HENRY FORD COLLEGE

TECHNOLOGY BUILDING FEASIBILITY STUDY

JULY 2015

Stantec

TECHNOLOGY BUILDING FEASIBILITY STUDY

FEASIBILITY STUDY

CONSULTING TEAM

STANTEC

Patrick Calhoun
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Hannah Dean
Caz Zalewski

PARTICIPANTS

Significant contributions to this report have been made by members of the College's administration, faculty and staff. The brief list on this page mentions some of the contributors who have played an exceptional role in this process to date.

WORK GROUP MEMBERS

- Dr. Tracy Pierner - Vice President of Academic Affairs
- Gary Saganski - Associate Dean of Industrial Technology
- Dr. Cynthia Eschenburg - Vice President of Administrative Services
- Guy Pizzino - Industrial Technology Division Chair
- Reuben Brukley - Manager of Facilities Services
- Sandro Silvestri - CIO/Director of Information Technology and Facility Services
- Rebecca Hillary - Assistant to the Associate Dean, Industrial Technology

CONTENTS

INTRODUCTION

PLANNING FOR THE FUTURE

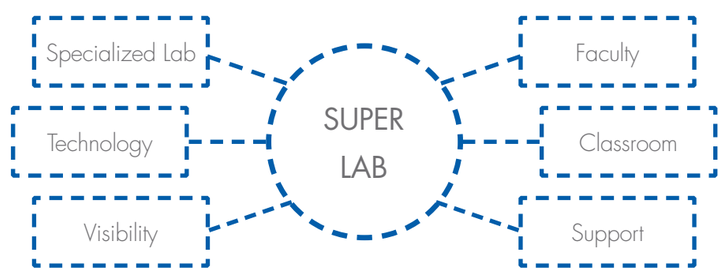
OVERVIEW

In an effort to create a more student centered, curriculum led, and instructor assisted learning environment, Henry Ford College (HFC) seeks to renovate and expand the Technology Building to accommodate new educational delivery models that will allow HFC to increase its ability to leverage lab resources to assist students and regional businesses with education and training opportunities. Flexibility, efficiency, state-of-the-art lab equipment, faculty expertise, and systems integration concepts embedded in the design of curricula are the cornerstone of the approach,. When labs, curricula and instruction are aligned they offer a tremendous strategic advantage to HFC in its services to the community and businesses.

Recently, HFC was awarded the Skilled Trades Equipment Grant from the State of Michigan. This report outlines both a short term plan for the integration of those new-found resources, as well as a long term vision for the future of the Technology Building and the programs it houses.

BACKGROUND

The Technology Building consists of two distinct sections - the original rectangular building, built in 1964, and the circular addition, built in 1996. With a total area of 169,000 GSF, the building houses classrooms, labs, offices, and a conference room. It is the main home for programs in the Business and Computer Technology Division and Industrial Technology. Many of the lab spaces within the Tech Building are highly specialized, catering to one particular program. While the building is structurally in good shape, many of its finishes have reached or exceeded their useful life. There is a lack of appropriate student and faculty collaboration spaces within the building, as well as a lack of transparency into the existing teaching spaces. The abundance of highly specialized spaces in the Tech Building translates to a low utilization of its labs – many of the spaces sit empty for the majority of the week – making them appropriate candidates for the development of flexible "super labs."



One of the goals identified in HFC's recently completed Campus Master Plan is to **create open-entry/open-exit lab spaces supportive of integrated curriculum, collaboration and blended, self-paced learning.** This involves reconfiguration of existing labs, where appropriate, from single-purpose, separated spaces into a "super lab" concept of a comprehensive main lab tightly connected to specialized support labs, classrooms, faculty and collaborative spaces. These spaces would operate as open labs, accessible throughout the day and week, independent from traditional semester schedules and focusing instead on competency-based curriculum. In the Technology Building, the Master Plan recommends implementation of the Center for Innovative Manufacturing Education (CIMed) program as outlined by HFC. The goal is to combine the best of e-learning, flipped classroom, in-class instruction and open-lab environment in a self-paced environment built around "Centers of Technology".

Additionally, the creation of super labs in the Technology Building would also support the following goals, as identified in HFC's Campus Master Plan:

- Promote student collaboration.
- Celebrate Centers of Excellence
- Create multipurpose labs to improve utilization.
- Put learning on display.
- Provide modern learning environments in heavily utilized facilities.
- Support Super Lab concept for science and technology education.
- Upgrade classrooms and labs in academic buildings across campus.
- Support new integrated programs.

FRAMEWORK

ESTABLISHING THE PROCESS

WORK GROUP MEMBERS

- Dr. Tracy Pierner - Vice President of Academic Affairs
- Gary Saganski - Associate Dean of Industrial Technology
- Dr. Cynthia Eschenburg - Vice President of Administrative Services
- Guy Pizzino - Industrial Technology Chair
- Reuben Brukley - Manager of Facilities Services
- Sandro Silvestri - CIO/Director of Information Technology and Facility Services
- Rebecca Hillary - Assistant to the Associate Dean, Industrial Technology

FRAMEWORK

Stantec was brought on to this project to assist the College in developing a two-part framework for modernization of the Tech Building:

1. A long-term Building Master Plan in keeping with the goals of the 2015 Campus Master Plan to direct future renovations and additions related to expected changes to the technology programs and pedagogy.

2. A short-term feasibility study and schematic design for the renovation of select labs, classrooms and student spaces focused primarily on the modifications required to be completed within the 12-month time frame dictated by the $4.5 million technology equipment grant.

Stantec helped guide HFC through the process of reviewing the existing conditions and function of the Tech Building and the programs operating within it, and evaluating how best to meet the requirements of the Skilled Trades Equipment Grant. Collaborating with a work group and program faculty identified by HFC, issues related to the equipment in the labs were reviewed and a plan for the integration of these new-found resources in the Tech Building was developed.

Four meetings were held between April 20 and July 1 2015. During this period, faculty receiving new equipment met with architects from Stantec and curriculum/instruction subject matter experts to discuss the specific needs of each lab and the affected instructional areas. Faculty met with the mechanical and architectural personnel during the early part of July to discuss infrastructure needs. Input from these meetings was documented and incorporated into the proposed design and layout of the building. An implementation plan and construction documents will be developed by a third party based on the conceptual schematic mechanical plans for each lab space, with the goal that some of the spaces will become operational during the Fall 2015 semester.

DISCOVERY AND EXPLORATION

UNDERSTANDING THE ISSUE AND EVALUATING THE OPTIONS

FACTULTY AND STAFF MEETINGS

Between April and July, Stantec met with HFC faculty from Automotive Technology, Welding, HVAC-R, Machine Tool-CNC, Robotics/Automation/Controls Technology and Power Eng./Process Technology. These meetings focused on identifying critical equipment and infrastructure space needs, accommodating new equipment, understanding program organization as well as proposed curriculum and pedagogical changes, honing in on scope and prioritizing the proposed work. The detailed minutes from these meetings can be found in the appendix of this report.

After providing an overview of flexible technology program labs to Industrial Tech faculty and staff on June 1, 2015, Mr. Terry Bartelt of Polk Community College, in conjunction with architect John Davids of Stantec, met with faculty from several programs in each lab area to discuss the potential for space improvements to accommodate the new equipment. Mr. Bartelt emphasized that non-linear scheduling requires less equipment, so if indeed HFC continued to head in that direction, older, less up-to-date equipment could be purged and the ratio of equipment to student could be reduced.

Based on the information provided by HFC, Stantec developed conceptual and schematic plans outlining the proposed renovations and additions to accommodate short term changes in the building configuration and arrangement of spaces, and compiled a more detailed list of the issues discussed in previous meetings and building walk-throughs.

PRIORITIZATION

The HFC Work Group worked with Stantec to identify categories for prioritizing the proposed work. Priorities are broken down into three categories:

- P1 Critical Need: Projects to be implemented within 1 year, and related to the Skilled Trades Equipment Grant.
- P2 Moderate Need: Projects to be implemented within the next 2 to 5 years.
- P3 Non-critical or Longer Term Need: Projects to be implemented beyond 5 years.

Using these priorities, Stantec was able to develop a short and long term plan for the Technology Building.

RECOMMENDATIONS

DEFINING THE PROJECT

OVERVIEW

The following outlines the proposed work to address the curriculum and equipment needs as identified by faculty from each program for both the short term and the long term. The short term plan for the Technology Building focuses on renovations to support HFC's evolving competency based curriculum and to accomodate new equipment purchased via the Skilled Trades grant. The long term plan focuses on creating a vision for the future of the building and the programs housed within it , based on the integrated learning environments and new pedagogies being developed by the College. Each item has been assigned a priority of P1, P2 or P3, indicating when it is to be implemented.

AUTOMOTIVE TECHNOLOGY

1. **Construct new receiving area and relocate receiving and storage functions to accommodate expanding equipment needs.** There is an immediate need to accommodate 3 Dynamometers (one existing and two new) in a functional arrangement. Because the preferred location for the dynamometers is in the current receiving/storage area, this would require relocation of receiving and storage functions, which will be relocated to a new receiving area. P1
2. **Construct major expansion of Automotive lab to provide adequate space/clearance for lift stations, service bays, tire balancing and changing areas.** The lab is currently too narrow to allow for efficient drive-in to the lift stations and too short to allow for adequate service bays, tire balancing and changing areas. In addition to space needed to accommodate equipment with adequate clearance, large class sizes (approximately 20 students at a time) also necessitate expansion of the Automotive lab. P3
3. **Remove fixtures and partition wall for current toilet/shower room to create functional Tool Room.** Currently, the Toilet/Shower room is not used, and the area assigned to it would be more functional as a Tool Room. P3
4. **Remove partitions for room currently housing Dynamometer so that space can be recapture for Engine Lab.** The existing Dynamometer is located in a room contained within the Engine Lab. Once it is relocated to the preferred location, this space can be incorporated to the Engine Lab to enhance its function. P3
5. **Replace Transmission Lab tables/chairs at front of room with additional work benches.** There are typically 16 to 18 students using the Transmission Lab, which has benches at the rear of the room and tables/chairs at the front. HFC may replace the tables/chairs with additional work benches to accommodate students. P3
6. Engineering Scope
   - The receiving area will be an open, roofed over area. A dry pipe sprinkler system will be provided to protect the exterior receiving area. Exterior rated lighting will be provided. P1
   - The existing mechanical, electrical, and plumbing systems will be modified to support the reconfiguration of the suite. P1
     - The existing electrical panels are anticipated to remain.
     - The existing electrical pull box location will need further review with the requirements of the dynamometer lab.
     - The existing non potable cold water system serving the existing dynamometer will be extended to its new location.
   - The following new systems will be provided to serve the reconfigured space: P1
     - Fire protection system (fire alarm and suppression)
     - New HVAC systems will be provided for each of the dynamometers. The systems are anticipated to provide heating and ventilation for each of the dynamometer labs. Cooling, humidification, or other specific environmental requirements are not anticipated.
     - Plumbing
     - Power distribution
     - Lighting
     - Technology infrastructure
   - A data logger will be required. P1

HVAC-R

1. **Rearrange equipment in HVAC-R Lab to accommodate new equipment.** Although no renovation is required in this room, rearrangement of existing equipment will facilitate the placement of new equipment, including 12 new Thermotrons (requiring a minimum clearance of 18" between units, and 36" in front and back), 2 Cascade Systems units and potentially a bio-mass furnace (115V). P1
2. **Construct major expansion west of HVAC-R and Heating/Power Engineering Labs.** A 7,000 – 10,000 GSF addition in this location would allow for expansion of offerings in those fields and include space for expansion of offerings in the Building Sciences. P3
3. Engineering Scope
   - Power will be extended to the new units from existing circuits. P1

RECOMMENDATIONS

DEFINING THE PROJECT

POWER ENG./PROCESS TECHNOLOGY

1. **Relocate and reduce equipment stock to accommodate creation of new Process Lab. If necessary to expand outside the existing enclosure, secure and screen new lab space.** If a Process Lab were created in the existing outdoor area north of the Lab, it would require relocating (and in most cases abandoning) the equipment currently located in this area. Equipment relocated outside the existing enclosure would need to be secured and screened. Creation of a new Process Lab would require a roof to be built over the existing enclosure, along with appropriate walls, lighting, electrical, HVAC, etc. P2
2. Engineering Scope

- New mechanical, electrical, plumbing, and fire protection systems will be provided to serve the new process lab. P2
  - A new packaged gas fired, direct expansion energy recovery unit with new ductwork distribution system will be provided to serve the lab.
  - 115 volt single phase and 480 volt three phase power will be extended from the distribution panel boards serving the first floor loads.
  - The existing fire alarm and wet pipe sprinkler system will be extended to serve the lab.
  - Plumbing utilities will be extended from existing building services. Sanitary service will require saw cutting of existing floor slabs.
  - New lighting designed in accordance with IES and campus standards will be provided.

MACHINE TOOL- CNC

1. **Renovate the existing CNC and Manufacturing Labs to link the two spaces, accommodate new equipment and align with current and proposed future pedagogy.** By linking the existing CNC Lab and Manufacturing Lab, space can be recaptured to accommodate new equipment (including 2 new Surface Grinders) and to provide a collaborative teaching area that will enable the program to align with current and future teaching practices. P1
2. Engineering Scope
   - The CNC lab and manufacturing lab are served by different electrical distribution points and HVAC systems. The mechanical, electrical, plumbing, and fire protection systems will be modified to support the reconfigurations of the rooms within the each of the labs, but they will remain separate from a utility standpoint. P1

ROBOTICS/AUTOMATION/CONTROLS TECHNOLOGY

1. **Relocate Cisco Lab and remove dividing walls between rooms 240, 238, 236 and 234 to create a continuous, flexible lab space that can accommodate additional new equipment.** This area will undergo a complete repurposing to create a large flexible Lab. The walls that separate Rooms 240, 238, 236 and 234 will be demolished to create one continuous Lab teaching space that can accommodate a more modular pedagogy and significant new equipment provided in the Automation/Robotics Lab- specifically 5 new Fanuc trainers and a new SMC trainer. P1
2. Engineering Scope
   - The existing mechanical, electrical, plumbing, and fire protection system will be modified to support the renovation of the space. A new 480 volt, 60 amp, three phase panel served from PP2 will be provided to serve the new SMC trainer. Compressed air piping will be extended from building utilities to serve the SMC trainer. P1

GENERAL/MECHANICAL MAINTENANCE

1. **Relocate existing functions out of Room 171 and into Room 126 (to be done by HFC staff) for Mechanical Maintenance.** This work will be performed by HFC personnel. P1
2. **Renovate Room 171 into a collaboration area for student and faculty. Current lounge and offices (Rooms J, K and L) will become storage rooms to replace storage lost with the expansion of the Manufacturing Lab.** The current location of Room 171 will be transformed into a Collaboration Area for students and faculty to include technology booths, soft seating, new finishes and lighting. This space will be designed to be a Social/Work space that will become one of the critical hubs in the building. The current lounge and offices (Rooms J, K and L) will become storage rooms to take the place of the storage rooms being demolished to expand the Manufacturing Lab (Rooms 165, 165B and 166). P3
3. **Infill and roof over north courtyard to create "Super Lab".** Create a large, open-floor, high-bay "Super Lab" in the north courtyard by roofing over this area and providing an open floor space. This location would be ideal as it would be flanked by specialized lab spaces (Welding, Manufacturing, CNC) as well as classroom spaces on the north that can serve as a support function to the main lab as classrooms, meeting spaces, workrooms, testing areas and specialized labs. This area is approximately 10,000 square feet. P3

RECOMMENDATIONS

DEFINING THE PROJECT

The table below summarizes the work identified in the preceding narrative by priority and program.

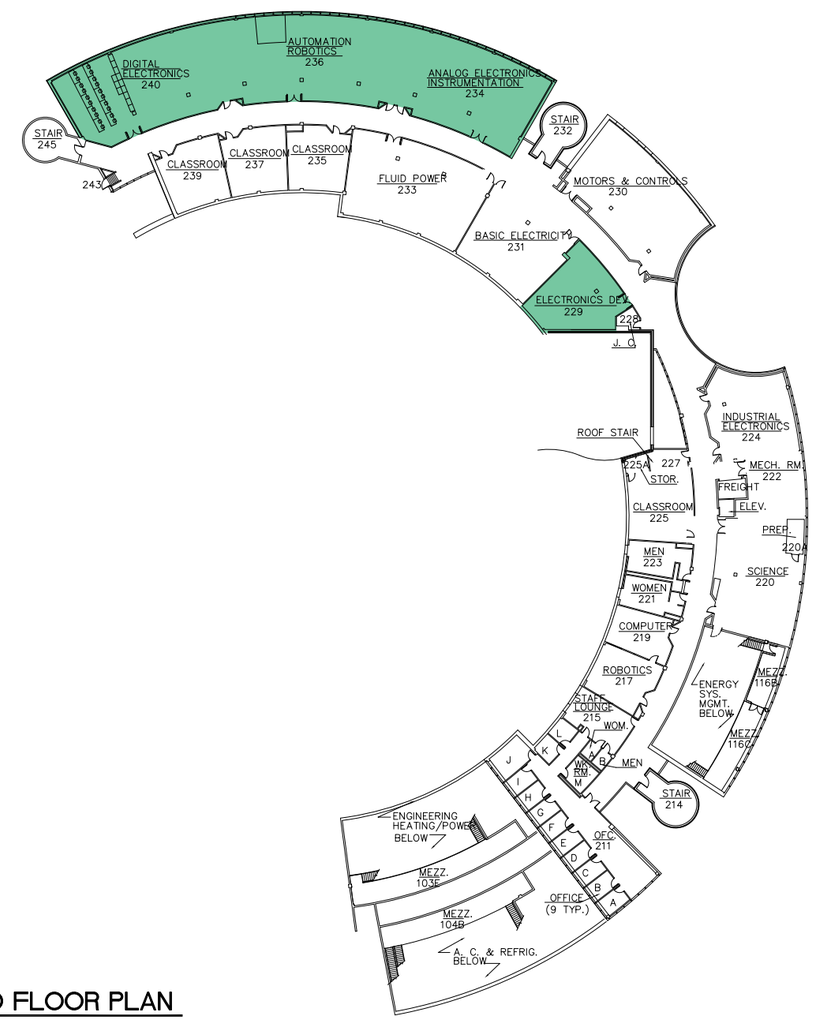
Priority/Program	Automotive Tech	HVAC-R	Power Eng./Process Technology	Machine Tool- CNC	Robotics/Automation/ Controls Technology	General/Mechanical Maintenance
P1 Critical	• Construct new receiving area and relocate receiving and storage functions to accommodate 3 Dynamometers • Associated engineering scope	• Rearrange equipment to accommodate new equipment. • Associated engineering scope		• Renovate the existing CNC and Manufacturing Labs to link the two spaces, accommodate new equipment and align with current and proposed future pedagogy • Associated engineering scope	• Relocate Cisco Lab and remove dividing walls between rooms 240, 238, 236 and 234 to create a continuous, flexible lab space that can accommodate additional new equipment • Associated engineering scope	• Relocate existing functions out of Room 171 and into Room 126 (to be done by HFC staff) for Mechanical Maintenance
P2 Moderate			• Relocate and reduce equipment stock to accommodate creation of new Process Lab. If this occurs outside the existing enclosure, secure and screen new lab space. • Associated engineering scope			
P3 Non-critical	• Construct major expansion of Automotive lab to provide adequate space/clearance for lift stations, service bays, tire balancing and changing areas. • Remove fixtures and partition wall for current toilet/shower room to create functional Tool Room. • Remove partitions for room currently housing Dynamometer so that space can be recapture for Engine Lab • Replace Transmission Lab tables/chairs at front of room with additional work benches	• Construct major expansion west of HVAC-R and Heating/ Power Engineering Labs				• Renovate Room 171 into a collaboration area for student and faculty, including technology booths, soft seating, new finishes and lighting. Current lounge and offices (Rooms J, K and L) will become storage rooms to replace storage lost with the expansion of the Manufacturing Lab. • Infill and roof over north courtyard to create "Super Lab".

RECOMMENDATIONS

SHORT TERM: PRIORITY 1

- Automotive Technology
- HVAC-R
- Machine Tool- CNC
- Robotics/Automation/Controls Technology
- Power Eng./Process Technology
- Tank Storage (Building Support)
- Collaborative Space
- Storage

FIRST FLOOR PLAN



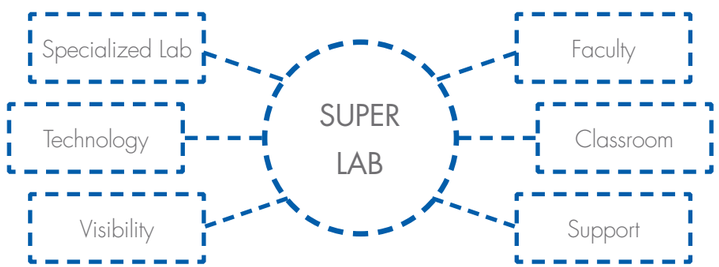
SECOND FLOOR PLAN

RECOMMENDATIONS

LONG TERM: PRIORITY 2 AND 3

OVERVIEW

The long term vision for the Technology Building is focused two issues: needed improvements to building infrastructure and organization of the building to support proposed changes in pedagogy for the Technology DIvision programs. Each program is centered around a flexible, open entry work space, referred to as a "super lab". Super lab spaces support integrated curriculum, collaboration and blended, self-paced learning - three components of HFC's proposed curriculum changes for this Division.



The super lab concept allows for both instruction and self-paced learning to happen concurrently with classrooms, specialized labs and support spaces adjacent or closely located to the main super lab space. This organization opens up a variety of resources for both the student and the educator, creating a more comprehensive learning experience and opening up pedagogical opportunities.

PROJECTED COSTS

Stantec has developed conceptual-levell full project cost for the long term project. These numbers include soft costs, however owner items and consultants should be factored in at an additional 25-30%.

Renovation of existing building	
169,000 SF x $100/SF =	$16,900,000
Additions	
Auto addition:	
8,000 SF x $230/SF =	$1,840,000
Super Lab infill:	
10,000 SF x $230/SF =	$2,300,000
Building Sciences addition:	
7,000–10,000 SF x $230/SF =	$1,610,000 - $2,300,000
Total:	$22,650,000 - $23,340,000

TRANSPORATION

[pedagogy detail to be provided by HFC]

CIMed/MATERIALS

[pedagogy detail to be provided by HFC]

BUILDING SCIENCES

[pedagogy detail to be provided by HFC]

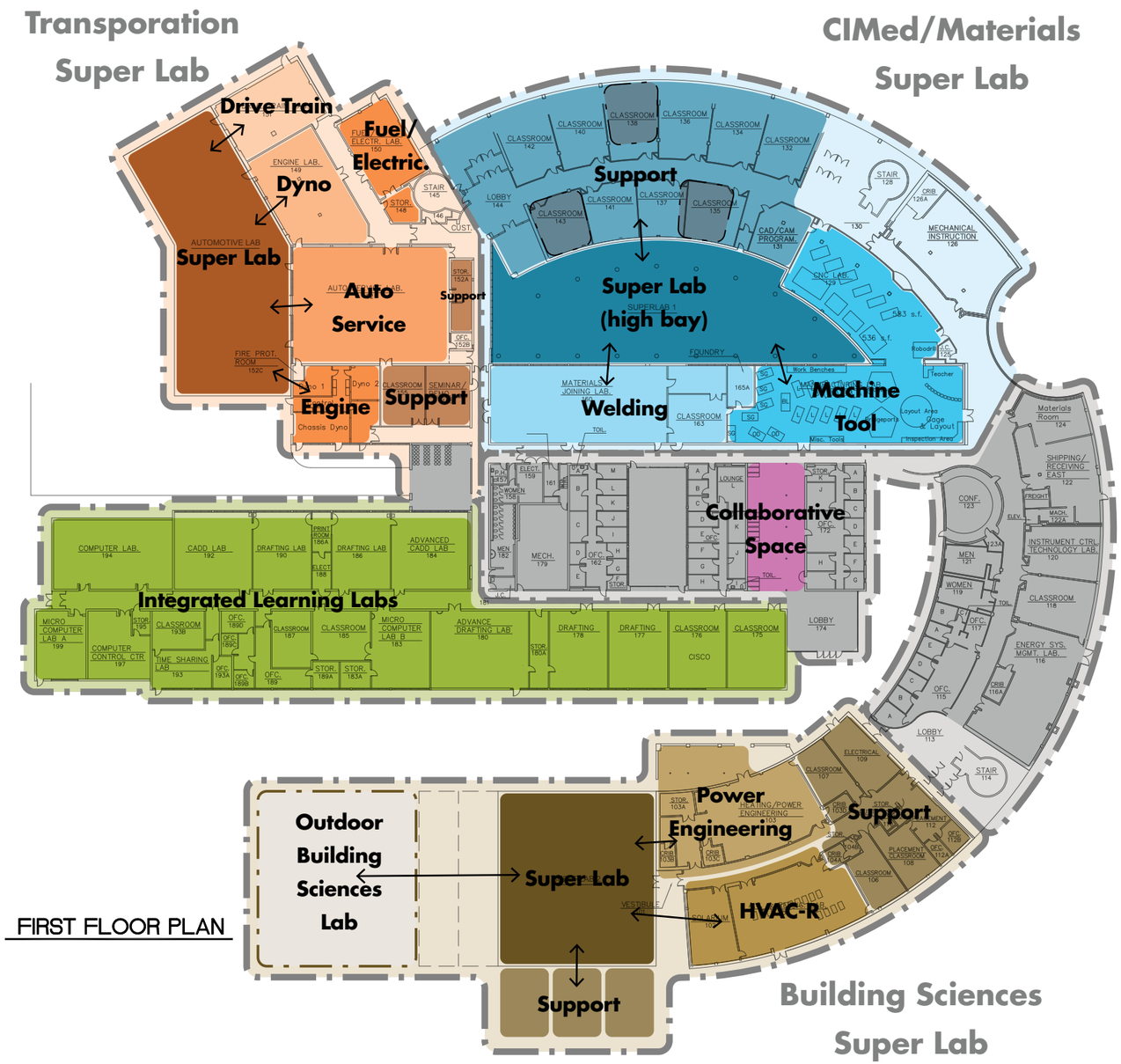
ROBOTICS/AUTOMATION/CONTROLS TECHNOLOGY

[pedagogy detail to be provided by HFC]

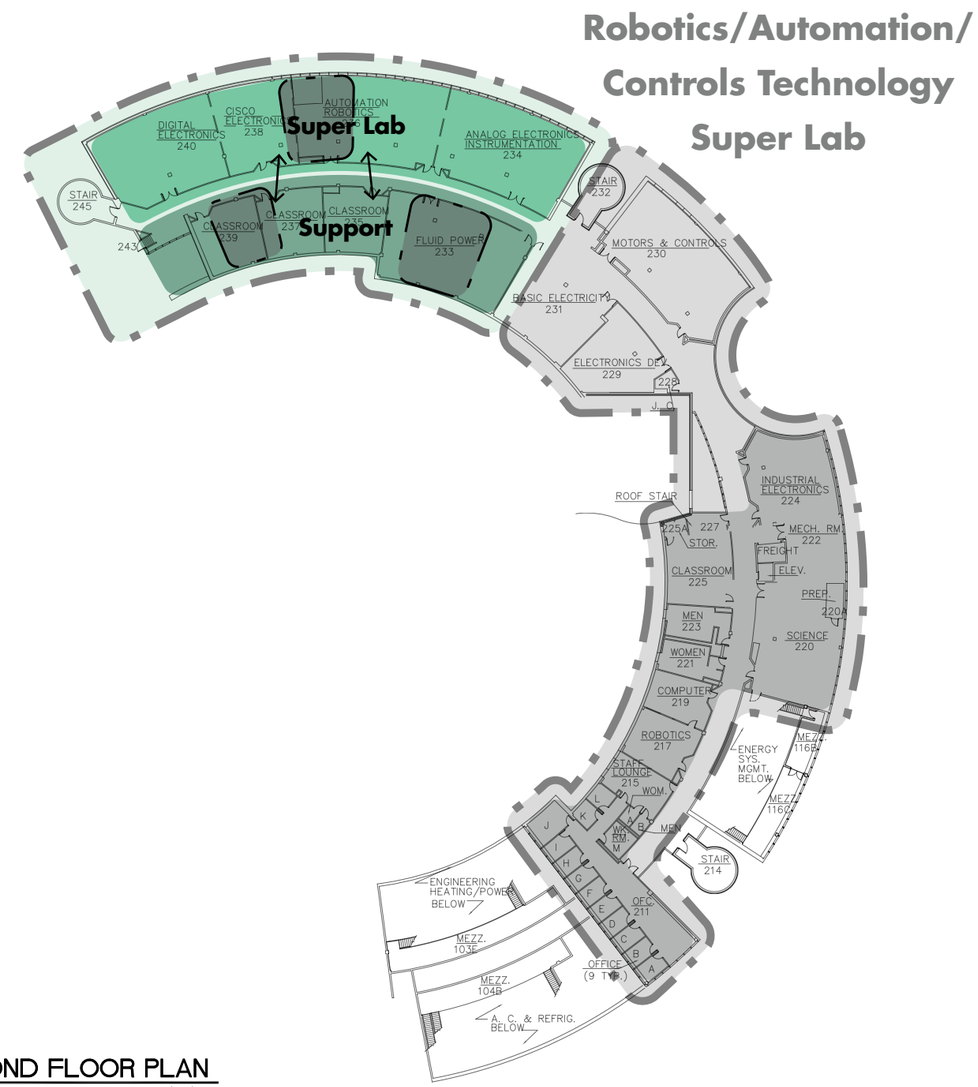
RECOMMENDATIONS

LONG TERM: PRIORITY 2 AND 3

- Transportation Super Lab
- Building Sciences Super Lab
- CIMed Super Lab
- Robotics/Automation/Controls Technology Super Lab
- Collaborative Space
- Building Support
- Integrated Learning Labs

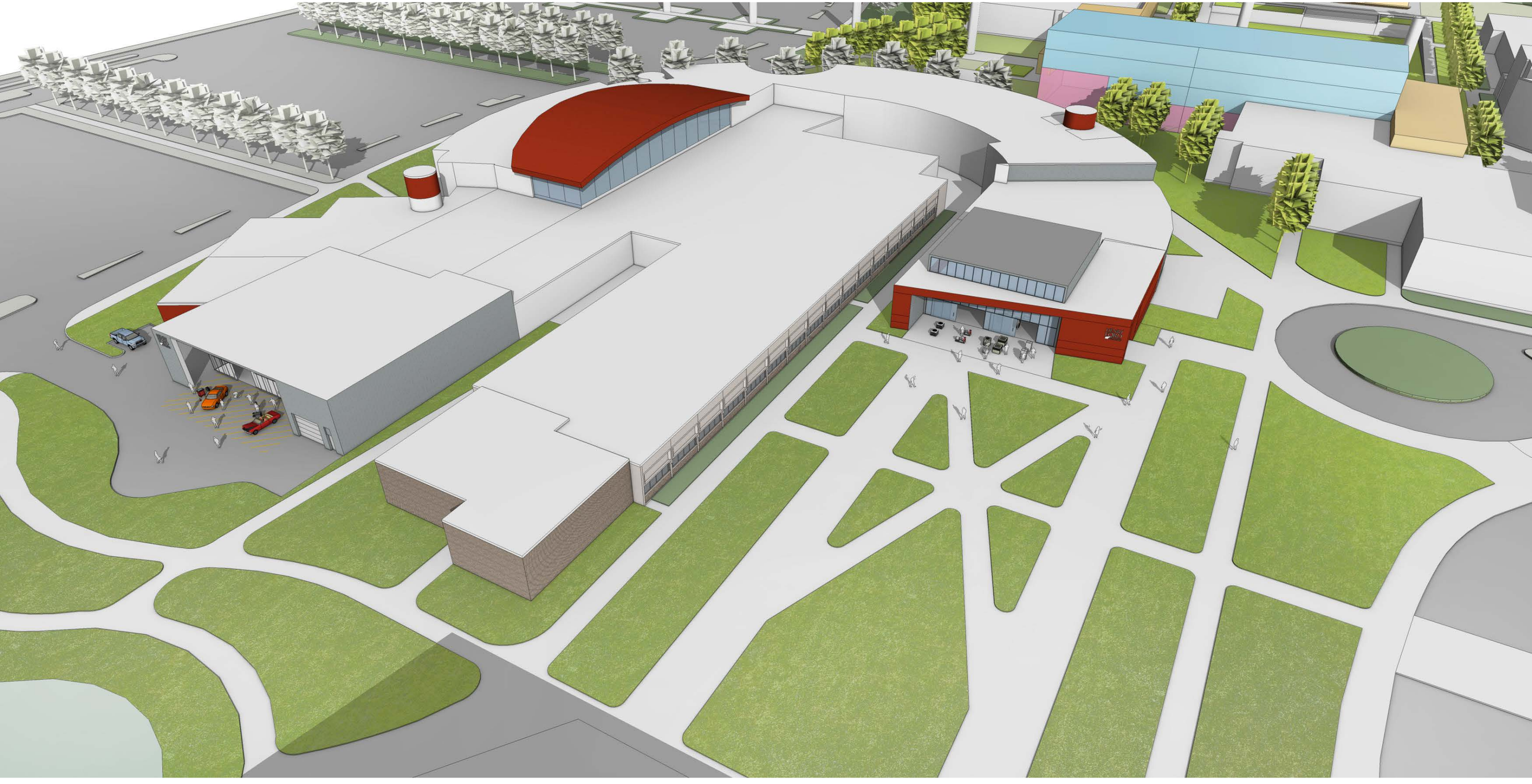


FIRST FLOOR PLAN



SECOND FLOOR PLAN

Stantec



Aerial View of Technology Center with new Automotive Super Lab and HVAC Super Lab additions and new Super Lab infill.

Ground View of Technology Center with new HVAC Super Lab addition.

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Ground View of Technology Center with new Automotive Super Lab addition.

HENRY FORD COLLEGE

TECHNOLOGY BUILDING FEASIBILITY STUDY

APPENDIX

Stantec

Stantec

Meeting Minutes

Meeting Title

Henry Ford Technology Center Feasibility Study / File Name

Date/Time:	June 2, 2015 / Time
Place:	HFC Technology Building
Next Meeting:	Next Meeting Date
Attendees:	John Davids (Stantec), Gary Saganski (HFC), various other HFC Administrators and Faculty
Absentees:	Absentees
Distribution:	Distribution List

Automotive Technology

- There will be three dynamometers, One chassis and two engine
- The preferred location for the dynamometers is in the current receiving/storage area
- This would require relocation of receiving and storage functions
- The Automotive Lab needs to be enlarged, both in width and depth
    - There are typically 60 students (20 at a given time) using the Lab
    - The Lab is too narrow to allow for efficient drive-in to the lift stations
    - The lab is too short to allow for adequate service bays, tire balancing and changing areas
- The Transmission Lab has benches at the rear of the room and tables/chairs at the front- we might possibly replace the tables/chairs with additional work benches
- There are typically 16 to 18 students using the Transmission Lab
- There is no work required in the Fuels Lab

HVAC-R

- There will be 12 new Thermotrons provided that need to be accommodated the the Lab
- There will also be 2 rebuilt Thermotrons for a total of 14
- These Thermotron units require a minimum clearance of 18" between units, and 36" in front and back
- There will be 2 Cascade Systems units
- There was discussion (but no resolution) on having a bio-mass furnace (115V)

Machine Tool- CNC

- In the Manufacturing Lab, the 5 new lathes will replace 5 existing lathes in their current location
- At the east end of the Lab there will be 2 new Surface Grinders- this will require re-locating one of the work benches in this area
- The CNC Lab will require expansion to accommodate the new equipment- it would be desirable to expand the Lab into the current Gage/Layout area so that the CNC Lab and the Manufacturing Lab could be contiguous.
- The Gage/Layout area could be relocated to the area previously occupied by the Foundry, Metallurgy and Plastics rooms (between the welding and manufacturing areas)
- The foundry pot is still used infrequently

Robotics/Automation/Controls Technology

- There will be significant new equipment provided in the Automation/Robotics Lab- specifically 5 new Fanuc trainers and a new SMC trainer
- The room will be reconfigures to eliminate the tables and chairs at the front of the room, students will sit at the existing PLC trainers, which will be relocated to the front of the room
- It is possible that the new equipment will not fit into the room without expansion of some kind
- There should be a double door provided between the Automation/Robotics Lab and the current Analog Lab (which may become a new Flex Lab)
- The equipment in the current Analog Lab (including the storage cabinets) will be relocated to the existing Digital Lab (240)
- There was discussion that Room 220 (?)
- May be available to repurpose for a new use

Power Eng./Process Technology

- The only new equipment to be provided in this lab is a distillation tank, which could be provided with casters to make it portable- it requires only 110 power and a floor drain to be near
- There was a great deal of discussion about creating a Process Lab in the current outdoor area north of the Lab. This would require relocating (and abandoning some) of the equipment currently located in this area- if it is relocated outside the existing enclosure it would need to be secured and screened
- Creation of this new Process Lab would require a roof to be built over the space, enclosure with appropriate walls, lighting, electrical, HVAC, etc.

The meeting adjourned at Time
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

Stantec Architecture Inc.

Keelia Kentor
Planner
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Attachment: Attachment

c. Cc List

Stantec

Meeting Minutes

HFC Planning Meeting

214100187 / HFC – Tech Building Feasibility Study

Date/Time: July 2, 2015 / 9:00 AM

Place: Henry Ford College

Next Meeting:

Attendees: Gary Saganski, Reuben Brukley, Tracy Pierner, Cythnia Eschenburg, Jim Blair, Rebecca Hillary, John Davids, Hannah Dean

Absentees:

Distribution:

Safety Moment:

Item: **Action:**

Agenda

- Short term moves
- Long term moves – additions, etc.
- Review program specific information (placement of equipment, teaching sequence…) specifically HVAC
- Decision on charrette and date
- Process for phasing

Automotive Lab

A new dyno lab will be constructed in the location of receiving area to provide a big enough SF for the new equipment. The receiving area will be moved and be constructed at grade (instead of a well) adjacent to the Welding Lab. The existing receiving area on the east side of the building to too far away from the Welding Lab to be feasible.

Entrance to West side of BLDG

Create separate gates/vehicle entrances dedicated to new receiving area/welding and auto lab.

Stantec will design separate entry sequences to both spaces.

Collaboration Center

Walk through social space. Committee members liked the centralized space. Rigging platform is to be moved to RM126. The lounge and windowless offices will be converted to storage. HFC is confident that they can do the finishing work without Stantec.

Stantec will only provide demolition drawings for the space.

Item: **Action:**

CNC Lab

Excellent to scale drawing from Guy. Will be a lot more open. Original building wall to be partially demolished, but structural columns to remain to reduce cost.

Future Additions/Plans

Add superlab onto the end of Power Engineering. Committee members liked that the addition was rectilinear. Better than adjacent to the southern façade of the building and having to work with the curved edge. Possible future site of Building Sciences Department.

Enclose outdoor area north of current Heating/Power Engineering Lab for a Process Lab.

Enclose north interior courtyard for a superlab. The lab will already have direct connections to the facilities adjacent to it.

Approx. 8,000 SF addition to the Automotive Lab. Addition will provide access all aspects of the lab.

Level Two

All walls will be cleared out for the Electronics Lab. More fixed programs and equipment will be located at the ends of the space to preserve flexibility within the space.

Cisco

The second floor lab will be moving to RM175. RM175 and RM176 will both be Cisco lab and possibly transition into one large lab.

HVAC Lab

Stantec needs scale drawing like CNC Lab provided to draw the new layout. HVAC as started to map their courses against the equipment. It may take until the end to the summer to complete this process.

HFC will provide a detailed drawing of the new HVAC lab layout.

Cost Estimation

HFC does not want to hire a CM. The committee would rather spend the cost of a CM on the facility. HFC will use employee's Terry Beirnat and Ruben to manage the project. Terry will perform the cost estimation. Ruben will assist with scheduling and sequencing of the various parts of the project. Faculty involvement is critical. All parties need to meet in order to achieve actuate cost assessment.

Schedule 1.5hr meetings with in house CM, Stantec designer & Engineers, and HFC Facility on a department level to discuss design needs and cost.

Prioritization of Projects

Item: | **Action:**

Projects were prioritized by the committee on a 1 to 3 scale with 1 as highest priority items.

Stantec will provide an Xcel document with Project items, priority level, and estimate cost (when provided by HCF)

- New Automotive Dyno Lab - 1
- New Receiving Area - 1
- Wall Demo in Old Dyno Lab - 3
- Demo in Bathroom currently being used as storage, RM152A - 3
- CNC Lab - 1
- Electrical Lab - 1
- Collaboration Center - 2
- Outdoor Heating/Power Engineering Lab enclosure - 2
- HVAC Lab design for new equipment - 1
- Mechanical Lab Demo (Stantec) and finishing (HFC) - 1

Possible Future Programs

- Center of Computing Technology
- Business Center (International Business, Accounting, etc.) – look more like Walsh College model with labs
- Transportation and Distribution Program
- Chemical Technology Program
- Building Sciences

Charrette / Graphics

Could be good for long term fundraising. Separate from $1.2M for Technology Building work. Maybe add as a section to the Master Plan. In lieu of a charrette, write up an executive summary of the work today to keep the facility in the loop and prevent miscommunication.

Executive Summary to be written by HFC with assistance from Stantec.

The meeting adjourned at 10:30 AM
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

Stantec Architecture Inc.

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Intern Architect
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Hannah.Dean@stantec.com

Attachment:

c.

Stantec

Meeting Minutes

Automotive Lab

214100187 / HFC – Tech Building Feasibility Study

Date/Time: July 13, 2015 / 1:00 PM
Place: Henry Ford College
Next Meeting:
Attendees: Gary Saganski, Terry Beirnat, David Tillman, John Davids, Hannah Dean
Absentees:
Distribution:

Item: **Action:**

Storage/Bathroom Area

The bathroom has not been use for years and is currently being used for storage. To function better, the gutters in the floor in the former shower need to filled in. The Bradly sink needs to stay. The elevated floor should be made level with the shop floor so all storage is at grade, and interior walls should be removed.

Panels in Existing Receiving Area

The location and clearance needs for the existing electrical panels in the existing receiving area interfere with the proposed location of the three dynos. The panels feed the parking lot lights. It might be possible to flip the panels to the other side of the wall into the Automotive Lab. Otherwise, an electrical room may need to be built around the panels. Relocating the panels to another location would be very expensive.

Action: Stantec will explore new schemes for the layout of the three dynos following the walk through tomorrow.

Current Dyno Room

Demolishing the interior wall in the currently dyno room will allow for the space to be better used a storage. HFC would like the room to be use for the storage of engines. Currently there are 3 classes with a total of 18-20 engines in the engine lab. It is very crowded. A double door is preferable to the current single door.

Dyno Lab Needs

- Dyno Labs need a large viewing window for students to observe and for fire safety.
- Each Dyno needs its own control table outside under the observation window.
- Inside each dyno room there needs to enough space for 6 students to be around the dyno, to take an engine on and off the dyno, and to layout the instrumentation.

Item: **Action:**

- The dynos produce a lot of vibration while in operation. Need to either cut the existing continuous floor slab or put isolation pads in for each dyno.
- The walls should be used to dampen noise.
- It would be detrimental to not have all the dynos in the same place.
- It is ok for the Dyno lab to be entered from the Automotive Lab.

ASSET classroom and Diesel Lab

If the Dyno Lab is entered from the Automotive Lab, the hallway is now underutilized space. If ASSET classroom could be accessed from the Automotive Lab or swapped locations with the Diesel Lab and a new entrance was built in the existing hallway, both of the spaces would be increased in size. Chris (on vacation) needs to be consulted for a decision can be made. The ASSET classroom need access to the Automotive Lab, but the Diesel Lab does not.

Sequencing

There is no dyno class until the winter. However, the ASSET program runs all year long.

The meeting adjourned at 2:30 PM
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

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Attachment:

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Stantec

Meeting Minutes

Construction Overview

214100187 / HFC – Tech Building Feasibility Study

Date/Time:	July 13, 2015 / 9:00 AM
Place:	Henry Ford College
Next Meeting:	Next Meeting Date
Attendees:	Gary Saganski, Reuben Brukley, Terry Beirnat, Sandro Silvestri, Rebecca Hillary, John Davids, Keelia Kentor, Hannah Dean
Absentees:	Absentees
Distribution:	Distribution List

Item:	Action:
Cost Estimations Terry will do conceptual cost estimates. He will not do cost estimates off of another architect's (Stantec) drawings. Estimates will be done off of his drawings based on drawings provided by Stantec. HFC will use Peter Basso in conjunction with Terry to do MEP drawings for construction.	Stantec will provide conceptual drawings to Terry for cost estimation.

MEP Walk Through

Tomorrow Stantec will walk through with an engineer to gather information for the MEP narrative. HFC will also attend the walkthrough with their electrician, Randy Connop.

New Loading Dock

The drive to the new loading dock will be put inside of the relocated automotive lab fence. A separate gate will be constructed for deliveries.

Project Priorities

HFC has clarified priorities in their report following the last meeting. The equipment grant is the driver of this project. This project is separate from the master plan that Stantec is also collaborating on. The equipment grant is a way to facilitate the building of more superlabs. Welding is an excellent, functional example of the superlab.

Project Sequence

1. Stantec will provide concept drawings.
2. Terry (HFC) will take Stantec's drawings to produce a conceptual estimate.
3. Based on the conceptual estimate HFC will prioritize and select which portions of the project will be completed.
4. Terry will then produce construction drawings.
5. From the construction drawings, Terry will give a cost estimate.

Item:	Action:
6. HFC will then create a timeline.	

State requires equipment is in use by April 2016.
Curriculum requires that some of the equipment be in use by Fall 2015.

The meeting adjourned at 10:00 AM
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

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Attachment: Attachment

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Stantec

Meeting Minutes

Electronics Lab

214100187 / HFC – Tech Building Feasibility Study

Date/Time: July 13, 2015 / 11:00 AM
Place: Henry Ford College
Next Meeting:
Attendees: Gary Saganski, Terry Beirnat, Mark Siedlik, Jim Blair, John Davids, Hannah Dean
Absentees:
Distribution:

Item: **Action:**

Equipment Needs

Immediately need an additional 6 120V drops in the Robotics Lab where the desk are now for the Fanuc Robots. The robots will arrive in September. Faculty would like a plug and play layout in the renovated lab space, so that they can add and move equipment without a total reorganization of the space. Most equipment in on 120V. The motorman is the only piece of equipment on 208V.

Stantec will provide a schematic grid of drops for equipment needs in conjunction with the Electronics Lab faculty.

The integrated systems need a 480V drop. The two integrated systems will go in the current CISCO room on the 2nd floor. The drops need to be added there. Stantec will evaluate the placement of the drops. The integrated systems will also need compressed air.

Fixed Robot

The fixed robot will remain in place. The current storage doors will be reused to create a safety gate around the robot. This will reflect industry standards.

Sequencing: Plan A

After the walk through tomorrow, Stantec will produce schematic drawings. Terry (HFC) will then make construction drawings for bidding. However, the timeline is very tight. Classes start in 5 weeks. Demolition of the walls may cause the HVAC to be unbalanced. Stantec will look at whether zones are feasible, while Terry will consult HFC facilities.

How wall demolition will affect the HVAC system in the current Electronics Labs will be evaluated by Stantec.

Sequencing: Plan B

Because the timeline is very tight it is unlikely that Plan A can be completed before classes start. The alternative is split work between now and the two week winter break in December.

Now: HFC facilities will contract out adding the 6-120V drops to the existing Robotics Lab now. The analog and digital trainers will be

Item: **Action:**

consolidated. At least one integrated system may be moved into the current CISCO lab. The other integrated system will remain in RM126.

Winter Break: Demolition of the walls and construction of the robot cage.

The meeting adjourned at 12:30 PM
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

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Stantec

Meeting Minutes

HVAC-R Lab & Power Engineering Lab

214100187 / HFC – Tech Building Feasibility Study

Date/Time:	July 13, 2015 / 2:30 PM
Place:	Henry Ford College
Next Meeting:	
Attendees:	Gary Saganski, Terry Beirnat, Jim Martini, Greg Laskowsky, Jim Elmer, John Davids, Hannah Dean
Absentees:	
Distribution:	

Item: **Action:**

Program Organization

- Sheet metal will stay where it is for now.
- Room for the Thermotrons has already been made in the lab.
- 2 of the 14 Thermotrons may be going into the Electrical Lab after the wooden structure is removed.
- The portable trainers have been moved to the exterior walls.
- The large AC unit is in the process of being removed.
- The program needs a combination of trainers and Thermotrons.
- Looking towards the future, there will be a change towards natural refrigerants.
- Need to get the Culinary Arts CNC Ice Cutter out of their walk in freezer, so it can be returned to a trainer for HVAC-R students.
- The solarium is being used as storage and beginning to be cleared out to make room for more items from other locations.

Equipment Needs

- 120V drops are needed for the 14 new Thermotrons down the center of the lab.
- There is currently no space of the two large Energy Management Systems that are coming. These units will be on wheels.
- The protruding circuit box should be removed.

Power Engineering Outdoor Area

All the equipment outside will be removed. There is a possibility of auctioning off the items. When it is converted to a Process Lab, an eyewash station will need to be added.

The meeting adjourned at 3:30 PM
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Meeting Minutes

Welding Lab

214100187 / HFC – Tech Building Feasibility Study

Date/Time: July 13, 2015 / 10:00 AM

Place: Henry Ford College

Next Meeting:

Attendees: Gary Saganski, Reuben Brukley, Terry Beirnat, Sandro Silvestri, Kevin Ridge, John Davids, Keelia Kentor, Hannah Dean

Absentees:

Distribution:

Item: **Action:**

Equipment Needs

For the new equipment the Welding Lab will need more drops: 1-110V and 1-480V. The Iron Worker needs an upgrade outlet from single to 3-phase. None of new equipment requires special installation. Terry will draw the equipment layout, not Stantec.

Equipment Lead Times

- Robotic Cell – November (if ordered now)
- Plasma Cutter – 4 weeks
- Iron Workers – 1 week

Terry to investigate if the sidewalk where the proposed receive drive will go is heavy duty.

New Receiving Area

The new receiving area will not be a conditioned space. It will be a roofed area with a fence. Currently only tanks and the odd item are received in their area of the building. No semi-trucks are used. HFC is able to request lift tailgate trucks for deliveries. The sidewalk may already be heavy duty, in which case, it can be used for the drive and merely widened.

The meeting adjourned at 11:00 AM
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

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