NDSU STEM Classroom and Laboratory Building
North Dakota State University
Fargo, ND

Subject: Advisory Committee Meeting Minutes - Workshop #1
Date: August 12, 2013

The following represents our understanding of issues discussed and decisions reached. Please review for accuracy and notify our office of any modifications.

NDSU STEM Advisory Committee Members Present:
Alan Kallmeyer, Mark Dahl, Michael Ellingson, Phil McClean, Andy Marah, Carolyn M. Harvey, Dinesh Katti, Kristi Wold-McCormick, Benton Duncan, Greg Cook (filling in for Erica Offerdahl)
Marc Wallman, Kelly Bisek

NDSU STEM Advisory Committee Members Not Present
Anita Welch
Don Miller
Erik Diederich
Erica Offerdahl

Design Team Members Present:
Jeremiah Christenson – O.N.E. (Mechanical)
Steve Schilke – KLJ Engineering (Civil)
Jason Skiple – Heyer Engineering (Structural)
Mike Berger – MBN Engineering (Electrical)
Marc Shannon – Northern Technologies (Geotechnical)
Doug Wild, Craig Peterson, Stephanie Richards McDaniel – BWBR (Design Architect)
Brian Berg, Larry Carcoana, Mark Honzay – Zerr Berg Architects (Architect of Record)

1. Design phases
   - Pre-Design – Programming and budget items are discussed
   - Schematic Design – General building layout, site location, cost estimate
   - Design Development – Refinement of work in Schematic Design, integration of building systems (mechanical, electrical, structural)
   - Construction Documents – Finalized drawings and specifications for entire project
   - Construction – Build the project to be occupied by fall of 2015

2. Design process and timeline
   - Big changes need to be made early and cannot be revisited without significant cost and schedule consequences.
   - Big picture items need to be addressed before moving into smaller details.
   - Estimates and cost checks will be performed as the project progresses to inform the design team to ensure the project remains on budget.
   - The original legislative submittal was discussed and what was presented in that document will ultimately be what needs to be delivered when the project is complete.

3. Site and site selection
    - The design team is responsible to assist the University with selecting the site for the building.
    - A list of design and site analysis criteria was presented and discussed in the attached file. Additional criteria were added:
        - NDSU is a research university. NDSU should present a 21st century building that looks like it belongs in the category of one of the top research universities in the country.
        - Mass transportation connectivity is critical from a student perspective.
        - Maintaining classroom space near the center of campus (central to students and faculty.)

4. Potential sites
    - Site 1 – Between Memorial Union and University Drive (East Patio and/or Churchill field vicinity).
        - The group felt that this was a positive site choice and should be explored further.
        - Good connection to existing Memorial Union services would be available.
        - Somewhat distant from the center of the existing STEM related buildings on campus.
        - Although currently underutilized, the new building would displace visible public green space at Churchill Lawn.
        - The building may invigorate the surrounding green space and help to increase activity.
        - Additional green spaces should be added or swapped. This could happen at site 7 where Nelson Hall is removed.
        - Brian noted that the situation of the building away from vehicular paths would help to filter the large volume of students between classes by requiring them to disperse among green spaces, pedestrian paths, and other buildings before encountering vehicular paths.
    - Site 2 – Parking lot east of engineering buildings
        - The group felt that this was a negative site choice.
        - The site is too far disconnected from existing STEM related buildings.
        - A significant portion of revenue-generating parking would be displaced. This would impact activities in the Bentson Bunker Fieldhouse, specifically volleyball.
    - Site 3 – Parking lot west of engineering buildings
        - The group felt that this was a positive site choice and should be explored further.
        - More of a 'bridge' building connecting the north and south portions of campus.
        - One of the only visitor parking lots would be displaced. There was concern regarding visitors losing the ability to park near the center of campus and how to handle visitor parking. Possible relocation of visitor parking would be necessary.
        - A significant portion of revenue-generating parking would be displaced.
        - There was concern that the building may take on the identity of an Engineering Building due to its proximity to the existing Engineering buildings.
    - Site 4 – South of Sheppard Arena
        - The group felt that this was a negative site choice.
        - The size of the site would force the building to be taller and more costly to construct its foundations.
        - The group noted the potential for a pedestrian and vehicular circulation gridlock problem occurring between classes when a large volume of students converge directly on Centennial and Albrecht.
    - Site 5 – Geosciences building East of Industrial Agriculture Communications Center (IACC)

    - Mark Dahl suggested that a portion of the new building could be built around the existing geosciences building with the remaining portion built on the west side of the engineering complex. The two buildings could be connected via a skyway over Centennial Drive. The group did not think the budget could support a skyway while maintaining the program spaces.
    - The group felt that this was a negative site choice.
    - A significant portion of the project cost would be spent on replacing the geoscience building in another location and capacity.
    - The group noted the potential for a pedestrian and vehicular circulation gridlock problem occurring between classes when a large volume of students converge directly on Centennial and Albrecht.
- Site 6 – Over Albrecht Boulevard, between Union and buildings on West
    - The group felt that this was a negative site choice.
    - The vehicular, delivery, mass transit, and emergency service transportation interruption would be very problematic.
    - The embodied infrastructure that would need to be re-routed would be expensive.
- Site 7 –Nelson Hall site
    - The group felt that this was a negative site choice.
    - The size of the site would force the building to be taller and more costly to construct its foundations.
- A potential site directly over Centennial Drive was discussed.
    - Great "out of the box" idea!
    - The group felt the site presented the following challenges:
        1. Potentially limits transportation from east to west across campus.
        2. Potentially obstructs one of the major view corridors link on the campus.
        3. Potentially creates movement congestion problems.
- There was a general agreement about the long term goal to remove cars and parking lots from the center of the campus. Brian noted that although this building won't be able to resolve that goal, it should be designed to allow that goal to happen in the future.
- Expandability options for future additions on to this building have not been considered by the design team yet.

5. Critical success factors.
    - The design team posed the following question to the group: What must NDSU do to achieve its short term (3-5 years) goals?
    - A summary of the ideas formulated is included in the attached file.

6. Investigating what works and does not work at NDSU currently.
    - The design team posed the following question to the group: What works and does not work currently at NDSU? The areas discussed were Lab Spaces, Classrooms, Campus, and Student Spaces.
    - A summary of the ideas formulated by the advisory committee is included in the attached file.

7. Need for a building manager or administrator having the following responsibilities
    - Lost and found
    - Reporting of issues
    - Ownership of space as it relates to operation of the new building
    - Upgrading of items within spaces
    - Who is responsible for consumables, stock items, reordering

- Who controls and allows access to building storage spaces
- ***Action Item: Mike will bring this issue to the Cabinet's attention for advisement***

8. Use of the existing spaces on campus to be vacated or re-used when this building comes on-line.
    - ***Action Item: Mike will bring this issue to the Cabinet's attention for advisement***

9. Programming
    - An initial programming document was prepared about 18 months ago and sent to the Legislature for funding.
    - This initial program was developed by Zerr Berg Architects with input from Kevin McCaul. There was enough input to generally size the building for funding, but the initial program is just a tool and will likely change.
    - The legislature is not aware of the breakdown of the classroom and lab spaces and therefore will not have requirements that the sizes and amounts do not change from what was submitted.
    - Class sizes were discussed. Smaller and more involved class sizes appear to be trending.

10. Visual program presentation
    - Roughly half of the programmed space is currently science space
    - Roughly half of the programmed space is classroom/student spaces
    - A 450 seat auditorium is not ideal, and classes of that size are the result of a lack of teaching faculty. Most favor more sections and smaller class sizes.
    - The building is planned to be a STEM building, not just a departmental building. The breakdown of departmental spaces is used as an organizational tool.

11. Quantity and size of the pre-design program
    - General
        - ***Action Item: How many people will need to be taught per classroom is a critical number for the design team***
    - Lab Spaces
        - 24 students per lab for chemistry, biology, bio-chemistry
        - Ability for teaching materials to be carted and stored nearby for changing spaces throughout the day
        - Storage and prep spaces are necessary for adaptable space
        - Lab technicians may be needed. They may need space or offices
    - Biological spaces
        - Spaces may need to grow to provide for 24 students
        - Storage rooms may need to grow to provide for prep spaces
        - General biology will fill 5 rooms 40 hours a week
        - Histology is only taught for one section, one semester a year
    - Chemistry and Biochemistry
        - Organic Chemistry is a sophomore level class taught both semesters
        - Not very flexible with other uses
    - Engineering
        - Measurements and Instrumentation labs can be combined between Mechanical and Electrical Engineering
        - Shared instrument labs promote multi use and reduced duplication of instrumentation
        - Environmental Engineering lab will be similar to a chemistry lab. It will need fume hoods

    - Material Characterization lab will need more space for large apparatus devices and equipment. It will need hoods.
- Entomology
    - There was no representative present to discuss.
    - ***Action Item: The design team will work with Entomology to discover their needs.***
- Nursing
    - There was no representative present to discuss.
    - ***Mike and Mark followed up with Dean Peterson on the potential of a nursing simulator lab. The nursing simulator lab is being programmed and built this winter in Sudro. Therefore this area can be eliminated from the STEM program.***
- Plant and Soil Sciences
    - The uses of these spaces will likely be shared as they do not have the need for full time use of the spaces.
- STEM Classroom Spaces
    - Interactive learning spaces would be divisible into four equally divisible spaces for four total spaces.
- Seminar Spaces
    - Many requests are made for small seminar spaces of 16 students.
    - These spaces are very expensive and ineffective as modular movable spaces
    - The size of the general classroom spaces seemed too large for the first year experience.
- Large Auditorium
    - NDSU may use one, but it may not be the right approach.
    - They currently use one now (Gate City Bank Auditorium) but the group felt that they should not use an auditorium this large.
    - NDSU administration is currently working on adding teaching faculty, which will help to alleviate large auditorium needs.
- Medium Auditorium
    - At least one medium auditorium should NOT be fixed seating but rather 8 person collaborative seating at tables.
- General Classrooms
    - There are too many uniform classroom sizes in the program.
    - There needs to be more between 35 students and 200 students.
    - Some current campus spaces are over their usable capacity. This project will allow some of these spaces to be thinned out to a more usable capacity.
    - A larger distribution of the classroom sizes is desired.
- Student Spaces
    - Capstone space and TA space may be dual purposed.
    - Group spaces were intended to be either rooms or breakout spaces
    - Study spaces were intended to be associated with Student Services and TA space
    - A 5000 SF commons space is included
        1. A coffee shop may be included if it is remote.
        2. A coffee shop may not be included if it is connected to the Memorial Union.
        3. Dining services may dictate this.
    - Display spaces are needed for all disciplines
        1. The security of the display spaces was discussed.
- Computer spaces
    - There may be the need for large computer teaching clusters.

- Laptop clusters have been tried at Barry Hall but do not work.

12. Is there a common thread that binds the building together?
    - The building is primarily but not exclusively undergraduate
    - The building is primarily but not exclusively STEM related
    - The building is primarily freshmen and sophomore related due to the lab spaces

13. The items below were identified by the design teams as items that will benefit from input from the advisory committee before the next group meeting.
    - ***Action Item: Please review the lab spaces identified in the space program. Please discuss with the Dean and others within your division to be prepared to respond to the following questions. Responses are appreciated by Friday August 23rd.***
        - ***Are these teaching labs the highest priority for your department?***
        - ***How many students should each teaching lab accommodate? Looking forward, what is the ideal number of students that should be in the class/lab section?***
        - ***Are these teaching labs flexible in that they could be shared with other STEM classes?***
        - ***If the teaching labs are not flexible, how many hours per week will your department utilize the lab?***

14. The next NDSU STEM Advisory Committee Workshop meeting will be held on **August 27th.** The meeting will be from 10:00 am to 2:00 pm in the Memorial Union Arikara Room. Some members of the committee may be dismissed prior to 2:00 pm to allow for small group meetings. Tentative agenda items and discussion goals are as follows:
    - Design 'vision' review
    - Design synergy exploration
    - Scope/budget check
    - Final site option review
    - Program review

Report by:
Mark Honzay, AIA
Zerr Berg Architects

CC: Mike Ellingson, Mark Dahl – NDSU Facilities Management
Kristi Wold-McCormick, Benton Duncan, Carolyn M. Harvey, Andy Mara, Anita Welch, Don Miller, Phil McClean, Dinesh Katti, Erik Diederich, Alan Kallmeyer, Erika Offerdahl, Marc Walman, Kelly Bisek – NDSU STEM building advisory committee
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