

EYP/® minutes

To:	Attendees	Date of meeting:	June 10, 2019
Project Name:	Bull Run Hall Addition	Time of meeting:	9:30-11:30
Project No.:	1019004.01	Location of meeting:	Sci Tech, IABR, Conf Rm 1004
		Meeting Number:	2.1

Meeting Purpose: Programming for Instructional Wet Labs & Support Spaces

Attendees:

George Mason University:

- Tony Falsetti, COS-FRSC
- Gerald Weatherspoon, Chem
- Martha Wescoat-Andes, COS
- Patrick Vora, Physics
- Paul So, Physics
- Oscar Barton, VSE
- Joyce Rose, VSE
- Gen Grant, Biology
- Kim Rule, Forensic Science
- Larry Rockwood, Biology
- Peggy Einhorn, COS
- Remi Veneziano, Bioengineering
- Ben Allen, ITS
- Paul Didier, EHS
- Liza Wilson Durant, VSE
- Mary Ellen O'Toole, COS
- Caroline Holman, Bioengineering
- Laura Manno, Provost/Planning
- Colby Grant, Sci Tech Admin
- Debbie Brady, Facilities
- Virginia Steele, Facilities
- Joy Staulcup, Facilities
- LeAnn Pittman, CaLT/Learning Space Design

EYP:

- Melissa Burns, Academic Planner
- Brian Tucker, Lab Planner
- Rebecca Ross, Planner/Architect
- Suzanne Klein, Project Director

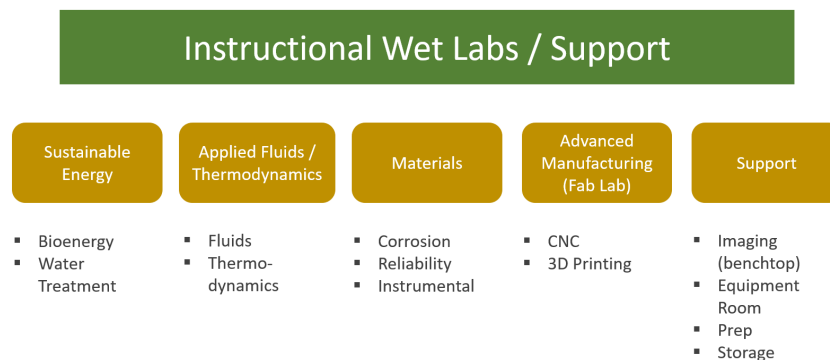
Minutes:

General Comments:

The group met on George Mason University's SciTech campus. The purpose of the meeting was to discuss each functional space type in more detail and to identify the following for each space:

- Number of students
- Type and style of teaching
- Timing of courses (Fall/Spring/Summer, Frequency, Time)
- Key adjacencies,
- Prep/Storage needs
- Major equipment

1. **Introductions:** Laura Manno introduced the meeting and provided a brief project overview to the group for new attendees that were not in the last programming meeting. She explained the process and purpose of the building and that there will be ongoing conversations on scheduling, logistics and budget. There were diagrams on the wall which were presented at the last building committee meeting and were the starting point for this set of interviews.



The green bar represents a typology in the building and the gold groups represent a function of the type followed by a list of uses. The function could be representative of one or more spaces and are a way to think holistically and collaboratively about space within the building. Physics has been asked to join the programming meetings since it was brought up at the last round of meetings that they may have some overlap with the functional space types in Bull Run Addition.

2. **Quantum Materials (Physics):** Physics and VSE agreed that Material Characterization is an opportunity for initial overlap with more specific materials space needs met in Academic VIII.
 - a. Quantum students often need to "build" project or solutions that could align with engineering interests.
 - Courses would include Atomic Force Microscopy (in Planetary now); Cryogenics; Magnetic Measurements
 - b. Patrick Vora explained that currently they use whatever they can to teach. Usually a room with empty tables.
 - Ideally, High top tables with a computer on each table.
 - Instrumentation needed for each lab which gets carted in and out.
 - No chemical Use
 - Water would be used – water bath, cold bath, hot bath

3. The group decided to reorganize the agenda and start from the bottom to talk about Major Equipment and the space associated. Everyone broke into small groups to discuss and report back to the larger group.
4. **Advanced Manufacturing:**
 - a. Additional Uses:
 - Could overlap with Microfluidics (Physics)
 - b. Equipment:
 - CNC, 3D Printers, Lathes, Milling, Welding, Casting, Composites
 - Welding equipment needs exhaust
 - Space is dirty and will cause vibration
 - c. # of Students:
 - Mechanical Engineering: 24 students; Manufacturing Processing Course
 - d. Primarily academic space but with appropriate resources it could be open 24 hours a day.
 - Driven by curriculum and faculty with vision on how to teach labs
 - Structured activities
 - Students will come back to the lab to work on projects (open lab time)
 - With growing demographic, Mechanical Engineering will overwhelm this lab.
 - e. The group agreed that the Fab Lab can be removed from the “Instructional Wet Labs” typology and moved to the Student Design Typology.
 - The Fab Lab is a separate space & shared resource that will support capstone projects and design competitions, it will not be driven by curriculum
5. **Materials Characterization:**
 - a. Additional uses:
 - Advanced Characterization, both optical and electrical
 - Surface Characterization
 - b. Equipment:
 - ME: Mechanical Testers (Tensile, Torsion, Bending)
 - Physics: SQUID Magnetometer, TGA, XPS, EDS/XRD, AFM, Polarity Equipment
 - High-end imaging equipment often requires dedicated rooms with specialized building utilities
 - Optical Imaging/Spectroscopy, Goniometers
 - 3d Printers
 - c. # of Students:
 - Mechanical Engineering: 24 students
 - Bio-Engineering: 20 students
 - d. Consider vibration for this lab; equipment is sensitive.
6. **Sustainable Energy:**
 - a. Additional Uses:
 - Photovoltaics / Solar Energy, Catalysis, Wind Energy, Microfluidics, Optoelectronics
 - b. # of Students:
 - Mechanical Engineering: 24 students

7. **Applied Fluids/Thermodynamics:**

- a. Equipment:
 - Wind Tunnel, Manometers, Flow Benches, Heat Exchangers
- b. # of Students:
 - Mechanical Engineering: 24 students
- c. In Physics, the computational design of fluid flow uses 3d printers.

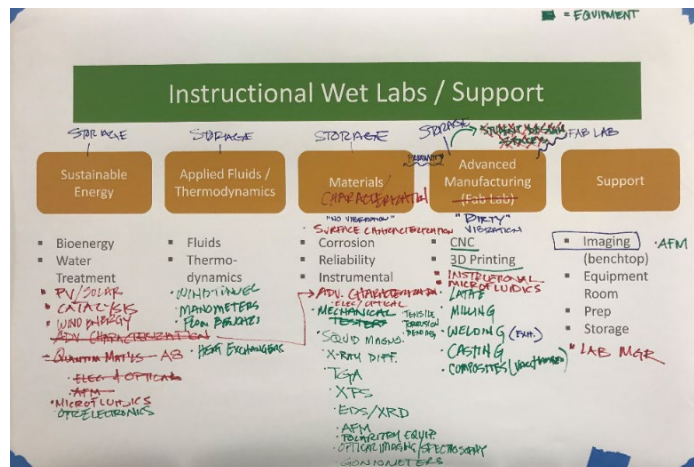
8. **Storage and Prep:**

- a. Instrumentation suite with fixed equipment adjacent to the Materials Characterization teaching lab.
- b. Storage rooms for mobile equipment
 - Could each lab have their own storage space?
 - The idea of "Jack and Jill" storage was brought up as storage space that could be shared between labs.
 - If multiple departments are using the same lab, there will be even more storage needs per lab.

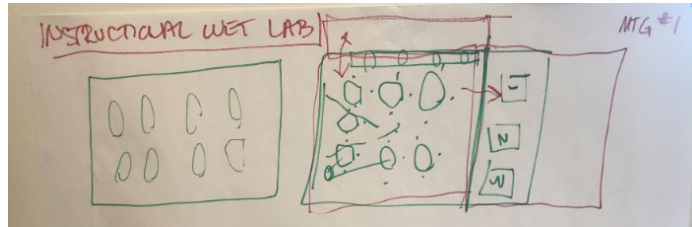
9. **Adjacencies:**

- a. Melissa asked if there is any relationship between Sustainable Energy and Applied Fluids. Oscar said he will get back with an answer once he talks to his colleagues.
- b. Advanced Manufacturing and Fab Lab would benefit from being next to each other with a common shared equipment room between them for large and expensive equipment (for example a large CNC Mill).
- c. Materials Characterization should be close to the Advanced Manufacturing and Fab Lab (taking into account vibration sensitivities).
 - Students may cut something in the Fab Lab and take it to the materials characterization lab to analyze.

10. **Homework** for the group is to send a course list to the building committee representative in preparation for the next round of interviews on 7/9 and 7/10.



Notes from interview discussion



Example of instructional Materials Characterization Lab with adjacent specialized instrumentation spaces

End of Meeting

The above constitutes my understanding of the items discussed and the decisions reached. If there are any additions or corrections, please, contact the undersigned.

Signed: Rebecca Ross / Brian Tucker

Cc: Attendees

Date: June 26, 2019