the share drive.
- Find Fitting.
- Validate the design with structure student.
- Wind tunnel test
  - Meet in Tuesday at 3
  - Model for the testing
  - Different angles
- Determine the final shape for the frame: square or circular.
- Determine the angle and the connectors
- Model for the expo:
  - Determine the scale.
  - The materials
- Get the budget number.
- Design review:
  - Arrange the time " Thursday regular time meeting"
- Price estimate:
  - The frame about \$ 2,500 and 5,000 with the roll up side and the door.

### Action Items:

- Wind tunnel test
- Search for fittings
- Price estimate
- Scale and materials for the model

## Meeting Minutes

2-13-2014

### Discussed Items:

- Cost estimate
- Material for modeling :
  - Cost for model
  - Tubes to model the frame
  - The base
  - The cover
- Ways of attaching the plastic cover to the windbreaker
- Design review :
  - Thursdays 2-27 at 3
- 3-D model

### Action Items:

- Meeting on Friday 2-14-2014 at 2:30 to build the model
- Meeting on Tuesdays 2-18 after the class to start the design review slides
- Confirm the design review with the client



Meeting Minutes  
2-27-2014

Discussed Items:

- Design review:
  - Finish the PowerPoint slides
  - Cost analysis
  - Covering materials
- Finish the 3-D model
- ways of connecting the windbreak to the frame
- ways of placing the wiggly wire and attaching the cover material on the frame and the windbreak
- Cost analysis:
  - the covering material
  - concert
  - wiggly wire
  - lumber
  - frame kit
- Design Review:
  - Monday 3-3-2014 at 2:45 pm
  - same place as regular meeting
- instruction manual
- EXPO registration
- Poster for the EXPO
- The model present stat

Action Items:

- Meet on Friday to finish the PowerPoint for the design Review
- prepare for the snapshot on 3-11-2014
- Start working on the poster for the EXPO