Today’s Agenda

- **Board of Trustee updates**
- **New Presentations**
  - Plant Biology – North Wing Lab Exhaust System
  - Facility for Rare Isotope Beams Highbay
  - Music Building – Replace Electrical Substation
  - Butterfield Hall – Major Renovation
- **Project updates**
  - Michigan State Police Post Demolition
  - Music Building – Renovations to Auditorium
  - Spartan Stadium – Replace Existing Scoreboards and Install Sound System
  - Steam Distribution – West Circle Steam Loop – 2012
  - Steam and Road Reconstruction – Chestnut Road & Steam Tunnel to I.M. West Building – 2012
  - Eli and Edythe Broad Art Museum
Step 1: Authorization to Plan

- Akers Hall – Consolidate Dining Hall and Sparty’s to Develop Restaurant Concept
- Manly Miles – Replace Fan Coil Units and Upgrade

Step 2: Authorization to Proceed

- Music Building – Replace Electrical Substation
- Butterfield Hall – Major Renovation
- Plant Biology – North Wing Lab Exhaust System
- FRIB Highbay
Plant Biology – North Wing Lab Exhaust System Replacement

Plant Biology Laboratories
Project objectives:

- Eliminate exhaust entrainment into Plant Biology
- Replace aging, end-of-service-life equipment serving north and east wing labs
- Improve building occupant and maintenance personnel safety
Temporary safety measures – Installed by July 21, 2012
Teaching (Botany) wing
Teaching (Botany) wing mechanical plan
Project impacts:

• Work is planned to only be performed in mechanical spaces and on the roof at this time (minor duct connections in teaching wing)

• Parking/traffic potential impacts:
  o Periodic re-route at loading dock for equipment crane lifts
  o Will work with MSU Police regarding closures/detours

• Planned that building faculty/staff will remain in their spaces with temporary interruptions to fume hood operations
Possible road closure due to crane operation (at MSU’s least-inconvenient time – Saturdays)

Groups impacted/coordination pending with: MSU Police, Landscape Services, CATA
Project schedule:

- BOT Step 1 – June 2012
- BOT Step 2 – September 2012
- BOT Step 3 (*tentative*) – December 2012
- Substantial Completion – May 1, 2013
FRIB Highbay
Why Build FRIB?
Benefits to Society

- **Workforce**
  - Development of talent for technical, medical, security, and industrial fields

- **Homeland security and defense**
  - Detectors at borders and throughout the country to detect nuclear material and components
  - Nuclear scanning techniques to screen cargo and luggage
  - Nuclear forensic methods to track and trace nuclear material

- **Medical applications**
  - Isotopes for medical research; treatment of cancer and tumors

- **Energy**
  - Reliable calculation of fission and energy generation
  - Allow mechanisms of radiation damage to be studied in detail
  - Sensitive probes for the development of new materials, e.g. lithium-film batteries
Why Build FRIB?
Economic Impact

- **Economic impact now**
  - MSU is ready to begin construction on FRIB
    - More than 5,000 one-year construction jobs
    - Michigan-based Construction Management company and Architect/Engineering firm
    - Construction will happen in 5 phases (delivery orders)
      - $160,000,000 in civil construction costs alone
      - $680,000,000 in total project costs

- **Economic impact for the future**
  - Hiring numbers for FRIB
    - About 155 new hires since the project started; most in technical divisions, some construction, some management
    - A dozen open positions currently (listed on frib.msu.edu/careers)
  - Attracting top scientists from around the world
    - Hired top people in the U.S.
      - from national laboratories and leading universities on both coasts
    - Hired top people from around the world
      - Increasingly looking to Asia

- **Ongoing funding for operations of $60-80M in annual appropriations**
  - Funding in FY2013 dollars
Configuration Proposed to DOE in 2008

B. Bull, Construction Junction - 12 July 2012,

Wharton Center
FRIB Current Site Layout
Optimized to Reduce Site Impact
Draft FRIB Master Plan
Science Driven Upgrade Options Available
FRIB Highbay Project Overview

- **General Description**
  - 19,000 square feet
  - To house all of the superconducting radio frequency (SRF) technical facilities at MSU
  - Will yield an integrated and more consolidated base of operations improving superconducting cavity and cold mass production and production cavity and cryomodule test efficiency

- **Strategic Plan**
  - Space will become a world class facility for Superconducting Radio Frequency (SRF) technological development and will support the continued upgrades of the FRIB facility as well as other national needs and interests, special projects, and research and development
Highbay Design Expedited

- Manufacturing to begin July 1, 2013
  - This means the building shell needs to be complete by April 1, 2013
  - Early structural steel procurement

- Design process is still underway
MSU will fund design and construction of a new 19,000 sqft high bay to house SRF infrastructure

- 2 cryomodule test bunkers
- 6 vertical test dewars
- Expanded clean room
- Heat treatment furnaces
Reviews, Approvals and Interactions

- Michigan State University (MSU) BOT approvals and stakeholder interaction
  - Campus Infrastructure Planning Work Group (CIPWG) (16 May 2011)
  - Board of Trustee (BOT) action step 1 (22 June 2012)
  - Planning Team general project update (11 July 2012)
    - Construction Junction (12 July 2012)
    - Campus Infrastructure Planning Work Group (CIPWG) (15 Aug 2012)
    - Board of Trustees (BOT) action step 2 (7 Sept 2012)

- Coordination continues across campus with Physical Plant Engineering and Architectural Services (EAS), MSU Police Department (MSUPD), Wharton Center, and Campus Planning and Administration (CPA) to coordinate High Bay with Bogue/Shaw intersection project
FRIB Highbay
View from Northeast
FRIB Highbay
View from West
Path Forward

- Path Forward
  - BOT Step 2: FRIB High Bay - September 7, 2012
  - Construction Start – September 2012
  - Substantial Completion – July 2013

- This aggressive schedule coincides with the critical path for FRIB to assemble cryomodules by July 2013
FRIB Highbay

**Description:** In December 2008, it was announced that the U.S. Department of Energy had named Michigan State University’s [National Superconducting Cyclotron Laboratory](http://ncl.msu.edu) as the new home to the [Facility for Rare Isotope Beams](http://frib.msu.edu) project.

As a national user facility, FRIB will provide intense beams of rare isotopes (that is, short-lived nuclei not normally found on Earth). FRIB will enable scientists to make discoveries about the properties of these rare isotopes in order to better understand the physics of nuclei, nuclear astrophysics, fundamental interactions, and applications for society.

The highbay addition will be 19,000 square feet. It will house the superconducting radio frequency facility. It will provide a more consolidated base of operations, and it will be a world-class facility in certain technologies – a center of excellence.

**Timeline:** Construction of the highbay building is expected to begin in 2013.

**Comments, questions, concerns?**

Project Representative: Brad Bull, babull@pplant.msu.edu, 517-908-7751
July 2012
View of Anthony Hall from Shaw Lane facing south
Program

• Building underwent retro-commissioning between November 2011 – May 2012
• Building has been chosen as a “Showcase Building” under the Better Buildings Challenge initiative created by the U.S. Department of Energy.

Anthony Hall snapshot
- Original construction 1955
- Major renovation 1997
- 317,176 square feet
Showcasing MSU’s energy leadership: Better Buildings Challenge

July 2012
General work scopes

• ECMs: Energy Conservation Measures
• FIMs: Facility Improvement Measures to correct or improve performance problems within the facility
• M&R: Maintenance and Repair improvements

Estimated payback of implementation cost: 10 years
Project highlights

- Improve the operation of laboratory ventilation system and control strategies.
- Improve the operation of the process water systems.
- Provide energy recovery run-around loops.
- Convert room level pneumatic temperature control system to direct digital controls.
- Upgrade general exhaust ventilation.
- Improve the operation of hot water heating systems.
- Upgrade the chilled water system.
Project impacts

• Planned that building faculty/staff will remain in their spaces with temporary interruptions to HVAC operations.

Schedule

• Construction in common areas plans to be completed between 5/6/2013 and 9/6/2013 in order to minimize occupant disruption.

July 2012

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MSU Construction

Physical Plant Home

Project Status
Planning/Design
Construction
Archived

Construction Home Projects Detours Listserv Construction Junctions

Anthony Hall – Energy Conservation Measures

In-Planning/Design
May 2012 - December 2012

Description: Anthony Hall is located on the corner of Farm Lane and South Shaw Lane. It has been chosen to be the showcase building under the Better Buildings Challenge initiative created by the U.S. Department of Energy. The project consists of 75-percent energy conservation measures and 60-percent facility improvement measures, and there will also be maintenance and repair improvements.

The project is to improve the laboratory ventilation control system. This will reduce airflow and improve air quality inside the laboratory.

Questions, comments, concerns?

Design Representative: Phuong Nguyen, pnnnguyen@appplant.msu.edu, 517-353-2291
Project area
Music Building – Replace Electrical Substation

In-Planning/Design

Description: The Music Building is located on West Circle Drive across from IM Sports Circle. The electrical system needs to be upgraded. The upgrade will provide a double-ended electrical service to this building. This double-ended sub-station will be fed by two circuits. If there is a circuit failure, the other circuit can provide service to the facility without a power outage.

The new vault will be placed in an underground vault adjacent to the music-music practice pedestrian tunnel within the courtyard area of the two buildings. There will be space and provisions for an emergency generator in the new vault that can be added in the future. All work will be performed underground and will take about three months to be put in place.

Timeline: The project will start over Christmas break in 2012. The sheet pile driving required to construct the new vault will take place between the Christmas and New Year’s holidays to minimize noise interruption.

Questions, comments, concerns?

Design Representative: Scott Gardner, mgardner@pplant.msu.edu, 517-432-0780
Butterfield Hall – Major Renovation

Project area
aerial :: site
planning :: site
Butterfield Hall – Major Renovation
July 2012

LEVEL 01
FLOOR PLAN

BUILDING SUPPORT
COMMUNITY BATHROOMS
COMMUNITY RESOURCE
LAUNDRY | RECYCLE | VENDING
BUSINESS SERVICE CENTER
PROGRAM LOUNGES

HOUSE SPACE
SOCIAL LOUNGE

STUDY SPACE

BED COUNT = 431
existing conditions :: site
East elevation
North elevation – Michigan Avenue corner
South elevation
Butterfield Hall - Major Renovation

In-Planning/Design

**Description:** Butterfield Hall is located on the corner of Michigan Avenue and Harrison Road in the northeast corner of the Brody Complex in the Residential District. Butterfield Hall is located on the corner of Grand River Avenue and Harrison Road. This is an additional renovation along with Brody Hall project.

With this project, more green space will be added between Butterfield and Brody halls. Additional study rooms will also be added on each floor per requests from the students. The building will have green roofs installed on both the south and north sides. Each floor will have conference room spaces for meetings and studying. The third floor will have more lounge space and the laundry area will be revamped. There will be a fitness and gaming areas on the fourth floor.

The main entrance will be unique than any other residence hall on campus:

- There will be no reception desk.
- It will be open and have a welcoming feel.
- Mailboxes will be placed off to side with an adjoining recycling center and vending area.
- Conference rooms will be added.

There will be no reception desk. It will be open and have a welcoming feel. Mailboxes will be placed off to side with an adjoining recycling center and vending area.

**Questions, comments, concerns?**
Buildings 13, 14, 15, 16 and 17 will remain
View from the basement of what used to be building 2
Demolition and recycling of building 1
Looking northwest more than half of Building 1 has been demolished.
Crushing concrete into smaller chunks so it can be recycled and reused.
Construction crews prepare to sort through the pile of rubble and debris at building 1
Building 1 in the process of being demolished
Site where building 1 used to be
An excavator lifts concrete and loads it into a waiting truck to be recycled.
Truck unloads sand while another is filled with concrete from basement of building 1.
Helicopter pad on west side of construction site once used by the Michigan State Police
The helicopter pad was repaved and will be restriped for future use by MSU.
Bricks from the Police Post compared to those at the Music Building
Michigan State Police Post Demolition

In-construction
April 2012 - August 2012

Description: Michigan State University leased property on Harrison Road to the State of Michigan for use as the Michigan State Police headquarters. The Michigan State Police has now relocated its headquarters, and the State of Michigan is in the process of returning the Harrison Road property to MSU. The University has inspected the existing buildings that remain on Harrison Road site and found that the current condition and configuration does not allow reuse for most University needs.

Selected structures will be used for university activities. Given the current condition of these structures, including the presence of asbestos and other hazardous materials, it is in the best interest of the University to begin planning for demolition while future site development plans are under consideration.

The old Michigan State Police Post is located on Harrison Road, south of Kalamazoo Street, in the Service District. This project involves demolition of most buildings, including remediation of environmental issues. Existing asphalt and concrete will remain and limestone will be laid where buildings once stood.

Questions, comments, concerns?
Design representative: Dennis Hansen, hansen@pplant.msu.edu, 517-353-9223
Construction Representative: Ken Gottschalk, kgottsc@pplant.msu.edu, 517-353-7234

Related Materials
- Demolition FAQs
Music Building – Renovations to Room 128 Auditorium
Music Auditorium design scope

• Acoustical improvements, including removing balcony in back
• Seating replacement
• Theatrical systems and infrastructure improvements
• Mechanical system upgrade
• Air conditioning of auditorium and platform
• Accessibility improvements
• Fire alarm system replacement for entire facility
View of stage from audience before work started
Music Building – Renovations to Room 128 Auditorium
July 2012

View of audience from stage when project is completed
View of stage from audience when project is completed
View of space before demolition from stage
Cheek wall removal beginning, backstage demo complete
Balcony concrete removal, support beam exposed
Music Building – Renovations to Room 128 Auditorium
July 2012

View from stage of balcony demolition
Balcony beam exposed
Balcony beam removed
Platform scaffolding for the ceiling demolition
Scaffolding for ceiling demolition
On top of platform
Post shoring to support the auditorium floor and scaffolding above
Bricks from the Police Post compared to those at the Music Building
Music Building – Renovations to Room 128 Auditorium
July 2012

Music Building - Auditorium Renovations
In-Construction
June 2012 - December 2012

Description: The Music Building was constructed in 1940 and obtained an addition in 1956. The Music Practice Building was constructed in 1968. These two facilities are the primary locations for the College of Music. In addition, the college uses rehearsal/recital and performance venues at Demonstration Hall, Wharton Center and the Auditorium Building. The Music Building includes a 350-seat auditorium (room 128) that is heavily used by the College of Music for instruction, rehearsal, recital and performances. The Music Building auditorium has had limited renovations since its construction in 1940. It lacks proper heating, ventilation and air conditioning, has acoustical deficiencies, and is in need of general maintenance. Planning efforts continue to focus on a multi-facility approach for providing venues for the College of Music.

The planning of this project is anticipated to include:
- Acoustical enhancements
- Purchase and installation of an orchestra shell
- Seating replacement and additions to increase capacity
- Installation of air conditioning, heating and ventilation modifications
- Installation of new fire alarm system
- House and stage lighting upgrades
- Door replacements
- Ceiling modifications
- Balcony demolition
- New side walls
- Exterior card access
- Modifications to the exits and floor slopes

The Music Building is located on West Circle Drive in the north academic district.

Questions, comments, concerns?

Construction Representative: Todd Wilson, tdwilson@ppplant.msu.edu, 517-432-4355
Project area
West Circle Drive from Abbott intersection west of Beal Street intersection
Steam tunnel work near Eustace Hall
Front steps of Berkey Hall
View of construction site from fourth floor Morrill Hall
Communication materials

Internal display boards

Brochures
Steam Distribution – West Circle Steam Loop – 2012

July 2012

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Project area

Steam and Road Reconstruction – Chestnut Road & Steam Tunnel to I.M. West Building
Steam tunnel will run from Munn Ice Arena to IM West, but Munn loading dock will remain accessible. On-street parking will be removed and relocated, and bike lanes will be added. Construction from May 7 to August 17, 2012.
Steam and Road Reconstruction – Chestnut Road & Steam Tunnel to I.M. West Building
July 2012

Project phases

SEGMENT 1: MAY 7 - MAY 21
1. Chestnut Road closed to through traffic between Lake and Campus Center Drive.
2. Parking lots closed.
3. Inner roadway closed.
4. Sidewalks closed.
5. Pedestrian routes rerouted.

SEGMENT 2: MAY 21 TO JUNE 15
1. Chestnut Road closed to through traffic between Lake and Campus Center Drive.
2. Inner roadway closed.
3. Parking lots closed.
4. Pedestrian routes rerouted.

SEGMENT 3: JUNE 15 TO AUG 19
1. Chestnut Road closed to through traffic between Lake and Campus Center Drive.
2. Inner roadway closed.
3. Parking lots closed.
4. Pedestrian routes rerouted.
5. Detours in place.

SYMBOL LEGEND
- ROAD
- SIDEWALK
- PROJECT SEGMENT
Chestnut Road north of Dem Hall Road nearly ready to pave
Steam and Road Reconstruction – Chestnut Road & Steam Tunnel to I.M. West Building

July 2012

Various site work ongoing
Photo of new steam vault/steam tunnel looking south down Chestnut Road
Steam and Road Reconstruction – Chestnut Road & Steam Tunnel to I.M. West Building
July 2012

Trail closed, utilize parking structure bridge. Access to sports fields will be maintained.
Chestnut Road and New Steam Tunnel to IM West Building

In-Construction
May 2012 - August 2012

Description: The direct-buried steam and condensate lines in this area were installed in 1958. The lines have been repaired several times and continue to require attention, including the repair of leaks in the lines, valves and fittings. In addition, this segment of Chestnut Road and Demonstration Hall Road are deteriorating and are not configured to current MSU standards, including bike lanes.

This project is located southwest of the IM West Building, along Chestnut Road, in the athletic and recreation district. This project involves the replacement of the existing direct-buried steam and condensate return lines with new lines in a steam crawl tunnel, along with the reconstruction of Chestnut Road. Some on-street parking will be removed from Chestnut Road and bike lanes will be implemented. Demonstration Hall Road will have bike route signage. This project also includes sewer separation, storm water management improvements and water main improvements to the region.

Timeline: This project is scheduled to begin construction in May 2012, with substantial completion in December 2013.

Questions, comments, concerns?

Design Representative: Scott Gardner, mgardner@ppplant.msu.edu, 517-432-0782
Construction Representative: Andy Linebaugh, alinebau@ppplant.msu.edu, 517-432-7103
Spartan Stadium – Replace Existing Scoreboards and Install Sound System
Spartan Stadium – Replace Existing Scoreboards and Install Sound System

July 2012
Spartan Stadium – Replace Existing Scoreboards and Install Sound System
July 2012
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July 2012

NORTH ENDZONE SCOREBOARD AND FASCIA
INTERIOR MODEL RENDERING
Northeast board
Northwest board
Framing of south scoreboard
Facing north toward the south scoreboard
Spartan Stadium – Replace Existing Scoreboards and Install Sound System

In-Construction
March 2012 - August 2012

Description: The existing Spartan Stadium scoreboards, including video display and sound system, were installed in 1998. The technology these boards use has become outdated and more difficult to service, as parts are no longer being manufactured. The sound system, which is housed in the existing south scoreboard, also uses outdated technology that does not adequately service the facility. The outer skin of the south scoreboard continues to be problematic during high winds, requiring regular repair. These boards also lag behind other highly competitive Football Bowl Subdivision football stadiums. Contemporary scoreboards allow additional revenue opportunities, and are becoming the norm for Big Ten football stadiums.

Spartan Stadium is located between Shaw Lane, Chestnut Road and Red Cedar Road in the Athletic and Recreation District. This project involves replacing the existing scoreboards, including sound system and video display, with more energy-efficient technology. There will be two scoreboards located on the north end with a ribbon panel that spans the north end of the bowl and one larger scoreboard on the south end. The new scoreboards will include structural improvements.

Questions, comments, concerns?

Design Representative: Scott Gardner, mgardner@plant.msu.edu, 517-432-0782
Construction Representative: Kevin Durkin, kdurkin@plant.msu.edu, 517-432-2153
the Broad
Front entrance to the Broad off of East Circle Drive
Front entrance to the Broad off of East Circle Drive
Northwest gallery
Café area
Southeast gallery, second floor
Restroom on main floor
Top of feature stair, second floor
New Media Gallery
Gallery and storage area
Mechanical room
East entrance
View of Broad facing northwest
Eli and Edythe Broad Art Museum

In-Construction
March 2010 - August 2012

Description: The Eli and Edythe Broad Art Museum will be located on the corner of Grand River Avenue and Farm Lane at the Collingwood campus entrance. The building will be constructed of steel and concrete with a pleated metal and glass exterior. The museum will include three levels totaling approximately 46,000 square feet. It will be oriented on an east-west axis, adjoined by an outdoor sculpture garden to the east and plaza to the west. In addition to multiple unique gallery spaces, functions within the building will include an education wing, a museum shop, visitor cafe and gathering space, a works-on-paper study center, permanent collection storage and administrative spaces. To view day-to-day construction activities, visit the Eli and Edythe Broad Art Museum webcam.

The project will be Leadership in Energy and Environmental Design (LEED) certified.
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For updates on all things Physical Plant follow @MSUPhysPlant on twitter and become a fan of our facebook page – MSU Physical Plant Division. Also, check out our YouTube page at youtube.com/physicalplantmsu for virtual tours of major projects on campus.
BEFORE YOU GO, VISIT THE CONSTRUCTION ‘SITE’:

CONSTRUCTION.MSU.EDU

Key features:

• Construction Projects
  – Project info
  – Contact information

• Construction Detours

• Construction Junctions

• Construction Listserv
Construction Junctions continue monthly

Meetings are at 8:30 a.m.
the second Thursday of the month

Summer meetings move to
1415 Biomedical and Physical Sciences Building

• August 9
• September 13 (location TBD)

Please sign in and take a survey before you go!