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Tennessee’s forests, pastures, and farmlands are our classrooms. So are the state’s gardens and arboretums, wetlands, and watersheds. The classrooms and teaching programs of the University of Tennessee Institute of Agriculture are as varied as the people they serve. Our programs assist students, farmers, families, 4-H and other youth, agribusinesses, state and federal agencies, consumers and the general public.
This program document was originally prepared in 2013. The 2018 update and revision included strategic space revisions, schedule updates, and adjusted total project budget. The 2018 update did not include MEP, Civil, Landscape, or Structural consultants updating those respective sections of the program. However, UT Facility Services provided limited updates to those sections.
401 Contextual Design

The design of both the new Ellington Complex and the Surge building shall take their material cues from the surrounding buildings. The material palette shall include brick, metal panel, stone, and glass. Roof profiles may be flat or pitched.
The existing building (Ellington Plant Science and Hollingsworth Auditorium) was built in 1966 and is approximately 51 years old. The need for major renovation has been documented by THEC evaluation and confirmed by consulting engineers. Programmatically, it no longer meets the needs of the disciplines it now serves: classrooms and laboratories are too small and lack infrastructure for today’s pedagogy and inquiry: the design is not flexible, and the offices are not well located or designed. All building systems are now obsolete and do not meet today's HVAC, Electrical and Plumbing Standards. Life-Safety and Code-Related issues are numerous. The facility assessment score is 59.0/Fall 2009. Since that time, no major upgrades have taken place; the building’s brick structure has continued to show signs of cracking due to the lack of no vertical expansion joints. Mechanical and Electrical equipment have required continual maintenance. The building is under negative air pressure due to insufficient treated make-up air. Limited floor-to-floor height restricts HVAC duct improvements to create a make-up air system to maintain positive building pressure. The building is not sprinkled and has no standpipes. Hazardous materials are numerous.

UTIA entered into a contract for program consulting services with LORD AECK SARGENT, Architecture in 2013. The completed program document for the Energy and Environmental Science Education Center is dated October 2013. This project is specifically for the University of Tennessee Institute of Agriculture and is to be located on the western section of the UT Knoxville campus containing the Ag Campus. The Institute contains four units that provide instruction, research and public service. These are: AgResearch, College of Agricultural Science and Natural Resources (CASNR), College of Veterinary Medicine and UT Extension.

The building program is primarily comprised of teaching labs, research labs, support labs, and offices supporting the departmental needs. There are also programmatic elements for general classrooms, academic support space, informal learning spaces, 300-seat multi-purpose auditorium, commons areas, food service areas, faculty and building support spaces, outdoor gathering in courtyards and green spaces. Departments included in this program: Biosystems Engineering and Soil Science, Entomology & Plant Science, Forestry, Wildlife & Fisheries, Plant Sciences, and Biosafety. Additionally, the building will house Interdisciplinary spaces designed to promote student-faculty interactions. This new building is the Number One priority for the Institute.

THEC space guidelines only partially apply for UTIA (non-formula unit). Where applicable, the consultants, LORD AECK SARGENT applied the THEC Space Allocation Guidelines. Research drives this project and the details of the Program Summary and the Projected Space Utilization is identified on the program detail [See Volume I, pages 19-28]

See:

### A-100 | Faculty - Student Commons

#### 1. SPACE REQUIRED

Name: Faculty - Student Commons  
Occupancy: 6 Occupants  
Net Square Footage: 200 SF  
Unit Square Footage: N/A  
Space No.: A-100

#### 2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:
- a. Contiguous: N/A
- b. Adjacent: N/A
- c. Convenient: Locate convenient to both student spaces and faculty spaces. Faculty-Student Commons to sit in the buffer zone between the two.

Services and Features:
- a. Atmospheric Criteria:  
  - Summer 75°F db / 50% RH  
  - Winter 72°F db  
  - People Outdoor Air Rate Rp = 5 CFM per person  
  - Area Outdoor Air Rate Ra = 0.06 CFM per square foot  
  - Pressurization: Neutral  
  - No exhaust requirements
- b. Illumination:  
  - Maintained Average Illumination: 50 footcandles  
  - Lighting Power Density: 1.3 watts per square foot  
  - Lighting control system with automatic shutoff
- c. Electrical:  
  - 120 V general receptacle outlets, minimum 10’ O.C. wall
- d. Communications:  
  - Communication general outlets, minimum one location  
  - Wireless Internet connectivity
- e. Plumbing:  
  - Break room sink
- f. Music/Video: N/A

Finishes:
- a. Floor & Base: Resilient Tile Flooring with Rubber Base
- b. Walls: Painted Gypsum Board
- c. Ceiling: Acoustical Ceiling Tile
- d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
- e. Windows: Aluminum framed glazed system
- f. Window Treatments: Blinds

#### 3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

Informal gathering area for both faculty and students to meet. Space could be either a closed room or open to public spaces such as a lobby or a corridor.

#### 4. LIST OF FURNISHINGS AND EQUIPMENT

A = Built-in equipment to be furnished and installed by the General Contractor.  
1. Whiteboard (12'-0" W x 4'-0" H)  
10 linear feet of wall cabinets, base cabinets, and countertop with 1 sink  
B = Specified and procured through Interior Designer (not furnished by GC)  
1. Break Room Style Table  
4. Student Chairs  
C = Specified and procured through AV Consultant (not furnished by GC)  
D = Specified and procured through I.T. Consultant (not furnished by GC)  
E = Supplied by Owner (in project budget)  
N/A  
F = Supplied by Owner (not in project budget)  
N/A
### 403 Space Requirements

**A-200 | Seminar and Conference Room**

<table>
<thead>
<tr>
<th>1. SPACE REQUIRED</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Seminar and Conference Room</td>
</tr>
<tr>
<td>Occupancy:</td>
<td>30 Occupants</td>
</tr>
<tr>
<td>Net Square Footage:</td>
<td>600 SF</td>
</tr>
<tr>
<td>Unit Square Footage:</td>
<td>N/A</td>
</tr>
<tr>
<td>Space No.:</td>
<td>A-200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationships:</td>
<td></td>
</tr>
<tr>
<td>a. Contiguous:</td>
<td>N/A</td>
</tr>
<tr>
<td>b. Adjacent:</td>
<td>N/A</td>
</tr>
<tr>
<td>c. Convenient:</td>
<td>Distribute evenly per floors, in between the classroom/research spaces and the faculty office spaces.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Services and Features:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Atmospheric Criteria:</td>
<td></td>
</tr>
<tr>
<td>Summer 75°F db / 50% RH</td>
<td></td>
</tr>
<tr>
<td>Winter 72°F db</td>
<td></td>
</tr>
<tr>
<td>People Outdoor Air Rate Rp = 5 CFM per person</td>
<td></td>
</tr>
<tr>
<td>Area Outdoor Air Rate Ra = 0.06 CFM per square foot</td>
<td></td>
</tr>
<tr>
<td>Pressurization: Neutral</td>
<td></td>
</tr>
<tr>
<td>No exhaust requirements</td>
<td></td>
</tr>
<tr>
<td>b. Illumination:</td>
<td></td>
</tr>
<tr>
<td>Maintained Average Illumination: 50 footcandles</td>
<td></td>
</tr>
<tr>
<td>Lighting Power Density: 1.3 watts per square foot</td>
<td></td>
</tr>
<tr>
<td>Preset lighting control system with A/V interface</td>
<td></td>
</tr>
<tr>
<td>c. Electrical:</td>
<td></td>
</tr>
<tr>
<td>120 V floor receptacle outlets, minimum two locations</td>
<td></td>
</tr>
<tr>
<td>120 V general receptacle outlets, minimum 10' O.C. wall</td>
<td></td>
</tr>
<tr>
<td>120 V ceiling mount for projector</td>
<td></td>
</tr>
<tr>
<td>120 V ceiling mount for projector screen</td>
<td></td>
</tr>
<tr>
<td>120 V receptacle for A/V credenza</td>
<td></td>
</tr>
<tr>
<td>d. Communications:</td>
<td></td>
</tr>
<tr>
<td>Communication floor outlets, minimum two locations</td>
<td></td>
</tr>
<tr>
<td>Communication ceiling mount outlet for projector</td>
<td></td>
</tr>
<tr>
<td>Communication outlet for A/V credenza</td>
<td></td>
</tr>
<tr>
<td>Wireless Internet connectivity</td>
<td></td>
</tr>
<tr>
<td>e. Plumbing:</td>
<td></td>
</tr>
<tr>
<td>No plumbing requirements</td>
<td></td>
</tr>
<tr>
<td>f. Music/Video:</td>
<td></td>
</tr>
<tr>
<td>Ceiling mounted Digital Projector</td>
<td></td>
</tr>
<tr>
<td>Ceiling recessed, motorized Projection Screen</td>
<td></td>
</tr>
</tbody>
</table>

| Finishes: |  |
| This section is to record specific requirements for all surface areas. |  |
| a. Floor & Base: | Carpet Tile with Rubber Base |
| b. Walls: | Painted Gypsum Board |
| c. Ceiling: | Acoustical Ceiling Tile throughout with Gypsum Board Soffit at Teaching Wall |
| d. Doors and Frames: | Painted Steel Doors with Lockable Hardware and Hollow Metal Frames |
| e. Windows: | Aluminium framed glazed system |
| f. Window Treatments: | Blinds |

### 3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

Quiet room to serve as a Seminar style classroom. Room may also be used for Faculty Conference Space.

### 4. LIST OF FURNISHINGS AND EQUIPMENT

A = Built-in equipment to be furnished and installed by the General Contractor.

- 5 Whiteboards (12'-0" W x 4'-0" H)
- 1 Projector Mount

B = Specified and procured through Interior Designer (not furnished by GC)

- 10 Training Tables (60" W x 30" D)
- 20 Student Chairs

C = Specified and procured through A/V Consultant (not furnished by GC)

- 1 Digital Projector
- 1 A/V Credenza with A/V Rack inside
- A/V Equipment Items (to be determined by the University)

D = Specified and procured through I.T. Consultant (not by GC)

E = Supplied by Owner (in project budget)

F = Supplied by Owner (not in project budget)
403 Space Requirements

A-300 | 45 Seat Classroom

1. SPACE REQUIRED
Name: 45 Seat Classroom
Occupancy: 45 Occupants
Net Square Footage: 1,125 SF
Unit Square Footage: N/A
Space No.: A-300

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
  a. Contiguous: N/A
  b. Adjacent: Locate adjacent to other Classroom spaces and small, informal meeting areas.
  c. Convenient: Locate remotely from all department suites and faculty offices.

Services and Features:
  a. Atmospheric Criteria:
     - Summer 75°F db / 50% RH
     - Winter 72°F db
     - People Outdoor Air Rate Rp = 7.5 CFM per person
     - Area Outdoor Air Rate Ra = 0.06 CFM per square foot
     - Pressurization: Neutral
     - No exhaust requirements
  b. Illumination:
     - Maintained Average Illumination: 50 footcandles
     - Lighting Power Density: 1.4 watts per square foot
     - Preset lighting control system with A/V interface
  c. Electrical:
     - 120 V floor receptacle outlets, minimum six locations
     - 120 V general receptacle outlets, minimum 10’ O.C. wall
     - 120 V ceiling mount for projector
     - 120 V ceiling mount for projector screen
     - 120 V receptacle for Teaching Lecturn (with A/V rack)
  d. Communications:
     - Communication floor outlets, minimum six locations
     - Communication ceiling mount outlet for projector
     - Communication outlet for Teaching Lecturn (with A/V rack)
     - Wireless Internet connectivity
  e. Plumbing:
     - No plumbing requirements
  f. Music/Video:
     - Ceiling mounted Digital Projector
     - Ceiling recessed, motorized Projection Screen

Finishes:
This section is to record specific requirements for all surface areas.
  a. Floor & Base: Carpet Tile with Rubber Base
  b. Walls: Painted Gypsum Board
  c. Ceiling: Acoustical Ceiling Tile throughout with Gypsum Board Soffit at Teaching Wall
  d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
  e. Windows: Aluminum framed glazed system
  f. Window Treatments: Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
A flexible classroom space that will accommodate multiple teaching styles (lecture style, small group, and large group, etc.) through furniture layout options. Recessed floorboxes will provide power and data to the interior of the space while writable surfaces and large screen displays will line the perimeter walls.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
  2 Whiteboards (10'-0" W x 4'-0" H)
  4 Whiteboards (12'-0" W x 4'-0" H)
  1 Projection Screen (12'-6" W x 7'-6" H)
  1 Projector Mount
B = Specified and procured through Interior Designer (not furnished by GC)
  Option 1
     50 Rolling Tablet Arm Charms
  Option 2
     22 Training Tables (60" W x 21" D)
  44 Student Chairs
C = Specified and procured through AV Consultant (not furnished by GC)
  1 Digital Projector
  1 Teaching Lecturn with A/V rack inside
  AV Equipment Items (to be determined by the University)
D = Specified and procured through I.T. Consultant (not by GC)
  N/A
E = Supplied by Owner (in project budget)
  N/A
F = Supplied by Owner (not in project budget)
  N/A
403 Space Requirements

A-400 | 100 Seat Classroom

1. SPACE REQUIRED

<table>
<thead>
<tr>
<th>Name</th>
<th>100 Seat Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupancy</td>
<td>100 Occupants</td>
</tr>
<tr>
<td>Net Square Footage</td>
<td>2,500 SF</td>
</tr>
<tr>
<td>Unit Square Footage</td>
<td>N/A</td>
</tr>
<tr>
<td>Space No.</td>
<td>A-400</td>
</tr>
</tbody>
</table>

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:
- a. Contiguous: N/A
- b. Adjacent: Locate adjacent to other Classroom spaces and small, informal meeting areas.
- c. Convenient: Locate remotely from all department suites and faculty offices.

Services and Features:
- a. Atmospheric Criteria:
  - Summer: 75°F db / 50% RH
  - Winter: 72°F db
  - People Outdoor Air Rate Rp = 7.5 CFM per person
  - Area Outdoor Air Rate Ra = 0.06 CFM per square foot
  - Pressurization: Neutral
  - No exhaust requirements
- b. Illumination:
  - Maintained Average Illumination: 50 footcandles
  - Lighting Power Density: 1.4 watts per square foot
  - Preset lighting control system with A/V interface
- c. Electrical:
  - 120 V floor receptacle outlets, minimum nine locations
  - 120 V general receptacle outlets, minimum 10' O.C. wall
  - 120 V ceiling mount for projector, minimum two locations
  - 120 V ceiling mount for projector screen, minimum two locations
  - 120 V receptacle for Teaching Lecturn (with A/V rack)
- d. Communications:
  - Communication floor outlets, minimum nine locations
  - Communication ceiling mount outlet for projector, minimum two locations
  - Communication outlet for Teaching Lecturn (with A/V rack)
  - Wireless Internet connectivity
- e. Plumbing:
  - No plumbing requirements
- f. Music/Video:
  - Ceiling mounted Digital Projector
  - Ceiling recessed, motorized Projection Screen

Finishes:

This section is to record specific requirements for all surface areas.
- a. Floor & Base: Carpet Tile with Rubber Base
- b. Walls: Painted Gypsum Board
- c. Ceiling: Acoustical Ceiling Tile throughout with Gypsum Board Soffits at Teaching Wall
- d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
- e. Windows: Aluminum framed glazed system
- f. Window Treatments: Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

A flexible classroom space that will accommodate multiple teaching styles (lecture style, small group, and large group, etc.) through furniture layout options. Recessed floorboxes will provide power and data to the interior of the space while writable surfaces and large screen displays will line the perimeter walls.

4. LIST OF FURNISHINGS AND EQUIPMENT

A = Built-in equipment to be furnished and installed by the General Contractor.
- 4 Whiteboards (12'-0" W x 4'-0" H)
- 2 Whiteboards (16'-0" W x 4'-0" H)
- 2 Projection Screens (12'-6" W x 7'-6" H)
- 2 Projector Mounts

B = Specified and procured through Interior Designer (not furnished by GC)
- Option 1
  - 75 Rolling Tablet Arm Charms
  - 15 Rolling Whiteboards (2'-6" W x 4'-0" H)
- Option 2
  - 38 Training Tables (60" W x 21" D)
  - 76 Student Chairs

C = Specified and procured through A/V Consultant (not furnished by GC)
- 2 Digital Projectors
- 1 Teaching Lecturn with A/V Rack inside
- AV Equipment items (to be determined by the University)

D = Specified and procured through I.T. Consultant (not by GC)
- E = Supplied by Owner (in project budget)
- F = Supplied by Owner (not in project budget)
403 Space Requirements

A-600 | 135 Seat Classroom

1. SPACE REQUIRED
Name: 135 Seat Classroom - tiered
Occupancy: 135 Occupants
Net Square Footage: 3,375 SF
Unit Square Footage: N/A
Space No.: A-600

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:
a. Contiguous: N/A
b. Adjacent: Locate adjacent to other Classroom spaces and small, informal meeting areas.
c. Convenient: Locate remotely from all department suites and faculty offices.

Services and Features:
a. Atmospheric Criteria:
   Summer 75°F db / 50% RH
   Winter 72°F db
   People Outdoor Air Rate Rp = 7.5 CFM per person
   Area Outdoor Air Rate Ra = 0.06 CFM per square foot
   Pressurization: Neutral
   No exhaust requirements
b. Illumination:
   Lighting Power Density: 1.4 watts per square foot
   Preset lighting control system with A/V interface

c. Electrical:
   120 V floor receptacle outlets, minimum nine locations
   120 V general receptacle outlets, minimum 10’ O.C. wall
   120 V ceiling mount for projector, minimum two locations
   120 V ceiling mount for projector screen, minimum two locations
   120 V receptacle for Teaching Lecturn (with A/V rack)
d. Communications:
   Communication floor outlets, minimum nine locations
   Communication ceiling mount outlet for projector, minimum two locations
   Communication outlet for Teaching Lecturn (with A/V rack)
   Wireless Internet connectivity

e. Plumbing:
   No plumbing requirements
f. Music/Video:
   Ceiling mounted Digital Projector
   Ceiling recessed, motorized Projection Screen

Finishes:
This section is to record specific requirements for all surface areas.
a. Floor & Base:
   Carpet Tile with Rubber Base
b. Walls:
   Painted Gypsum Board
c. Ceiling:
   Acoustical Ceiling Tile throughout with Gypsum Board Soffit at Teaching Wall
d. Doors and Frames:
   Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
e. Windows:
   Aluminum framed glazed system
f. Window Treatments:
   Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
A flexible classroom space that will accommodate multiple teaching styles (lecture style, small group, and large group, etc.) through furniture layout options. Recessed floor boxes will provide power and data to the interior of the space while writable surfaces and large screen displays will line the perimeter walls.

4. LIST OF FURNISHINGS AND EQUIPMENT

A = Built-in equipment to be furnished and installed by the General Contractor.
   4 Whiteboards (12'-0" W x 4'-0" H)
   2 Whiteboards (16'-0" W x 4'-0" H)
   2 Projection Screens (12'-0" W x 7'-0" H)
   2 Projector Mounts
B = Specified and procured through Interior Designer (not furnished by GC)
   Option 1
   75 Rolling Tablet Arm Charms
   15 Rolling Whiteboards (2'-6" W x 4'-0" H)
   Option 2
   38 Training Tables (60" W x 21" D)
   76 Student Chairs
C = Specified and procured through A/V Consultant (not furnished by GC)
   2 Digital Projectors
   1 Teaching Lecturn with A/V Rack inside
   A/V Equipment Items (to be determined by the University)
D = Specified and procured through I.T. Consultant (not by GC)
E = Supplied by Owner (in project budget)
F = Supplied by Owner (not in project budget)
403 Space Requirements

A-500 | 500 Seat Conference Center

1. SPACE REQUIRED
Name: 500 Seat Conference Center
Occupancy: 500 Occupants
Net Square Footage: 7,500 SF
Unit Square Footage: N/A
Space No.: A-500

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:
- a. Contiguous: Locate contiguous to large collaboration area, storage room (chairs), kitchen, and AV control room.
- b. Adjacent: Locate adjacent to main entrance/building lobby for additional pre-function activity space.
- c. Convenient: Locate remotely from all department suites and faculty offices.

Services and Features:
- a. Atmospheric Criteria:
  - Summer 75°F db / 50% RH
  - Winter 72°F db
  - People Outdoor Air Rate Rp = 7.5 CFM per person
  - Area Outdoor Air Rate Ra = 0.06 CFM per square foot
  - Pressurization: Neutral
  - No exhaust requirements
- b. Illumination:
  - Maintained Average Illumination: 50 footcandles
  - Lighting Power Density: 1.4 watts per square foot
  - Preset lighting control system with A/V interface
- c. Electrical:
  - 120 V floor receptacle outlets, minimum three locations
  - 120 V general receptacle outlets, minimum 10' O.C. wall
  - 120 V ceiling mount for projectors, minimum four locations
  - 120 V ceiling mount for projector screens, minimum four locations
  - 120 V receptacles for A/V equipment
- d. Communications:
  - Communication floor outlets, minimum three locations
  - Communication ceiling mount outlet for projectors, minimum four locations
  - Communication outlets for A/V equipment
  - Wireless Internet connectivity
- e. Plumbing:
  - No plumbing requirements
- f. Music/Video:
  - 4 Ceiling mounted Digital Projectors
  - 4 Ceiling recessed, motorized Projection Screens
  - Sound system equipped with voice amplification and surround sound.
  - A/V system equipped with both audio and video capture.

Finishes:
This section is to record specific requirements for all surface areas.
- a. Floor & Base: Resilient Tile Flooring with Rubber Base
- b. Walls: Painted Gypsum Board
- c. Ceiling: Acoustical Ceiling Tile throughout with Gypsum Board Soffit at Room Perimeter
- d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
- e. Windows: Aluminum framed glazed system if required
- f. Window Treatments: Black out shades are required if windows are present

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
The conference center is intended to host both formal and informal events. Loose furniture arrangements will accommodate both lecture style events and sit-down dining events. The conference center should be located contiguous to a pre-function space and should be convenient to public restrooms. The conference center is to have direct access to both a storage room (for tables and chairs) and a warming kitchen for catered events. The space is to be equipped with state of the art, audio and video technologies capable of audio capture, audio amplification, video capture, and video projection. Space should be capable of splitting into two smaller rooms with a movable partition.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
- 2 Projection Screens (20’-0” W x 12’-0” H)
- 2 Projector Mounts
B = Specified and procured through Interior Designer (not furnished by GC)
- 500 Conference Chairs
- 70 Conference Tables (8’-0” W x 2’-6” D)
C = Specified and procured through A/V Consultant (not furnished by GC)
- 2 Digital Projectors
- A/V and Sound System Rack
- AV Equipment Items (to be determined by the University)
D = Specified and procured through I.T. Consultant (not by GC)
- N/A
E = Supplied by Owner (in project budget)
- N/A
F = Supplied by Owner (not in project budget)
- N/A
403 Space Requirements

B-100 | Department Suites

1. SPACE REQUIRED
Name: Department Suite (Medium | Large)
Occupancy: 2 | 4 | 6 Occupants
Unit Square Footage: (per THEC standards and NASF of individual Department offices)
Net Square Footage
400 SF (EPP) | 600 SF (Biosafety) | 700 SF (PS) | 900 SF (FWF)
Space No.: B-100

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
a. Contiguous: Locate contiguous to Department Head office and Assistant Head Office (if applicable).
b. Adjacent: Locate relatively close to 20 Seat Seminar / Conference Room.
c. Convenient: Locate convenient to faculty, lecturer, and adjunct offices of the same department.

Space No.: B-100

Services and Features:
a. Atmospheric Criteria: Summer 75°F db / 50% RH
Winter 72°F db
People Outdoor Air Rate Rp = 5 CFM per person
Area Outdoor Air Rate Ra = 0.06 CFM per square foot
Pressurization: Neutral
No exhaust requirements

b. Illumination: Maintained Average Illumination: 50 footcandles
Lighting Power Density: 1.1 watts per square foot
Lighting control system with automatic shutoff

(b. Electrical: 120 V general receptacle outlets, minimum 10' O.C. wall
120 V quad receptacle outlets for office desks, minimum 2 locations
120 V dedicated receptacle outlets for large Work Room equipment, min. 2 locations
120 V receptacle outlets for other Work Room equipment


c. Communications: Communication outlets for office desks, minimum 2 locations
Communication outlets for Work Room equipment, minimum 2 locations
Wireless Internet connectivity

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
The Department Suite provides a "face" for specific departments where students, faculty, and potentially the public can access a central location. The department suite will provide space for administrative staff, a reception and waiting area, and a department workroom. The workroom will provide space for a break room area, layout area for teaching materials, and an area for copier/fax machines to be used exclusively by that departments faculty and staff. Where applicable, the department suite should provide direct (contiguous) access to the Department Chair's office, an Assistant Department Chair's office, and the Department Chair's Conference Room.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
27 - 47 linear feet of wall cabinets, base cabinets, and counter top with 1 sink
B = Specified and procured through Interior Designer (not furnished by GC)
1-6 Reception Desks
1-3 Work Study Desks
2-9 Desk Chairs
5-8 Guest Chairs
2-4 End Tables
2-9 Lateral File Cabinets (15" W x 28" H)
4-15 Lateral File Cabinets (36" W x 28" H)
3-6 Lateral File Cabinets (42" W x 60" H)
2-8 Wire Shelving Racks (36" W x 72" H)
C = Specified and procured through A/V Consultant (not furnished by GC)
D = Specified and procured through I.T. Consultant (not by GC)
N/A
E = Supplied by Owner (in project budget)
N/A
F = Supplied by Owner (not in project budget)
1-3 Copy/Scanner machines

Finishes:
This section is to record specific requirements for all surface areas.
a. Floor & Base: Carpet Tile with Rubber Base
b. Walls: Painted Gypsum Board
c. Ceiling: Acoustical Ceiling Tile
d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
e. Windows: Aluminum framed glazed system if required
f. Window Treatments: Blinds
B-200 | Department Head Conference Room

1. SPACE REQUIRED
Name: Department Head Conference Room
Occupancy: 6 Occupants
Net Square Footage: 150 SF (per THEC standards)
Unit Square Footage: N/A
Space No.: B-200

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
  a. Contiguous: Locate contiguous to Department Suite and Department Head.
  b. Adjacent: Locate adjacent to Assistant Department Head Office (if applicable).
  c. Convenient: Locate convenient to faculty, lecturer, and adjunct offices of the same department.

Services and Features:
  a. Atmospheric Criteria:
     Summer 75°F db / 50% RH
     Winter 72°F db
     People Outdoor Air Rate Rp = 5 CFM per person
     Area Outdoor Air Rate Ra = 0.06 CFM per square foot
     Pressurization: Neutral
     No exhaust requirements
  b. Illumination:
     Maintained Average Illumination: 50 footcandles
     Lighting Power Density: 1.3 watts per square foot
     Preset lighting control system with A/V interface
  c. Electrical:
     120 V floor receptacle outlets, minimum 1 location
     120 V general receptacle outlets, minimum 10' O.C. wall
  d. Communications:
     Communication floor outlet, minimum 1 location
     General Communication outlet
     Wireless Internet connectivity
  e. Plumbing:
     No plumbing requirements
  f. Music/Video:
     N/A

Finishes:
This section is to record specific requirements for all surface areas.
  a. Floor & Base:
     Carpet Tile with Rubber Base
  b. Walls:
     Painted Gypsum Board
  c. Ceiling:
     Acoustical Ceiling Tile
  d. Doors and Frames:
     Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
  e. Windows:
     Aluminum framed glazed system
  f. Window Treatments:
     Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
Small Conference Room for the Department Head to meet with Faculty.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
B = Specified and procured through Interior Designer (not furnished by GC)
C = Specified and procured through A/V Consultant (not furnished by GC)
D = Specified and procured through I.T. Consultant (not by GC)
E = Supplied by Owner (in project budget)
F = Supplied by Owner (not in project budget)

6 Conference Chairs
1 Conference Table
N/A
N/A
N/A
N/A
### 403 Space Requirements

**B-300 | Department Head Office | Faculty Office | Emeriti Office**

1. **SPACE REQUIRED**
   - **Name:** Department Head Office | Faculty Office | Emeriti Office
   - **Occupancy:** 1 Occupant
   - **Net Square Footage:** 150 SF (per THEC standards)
   - **Unit Square Footage:** N/A
   - **Space No.:** B-300

2. **DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES**
   - **Relationships:**
     - a. Contiguous: N/A
     - b. Adjacent: Locate adjacent to faculty, lecturer, and adjunct offices of the same department.
     - c. Convenient: Locate convenient to the Department Suite, primarily the Work Mail Room, of the same department.
       Locate remotely from all student spaces and classroom spaces.
   - **Services and Features:**
     - a. Atmospheric Criteria:
       - Summer 75°F db / 50% RH
       - Winter 72°F db
       - People Outdoor Air Rate Rp = 5 CFM per person
       - Area Outdoor Air Rate Ra = 0.06 CFM per square foot
       - Pressurization: Neutral
       - No exhaust requirements
     - b. Illumination:
       - Maintained Average Illumination: 50 footcandles
       - Lighting Power Density: 1.1 watts per square foot
       - Lighting control system with automatic shutoff
     - c. Electrical:
       - 120 V general receptacle outlets, minimum 10' O.C. wall
     - d. Communications:
       - Communication outlet for Faculty desk
       - Wireless Internet connectivity
     - e. Plumbing:
       - No plumbing requirements
     - f. Music/Video:
       - N/A
   - **Finishes:**
     - a. **Floor & Base:** Carpet Tile with Rubber Base
     - b. **Walls:** Painted Gypsum Board
     - c. **Ceiling:** Acoustical Ceiling Tile
     - d. **Doors and Frames:** Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
     - e. **Windows:** Aluminum framed glazed system
     - f. **Window Treatments:** Blinds

3. **DESCRIPTION OF FUNCTIONAL REQUIREMENTS**
   - Private Office for one Full Time Faculty Member or Emeriti Faculty.

4. **LIST OF FURNISHINGS AND EQUIPMENT**
   - A = Built-in equipment to be furnished and installed by the General Contractor.
     - N/A
   - B = Specified and procured through Interior Designer (not furnished by GC)
     - 1 Desk
     - 1 Associated Computer Work Station
     - 1 Desk Chair
     - 2 Guest Chairs
     - 3 Bookshelf Units (3'-0" W)
     - 1 Lateral File Cabinets (36" W x 28" H)
   - C = Specified and procured through A/V Consultant (not furnished by GC)
     - N/A
   - D = Specified and procured through I.T. Consultant (not by GC)
     - N/A
   - E = Supplied by Owner (in project budget)
     - N/A
   - F = Supplied by Owner (not in project budget)
     - N/A
403  Space Requirements

B-400 | Lecturer Office | Part-Time Office | Adjunct Office | Technical Office

1. SPACE REQUIRED

Name: Lecturer Office | Part-Time Office | Adjunct Office | Technical Office
Occupancy: 1 Occupant
Net Square Footage: 100 SF (per THEC standards)
Unit Square Footage: N/A
Space No.: B-400

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:
  a. Contiguous: N/A
  b. Adjacent: Locate adjacent to faculty, lecturer, and adjunct offices of the same department.
  c. Convenient: Locate convenient to the Department Suite, primarily the Work Mail Room, of the same department.
       Locate remotely from all student spaces and classroom spaces.

Services and Features:
  a. Atmospheric Criteria:
      Summer 75°F db / 50% RH
      Winter 72°F db
      People Outdoor Air Rate Rp = 5 CFM per person
      Area Outdoor Air Rate Ra = 0.06 CFM per square foot
      Pressurization: Neutral
      No exhaust requirements
  b. Illumination:
      Maintained Average Illumination: 50 footcandles
      Lighting Power Density: 1.1 watts per square foot
      Lighting control system with automatic shutoff
  c. Electrical:
      120 V general receptacle outlets, minimum 10' O.C. wall
      120 V quad receptacle outlet for Lecturer desk
  d. Communications:
      Communication outlet for Lecturer desk
      Wireless Internet connectivity
  e. Plumbing:
      No plumbing requirements
  f. Music/Video:
      N/A

Finishes:
This section is to record specific requirements for all surface areas.
  a. Floor & Base:
      Carpet Tile with Rubber Base
  b. Walls:
      Painted Gypsum Board
  c. Ceiling:
      Acoustical Ceiling Tile
  d. Doors and Frames:
      Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
  e. Windows:
      Aluminum framed glazed system
  f. Window Treatments:
      Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
Private Office for one Full Time Lecturer, Part Time Faculty, Adjunct Faculty or Technical Staff.

4. LIST OF FURNISHINGS AND EQUIPMENT
   A = Built-in equipment to be furnished and installed by the General Contractor.
   B = Specified and procured through Interior Designer (not furnished by GC)
       1 Desk
       1 Associated Computer Work Station
       1 Desk Chair
       2 Guest Chairs
       1 Bookshelf Unit (3'-0" W)
       1 Lateral File Cabinets (15" W x 28" H)
   C = Specified and procured through A/V Consultant (not furnished by GC)
       N/A
   D = Specified and procured through I.T. Consultant (not by GC)
       N/A
   E = Supplied by Owner (in project budget)
       N/A
   F = Supplied by Owner (not in project budget)
       N/A
403 Space Requirements

B-500 | Grad Student Office | Post-Doc Office | GTA Office

1. SPACE REQUIRED
Name: Grad Student Office | Post-Doc Office | GTA Office
Occupancy: 4 Occupants
Net Square Footage: 60 SF per Occupant (per THEC standards)
Unit Square Footage: 240 SF
Space No.: B-500

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
a. Contiguous: N/A
b. Adjacent: N/A
c. Convenient: Locate convenient to faculty, lecturer, and adjunct offices of the same department. Locate remotely from all student spaces and classroom spaces.

Services and Features:
a. Atmospheric Criteria: Summer 75°F db / 50% RH
   Winter 72°F db
   People Outdoor Air Rate Rp = 5 CFM per person
   Area Outdoor Air Rate Ra = 0.06 CFM per square foot
   Pressurization: Neutral
   No exhaust requirements
b. Illumination: Maintained Average Illumination: 50 footcandles
   Lighting Power Density: 1.1 watts per square foot
   Lighting control system with automatic shutoff
c. Electrical: 120 V general receptacle outlets, minimum 10' O.C. wall
   120 V quad receptacle outlet for desks, minimum four locations
d. Communications: Communication outlet for desks, minimum four locations
   Wireless Internet connectivity
e. Plumbing: No plumbing requirements
f. Music/Video: N/A

Finishes:
This section is to record specific requirements for all surface areas.
a. Floor & Base: Carpet Tile with Rubber Base
b. Walls: Painted Gypsum Board
c. Ceiling: Acoustical Ceiling Tile
d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
e. Windows: Aluminum framed glazed system
f. Window Treatments: Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
   Shared Office for 4 Graduate Teaching Assistants. Can be in closed room or open to a larger Office Suite.

4. LIST OF FURNISHINGS AND EQUIPMENT
   A = Built-in equipment to be furnished and installed by the General Contractor.
   B = Specified and procured through Interior Designer (not furnished by GC)
     4 Desks
     4 Desk Chairs
     2 Bookshelf Units (3'-0" W)
     8 Lateral File Cabinets (15" W x 28" H)
   C = Specified and procured through A/V Consultant (not furnished by GC)
     N/A
   D = Specified and procured through I.T. Consultant (not by GC)
     N/A
   E = Supplied by Owner (in project budget)
     N/A
   F = Supplied by Owner (not in project budget)
     N/A
403 Space Requirements

B-600 | UTIA Safety Office

1. SPACE REQUIRED
   Name: UTIA Safety Office
   Occupancy: 2 Occupants
   Net Square Footage: 100 SF per Occupant (per THEC standards)
   Unit Square Footage: 200 SF
   Space No.: B-600

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
   Relationships:
   a. Contiguous: N/A
   b. Adjacent: Locate adjacent to faculty offices of the Biosafety, IACUC, OHP and OLAC groups.
   c. Convenient: Locate remotely from all student spaces and classroom spaces.

   Services and Features:
   a. Atmospheric Criteria:
      Summer 75°F db / 50% RH
      Winter 72°F db
      People Outdoor Air Rate Rp = 5 CFM per person
      Area Outdoor Air Rate Ra = 0.06 CFM per square foot
      Pressurization: Neutral
      No exhaust requirements
   b. Illumination:
      Maintained Average Illumination: 50 footcandles
      Lighting Power Density: 1.1 watts per square foot
      Lighting control system with automatic shutoff
   c. Electrical:
      120 V general receptacle outlets, minimum 10' O.C. wall
      120 V quad receptacle outlet for desks, minimum two locations
   d. Communications:
      Communication outlet for desks, minimum two locations
      Wireless Internet connectivity
   e. Plumbing:
      No plumbing requirements
   f. Music/Video:
      N/A

   Finishes:
   This section is to record specific requirements for all surface areas.
   a. Floor & Base:
      Carpet Tile with Rubber Base
   b. Walls:
      Painted Gypsum Board
   c. Ceiling:
      Acoustical Ceiling Tile
   d. Doors and Frames:
      Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
   e. Windows:
      Aluminium framed glazed system
   f. Window Treatments:
      Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
   Shared Office for 2 Safety Officers

4. LIST OF FURNISHINGS AND EQUIPMENT
   A = Built-in equipment to be furnished and installed by the General Contractor.
      N/A
   B = Specified and procured through Interior Designer (not furnished by GC)
      2 Desks
      2 Desk Chairs
      2 Storage Closets
      1 Small Table
   C = Specified and procured through A/V Consultant (not furnished by GC)
      N/A
   D = Specified and procured through I.T. Consultant (not by GC)
      N/A
   E = Supplied by Owner (in project budget)
      N/A
   F = Supplied by Owner (not in project budget)
      N/A
403 Space Requirements

B-700 | Pod Cast Room | Advising

1. SPACE REQUIRED
Name: Pod Cast Room / Advising
Occupancy: 2 Occupants
Net Square Footage: 100 SF
Unit Square Footage: N/A
Space No.: B-700

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
a. Contiguous: N/A
b. Adjacent: N/A
c. Convenient: Locate convenient to the Plant Sciences Department.
Locate remotely from all student spaces and classroom spaces.

Services and Features:
a. Atmospheric Criteria:
   Summer 75°F db / 50% RH
   Winter 72°F db
   People Outdoor Air Rate Rp = 5 CFM per person
   Area Outdoor Air Rate Ra = 0.06 CFM per square foot
   Pressurization: Neutral
   No exhaust requirements
b. Illumination:
   Maintained Average Illumination: 50 footcandles
   Lighting Power Density: 1.1 watts per square foot
   Multi-level lighting control system with automatic shut-off
   120 V general receptacle outlets, minimum 12' O.C. wall
   120 V general receptacle for flat screen TV
   Wireless Internet connectivity
c. Electrical:
   Communication outlet for flat screen TV
   Communication general outlets, minimum one location
   120 V general receptacle for flat screen TV
   Audio and Video Recording Equipment
d. Communications:
   No plumbing requirements
f. Music/Video:
   Flat Screen TV
   Flat Screen TV with Camera for Pod Casting
   Audio and Video Recording Equipment

Finishes:
This section is to record specific requirements for all surface areas.
a. Floor & Base: Carpet Tile with Rubber Base
b. Walls: Painted Gypsum Board
c. Ceiling: Acoustical Ceiling Tile
d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
e. Windows: Aluminum framed glazed system
f. Window Treatments: Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
Room for 1-2 people to privately record pod casts.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
   1 Whiteboard (6'-0" W x 4'-0" H)
B = Specified and procured through Interior Designer (not furnished by GC)
   2 Chairs
   1 Small Table
C = Specified and procured through A/V Consultant (not furnished by GC)
   1 Flat Screen TV with Camera for Pod Casting
D = Specified and procured through I.T. Consultant (not by GC)
   N/A
E = Supplied by Owner (in project budget)
   N/A
F = Supplied by Owner (not in project budget)
   N/A
### 1. SPACE REQUIRED

<table>
<thead>
<tr>
<th>Name:</th>
<th>Poster and Printer Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupancy:</td>
<td>2 Occupants</td>
</tr>
<tr>
<td>Net Square Footage:</td>
<td>180 SF</td>
</tr>
<tr>
<td>Unit Square Footage:</td>
<td>N/A</td>
</tr>
<tr>
<td>Space No.:</td>
<td>B-800</td>
</tr>
</tbody>
</table>

### 2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

#### Relationships:
- Contiguous: N/A
- Adjacent: N/A
- Convenient: Locate convenient to the Plant Sciences Department. Locate remotely from all student spaces and classroom spaces.

#### Services and Features:
- **a. Atmospheric Criteria:**
  - Summer: 75°F db / 50% RH
  - Winter: 72°F db
  - People Outdoor Air Rate \( R_p = 5 \) CFM per person
  - Area Outdoor Air Rate \( R_a = 0.06 \) CFM per square foot
  - Pressurization: Neutral
  - No exhaust requirements
- **b. Illumination:**
  - Maintained Average Illumination: 50 footcandles
  - Lighting Power Density: 1.1 watts per square foot
  - Lighting control system with automatic shutoff
- **c. Electrical:**
  - 120 V general receptacle outlets, minimum 10’ O.C. wall
  - 120 V receptacle outlet for printer and plotter, minimum two locations
- **d. Communications:**
  - Communication general outlets, minimum one location
  - Communication outlet for printer and plotter, minimum two locations
  - Wireless Internet connectivity
- **e. Plumbing:**
  - No plumbing requirements
- **f. Music/Video:**
  - N/A

#### Finishes:
- **a. Floor & Base:** Resilient Tile Flooring with Rubber Base
- **b. Walls:** Painted Gypsum Board
- **c. Ceiling:** Acoustical Ceiling Tile
- **d. Doors and Frames:** Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
- **e. Windows:** Aluminum framed glazed system
- **f. Window Treatments:** Blinds

### 3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

- Secured space to store the large format plotter and other miscellaneous printers for the Plant Sciences Department.

### 4. LIST OF FURNISHINGS AND EQUIPMENT

- **A =** Built-in equipment to be furnished and installed by the General Contractor.
- 21 linear feet of wall cabinets, base cabinets, and countertop
- **B =** Specified and procured through Interior Designer (not furnished by GC)
- N/A
- **C =** Specified and procured through A/V Consultant (not furnished by GC)
- N/A
- **D =** Specified and procured through I.T. Consultant (not by GC)
- N/A
- **E =** Supplied by Owner (in project budget)
- N/A
- **F =** Supplied by Owner (not in project budget)
- Large Format Plotter
### 1. SPACE REQUIRED

<table>
<thead>
<tr>
<th>Name:</th>
<th>32 Seat Specialty Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupancy:</td>
<td>32 Occupants</td>
</tr>
<tr>
<td>Net Square Footage:</td>
<td>945 SF</td>
</tr>
<tr>
<td>Unit Square Footage:</td>
<td>N/A</td>
</tr>
<tr>
<td>Space No.:</td>
<td>C-100</td>
</tr>
</tbody>
</table>

### 2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

**Relationships:**
- a. Contiguous: N/A
- b. Adjacent: Locate adjacent to other classroom spaces and informal public spaces.
- c. Convenient: Locate remotely from all department suites, faculty offices, and research labs.

**Services and Features:**
- a. Atmospheric Criteria:
  - Summer 75°F db / 50% RH
  - Winter 72°F db
  - People Outdoor Air Rate Rp = 7.5 CFM per person
  - Area Outdoor Air Rate Ra = 0.06 CFM per square foot
  - Pressurization: Neutral
  - No exhaust requirements
- b. Illumination:
  - Lighting Power Density: 1.4 watts per square foot
  - Preset lighting control system with A/V interface
- c. Electrical:
  - 120 V floor receptacle outlets, minimum four locations
  - 120 V general receptacle outlets, 2'-0" O.C. at casework (above counter in surface mounted raceway)
  - 120 V ceiling mount for projector
  - 120 V ceiling mount for projector screen
  - 120 V receptacle for Teaching Lecturn (with A/V rack)
- d. Communications:
  - Communication floor outlets, minimum four locations
  - Communication wall outlets, 6'-0" O.C. at casework (above counter in surface mounted raceway)
  - Communication ceiling mount outlet for projector
  - Communication outlet for Teaching Lecturn (with A/V rack)
  - Wireless Internet connectivity
- e. Plumbing:
  - Casework-mounted sink
- f. Music/Video:
  - Ceiling mounted Digital Projector
  - Ceiling recessed, motorized Projection Screen

**Finishes:**
- a. Floor & Base: Resilient Tile Flooring with Rubber Base
- b. Walls: Painted Gypsum Board
- c. Ceiling: Acoustical Ceiling Tile throughout with Gypsum Board Soffit at Teaching Wall
- d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
- e. Windows: Aluminum framed glazed system
- f. Window Treatments: Blinds

### 3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

A flexible teaching space for specialized classes that require the functionality and durability of laboratory casework.

### 4. LIST OF FURNISHINGS AND EQUIPMENT

**A =** Built-in equipment to be furnished and installed by the General Contractor.

- 50 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
- 17 Casework Tables, Loose (60" x 24")
- 2 Whiteboards (10'-0" W x 4'-0" H)
- 1 Whiteboards (16'-0" W x 4'-0" H)
- 1 Projection Screen (12'-6" W x 7'-6" H)
- 1 Projector Mount
- 1 Fire Extinguisher and Cabinet

**B =** Specified and procured through Interior Designer (not furnished by GC)

- 32 Student Chairs
- 1 Professor Chair

**C =** Specified and procured through A/V Consultant (not furnished by GC)

- 1 Digital Projector
- 1 Teaching Lecturn with A/V Rack inside
- A/V Equipment Items (to be determined by the University)

**D =** Specified and procured through I.T. Consultant (not by GC)

- N/A

**E =** Supplied by Owner (in project budget)

- N/A

**F =** Supplied by Owner (not in project budget)

- N/A
C-200 | 40 Seat Specialty Classroom

1. SPACE REQUIRED
Name: 40 Seat Specialty Classroom
Occupancy: 40 Occupants
Net Square Footage: 1,103 SF
Unit Square Footage: N/A
Space No.: C-200

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
   a. Contiguous: N/A
   b. Adjacent: Locate adjacent to other classroom spaces and informal public spaces.
   c. Convenient: Locate remotely from all department suites, faculty offices, and research labs.

Services and Features:
   a. Atmospheric Criteria:
      Summer 75°F db / 50% RH
      Winter 72°F db
      People Outdoor Air Rate Rp = 7.5 CFM per person
      Area Outdoor Air Rate Ra = 0.06 CFM per square foot
      Pressurization: Neutral
      No exhaust requirements
   b. Illumination:
      Maintained Average Illumination: 50 footcandles
      Lighting Power Density: 1.4 watts per square foot
      Preset lighting control system with A/V interface
   c. Electrical:
      120 V floor receptacle outlets, minimum six locations
      120 V general receptacle outlets, minimum 10' O.C. at wall
      120 V general receptacle outlets, 2'-0" O.C. at casework
      (above counter in surface mounted raceway)
      120 V ceiling mount for projector
      120 V ceiling mount for projector screen
      120 V receptacle for Teaching Lecturn (with A/V rack)
   d. Communications:
      Communication floor outlets, minimum six locations
      Communication wall outlets, 6'-0" O.C. at casework
      (above counter in surface mounted raceway)
      Communication ceiling mount outlet for projector
      Communication outlet for Teaching Lecturn (with A/V rack)
      Wireless Internet connectivity
   e. Plumbing:
      Casework-mounted sink
   f. Music/Video:
      Ceiling mounted Digital Projector
      Ceiling recessed, motorized Projection Screen

Finishes:
   This section is to record specific requirements for all surface areas.
   a. Floor & Base: Resilient Tile Flooring with Rubber Base
   b. Walls: Painted Gypsum Board
   c. Ceiling: Acoustical Ceiling Tile throughout with Gypsum Board Soffit at Teaching Wall
   d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
   e. Windows: Aluminum framed glazed system
   f. Window Treatments: Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
   A flexible teaching space for specialized classes that require the functionality and durability of laboratory casework.

4. LIST OF FURNISHINGS AND EQUIPMENT
   A = Built-in equipment to be furnished and installed by the General Contractor.
   B = Specified and procured through Interior Designer (not furnished by GC)
   C = Specified and procured through A/V Consultant (not furnished by GC)
   D = Specified and procured through I.T. Consultant (not by GC)
   E = Supplied by Owner (in project budget)
   F = Supplied by Owner (not in project budget)

   A = 55 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
   21 Casework Tables, Loose (60'' x 24'')
   2 Whiteboards (12'-0" W x 4'-0" H)
   1 Whiteboards (16'-0" W x 4'-0" H)
   1 Projection Screen (12'-6" W x 7'-6" H)
   1 Projector Mount
   1 Fire Extinguisher and Cabinet
   40 Student Chairs
   1 Professor Chair
   1 Digital Projector
   1 Teaching Lecturn with A/V Rack inside
   AV Equipment Items (to be determined by the University)
   N/A
   Wireless Internet connectivity
   N/A
   E = Supplied by Owner (in project budget)
   N/A
   F = Supplied by Owner (not in project budget)
   N/A
## 403 Space Requirements

### D-100 | General Teaching Lab

#### 1. SPACE REQUIRED

<table>
<thead>
<tr>
<th>Name:</th>
<th>General Teaching Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupancy:</td>
<td>24 Occupants</td>
</tr>
<tr>
<td>Net Square Footage:</td>
<td>1,260 SF</td>
</tr>
<tr>
<td>Unit Square Footage:</td>
<td>N/A</td>
</tr>
<tr>
<td>Space No.:</td>
<td>D-100</td>
</tr>
</tbody>
</table>

#### 2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

**Relationships:**
- **Contiguous:** Locate contiguous to General Prep Labs.
- **Adjacent:** Locate adjacent to other classroom spaces and informal public spaces.
- **Convenient:** Locate remotely from all department suites, faculty offices, and research labs.

**Services and Features:**
- **a. Atmospheric Criteria:**
  - Summer: 75°F db / 50% RH
  - Winter: 72°F db
  - People Outdoor Air Rate \( R_p = 10 \text{ CFM per person} \)
  - Area Outdoor Air Rate \( R_a = 0.18 \text{ CFM per square foot} \)
  - Pressurization: Negative
  - 100% exhausted
- **b. Illumination:**
  - Maintained Average Illumination: 50 footcandles
  - Lighting Power Density: 1.4 watts per square foot
  - Preset lighting control system with A/V interface
- **c. Electrical:**
  - 120 V floor receptacle outlets, minimum six locations
  - 120 V general receptacle outlets, minimum 10' O.C. at wall
  - 120 V general receptacle outlets, 2'-0" O.C. at casework (above counter in surface mounted raceway)
  - 120 V ceiling mount for projector
  - 120 V ceiling mount for projector screen
  - 120 V receptacle for Teaching Lecturn (with A/V rack)
  - 208 V general receptacle outlet at Future Equipment Space, minimum two locations
- **d. Communications:**
  - Communication floor outlets, 6'-0" O.C. at casework (above counter in surface mounted raceway)
  - Communication ceiling mount outlet for projector
  - Communication outlet for Teaching Lecturn (with A/V rack)
  - Wireless Internet connectivity
- **e. Plumbing:**
  - 2 casework mounted sinks with Hot and Cold Water and Eyewash fixtures
  - Single Air, Gas, Vacuum Connections
  - Emergency Shower and Eyewash Combination Unit
- **f. Music/Video:**
  - Ceiling mounted Digital Projector
  - Ceiling recessed, motorized Projection Screen

### Finishes:
This section is to record specific requirements for all surface areas.

| a. Floor & Base: | Resilient Tile Flooring with Rubber Base |
| b. Walls: | Painted Gypsum Board |
| c. Ceiling: | Acoustical Ceiling Tile throughout with Gypsum Board Soffit at Teaching Wall |
| d. Doors and Frames: | Painted Steel Doors with Lockable Hardware and Hollow Metal Frames |
| e. Windows: | At least one door into lab to provide a 48" minimum clear horizontal entry for equipment |
| f. Window Treatments: | Blinds |

#### 3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

A flexible laboratory space suitable for teaching both wet and dry sciences.

#### 4. LIST OF FURNISHINGS AND EQUIPMENT

**A = Built-in equipment to be furnished and installed by the General Contractor.**
- 76 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
- 12 Casework Tables, Loose (72" x 30")
- 1 Casework Table, Loose (60" x 30")
- 2 Whiteboards (12'-0" W x 4'-0" H)
- 1 Projection Screen (12'-6" W x 7'-6" H)
- 1 Projector Mount
- 1 Fire Extinguisher and Cabinet

**B = Specified and procured through Interior Designer (not furnished by GC).**
- 24 Student Chairs
- 1 Professor Chair

**C = Specified and procured through A/V Consultant (not furnished by GC).**
- 1 Digital Projector
- 1 Teaching Lecturn with A/V Rack inside
  - AV Equipment Items (to be determined by the University)

**D = Specified and procured through I.T. Consultant (not by GC).**
- N/A

**E = Supplied by Owner (in project budget).**
- N/A

**F = Supplied by Owner (not in project budget).**
- N/A
## 403 Space Requirements

**D-200 | General Prep Lab**

### 1. SPACE REQUIRED

<table>
<thead>
<tr>
<th>Name:</th>
<th>General Prep Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupancy:</td>
<td>0 Occupant</td>
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<tr>
<td>Net Square Footage:</td>
<td>315 SF</td>
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<tr>
<td>Unit Square Footage:</td>
<td>N/A</td>
</tr>
<tr>
<td>Space No.:</td>
<td>D-200</td>
</tr>
</tbody>
</table>

### 2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

**Relationships:**
- **a. Contiguous:** Locate contiguous to General Teaching Labs.
- **b. Adjacent:** Locate adjacent to other classroom spaces and informal public spaces.
- **c. Convenient:** Locate remotely from all department suites, faculty offices, and research labs.

**Services and Features:**
- **a. Atmospheric Criteria:**
  - Summer 75°F db / 50% RH
  - Winter 72°F db
  - People Outdoor Air Rate $R_p = 10 \text{ CFM per person}$
  - Area Outdoor Air Rate $R_a = 0.18 \text{ CFM per square foot}$
  - Pressurization: Negative
  - 100% exhausted
- **b. Illumination:**
  - Maintained Average Illumination: 75 footcandles
  - Lighting Power Density: 1.4 watts per square foot
  - Lighting control system with automatic shutoff
- **c. Electrical:**
  - 120 V general receptacle outlets, 2'-0" O.C. at casework (above counter in surface mounted raceway)
  - 120 V emergency power receptacle outlets, minimum four locations
  - 120 V general receptacle outlet at Future Equipment Space, minimum two locations
  - 208 V general receptacle outlet at Future Equipment Space, minimum one location
  - 120 V ceiling mount for Fume Hood
- **d. Communications:**
  - Communication wall outlets, 6'-0" O.C. at casework (above counter in surface mounted raceway)
  - Communication wall outlet at Future Equipment Space, minimum 1 location
  - Wireless Internet connectivity
- **e. Plumbing:**
  - 1 casework mounted sink with Hot and Cold Water and Eyewash fixture
  - Fume Hood Connections
    - 1 Cold Water connection for cup sink
    - 1 Air connection
    - 1 Vacuum connection
    - 1 Gas connection
- **f. Music/Video:**
  - N/A

### Finishes:

This section is to record specific requirements for all surface areas.

- **a. Floor & Base:** Resilient Tile Flooring with Rubber Base
- **b. Walls:** Painted Gypsum Board
- **c. Ceiling:** Acoustical Ceiling Tile
- **d. Doors and Frames:** Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
- **e. Windows:** Aluminum framed glazed system
- **f. Window Treatments:** Blinds

### 3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

Laboratory space to serve as a preparation area for teaching materials and/or experiments to be used in the General Teaching Lab.

### 4. LIST OF FURNISHINGS AND EQUIPMENT

**A = Built-in equipment to be furnished and installed by the General Contractor.**

- 39 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
- One 4′-0′ wide Fume Hood
- 1 Fire Extinguisher and Cabinet

**B = Specified and procured through Interior Designer (not furnished by GC).**

- N/A

**C = Specified and procured through AV Consultant (not furnished by GC).**

- N/A

**D = Specified and procured through I.T. Consultant (not by GC).**

- N/A

**E = Supplied by Owner (in project budget).**

- N/A

**F = Supplied by Owner (not in project budget).**

- N/A
**403 Space Requirements**

**D-300 | Necropsy Teaching Lab**

1. **SPACE REQUIRED**
   - **Name:** Necropsy Teaching Lab
   - **Occupancy:** 15 Occupants
   - **Net Square Footage:** 630 SF
   - **Unit Square Footage:** N/A
   - **Space No.:** D-300

2. **DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES**
   - **Relationships:**
     - **Contiguous:** Locate contiguous to Gowning Room.
     - **Adjacent:** Locate adjacent to other classroom spaces and informal public spaces.
     - **Convenient:** Locate remotely from all department suites, faculty offices, and research labs.

   - **Services and Features:**
     - **Atmospheric Criteria:**
       - Summer 75°F db / 50% RH
       - Winter 72°F db
       - People Outdoor Air Rate Rp = 10 CFM per person
       - Area Outdoor Air Rate Ra = 0.18 CFM per square foot
       - Pressurization: Negative
     - **Illumination:**
       - Maintained Average Illumination: 75 footcandles
       - Lighting Power Density: 1.4 watts per square foot
       - Lighting control system with automatic shutoff
     - **Electrical:**
       - 120 V floor receptacle outlets, minimum two locations
       - 120 V wall receptacle outlets for microscopes, minimum four locations
       - 120 V ceiling mount outlet for surgical light
     - **Communications:**
       - Communication floor outlets, minimum two locations
       - Communication wall outlets, minimum four locations
       - Wireless Internet connectivity
     - **Plumbing:**
       - 2 Handwash sinks with Hot and Cold Water and IR sensors
     - **Music/Video:**
       - N/A

   - **Finishes:**
     - **Floor & Base:** Resinous Flooring
     - **Walls:** Epoxy Painted Gypsum Board
     - **Ceiling:** Cleanroom Grade Ceiling Tile
     - **Doors and Frames:** Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
     - **Windows:** Aluminum framed glazed system
     - **Window Treatments:** Blinds

3. **DESCRIPTION OF FUNCTIONAL REQUIREMENTS**
   - Laboratory space for both animal autopsy, to be performed on fixed down-draft necropsy tables, and microscope stations. Space is to be considered a clean (sterile) room with entrance and exit only through a gowning anteroom.

4. **LIST OF FURNISHINGS AND EQUIPMENT**
   - A = Built-in equipment to be furnished and installed by the General Contractor.
     - 36 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
     - Two Down Draft Necropsy Tables
     - One Surgical Light Fixture with 2 arms
     - 1 Fire Extinguisher and Cabinet
   - B = Specified and procured through Interior Designer (not furnished by GC)
     - 14 Student Chairs
     - 8 Microscope Tables (48"W x 24"D)
   - C = Specified and procured through A/V Consultant (not furnished by GC)
     - N/A
   - D = Specified and procured through I.T. Consultant (not by GC)
     - N/A
   - E = Supplied by Owner (in project budget)
     - N/A
   - F = Supplied by Owner (not in project budget)
     - 14 Microscopes
403 Space Requirements

D-400 | Necropsy Prep Lab and Gowning Room

1. SPACE REQUIRED

Name: Necropsy Prep Lab and Gowning Room
Occupancy: 0 Occupant
Net Square Footage: 315 SF
Unit Square Footage: N/A
Space No.: D-400

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:
- Contiguous: Locate contiguous to Necropsy Teaching Lab.
- Adjacent: Locate adjacent to other classroom spaces and informal public spaces.
- Convenient: Locate remotely from all department suites, faculty offices, and research labs.

Services and Features:
- Atmospheric Criteria:
  - Summer: 75°F db / 50% RH
  - Winter: 72°F db
  - People Outdoor Air Rate Rp = 10 CFM per person
  - Area Outdoor Air Rate Ra = 0.18 CFM per square foot
  - Pressurization: Negative
- Illumination:
  - Maintained Average Illumination: 75 footcandles
  - Lighting Power Density: 1.4 watts per square foot
  - Lighting control system with automatic shutoff
- Electrical:
  - 120 V general receptacle outlets, 2'-0" O.C. at casework (above counter in surface mounted raceway)
  - 208 V general receptacle outlet at Future Equipment Space, minimum one location
  - 120 V emergency power receptacle outlets, minimum four locations
  - 120 V ceiling mount for Fume Hood
- Communications:
  - Communication wall outlets, 6'-0" O.C. at casework (above counter in surface mounted raceway)
  - Communication wall outlet at Future Equipment Space, minimum one location
  - Wireless Internet connectivity
- Plumbing:
  - 1 casework mounted sink with Hot and Cold Water and Eyewash fixture in Prep Lab
  - 1 Handwash sink with Hot and Cold Water and IR sensor in Gowning Room
- Music/Video:
  - N/A

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

The gowning room is to serve as an anteroom before entering or exiting the Necropsy Teaching Space. It will provide space and storage to apply gowns and other personal protection equipment (PPE). It is to include a handwash sink for proper cleaning upon entering or exiting. The prep lab is a laboratory environment to serve as a preparation area for teaching materials and/or experiments to be used in the Necropsy Teaching Lab.

4. LIST OF FURNISHINGS AND EQUIPMENT

A = Built-in equipment to be furnished and installed by the General Contractor:
- 28 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
- 1 Fire Extinguisher and Cabinet

B = Specified and procured through Interior Designer (not furnished by GC):
- One Shelving Unit for Gowns and other Personal Protection Equipment

C = Specified and procured through A/V Consultant (not furnished by GC):
- N/A

D = Specified and procured through I.T. Consultant (not furnished by GC):
- N/A

E = Supplied by Owner (in project budget):
- N/A

F = Supplied by Owner (not in project budget):
- N/A

Finishes:
This section is to record specific requirements for all surface areas.

a. Floor & Base: Resinous Flooring
b. Walls: Epoxy Painted Gypsum Board
c. Ceiling: Cleanroom Grade Ceiling Tile
d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
e. Windows: Aluminium framed glazed system
f. Window Treatments: Blinds
E-100 | Research Lab - Wet

1. SPACE REQUIRED
Name: Research Lab - Wet
Occupancy: 2 Occupants
Net Square Footage: 630 SF
Unit Square Footage: N/A
Space No.: E-100

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
a. Contiguous: N/A
b. Adjacent: Locate adjacent to Research Lab Support Space.
c. Convenient: Locate remote from Public Spaces and Classroom Spaces.

Services and Features:
a. Atmospheric Criteria: Summer 75°F db / 50% RH
   Winter 72°F db
   People Outdoor Air Rate Rp = 10 CFM per person
   Area Outdoor Air Rate Ra = 0.18 CFM per square foot
   Pressurization: Negative
   100% exhausted
b. Illumination: Maintained Average Illumination: 75 footcandles
   Lighting control system with automatic shutoff
   Lighting Power Density: 1.4 watts per square foot
   b. Electrical:
      120 V ceiling receptacle outlets, minimum two locations
      120 V general receptacle outlets, minimum 10' O.C. at wall
      120 V general receptacle outlets, 2'-0" O.C. at casework
       (above counter in surface mounted raceway)
      208 V general receptacle outlet at Future Equipment Space, minimum one location
      120 V emergency power receptacle outlets, minimum eight locations
      208 V emergency power receptacle outlet at Future Equipment Space
   c. Communications:
      Communication ceiling outlets, minimum two locations
      Communication wall outlets, 6'-0" O.C. at casework
       (above counter in surface mounted raceway)
      Wireless Internet connectivity
   d. Plumbing:
      2 casework mounted sinks with Hot and Cold Water and Eyewash fixtures
      5 Single Air, Gas, Vacuum Connections
      Fume Hood Connections
       1 Cold Water connection for cup sink
       2 Air connections
       2 Vacuum connections
       2 Gas connections
      Emergency Shower and Eyewash Combination Unit
   e. Music/Video: N/A

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
A flexible research laboratory space for wet research.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
   61 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
   6 Casework Tables, Loose (60" x 30")
   One 6'-0" Fume Hood
   1 Fire Extinguisher and Cabinet
B = Specified and procured through Interior Designer (not furnished by GC)
   2 Lab Stools
C = Specified and procured through A/V Consultant (not furnished by GC)
   N/A
D = Specified and procured through I.T. Consultant (not by GC)
   N/A
E = Supplied by Owner (in project budget)
   N/A
F = Supplied by Owner (not in project budget)
   N/A

Finishes:
This section is to record specific requirements for all surface areas.

a. Floor & Base: Resilient Tile Flooring with Rubber Base
b. Walls: Painted Gypsum Board
c. Ceiling: Acoustical Ceiling Tile throughout
d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames,
   minimum 42" clear entry
e. Windows: Aluminum framed glazed system
f. Window Treatments: Blinds

Energy + Environmental Science Education Research Center
University of Tennessee - Institute of Agriculture - Knoxville
### Space Requirements

**E-101 | Research Lab - Wet**

1. **SPACE REQUIRED**
   - **Name:** Research Lab - Wet
   - **Occupancy:** 2 Occupants
   - **Net Square Footage:** 315 SF
   - **Unit Square Footage:** N/A
   - **Space No.:** E-101

2. **DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES**
   
   **Relationships:**
   - a. Contiguous: N/A
   - b. Adjacent: Locate adjacent to Research Lab Support Space.
   - c. Convenient: Locate remote from Public Spaces and Classroom Spaces.

   **Services and Features:**
   - a. **Atmospheric Criteria:**
     - Summer: 75°F db / 50% RH
     - Winter: 72°F db
     - People Outdoor Air Rate: Rp = 10 CFM per person
     - Area Outdoor Air Rate: Ra = 0.18 CFM per square foot
     - Pressurization: Negative 100% exhausted
   - b. **Illumination:**
     - Maintained Average Illumination: 75 footcandles
     - Lighting Power Density: 1.4 watts per square foot
     - Lighting control system with automatic shut off
   - c. **Electrical:**
     - 120 V quad receptacle outlet for Lab Tables, minimum two locations
     - 120 V general receptacle outlets, minimum 10 O.C. at wall
     - 120 V general receptacle outlets, 2'-0" O.C. at casework
       - (above counter in surface mounted raceway)
     - 208 V general receptacle outlet at Future Equipment Space
     - 120 V ceiling mount outlet for Fume Hood
     - 120 V emergency power receptacle outlets, minimum four locations
     - 208 V emergency power receptacle outlet at Future Equipment Space
   - d. **Communications:**
     - Communication outlets for Lab Tables, minimum two locations
     - Communication wall outlets, 6'-0" O.C. at casework
       - (above counter in surface mounted raceway)
     - Wireless internet connectivity
   - e. **Plumbing:**
     - 1 casework mounted sink with Hot and Cold Water and Eyewash fixture
     - Single Air, Gas, Vacuum Connections
     - Fume Hood Connections
       - 1 Cold Water connection for cup sink
       - 2 Air connections
       - 2 Vacuum connections
       - 2 Gas connections
     - Emergency Shower and Eyewash Combination Unit
   - f. **Music/Video:** N/A

3. **DESCRIPTION OF FUNCTIONAL REQUIREMENTS**
   A flexible research laboratory space for wet research.

4. **LIST OF FURNISHINGS AND EQUIPMENT**
   
   **A** = Built-in equipment to be furnished and installed by the General Contractor.
   - 33 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
   - 2 Casework Tables, Loose (72" x 30")
   - One 6'-0" Fume Hood
   - 1 Fire Extinguisher and Cabinet
   
   **B** = Specified and procured through Interior Designer (not furnished by GC)
   - 2 Lab Stools
   
   **C** = Specified and procured through A/V Consultant (not furnished by GC)
   - N/A
   
   **D** = Specified and procured through I.T. Consultant (not by GC)
   - N/A
   
   **E** = Supplied by Owner (in project budget)
   - N/A
   
   **F** = Supplied by Owner (not in project budget)
   - N/A

**Finishes:**
This section is to record specific requirements for all surface areas.

   a. Floor & Base: Resilient Tile Flooring with Rubber Base
   b. Walls: Painted Gypsum Board
   c. Ceiling: Acoustical Ceiling Tile throughout
   d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames, minimum 42" clear entry
   e. Windows: Aluminum framed glazed system
   f. Window Treatments: Blinds

**Energy + Environmental Science Education Research Center**
University of Tennessee - Institute of Agriculture - Knoxville
403 Space Requirements

E-200 | Research Lab - Dry

1. SPACE REQUIRED
   Name: Research Lab - Dry
   Occupancy: 2 Occupants
   Net Square Footage: 630 SF
   Unit Square Footage: N/A
   Space No.: E-200

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
   Relationships:
   a. Contiguous: N/A
   b. Adjacent: Locate adjacent to Research Lab Support Space.
   c. Convenient: Locate remote from Public Spaces and Classroom Spaces.

   Services and Features:
   a. Atmospheric Criteria:
      - Summer 75°F db / 50% RH
      - Winter 72°F db
      - People Outdoor Air Rate Rp = 10 CFM per person
      - Area Outdoor Air Rate Ra = 0.18 CFM per square foot
      - Pressurization: Negative 100% exhausted
   b. Illumination:
      - Maintained Average Illumination: 75 footcandles
      - Lighting Power Density: 1.4 watts per square foot
      - Lighting control system with automatic shutoff
   c. Electrical:
      - 120 V ceiling receptacle outlets, minimum two locations
      - 120 V general receptacle outlets, minimum 10" O.C. at wall
      - 120 V general receptacle outlets, 2'-0" O.C. at casework
        (above counter in surface mounted raceway)
      - 208 V general receptacle outlet at Future Equipment Space
      - 120 V emergency power receptacle outlets, minimum eight locations
      - 208 V emergency power receptacle outlet at Future Equipment Space
   d. Communications:
      - Communication ceiling outlets, minimum two locations
      - Communication wall outlets, 6'-0" O.C. at casework
        (above counter in surface mounted raceway)
      - Wireless Internet connectivity
   e. Plumbing:
      - No plumbing requirements
   f. Music/Video:
      - N/A

   Finishes:
   a. Floor & Base: Resilient Tile Flooring with Rubber Base
   b. Walls: Painted Gypsum Board
   c. Ceiling: Acoustical Ceiling Tile throughout
   d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames,
      minimum 42" clear entry
   e. Windows: Aluminum framed glazed system
   f. Window Treatments: Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
   A flexible research laboratory space for dry research.

4. LIST OF FURNISHINGS AND EQUIPMENT
   A = Built-in equipment to be furnished and installed by the General Contractor.
      - 61 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
      - 6 Casework Distinction Tables, Loose (60" x 30")
      - 1 Fire Extinguisher and Cabinet
   B = Specified and procured through Interior Designer (not furnished by GC)
   - 2 Lab Stools
   C = Specified and procured through A/V Consultant (not furnished by GC)
   - N/A
   D = Specified and procured through I.T. Consultant (not by GC)
   - N/A
   E = Supplied by Owner (in project budget)
   - N/A
   F = Supplied by Owner (not in project budget)
   - N/A
403 Space Requirements

E-201 | Research Lab - Dry

1. SPACE REQUIRED

<table>
<thead>
<tr>
<th>Name:</th>
<th>Research Lab - Dry</th>
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<tr>
<td>Occupancy:</td>
<td>2 Occupants</td>
</tr>
<tr>
<td>Net Square Footage:</td>
<td>315 SF</td>
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<tr>
<td>Unit Square Footage:</td>
<td>N/A</td>
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<tr>
<td>Space No.:</td>
<td>E-201</td>
</tr>
</tbody>
</table>

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:

a. Contiguous: N/A
b. Adjacent: Locate adjacent to Research Lab Support Space.
c. Convenient: Locate remote from Public Spaces and Classroom Spaces.

Services and Features:

a. Atmospheric Criteria:
   - Summer 75°F db / 50% RH
   - Winter 72°F db
   - People Outdoor Air Rate Rp = 10 CFM per person
   - Area Outdoor Air Rate Ra = 0.18 CFM per square foot
   - Pressurization: Negative
   - 100% exhausted
b. Illumination:
   - Maintained Average Illumination: 75 footcandles
   - Lighting Power Density: 1.4 watts per square foot
   - Lighting control system with automatic shut-off
c. Electrical:
   - 120 V general receptacle outlets, minimum 10' O.C. at wall
   - 120 V general receptacle outlets, 2'-0" O.C. at casework
     (above counter in surface mounted raceway)
   - 208 V general receptacle outlet at Future Equipment Space
   - 120 V emergency power receptacle outlets, minimum six locations
   - 208 V emergency power receptacle outlet at Future Equipment Space
d. Communications:
   - Communication wall outlets, 6'-0" O.C. at casework
     (above counter in surface mounted raceway)
   - Wireless Internet connectivity
e. Plumbing:
   - No plumbing requirements
f. Music/Video:
   - N/A

Finishes:

This section is to record specific requirements for all surface areas.

a. Floor & Base: Resilient Tile Flooring with Rubber Base
b. Walls: Painted Gypsum Board
c. Ceiling: Acoustical Ceiling Tile throughout
d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames,
   minimum 42" clear entry
e. Windows: Aluminum framed glazed system
f. Window Treatments: Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

A flexible research laboratory space for dry research.

4. LIST OF FURNISHINGS AND EQUIPMENT

A = Built-in equipment to be furnished and installed by the General Contractor.
33 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
2 Casework Distinction Tables, Loose (60" x 30")
1 Fire Extinguisher and Cabinet
B = Specified and procured through Interior Designer (not furnished by GC)
2 Lab Stools
C = Specified and procured through AV Consultant (not furnished by GC)
   N/A
D = Specified and procured through I.T. Consultant (not by GC)
   N/A
E = Supplied by Owner (in project budget)
   N/A
F = Supplied by Owner (not in project budget)
   N/A
1. SPACE REQUIRED
Name: Research Lab - OLAC
Occupancy: 2 Occupants
Net Square Footage: 473 SF
Unit Square Footage: N/A
Space No.: E-300

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:
- Contiguous: N/A
- Adjacent: N/A
- Convenient: Locate convenient to OLAC Faculty Offices. Locate remote from Public Spaces and Classroom Spaces.

Services and Features:
- Atmospheric Criteria:
  - Summer: 75°F db / 50% RH
  - Winter: 72°F db
  - People Outdoor Air Rate Rp = 10 CFM per person
  - Area Outdoor Air Rate Ra = 0.18 CFM per square foot
  - Pressurization: Negative
- Illumination:
  - Maintained Average Illumination: 75 footcandles
  - Lighting Power Density: 1.4 watts per square foot
  - Lighting control system with automatic shutoff
- Electrical:
  - 120 V ceiling receptacle outlets, minimum one location
  - 120 V general receptacle outlets, minimum 10 O.C. at wall
  - 120 V general receptacle outlets, 2'-0" O.C. at casework
    - above counter in surface mounted raceway
  - 208 V general receptacle outlet at Future Equipment Space
  - 120 V emergency power receptacle outlets, minimum six locations
  - 208 V emergency power receptacle outlet at Future Equipment Space
- Communications:
  - Communication ceiling outlets, minimum one location
  - Communication wall outlets, 6'-0" O.C. at casework
    - above counter in surface mounted raceway
  - Wireless Internet connectivity
- Plumbing:
  - 2 casework mounted sinks with Hot and Cold Water and Eyewash fixtures
  - Emergency Shower and Eyewash Combination Unit
  - Fume Hood Connections
    - 1 Cold Water connection for cup sink
    - 1 Air connection
    - 1 Vacuum connection
    - 1 Gas connection
- Music/Video: N/A

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
A flexible research laboratory space for the OLAC staff. Space is to be divided into 2 individual areas; one space to serve as a shared research space and the other, as a prep space.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
- 45 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
- 2 Casework Tables, Loose (72" x 30")
- 1 Fire Extinguisher and Cabinet
- One 4'-0" Fume Hood
- One 6'-0" Biosafety Cabinet

B = Specified and procured through Interior Designer (not furnished by GC)
- 2 Lab Stools

C = Specified and procured through A/V Consultant (not furnished by GC)
- N/A

D = Specified and procured through I.T. Consultant (not by GC)
- N/A

E = Supplied by Owner (in project budget)
- N/A

F = Supplied by Owner (not in project budget)
- N/A

Finishes:
This section is to record specific requirements for all surface areas.
- Floor & Base: Resilient Tile Flooring with Rubber Base
- Walls: Painted Gypsum Board
- Ceiling: Acoustical Ceiling Tile throughout
- Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames, minimum 42" clear entry
- Windows: Aluminum framed glazed system
- Window Treatments: Blinds
403 Space Requirements

E-400 | Research Lab - Insect Museum

1. SPACE REQUIRED
Name: Research Lab - Insect Museum
Occupancy: 4 Occupants
Net Square Footage: 788 SF
Unit Square Footage: N/A
Space No.: E-400

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
a. Contiguous: N/A
b. Adjacent: N/A
c. Convenient: Locate convenient to the Research Labs and Offices of the Entomology & Plant Pathology Department.
Locate remote from Public Spaces and Classroom Spaces.

Services and Features:
a. Atmospheric Criteria:
   Summer 75°F db / 50% RH
   Winter 72°F db
   People Outdoor Air Rate Rp = 10 CFM per person
   Area Outdoor Air Rate Ra = 0.18 CFM per square foot
   Pressurization: Negative
   100% exhausted
b. Illumination:
   Maintained Average Illumination: 75 footcandles
   Lighting Power Density: 1.4 watts per square foot
   Lighting control system with automatic shutoff

c. Electrical:
   120 V floor receptacle outlets, minimum two locations
   120 V general receptacle outlets, minimum 10’ O.C. at wall
   120 V general receptacle outlets, 1’-6” O.C. at casework
   (above counter in surface mounted raceway)
   120 V emergency power receptacle outlet, minimum one location

d. Communications:
   Communication floor outlets, minimum two locations
   Communication wall outlets, 6’-0” O.C. at casework
   (above counter in surface mounted raceway)
   Wireless Internet connectivity

e. Plumbing:
   1 casework mounted sink with Hot and Cold Water and Eyewash fixture
f. Music/Video:
   N/A

Finishes:
This section is to record specific requirements for all surface areas.
a. Floor & Base: Resilient Tile Flooring with Rubber Base
b. Walls: Painted Gypsum Board
c. Ceiling: Acoustical Ceiling Tile throughout
d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames,
   minimum 42” clear entry
e. Windows: Aluminum framed glazed system
f. Window Treatments: Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
   A flexible research laboratory space to house the Insect Museum. Room will provide storage for all of the specimens and space for to view them.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
   18 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
   105’ Linear Feet of Insect Cabinets (30“W x 18”D x 72”T)
   2 Casework Tables, Loose (72’ x 30”)
   1 Fire Extinguisher and Cabinet
B = Specified and procured through Interior Designer (not furnished by GC)
   4 Lab Stools
C = Specified and procured through A/V Consultant (not furnished by GC)
   N/A
D = Specified and procured through I.T. Consultant (not by GC)
   N/A
E = Supplied by Owner (in project budget)
   N/A
F = Supplied by Owner (not in project budget)
   N/A

Energy + Environmental Science Education Research Center
University of Tennessee - Institute of Agriculture - Knoxville
403 Space Requirements

E-500 | Research Lab - Central Environmental Analysis Laboratory Hub

1. SPACE REQUIRED
Name: Research Lab - Central Environmental Analysis Laboratory Hub
Occupancy: 2 Occupants
Net Square Footage: 630 SF
Unit Square Footage: N/A
Space No.: E-500

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:
- a. Contiguous: N/A
- b. Adjacent: N/A
- c. Convenient: Locate convenient to the Research Labs and Offices of the Biosystems Engineering & Soil Sciences Department.
  Locate remote from Public Spaces and Classroom Spaces.

Services and Features:
- a. Atmospheric Criteria:
  - Summer 75°F db / 50% RH
  - Winter 72°F db
  - People Outdoor Air Rate Rp = 10 CFM per person
  - Area Outdoor Air Rate Ra = 0.18 CFM per square foot
  - Pressurization: Negative
  - 100% exhausted

- b. Illumination:
  - Maintained Average Illumination: 75 footcandles
  - Lighting Power Density: 1.4 watts per square foot
  - Lighting control system with automatic shutoff

- c. Electrical:
  - 120 V general receptacle outlets, minimum 10" O.C. at wall
  - 120 V general receptacle outlets, 2'-0" O.C. at casework
    (above counter in surface mounted raceway)
  - 208 V general receptacle outlet, minimum two locations
  - 120 V emergency power receptacle outlets, minimum eight locations
  - 208 V emergency power receptacle outlet, minimum one location

- d. Communications:
  - Communication wall outlets, 6'-0" O.C. at casework
  - Wireless Internet connectivity

- e. Plumbing:
  - 2 casework mounted sinks with Hot and Cold Water and Eyewash fixtures
  - Emergency Shower and Eyewash Combination Unit
  - Air connections, minimum 4 locations
  - Vacuum connections, minimum 4 locations
  - Gas connections, minimum 4 locations

- f. Music/Video: N/A

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
A flexible research laboratory space to serve as a hub for shared research equipment and instruments.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
   72 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
   4 Casework Tables, Loose (84" x 30")
   1 Fire Extinguisher and Cabinet
   4 Fume Extraction Devices, Ceiling mounted

B = Specified and procured through Interior Designer (not furnished by GC)
   4 Lab Stools

C = Specified and procured through A/V Consultant (not furnished by GC)

D = Specified and procured through I.T. Consultant (not by GC)
   N/A

E = Supplied by Owner (in project budget)

F = Supplied by Owner (not in project budget)
   N/A

Finishes:
This section is to record specific requirements for all surface areas.
- a. Floor & Base: Resilient Tile Flooring with Rubber Base
- b. Walls: Painted Gypsum Board
- c. Ceiling: Acoustical Ceiling Tile throughout
- d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames, minimum 42" clear entry
- e. Windows: Aluminum framed glazed system
- f. Window Treatments: Blinds
403 Space Requirements

E-600 | Research Lab - Biofuel Hub

1. SPACE REQUIRED
Name: Research Lab - Biofuel Lab
Occupancy: 2 Occupants
Net Square Footage: 630 SF
Unit Square Footage: N/A
Space No.: E-600

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
   a. Contiguous: N/A
   b. Adjacent: N/A
   c. Convenient: Locate convenient to Research Labs and Offices of the Biosystems Engineering & Soil Sciences Department. Locate remote from Public Spaces and Classroom Spaces.

Services and Features:
   a. Atmospheric Criteria:
      - Summer: 75°F db / 50% RH
      - Winter: 72°F db
      - People Outdoor Air Rate Rp = 10 CFM per person
      - Area Outdoor Air Rate Ra = 0.18 CFM per square foot
      - Pressurization: Negative 100% exhausted
   b. Illumination:
      - Maintained Average Illumination: 75 footcandles
      - Lighting Power Density: 1.4 watts per square foot
      - Lighting control system with automatic shutoff
   c. Electrical:
      - 120 V general receptacle outlets, minimum 10’ O.C. at wall
      - 120 V general receptacle outlets, 2’-0” O.C. at casework (above counter in surface mounted raceway)
      - 208 V general receptacle outlet, minimum four locations
      - 120 V emergency power receptacle outlets, minimum eight locations
      - 208 V emergency power receptacle outlet, minimum one location
   d. Communications:
      - Communication wall outlets, 6’-0” O.C. at casework (above counter in surface mounted raceway)
      - Wireless Internet connectivity
   e. Plumbing:
      - 2 casework mounted sinks with Hot and Cold Water and Eyewash fixtures
      - Emergency Shower and Eyewash Combination Unit
      - Fume Hood Connections
         - 1 Cold Water connection for cup sink
         - 1 Air connection
         - 1 Vacuum connection
         - 1 Gas connection
      - Air connections, minimum 4 locations
      - Vacuum connections, minimum 4 locations
      - Gas connections, minimum 4 locations
   f. Music/Video: N/A

Finishes:
   This section is to record specific requirements for all surface areas.
   a. Floor & Base:
      - Resilient Tile Flooring with Rubber Base
   b. Walls:
      - Painted Gypsum Board
   c. Ceiling:
      - Acoustical Ceiling Tile throughout
   d. Doors and Frames:
      - Painted Steel Doors with Lockable Hardware and Hollow Metal Frames, minimum 42” clear entry
   e. Windows:
      - Aluminum framed glazed system
   f. Window Treatments:
      - Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
   Space to be divided into 2 adjacent rooms; one for dusty fabrication/construction of chemical reactors (high temperature and pressure) and handling of biomass and the second, a wet chemistry lab to host analytical instruments and to store chemicals.

4. LIST OF FURNISHINGS AND EQUIPMENT
   A = Built-in equipment to be furnished and installed by the General Contractor.
   61 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
   2 Casework Tables, Loose (60” x 30”)
   2 Casework Tables, Loose (72” x 30”)
   2 Fire Extinguishers and Cabinets
   Three 4’-0” Fume Hoods
   2 Fume Extraction Devices, Ceiling mounted
   B = Specified and procured through Interior Designer (not furnished by GC)
   4 Lab Stools
   C = Specified and procured through AV Consultant (not furnished by GC)
   N/A
   D = Specified and procured through IT Consultant (not by GC)
   N/A
   E = Supplied by Owner (in project budget)
   N/A
   F = Supplied by Owner (not in project budget)
   N/A
Space Requirements

E-700 | Research Support

1. SPACE REQUIRED
Name: Research Support
Occupancy: 0 Occupants
Net Square Footage: 315 SF
Unit Square Footage: N/A
Space No.: E-700

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:
- Contiguous: N/A
- Adjacent: Locate adjacent to Research Labs.
- Convenient: Locate remote from Public Spaces and Classroom Spaces.

Services and Features:
- a. Atmospheric Criteria:
  - Summer: 75°F db / 50% RH
  - Winter: 72°F db
  - People Outdoor Air Rate Rp = 10 CFM per person
  - Area Outdoor Air Rate Ra = 0.18 CFM per square foot
  - Pressurization: Negative, 100% exhausted
- b. Illumination:
  - Maintained Average Illumination: 75 footcandles
  - Lighting Power Density: 1.4 watts per square foot
  - Lighting control system with automatic shutoff
- c. Electrical:
  - 120 V general receptacle outlets, minimum 10' O.C. at wall
  - 120 V general receptacle outlets, 2'-0" O.C. at casework
  - 120 V emergency power receptacle outlets, minimum two locations
  - 208 V general receptacle outlet at Future Equipment Location
  - 208 V ceiling mount for Fume Hood
  - Electrical Connections for Potential Environmental Growth Chamber, Cold Room, Autoclave Units
- d. Communications:
  - Communication wall outlets, 6'-0" O.C. at casework
  - Wireless Internet connectivity
- e. Plumbing:
  - 1-2 casework mounted sinks with Hot and Cold Water and Eyewash fixtures
  - Fume Hood Connections, minimum 1 location
  - 1 Cold Water connection for cup sink
  - 1 Air connection
  - 1 Vacuum connection
  - 1 Gas connection
  - Air connections, minimum 4 locations
  - Vacuum connections, minimum 4 locations
  - Gas connections, minimum 4 locations
- f. Music/Video: N/A

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

The Research Support Space is a configurable space that will be individually tailored to each specific Research Lab that it supports. The space can be set up as one large room or can be divided into several smaller rooms. Entrances to the Support Space are possible from the associated research lab, the adjacent research lab (if shared), and/or the public corridors (if shared). Possible configurations include space dedicated to fume hoods, built-in equipment such as a cold rooms or environmental rooms, storage rooms, sterile spaces, or rearing rooms.

4. LIST OF FURNISHINGS AND EQUIPMENT

A = Built-in equipment to be furnished and installed by the General Contractor.
  - Potential Items
    - 20-40 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops)
    - 2 Casework Tables, Loose (60" x 30")
    - 1 Fire Extinguisher and Cabinet
    - 1-3 4'-0" Fume Hoods
    - 1-2 Fume Extraction Devices, Ceiling mounted
    - Potential Built In Equipment
      - Environmental Growth Chamber
      - Cold Room (4" Slab Recess Required)
      - Autoclave
  - B = Specified and procured through Interior Designer (not furnished by GC)
    - N/A
  - C = Specified and procured through A/V Consultant (not furnished by GC)
    - N/A
  - D = Specified and procured through I.T. Consultant (not by GC)
    - N/A
  - E = Supplied by Owner (in project budget)
    - N/A
  - F = Supplied by Owner (not in project budget)
    - N/A

Finishes:
This section is to record specific requirements for all surface areas.
- a. Floor & Base: Resilient Tile Flooring with Rubber Base
- b. Walls: Painted Gypsum Board
- c. Ceiling: Acoustical Ceiling Tile throughout
- d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames, minimum 42" clear entry
- e. Windows: Aluminum framed glazed system
- f. Window Treatments: Resilient Tile Flooring with Rubber Base
403 Space Requirements

E-800 | Research Lab - Field Lab

1. SPACE REQUIRED
Name: Research Lab - Field Lab
Occupancy: 0 Occupants
Net Square Footage: 315 SF
Unit Square Footage: N/A
Space No.: E-800

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
a. Contiguous: N/A
b. Adjacent: Locate adjacent to the Loading Dock.
c. Convenient: Locate convenient to a service elevator that provides access to all floors. Locate remotely from all public spaces and main building entries.

Services and Features:
a. Atmospheric Criteria:
   - Summer: 75°F db / 50% RH
   - Winter: 72°F db
   - People Outdoor Air Rate (RP) = 10 CFM per person
   - Area Outdoor Air Rate (RA) = 0.18 CFM per square foot
   - Pressurization: Negative, 100% exhausted
b. Illumination:
   - Maintained Average Illumination: 75 footcandles
   - Lighting Power Density: 1.4 watts per square foot
   - Lighting control system with automatic shutoff
c. Electrical:
   - 120 V general receptacle outlets, minimum 10' O.C. wall
   - 120 V general receptacle outlets, 2'-0" O.C. at casework (above counter in surface mounted raceway)
d. Communications:
   - Communication general outlet, minimum 2 locations.
   - Wireless Internet connectivity
e. Plumbing:
   - Hose Bib with Cold Water and Trench Drain
   - Double Bowl Scullery Sink with Hot and Cold Water, Drench Hose fixture
f. Music/Video: N/A

Finishes:
This section is to record specific requirements for all surface areas.
a. Floor & Base:
   - Sealed Concrete Floor with Rubber Base
b. Walls:
   - Painted CMU (concrete masonry units)
c. Ceiling:
   - Acoustical Ceiling Tile
d. Doors and Frames:
   - Painted Steel Doors with Lockable Hardware and Hollow Metal Frames, minimum 42" clear entry
e. Windows:
   - Aluminum framed glazed system
f. Window Treatments: Blinds

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
The Field Lab is a space dedicated for the storage of equipment and materials used in the field. The space should allow for both the wash down of items and their storage.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
   - 22 Linear Feet of Fixed Casework (Base Cabinets, Wall Cabinets, Wall Shelves, Countertops, Storage Cabs)
   - 1 Casework Tables, Loose (60" x 30")
   - 1 Fire Extinguisher and Cabinet
B = Specified and procured through Interior Designer (not furnished by GC)
   - N/A
C = Specified and procured through A/V Consultant (not furnished by GC)
   - N/A
D = Specified and procured through I.T. Consultant (not by GC)
   - N/A
E = Supplied by Owner (in project budget)
   - N/A
F = Supplied by Owner (not in project budget)
   - N/A
403 Space Requirements

E-900 | Loading Dock

1. SPACE REQUIRED
Name: Loading Dock
Occupancy: 0 Occupants
Net Square Footage: 150 SF
Unit Square Footage: N/A
Space No.: E-900

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
- Contiguous:
  Locate contiguous to the service drive at the exterior of the building.
  Locate contiguous to the Cooler Room, Freezer Room, and Locker/Shower Room.
- Adjacent:
  Locate adjacent to the Field Research Lab.
- Convenient:
  Locate convenient to a service elevator that provides access to all floors.
  Locate remotely from all public spaces and main building entries.

Services and Features:
- Atmospheric Criteria:
  Summer 75°F db / 50% RH
  Winter 72°F db
  People Outdoor Air Rate Rp = 5 CFM per person
  Area Outdoor Air Rate Ra = 0.06 CFM per square foot
  Pressurization: Neutral
  No exhaust requirements
- Illumination:
  Maintained Average Illumination: 30 footcandles
  Lighting Power Density: 0.9 watts per square foot
  Lighting control system with automatic shutoff
- Electrical:
  120 V general receptacle outlets, minimum 10' O.C. wall
  480 V electrical connection for overhead coiling door
- Communications:
  Communication general outlet, minimum 2 locations.
  Wireless Internet connectivity
- Plumbing:
  Hose Bib with Cold Water and Trench Drain
- Music/Video:
  N/A

Finishes:
This section is to record specific requirements for all surface areas.
- Floor & Base: Sealed Concrete Floor with Rubber Base
- Walls: Painted CMU (concrete masonry units)
- Ceiling: Acoustical Ceiling Tile
- Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames, minimum 72" clear entry
- Windows: N/A
- Window Treatments: N/A

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
The Loading Dock should be located with a service drive away from the main building entrances. It will serve as a space to load and unload both equipment and materials required for the building from faculty, staff and, upon appointment, the public. It will also serve as a private "dirty" entrance for field researchers. The loading dock should be located contiguous to both the Cooler Room and the Freezer Room so that specimens brought to the building can be immediately treated. The loading dock should also be located contiguous to both the Locker/Shower Room and a Laundry Area so that field researchers and their wardrobes may get clean. The Loading Dock should also allow space for a washdown area or field gear that may be dirty.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
B = Specified and procured through Interior Designer (not furnished by GC)
3 Wire Shelving Racks (42"W x 24"D)
C = Specified and procured through A/V Consultant (not furnished by GC)
N/A
D = Specified and procured through I.T. Consultant (not by GC)
N/A
E = Supplied by Owner (in project budget)
N/A
F = Supplied by Owner (not in project budget)
Washer and Dryer
### 403 Space Requirements

**E-901 | Freezer Room**

#### 1. SPACE REQUIRED

<table>
<thead>
<tr>
<th>Name:</th>
<th>Freezer Room</th>
</tr>
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<tbody>
<tr>
<td>Occupancy:</td>
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<tr>
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<td>Unit Square Footage:</td>
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<td>Space No.:</td>
<td>E-901</td>
</tr>
</tbody>
</table>

#### 2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

**Relationships:**
- **a. Contiguous:** Locate contiguous to the Loading Dock.
- **b. Adjacent:** Locate adjacent to the Cooler Room.
- **c. Convenient:** Locate convenient to a service elevator that provides access to all floors.

**Services and Features:**
- **a. Atmospheric Criteria:**
  - Summer 75°F db / 50% RH
  - Winter 72°F db
  - People Outdoor Air Rate Rp = 0 CFM per person
  - Area Outdoor Air Rate Ra = 0.12 CFM per square foot
  - Pressurization: Neutral
  - No exhaust requirements
- **b. Illumination:**
  - Maintained Average Illumination: 30 footcandles
  - Lighting Power Density: 0.8 watts per square foot
  - Lighting control system with automatic shutoff
- **c. Electrical:**
  - 120 V general receptacle outlets, minimum 10' O.C. wall
  - 120 V emergency power dedicated receptacle outlets for Freezers
  - 208 V emergency power dedicated receptacle outlets for Freezers
- **d. Communications:**
  - Communication general outlets, minimum six locations
  - Wireless Internet connectivity
- **e. Plumbing:**
  - No plumbing requirements
- **f. Music/Video:**
  - N/A

**Finishes:**

- **a. Floor & Base:** Sealed Concrete Floor with Rubber Base
- **b. Walls:** Painted CMU (concrete masonry units)
- **c. Ceiling:** Acoustical Ceiling Tile
- **d. Doors and Frames:** Painted Steel Doors with Lockable Hardware and Hollow Metal Frames, minimum 48” clear entry
- **e. Windows:** N/A
- **f. Window Treatments:** N/A

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

Space to house multiple freezer units of different temperature ranges. The Freezer Room is to be located contiguous to the Loading Dock so that specimens brought to the building that need immediate freezing can be easily transported and stored.

4. LIST OF FURNISHINGS AND EQUIPMENT

- **A = Built-in equipment to be furnished and installed by the General Contractor.**
  - Freezer Units
- **B = Specified and procured through Interior Designer (not furnished by GC).**
  - N/A
- **C = Specified and procured through A/V Consultant (not furnished by GC).**
  - N/A
- **D = Specified and procured through I.T. Consultant (not by GC).**
  - N/A
- **E = Supplied by Owner (in project budget).**
  - N/A
- **F = Supplied by Owner (not in project budget).**
  - N/A
403 Space Requirements

E-902 | Cooler Room

1. SPACE REQUIRED
Name: Cooler Room
Occupancy: 0 Occupants
Net Square Footage: 200 SF
Unit Square Footage: N/A
Space No.: E-902

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES
Relationships:
- b. Adjacent: Locate adjacent to the Freezer Room.
- c. Convenient: Locate convenient to a service elevator that provides access to all floors.

Services and Features:
- a. Atmospheric Criteria: Summer 75°F db / 50% RH
- b. Illumination: Maintained Average Illumination: 30 footcandles
- c. Electrical: 120 V general receptacle outlets, minimum 10' O.C. wall
- d. Communications: Communication general outlets, minimum six locations
- e. Plumbing: No plumbing requirements
- f. Music/Video: N/A

Finishes:
- a. Floor & Base: Sealed Concrete Floor with Rubber Base
- b. Walls: Painted CMU (concrete masonry units)
- c. Ceiling: Acoustical Ceiling Tile
- d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames, minimum 48" clear entry
- e. Windows: N/A
- f. Window Treatments: N/A

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS
Space to house multiple cooler units of different temperature ranges. The Cooler Room is to be located contiguous to the Loading Dock so that specimens brought to the building that need immediate cooling can be easily transported and stored.

4. LIST OF FURNISHINGS AND EQUIPMENT
A = Built-in equipment to be furnished and installed by the General Contractor.
- Cooler Units
B = Specified and procured through Interior Designer (not furnished by GC)
C = Specified and procured through A/V Consultant (not furnished by GC)
D = Specified and procured through I.T. Consultant (not by GC)
E = Supplied by Owner (in project budget)
F = Supplied by Owner (not in project budget)
403 Space Requirements

E-903 | Locker and Shower Room

1. SPACE REQUIRED

Name: Locker and Shower Room
Occupancy: 0 Occupants
Net Square Footage: 150 SF
Unit Square Footage: N/A
Space No.: E-903

2. DESCRIPTION OF ARCHITECTURAL FEATURES AND SERVICES

Relationships:
- b. Adjacent: Locate adjacent to a Laundry area.
- c. Convenient: Locate convenient to a service elevator that provides access to all floors.

Services and Features:
- a. Atmospheric Criteria:
  - Summer 75°F db / 50% RH
  - Winter 72°F db
  - People Outdoor Air Rate Rp = 0 CFM per person
  - Area Outdoor Air Rate Ra = 0 CFM per square foot
  - Pressurization: Negative
  - Exhaust at 0.5 CFM per square foot
- b. Illumination:
  - Maintained Average Illumination: 20 footcandles
  - Lighting Power Density: 0.9 watts per square foot
  - Lighting control system with automatic shutoff
- c. Electrical:
  - 120 V general receptacle outlets, minimum 10' O.C. wall
- d. Communications:
  - Wireless Internet connectivity
- e. Plumbing:
  - Hand wash sink with Hot and Cold Water, ADA compliant
  - Wall mounted Water Closet, ADA compliant
  - Walk in Shower with Hot and Cold Water, ADA compliant
- f. Music/Video:
  - N/A

Finishes:
This section is to record specific requirements for all surface areas.
- a. Floor & Base: Sealed Concrete Floor with Rubber Base
- b. Walls: Painted CMU (concrete masonry units) or High Impact Gypsum Board w/ Epoxy Paint
- c. Ceiling: Gypsum Board Ceiling
- d. Doors and Frames: Painted Steel Doors with Lockable Hardware and Hollow Metal Frames
- e. Windows: N/A
- f. Window Treatments: N/A

3. DESCRIPTION OF FUNCTIONAL REQUIREMENTS

The Locker and Shower Room is to be located contiguous to the Private entrance of the Loading Dock. It shall provide a space for researchers in the field to disrobe and wash up. Locker area is to be provide adequate space for storage of street clothes and an area for gowning.

4. LIST OF FURNISHINGS AND EQUIPMENT

A = Built-in equipment to be furnished and installed by the General Contractor.
- Wall Mounted Shelving (20 Linear Feet)

B = Specified and procured through Interior Designer (not furnished by GC)
- Plastic Locker Units (15"W x 15"D x 72"H, double tier)
- Bench Seat

C = Specified and procured through A/V Consultant (not furnished by GC)
- N/A

D = Specified and procured through I.T. Consultant (not by GC)
- N/A

E = Supplied by Owner (in project budget)
- N/A

F = Supplied by Owner (not in project budget)
- N/A
404 Furniture Concepts

Classroom

Fixed Table

Mobile Marker Board

Seminar Table

Student Chair

Swivel Chair

Tablet Arm [Node Chair]
404 Furniture Concepts

Computer Lab | Conference Room

Computer Station

Computer Station

Conference Chair

Conference Chair

Conference Table
404 Furniture Concepts

Office Admin Station

Office Guest Chair

Office Task Chair

Office Guest Chair
404 Furniture Concepts

Office

Office

Office

GTA Work Station
The design team held numerous meetings with University of Tennessee faculty and staff as well as conducted numerous site visits, which ultimately resulted in the project program herein contained. Meeting participants included:

- University of Tennessee - Knoxville
  - Dave Irvin
  - Terry Ledford
  - Dr. Larry Arrington
  - Bill Pace
  - Steve Glafenhein
  - Tim Fawver
  - Tom McKeehan
  - Thom Haupte
  - Mike Graham
  - Joe Eagle
  - Dr. John Hodges, UTIA - Ag Research
  - Dr. Karen Vail, UTIA - EPP
  - Dr. Bob Trigiano, UTIA - EPP
  - Dr. Eric Drumm, UTIA - BESS
  - Dr. Jaehoon Lee, UTIA - BESS
  - Dr. Joanne Logan, UTIA - BESS
  - Susan Fiscor, UTIA - Safety Office
  - Dr. John Sier, UTIA - CASNR
  - Dr. Wayne Clatterbuck, UTIA - FWF
  - Dr. Keith Belfi, UTIA - FWF
  - Dr. Richard Strange, UTIA - FWF
  - Dr. Bill Klingerman, UTIA - PS
  - Dr. Fred Allen, UTIA - PS
  - Patty Coan, UTIA - Vet School
  - Bill Burkman, USFS
  - Roy Warwick, Utilities
  - Mike Berger, Classroom Technology
  - Wes Willoughby, Plumbing
  - John Sealy, Mechanical Engineer
  - Dan Smith, Mechanical Engineer
  - Tim Sellers, Supervisor
  - Steve Henderson, Telephone
  - Greg Massengill, Telephone
  - Wally Beets

- McCarty Holsaple McCarty
  - Doug McCarty
  - Scott Webb
  - LAS
  - John Starr
  - Barry Abrams
  - Becky McDuffie
  - Brian Karlowicz
  - Joseph Minatta
  - K Si
  - Kurt Swensson
  - Newcomb & Boyd
  - Jeff Linde
  - Ricky Dozier
  - CRJA
  - Sean Vasington
  - CDM Smith
  - Greg Presnell
**MEETING NOTES**

**PROJECT NAME** | **PROJECT NUMBER**
--- | ---
UTIA Energy & Environmental Science Education Research Center (EESERC) | 10218-03

**DATE OF MEETING** | **TIME** | **MEETING LOCATION** | **PURPOSE**
--- | --- | --- | ---
September 18, 2012 | 11:40 – 12:00 | UTIA | Initial Project Meeting

**PARTICIPANTS**

<table>
<thead>
<tr>
<th>Present</th>
<th>Email</th>
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<tbody>
<tr>
<td>Dr. Larry Arrington, UTIA</td>
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**DISTRIBUTION**

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|---|---|
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| Terry Leidolf | tilef@utk.edu |
| Tim Fauser, UTIA | tfauser@utk.edu |
| Doug McCarty, MFM | dmccarty@tnabi.com |
| Jeff Linde, N&BP | jlin@nccabi.com |

**ACTION BY DATE DUE**

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- Steve will be UTIA’s point of contact, and will distribute communications to others at UTIA as needed.  
- Barry will be the Design Team’s point of contact. |
| 2 | | Presentation –Programming Process / Project Overview. | 
- We did a brief overview of the programming process. |

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<td>Dr. Arrington’s Goals (will include with other goals from the Kick-Off Meeting)</td>
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</table>
- Plan for the next 10 years (minimum) the new building should not fall short of needs from the start.  
- Look at the Campus in totality – not just another building. |
| 4 | | Design Standards | 
- Use typical standards for UT, nothing different for UTIA unless specified during the programming process. |
| 5 | | Schedule | 
- We presented a Draft Schedule, plan to meet every 3 – 4 weeks. Barry will coordinate the schedule and meetings with Steve.  
- Program Completion – mid to end of December. |
| 6 | | Project Scope (as described in the State Funding): | 
- 120,000 gross square feet; 50% – 55% efficient for this type of facility  
- 60,000 – 66,000 net (program) square feet  
- $45,450,000 Total Project Budget, including $36,750,000 Construction Budget  
- Cost and funding for Surge (Swing) Space is to be determined during the programming process.  
| 7 | | Surge Space: | 
- Surge Space includes functions currently in Ellington that will require relocation and operation in an interim facility during demolition and construction.  
- We will investigate options including permanent moves to other facilities, such as the new Animal / Food Science Building.  
- Temporary moves to other facilities on Campus will be identified, McCord Hall is one location to consider for lab space.  
- Another large Auditorium space will be considered during demolition and construction. |
| 8 | | Forestry Inventory & Analysis (FIA) Program: | 
- UTIA has planned to get them on Campus, they offer opportunities for collaboration.  
- We will meet with FIA and determine their space requirements, including any special issues for security and separation for a Federal Agency.  
- FIA wasn’t part of the original Space Request for this project.  
- Some added cost may be off-set by leasing the space to FIA. |
| 9 | | Forestry Wildlife & Fisheries: | 
- Currently scattered throughout the Campus, goal to co-locate as much as possible and appropriate in the EESERC. |

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**LORD, AICK & SARGENT, ARCHITECTURE**

1201 Peachtree Street, NW, Suite 300 | Atlanta, Georgia 30361-3550, USA
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404-253-1400 | Fax: 404-253-1401
www.LordAickSargent.com

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**UTIA Energy & Environmental Science Education Research Center**

October 2, 2012

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**Lord, Aick & Sargent, Inc.**

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www.LordAickSargent.com
Energy + Environmental Science Education Research Center
University of Tennessee - Institute of Agriculture - Knoxville

October 2, 2012

page 3

10 EESERC:
- Diverse disciplines, missions and departments in one building.
- Determine which groups are colocated during the Becky
  programming process.

11 Auditorium:
- This is a large, highly used meeting space, accommodating
  approximately 375 occupants. Because it is a flat floor space,
  it's used for several different functions.
- This is the only space of this capacity and type on the
  Agriculture Campus.
- Program the new Auditorium to accommodate larger groups
  - 500.
- Many events / meetings scheduled for this space – Trusties,
  Professional Organizations.
- Identify options for Surge Space

12 Research Space – plan to review needs with:
- Steve Oliver
- John Hodges

13 Extension – plan to review needs with:
- Tim Fawver
- Robert Burns

14 EHS – plan to review needs with:
- Susan Fiscor

15 IT – plan to review needs with:
- Mike Berger

16 Parking:
- Parking will be a challenge, need to provide addition spaces to
  accommodate FIA if located in EESERC.
- A new parking deck is currently a high priority, the Design
  Team will check the location and status of the proposed deck,
  and impact on this project.

17 Site Considerations
- Very tight site.
- Located at the main intersection of Joe Johnson and Chapman
  Drive.
- Many features, including plaza and green space, should be
  preserved.
- Consider construction impact on vehicular and pedestrian
  traffic.
- Walmart / Publix being constructed in an adjacent site, this
  will significantly add to traffic congestion.

18 Data Gathering Needs – Design Team to coordinate with Steve to
  Scott, Steve

19 Plant BioTech Labs:
- Many open labs in the new Plant BioTech Building. A
  concern is the lack of ownership when several people share
  one large open lab. The Design Team will note how this
  applies to the new EESERC Labs.

20 Next Steps / Other:
- Program Interviews
- Document Space & Design Criteria from Interviews
- Next Meeting to Review & Confirm Program Requirements

REMARKS

ATTACHMENTS

PREPARED BY: Barry M. Abrams, AIA
DATE PREPARED: October 2, 2012

Lord, Aeck & Sargent, Inc.

These notes are a summary of our current understanding of this meeting. Project actions will be based on these notes.
Please contact the writer immediately if you do not concur.
## MEETING MINUTES [cont]

### MEETING NOTES

<table>
<thead>
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<td>10218-03</td>
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**DATE OF MEETING**

- September 18, 2012
- 1:30 – 3:00 PM

**MEETING LOCATION**

- UTIA
- Project Kick-Off Meeting

**PARTICIPANTS**

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**TEAM MEMBERS ATTENDING**

- Barry Wiens, Roles, Lines of Communication
- Steve Wiens, Roles, Lines of Communication
- Dr. Joe Bell, UTIA
- Dr. John Hodges, UTIA

**ITEMS BELOW**

<table>
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</table>
3 Project Goals: The following goals were noted, describing what will make this project a success.

- Plan for the next 10 years (minimum) the new building should not fall short of needs from the start. (from Dr. Arrington)
- Look at the Campus in totality – not just another building. (from Dr. Arrington)
- Uniform classroom controls/simple.
- Consolidation of Forestry Department from 8 buildings.
- Lab functionality is Prime; adequate utilities, emergency, power, etc.
- Variety of classroom styles – to suit multiple pedagogies.
- Flexibility.
- HVAC: Plan for required air pressure – positive or negative.
- Design to separate public (classrooms) and private (lab) space.
- Target LEED Silver; model of best practices for environmental sustainability.
- Identify facilities to visit, may be done later during the Design phase of work.
- Provide conference space, at least one conference room per floor.
- Provide space for social interaction, food/break – focus on interaction.
- Keep courtyard and green space – used for school wide gatherings.
- Provide community space – outreach / extension.
- Consider open lab concept, requires a culture change – address responsibility and ownership issues; Ownership is important.
- Provide Teaching Labs.
- Provide quiet study area(s).
- Provide adequate storage space.
- Replace Hollingsworth Auditorium, provide larger space to accommodate 500 occupants.
- Provide space for UTIA fleet parking area.
- Attract students, donors, faculty.

4 Preliminary Project Schedule:
- Schedule User Meetings: Every 3 – 4 weeks
- Program Completion: Mid – End December 2012
- RFP for Design Team: February 2013
- Select Design Team: April 2013
- Complete Design / CD’s: May 2014
- Bidding / Permit: July 2014
- Start Demo / Construction: July 2014
- Complete Construction: July 2016
- Move-In: October 2016

5 Surge Space:
- Options to relocate functions in Ellington during demolition and construction will be reviewed. Permanent moves to other facilities, such as the new Animal / Food Science Building, will be considered.

6 Plant BioTech Lessons Learned:
- Plan to review the Plant BioTech project with users to note lessons learned, both positive and negative.
- Functional problems noted were related to lack of sinks and coordination of emergency power locations.
- We will review this further with users during the programming process.

7 Specialty Labs: We will verify specialty lab needs with users.

8 Biological Labs: The needs are light on chemical use, heavy on biological needs.

9 Next Steps / Other:
- Program Interviews
- Document Space & Design Criteria from Interviews
- Next Meeting to Review & Confirm Program Requirements
### MEETING AGENDA

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<tr>
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<td>• LAS will use Questionnaire and information from this</td>
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**LORD • AICK • SAR GENT**

Energy + Environmental Science Education Research Center
University of Tennessee - Institute of Agriculture - Knoxville

152
### 407 Meeting Minutes [cont]

#### 3. This group is responsible for inventory of 13 southern states.

**Mapping / Inventory is done on a 5 – 10 year cycle.**

**Primary Functions:**
- Processing, editing and storing forest inventory data.
- Training for access to and use of information.
- Maintain records from 1930s.
- Primarily office and storage space required to meet FIA's needs.

**Need to accommodate visitors coming to access data.**

**Two researchers on campus that FIA would like to locate in the new facility. Need to confirm if they are moving, their functions and space requirements.**

**Work / Plot Room:** Need multi-purpose room for publication work.

**Verify need for GSA office / work space design standards.**

**HVAC:** No special environmental conditions required for data storage.

**Collaboration:**
- Working with Dr. Belli and other faculty who use FIA's data for research.

**Additional Building Program Notes:**
- Hours of Operation – 8:00 AM to 4:30 PM
- Need common entry and small reception area for visitors.
- Need separate Server Room.
- No research lab space needed.
- Need record storage – consider options for efficient storage on and/or off site.
- Consider area to display services provided by FIA.
- Need Conference Rooms, can be shared. Three required, varying in size – 8, 10, 15 and 30 occupant rooms.
- Offices needed for – Safety Officer, Budgeting, Receptionist (office with window currently).

**Site Program Notes:**
- Need space for 3 – 5 government vehicles.
- Need space for visitor parking, verify number.
- Need space for personal vehicles being exchanged for government vehicles. This could be located, and secured, remotely. UTIA to identify remote location.
- Access to loading dock is desirable, verify requirements.

**Next Steps:**
- Update Space List and Space Diagrams (LAS)
- Room Data Sheets (1st Pass LAS... UTIA review)

---

**REMARKS**

**ATTACHMENTS**

**PREPARED BY** Barry M. Abrams, AIA  **DATE PREPARED** October 1, 2012

Lord, Aeck & Sargent, Inc.

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**Schedule Next Meetings**

**Lord, Aeck & Sargent, Inc.**

1201 Peachtree Street, NE, Suite 500 | Atlanta, Georgia 30361-5500, USA

Phone 1 404-253-1400 | Fax 404-253-1401

www.LordAeckSargent.com
### MEETING NOTES

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>PROJECT NUMBER</th>
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<tbody>
<tr>
<td>UTIA Energy &amp; Environmental Science Education</td>
<td>10218-03</td>
</tr>
<tr>
<td>Research Center (EEERGC)</td>
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<table>
<thead>
<tr>
<th>DATE OF MEETING</th>
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<tr>
<td>September 19, 2012</td>
<td>8:30 – 10:00 AM</td>
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<tr>
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<tr>
<td>UTIA PB1 Conference Room</td>
<td>Plant Science Program Interview</td>
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<tr>
<td>Dr. Bill Klingeman, UTIA</td>
<td><a href="mailto:wklingeman@utk.edu">wklingeman@utk.edu</a></td>
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<tr>
<td>Steve Gilfenheim, UTIA</td>
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<td>Dr. Fred Allen, UTIA</td>
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**ACTION**

**DATE DUE**

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<tr>
<td>UTIA Energy &amp; Environmental Science Education Research Center</td>
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<td>Plant Science Program Interview Meeting</td>
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### 3 Faculty:
- Most faculty have 2-way appointments including a combination of either teaching, extension or research.
- Some faculty are 100% extension.

### 4 Extension:
- Extension provides outreach services to 95 counties in Tennessee, serving communities, agriculture, families and consumers.
- Extension is a major part of UT’s mission as a Land Grant University.
- Extension groups, such as High Schools, visit UTIA for tours and teaching programs.

### 5 Security:
- Some labs and functions require security.
- “Fail Open” in a power outage may be a problem for some functions.
- Design Team to address security during programming review. Becky

### 6 Classrooms:
- Better classrooms are needed.
- 100 – 110 seat, large size for undergraduates
- 8 – 10 seat, small size for graduate students
- Provide 1 – 150 seat classroom

### 7 Teaching Wet Labs:
- Soils Lab, 25 – 30 students; Dirty Lab
- Biotech Lab
- Physiology Lab (type to be confirmed) Becky

### 8 Provide cabinet storage for specimens. Becky

### 9 Increasing lab offerings by 50% (to be confirmed). Becky

### 10 Vibration Control:
- Some equipment, such as lasers and microscopes will require vibration control. Design Team will identify equipment & labs requiring special vibration considerations. Becky

### 11 Infrastructure:
- Provide adequate utilities, emergency power in particular was noted.
- Design Team will review and note infrastructure requirements in the program. Becky / Jeff

### 12 Greenhouses:
- Greenhouse replacement project currently underway.
- UT has advised against putting greenhouses on the roof.
- A Greenhouse is not required for this project.

### 13 Green Roof:

---

### 14 Display:
- Consider need and options for display.
- Consider use of corridors for display. Brian

### 15 Current Space Use:
- UTIA to provide the current inventory of space use by departments in all building locations.
- This will help the Design Team understand current functions and space needed for departments going into the EESERC.
- For example, mix of departments currently in the PBB. Steve

### 16 Surge Space:
- McCord Building can be used for surge space. Design Team to review space / functions available in McCond.
- UTIA to provide McCond plans for coordination with surge space. Steve

### 17 Next Steps:
- Update Space List and Space Diagrams (LAS) Becky / Jeff
- Room Data Sheets (1st Pass LAS... UTIA review) Becky / Jeff
- Schedule Next Meetings Becky / Jeff

### REMARKS

**ATTACHMENTS**

**PREPARED BY** Barry M. Abrams, AIA  
**DATE PREPARED** October 2, 2012

Lord, Aeck & Sargent, Inc.

*These notes reflect our current understanding of this meeting. Project actions will be based on these notes. Please contact the writer immediately if you do not concur.*
## MEETING NOTES

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### PARTICIPANTS

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<td>Barry</td>
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<td>Vail, UTIA</td>
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### ISSUE

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### Meeting Minutes [cont]

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</table>
| 3 | **Extension:**  
  - Labs used in Ellington are for Extension functions.  
  - More extension functions could be held on the Ag-Campus if space were available. Currently holding meetings off-Campus. |
| 4 | **Equipment:**  
  - Currently storing equipment in the Ellington basement.  
  - Design Team to confirm equipment storage requirements during programming.  
  - Becky |
| 5 | **Storage:**  
  - Currently lacking adequate storage space.  
  - Design Team will confirm storage requirements during programming.  
  - Becky |
| 6 | **Diagnosis Lab:**  
  - Dirty lab, receiving and holding plant / limbs samples.  
  - Need sink with soil trap.  
  - Design Team will note in systems narrative.  
  - Jeff |
| 7 | **Display:**  
  - Would like display / museum for insects. |
| 8 | **Reception:**  
  - Reception function to be gatekeeper for Extension. |
| 9 | **Natural Light:**  
  - Current spaces lack natural light, new facility to provide natural light to all types of spaces, labs, offices, etc. |
| 10 | **Research Labs:**  
  - Currently has research lab space in PBB.  
  - Need additional research lab space.  
  - Problem with odors – discussed need for fume hoods; may reflect need for design with negative pressure and correct air change rate. Design Team to review further.  
  - Jeff / Becky |
| 11 | **Vibration Control:**  
  - Need vibration control for microscopes. |
| 12 | **Wash Area:**  
  - Provide locker / wash area with washer – dryer. |
| 13 | **Other Program Considerations:**  
  - Current problems with leaks, sometimes on research equipment; problem with power surges.  
  - Security – consider separation of spaces that are open to the public (Extension) form secure labs; possibly by level. |
| 14 | **Site Needs:**  
  - Parking for visitors to Extension services.  
  - Drop-off for Extension services, specimens. |

#### REMARKS

- Design Team to verify need for loading dock.  
  - Becky  
- Locate labs convenient to loading dock and drop-off area.  
- Becky  
- Update Space List and Space Diagrams (LAS)  
- Room Data Sheets (1st Pass LAS… UTIA review)  
- Schedule Next Meetings

### ATTACHMENTS

- Tower, C. D.  
- Architect  
- 1201 Peachtree Street, NE, Suite 500 | Atlanta, Georgia 30309 USA  
- www.LordAeckSargent.com  
- October 2, 2012
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**DATE OF MEETING**
September 19, 2012

**TIME**
1:00 – 2:30 PM

**MEETING LOCATION**
CASNR Program Interview

**PARTICIPANTS**

<table>
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**ITEMS BELOADED**

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<td>Department is currently spread out in many locations.</td>
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4. Building Front / Main Entry: Need for a clear Main Entry and Front to the new EESERC.

5. Enrollment:
   - 40% increase in the last 6 years.
   - Increase / decreases have varied over the years, no clear projected growth.
   - Currently project either remaining steady or an increase, no decrease expected.

6. Chancellor and Deans are currently located in Morgan Hall.

7. CASNR is one of 8 Colleges at UTK.

8. Classrooms:
   - Need for 5 – 6 classrooms with 40 – 45 seats.
   - Consider technology for teaching in 5 – 6 years; distance and interactive learning.
   - Becky

9. Teaching Labs:
   - Much of the Teaching Labs occurs outdoors – on site.

10. Computer Lab:
    - Consider need for Computer Lab for special software and other training that doesn’t work on students’ laptops.
    - Design Team to confirm requirements for Computer Lab.
    - Becky

11. Student Clubs:
    - Consider meeting space for Student Clubs. UTIA to verify if this will be programmed for the EESERC, if so UTIA to verify space requirements.
    - Steve

12. Informal Learning Spaces:
    - Important to provide this type of space.
    - LAS showed examples of this type of space at Wisconsin Institute of Learning and at Duke University School of Environment.

13. Food Service:
    - Consider space for food service – café / Starbucks.
    - UTIA to confirm if this will be included in the EESERC Program.
    - Steve

14. Architectural Style:
    - We discussed UTK’s possible requirement for a particular Architectural style and/or material vocabulary.
    - This issue is currently being considered by UTK. UTK to advise if a requirement should be noted in the Program, however, the current effort is related to programming and not design.
    - Steve

15. Green Roof:
    - We discussed the option of a green roof, this will be considered, may be included in system description.
    - Brian

16. Next Steps:
    - Update Space List and Space Diagrams (LAS)
    - Room Data Sheets (1st Pass LAS... UTIA review)
    - Schedule Next Meetings

REMARKS

ATTACHMENTS

PREPARED BY Barry M. Abrams, AIA  DATE PREPARED October 2, 2012
Lord, Aeck & Sargent, Inc.

THESE NOTES SUMMARIZE OUR UNDERSTANDING OF THIS MEETING. PROJECT ACTIONS WILL BE BASED ON THESE NOTES. PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.
# MEETING NOTES

**PROJECT NAME**  
UTIA Energy & Environmental Science Education Research Center (EESERC)

**PROJECT NUMBER**  
10218-03

**DATE OF MEETING**  
September 19, 2012

**TIME**  
2:45 – 4:15 PM

**MEETING LOCATION**  
Forestry Wildlife & Fisheries Program

**PURPOSE**  
Interview

## PARTICIPANTS

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Wayne Clatterback</td>
<td>UTIA</td>
</tr>
<tr>
<td>Dr. Keith Belli</td>
<td>UTIA</td>
</tr>
<tr>
<td>Dr. Richard Strange</td>
<td>UTIA</td>
</tr>
<tr>
<td>Steve Glafenhein</td>
<td>UTIA</td>
</tr>
<tr>
<td>Bill Pace, UTK</td>
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<tr>
<td>John Starr, LAS</td>
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<tr>
<td>Barry Abrams, LAS</td>
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<tr>
<td>Becky McDuffie, LAS</td>
<td></td>
</tr>
<tr>
<td>Brian Kadlowicz, LAS</td>
<td></td>
</tr>
</tbody>
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**FILE TYPES**  
that are not specified are distributed as noted in the left margin. Items left off the list are applied on free cutout and are not typed on the list. Items identified with a shaded bar in the left margin.

<table>
<thead>
<tr>
<th>Issue No.</th>
<th>Date</th>
<th>Issue</th>
</tr>
</thead>
</table>
| 1         | 9/19/2012  | Introductions, Roles of Communications:
|           |            | • Steve will be UTIA’s point of contact, and will distribute to others at UTIA as needed. |
|           |            | • Barry will be the Design Team’s point of contact.                   |
| 2         |            | Overview / Confirm Program Questionnaire                              |

**ACTION BY DATE DUE**

**STATUS**

---

**NOTE:**  
Lord, Aeck & Sargent, Inc.
1201 Peachtree Street, NE, Suite 300 | Atlanta, Georgia 30309-3500, USA
Tel: 404.235.1400 | Fax: 404.235.1401
www.LordAeckSargent.com
LAS will use Questionnaire and information from this meeting to develop the initial program space requirements.

3 Faculty:
- Anticipate steady state, no growth expected.
- Need to verify number of faculty and researchers to plan for in the EESERC.
  
  Keith

4 Head Room:
- One of the Classrooms in Ellington has several animal heads displayed on the wall. Need to verify requirements for display of heads and/or display in a Classroom.
  
  Becky

5 Goal to consolidate offices and functions in the EESERC.

6 JARTU (Johnson Animal Research & Teaching Unit) Labs should stay in current location.

7 Lab Standards:
- THEC and other similar design standards were noted to review for applicable lab standards. The Design Team will review standards noted with UTIA.
  
  Becky

8 Teaching Labs:
- Much of the Teaching Labs occurs outdoors – on site.
- Need space for specimens.

9 Computer Lab:
- Consider need for Computer Lab for special software and other training that doesn’t work on student laptops.
- Design Team to confirm requirements for Computer Lab.
  
  Becky

10 Wood Lab:
- Needs to be larger, Design Team to review with Users.
- Currently sawing wood in one of the labs, need dust collection system at this lab or determine a different location for this function.
  
  Becky

11 Fish Lab:
- Described Fish Lab in McCord. UTIA to confirm if this is moving to EESERC.
- Requires space for field gear.
- Requires Teaching & Research Lab Space (wet Lab space needed).
- Design Team to review and confirm space requirements.
  
  Becky

12 Remote Storage:
- PWF has a remote storage building. Verify any functions in the remote storage building that will be housed in the EESERC.
  
  Keith

13 Additional Building Program Notes:
- Provide space for gas cylinder storage.
  
  Becky

14 Site Program Notes:
- Access to loading dock is desirable, verify requirements.
  
  Becky

15 Next Steps:
- Update Space List and Space Diagrams (LAS)
- Room Data Sheets (1st Pass LAS… UTIA review)
- Schedule Next Meetings

REMARKS

ATTACHMENTS

PREPARED BY Barry M. Abrams, AIA  DATE PREPARED October 2, 2012

Lord, Aeck & Sargent, Inc.

THESE NOTES SUMMARIZE OUR UNDERSTANDING OF THIS MEETING. PROJECT ACTIONS WILL BE BASED ON THESE NOTES.

PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.
### MEETING NOTES

**PROJECT NAME**

UTIA Energy & Environmental Science Education Research Center (EESERC)

**PROJECT NUMBER**

10218-03

**DATE OF MEETING**

September 19, 2012

**TIME**

4:30 – 5:30 PM

**MEETING LOCATION**

Biosystems Engineering and Soils Science (BESS) Program Interview

**PURPOSE**

- Overview of UTIA's educational programs and research initiatives.
- Discussion on current projects and future directions.
- Identification of potential collaboration opportunities.

**PARTICIPANTS**

<table>
<thead>
<tr>
<th>Name</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. John Wilkensohn</td>
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</tr>
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<td>Dr. Justmoon Lee</td>
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</tr>
<tr>
<td>Dr. Joanne Logan</td>
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</tr>
<tr>
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</tr>
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</table>

**DISTRIBUTION**

**PARTICIPANTS**

- Email

**VIA**

- Email

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### Issue Log

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<tr>
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</tr>
<tr>
<td></td>
<td></td>
<td>• Barry will be the Design Team's point of contact.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Overview / Confirm Program Questionnaire</td>
<td></td>
</tr>
</tbody>
</table>
## 407 Meeting Minutes [cont]

### UTIA Energy & Environmental Science Education Research Center
Biosystems Engineering & Soil Sciences Program Interview Meeting
October 2, 2012

<table>
<thead>
<tr>
<th>Page 2</th>
</tr>
</thead>
</table>

- Reviewed Program Questionnaire.
- LAS will use Questionnaire and information from this meeting to develop the initial program space requirements.

3 Current location:
- Ellington
- FWF to confirm Labs & Offices in other locations that will move to the EESERC and those that should remain in current location.

<table>
<thead>
<tr>
<th>Field Work:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need locker / shower area for getting in / out of field gear.</td>
</tr>
</tbody>
</table>

4 Sustainable Design:
- Target LEED Silver vs. State Guidelines; the design requirement will be further considered and reviewed with UTIA.

<table>
<thead>
<tr>
<th>Field Work:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need locker / shower area for getting in / out of field gear.</td>
</tr>
</tbody>
</table>

5 Computer Lab:
- Currently one in the BESS Building.
- Shared with CASNR
- 30 students
- Teaching GIS, AutoCAD, Statistics
- Open after hours for student use.

6 Construction Science:
- Verify space requirements in EESERC, considered dirty space.

<table>
<thead>
<tr>
<th>Teaching Lab:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently uses Ellington 115.</td>
</tr>
<tr>
<td>Need twice the size to meet teaching requirements.</td>
</tr>
<tr>
<td>Need environmental control chamber for demonstrations.</td>
</tr>
<tr>
<td>Need Prep Labs.</td>
</tr>
<tr>
<td>Need Storage for soil samples.</td>
</tr>
</tbody>
</table>

7 Classroom Needed:

<table>
<thead>
<tr>
<th>Offices:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefer offices and teaching assistant space near labs.</td>
</tr>
</tbody>
</table>

8 Office:

<table>
<thead>
<tr>
<th>Student Spaces:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide study rooms for team projects.</td>
</tr>
<tr>
<td>Provide space for student organizations.</td>
</tr>
<tr>
<td>Design Team to confirm space requirements.</td>
</tr>
</tbody>
</table>

9 Teaching Lab:

<table>
<thead>
<tr>
<th>Surge Space:</th>
</tr>
</thead>
<tbody>
<tr>
<td>McComb Building can be used for surge space. Design Team to review space / functions available in McComb.</td>
</tr>
</tbody>
</table>

10 Surge Space:

<table>
<thead>
<tr>
<th>Next Steps:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update Space List and Space Diagrams (LAS)</td>
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<tr>
<td>Room Data Sheets (1st Pass LAS… UTIA review)</td>
</tr>
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</table>

### REMARKS

These notes should be kept for historical purposes of this meeting. Project actions will be based on these notes.

**PREPARED BY** Barry M. Abrams, AIA  **DATE PREPARED** October 2, 2012

Lord, Aeck & Sargent, Inc.

These notes summarize our understanding of this meeting. Project actions will be based on these notes.

**PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.**
MEETING NOTES

PROJECT NAME
UTIA Energy & Environmental Science Education Research Center

PROJECT NUMBER
10218-03

DATE OF MEETING
October 10, 2012

TIME
See Meeting Schedule

MEETING LOCATION
Program Interview EPP

PURPOSE

PARTICIPANTS
Dr. Vail, UTIA
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Dr. Trigino, UTIA
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Steve Glafenhein, UTIA
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Scott Webb, MHM
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Jeff Linde, N&B
jlinde@newcomb-boyd.com

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ITEMS BELOW THAT ARE NEW OR UPDATED ARE IDENTIFIED WITH AN UNSHADED BAR IN THE LEFT HAND MARGIN. ITEMS BELOW THAT HAVE APPEARED ON PREVIOUS REPORTS BUT ARE NOT YET APPROVED OR CLOSED ARE IDENTIFIED WITH A SHADED BAR IN THE LEFT HAND MARGIN.

ISSUE NO. DATE ISSUE ACTION BY DATE DUE STATUS
1 12/09 Reviewed Program
   • Current functions/location
   • Proposed functions/general space requirements (Review Preliminary Space List)
   • Note: The total space requirements are significantly higher than included in the initial Project Budget. Programming Team to coordinate with UTIA to address Program revisions.

2 Reviewed existing in Ellington, including rooms to be relocated during construction.
   • Dirty lab in PBB may be an option to use during demo/construction.

3 Teaching Lab for Training/Testing:
   • 25 – 30 occupants; Eastern Region Extension Office may be used for this function.
   • Used 1/month.
   • Creates parking issue – good to be in a different location.
   • Dr. Trigino will review and advise.

4 Review Space Program & Room Diagrams.
   • Edited Program based on input from this group.
   • Reviewed Room Diagrams of Classrooms, Teaching and Research Labs.

5 Project Goals:
   • We reviewed goals identified during the Kick-Off Meeting.
   • Voted (prioritized) on goals to identify the top five.

6 Next Steps
   • Update Space List and Space Diagrams (LAS) based on this meeting.
   • Survey/Geotech
   • HazMat Report of Existing Building
   • Next Meetings Scheduled for 10/30 & 31.

REMARKS

ATACHMENTS

PREPARED BY Barry M. Abrams, AIA
DATE PREPARED October 29, 2012

Lord, Aeck & Sargent, Inc.

THESE NOTES SUMMARIZE OUR UNDERSTANDING OF THIS MEETING. PROJECT ACTIONS WILL BE BASED ON THESE NOTES.

PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.
### MEETING NOTES

**PROJECT NAME**

UTIA Energy & Environmental Science Education Research Center

**PROJECT NUMBER**

10218-03

**DATE OF MEETING**

October 9, 2012

**MEETING LOCATION**

Program Interview AG Research

**DATE**

October 9, 2012

**TIME**

See Meeting Schedule

**PURPOSE**

Program Interview AG Research

### PARTICIPANTS PRESENT

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Hodges, UTIA</td>
<td><a href="mailto:jhodges@utk.edu">jhodges@utk.edu</a></td>
</tr>
<tr>
<td>Steve Glafenhein, UTIA</td>
<td><a href="mailto:sglafenh@utk.edu">sglafenh@utk.edu</a></td>
</tr>
<tr>
<td>Bill Pace, UTK</td>
<td><a href="mailto:space1@utk.edu">space1@utk.edu</a></td>
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<tbody>
<tr>
<td>Briar Karlowicz, LAS</td>
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<td>Jeff Linde, N&amp;B</td>
<td><a href="mailto:jlinde@newcombboyd.com">jlinde@newcombboyd.com</a></td>
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**ISSUE NO.**

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</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Review/Confirm Program</td>
<td>Becky/Steve</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current functions/location</td>
<td>Becky/Steve</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proposed functions/general space requirements (Review Preliminary Space List)</td>
<td>Becky/Steve</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note: The total space requirements are significantly higher than included in the initial Project Budget. Programming Team to coordinate with UTIA to address Program revisions.</td>
<td>Becky/Steve</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Reviewed existing spaces in Ellington, including rooms to be relocated during construction.</td>
<td>Becky</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Verify need for suite for each department.</td>
<td>Becky</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Consider programming labs to be either wet or dry – convert in the future as needed.</td>
<td>Becky</td>
<td></td>
</tr>
</tbody>
</table>

---

**REMARKS**

5. Beneficial Insects Lab – Not described to date, verify program requirements.

6. Informal Learning:
   - Use of lobby space as part of informal learning – similar to Duke Environment Hub (showed pictures of Duke Project by LAS).

7. Project Goals:
   - We reviewed goals identified during the Kick-Off Meeting.
   - Voted (prioritized) on goals to identify the top five.

8. Next Steps:
   - Update Space List and Space Diagrams (LAS) based on this meeting.
   - Survey/Geotech
   - HazMat Report of Existing Building
   - Next Meetings Scheduled for 10/30 & 31.

---

**ATTACHMENTS**

**PREPARED BY**

Barry M. Abrams, AIA

**DATE PREPARED**

October 29, 2012

Lord, Aeck & Sargent, Inc.

**THESE NOTES SUMMARIZE OUR UNDERSTANDING OF THIS MEETING. PROJECT ACTIONS WILL BE BASED ON THESE NOTES. **

**PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.**
## Meeting Notes

**Date of Meeting:** October 10, 2012

**Meeting Location:** Program Interview

**Purpose:** BESS & Safety Office

### Participants Present
- Dr. Eric Drumm, UTIA (edrumm@utk.edu)
- Dr. Jaehoon Lee, UTIA (jhlee@utk.edu)
- Dr. Joanne Logan, UTIA (loganj@utk.edu)
- Dr. John Wilkenson, UTIA (wilkenj@utk.edu)
- Susan Fiscor, UTIA (susan@utk.edu)
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- Bill Pace, UTK (wpace1@utk.edu)
- Barry Abrams, LAS (babrams@lasarchitect.com)
- Becky McDuffie, LAS (bmcduffie@lasarchitect.com)
- John Starr, LAS (jstarr@lasarchitect.com)
- Brian Karlowicz, LAS (bkarlowicz@lasarchitect.com)
- Doug McCarty, MHM (dmccarty@mhminc.com)
- Scott Webb, MHM (swebb@mhminc.com)
- Jeff Linde, Newcomb & Boyd (jlinde@newcomb-boyd.com)

### Distribution Via
- Barry Abrams, AIA
- LORD, AECK & SARGENT, INC.

### Issue No. | Date | Action By | Date Due | Status
---|---|---|---|---
1 | | Review/Confirm Program | | Becky/Steve
   * Current functions/location
   * Proposed functions/general space requirements (Review Preliminary Space List)
   * Note: The total space requirements are significantly higher than included in the initial Project Budget. Programming Team to coordinate with UTIA to address Program revisions.

### Remarks
- These notes summarize our understanding of this meeting. Project actions will be based on these notes. Please contact the writer immediately if you do not concur.

### Attachments
- Barry M. Abrams, AIA
- LORD, AECK & SARGENT, INC.
MEETING NOTES

PROJECT NAME
UTIA Energy & Environmental Science Education Research Center

PROJECT NUMBER
10218-03

DATE OF MEETING
October 9, 2012

MEETING LOCATION
CRC Conference Room

PURPOSE
Program Interview - CASNR

PARTICIPANTS PRESENT
Dr. John Stier, UTIA
jstier@utk.edu
Steve Glafenhein, UTIA
sglafenh@utk.edu
Bill Pace, UTK
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John Starr, LAS
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Barry Abrams, LAS
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Becky McDuffie, LAS
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Scott Webb, MHM
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Jeff Linde, N&B
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Scott Webb, MHM
swb@mhminc.com
Jeff Linde, N&B
jlinde@newcombboyd.com

FILE:
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ITEMS BELOW THAT ARE NEW OR UPDATED ARE IDENTIFIED WITH AN UNSHADED BAR IN THE LEFT HAND MARGIN.

1. Review/Confirm Program
   - Current functions/location
   - Proposed functions/general space requirements (Review Preliminary Space List)
   - Note: The total space requirements are significantly higher than included in the initial Project Budget. Programming Team to coordinate with UTIA to address Program revisions.
   - General CR's are nationalized. To be verified.
   - Bill noted that the department with the majority use is responsible for maintenance of AV & Controls, whether Nationalized or not.


3. Multi-Use Room:
   - New Student Center may include a large multi-use space similar to Hollingsworth.
   - Consider room divider – two 250 occupant rooms.
   - Consider portable stage (Hollingsworth has stage).

4. Angie Berry is point person for scheduling Classrooms. Angie Berry is Nationalized.

5. Angie Berry in charge of nationalized Classroom scheduling. Verify if this impacts the Classrooms as programmed.

6. More MOOC's "Massive Online Courses." Corsara, company that puts courses online.

7. Project Goals:
   - We reviewed goals identified during the Kick-Off Meeting.
   - Voted (prioritized) on goals to identify the top five.

8. Next Steps:
   - Update Space List and Space Diagrams (LAS) based on this meeting.
   - Survey/Grotech
   - HazMat Report of Existing Building
   - Next Meetings Scheduled for 10/30 & 31.

REMARKS

ATTACHMENTS
PREPARED BY
Barry M. Abrams, AIA
DATE PREPARED
October 29, 2012

Lord, Aeck & Sargent, Inc.
**MEETING NOTES**

**PROJECT NAME**
UTIA Energy & Environmental Science Education Research Center

**PROJECT NUMBER**
10218-03

**DATE OF MEETING**
October 10, 2012

**TIME**
See Meeting Schedule

**MEETING LOCATION**
Program Interview FWF

**PARTICIPANTS PRESENT**

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
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</thead>
<tbody>
<tr>
<td>Dr. Keith Belli, UTIA</td>
<td><a href="mailto:kbelli@utk.edu">kbelli@utk.edu</a></td>
</tr>
<tr>
<td>Dr. Richard Strange, UTIA</td>
<td><a href="mailto:rstrange@utk.edu">rstrange@utk.edu</a></td>
</tr>
<tr>
<td>Steve Glafenhein, UTIA</td>
<td><a href="mailto:sglafenh@utk.edu">sglafenh@utk.edu</a></td>
</tr>
<tr>
<td>Bill Pace, UTK</td>
<td><a href="mailto:pace1@utk.edu">pace1@utk.edu</a></td>
</tr>
<tr>
<td>Barry Abrams, LAS</td>
<td><a href="mailto:babrams@lasarchitect.com">babrams@lasarchitect.com</a></td>
</tr>
<tr>
<td>Beecy McDuffie, LAS</td>
<td><a href="mailto:bmcduffie@lasarchitect.com">bmcduffie@lasarchitect.com</a></td>
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**DISTRIBUTION VIA PARTICIPANTS**

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<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>John Starr, LAS</td>
<td><a href="mailto:jstarr@lasarchitect.com">jstarr@lasarchitect.com</a></td>
</tr>
<tr>
<td>Brian Kaslovecic, LAS</td>
<td><a href="mailto:bkaslovecic@lasarchitect.com">bkaslovecic@lasarchitect.com</a></td>
</tr>
<tr>
<td>Doug McCarty, MHM</td>
<td><a href="mailto:dmcarty@mhminc.com">dmcarty@mhminc.com</a></td>
</tr>
<tr>
<td>Scott Webb, MHM</td>
<td><a href="mailto:swebb@mhminc.com">swebb@mhminc.com</a></td>
</tr>
<tr>
<td>Jeff Linde, N&amp;B</td>
<td><a href="mailto:jlinde@newcomb-boyd.com">jlinde@newcomb-boyd.com</a></td>
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**ITEMS BELOW THAT ARE NEW OR UPDATED ARE IDENTIFIED WITH AN UNSHADED BAR IN THE LEFT HAND MARGIN. ITEMS BELOW THAT HAVE APPEARED ON PREVIOUS REPORTS BUT ARE NOT YET APPROVED OR CLOSED ARE IDENTIFIED WITH A SHADED BAR IN THE LEFT HAND MARGIN.**

**ISSUE NO.**

**DATE**

**ISSUE ACTION BY DATE DUE STATUS**

1. Overview/Confirm Program Questionnaire
   - Current functions/location
   - Proposed functions/general space requirements (Review Preliminary Space List)
   - Note: The total space requirements are significantly higher than included in the initial Project Budget. Programming Team needs to coordinate with UTIA to address Program revisions.

2. Received description of lab space currently in PBB from Dr. Belli

3. Adjusted Special CR – 2 at 3 modules and 1 at 4 modules.

4. Look at security and signage for animal areas.
   - Becky

5. Research Labs:
   - Look at wet vs. dry lab functions.
   - Becky

6. Field Storage:
   - Provide space for dirty storage.
   - Becky
   - This function is currently at loading area in McCord.

7. Bridge connections to PBB will be a great benefit – efficiency, allowing functions to work better and stay in PBB.

8. Workspace for Human Dimensions Lab
   - Becky
   - 2 adjacent rooms, one work area – work stations and plotter; one call center for internet surveys.
   - Window in between.
   - Considering using one of the Research Labs for this function.

9. Project Goals:
   - We reviewed goals identified during the Kick-Off Meeting.
   - Voted (prioritized) on goals to identify the top five.

10. Next Steps:
    - Update Space List and Space Diagrams (LAS) based on this meeting.
    - Survey/Geotech
    - HazMat Report of Existing Building
    - Next Meetings Scheduled for 10/30 & 31.

**REMARKS**

**ATTACHMENTS**

**PREPARED BY**
Barry M. Abrams, AIA

**DATE PREPARED**
October 29, 2012

Lord, Aeck & Sargent, Inc.
### MEETING NOTES

**PROJECT NAME**  
UTIA Energy & Environmental Science Education Research Center  
**PROJECT NUMBER**  
10218-03  

**DATE OF MEETING**  
October 9, 2012  
**TIME**  
See Meeting Schedule  

**MEETING LOCATION**  
Program Interview Vet School  

**PARTICIPANTS PRESENT**  
Patty Coan, UTIA Vet School  
Steve Glafenhein, UTIA  
Bill Pace, UTK  
John Starr, LAS  
Barry Abrams, LAS  
Becky McDuffie, LAS  

**DISTRIBUTION VIA**  
Doug McCarty, MHM  
Scott Webb, MHM  
Jeff Linde, N&B  

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**ISSUE NO.**  
1  

**DATE**  
Review/Confirm Program Questionnaire  

**ISSUE**  
- Current functions/location  
- Proposed functions/general space requirements (Review Preliminary Space List)  
- Note: The total space requirements are significantly higher than included in the initial Project Budget. Programming Team to coordinate with UTIA to address Program revisions.  

**ACTION BY DATE DUE STATUS**  
- Becky/Steve  

2  

**DATE**  
Review Current Functions in Ellington: Labs  

**ISSUE**  
- Shared support, chemical storage.  
- Biosafety cabinet (4);  
- Process live animals from Animal Housing -- rodents -- blood samples.  

**ACTION BY DATE DUE STATUS**  
- Becky  

---

**PROJECT GOALS**  
- We reviewed goals identified during the Kick-Off Meeting.  
- Voted (prioritized) on goals to identify the top five.  

**NEXT STEPS**  
- Update Space List and Space Diagrams (LAS) based on this meeting.  
- Survey/Geotech  
- HazMat Report of Existing Building  
- Next Meetings Scheduled for 10/30 & 31.  

**REMARKS**  
- Lab Function:  
  - Lab not used on a daily basis. 10 students per year for training.  
  - Large sample processing 3 times per year. Could share a lab.  
  - IACUC (regulatory) separate from OLAC (service).  

**DESIGN ISSUES AND CHALLENGES**  
- Swing Space Requirements – accommodate offices/lab, teaching can be located elsewhere. Some procedure functions in JARTU – confirm.  

**PROJECT GENDERS**  
- We reviewed goals identified during the Kick-Off Meeting.  
- Voted (prioritized) on goals to identify the top five.  

---

**ATTACHMENTS**  
PREPARED BY Barry M. Abrams, AIA  
DATE PREPARED October 29, 2012  
Lord, Aeck & Sargent, Inc.  

---

**REMINDERS**  
- Macrosopes  
- Freezers/refrigerators – store carcasses  
- BSL2 lab  
- Prefer separated lab form chemical storage  
- Double lock box for secured drugs.  
- Chemical fume hood.  
- Miscellaneous counter top equipment.
## MEETING NOTES

### PROJECT NAME
UTIA Energy & Environmental Science Education Research Center

### PROJECT NUMBER
10218-03

### DATE OF MEETING
October 10, 2012

### MEETING LOCATION
Program Interview Plant Science

### PARTICIPANTS PRESENT
Dr. Bill Klingeman, UTIA
wklingem@utk.edu
Steve Glafenhein, UTIA
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Jeff Linde, N&B
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**Items below that are new or updated are identified with an unshaded bar in the left hand margin.**

**Items below that have appeared on previous reports but are not yet approved or closed are identified with a shaded bar in the left hand margin.**

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<td>Review/Confirm Program</td>
<td>Becky/Steve</td>
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<td>• Reviewed current functions/location</td>
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<tr>
<td>2</td>
<td></td>
<td>Large Multi-Use Meeting Room</td>
<td>Becky</td>
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<td>• Considering dividing into two or three rooms, vs. one large room. This will provide more use and have the opportunity of serving multiple functions concurrently.</td>
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</table>
3 Need Growth Chambers:
   • 12 – 16
   • Several in PBB, good example of growth chamber needed.
   • Provide drain with soil trap.

4 Other Large Equipment:
   • Drying oven
   • Autoclave

5 Office Space:
   • Adjusted office numbers in the Space Program.

6 Specialty Classroom:
   • Drafting Lab—currently in Ellington Room 130.

7 Teaching Lab:
   • Can be shared.
   • More lab classes could be provided if more Teaching Labs were available.

8 Research:
   • Could reduce number of labs (currently shown at 8) if needed.  

9 Walk-In Cooler may be required, LAS to confirm.

10 IT Hub is required.

11 Mail Room:
   • Lockable storage with freezer/refrigerator required for pick-up, frozen enzymes, other special storage items.

12 Caged (fenced) Storage Area:
   • Equipment used on infrequent basis, good to have secured in caged area.

13 Pod/Café/AV Suite:
   • This function is needed. Not recommended for shared resource, problem with equipment/computer equipment.

14 Poster Printer—large equipment— is needed.

15 Office Doors:
   • Provide wider door opening to labs – 3’ + 1’-6” leaf = 4’-6” w x 8’ h.

16 Offices:
   • Consider clustering groups for teams.

17 2 suites for support staff – admin (6) vs. business (4).
   • Storage closets are needed for supplies.

18 Project Goals:
   • We reviewed goals identified during the Kick-Off Meeting.
   • Add “One UT” vs. UTK and UTIA, could translate into how the building is designed.
   • Voted (prioritized) on goals to identify the top five.

19 Next Steps:
   • Update Space List and Space Diagrams (LAS) based on this meeting.
   • Survey/Geotech
   • HazMat Report of Existing Building
   • Next Meetings Scheduled for 10/30 & 31.

REMARKS

ATTACHMENTS
MEETING NOTES

PROJECT NAME PROJECT NUMBER
UTIA Energy & Environmental Science Education Research Center 10218-03

DATE OF MEETING TIME
October 10, 2012 See Meeting Schedule

MEETING LOCATION PURPOSE
Program Progress Wrap-Up

PARTICIPANTS EMAIL
Tim Fawver, UTIA tfawver@utk.edu
Tom McKeehan, UT tim@tennessee.edu
Steve Glafenhein, UTIA sglafenh@utk.edu
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Jeff Linde, N&B jlinde@newcombboyd.com

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ISSUE NO. DATE ISSUE ACTION BY DATE DUE STATUS
1 Reviewed Progress
   • Ellington Existing Space Use
   • Reviewed Program of Spaces for the EESERC

2 General Classrooms:
   • Current funding source is by UTIA, no funding by UTK.
   • Based on current funding, the Program should be based on matching Ellington vs. increasing.

3 Renovations in the next 10 years are planned for:
   • Morgan Hall

REMARKS

ATTACHMENTS

PREPARED BY Barry M. Abrams, AIA DATE PREPARED October 29, 2012
Lord, Aeck & Sargent, Inc.

THESE NOTES SUMMARIZE OUR UNDERSTANDING OF THIS MEETING. PROJECT ACTIONS WILL BE BASED ON THESE NOTES. PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.
The purpose of this meeting was to review the site utilities scope in order to determine budgets for any site utility relocation costs that may be required. Attached are (2) site drawings that defines UT Facilities Services understanding of the location of all existing related site utilities. The following is a summary of items discussed:

**ELECTRICAL:**
1. There is a major high voltage distribution switch that will probably need to be relocated as part of the project.
2. Roy Warwick advised that these switches supply electrical for the entire agriculture campus, not just the portion of the campus west of Joe Johnson Boulevard.
3. Roy also stated that there will be outages if this switch must be relocated. These outages would need to be 3-4 day outages, but he felt this was doable because buildings have either emergency generators or temporary generators can be utilized for buildings not having emergency generators.
4. A couple of locations were discussed to relocate this equipment, but it was decided that the preferred location would be in the green space east of the CE Brehm Animal Services building parking lot. In determining the exact location, the following needs are to be considered:
   - Mature existing trees should be protected;
   - The parking lot east of the CE Brehm Building will be expanded approximately 5'-0" to the east;
   - The existing bus stop should be retained;
   - The size of the equipment will be approximately 6'-16'-0" and the completed pad should be approximately 20'-30';
   - The equipment should be screened from view by either landscaping or screen walls or a combination of both.

**STEAM:**
1. It was determined that the major steam line on the service road south of the existing building will not need to be relocated as part of the project. As design proceeds the south wall of the new building should be set so that this steam line will not require relocation.

**GAS:**
1. It was determined that the 2" gas line south of the existing building will need to be relocated. This should not be a major site utility cost.

**WATER:**
1. The water line connecting to the existing Ellington Building on the southeast portion of the site will need to be relocated. This should not be a major site utility cost.
2. The water line at Chapman Drive may need to be replaced due to its poor condition (Roy Warwick or Terry Ledford to confirm). If required, an allowance may be included in the budget.

**SITE LIGHTING:**
1. New site lighting will be included for the entire site. It will be assumed that these costs are included in either the building costs or the site budget as developed by CRJA.

**OTHER:**
1. Steve Glafenhein passed out the University Commons of Site Improvement drawings and the proposed construction details raised crosswalk drawing (both developed by CDM Smith attached). It was determined that the proposed raised crosswalk should be located just north of the intersection of Joe Johnson Drive and the service drive (as noted on the “University Commons Off Site Improvements” drawing).
2. Steve also shared the Native American Interpretive Garden Drawing for reference. Because of the relocation of the proposed crosswalk at Ellington, Sean Vasington of CRJA is requested to include in his site budget an allowance to rework the noted portion to better coordinate with pedestrian circulation to the crosswalk.

**SUMMARY:**
It is suggested that the following budget be developed by November 30 so that the University can review and if approved, Lord Aeck Sargent can include in the project budget:

- **Site Utility Budget**
  - MHH | CDM Smith

- **Waterline replacement at Chapman Drive**
  - CDM Smith

- **Site Development Budget**
  - CRJA

(including allowance for renovating portion of The Native American Interpretive Drawing)

Respectfully Submitted,

Doug McCarty, AIA | McCarty Holsaple McCarty, Inc.
## Project Name
**UTIA - Energy and Environmental Science Education Research Center (Ellington Plant Sciences Building)**

### Program Update

**DATE OF MEETING**
March 22, 2018

**MEETING LOCATION**
FS Room 101 (2040 Sutherland Avenue)

**PARTICIPANTS**
- Steve Glafenhein, Bob Denovo, Tom Gill - UTIA
- Dave Irvin, Andy Powers, Thomas Haeuptle, Dan Smith – UT Facilities Planning
- John Starr, Becky McDuffie, Joseph Minatta, John Fueredi - LAS

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### Items

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<td>Introduction</td>
<td>Info</td>
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<tr>
<td>2</td>
<td></td>
<td>Confirm total gross square footage of the building are unchanged from the 2013 document.</td>
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<td>See item 2 in the attached agenda response dated 22 March, 2018.</td>
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<tr>
<td>3</td>
<td></td>
<td>The portions of the program relating to architectural style, site layout, and massing will require updates. Confirm criteria for these items that have changed since the original program.</td>
<td>Info</td>
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<td></td>
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<td>See item 3 in the attached agenda response dated 22 March, 2018.</td>
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<tr>
<td>4</td>
<td></td>
<td>The Institute for Agriculture has revised the list of programs and offices that will occupy the new building. It is our understanding that the Southern Research Station/Inventory &amp; Analysis (9,760 NSF) will not be included in this program, and that the Smith International Center (1,800 NSF) and classrooms for the College of Veterinary Medicine (4,500 NSF) will be added. Detailed information for these added departments is required. Part of the program revision effort will be to revise the document, budget, etc. as required to accommodate these new occupants.</td>
<td>Info</td>
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<td>See item 4 in the attached agenda response, dated 22 March, 2018.</td>
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### Executive Committee
- Will include Chris Cimino and Chancellor Cross.
  - Recommended that Chancellor Cross and Chancellor Davenport discuss applicable Campus Design Standards for this project.
- Executive Committee meetings are held once per month
  - Should include a brief presentation of the program update.
  - Presentation by UT Facilities.

### Funding
- $4m approved by the State
- $2m approved by the State in 2012
- $4m additional just approved by the State
- $8.5m matching funds are in hand

### Preliminary Budget review comments:
- Stormwater - review budget allowance number.
  - Audio/Visual
    - AV budget needs to be included in the total project budget.
    - UT has a nationally recognized AV integrator under contract.
    - Use 3% of the total project budget to include design, procurement and installation.
  - FFE
    - Use $20-25/nsf.
    - Confirm number used for Mossman.
  - Project Financing
    - May not be applicable. VT confirm with Chris Cimino.
    - Include budget for moving into/out of surge space.

### Need
- Two (2) lecture rooms for 135 occupants each.
  - Auditorium seating preferred, but could be flat to work with other programs.
  - Tiered seating (like Strong Hall) would allow collaboration.
  - Lecture format 60% of the day
Meeting Minutes 2018 Update

Dr. Tom Gill – Smith International Center

- Need
  - Long term plans include housing for visitors.
  - Study abroad program (undergrad) handles program
  - International Agriculture minor - core classes and
  - Purpose – internationalize and bring faculty, staff and
  - Dr. Gill reports directly to the Chancellor.

- Employs four full-time, one part-time (1/2 time), one
  - Toshiba space (5,000 sf) – only offices
  - Available.
  - This is not owned by UTK and is a
  - One (1) flexible flat floor classroom for 100
    - May not be able to dedicate one and fit
    - Want flat classroom to accommodate flexibility.
    - Could build on to north side. –
      Teaching & Learning Center.

- Conference room for larger groups –
  - Easily visible.
  - Accommodate 4-6 people.

- Welcome/reception area
  - 350+ total student population currently.
  - If only two (2) learning environments are possible, then
    one flat (135 occupant) and one tiered (135 occupant)
    are preferred. Could use a portion of the 500-occupant
    classroom.
  - Want
    - Simulation labs desired in the long term.

- There is no space available in McCord for long term
  Info
  - relocations.
  - Temporary swing space opportunities:
    - First and second floor labs could be utilized for
      research labs. No contiguous office space is
      available.
    - Existing available space is available in the
      Toshiba space (5,000 sf) – only offices
      available. This is not owned by UTK and is a
      speculative office building near campus.
    - Request is to align research labs with
      associated researcher offices.

- Next step – LAS to review and analyze what
  works in McCord and determine quantity of
  space required elsewhere.

- Surge Building
  - Separate building, or Phase 1 of Ellington?
  - 20,000 sf to be constructed at Plant Sciences Annex B
    location as indicated in the 2016 master plan update
    (existing building will need to be demolished). Will the
    Tennessee Division of Forestry building need to be
    included?
  - Could be a two-story building, but would require
    elevators, stairs, etc.
  - LAS to investigate is Surge Building shades existing
    Greenhouses
  - Locating across the river unlikely due to proximity to
    hospital and its likely expansion.
  - Metal building with brick base – like the Business
    incubator building.
  - $275/sf – 20,000 gsf
  - Desire not to make larger than currently programmed.

- Corner of Joe Johnson Drive and Chapman Drive
  - Highly visible and an opportunity to make a bold
    statement.
  - Liven up and engage corner.
  - Large quantity of people walking to/from parking
    garage, therefore look at greater distance between the
    streets and building.

- New building
  - Should be more important on the site.
  - The existing trees don’t have to constrain the shape of
    the building.
  - Should review landscape strategies with CRIJA
    Option 1 – shared common/breakout space limits
    sunlight.
  - Option 2 – better courtyard.
  - Revisit 500-student classroom size.
  - Connect to Plant Biotech building at every level.
  - Transparent materials at First Floor would enable
    visitors and students to flow through the building.
  - Full basement/Partial Basement to be determined.
  - Plant Biotech building has room to add a chiller to
    support the new building.
  - Open labs with offices – update diagram.
  - No pitched roof requirement.
• Increase 75-student classroom to 100-student.
• Change standard office size from 150sf to 120sf.
• Atrium – look at numbers for soft/pre-conference space.
• Aramark
  o Food service can spill out into common space.
  o Jeff Maples is contact.
  o Need to determine what type of food service will be provided.
  o Shell and bring utilities to space, then let Aramark fit out space later.

17. Speak with Registrar regarding control/scheduling of classrooms in this building.

18. Should be designed and constructed in accordance with High Performance Building (HPB) requirements. Efficiency and life cycle costs are important considerations.

19. Collegiate Gothic
   - Chancellor to Chancellor level discussion
   - Materials should adhere to standards, and be incorporated to provide continuity with context, and long-term maintainability.
   - Include a statement in the program that the design needs to be reviewed and approved by Campus Planning.

20. Investigate costs and impact of relocating transformer on Chapman Drive.

21. Existing building does have hazardous materials. Transite ductwork, floor, mastic and some tops were identified. Specific quantities, types and locations were not discussed further.

22. Need to find temporary space for current Plant Sciences occupants while Surge Building is under construction.

23. EESERC Assessment
   - Same language may be helpful – Drive to 55 Campaign.
   - What was submitted last year.
   - Summarize and incorporate.

24. THEC
   - Breakdowns to provide net assignable sf/type.
   - Used to format information so that UT can easily find information.
   - LAS not required to help complete forms for this program update.
   - Identify instances where we deviate from the Campus Standards.

25. Construction Schedule
   - Ellington construction start – Fall 2020 (26-month construction schedule)
   - Ellington construction complete – Fall 2022

26. Proposed program update schedule approved:
   - Meeting 2
     - Progress update
     - Potentially include departments
   - Meeting 3

REMARKS

ATTACHMENTS

EESERC Project Assessment Materials, dated July 3, 2017
Program Update comments document, dated November 29, 2017
Program Update – Kickoff meeting agenda notes, dated March 22, 2018
Plan Sciences Annex B Building Program document, undated
DB70 Draft, undated

PREPARED BY   JOHN FUEREDI DATE PREPARED  MARCH 30, 2018

THESE NOTES SUMMARIZE OUR UNDERSTANDING OF THIS MEETING. PROJECT ACTIONS WILL BE BASED ON THESE NOTES. PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.
## Program Update

**Date of Meeting**: April 18, 2018  
**Time**: 8:30 AM – 9:30 AM  
**Meeting Location**: FS Room 101 (2040 Sutherland Avenue)  
**Purpose**: Meeting 2 – Executive Committee

### Participants

- Chancellor Cross, Steve Glafenhein - UTIA
- Thomas Haeuptle, Dan Smith – UT
- John Starr, Becky McDuffie, Joseph Minatta, John Fueredi - LAS

### Items

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<td>The program is to state that the architecture is to be contextual.</td>
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</tr>
<tr>
<td>2</td>
<td></td>
<td>Chris Cimino will not be on the Executive Committee.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Will this document need to be reviewed by Campus Planning and Design prior to final approval? This is to be determined.</td>
<td>UT/UTIA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Priorities and Goals identified in the 2013 Program remain the same.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Fleet parking for Forestry identified in the 2013 Program is no longer required.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>LEED certification is not required. The updated program should highlight that the design must meet sustainable strategies required by the state High Performance Building Requirements. Environmental and energy impacts are important.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 7         |      | The project budget is based on the DB70 that was submitted. Look at opportunities for savings in the Surge building.  
- Pre-circ/Pre-filtered fume hoods – not a preferred product on UTK campus.  
- Casework  
  - "Lab-Light" | All |         |        |
| 8         |      | Schedule (See attached Preliminary Project Schedule) | Info |         |        |
|           |      | Contract Review Period: 6-8 weeks |         |         |        |
|           |      | Surge Space:  
  - Critical path - Needs to be constructed before Ellington is demolished.  
  - Construction completed to accommodate move-in by Summer 2020. |         |         |        |
|           |      | New EESERC |         |         |        |
16 Storage for furniture – 915 current (?) – verify quantity of chairs and tables.
17 McCord – use top floor for lab space after IT is relocated to the Surge building.
18 Surge options:
   - Site needs to be okay.
   - Resulting plan shows parking being removed.
   - Program should only include labs, lab support, offices and building support. Classroom spaces should not be included.
   - Collected good success with Strong/Mosman open lab layout.

REMARKS
ATTACHMENTS
Preliminary Project Schedule

PREPARED BY JOHN FUEREDI DATE PREPARED APRIL 24, 2018

THESE NOTES SUMMARIZE OUR UNDERSTANDING OF THIS MEETING. PROJECT ACTIONS WILL BE BASED ON THESE NOTES. PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.
## Meeting Minutes 2018 Update

### MEETING NOTES

**PROJECT NAME**
- UTIA - Energy and Environmental Science Education Research Center (Ellington Plant Sciences Building)

**Project Update**
- Program Update

**DATE OF MEETING**
- April 18, 2018

**TIME**
- 9:30 AM – 10:00 AM

**MEETING LOCATION**
- FS Room 101 (2040 Sutherland Avenue)

**PARTICIPANTS**
- Dr. Keith Belli, Steve Glafenhein - UTIA
- Thomas Haepptle, Dan Smith – UT
- John Starr, Becky McDuffie, Joseph Minatta, John Fueredi - LAS

**FILE:**
- K:\PROJECTS\10909-00\MEETINGS\180418_Mtg2\mn180418_FWF.docx

**VIA:**
- e-mail

**ITEMS**

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<tr>
<th>ISSUE NO.</th>
<th>ISSUE</th>
<th>ACTION BY</th>
<th>DATE DUE</th>
<th>STATUS</th>
</tr>
</thead>
</table>
| 1         | 35-person conference/seminar room:  
- Need one.  
- Not nationalized.  
- Faculty meetings also held here. | Info |         |        |
| 2         | Program Changes:  
- Departmental Suite:  
  - Added two (2) staff members since 2013 for a total of eight (8).  
  - Need space for a table to meet.  
- Added Student Success Advisor  
  - Staff position embedded in FWF department with faculty  
  - Faculty-sized office (120sf) to meet with students and parents.  
  - Use Technical Office.  
- Large class is up to 60 students now, therefore they can’t use the 40-seat classroom. Can use 75-seat. | Info |         |        |
| 3         | Eight lab spaces are associated with FWF. Ten labs would provide space for growth. | Info |         |        |

**MEETING NOTES**

**PREPARED BY**
- JOHN FUEREDI

**DATE PREPARED**
- APRIL 24, 2018

**ATTRIBUTES**
- Forestry, Wildlife & Fisheries Program Slide

**PREPARED BY**
- JOHN FUEREDI

**DATE PREPARED**
- APRIL 24, 2018

**ATTACHMENTS**
- Forestry, Wildlife & Fisheries Program Slide

**REMARKS**

The notes summarize our understanding of this meeting. Project actions will be based on these notes. Please contact the writer immediately if you do not concur.
**Meeting Minutes 2018 Update**

### Current Program by Department - FWF

<table>
<thead>
<tr>
<th>ISSUE NO.</th>
<th>ISSUE</th>
<th>ACTION BY</th>
<th>DATE DUE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>135-person classrooms (2)</td>
<td>UTIA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Prefer tiered</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Exclusive to CVM, or preference for availability?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Could be shared resource</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>100-person classroom to remain. It will remain a nationalized resource.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Dr. DeNovo confirmed that the updated program would serve the CVM needs well. No other input on program required.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Biosafety</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Offices:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o (7) Office of Laboratory Animal Care (OLAC) previously represented by Patty Cohen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Occupational Health (CHP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o IACUC</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• No discussion that these three groups would move back to CVM, therefore they will stay in the new Ellington.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• Is a Graduate Student room required?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Research Lab</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>o Testing occurs here.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Confirm any other activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Verify Record Room Area required.</td>
<td>Dr. DeNovo</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
REMARKS

ATTACHMENTS

CASNR Classrooms + Classroom Support + Informal Learning Program

PREPARED BY JOHN FUEREDI DATE PREPARED APRIL 24, 2018

THESE NOTES SUMMARIZE OUR UNDERSTANDING OF THIS MEETING. PROJECT ACTIONS WILL BE BASED ON THESE NOTES. PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.

Current Program by Department - Classrooms

<table>
<thead>
<tr>
<th>Department</th>
<th>Space Utilization</th>
<th>Classroom/Conference Rooms</th>
<th>Lecture Hall/Smart Classroom</th>
<th>Lecture Hall/Office</th>
<th>Lab Spaces/Office</th>
<th>Lab Spaces/Office (Other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>200</td>
<td></td>
<td>10</td>
<td>20</td>
<td>10</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>400</td>
<td></td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>500</td>
<td></td>
<td>40</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>600</td>
<td></td>
<td>60</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

*Note 1: Increased from 10 person classrooms
*Note 2: will be indicated classrooms target for 2019 budget.
MEETING NOTES

PROJECT NAME
UTIA - Energy and Environmental Science Education Research Center (Ellington Plant Sciences Building)
Program Update

DATE OF MEETING
April 18, 2018

MEETING LOCATION
FS Room 101 (2040 Sutherland Avenue)

PARTICIPANTS
Dr. Scott Senseman, Steve Glafenhein - UTIA
Thomas Haepfle, Dan Smith – UT
John Starr, Becky McDuffie, Joseph Minatta, John Fueredi - LAS

FILE: K:\PROJECTS\10909-00\MEETINGS\180418_Mtg2\mn180418_PS.docx
VIA: e-mail

ITEMS

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<th>ACTION BY DATE DUE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Reviewed attached program.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Still have four (4) people for the Environmental Design Lab.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Want touchdown space – outside of lab space.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Poster/Printer Room may not be needed in the future.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Faculty meetings: • Up to forty (40) could attend. • 32-person room is sufficient. Six people (of forty) will participate via conference call/Skype.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Reviewed overall project schedule.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Open/shared lab model is acceptable.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Plant pathology lab – may need to be isolated to prevent contamination.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Hub lab is already configured as a shared lab.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Specialized hood system needs to be cleaned easily.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Leave 32-person specialty classroom as shown.</td>
<td>Info</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:

MEETING NOTES

These notes summarize our understanding of this meeting. Project actions will be based on these notes. Please contact the writer immediately if you do not concur.
PROJECT NAME  PROJECT NO.
UTIA - Energy and Environmental Science Education Research Center (Ellington Plant Sciences Building) 10909-00

DATE OF MEETING
April 18, 2018

TIME
11:00 AM – 11:30 AM

MEETING LOCATION
FS Room 101 (2040 Sutherland Avenue)

PARTICIPANTS
Dr. Julie Carrier, Steve Glafenhein - UTIA
Thomas Haasuptle, Dan Smith – UT
John Starr, Becky McDuffie, Joseph Minatta, John Fueredi - LAS

ITEMS

ISSUE NO.  DATE  ISSUE  ACTION BY  DATE DUE  STATUS
1  Reviewed attached program and history. (Dr. Carrier arrived after 2013 program was completed.)  Info
2  Current footprint in Ellington is 6,627 sf.  Info
3  Five (5) researchers who currently have labs. Dr. Carrier to provide the following information for each researcher:
   • What is current square footage of lab space?
   • What is the planned need? (Provide anticipated linear feet of bench.)
   • What are the missions for each lab?
   Dr. Carrier
4  Construction Science
   • New – not included in 2013 program.
   • Will have its own degree, and requires space.
   • Program requirements need to be confirmed.
      o Laboratory to make/test concrete
      o Offices
      o Lab Support to prep and clean equipment, wet lab or other uses
   UTIA
5  BESS may need more space
   • Unassigned space in Ellington?
   • Available space in McCord?
   Other research areas and researchers may be coming within the next 5-6 years. Could potentially use one more bay of lab spaces.
   UTIA

MEETING NOTES

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VIA: e-mail
REMARKS

ATTACHMENTS

Biosystems Engineering & Soil Sciences Current Program

PREPARED BY JOHN FUEREDI DATE PREPARED APRIL 24, 2018

THESE NOTES SUMMARIZE OUR UNDERSTANDING OF THIS MEETING. PROJECT ACTIONS WILL BE BASED ON THESE NOTES. PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.
**PROJECT NAME**  UTIA - Energy and Environmental Science Education Research Center (Ellington Plant Sciences Building)  
**PROJECT NO.**  10909-00  
**DATE OF MEETING**  April 18, 2018  
**TIME**  1:30 PM – 2:00 PM  
**MEETING LOCATION**  FS Room 101 (2040 Sutherland Avenue)  
**PURPOSE**  Meeting 2 – CASNR Classrooms  
**DISTRIBUTION**  Participants  

**FILE:**  
K:\PROJECTS\10909-00\MEETINGS\180418_Mtg2\mn180418_CASNR.docx  
**VIA:**  e-mail

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<th>ISSUE</th>
<th>ACTION BY DATE DUE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Reviewed attached program. Quantities and types are acceptable to Jennifer Hardy.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>500-seat classroom should be subdividable.</td>
<td>Info</td>
<td></td>
</tr>
</tbody>
</table>
| 3         |      | AV budget numbers that UT are:  
- $25k for a small room  
- $125-250k for a large room | Info |        |
| 4         |      | If a classroom is nationalized, the AV equipment will be selected from standard equipment, and maintained by UTK. | Info |        |
| 5         |      | LAS to send a list of classrooms to Jennifer. | LAS |        |
| 6         |      | CoVM is losing a 129-person classroom in the Brehm Animal Science Building. | Info |        |
| 7         |      | Detailed discussions about AV requirements will be required during the design phase. | Info |        |
| 8         |      | 100-person classroom seating layout to be determined during design.  
- TEAL layout is not successful on campus yet.  
- Training tables and loose chairs are common.  
- Prefer not tiered. | Info |        |
| 9         |      | 125-person classroom will not exist nearby after Ellington is demolished. | Info |        |
| 10        |      | Dr. Stier stated that the Honors student classroom (CASNR) is tracking as two separate Honors classrooms. | Info |        |

**MEETING NOTES**

- College has continued to grow enrollment with anticipated growth of 15% over the next five years. Want facilities to meet current and projected needs.  
- College of Veterinary Medicine classroom in the Print Shop building will remain.  
- Important to have gathering and collaboration spaces in the building.  
- Equipment rooms and control panel locations need to be quantified, included and coordinated during the design phase.  
- A warming kitchen is currently included in the program.  
- No permanent stage is anticipated in any of the classrooms.  
- 100-person classroom remains in the program. (Replaces original 75-person classroom.)  
- ADA and security control/access are important.  
- CoVM control access, technology and scheduling for their classrooms.  
- Building access for Ellington is to be determined. Not as restrictive as CoVM, but should be accessible and usable by non-CoVM students.  
- Enrollment growth is important and should be considered in design.  
- LAS to share spreadsheet and diagrams of classrooms.  
- Flat slab classrooms need to accommodate Node chairs (campus standard.).  

**REMARKS**

- College has continued to grow enrollment with anticipated growth of 15% over the next five years. Want facilities to meet current and projected needs.  
- College of Veterinary Medicine classroom in the Print Shop building will remain.  
- Important to have gathering and collaboration spaces in the building.  
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- No permanent stage is anticipated in any of the classrooms.  
- 100-person classroom remains in the program. (Replaces original 75-person classroom.)  
- ADA and security control/access are important.  
- CoVM control access, technology and scheduling for their classrooms.  
- Building access for Ellington is to be determined. Not as restrictive as CoVM, but should be accessible and usable by non-CoVM students.  
- Enrollment growth is important and should be considered in design.  
- LAS to share spreadsheet and diagrams of classrooms.  
- Flat slab classrooms need to accommodate Node chairs (campus standard.).  

**ATTACHMENTS**

- CASNR Classrooms Current Program sheet.

**PREPARED BY**  JOHN FUEREDI  DATE PREPARED  APRIL 26, 2018  

These notes summarize our understanding of this meeting. Project actions will be based on these notes. Please contact the writer immediately if you do not concur.
## Current Program by Department - Classrooms

<table>
<thead>
<tr>
<th>ROOM</th>
<th>DESCRIPTION</th>
<th>MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

### 1.4 Classroom + Classroom Support + National Learning

#### a) Classrooms

<table>
<thead>
<tr>
<th>ROOM</th>
<th>LOCATION</th>
<th>MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

- **Box:** 2021
- **500 Seat Classroom:** 250
- **300 Seat Classroom:** 200
- **150 Seat Classroom:** 100
- **100 Seat Classroom:** 50

#### b) Support

<table>
<thead>
<tr>
<th>ROOM</th>
<th>MEASUREMENT</th>
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</thead>
<tbody>
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### 1.5 Instructional Learning

<table>
<thead>
<tr>
<th>ROOM</th>
<th>MEASUREMENT</th>
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</thead>
<tbody>
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### 1.6 Other Learning

<table>
<thead>
<tr>
<th>ROOM</th>
<th>MEASUREMENT</th>
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### 1.7 Administrative Support

<table>
<thead>
<tr>
<th>ROOM</th>
<th>MEASUREMENT</th>
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<th>DATE DUE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Reviewed attached program.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Two offices for required.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Lori Cole replaced Patty Cohen.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Waste Room (included in 3.1 Building Support Spaces) quantity and size is good. Specific needs and lessons-learned should be considered during design, including: Eyewash and emergency shower testing, Separation, Waste accumulation, Disposal of waste, Storage.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Chemical Storage for lab furnishings needs to be addressed as a standard. Hardware (shelf brackets, hingies, etc.) should be rated for exposure to acids.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Emergency showers should not have floor drains.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Remarks

- **ATTACHMENTS**

  1175 Peachtree Street NE, Suite 2400
  Atlanta, GA 30361
  877-029-1400
  Lord Aeck Sargent.com
Biosafety and Building Support Current Program

PREPARED BY  JOHN FUEREDI     DATE PREPARED  APRIL 24, 2018

THESE NOTES SUMMARIZE OUR UNDERSTANDING OF THIS MEETING. PROJECT ACTIONS WILL BE BASED ON THESE NOTES.
PLEASE CONTACT THE WRITER IMMEDIATELY IF YOU DO NOT CONCUR.

407 Meeting Minutes 2018 Update
**PROJECT NAME**
UTIA - Energy and Environmental Science Education Research Center (Ellington Plant Sciences Building)

**DATE OF MEETING**
April 25, 2018

**TIME**
1:30 PM – 2:00 PM

**PURPOSE**
Meeting 2 – Entomology & Plant Pathology

**PARTICIPANTS**
Dr. Dewayne Shoemaker, Steve Glafenhein - UTIA
Dan Smith – UT
Becky McDuffie, Joseph Minatta, John Fueredi - LAS
Thomas Haeuptle – UT
John Starr - LAS

**FILE:**
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**ITEMS**

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<th>DATE DUE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Reviewed program summary sheet.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>LAS to compare 2013 program with updated department spreadsheet provided by Dan Smith.</td>
<td>LAS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 3         |      | PSEP Classroom
1. 2013 program based on specific computers used for actual testing.
2. Are these still used? Dr. Shoemaker to verify.
3. If not, can the classroom be shared? Dr. Shoemaker to confirm. | Info | Dr. S. | Dr. S. |
| 4         |      | Five new faculty members have been hired, and one more will be hired. This will increase the quantity of faculty offices shown in the 2013 program from 8 to 9. | Info |         |        |
| 5         |      | Increase research lab from 3 to 4. | Info |         |        |
| 6         |      | Increase research support from 2 to 3. | Info |         |        |
| 7         |      | Dr. Shoemaker to verify existing and future requirements. | Info | Dr. S. |        |
| 8         |      | Plant Biotech – UTIA to identify any spaces in the existing building that will be vacated upon completion of new Ellington, and can be reused. | UTIA |         |        |
| 9         |      | Existing classrooms – 3 @ 30-persons each. | Info |         |        |
| 10        |      | Largest class is 89. | Info |         |        |
| 11        |      | Open lab layout and modules identified in program document. | Info |         |        |
### Current Program by Department - EPS

<table>
<thead>
<tr>
<th>Department</th>
<th>Office</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Tennessee - Institute of Agriculture - Knoxville</td>
<td>407 Meeting Minutes 2018 Update</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Department</th>
<th>Office</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Total</th>
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<tbody>
<tr>
<td>University of Tennessee - Institute of Agriculture - Knoxville</td>
<td>407 Meeting Minutes 2018 Update</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Program Update

**PROJECT NAME**  UTIA - Energy and Environmental Science Education Research Center (Ellington Plant Sciences Building)

**PROJECT NO.**  10909-00

**DATE OF MEETING**  April 18, 2018

**TIME**  2:00 PM – 3:00 PM

**MEETING LOCATION**  FS Room 101 (2040 Sutherland Avenue)

**PURPOSE**  Meeting 2 – Building & Site Support

**PARTICIPANTS**

- Steve Glafenhein - UTIA
- Terry Ledford, Roy Warwick, Dan Smith – UT
- John Starr, Becky McDuffie, Joseph Minatta, John Fueredi – LAS
- Thomas Haeuptle - UT
- Thomas Haeuptle - UT

**FILE**  K:\PROJECTS\10909-00\MEETINGS\180418_Mtg2\180418_Building_SiteSupport.docx

**DISTRIBUTION**  e-mail

**ITEMS**

<table>
<thead>
<tr>
<th>ISSUE NO</th>
<th>ISSUE</th>
<th>ACTION BY</th>
<th>DATE DUE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Building standard requirements and site utilities are unchanged from 2013.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Electrical switches located along Joe Johnson Drive are for all high voltage serving the Ag campus. (Previously misidentified as transformers.)</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Relocation of replacement of switches would require:</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Minimum 24-hour downtime during changeover.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Logistics for all affected buildings.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Current proximity to the existing building is a concern during demolition and construction of Ellington.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Propose purchase new switches and locate in adjacent Brehm Animal Sciences parking lot, and transfer to this location prior to demolition of Ellington.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Higher initial cost – requires purchase of new switches.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Logistics and coordinated scheduling required.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>A steam vault is located in the adjacent parking lot.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Water supply – a fragile line is located nearby.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Further investigation and clarification required for design.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Arc flash resistant gear is required for all research and food service buildings per campus standards.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Arc quenching technology is not required.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Two water services are required.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Dan Smith will review and update the MEPFP narratives.</td>
<td>DS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**

These notes summarize our understanding of this meeting. Project actions will be based on these notes. Please contact the writer immediately if you do not concur.

**ATTACHMENTS**

- PREPARED BY  JOHN FUEREDI  DATE PREPARED  APRIL 26, 2018

1175 Peachtree Street NE, Suite 2400
Atlanta, GA 30309
677-929-1400
LordAeckSargent.com
## Meeting Notes

### Project Name
UTIA - Energy and Environmental Science Education Research Center (Ellington Plant Sciences Building)

### Program Update

#### Meeting Details
- **Date of Meeting:** April 18, 2018
- **Time:** 12:00 PM – 12:30 PM
- **Meeting Location:** FS Room 101 (2040 Sutherland Avenue)
- **Purpose:** Meeting 2 – Stormwater

#### Participants
- Steve Glafenhein - UTIA
- Garrett Ferry, Thomas Haeuptle, Dan Smith – UT
- John Starr, Becky McDuffie, Joseph Minatta, John Fueredi - LAS

#### File
- **File:** K:\PROJECTS\10909-00\MEETINGS\180418_Mtg2\mn180418_Stormwater.docx
- **Via:** e-mail

### Items

<table>
<thead>
<tr>
<th>Issue No.</th>
<th>Date</th>
<th>Issue</th>
<th>Action by Date Due</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Per UT requirements, the site must manage the first 1&quot; of rainfall during a 72-hour period on the building site.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Irrigation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Both Ellington and Surge building sites have limited areas for planting on grade.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Could be used for a green roof.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Toilet flushing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cooling tower – not a viable option because the current plan is to tie into the chiller plant loop.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Program document should reference the UT stormwater standards (stormwater.utk.edu), and that the stormwater management must be addressed on site. Options include:</td>
<td>LAS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Vault under the building.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Green Roof</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Calculations must include impervious area.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>UT is updating the standards this year, therefore the design date may affect which standards are in effect.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Both Ellington and the Surge buildings are considered one project, and are therefore cumulative in quantity.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Garrett mentioned that the requirements prohibit new buildings within 60' of the closest bank of the river (all it’s highest point). It was later confirmed that the closest (east) wall of the existing building is approximately 120' from the water.</td>
<td>Info</td>
<td></td>
</tr>
</tbody>
</table>
### Program Update

**Meeting 2 – Campus Master Plan**

**Participants**
- Steve Glafenhein - UTIA
- Bethany Morris, Dan Smith – UT
- John Starr, Becky McDuffie, Joseph Minatta, John Fueredi - LAS
- Thomas Haeuptle - UT

**Date of Meeting**
April 18, 2018

**Time**
3:00 PM – 3:30 PM

**Meeting Location**
FS Room 101 (2040 Sutherland Avenue)

**File**
K:\PROJECTS\10909-00\MEETINGS\180418_Mtg2\mn180418_CampusMasterPlan.docx

**Via**
e-mail

<table>
<thead>
<tr>
<th>ISSUE NO.</th>
<th>DATE</th>
<th>ISSUE</th>
<th>ACTION BY DATE DUE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>During the design phase, the departments need to meet and discuss who will go where.</td>
<td>Info</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Dan and/or Tiffany to provide updated existing space summary.</td>
<td>UT</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>IT department will be relocated to the Surge building. UT to provide quantity of people and offices.</td>
<td>UT</td>
<td></td>
</tr>
</tbody>
</table>
| 4         |      | Surge building:  
- Is in the same location as 2013 document, however size and proportions have changed.  
- 2-story option is preferred.  
- No classrooms included in this building.  
- Laboratories, lab support, offices and building support spaced only.  
- Simple box with contextual materials (metal panels, glass, limited brick. | Info   |        |
| 5         |      | New Ellington building:  
- Tree zone to remain.  
- Conference center location shifted.  
- Additional options provided.  
- Courtyard element remains.  
- Respect Joe Johnson Drive – circulation and entry.  
- Contextual building - brick, mortar, other building materials to match campus standard.  
- Collegiate Gothic is not a requirement.  
- Not required to maintain mid-block crossing of Joe Johnson.  
- Not likely to add a light. | Info   |        |

**Remarks**
- Bethany to walk site with Campus Arborist in the next couple of weeks to review existing trees.

**Prepared By**
JOHN FUEREDI  
DATE PREPARED  APRIL 26, 2018

**These notes summarize our understanding of this meeting. Project actions will be based on these notes.**

**Please contact the writer immediately if you do not concur.**

---

**Meeting Notes**

1175 Peachtree Street NE, Suite 2400
Atlanta, GA 30309
677-929-1400
LordAeckSargent.com

Energy + Environmental Science Education Research Center
University of Tennessee - Institute of Agriculture - Knoxville

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Page 2
<table>
<thead>
<tr>
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<th>ISSUE</th>
<th>ACTION BY</th>
<th>DATE DUE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Provided general overview of meetings.</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Construction procurement method to be discussed.</td>
<td>UT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Program Update Schedule:</td>
<td>LAS/UTIA</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td></td>
<td>05/17</td>
<td>LAS send pdf of draft version of the Final Report</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>05/24</td>
<td>UTIA and UTK provide comments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>All to review and determine if a final on-site meeting is required.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dan Smith to present final report.</td>
<td>DB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>John Starr to reconcile Total Project Schedule with Steve.</td>
<td>JF/SG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Surge Building</td>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 months</td>
<td>Design and approval.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 months</td>
<td>Bidding and negotiation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction:</td>
<td>Surge building</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electrical switch</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>McCord</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FFE (including AV) procurement and installation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Occupant move-in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Confirm if specialty equipment vendors will pack, relocate and start-up existing equipment.</td>
<td>UT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

These notes summarize our understanding of this meeting. Project actions will be based on these notes. Please contact the writer immediately if you do not concur.
408 Department Questionnaires - BESS

UTC Energy and Environmental Science Education and Research Center
Department of Biosystems Engineering and Soil Science

Eric C. Drumm, Ph.D., P.E.
Professor and Head

Jaehoon Lee, Ph.D., Joanne Logan, Ph.D. and John Wilkerson, Ph.D.

Department of Biosystems Engineering and Soil Science
The University of Tennessee
2506 E. J. Chapman Drive
Knoxville, TN 37996-4531

Phone: (865) 974-7266
email: edrumm@utk.edu

---

Strategic Plan
We do not have an active strategic plan.

Anticipated reorganization
With a high number of senior level faculty members, we anticipate the need for more high level laboratory research space, with a growing emphasis on biological sciences and engineering. Much of the Biosystems Engineering research and teaching functions will remain in the BESS lab building, with the new facility primarily accommodating the Environmental and Soil Science activities.

Department’s priorities for this project
The priority if to obtain high quality research and teaching laboratories that are flexible enough to allow future growth and repurposing of our research activities as the department evolves to serve the needs of the next 30 years. As the department with the Environmental Science program at UT, we also desire to create a sense of departmental community or culture by consolidating similar research and teaching activities into the same space.

---

Departmental Mission
Our programs encompass the full range of the Land Grant University mission - teaching, research, outreach, and service - and are administered by the College of Agricultural Sciences and Natural Resources, UT AgResearch, and University of Tennessee Extension. The department works closely with the College of Engineering in its engineering-related teaching pursuits. Our people are a unique mix - a faculty of biosystems engineers, soil scientists, and a bioclimatologist, together with a gifted technical support staff and efficient office staff.

We offer two bachelor’s degrees in four distinct areas that will prepare you to work with environmental, ecological, biological, or agricultural systems (Departmental website http://bioengr.ag.utk.edu/).

Biosystems Engineering
Biosystems Engineers work with natural systems and integrate knowledge of biology, chemistry, physics, and engineering to efficiently produce and process safe, plentiful, high quality food and fiber while conserving natural resources and protecting the environment. We also have a pre-professional concentration for students interested in pursuing law or medicine.

Soil Science
Soil Scientists learn to evaluate soil characteristics in the field and lab, using industry-standard tests and techniques. They learn to survey, identify, classify, and map soils, and to predict the suitability of a soil for specific uses.

Environmental Science
Environmental Scientists use modern technologies such as geographical information systems, global positioning systems, and computer applications in managing natural resources. Their knowledge of basic natural sciences, ecology and soil sciences combined with an understanding of the societal issues related to the environment are useful tools.

Biosystems Technology
This science and technology based curriculum offers four concentrations for students interested in Agricultural Systems Technology, Conservation Agriculture & Environmental Sustainability, Construction Technology, Land Surveying Technology, and off-Road Vehicle Technology.
Historical Data and Growth Projections

In the two figures below are the undergraduate and graduate student enrollment numbers, along with anticipated growth over the next 5-10 years. Both programs are expected to reach the estimated limit on the number of students that can be accommodated with current faculty teaching lines.

Comparison of departmental contact hours with vision for future learning environment.

Compare your department’s estimate of percentage of contact hours in the following major classroom types with your department’s vision of desired future learning environments.
### List of Research Labs and Support

<table>
<thead>
<tr>
<th>Room #</th>
<th>Ft²</th>
<th># of PIs</th>
<th>Functions</th>
<th>Special Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>105</td>
<td></td>
<td>1</td>
<td>Biogeochemistry</td>
<td></td>
</tr>
<tr>
<td>116</td>
<td></td>
<td>5</td>
<td>Teaching Lab</td>
<td>General wet chemistry, instructional tech</td>
</tr>
<tr>
<td>301</td>
<td>447</td>
<td>2</td>
<td>Pedology &amp; Mineralogy</td>
<td></td>
</tr>
<tr>
<td>303</td>
<td>440</td>
<td>1</td>
<td>Soil Carbon &amp; Ag Sustainability</td>
<td></td>
</tr>
<tr>
<td>304, 305</td>
<td>230</td>
<td>10</td>
<td>Soil sample preparation</td>
<td>Dust control</td>
</tr>
<tr>
<td>311</td>
<td>154</td>
<td>10</td>
<td>Soil analyses, wet chemistry</td>
<td></td>
</tr>
<tr>
<td>314</td>
<td>594</td>
<td>1</td>
<td>Soil chemistry</td>
<td></td>
</tr>
<tr>
<td>315</td>
<td>468</td>
<td>1</td>
<td>Soil survey &amp; characterization</td>
<td></td>
</tr>
<tr>
<td>317</td>
<td>455</td>
<td>2</td>
<td>Environmental soil &amp; remediation</td>
<td></td>
</tr>
<tr>
<td>329</td>
<td>567</td>
<td>3</td>
<td>Climatology, nutrient management</td>
<td></td>
</tr>
<tr>
<td>333</td>
<td>455</td>
<td>1</td>
<td>Soil physics &amp; hydrology</td>
<td></td>
</tr>
</tbody>
</table>

*All the labs need fume hood and basic lab equipment such as vacuum, air, gas, etc.

### List of teaching rooms currently used by BESS in Ellington

<table>
<thead>
<tr>
<th>Room #</th>
<th>Ft²</th>
<th># of PIs</th>
<th>Functions</th>
<th>Special Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>123</td>
<td></td>
<td>5</td>
<td>Teaching both under-, and graduate classes</td>
<td></td>
</tr>
<tr>
<td>124</td>
<td></td>
<td>5</td>
<td>Teaching both under-, and graduate classes</td>
<td></td>
</tr>
<tr>
<td>125</td>
<td></td>
<td>3</td>
<td>Teaching mostly for large (&lt; 70) classes</td>
<td></td>
</tr>
</tbody>
</table>

### List of offices currently occupied by BESS in Ellington

<table>
<thead>
<tr>
<th>Room #</th>
<th>Ft²</th>
<th># of PIs</th>
<th>Functions</th>
<th>Special Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>326, 327</td>
<td>10</td>
<td></td>
<td>Soil map drafting &amp; storage</td>
<td></td>
</tr>
<tr>
<td>340</td>
<td></td>
<td>1</td>
<td>Research associates</td>
<td></td>
</tr>
<tr>
<td>352</td>
<td></td>
<td>1</td>
<td>Emeriti faculty</td>
<td></td>
</tr>
<tr>
<td>377</td>
<td></td>
<td>2</td>
<td>Teaching faculty</td>
<td></td>
</tr>
</tbody>
</table>
408 Department Questionnaires - BESS [cont]

**Important attributes and considerations for new building**

- Loading, prep and storage room for soil and other environmental samples: near loading dock, prep room generates considerable amount of dust, multiple walk-in coolers (e.g., one around 4 C° and another for below freezing), sturdy shelves for soil sample storage
- Shower room with lockers
- Environmental room: capable of wide range of temperature, light, and humidity
- Central environmental analysis laboratory hub: house a suite of analytical instruments for various routine analyses (many instruments in room 301 & 311 needs to go here).
- Office space for the NRCS (Natural Resources Conservation Service of the US Dept of Agriculture). We currently allow them to use our laboratory, and they provide undergraduate internship and research opportunities for our students. They currently lease office space in Clinton, TN, and have expressed interest in identifying approximated 1500 ft² of office space to facilitate collaboration. The NRCS Liaison is a member of the BESS faculty.
- Student organization space: meeting and office space for the following student organizations: ASABE, Soil Plant and Environment Club, Soil Judging Team, and Construction Science Student Club. This space might be configured at a common meeting area, with some dedicated space for each of the organizations adorning this common space.

**Space needs based on growth projection**

- BESS currently has 20 Adjunct, Research, Joint faculty who are actively working on various topics of research and education activities. These non-regular faculty members currently do not have any lab and office space and are in great need of space for continuing their excellence.
- One of our faculty members, Dr. Phillip Ye, is also requesting a “biofuel lab” in the new Energy and Environmental Science, Education, Research Center. His research fits very well with the mission of the new Center. Brief justification and needs are:

  Philip Ye focuses on biomass conversion for biofuels and bio-chemicals. On one side, his research requires fabrication and construction of chemical reactors and handling of biomass, often causing dusty environment. On the other side, chemical products produced by the reactors need to be immediately analyzed (or online analyzed) and the waste gases (often toxic) need to be vented. Some of the analytical instruments are very sensitive to the dusty environment. Currently, all the works are done in one big room equipped with only one small fume hood. Co-workers in his lab often take turns to use the fume hood, significantly hindering the research progress. Storage of chemicals and shortage of fume hood space are the major issues.

Ideal lab space for him would be 2 adjacent rooms: one is for dusty fabrication/construction of chemical reactors (high temperature and pressure) and handling of biomass; another would be like a wet chemistry lab to host analytical instruments and to store chemicals. Both rooms should have shop air and vacuum, fume hoods, and/or gas venting. Three-phase 210V power supply is needed for some of his instruments.
Departmental Information

DEPARTMENTAL DATA
DEPARTMENT/PROGRAM: Biosecurity
DIRECTOR/HEAD: Brian Ranger

CONTACT: Jessica Hoefler
PHONE: 973-448-5574
E-MAIL: jhoefler@utk.edu
INFORMATION DATE: 9/12/12

Provide a short narrative of the purpose or mission of your department. (Incorporate relevant compliance requirements.)

Does your department have a strategic plan for the near term future? If yes, please attach or insert hyperlink.

Do you anticipate any significant reorganization or change (administrative, research, or academic) within the next five years? Yes/No/Other. If yes, describe below.

No

List your department's priorities or goals for this project:

1. Alleviate staff shortages
2. Research space

Historical Data & Growth Projections: Considering the history of the past 3 years, how much growth do you anticipate in the next 5-10 years, numbers of faculty, staff, researchers, students, contact hours, etc?

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Full-Time Faculty</td>
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<tr>
<td>Full-Time Principal Investigator</td>
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<tr>
<td>Full-Time Researcher</td>
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<tr>
<td>Part-Time Lecturer</td>
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<tr>
<td>Full Time Lecturer</td>
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<tr>
<td>Emeriti Faculty</td>
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<tr>
<td>Graduate TA's</td>
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<tr>
<td>Staff TOTAL???</td>
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<tr>
<td>Contact Hours 100 Level</td>
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<tr>
<td>Contact Hours 200 Level</td>
<td></td>
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</tr>
</tbody>
</table>

Other: [insert description]

Formal Learning Environment Type

<table>
<thead>
<tr>
<th>Current % of contact hours</th>
<th>Future Target % of Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar Room; single conference style table, movable chairs</td>
<td>15%</td>
</tr>
<tr>
<td>Small Lecture Classroom: flat floor, moveable tablet-arm chairs or individual student desks</td>
<td>25%</td>
</tr>
<tr>
<td>Flexible Classroom: flat floor, 1-2 person moveable tables, task chairs, allows multiple arrangements for lecture, group discussion, group work</td>
<td></td>
</tr>
<tr>
<td>Technology Enabled Active Learning (TEAL) Classroom: flat floor, 8 person round tables for 3 groups of 3 student teams with computer for each 3 person group, task chairs; primarily designed for group work, technology allows faculty to show any groups work to the entire room</td>
<td></td>
</tr>
<tr>
<td>Case Study Room: tiered floor, fixed tables facing forward and task chairs or individual tablet-arm chairs</td>
<td></td>
</tr>
<tr>
<td>Lecture Hall: tiered floor, fixed tables facing forward and task chairs or individual tablet-arm chairs</td>
<td></td>
</tr>
<tr>
<td>Specialty Classroom or Teaching Lab: [insert description]</td>
<td>15%</td>
</tr>
</tbody>
</table>

[SHOULD WE INCLUDE A TABLE WITH LAB TYPES - RELATED TO ABOVE?]

Need small lab space for small, likely accident, biological and chemical waste, storage, and other support/teaching related space. May be shared with other.
Department Questionnaires - Biosafety [cont]

UTK Energy and Environmental Science Education Research Center
Programming Questionnaire
August 20, 2012

Attach a list of current research labs, lab support, classrooms and specialty learning environments used by your department. Include size, maximum number of researchers, student seats, and utilization data for past academic year.

Identifying existing laboratories, classrooms or learning spaces (building name and room numbers) that are thought to be the best research / learning spaces for your department:

From faculty's perspective; describe why:

From students' perspective; describe why:

What are the top complaints about laboratories / classrooms:

By faculty / researchers:
- too small
- EPS 332: Supports Bacteria, DLH, + UTHSC safety - not large enough for 3 groups

By students:

Identify current and desired instructional technologies:

<table>
<thead>
<tr>
<th>Technology</th>
<th>Currently Used</th>
<th>Future Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Board</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Projector/Screen or Digital Screen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two or more digital projectors/screens or digital screens</td>
<td></td>
<td></td>
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<tr>
<td>Fixed computers with special software</td>
<td></td>
<td></td>
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<tr>
<td>Audio recording &amp; archiving of classroom sessions</td>
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<tr>
<td>Video recording &amp; archiving of classroom sessions</td>
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<tr>
<td>Document Camera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pen-based &quot;telescoping&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (describe)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How is classroom scheduling done? Should the process change?

The CVM or UTHSC space assignment system, effective 4/5.

List / describe the spaces, other than research laboratories, classrooms and offices, that are needed by your department or that you believe are needed in this new facility (include number and size, quantity of students or staff accommodated, major furniture and equipment, typical time and duration of use each day, potential to share with other departments) (examples include writing/filing labs, student association space, informal student study areas, print/publishing center, cafeteria service, bookstore, computer lab, faculty resource center, technology support center, teaching innovation and instructional media center, departmental library/research center)

Other than typical office and classroom furniture, identify special equipment or furniture needed or existing that supports your department's mission.

Add any other information that you believe is important to this strategic planning effort.

Please share personnel / support resources at IACUC, so adjacency is important. Work closely with DLH / Occupational Health - ideal if these safety / compliance groups could be located. Could share lab break room, conferencing / teaching room resources of these groups.

Lund Arch: Sergert Architects/PROJECTOR/2019/USPOS/ProjectQuestionnaireEDUC RocCisQco.Hcs.docPage 9 of 10

Energy + Environmental Science Education Research Center
University of Tennessee - Institute of Agriculture - Knoxville

199
Provide a short narrative of the purpose or mission of your department (insert hyperlink if this information is web-based).

Our mission is to advance science and provide information to improve the sustainability of fixed and fiber production, protection of natural resources, and the lives of people in Tennessee and beyond. We will fulfill our mission through innovative research, knowledge-based outreach, and excellence in teaching, while adhering to our core values of integrity, equality, and respect in our interactions with others.

Do your department have a strategic plan for the near term future? If yes, please attach or insert hyperlink.

The department does have an strategic plan and although we are in the process of modifying it, we have delayed release of the final version until a new department head is chosen. It is anticipated that the department will request 4 new faculty positions in the next few years and will need space for them and additional post-docs in the new facility. Our web site is located at http://appserv.earl.utm.edu/default.html.

Do you anticipate any significant reorganization or change (administrative, research or academic) within the next few years... Yes / No... If yes, describe below.

Yes, we will hire a new department head within the year.

List your department’s/group’s priorities or goals for this project:

To at least maintain square footage occupied by, and provide improved lab and office space for, all EPP personnel currently in Ellington; to provide state-of-the-art teaching classrooms and labs with adequate storage space; to recognize Extension storage space and provide a new workroom/storage space; to add a shower/locker room and laundry room to the new facility; to provide lab space for productive researchers lacking space in PSRB.

Historical Data & Growth Projections: Considering the history of the past 3 years, how much growth do you anticipate in the next 5-10 years, numbers of faculty/staff, researchers, students, contact hours, etc.

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<tbody>
<tr>
<td>Full-Time Faculty *</td>
<td>25</td>
<td>24</td>
<td>25</td>
<td>30</td>
<td>32</td>
<td>34</td>
<td>36</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Full-Time Principal Investigator/Scholars</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<td>4</td>
<td>4</td>
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<tr>
<td>Full-Time Researchers *</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>20</td>
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<tr>
<td>Part-Time Lecturer</td>
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<tr>
<td>Full-time Faculty</td>
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<tr>
<td>Emeritus Faculty</td>
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<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Graduate 1st Year</td>
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<td>30</td>
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<tr>
<td>Undergraduate Freshmen</td>
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<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td>Contact Hours 100 level</td>
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<tr>
<td>Contact Hours 200 level</td>
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</tbody>
</table>

*: Extensive specialism and research faculty; **: Ph.D. name in Faculty

[SHOULD WE INCLUDE A TABLE WITH LAB TYPES – RELATED TO ABOVE.]
UTK Energy and Environmental Science Education Research Center
Programming Questionnaire
August 20, 2012

Attach a list of current research labs, lab support, classrooms and specialty learning environments used by your department. Include size, maximum number of researchers, student seats, and utilization data for past academic year. See attached files: Entomology and Plant Pathology Space in Ellington 2012 and Suggestions EESERC.

Identify existing laboratories, classrooms or learning spaces (building name and room number) that are thought to be the best research/learning spaces for your department:

- From faculty's perspective; describe why:
- From students' perspective; describe why:

What are the top complaints about laboratories/classrooms:

- By faculty / researchers: Research labs; poor lighting, little control over temperature, electrical fluctuations, damaging equipment (computers).
- By students: Classroom labs too small (limits class size), no storage, little control over temperature, no place to prepare

Identify current and desired instructional technologies:

<table>
<thead>
<tr>
<th>Currently Used</th>
<th>Future Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Board</td>
<td>X</td>
</tr>
<tr>
<td>Glass Board</td>
<td>X</td>
</tr>
<tr>
<td>Digital Projector/Screen or Digital Screen</td>
<td>X</td>
</tr>
<tr>
<td>Two or more digital projectors/screens or digital screens</td>
<td>X</td>
</tr>
<tr>
<td>Fixed computers with special software</td>
<td>X</td>
</tr>
<tr>
<td>Audio recording &amp; archiving of classroom sessions</td>
<td>X</td>
</tr>
<tr>
<td>Video recording &amp; archiving of classroom sessions</td>
<td>X</td>
</tr>
<tr>
<td>Document Camera</td>
<td>X</td>
</tr>
<tr>
<td>Pen-based “telestrating”</td>
<td>X</td>
</tr>
<tr>
<td>Other (describe)</td>
<td>Smart Board</td>
</tr>
<tr>
<td>Wireless Projector</td>
<td>X</td>
</tr>
</tbody>
</table>

How is classroom scheduling done? Should the process change?

Needs to be changed: Currently one faculty member does it for our department.

List/ describe the spaces, other than research labs, classrooms and offices, that are needed by your department or that you believe are needed in this new facility (include number and sizes, quantity of students or staff accommodated, major furniture and equipment, typical time and duration of use each day, potential to share with other departments).

(examples include writing/tutoring labs, student association space, informal student study areas, print/copy center, café/food service, bookstore, computer lab, faculty resource center, technology support center, teaching innovation lab/instructional media center, departmental library/research center)

Lord Aeck Sargent Architecture: /PROJECTS/10214-09/PRD/PRD/Prop-Questionnaire/EESERC_questionnaire.docx Page 9 of 10
<table>
<thead>
<tr>
<th>Room/Space</th>
<th>Utilization</th>
<th>Faculty/Extension Specialist Responsible</th>
<th>Staff/Student Utilizing Space</th>
<th>Approximate Sq. Ft.</th>
<th>Additional future needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Mechanical equipment room (closing of plot barn required much of our large, bulky equipment (power sprayer, back sprayers, etc.) to be stored here)</td>
<td>Karen Vail, Darrell Hensley (11 cabinets for PSEP), Paris Lambdin, etc.</td>
<td></td>
<td></td>
<td>Need area to store large and bulky equipment.</td>
</tr>
<tr>
<td>16</td>
<td>Ag. Biol. Storage (EPP Storage) – Extension Publications, Dept. Displays, etc.</td>
<td>All</td>
<td></td>
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</tr>
<tr>
<td>Outside 16</td>
<td>PSEP storage</td>
<td></td>
<td>3 large cabinets each 36&quot; X 24&quot; X 6.5 ft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Lab Classroom – capacity 18</td>
<td>530 IPM (Jerome Grant); 321 Economic Entomology (Paris Lambdin); 325 Veterinary Entomology (Reid Gerhardt); 523 Field Crops and Vegetable Insects (Jerome Grant)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

106 | Extension Diagnostics and Communications Exotic (EAB, CAPS) Pest Survey and Detection project work area (Long); includes insect trap setup area, dirty bench with microscope area for evaluation and identification of insect and disease field specimens, clean bench space for preparation of educational and outreach materials, such as disease and insect displays. Storage educational materials, reference materials for exotic insects, storage of Cornell drawers and insect trays and vials with exotic pest catches from survey and detection work (Long). Distance Diagnostics area with computers, compound and stereo-microscope setup with digital camera. (Hensley) | Hensley, Long, and other Extension personnel | Summer workers | 24.5 ft X 24 ft | Need a dirty lab work area (several faculty require this dirty space) to work with field soil and plant material, sink area with hot, cold and distilled water, Large walk-in cooler and freezer or refrigerator with freezer for holding plant material and insect pheromone. Need storage area for exotic pest survey reference materials and insects (perhaps extra cabinet storage in the insect museum), laboratory supplies, educational and outreach materials, and pest educational literature and handouts. Chemical fume hood needed. Also need a clean lab microscope work area, plus a separate diagnostic laboratory work table set up for several microscopes and digital camera units and computer for access to UT E&PP Distance Diagnostics Database. Soil sink/trap needed (see north greenhouse). |
<table>
<thead>
<tr>
<th>Page</th>
<th>Location</th>
<th>Instructor(s)</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>Insect Museum</td>
<td>Paris Lambdin, Dave Paulsen</td>
<td>Need to expand this space to store specimens from biodiversity studies in the Smokies, invasive species collections, and all type specimens from published research studies. Humidity control important for this space.</td>
</tr>
<tr>
<td>123</td>
<td>Classroom</td>
<td>505 Mycology (Bonnie Ownley); 515 Physiology of Plant Disease (Kimberly Gwinn); 520 Plant Parasitic Nematodes (Ernest Bernard); 521 Plant Virology (Reza Hajimorad)</td>
<td>Needs to accommodate a testing area for 10-12 people monthly and others training/testing upon request.</td>
</tr>
<tr>
<td>124</td>
<td>Classroom</td>
<td>541 &amp; 640 Seminar (Kimberly Gwinn)</td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>Pesticide Safety Education Program Testing Center</td>
<td>Darrell Hensley, Josh Anderson</td>
<td></td>
</tr>
<tr>
<td>128</td>
<td>Classroom/Seminar room</td>
<td>541 &amp; 640 Seminar (Kimberly Gwinn)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Auditorium</td>
<td>Large meetings</td>
<td></td>
</tr>
<tr>
<td>205</td>
<td>Reception and package/specimen delivery area</td>
<td>Debby Eslinger</td>
<td>EPP needs a secure reception area where EPP packages can be stored and refrigerated. Space for 2 staff members needed.</td>
</tr>
<tr>
<td>206</td>
<td>Undergraduate Honors Program</td>
<td>Kimberly Gwinn, Grant Davis (Intern)</td>
<td>The programs housed in this room are responsible for more undergraduates than many departments. The original request was to house this office in Plant Biotech Building.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>Location</th>
<th>Instructor(s)</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>207</td>
<td>Office</td>
<td>John Skinner</td>
<td></td>
</tr>
<tr>
<td>208</td>
<td>Office</td>
<td>J. Patrick Parkman</td>
<td></td>
</tr>
<tr>
<td>209</td>
<td>Office</td>
<td>Reid Gerhardt</td>
<td></td>
</tr>
<tr>
<td>210</td>
<td>Office</td>
<td>Ashley Lamb (Post-doc)</td>
<td>David Paulsen</td>
</tr>
<tr>
<td>211</td>
<td>Office</td>
<td>John Skinner</td>
<td>Phillip Moore, Michael Wilson, Ext. Spec.</td>
</tr>
<tr>
<td>212</td>
<td>Office</td>
<td>Elizabeth (Beth) Long</td>
<td></td>
</tr>
<tr>
<td>213</td>
<td>Office</td>
<td>Karen Vail</td>
<td>Jennifer Chandler, Research Specialist III and Pat Barnwell. Room is too crowded, cannot both work at desks without bumping chairs. Have currently requested an additional room.</td>
</tr>
<tr>
<td>214</td>
<td>Office</td>
<td>Karen Vail</td>
<td></td>
</tr>
<tr>
<td>215</td>
<td>Office</td>
<td>Currently vacant</td>
<td>Karen Vail requested for Jennifer Chandler</td>
</tr>
<tr>
<td>218</td>
<td>Computer room and EPP mailroom, refrigerators</td>
<td></td>
<td>Need a mailroom, breakroom and a conference room.</td>
</tr>
<tr>
<td>219</td>
<td>Office</td>
<td>Gene Burgess</td>
<td></td>
</tr>
<tr>
<td>220</td>
<td>Office</td>
<td>Darrell Hensley</td>
<td></td>
</tr>
<tr>
<td>221</td>
<td>Office</td>
<td>Darrell Hensley, Josh Anderson</td>
<td></td>
</tr>
</tbody>
</table>

because of the proximity to the conference rooms and Dr. Gwinn’s office. Housing student records in a separate section of office is highly desired.
<table>
<thead>
<tr>
<th>Room</th>
<th>Description</th>
<th>Responsible Party</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical/Veterinary Entomology Dirty Lab</td>
<td>4-6 microscope work stations (with working drawers); 4-6 (other side perhaps) long table for making a mess; excellent shelving/holding/storage areas; 10x10 area that is 'sectioned' off for cleaner things (DNA extractions) small hood space; office separation area where food (aka coffee) is permitted; insect rearing area (or area to hold multiple growth chambers to maintain and contain potential vectors such as mosquitoes); minimum of 2 sinks</td>
<td>Rebecca Trout Fryxell</td>
<td></td>
</tr>
<tr>
<td>Media prep (Vail lab uses autoclave to sterilize soil occasionally and to potentially kill bed bugs on lab jackets)</td>
<td>4-6 microscope work stations (with working drawers); 4-6 (other side perhaps) long table for making a mess; excellent shelving/holding/storage areas; 10x10 area that is 'sectioned' off for cleaner things (DNA extractions) small hood space; office separation area where food (aka coffee) is permitted; insect rearing area (or area to hold multiple growth chambers to maintain and contain potential vectors such as mosquitoes); minimum of 2 sinks</td>
<td>Kimberly Gwinn</td>
<td>Wiley mill &amp; autoclaves in separate rooms. Needs exhaust for steam &amp; smells. Drains needed.</td>
</tr>
<tr>
<td>Urban Pest Bioassays /Chemical Evaluations; Chemical Storage; and Hood for burning plastic ant cells and mixing/applying pesticides and other chemicals. This second lab is important to keep chemicals out of rearing areas/rooms to avoid pesticide exposure prior to testing. Cabinets to store Cornell drawers of insect specimens.</td>
<td>4-6 microscope work stations (with working drawers); 4-6 (other side perhaps) long table for making a mess; excellent shelving/holding/storage areas; 10x10 area that is 'sectioned' off for cleaner things (DNA extractions) small hood space; office separation area where food (aka coffee) is permitted; insect rearing area (or area to hold multiple growth chambers to maintain and contain potential vectors such as mosquitoes); minimum of 2 sinks</td>
<td>Karen Vail</td>
<td>Needs similar amenities (chemical safety hood, chemical storage cabinets, benches and storage space) as in the current space. Counter space is essential to run bioassays. Benches surround room plus additional center bench.</td>
</tr>
</tbody>
</table>

**Additional use of 234**
- microscopes, storage space for outreach materials, laboratory supplies and publications
- Need occasional access to chemical safety fume hood with outreach specimen preparation (Long)

**Urban Pest Rearing Room**
- Bed bugs, brown recluse spiders, ants, wood-boring and other pests; small rearing alcove with shelving; bread racks for rearing; Urban IPM specimen identification; training publications and other materials; large metal cabinets for equipment (cameras, microscopes, monitors, computers) and rearing supplies; freezer, refrigerators, large metal cabinets for storing baits which must remain separate from strong smelling chemicals in room 234.

255
- Storage by elevator 2nd floor
- Cabinets outside 220, 221, and 219

**Storage by elevator 2nd floor**
- 8 ft X 6.66 ft X 9 ft

**Cabinets outside 220, 221, and 219**
- 20 ft L X 2 ft D X 7 ft H
Departmental Data

Department: Forestry, Wildlife and Fisheries  
Dept. Head: Keith L. Belli  
Contact: Keith L. Belli  
Phone: 974-7989  
E-mail: kbelli@utk.edu

Mission of Department:

The mission of the Department of Forestry, Wildlife and Fisheries (FWF) is to advance the science and sustainable management of natural resources to promote their health, utilization, and appreciation in Tennessee, the region and beyond through programs in teaching, research and extension.

Departmental Strategic Plan:

[attached]

Significant reorganization or change within the next few years?

None anticipated.

Departmental priorities for this project:

The priority for FWF is to accommodate as many of the department’s personnel in the new building as possible. Our personnel are currently scattered among 8 different buildings which reduces departmental efficiency, unity, and collaborative efforts.

Historical Data and Growth Projections:

<table>
<thead>
<tr>
<th>Year</th>
<th>MS degrees awarded</th>
<th>PhD degrees awarded</th>
</tr>
</thead>
<tbody>
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<td>7</td>
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<tr>
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<td>5</td>
</tr>
<tr>
<td>2015</td>
<td>15</td>
<td>5</td>
</tr>
</tbody>
</table>

*research associates, post-docs, technicians, etc.  
** partial year totals

Contact hour estimates - contact hours are not currently available, although they might be generated from CASNR records.

Current research laboratory and other space is documented centrally via an annual space inventory conducted by UTIA. Keep in mind that FWF personnel are not all currently in Ellington Plant Sciences Building (hence a priority is to move personnel to the new building).
Vision

We will be recognized nationally and internationally as a premier university research, teaching and outreach department focusing on the natural resource disciplines. As the flagship natural resource program in Tennessee, we will be known for our leadership, and our ability to address the needs of the state, the region and beyond.

Mission

The mission of the Department of Forestry, Wildlife and Fisheries (FWF) is to advance the science and sustainable management of natural resources to promote their health, utilization, and appreciation in Tennessee, the region and beyond through programs in teaching, research and extension.

Driving Forces

“Change” is the one word that best characterizes the natural resources of Tennessee and the surrounding region, now and into the foreseeable future. Many underlying factors are driving this change. The faculty in the Department of Forestry, Wildlife and Fisheries must address these factors as they develop a strategy for the future. The major factors to consider include changes in population, climate, invasive species, production emphasis, and ownership.

Several trends in population demographics for the state and region are evident. In general, the population is aging as the “baby boom generation” approaches retirement. There is also a national movement of population away from rural areas into more urban environments. Overall, the state of Tennessee is experiencing an increase in population due to an influx of retirees, of recreationists who desire second homes, and immigrants from other states (and other countries) seeking a higher quality of life and the amenities afforded by our natural resources. Associated with population increases is increased development and a concomitant loss of wild and agricultural lands due to development. Approximately 80,000 acres per year are lost to development, greatly impacting wildlife and forest resources. This trend is expected to continue as the state population is predicted to increase by 20% over the next 20 years.

These human demographic changes are also interacting with climate- and habitat-induced changes in the distribution of wildlife that can spread disease to people and domestic animals (e.g., the recent spread of rabid raccoons into eastern Tennessee, and accelerating rates of wildlife-hosted tick-borne disease across the state). Continuation of these trends will likely lead to resource demands that will stress the state's forests and wildlife, and emphasize the interaction (both positive and negative) of humans with our state’s natural resources.

Another factor that brings change and potentially more stress is climate change. Expected warming of the region may result in the decline of some species (both plant and animal) and to the influx of others more suited to warmer climes. The recent regional drought highlights the potential negative consequences and added stress that can be linked to changes in the region’s climate. In addition, regional human influences may have an additive effect on the stress brought about from climate change. Projected population growth may lead to increased nitrogen/sulfate deposition, air quality issues, and impacts on the water table as well as soil and water chemistry. As a result, there is a need to adapt our science and education activities to encompass natural and human-induced fluctuations in temperature, water quality and quantity, and related threats to the health of our ecosystems.

A third major factor, the significant impact of invasive species, is also linked to population and climate change. As our growing population leads to an increased use of our resources by both tourists and native Tennesseans, invasive plant and animal species are inadvertently spread. Changing transportation infrastructure and increased world commerce also lead to greater potential movement of plants, insects and diseases throughout the region. A plethora of exotic forest pests including hemlock and balsam wooly adelgids, butternut canker, beechn bark disease, and dogwood anthracnose, continue to devastate native host species. Two new invaders, the Emerald Ash Borer and Thousand Canker Disease have recently been found in East Tennessee. Zebra mussels, first found in the Tennessee River in 1991, now can be found throughout its length. Fire ants continue their slow but steady spread northward, and pests such as the gypsy moth, and sudden oak death loom as future threats to our hardwood forests. The Tennessee Exotic Plant Council lists 29 plant species as serious threats, including Japanese knotweed, kudzu, mimosa, Japanese still grass, tree of heaven, Johnson grass and Japanese honeysuckle, all of which displace native plant species and potentially inhibit natural and artificial forest regeneration. Gradual warming of Tennessee's climate will allow even more pests (exotic and native) to move into the region from more southern ecosystems. Scientists and educators will be faced with the new challenges posed by these invaders.

Yet another factor that potentially threatens the health of the state and regional ecosystems is change in land ownership due to two major trends: (1) aging of the population, and (2) divestiture of land by traditional forest industries. As our population continues to age, landowners will pass on their estates to on heirs who may have weaker ties to the land (especially if they live in more urban communities), and less interest in conserving and managing the lands they inherit. Another traditional forest landowner, forest industry, has all but completed total divestiture of their lands because of changes in tax code that made it more economically sensible to create and sell land to financial institutions such as timberland investment management organizations (TIMOs), real estate investment trusts (REITs), and limited liability and master limited partnerships. The objectives of these new land owning organizations may not coincide with previous management activities and methodologies. Both major factors, population aging, and land divestiture, will continue to increase the fragmentation of the land base that supports our forests and wildlife, leading to new and varied stresses on processes and species that normally depend on contiguous vegetation over large geographic areas.

One final factor affecting the structure and function of our forested ecosystems is a change in emphasis on the commodities produced from these lands. For example, a “commodity” receiving increased emphasis is recreation. Tennessee's natural resources are the basis of much of the tourism industry in the state. Increasing fragmentation and development, coupled with increasing demands for recreation, will place additional stress on the natural resources of the
state, remove land from the overall base, and affect the use of adjacent land due to changes in visual values. We need to better understand the importance of the recreation and tourism sector and its interaction with competing interests for the state's natural resources.

Another prominent example of a commodity that has moved to the forefront of our resource management strategy, due to increases in energy costs and a desire to reduce dependency on foreign oil, is the production of biofuels and biobased products from cellulosic feed stocks such as switchgrass and woody biomass from our forests. Increased acreage in switchgrass will have significant implications for wildlife populations. Increased use of timber resources for biomass will also affect plant and animal species, as well as the markets for traditional wood products. Rather than wait until such changes have occurred to determine appropriate forest and wildlife management strategies, proactive work is needed if we are to help promote sustainable use of our valuable natural resources.

Recent global events have also substantially increased emphasis on domestic fossil fuel exploration and production. Recent increases in the price of coal have resulted in new surface mines and re-mining of many former mine sites in Tennessee and the region. Reforestation research and improved techniques are needed to expedite the recovery of native hardwood ecosystems and amenities on these sites after mining and mine soil reclamation. Re-mined sites provide significant opportunities to improve tree growth, native diversity, and suitability for wildlife over levels of success achieved for these forest attributes with earlier revegetation techniques.

All of the significant factors mentioned above (population change, climate, invasive species, shifts in ownership, and changes in product emphasis) will likely lead to increased stress on our environment. Cutting across several factors is the influence of globalization. While current economic conditions are dampening the effects somewhat, the impacts of globalization are becoming increasingly evident. Sawmills are converting to facilities to ship containerized logs to Asia, international tourism is increasing, and international competition is affecting the forest industry in the state. These factors and the influence of globalization will necessitate new approaches to wise management and conservation. Ultimately, the health of our forests, streams, and wildlife, and the communities that depend on them will depend on the research and education efforts of scientists and educators like those in the Department of Forestry, Wildlife and Fisheries. It is our responsibility to plan to meet these needs in the future. This strategic plan for the Department has been developed with such factors firmly in mind.

**Inherent Strengths:**

We are located at a geographic juncture of five major physiographic provinces, which positions us particularly well to conduct research relevant to species and systems native to the Coastal Plain, Highland Rim, Cumberland Mountains, Cumberland Plateau, Ridge and Valley, and Appalachians. The diversity of physiographic regions, landforms, and species within our state also enhances our ability to expose our students to the species and management of systems ranging from bottomland hardwoods to Appalachian spruce-fir forests.

Several faculty members have developed strong international affiliations (e.g., Austria, Canada, China, Czech Republic, France, Mexico, Slovenia, Thailand, etc.) that lead to opportunities for collaborative research, teaching and outreach on a wide variety of disciplinary areas.

The breadth of disciplines represented within the department is very wide. Most other units at peer institutions are aggregated into separate departments of forestry, wildlife & fisheries, and forest products within a college or school.

Research, teaching and Extension activities are focused on hardwood ecosystems. Our strongest competitors (peers we aspire to equal or surpass) are more focused on pine and mixed ecosystems, giving us a niche that we can exploit.
Research Programs

Strengths of Our General Research Program

Organization into “centers” provides a potential mechanism to both focus research efforts, and to draw together cooperating scientists across disciplines and departmental/unit lines, including scientists outside of UT. Centers can also help promote recognition of research efforts by topic area.

The department contains a very wide range of disciplinary experts. Most other peer departments have been homogenized within a larger unit, e.g., a department of forest products, or forestry, or wildlife and fisheries within a college of natural resources.

FWF extramural grant and contract funding (research and Extension) consistently surpasses that garnered by the other six departments within UTIA on a per FTE basis.

Currently, there is a mixture of applied and basic research efforts department-wide.

The demographics of the faculty are a source of stability in research programs. Although the number of full professors is large relative to associate and assistant professors, only a minority are nearing retirement.

The research environment within UTIA encourages cooperation across departments and other units such as the Veterinary College.

The 10 Research and Education Centers distributed across the state are a valuable resource for field research activities.

The proximity of large tracts of public land (e.g., Great Smoky Mountains National Park, Cherokee National Forest, Tennessee’s state forests, state parks, and Wildlife Management Areas), and public waters (many of the State's major reservoirs, over 700 miles of trout streams, and an abundance of cool and warm water rivers and streams) allows for long- and short-term research activities through cooperation with federal and state agencies.

Proximity to Oak Ridge National Laboratory, and the National Institute for Mathematical and Biological Synthesis (NIMBioS) provides unique opportunities for collaboration on energy, materials science, nanotechnology, high performance computing, simulation modeling, and environmental research.

We are the host institution for the Southeast Regional Sun Grant Center, and have direct ties with the Center for Renewable Carbon.

Personnel from government agencies (e.g., US Forest Service, TDF, USGS, National Park Service) stationed on, or near, campus facilitates cooperative studies. For example, we are the host institution for the Southern Appalachian Cooperative Ecosystem Study Unit (Scientists from USDA Forest Service, USDI National Park Service, and U.S. Geological Survey are stationed within department), and the host institute for the Southern Appalachian Field Laboratory of USGS.

Faculty members have developed strong research relationships with industrial and NGO partners.

Research Areas

The characterization of current research activities can be seen as a continuum that has long-term signature areas at one end, followed by established and developing research areas, and ending with potential research opportunities at the other. Although a research area may appear in one of these discrete categories below, there is no attempt to indicate whether the area falls at the upper or lower end of that category – i.e., the order of appearance in each list is simply alphabetical and has no intentional significance.

Long Term “Signature” Areas

Over the years the department has become well known for several research areas that have shaped the way we are perceived by peers and constituents. These “signature” areas have contributed directly to our national, and sometimes international, reputation for excellence in research. Other established and emerging research areas exist within the department, and could be elevated to “signature” areas in the future, but the following are what we believe we are known for at present:

- Avian Ecology and Conservation
- Carnivore Ecology
- Conservation Fisheries
- Hardwood Management
- Tree Improvement
- Wood Composite Manufacturing and Characterizations

As departmental priorities evolve, some of the signature areas may be maintained, while others may fade through changes in staffing and resource allocation.

Established Research Programs

In addition to the “signature areas” identified above, the department also has developed well-established research programs in:

- Aquatic Organism Stress Physiology
- Forest Economics
- Habitat Modeling
- Human Dimensions
- Native Grasslands Ecology and Management
- Natural Resources Policy
NIR use for non-destructive, fast characterization of wood products
Statistical Process Control
Ungulate Ecology and Management
Upland Ecology and Habitat Management
Wetland Ecology and Habitat Management
Wildlife and Livestock Disease Diagnosis
Wildlife Habitat Modeling

Again, research activity in these areas may be strengthened, potentially leading to accomplishments that will elevate them to signature areas, or be reduced as departmental and individual scientist priorities and funding opportunities evolve.

Developing Research Programs

Several research areas have been identified within the department as being in the establishment phase. Typically, these are areas that have been recognized as scientifically significant, and in which faculty members have been successful in garnering extramural support. Continued success with grants and contracts in these areas and/or allocation of additional state funds, could lead to an established or, eventually, a signature program.

Advanced materials
Amphibian Disease Ecology
Bioenergy
Ecosystem Services
Forest Restoration
Landscape Ecology
Nano-technology
Wildlife/Livestock Disease Modeling
Wildlife Health

Opportunities

The following areas have been identified as having significant opportunity for increased research activity in the future:

Aquaculture
Bio-products
Biofuels Sustainability
Climate Change
Disturbance Ecology
Fire Ecology and Management
Forest Soils/Hydrology
Invasive Species Ecology and Management
Resources Sampling
Spatial Technology/Analysis

Urban/Community Forestry
Watershed Management
Wildlife Damage Ecology and Management
Wood Protection/Preservation

Strategic Research Directions for the Department

Upon consideration of external driving forces, current research activities, and foreseeable opportunities, the following five strategic research directions have been identified for the department: bio-based products, disturbance-related ecology and land management, native grassland ecology and management, wildlife health, and human dimensions and institutions of natural resource management.

Bio-based products — includes energy, chemicals, composites, solid wood products, and manufacturing systems as related to woody cellulosic sources. Although a significant effort focused on the bioenergy component recently, the initiative cuts across land management (forest and grassland), policy and socio-economics, wildlife management and ecology, and watershed management projects.

Justification

Investigations into the efficient production of bioenergy have moved to the forefront of our resource management strategy due to increases in energy costs and a desire to reduce dependency on foreign oil. Included in this strategic focus area is the production of both biofuels and bio-based products from cellulosic feed stocks such as switchgrass and woody biomass from our forests. Increased acreage in switchgrass will have significant implications for wildlife populations. Increased use of timber resources for biomass will also affect plant and animal species, as well as the markets for traditional wood products. Communities dependent on natural resources for jobs and tax revenues will also be affected, depending on the success of statewide and region-wide efforts to convert cellulosic feedstocks into marketable products. Rather than wait until such changes have occurred to determine appropriate forest and wildlife management strategies, as well as appropriate socio-economic policies, proactive work is needed if we are to help promote sustainable use of our valuable natural resources. Recently, Dan Fulton (President and CEO of Weyerhaeuser, 5/27/2008) eloquently described a vision for a bio-based future:

"Imagine this: driving a car manufactured from lightweight carbon fiber made from lignin and powered by low-carbon bio-fuel made from cellulose. Living in a home built with carbon-sequestering wood products that are engineered to withstand high winds and earthquakes. Using biodegradable wipes and plastics made from cellulose. Wearing clothing made from cellulose-based fabric. And that's just a start. Anything made from petroleum today could conceivably be made from renewable, wood-based fiber."

This is the future on which our efforts in bio-based product research will focus.
Strengths, Weaknesses, Opportunities and Threats

The strengths of the department that support this effort are the critical mass of personnel in a working group with wood and bio-based science training and experience (currently 8 FTEs) and the affiliation of this working group with the Center for Renewable Carbon, as well as the Southeastern Regional Sun Grant Center. We also have a wide range of personnel outside of the of this working group with the expertise necessary to cover several of the related issues pertaining to grassland management, forest ecology, wildlife management, economics, and policy. Finally, our scientists have developed strong national and international collaborations that will help us leverage our expertise in specialized sub-disciplines. Our weaknesses relate to both personnel and facilities. There are disciplinary gaps in the expertise of our current faculty, mostly outside of the working group. We lack scientists in landscape ecology, watershed management, and spatial modeling. The department also lacks depth in key areas for this, or any other, initiative. We compete for funding resources against other units across the country that are several scientists deep in any given disciplinary area. Even at our current staffing level, we are at (or above) capacity in terms of office and laboratory space. What space we do have is spread among many locations, hindering cross-disciplinary collaborations. Given the current funding support of bioenergy-related research at both the state and national levels, and the expected demand for education in this area (undergraduate, graduate, and Extension), we have a tremendous opportunity to establish ourselves as one of the leading programs for comprehensive research, teaching and Extension programs in bio-based products. The threats to realizing this success are the current economic downturn (limiting the availability of resources to sustain and expand our efforts), and our heavy reliance on extramural funding to support our current personnel with technicians, graduate students and operating funds. In addition, the development of a teaching program, without additional teaching FTEs, will threaten the research productivity in this strategic research area.

Disturbance-related ecology and land management – includes “traditional” disturbances of our natural ecosystems such as timber harvesting, storms, wildfires, and endemic insects and diseases, plus sources of disturbance related to the changes we see in our state and region. These disturbances include the introduction of exotic invasive species, and land conversion.

Justification

Much of the “change” described in the Driving Forces section of this plan manifests through one or more types of disturbances to existing landscapes. In addition to longstanding sources of disturbance, we recognize that other sources of “disturbance” are also leading to changes in our forests and grasslands, changes that must be addressed if we are to continue to serve the needs of our constituents. Exotic invasive species, both plant and animal, are crowding out native varieties. Exotic insects and disease pests such as the hemlock wooly adelgid have caused devastation in native populations of eastern hemlocks. Threats from other emerging pests such as the emerald ash borer and thousand canker disease (both recently found in East Tennessee), and the looming threat of sudden oak death, and the gypsy moth could be just as severe in the future. Land conversion is another type of disturbance, one that includes changes in crops (e.g., to feed stocks for biofuels), fragmentation due to ownership changes, and general population growth that is also leading to increased urbanization (and suburbanization). Energy concerns have led to increased interest and activity in the extraction of non-renewable resources, such as coal and natural gas, which can also disturb the environment. Finally, climate change is an issue that will conceivably affect, directly or indirectly, all of the other disturbances just mentioned. These disturbances ultimately lead to questions regarding the best practices for land management and conservation. We are committed to seeking answers to these questions through our local, regional, national, and international research activities, to transmitting these answers to the public via our Extension activities, and to infusing our courses with the new knowledge we gain to better prepare our graduates for their careers in natural resource management and conservation.

Strengths, Weaknesses, Opportunities and Threats

One of our major strengths in pursuing this strategic initiative is also one of our weaknesses. Within the department we have the advantage of an extremely broad range of disciplinary expertise with which we can address the variety of disturbances that affect our natural resources. However, we have no depth of faculty expertise in any given area. We also have gaps in expertise in several key areas (e.g., fire ecology and management, hydrology/watershed management, landscape ecology, quantitative ecology, spatial modeling, and wildlife damage management). We currently have excellent relationships with personnel in other UT departments, other state agencies, and NGOs, promoting collaborative opportunities that can offset some of the lack of scientific depth within the department. Our departmental Extension professionals also provide us with direct connections to the network of county agents and county forestry associations, giving us the ability to implement research-based solutions and provide advice to alleviate the effects of disturbances, or to help prevent their occurrence.

Several specific areas that represent opportunities related to this initiative include: disturbance ecology, invasive species ecology and management, climate science, fire ecology and management, and urban/community forestry. These areas have implications for all three components of our land grant mission and can be tailored to the specific needs of our state and region. Threats to the success of this initiative center on the relatively small size of our department. Typically, we find ourselves competing for resources and students with other university programs in our region that are Colleges or Schools (at least three times our size), rather than departments. Although we have been very successful in the past, our overall capacity is limited by our faculty numbers and our facilities. We also suffer from our faculty, staff and graduate students being dispersed among numerous locations on campus, making management and collaboration difficult and inefficient.

Native grasslands ecology and management – Native grasslands, once a significant component of Eastern landscapes, have been reduced more than any other ecosystem in North America.
These grasslands included extensive prairies, pine and oak savannahs, oak woodlands, and cedar glades, each with especially adapted flora and fauna. Today, approximately 51 million acres of pasture and hay lands (with mostly non-native grass species) occur in the Mid-South alone, a very significant component of non-forested cover within the region. Grasslands also occur on reclaimed surface mines, military training areas, and as small but important features within row crop dominated landscapes (e.g., grassed waterways, field buffers, and filter strips).

**Justification**

In recent years, a number of opportunities to incorporate native grasses into various management systems have been proposed. These include silvopastures, wildlife habitat, traditional forage production for hay and pasture, soil conservation, and surface mine reclamation. More recently, use of native grasses as biofuels feedstock has received a great deal of attention. In order to improve deployment of native grasses and to ensure optimum ecological benefits are realized, better information on ecology and management is needed.

**Strengths, Weaknesses, Opportunities and Threats**

Three organizational components within the department represent the strengths that support this initiative. The Center for Native Grasslands Management (CNGM), the first of its kind east of the Great Plains, operates within FWF. Also, during 2008 the Department became the permanent home for the National Bobwhite Conservation Initiative (NBCI), a national effort supported by nearly 30 state wildlife agencies to work toward the restoration of steadily declining northern bobwhite quail populations throughout their native range. We are also the headquarters for the nascent Eastern North American Grasslands Alliance (ENGA), an “organization of organizations” that share an interest in issues related to the management of native grasslands for wildlife, ecosystem restoration, biofuels, etc. We also have a range of faculty expertise that will allow us to address many of the scientific and management concerns related to this strategic direction, including (but not limited to) such issues as: the suitability of native grasses for biofuels (both economically and chemically), the potential to manage native grassland communities for wildlife species; and the establishment or restoration of sustainable oak savannahs. Our current weaknesses include a lack of personnel, facilities and operating support to carry out much of the research and Extension activities required to accomplish the goals of the CNGM and NBCI.

The opportunity presented by the current co-location of the CNGM, NBCI and ENGA entities is that we could very quickly establish a national reputation as the foremost program east of the Great Plains on the ecology and management of native grasslands. Furthermore, we were recently designated as a “Keystone Initiative” by the National Fish and Wildlife Foundation, and as such, are likely to receive a series of grants (potentially totaling $7.5 million over 10 years) to provide support for personnel and operating. Assuming this grant is awarded as anticipated, a remaining “threat” to this overall initiative will be the ability to find space to house the additional personnel (4-5 people) that the grant will support. The development of an endowment to enhance and support these activities, as initially planned for both the CNGM and NBCI, will ensure long-term stability for these programs. However, to date these development efforts have not been successful.

**Wildlife health** — Wildlife Health research, and the related field of Conservation Medicine, are academic areas that are growing rapidly in importance. This growth is being driven in part by concern about zoonotic diseases — cross-species diseases that travel to humans from other animals — as well as diseases that travel from wildlife to livestock and thereby threaten our agricultural production systems. The recent outbreak of the H1N1 virus also serves to illustrate that such disease-related concerns are global in scale, and research will benefit greatly from string national and international collaborations.

**Justification**

Given the increasing stress being placed on our ecosystems, there are growing health threats to valued wildlife populations themselves. Such issues require not only fundamental research into wildlife disease ecology and diagnosis, but also application of research findings in ways that provide practical assistance for resource managers, policy-makers, and landowners. These problems must be addressed using a team approach that involves wildlife biologists, entomologists, veterinarians, animal production managers, public health specialists, epidemiologists and scientists in numerous other disciplines.

**Strengths, Weaknesses, Opportunities and Threats**

One of the strengths of the FWF wildlife health program is the close collaboration between faculty across sub-disciplines within the department, and across disciplines outside of the department (e.g. with colleagues in UT CVM, the University of Georgia, Michigan State University, ORNL, etc.). We have close ties to the new NIMBioS initiative (One FWF faculty member is an Assistant Director) which promises to bring further opportunities for collaborative efforts. Finally, we have had significant success related to extramural funding in general, and specifically relating to work on tick-borne and infectious disease diagnostics. Given the growing interest in infectious disease research, there is a tremendous opportunity to secure competitive funding from a very wide range of federal granting programs and agencies, including NSF, AFRI, NIH, CDC, DoD, and DHS. Further, based on research in the wildlife health program, three patents were issued recently and a patented technology was licensed to a private company.

The weaknesses we face in our wildlife health program are similar to those in other areas, namely a lack of depth in any given discipline, and gaps in coverage of sub-disciplines such as wildlife toxicology. Collaboration with scientists outside of FWF can alleviate some of these weaknesses, and we also have an opportunity for an additional faculty position related to animal infectious disease modeling through the NIMBioS program. The main threat to the ongoing success of the wildlife health program is potential loss of two positions, one faculty and one research associate. Both positions were converted to
Human dimensions and institutions of natural resource management – includes the traditional disciplines of natural resource policy, economics, and sociology, and the emerging fields of ecosystem services markets, climate change policy, and natural resource sustainability.

**Justification**

Natural resource issues are complex, dynamic, and multi-dimensional. Citizens, institutions, and lawmakers need timely and comprehensive information, and innovative mechanisms for working together. Further, land managers and planners need policy improvements that recognize our interconnections, nurture ecological and human adaptation, and foster natural resource sustainability. Our economic, social, and political systems – as well as our natural environment – have grown so interconnected that technological advances, and market globalization. This has produced a shared-power world whereby individuals, groups, and institutions struggle to influence their future. This struggle is increasingly being felt at rural landscape levels, as we mitigate and adapt natural resource management to constant perturbations like climate change, increasingly fragmented landscapes, and growing landowner diversity.

Tennessee’s forests and fields are primarily privately owned and the future of the state’s natural ecosystems. Natural resource management, whether it be forestry or wildlife & fisheries related, is in many cases “people management.” Whether issues center on harvests of deer, timber or striped bass, solutions are as much driven by social factors as they are by science. Issues must be examined from a multi-disciplinary perspective to identify the interactions between the various institutions, landowners, and ecosystems.

**Strengths, Weaknesses, Opportunities and Threats**

The Department possesses a number of strengths to explore the human dimensions of natural resources. Two units, the Natural Resource Policy Center and the Human Dimensions Research Laboratory, are housed principally in the Department and involve a number of departmental faculty, staff, and graduate students. These centers also have been very successful in acquiring external funds and have strong ties with partners inside and beyond the University including The Pennsylvania State University, EPA, The Nature Conservancy, TWRA and two centers at the University of Tennessee: Baker Center for Public Policy and Water Resources Research Center.

With the exception of the Natural Resource Policy Center, no entity exists at UT that specifically addresses the human dimension aspects of natural resource policy issues. Coupled with the growing interest in issues related to human-natural resource interactions such as biodiversity, climate change, and development pressures, we have a tremendous opportunity to develop a regional or national program in human dimensions of natural resources. Unfortunately, like other programs in the department, our primary weakness is that we lack the necessary depth to adequately cover all aspects of current and emerging issues. Even more importantly, we lack the necessary breadth to adequately deliver needed teaching, outreach, and research products. To address the issues noted in the justification above, this critical programmatic area must be strengthened, both in support and professional staffing, and in operational funding.

**Staffing Priorities**

The direction of research activities within the department will be determined in large part by the disciplinary background and interests of the faculty that are hired. Departmental operating resources can be used to promote research in a designated high priority area, but without qualified and willing faculty in that area, such resources will not be effective. When existing faculty positions become vacant, or opportunities for new positions arise, departmental priorities will be reflected by the decision to recruit from a particular discipline. This decision will be influenced by the research opportunities expected for existing programs, or the desire to expand our departmental research activities into new areas.

The following disciplinary areas, presented within the strategic research directions, have been identified as having high priority for new faculty lines that may become available within the department:

**Biobased Products**
- Landscape Ecology
- Watershed Management
- Spatial Modeling

**Spatial Modeling**
Disturbance-Related Ecology and Land Management
  Fire Ecology and Management
  Hydrology/Watershed Management
  Landscape Ecology
  Quantitative Ecology
  Spatial Analysis/Modeling
  Wildlife Damage Management

Native Grasslands Ecology and Management
  Fire Ecology and Management
  Landscape Ecology

Wildlife Health
  Spatial Analysis/Modeling
  Wildlife Disease Diagnostics (Eda)

Human Dimensions and Institutions of Natural Resource Management
  Water Policy
  Biodiversity/Ecosystem Services

Based simply on the appearance within two or more initiatives, the highest priority new positions are Landscape Ecology and Spatial Modeling (each appearing in 3 initiatives), followed by Hydrology/Watershed Management and Fire Ecology and Management (each appearing in 2 initiatives).

The following support personnel are also needed to provide assistance to existing research activities (in order of priority):
  Wildlife Health Lab Manager
  Instrument Technician/Research Associate (Wood Science/Biobased Products)
  Spatial Analysis/GIS Research Associate
  Research/Teaching assistant at MS level to assist with applied statistics

Resource Needs
  Salary and benefits, office space, and operating support for faculty/staff identified above
  Office space for current graduate students, post docs, etc.
  Lab space for faculty and staff
  GRA stipends (at minimum, restore $110,000 cut; raise base rate for hard-funded stipends)

Vehicles to support field research programs

Implementation

1. **Objective** – secure existing faculty positions when or if they become vacant
   **Action** – review positions of faculty that are retirement-eligible, plan future of each position, develop position request support material for each
   **Timeline** – continuous evaluation and revisions as faculty become retirement-eligible, or as priorities change (revisit each summer at minimum).
   **Status** – Two impending retirements (Wildlife Instructor, and Forest Policy Professor) have been retained. Combination of resources from the two positions has allowed the upgrade of the instructor position to a tenure-track assistant professor. Hiring for the two positions is planned for FY12.

2. **Objective** – compete successfully for new faculty positions when opportunity arises
   **Action** – develop position request support material for high priority faculty positions
   **Timeline** – continuous evaluation and revisions as priorities change (revisit annually)
   **Status** – Three new positions were added in FY1: Lignin Chemistry (joint with ORNL), Urban Forestry, and Wildlife Pathology (joint with CVM)

3. **Objective** – compete successfully for new research staff positions when opportunity arises
   **Action** – develop position request support material for high priority staff positions
   **Timeline** – continuous evaluation and revisions as priorities change (revisit annually)
   **Status** – no new opportunities have arisen

4. **Objective** – secure development funds for endowed faculty positions
   **Action** – work with UTIA Development Office personnel to engage existing donors and seek new donors through initiatives such as the Volunteer Forest
   **Timeline** – obtain commitment for position by 2012
   **Status** – no endowed positions have been secured to date

5. **Objective** – replace lost GRA funds
Action – develop GRA request support material linked to strategic research initiatives
Timeline – each fall for the following fiscal year in preparation for budget requests during the spring.
Status – no opportunities for additional support has arisen

6. Objective – secure development funds for endowed graduate fellowship positions
Action – work with UTIA Development Office personnel to engage existing donors and seek new donors through initiatives such as the Volunteer Forest, link to research areas of interest to donor.
Timeline – obtain commitment for at least one fellowship by 2012
Status – no endowed fellowships have been secured to date

7. Objective – provide adequate space to store small vehicles (ATVs, boats, etc.) and equipment
Action – work with AgResearch to construct new storage structure
Timeline – complete during fall of 2009
Status – completed fall, 2010

Academic Programs

Strengths
We have a diverse, comprehensive (forestry, wildlife, fisheries, and forest products) department that provides many opportunities for multi-disciplinary instruction. Particularly valuable, and unusual, is the degree to which forestry, wildlife and fisheries have integrated their curricula. This gives our graduates a breadth of experience and knowledge in natural resource management which few other schools confer.

We emphasize applied, field-based, hands-on experiences, not only in field camp courses, but in many other forestry, wildlife, and fisheries courses.

We emphasize the use of technology by providing the students with state of the industry software. Students also are introduced to field use of high-end GPS technology and other technologically advanced measurement tools. Technology also enhances student-faculty interactions in a number of courses.

We are one of a dwindling number of programs that maintains a strong emphasis on traditional applied management skills and techniques of forestry, wildlife, and fisheries, while also considering multiple values and including emerging principles in the management of entire ecosystems. Applied management courses taught in blocks and called “field camps” are part of our teaching program.

Students receive one-on-one interaction with faculty in all courses, rather than interacting solely with teaching assistants or post-docs.

Students interact individually with faculty during academic advising, and faculty are involved in student clubs and extra-academic activities.

We offer a Wildlife Health Concentration within our Wildlife & Fisheries Science Major, one of only four in the Southern US that provides a track for undergraduates interested in pursuing wildlife-related veterinary medicine careers.

We have added an Urban Forestry Concentration to our Forestry Major that, if successful, will expand the constituency served by our degree programs.

We currently offer two minors (one in Forestry, and one in Wildlife and Fisheries Science) to students in other majors. This allows us to educate students outside of our department in critical concepts related to natural resource science and management. This can be a pathway for non-majors into our graduate program.

Having National Park Service, USGS, and U.S. Forest Service personnel on campus or nearby provides multiple opportunities for undergraduate instruction, new graduate courses, student internships, and other forms of temporary student employment.
Formal internship programs, as well as practicums, provide students with the opportunity for professional work experience in summers for credit.

Unlike most programs in the southeastern region, we focus on hardwood ecosystems rather than pine or mixed forest types.

The diversity of ecosystem types within proximity to campus provides an advantage to our program as we endeavor to expose students to a range of resource issues. The nearness of a variety of public lands (WMAs, GSMNP, National Forests, State Forests) presents numerous opportunities for outdoor instruction.

Graduates in the Wildlife & Fisheries major are certifiable by TWS. Graduates in the Forestry major are eligible, because of the accreditation of the forestry program, for SAF certification.

**Undergraduate Curriculum Concerns and Issues**

1. With one retirement in fisheries unfilled (Extension position) and retirements in the research and teaching side approaching, the loss of the fisheries component within FWF is a serious possibility.

2. Teaching workloads, especially among faculty members without formal teaching appointments, takes away from time designated for Extension and research effort.

3. With a recent reorganization of bio-energy research in UTIA (i.e., creation of the CRC), there is a danger of losing the forest products identity within the department.

4. There is currently no formal mechanism to monitor employer needs (i.e., knowledge and skills) and expectations for our graduates. It is important for us to continually address such needs and expectations within our academic program.

5. Spatial technology skills are becoming necessary to many of the jobs our graduates will enter, but mastery of such skills is not necessarily a part of our current programs. A more effective way of developing those skills is needed.

6. Student involvement in their chosen major should begin upon entering our program, and continue throughout their academic career.

7. Training related to habitat management is needed throughout the curriculum for both majors.

8. The focus in both majors has traditionally been commodity-oriented. Increased emphasis on ecosystem services produced from the land base may require a shift in topics throughout the curriculum.

9. There are too few opportunities in the curricula for students to practice synthesizing biological factors and management practices. Students would benefit from developing the ability to predict hypothetically how systems will react to various treatments and system changes, and what types of systems will develop and how they will grow given biotic and abiotic site factors.

10. Student involvement in existing opportunities outside of the classroom is low (e.g., honors, study abroad and exchange programs).

11. A large proportion of our undergraduate majors are transfer students from Tennessee community colleges. Such students can have a difficult time making sure that the courses they take will transfer successfully into our undergraduate programs.

**New Degree Program and Course Recommendations**

A review of our current degree programs revealed several opportunities for expanding our offerings; however, all would require additional teaching faculty resources.

**Undergraduate**

**Minor in Bio-Products (Forest Products)** – One of the difficulties faced by faculty in the forest products area is attracting a steady pool of candidates for Master’s degrees without having an undergraduate major in forest products. Instead of creating an entirely new major, an alternative may be to develop several courses that, together, could serve as a minor. Students completing the minor would then be potential candidates for graduate programs.

**Recreation (Outdoor or Wildland) major** – Given the expected increase in demand for outdoor recreation opportunities, especially in east Tennessee, there may be a need for a separate major in Recreation.

**New courses** – Our current curricula would benefit from several new courses, covering important topics in more depth than is feasible within our existing suite of courses. These courses would likely begin as electives, but could eventually become required in one or both of our majors. Highest priority new courses are: spatial techniques and GIS, forest soils, hydrology/water quality, stream restoration, fish ecology, forest engineering, fire ecology and management, and grassland ecology and management.

**Graduate**

**MS in Bio-Products** – Several of the current Master’s students being supervised and supported by faculty in the forest products area are actually enrolled in the graduate degree programs of other departments on campus (e.g., chemical
engineering, statistics, etc.). One of the greatest hurdles in attracting Master’s students is that we do not have a specialized MS degree for them. A new MS degree in Bio-products is seen as the solution to this issue. The name “Bio-Products” is seen as a better marketing label than the more traditional “forest products” or “wood science” alternatives.

Bio-Products concentration within Natural Resource PhD – A recognizable concentration name matching the new MS degree program in the forest products area would aid marketing and recruitment of doctoral students.

New Course – Many of our graduate students have indicated in their exit interviews that they would have found a natural resource-specific quantitative methods course very valuable to their program. Such a course is common in other university natural resource graduate programs.

Two additional general concerns for departmental graduate programs are the need for standardization of expectations, and the broader availability of graduate course offerings.

Enrollment Planning

There is a concern within the department that our undergraduate enrollment is not matched by our departmental support (FTEs and operating funds). At the same time, there has been pressure to increase enrollment to help justify requests for additional resources. Effective enrollment planning is only possible when faculty and teaching support resources are linked with the number of students (undergraduate and graduate) enrolled in departmental programs. An analysis has been completed to determine target enrollments for both graduate and undergraduate degree programs (Appendix A). This analysis will be updated periodically as we move toward a better balance of enrollment and resources. At the same time, we are committed to increase the quality and diversity of the students who are enrolled in departmental programs.

Staffing priorities

The direction of teaching activities within the department will be determined in large part by the disciplinary background and interests of the faculty that are hired. Departmental operating resources can be used to promote teaching in a designated high priority area, but without qualified and willing faculty in that area, such resources will not be effective. When existing faculty positions become vacant, or opportunities for new positions arise, departmental priorities will be reflected by the decision to recruit from a particular discipline. This decision will be influenced by accreditation and certification requirements, as well as the desire to expand our departmental teaching activities into new areas.

Current Faculty Positions – Current teaching positions should be maintained and better supported. Teaching workloads do not match formal teaching appointments; several Extension and Research faculty are teaching courses on a regular basis (e.g., Silviculture, Planning and Management, Wood Identification, Wildlife Health, etc.) without a teaching appointment. In general, these teaching assignments have been made to fill subject matter needs and to help offset the loads of faculty that do have formal teaching appointments.

New Faculty Positions - The following disciplinary areas, reflecting the recommendations for new courses and curricula within the department, have been identified as having high priority for new faculty lines that may become available within the department:

- Fire Ecology
- Forest Engineering
- Forest Soils/hydrology
- Green Engineering (partial teaching appointment)
- Watershed Management
- Wildlife Health (general position to offset teaching loads due to increasing enrollment in the Wildlife Health Concentration)
- Wildlife Management/Science (general position to help reduce teaching loads if enrollment in Wildlife & Fisheries major does not decrease)
- Wildland Recreation

Several of these new position areas coincide with those determined to be of high priority within departmental strategic research directions. Based on this correspondence, the highest priority areas for new teaching faculty would be Fire Ecology and Watershed Management (both appear in two of the five strategic research directions).

Resource needs

Salary and benefits for faculty identified above

Scholarship endowments to support the recruitment of high quality undergraduates

Travel and operating to enhance student fee support of fall camps

Travel support for undergraduates and graduates attending/presenting papers or posters at conferences or participating in competitions (e.g., conclave, quiz bowl, etc.)

Endowment for graduate student fellowships.

Resources to support student computer needs related to classroom expectations.
Implementation

Curriculum

1. Objective – make retention of fisheries a high priority.
   Action – discuss and have faculty on record as supporting retention of fisheries as a high priority.
   Timeline – Accomplish this by the end of 2010-11.
   Status – complete.
   Action – pursue support from Deans for replacing fisheries faculty as they retire.
   Timeline – ongoing
   Status – tentative plan for first fisheries retirement supported by AgResearch and CASNR Deans (summer 2011).

2. Objective – reduce the disparity between teaching appointments and actual teaching effort.
   Action – work to recognize teaching effort and adjust percentage appointments as necessary.
   Timeline – ongoing
   Status – CASNR Dean has initiated a “teaching workload” committee to address a standardized method for determining teaching workloads. FWF will be represented on this committee and use the results to provide the basis for percentage adjustments where feasible.

3. Objective – make retention of forest products identification within the department a priority.
   Action - discuss and have faculty on record as supporting retention of forest products as a high priority.
   Timeline – Accomplish this by the end of 2011.
   Status – ongoing.

4. Objective – provide students in both majors with appropriate exposure to habitat management.
   Action – infuse additional training in habitat management throughout the curriculum for both majors.
   Timeline – complete by fall semester, 2010.
   Status – FWF 415 – Upland Habitat Management course has been added to both fall camps and is required for both majors. Additional infusion will be considered once effectiveness of FWF 415 is examined.

5. Objective – monitor employer needs (i.e., knowledge and skills) and expectations for graduates of our programs.
   Action – develop and implement employer survey
   Timeline – complete survey by end of 2011-12 academic year.
   Status – ongoing.

6. Objective – Increase the use of spatial technology across the curricula of both majors.
   Action – Create opportunities for learning and use of spatial technology in existing courses and identify a more satisfactory GIS course as a requirement.
   Timeline – continuous.
   Status – ongoing.

7. Objective – Provide students with resource management training consistent with expected changes in ownership objectives
   Action – Explore a change in focus from commodity-oriented management to a broader perspective emphasizing ecosystem services.
   Timeline – complete assessment by end of fall semester, 2009
   Status – incomplete, revisit objective and proposed action

8. Objective – Provide opportunities, and raise expectations, for students to synthesize important concepts throughout the curriculum, rather than focusing exclusively on the capstone course as the mechanism for such synthesis.
Action – Identify (and document) synthesis opportunities in existing courses, and add these to the courses’ expectations.

Timeline – complete by end of academic year 2009-2010

Status – incomplete, revisit objective and proposed action

9. Objective – Increase student involvement in opportunities outside of the classroom such as honors, undergraduate research, study abroad and exchange programs, and internships.

Action – involve students that have participated in these programs in classroom discussions and presentations.

Timeline – continuous

Status - ongoing

Action – explore the possibility of requiring professional experience as part of the undergraduate degree program(s)

Timeline – complete review and make decision by end of spring semester, 2010.

Status – incomplete, assign task to Student Affairs Committee

10. Objective – Make it easier for transfer students to make the transition to our undergraduate programs.

Action – Develop specific transfer guides for students transferring to FWF undergraduate majors from Tennessee community colleges.

Timeline – complete by end of fall semester 2009

Status – incomplete, retarget completion

11. Objective – Insure that students are involved in their major from the beginning of their academic career.

Action – The forestry major has a mechanism, FOR 100 Forests and Forestry in American Society, to introduce students to their chosen career area during their first semester. A similar course is needed for the wildlife and fisheries science major. Both majors should maintain at least one required FWF, FOR, or WFS course per semester.

Timeline – make adjustments by end of 2009-2010 academic year.

Status – WFS 101Current Topics in Wildlife Health serves this function for all Wildlife & fisheries Science majors.

12. Objective – Improve the logical flow of course topics to make sure that necessary plant and animal identification and biological preparation courses are scheduled before the management-oriented courses that require such information to be effective.

Action – shift both camps to fall semester, senior year and adjust prerequisite courses accordingly

Timeline – implement shift starting fall semester, 2010

Status – Completed.

13. Objective – Create interest and understanding among existing UT undergraduates of the potential for graduate research programs (especially at the MS level) in forest products disciplines.

Action – develop courses and seek approval for a minor in Bio-Products (Forest Products)

Timeline – end of spring semester, 2010

Status – incomplete, revisit objective and proposed action

14. Objective – Meet the perceived demand for forestry graduates that are capable of managing urban/community forests.

Action – seek approval for an Urban/Community Forestry concentration within the existing forestry major using relevant courses that already exist, and develop new courses if needed.

Timeline – complete proposal by end of fall semester, 2009

Status – proposal submitted for approval spring 2011 (development delayed until hiring of Urban Forestry faculty member, July 2010).

15. Objective – Explore the feasibility of creating a new Recreation major.

Action – Develop a plan for the major including expected costs (faculty FTEs and operating), expected demand, and proposed curriculum.

Timeline – draft by January, 2010
Status – incomplete, revisit objective and proposed action

16. Objective – attract and retain Master’s students to forest products/wood science-related disciplines.
Action – develop and submit a proposal for a new master’s program in “bio-products”
Timeline – complete proposal by end of spring semester, 2010; submit as soon as feasible thereafter.
Status – First step has been to develop a Concentration within the existing Forestry MS major, Bio-based Products and Wood Science & Technology. Submitted for approval summer 2011.

17. Objective – Fill gaps in current undergraduate and graduate course offerings
Action – Analyze specific course needs, create new courses as faculty resources become available
Timeline – complete analysis of needed courses by end of summer, 2009
Status – incomplete – revisit objective and proposed action

18. Objective – Achieve departmental consensus on the expectations for graduate education
Action – Discuss and draft departmental guidelines for research and course work expectations tied to degree program (i.e., MS vs. PhD) and major.
Timeline – hold discussions during summer/fall, 2009; complete draft by end of fall semester, 2009.
Status – incomplete – revisit objective and proposed action

Enrollment Planning

1. Objective – Ensure that faculty and teaching support resources are linked with enrollment in departmental programs.
Action – Update peer program analysis (Appendix A) to provide reasonable target enrollments given current resources.
Timeline – update by end of fall semester, 2009 and annually thereafter
Status – latest update 2010, will continue annually

2. Objective – Effectively recruit the numbers of high quality students to meet the targets established for departmental programs.
Action – Determine the most effective system of content and delivery mechanisms to attract undergraduate students to FWF majors through the southern regional recruiting consortium activities (e.g., focus groups, recruiting surveys, etc.)
Timeline – complete initial survey by end of fall semester, 2009
Status – survey completed and analyzed
Action – Concentrate recruiting efforts and resources on activities most likely to provide success in recruiting for numbers, student quality, and diversity.
Timeline – begin efforts, tied to results of survey, spring 2010
Status – ongoing

Staffing

1. Objective – secure existing faculty positions when or if they become vacant
Action – review positions of faculty that are retirement-eligible, plan future of each position, develop position request support material for each
Timeline – fall 2009, continuous evaluation and revisions as priorities change (revisit annually)
Status – Retirement of Billy Minser (6/30/2011) has resulted in retention of position and conversion to tenure-track assistant professor. Discussions are underway with Deans to retain other positions potentially opening due to retirements.

2. Objective – compete successfully for new faculty positions when opportunity arises
Action – develop position request support material for high priority faculty positions
Timeline – fall 2009, continuous evaluation and revisions as priorities change (revisit annually)
Status – ongoing

3. Objective – compete successfully for new teaching staff positions when opportunity arises
Action – develop position request support material for high priority staff positions
Timeline – fall 2009, continuous evaluation and revisions as priorities change (revisit annually)

Status – ongoing

4. Objective – secure development funds for endowed faculty positions

Action – work with UTIA Development Office personnel to engage existing donors and seek new donors through initiatives such as the Volunteer Forest.

Timeline – obtain commitment for position by 2012

Status – ongoing

Resources

1. Objective – Increase university support for FWF teaching programs.

Action – develop support material for restoration of GTA funds and operating funds lost to current budget cuts. Link to strategic teaching initiatives.

Timeline – fall 2009 for FY11, and each subsequent fall for the following fiscal year in preparation for budget requests during the spring.

Status – ongoing

2. Objective – Increase private support for FWF teaching programs.

Action – Seek endowments for scholarships, student learning enhancement (travel and operating), and fellowships.

Timeline – continuous (set $ targets by fall 2009)

Status – targets set, but revised each year

Extension Programs

Strengths

The county Extension network is very well managed in Tennessee. Unlike some states, the system has been maintained at the single county level, rather than having local agents cover multi-county regions.

Relationships with other natural resource organizations are excellent, promoting collaboration with such partners as the Tennessee Wildlife Resources Agency, the Tennessee Forestry Association, the Tennessee Division of Forestry, and the Natural Resource Conservation Service.

Extension professionals within FWF receive planning input directly from their clientele, as well as feedback from county agents and area specialists. As a result, they are able to provide service and education that is relevant to the needs of the public being served.

A wide range of expertise exists within the department to address the needs of state clientele. All Extension professionals are also involved to varying degrees in research and teaching activities.

The existence of a network of County Forestry Associations provides opportunities to engage landowners interested in natural resource issues.

Program Priorities

The priorities of the Extension program all relate to meeting the needs of clients in Tennessee and surrounding states. In general, this often means addressing sustainability, profitability, and the environment. Our clientele are primarily county extension professionals, landowners, and natural resource professionals.

Specific areas of priority include:

- Biofuels and other emerging forest products
- Early successional wildlife habitat
- Fisheries
- Forest management with emphasis on hardwoods
- Invasive species
- Recreational landowners
- White-tailed deer management
- Wildlife damage

Opportunities

There are two general areas of opportunity for the FWF Extension program: providing continuing education to professionals (beyond the in-service training of agents), and engaging a new audience beyond the traditional agriculture clientele.
For the past several years, we have provided national training for certification of silviculturists on National Forests. Most of these professionals have been employees of one agency (USDA Forest Service), but at least one other federal agency (Bureau of Land Management) has had professionals participate. Other opportunities may exist for continuing education of both federal and state government employees, as well as industry professionals (e.g., Master Logger) that seek to increase or refresh their understanding of important concepts.

Given the changes in land ownership in Tennessee, as well as the increasing urbanization of the state, there is a need to reach out to people who have not previously benefited from traditional UT Extension activities. Determining what these needs are will be the first step in providing for the needs of this new sector.

**Staffing Priorities**

**Faculty and Professional Staff**

- Fisheries Specialist
- Wildlife Specialist (West Tennessee)

**Staff**

- Statistics/Spatial technology

**Resource Needs**

- Office and lab space for faculty identified above
- Salary and benefits for staff identified above
- Storage space for equipment

**Implementation**

1. **Objective** – meet the continuing education needs of natural resource professionals (public, private, industry, and NGO) on a state, region, and national basis.
   
   **Action** – seek new opportunities to provide continuing education to resource professionals analogous to the current training programs in Silviculture (USDA Forest Service and Tennessee Division of Forestry) and Statistical Process Control (industry).
   
   **Timeline** – continuous

   **Status** – ongoing, no new opportunities identified to date

2. **Objective** – determine the needs for outreach among non-traditional clientele
   
   **Action** – develop and conduct a survey of the (mostly) urban population of Tennessee to provide information on outreach needs related to natural resources.
   
   **Timeline** – continuous; individual project duration depends on funding (e.g., NIFA Beginning Farmer and Rancher Program)

   **Status** – ongoing. In 2010, W. Clatterbuck planned, coordinated and conducted five absentee landowner workshops in metro audience with assistance from the USDA Beginning Farmer and Rancher Grant. Program will continue in 2011.

3. **Objective** – compete successfully for new faculty positions when opportunity arises
   
   **Action** – develop position request support material for high priority faculty positions
   
   **Timeline** – continuous evaluation and revisions as priorities change (revisit annually)

   **Status** – ongoing. Materials were submitted as part of UT Extension Staffing Plan in 2010 to justify a fisheries specialist. Result was judgment by the planning team that the priority for such a position was “moderate” relative to other state needs. Requested position denied.

4. **Objective** – compete successfully for new staff positions when opportunity arises
   
   **Action** – develop position request support material for high priority staff positions
   
   **Timeline** – continuous evaluation and revisions as priorities change (revisit annually)

   **Status** – ongoing. No opportunities for additional staff have arisen.

5. **Objective** – meet the continuing education needs of forestry professionals if/when registration becomes a state requirement to practice forestry in Tennessee.
   
   **Action** – develop series of continuing forestry education programs for professional foresters.
   
   **Timeline** – (dependent on passage of registration requirements)

   **Status** – on hold until such time that some form of registration becomes a state requirement for professional foresters
General Departmental Considerations

Beyond the specific staffing and resource needs addressed above for research, teaching and Extension, there are three general issues that should be addressed for the future development of the department. These issues relate to the overall functioning of the department, but one issue is “structural,” one is “programmatic,” and the last is “virtual.” Yet, the resolution of each issue will have a profound effect on how the department functions and is perceived by others.

The “structural” issue involves the scattered physical locations of FWF faculty and staff. At last count, FWF personnel occupied space in eight locations on the UTIA campus. The consolidation of FWF personnel into a single new building has been, and remains, a high priority. Joint planning with the U.S. Forest Service to build two new buildings (one for USFS personnel, and one for FWF) has progressed, but has slowed due to fiscal uncertainty at both the state and federal level. There is also the shorter term possibility of consolidating personnel through relocation as renovation plans for Ellington Plant Sciences Building progress. While this is a less than ideal solution to the problem, it may be the most feasible action in the short-to-medium term.

The “programmatic” issue centers on the departmental fisheries component. With the retirement of our longtime fisheries Extension Specialist, we were left with two faculty members in this departmental program area, with a total effort of one FTE in research and one in teaching. This presents two problems. Until we are able to replace our extension position, we are faced with an inability to support County Agents. Currently, the stop-gap solution has been to designate three county agents (one per region) with fisheries responsibilities to help meet the public’s need for the routine problems involving Tennessee’s 100,000+ farm ponds. The second concern is that with only two tenure-track faculty, we struggle to support a research and teaching program in fisheries. Therefore, in addition to filling the vacant Extension Specialist position, we also need to acquire a new faculty position, most likely in the area of conservation fisheries to enhance our strength in this discipline.

The “virtual” issue revolves around the name of the department. The current name does not reflect the personnel and activities of a large portion of faculty and staff, namely those involved in the area of wood and other bio-based products. The Department’s group of faculty in this area has grown to include eight faculty members – approximately the same as those in forestry (9), and wildlife & fisheries (10) – yet the name of the department excludes their general disciplinary area. A name change to “The Department of Forestry, Wildlife, Fisheries and Forest Products,” while accurate, may be overly cumbersome. The other alternative would be to change to a name that is more general such as “The Department of Natural Resources.” A long term goal, if we are successful in growing our department significantly through the hiring of more faculty FTEs, is to seek consideration for the designation of “School” within the College. At that time, a new name – e.g., the “School of Natural Resources” would serve to enhance and promote public (and institutional) perception of our role within the Institute of Agriculture.

Implementation

1. Objective – construct a new FWF building
   Action – secure state and or federal funds to support planning and construction
   Timeline – begin construction by 2014
   Status – ongoing, but stalled due to federal and state budget environment

2. Objective – revitalize the fisheries program
   Action – draft a short- and long-term strategy for the fisheries program
   Timeline – complete draft by May, 2011
   Status – ongoing

3. Objective – resolve the discrepancy between the name of the department and the makeup of its personnel and programs.
   Action – continue to seek input from stakeholders
   Timeline – resolve by January, 2010
   Status – unresolved

4. Objective – become the School of Natural Resources
   Action – grow the department’s programs (faculty, staff and resources) to justify new designation (similar Schools of Natural Resources, or Forest Resources, range in size from 10 to 57 faculty, with an average of 37)
   Timeline – become School by 2015 (to coincide with dedication of new building)
   Status – ongoing (three faculty positions have been added in FY11, one in urban forestry, one in wildlife health, and one in bio-products).
Provide a short narrative of the purpose or mission of your department (insert hyperlink if this information is web-based).


Does your department have a strategic plan for the near term future? If yes, please attach or insert hyperlink.

No

Do you anticipate any significant reorganization or change (administrative, research or academic) within the next few years? Yes / No. If yes, describe below.

No

List your department/group's priorities or goals for this project:

adequate space for pedagogic work environment

Historical Data & Growth Projections: Considering the history of the past 3 years, how much growth do you anticipate in the next 5-10 years, numbers of faculty/staff, researchers, students, contact hours, etc?

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Provide other matrix you feel are important to describe your department's growth plans or future needs.

Compare your department's estimate of percentage of contact hours in the following major classroom types with your department's vision of the desired future learning environments:

[Their Info Included “Teaching Learning Center & Classrooms” related to Learning Environments. Their existing building has an Auditorium.]

<table>
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<th>Classroom Type</th>
<th>Current % of Contact Hours</th>
<th>Ideal or Future Target % of Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar Room: single conference type tables, movable chairs</td>
<td>10.7%</td>
<td>15%</td>
</tr>
<tr>
<td>Small Lecture Classroom: flat floor, moveable tablet-arm chairs or individual student desks</td>
<td>10.7%</td>
<td>15.7%</td>
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<tr>
<td>Flexible Classroom: flat floor, 1-2 person moveable tables, task chairs; allows multiple arrangements for lecture, group discussion, group work</td>
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<td>Technology Enabled Active Learning (TEAL) Classroom: flat floor, 8 person round tables for 3 groups of 3 student teams with computer for each 3 person group, task chairs, primarily designed for group work; technology allows faculty to show any group work to the entire room</td>
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<tr>
<td>Case Study Room: tiered floor, fixed tables in semicircles or U shape, task chairs, facilitates lecture and student faculty or student-student discussion</td>
<td></td>
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<tr>
<td>Lecture Hall: tiered floor, fixed tables facing forward and task chairs or individual tablet-arm chairs</td>
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<tr>
<td>Specialty Classroom or Teaching Lab: [insert description]</td>
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<tr>
<td>Other: [insert description]</td>
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</tbody>
</table>

[SHOULD WE INCLUDE A TABLE WITH LAB TYPES – RELATED TO ABOVE.] Local Architect: Georgian Architecture PROJECT#1018-0001-0003-003

Currently, there is space with Biosafety/ IACUC, and continue to do so but would like small conference type space to share just wih Biosafety + IACUC.
Attach a list of current research labs, lab support, classrooms and specialty learning environments used by your department. Include size, maximum number of researchers, student seats, and utilization data for past academic year.

Identify existing laboratories, classrooms or learning spaces (building name and room number) that are thought to be the best research / learning spaces for your department:

From faculty's perspective; describe why:

From students' perspective; describe why:

Currently use vet school rooms for many IACUC meetings.

What are the top complaints about laboratories / classrooms:

By faculty / researchers: too small an area. No adjoinal equipment in room available to use.

By students: equipment in room available to use

Identify current and desired instructional technologies:

<table>
<thead>
<tr>
<th></th>
<th>Currently Used</th>
<th>Future Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Board</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Digital Projector/Screen or Digital Screen</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Two or more digital projectors/screens or digital screens</td>
<td>✓</td>
<td></td>
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<td>Other (describe)</td>
<td></td>
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</tr>
</tbody>
</table>

How is classroom scheduling done? Should the process change?

List or describe the preferred group or individual adjacencies to other groups, support spaces or other building functions within the following categories.

Mandatory Adjacencies: Staff, Biosafety (share admin staff)

Important Adjacencies: Biosafety / IACUC

Undesirable Adjacencies: Occupational Health, OLAC

Other than typical office and classroom furniture, identify special equipment or furniture needed or existing that supports your department's mission.

Copier, fax line, network ports, some storage (files) availability

Add any other information that you believe is important to this strategic planning effort.

In current set-up, share one Admin. person between IACUC/Biosafety so need to be near Biosafety offices. I would like to share bigger conf room bln IACUC/Biosafety/OLAC but would like smaller conf area for just Biosafety/ IACUC, for smaller more personal meetings/training.

Could easily share food prep area w/with others.

Would like place for food preparation:

i.e. microwave, sink, common coffee area, refrigerator, possibly small table/chairs
Provide a short narrative of the purpose or mission of your department (insert hyperlink if this information is web based). This will be the primary text for the department's overview.

Does your department have a strategic plan for the near term future? If yes, please attach or insert hyperlink. No

Do you anticipate any significant reorganization or change (administrative, research or academic) within the next few years... Yes/No... If yes, describe below. No

List your department/group's priorities or goals for this project:

Historical Data & Growth Projections: Considering the history of the past 3 years, how much growth do you anticipate in the next 5-10 years, numbers of faculty/staff, researchers, students, contact hours, etc?

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</table>

Provide other metrics you feel are important to describe your department's growth plans or future needs.

Compare your department's estimate of percentage of contact hours in the following major classroom types with your department's vision of the desired future learning environments:

[Their Info included "Teaching Learning Center & Classrooms" related to Learning Environments. Their existing building has an Auditorium.]

<table>
<thead>
<tr>
<th>Formal Learning Environment Type</th>
<th>Current % of Contact Hours</th>
<th>Ideal or Future Target % of Contact Hours</th>
</tr>
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<td>Seminar Room: single conference type table, movable chairs</td>
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<td>Case Study Room: seated floor, fixed tables in semicircle or U shape, task chairs; flexible lecture and student-faculty or student-student discussion</td>
<td>NA</td>
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<tr>
<td>Lecture Hall: tiered floor, fixed tables facing forward and task chairs or individual table-arm chairs</td>
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<td></td>
</tr>
<tr>
<td>Specialty Classroom or Teaching Lab; insert description</td>
<td>NA</td>
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<tr>
<td>Other: [insert description]</td>
<td>NA</td>
<td></td>
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[SHOULD WE INCLUDE A TABLE WITH LAB TYPES - RELATED TO ABOVE.]
UTK Energy and Environmental Science Education Research Center
Programming Questionnaire
August 20, 2012

Attach a list of current research labs, lab support, classrooms and specialty learning environments used by your department. Include size, maximum number of researchers, student seats, and utilization data for past academic year.

Identify existing laboratories, classrooms or learning spaces (building name and room number) that are thought to be the best research/learning spaces for your department.

From faculty’s perspective; describe why:

From students’ perspective; describe why:

What are the top complaints about laboratories/classrooms:

By faculty/researchers:

By students:

Identify current and desired instructional technologies:

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How is classroom scheduling done? Should the process change?

List (describe) the spaces, other than research labs, classrooms and offices, that are needed by your department or that you believe are needed in this new facility. (Include number and sizes, quantity of students or staff accommodated, major furniture and equipment; typical time and duration of use each day, potential to share with other departments.)

(Examples) include writing/tutoring labs, student association space, informal student study areas, print/copy center, cafe/food service, bookstore, computer lab, faculty resource center, technology support center, teaching innovation lab/instructional media center, departmental library/research center)

List or describe the preferred group or individual adjacencies to other groups, support spaces or other building functions within the following categories:

Mandatory Adjacencies

Important Adjacencies

Undesirable Adjacencies

Other than typical office and classroom furniture, identify special equipment or furniture needed or existing that supports your department’s mission.

Ongoing need to be exceptional health

Additional cost for medical care space is needed to ensure confidentiality of medical information.

Add any other information that you believe is important to this strategic planning effort.

Additional space is needed at this time beyond offices, lab space, and lab space.
UTK Energy and Environmental Science Education Research Center
Programming Questionnaire
August 20, 2012

DEPARTMENTAL DATA
DEPARTMENT/GROUP: OLAC
DIRECTOR/HEAD: TAEKJIK KO

CONTACT: LAKKIC.OLAC@COFFEE
PHONE: 9-5226
E-MAIL: TAEKJIK.OLAC@UTK.EDU
INFORMATION DATE: 9/12/12

Provide a short narrative of the purpose or mission of your department (insert hyperlink if this information is web based):

www.yet.utk.edu/olac/index.php

Does your department have a strategic plan for the near term future? If yes, please attach or insert hyperlink:

Same

Do you anticipate any significant reorganization or change (administrative, research or academic) within the next few years...Yes(No). If yes, describe below:

List your department's priorities or goals for this project:

to have adequate space

Historical Data & Growth Projections: Considering the history of the past 3 years, how much growth do you anticipate in the next 5-10 years, numbers of faculty/staff, researchers, students, contact hours, etc?

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<tr>
<td>CONTACT HOURS 100 level</td>
<td>L5</td>
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Provide other metrics you feel are important to describe your department's growth plans or future needs.

Compare your department's estimate of percentage of contact hours in the following major classroom types with your department's vision of the desired future learning environments:

[Their info included "Teaching Learning Center & Classrooms" related to Learning Environments. Their existing building has an Auditorium.]

Formal Learning Environment Type

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[SHOULD WE INCLUDE A TABLE WITH LAB TYPES – RELATED TO ABOVE.]

Lord Aeck Sargent Architecture/PROJECTS/0219-OLAC/DEP/Program Questionnaire/EESEC_questionnaire.docx Page 7 of 10
UTK Energy and Environmental Science Education Research Center
Programming Questionnaire
August 20, 2012

List or describe the preferred group or individual adjacencies to other groups, support spaces or other building functions within the following categories.

Mandatory Adjacencies
KEEP OFFICE TOGETHER

Important Adjacencies
IACUC + IBC

Undesirable Adjacencies

Not too close to students

Other than typical office and classroom furniture, identify special equipment or furniture needed or existing that supports your department’s mission.

Add any other information that you believe is important to this strategic planning effort.

Lord Aeck Sargent Architects

Page 10 of 10
UTK Energy and Environmental Science Education Research Center
Programming Questionnaire
August 20, 2012

DEPARTMENTAL DATA
DEPARTMENT/GROUP: 
DIRECTOR/HEAD: 
CONTACT: 
PHONE: 
E-MAIL: 
INFORMATION DATE: 

Provide a short narrative of the purpose or mission of your department (insert hyperlink if this information is web based).

Our mission

To discover, develop and disseminate science and technologies to serve the teaching, research and outreach needs of students, stakeholders and peers in the agronomic and horticultural plant sciences.

Our vision

To be an innovative and leading source for information and technologies in agronomic and horticultural plant sciences.

Our core values

We value innovation, professional integrity and diligence in fulfilling our mission of teaching, research, extension and service. We value objectivity, teamwork, clear communication, diversity, inclusiveness of opinion and respect for each other and those we serve. We strive to responsibly use resources entrusted to us and to honestly present our creative achievements to stakeholders.

http://plantsciences.utk.edu/mission-vision-values.htm

Does your department have a strategic plan for the near term future? If yes, please attach or insert hyperlink.


Do you anticipate any significant reorganization or change (administrative, research or academic) within the next few years... Yes / No... If yes, describe below.

New department head in 2013

http://plantsciences.utk.edu/mission-vision-values.htm

Lord Aeck Sargent Architecture
K:\PROJECTS\10218-03\PRJ\DES\Pro\Program Questionnaire\EESERC_questionnaire.docxPage 7 of 10

Lord Aeck Sargent Architecture
K:\PROJECTS\10218-03\PRJ\DES\Pro\Program Questionnaire\EESERC_questionnaire.docxPage 7 of 10
Formal Learning Environment Type | Current % of Contact Hours | Ideal or Future Target % of Contact Hours
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Seminar Room: single conference type table, movable chairs | 10 | 10
Small Lecture Classroom: flat floor, moveable tablet-arm chairs or individual student desks | 20 | 30
Flexible Classroom: flat floor, 1-2 person moveable tables, task chairs; allows multiple arrangements for lecture, group discussion, group work | 30 | 10
Technology Enabled Active Learning (TEAL) Classroom: flat floor, 9 person round tables for 3 groups of 3 student teams with computer for each 3 person group, task chairs; primarily designed for group work; technology allows faculty to show any Group work to the entire room | 10 | 20
Case Study Room: tiered floor, fixed tables in semicircle or U shape, task chairs; facilitates lecture and student-faculty or student-student discussion | 10 | 10
Lecture Hall: tiered floor, fixed tables facing forward and task chairs or individual tablet-arm chairs | 50 | 20
Specialty Classroom or Teaching Lab: [insert description] | 10 | 10
Other: [insert description] | [insert description] | [insert description]

How is classroom scheduling done? **SHAREPOINT** Should the process change?

List describes the spaces, other than research labs, classrooms and offices, that are needed by your department or that you believe are needed in this new facility (include number and sizes, quantity of students or staff accommodated, major furniture and equipment; typical time and duration of use each day, potential to share with other departments). (examples include writing/tutoring labs, student association space, informal student study areas, print/copy center, cafe/food service, bookstore, computer lab, faculty

Provide other metrics you feel are important to describe your department's growth plans or future needs.

Compare your department's estimate of percentage of contact hours in the following major classroom types with your department's vision of the desired future learning environments:

[Their info included “Teaching Learning Center & Classrooms” related to Learning Environments. Their existing building has an Auditorium.]

Identify existing laboratories, classrooms or learning spaces (building name and room number) that are thought to be the best research / learning spaces for your department:

From faculty's perspective; describe why:

From students' perspective; describe why:

What are the top complaints about laboratories / classrooms: By faculty / researchers: poor ventilation; fungi/bacteria in air handling; insufficient lab space; be certain eye wash/emerg showers include floor drains

By students: no common meeting areas

Identify current and desired instructional technologies:

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| Provide other metrics you feel are important to describe your department's growth plans or future needs. | |
| | |

| Compare your department's estimate of percentage of contact hours in the following major classroom types with your department's vision of the desired future learning environments: | |
| | |

| Their info included “Teaching Learning Center & Classrooms” related to Learning Environments. Their existing building has an Auditorium. | |
| | |

| Identify existing laboratories, classrooms or learning spaces (building name and room number) that are thought to be the best research / learning spaces for your department: | |
| | |

| From faculty's perspective; describe why: | |
| | |

| From students' perspective; describe why: | |
| | |

| What are the top complaints about laboratories / classrooms: By faculty / researchers: poor ventilation; fungi/bacteria in air handling; insufficient lab space; be certain eye wash/emerg showers include floor drains | |
| | |

| By students: no common meeting areas | |
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| Identify current and desired instructional technologies: | |
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| | |

| How is classroom scheduling done? **SHAREPOINT** Should the process change? | |
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| List describes the spaces, other than research labs, classrooms and offices, that are needed by your department or that you believe are needed in this new facility (include number and sizes, quantity of students or staff accommodated, major furniture and equipment; typical time and duration of use each day, potential to share with other departments). (examples include writing/tutoring labs, student association space, informal student study areas, print/copy center, cafe/food service, bookstore, computer lab, faculty | |
| | |
An undergraduate student lounge.
Also lounge/informal conference room per floor like PBB with kitchen facilities.
Conference room per floor like PBB
Also storage;
Pod-casting/IT communal rooms;
Poster printer room;
Server/Data hub room
Departmental Mailroom for noise abatement
Elevated loading dock/external chemical storage area
Solar panel collection resources
Recharge, docking stations?

Optimized Rooftop:
outdoor classroom,
social gathering areas,
green wall dividers and large planter features (watered by rainfall collection)
rain water sequestration features

List or describe the preferred group or individual adjacencies to other groups, support spaces or other building functions within the following categories.

Mandatory Adjacencies
Admin staff need access to central PS office complex

Important Adjacencies

Undesirable Adjacencies
storage of frozen animal parts

Other than typical office and classroom furniture, identify special equipment or furniture needed or existing that supports your department’s mission.

Add any other information that you believe is important to this strategic planning effort.

Need significantly more storage than we currently have access to
DEPARTMENTAL DATA

DEPARTMENT/GROUP: US Dept of Agriculture, Forest Service, Southern Research Station, Forest Inventory and Analysis (FIA) Research Work Unit
DIRECTOR/HEAD: William Burkman
CONTACT: Same
PHONE: 865-862-2073
E-MAIL: bburkman@fs.fed.us
INFORMATION DATE: Sept. 7, 2012

Provide a short narrative of the purpose or mission of your department (insert hyperlink if this information is web based).

To conduct a program of research to improve the understanding of Southern forest ecosystems through inventories and analyses of the status and trends in resource conditions, use, productivity, and sustainability; and to conduct research to provide improved technology for timely and accurate resource inventories. For more information regarding the FIA Program visit our webpage at http://srsfia2.fs.fed.us/

Does your department have a strategic plan for the near term future? If yes, please attach or insert hyperlink.

No not for specifically for our unit. The National FIA Program has a Strategic Plan for the US. This is updated every five or so years. The link to the plan is: http://www.fia.fs.fed.us/library/fact_sheets/overview/FIA_Strategic_Plan2.pdf

Do you anticipate any significant reorganization or change (administrative, research or academic) within the next few years... Yes / No. . . . If yes, describe below.

No, but the budget for the USDA Forest Service could change in the next few years which could change the amount of funds available to the FIA Program.

List your department's group's priorities or goals for this project:

The Southern Research Station FIA Program needs office space to accommodate the SRS FIA Program. Most of the current 17,000 FT is for office space, conference rooms, and plot documentation files. The current space is in a leased facility in Knoxville. As the SRS conducts collaborative research with University cooperators, the new arrangement would help enhance this activity. The Station would commit to enter a lease agreement with the University as soon as the new facility is opened. In accordance with Federal law, the Station’s commitment must be made contingent on availability of appropriated funds at the time of the lease. It is important to note that funding for Forest Service FIA Program has been sufficient and stable for years. I propose that a fair and reasonable annual lease rate could be negotiated after the new facility is designed and actual costs can be determined. The most efficient arrangement would be for the Station to lease one entire floor of the new facility. In addition, the SRS FIA Program, two other FS researchers are located on the UT campus and it would be advantageous to co-locate these individuals within the FIA space in the new building.

Historical Data & Growth Projections: Considering the history of the past 3 years, how much growth do you anticipate in the next 5-10 years, numbers of faculty/staff, researchers, students, contact hours, etc?

As we are not a teaching but research organization, the table below represents the SRS staff (primarily FIA) located in Knoxville. As such, the total individuals are listed in the staff line. In addition to the individuals listed below in this table, another 40 or so individuals are located throughout the southern US.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Full-Time Faculty</td>
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<td></td>
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<td></td>
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<tr>
<td>Full-Time Principal Investigator</td>
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<td></td>
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<td>Full-Time Researcher</td>
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<td></td>
<td></td>
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<tr>
<td>Part-Time Lecturer</td>
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<td></td>
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<tr>
<td>Full time Lecturer</td>
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<td></td>
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<td>Emeritus Faculty</td>
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<td>Graduate TAs</td>
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<td>Contact Hours 300 level</td>
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<tr>
<td>Contact Hours 400 level</td>
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<td>Contact Hours 500 and above level</td>
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<td>Majors Graduated</td>
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<td>Masters Awarded</td>
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<td>PhDs Awarded</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Provide other metrics you feel are important to describe your department’s growth plans or future needs.

As one of the functions of the FIA program is to provide inventory data on the forests of the southern US to the public, we have been conducting more training on the use of on-line data query tools to partners, cooperators, and users of the FIA data.

Compare your department’s estimate of percentage of contact hours in the following major classroom types with your department’s vision of the desired future learning environments:
[Their info included “Teaching Learning Center & Classrooms” related to Learning Environments. Their existing building has an Auditorium.]

Not sure how to complete this table. I based the % on a 40-hour work week.

<table>
<thead>
<tr>
<th></th>
<th>Current % of contact hours</th>
<th>Ideal or Future Target % of Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar Room: single conference type table, movable chairs</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Small Lecture Classroom: flat floor, moveable tablet-arm chairs or individual</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>
student desks

Flexible Classroom: flat floor, 1-2 person moveable tables, task chairs; allows multiple arrangements for lecture, group discussion, group work

<table>
<thead>
<tr>
<th>Flexible Classroom</th>
<th>Future Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Technology Enabled Active Learning (TEAL) Classroom: flat floor, 9 person round tables for 3 groups of 3 student teams with computer for each 3 person group, task chairs; primarily designed for group work; technology allows faculty to show any group work to the entire room

<table>
<thead>
<tr>
<th>Technology Enabled Active Learning (TEAL) Classroom</th>
<th>Future Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Case Study Room: tiered floor, fixed tables in semicircle or U shape, task chairs; facilitates lecture and student-faculty or student-student discussion

<table>
<thead>
<tr>
<th>Case Study Room</th>
<th>Future Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Lecture Hall: tiered floor, fixed tables facing forward and task chairs or individual tablet-arm chairs

<table>
<thead>
<tr>
<th>Lecture Hall</th>
<th>Future Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>1</td>
</tr>
</tbody>
</table>

Specialty Classroom or Teaching Lab: [insert description]

<table>
<thead>
<tr>
<th>Specialty Classroom or Teaching Lab</th>
<th>Future Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>2</td>
</tr>
</tbody>
</table>

Other: [insert description]

[SHOULD WE INCLUDE A TABLE WITH LAB TYPES –RELATED TO ABOVE.]

Attach a list of current research labs, lab support, classrooms and specialty learning environments used by your department. Include size, maximum number of researchers, student seats, and utilization data for past academic year.

Research labs = 1
Conference rooms = 3
Offices = 31
Cubicles = 35

Identify existing laboratories, classrooms or learning spaces (building name and room number) that are thought to be the best research / learning spaces for your department:

From faculty's perspective; describe why: Not sure I can answer this question.

From students' perspective; describe why: Not sure I can answer this question.

What are the top complaints about laboratories / classrooms:

By faculty / researchers: Not sure I can answer this question.

By students: Not sure I can answer this question.

Identify current and desired instructional technologies:

<table>
<thead>
<tr>
<th>Currently Used</th>
<th>Future Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Board</td>
<td>X</td>
</tr>
<tr>
<td>Digital Projector/Screen or Digital Screen</td>
<td>X</td>
</tr>
<tr>
<td>Two or more digital projectors/screens or digital screens</td>
<td>X</td>
</tr>
<tr>
<td>Fixed computers with special software</td>
<td>X</td>
</tr>
<tr>
<td>Audio recording and archiving classroom sessions</td>
<td>X</td>
</tr>
<tr>
<td>Video recording and archiving of classroom sessions</td>
<td>X</td>
</tr>
<tr>
<td>Document Camera</td>
<td></td>
</tr>
<tr>
<td>Pen-based “telestrating”</td>
<td>X</td>
</tr>
<tr>
<td>Other (describe)</td>
<td></td>
</tr>
</tbody>
</table>

How is classroom scheduling done? Should the process change?

NA

List/describe the spaces, other than research labs, classrooms and offices, that are needed by your department or that you believe are needed in this new facility (include number and sizes, quantity of students or staff accommodated, major furniture and equipment; typical time and duration of use each day, potential to share with other departments).

(Examples include writing/tutoring labs, student association space, informal student study areas, print/copy center, cafe/food service, bookstore, computer lab, faculty resource center, technology support center, teaching innovation lab/instructional media center, departmental library/research center)

Kitchen/Breakroom facilities – 2
Excess publication and record storage – 2 (about 500 ft² @)
Other storage room – 1
Computer Server room – 1
Mailroom – 1
Printer (including 1 plotter/copier areas – 5

List or describe the preferred group or individual adjacencies to other groups, support spaces or other building functions within the following categories.

- Mandatory Adjacencies – Need space for government vehicle parking near building plus would need some parking space for visitors.
- Important Adjacencies
- Undesirable Adjacencies

Other than typical office and classroom furniture, identify special equipment or furniture needed or existing that supports your department’s mission.

We have 5 large plot file record storage units (approximately 8.5 ft. by 8.5 ft. by 4 ft.). We could use up 6 more of these units.

Add any other information that you believe is important to this strategic planning effort.

Due to security issues with Federal facilities, we would need to be able to restrict access to the FS portion of the building. In addition, we would need a system that would allow visitors and non-government individuals to notify FIA individuals that they need access to the FS portion of the building.
## Detailed Equipment Requirements

### ROOM DATA: CONTACT:

**ROOM NAME:** 301 Ellington  
**USER:**  
**DEPARTMENT:** BESS  
**PHONE:**  
**E-MAIL:**

<table>
<thead>
<tr>
<th>Qty</th>
<th>Equipment</th>
<th>Manufacturer/Model</th>
<th>Characteristics</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X-ray Diffraction (XRD) Bruker D8</td>
<td>Size x w x d x t</td>
<td>1000 lbs.</td>
<td>CW HW LW VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Blush cfm exh.</td>
<td></td>
<td>Power type N S</td>
</tr>
<tr>
<td></td>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Recirculating Water Chiller Haskel</td>
<td>Size x w x d x t</td>
<td>400 lbs.</td>
<td>CW HW LW VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Blush cfm exh.</td>
<td></td>
<td>Power type N S</td>
</tr>
<tr>
<td></td>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Computer Dell</td>
<td>To run XRD</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Blush cfm exh.</td>
<td></td>
<td>Power type N S</td>
</tr>
<tr>
<td></td>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Surface Area Analyzer Beckman Coulter S4A100</td>
<td>Size x w x d x t</td>
<td>150 lbs.</td>
<td>CW HW LW VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Blush cfm exh.</td>
<td></td>
<td>Power type N S</td>
</tr>
<tr>
<td></td>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Particle Size Analyzer Beckman Coulter LS13320</td>
<td>Size x w x d x t</td>
<td>100 lbs.</td>
<td>CW HW LW VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Blush cfm exh.</td>
<td></td>
<td>Power type N S</td>
</tr>
<tr>
<td></td>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Computer Dell</td>
<td>to run Particle Size analyzer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Blush cfm exh.</td>
<td></td>
<td>Power type N S</td>
</tr>
<tr>
<td></td>
<td>Remarks:</td>
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</tbody>
</table>

### ROOM DATA: CONTACT:

**ROOM NAME:** 311 Ellington  
**USER:**  
**DEPARTMENT:** BESS  
**PHONE:**  
**E-MAIL:**

<table>
<thead>
<tr>
<th>Qty</th>
<th>Equipment</th>
<th>Manufacturer/Model</th>
<th>Characteristics</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ICP Spectro</td>
<td>Inductively Coupled Plasma Spectroscopy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Blush cfm exh.</td>
<td></td>
<td>Power type N S</td>
</tr>
<tr>
<td></td>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Autosampler</td>
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<td>Heat Blush cfm exh.</td>
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<td>Power type N S</td>
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<tr>
<td></td>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Water Bath Thermo Neslab M33</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Blush cfm exh.</td>
<td></td>
<td>Power type N S</td>
</tr>
<tr>
<td></td>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mtg:** F (floor), B (bench), W (wall), C (ceiling)  
**Status:** E (existing), P (proposed)  
**Electric Power Type:** N (normal), S (standby)  
**Services:** CW (cold water), HW (hot water), LW (lab grade water), VAC (vacuum), A (<100 psi), N2 (nitrogen), NG (natural gas), Other
### Detailed Equipment Requirements

#### ROOM DATA:
- **ROOM NAME:** Soil Chemistry
- **USER:** Dr. M. Essingten
- **DEPARTMENT:** BESS
- **PHONE:** 974-7266
- **E-MAIL:** messingten@utk.edu

#### Equipment List

<table>
<thead>
<tr>
<th>Qty</th>
<th>Equipment</th>
<th>Manufacturer/Model</th>
<th>Characteristics</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Water Purification</td>
<td>E-Pure</td>
<td>Size: 32 &quot; x 8 &quot; x 21 &quot;</td>
<td>CW,HW,SW,VAC</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Heat: not specified</td>
<td>Blush, cfm exh.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Power type: N</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Centrifuge</td>
<td>International Electric Co.</td>
<td>Size: 30 &quot; x 24 &quot; x 40 &quot;</td>
<td>CW,HW,SW,VAC</td>
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<tr>
<td></td>
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<td></td>
<td>Heat: not specified</td>
<td>Blush, cfm exh.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Power type: N</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Shaker Incubator</td>
<td>New Brunswick</td>
<td>Size: 12 &quot; x 20 &quot; x 30 &quot;</td>
<td>CW,HW,SW,VAC</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Heat: not specified</td>
<td>Blush, cfm exh.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Power type: N</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Refrigerator</td>
<td>Frigidaire</td>
<td>Size: 31 &quot; x 31 &quot; x 30 &quot;</td>
<td>CW,HW,SW,VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Heat: not specified</td>
<td>Blush, cfm exh.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Power type: N</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Freeze Dryer</td>
<td>Labconco</td>
<td>Size: 23 &quot; x 24 &quot; x 40 &quot;</td>
<td>CW,HW,SW,VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Heat: not specified</td>
<td>Blush, cfm exh.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Power type: N</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Recirculating Water Bath</td>
<td>Isotemp</td>
<td>Size: 18 &quot; x 16 &quot; x 22 &quot;</td>
<td>CW,HW,SW,VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Heat: not specified</td>
<td>Blush, cfm exh.</td>
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<td></td>
<td></td>
<td></td>
<td>Power type: N</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Glove Box</td>
<td></td>
<td>Size: 32 &quot; x 32 &quot; x 10 &quot;</td>
<td>CW,HW,SW,VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Heat: not specified</td>
<td>Blush, cfm exh.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Power type: N</td>
<td>5</td>
</tr>
</tbody>
</table>

**Remarks:**
- Needs Fume Hood to Exhaust
- Needs Fume Hood to Exhaust
- Needs Fume Hood to Exhaust
- Needs Fume Hood to Exhaust

**Services:**
- **CW:** Cold Water
- **HW:** Hot Water
- **LW:** Lab Grade Water
- **VAC:** Vacuum
- **A:** Compressed Air (<100 psi)
- **N2:** Nitrogen
- **NG:** Natural Gas

---

Energy + Environmental Science Education Research Center
University of Tennessee - Institute of Agriculture - Knoxville
### Detailed Equipment Requirements

**ROOM DATA:**
- **CONTACT:** Drs. Essingten/Jardne
- **DEPARTMENT:** BESS
- **PHONE:** 974-7266
- **E-MAIL:** messingten@utk.edu

<table>
<thead>
<tr>
<th>Qty</th>
<th>Equipment</th>
<th>Manufacturer/Model</th>
<th>Characteristics</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Zeta Meter</td>
<td>Zeta Meter</td>
<td><strong>Size</strong> 26 x 12 x 12 in., 26 lbs.</td>
<td><strong>CW</strong> Bluh cfm exh. <strong>Vac</strong> <strong>Power type</strong> <strong>Status</strong> <strong>Status</strong> <strong>Status</strong> <strong>Status</strong> <strong>Services</strong> <strong>Services</strong> <strong>Services</strong> <strong>Services</strong></td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>Glove Box</td>
<td>Coy</td>
<td><strong>Size</strong> 100 x 44 x 16 in., 100 lbs.</td>
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<tr>
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<tr>
<td>1</td>
<td>Computer</td>
<td></td>
<td><strong>Size</strong> 124 x 24 x 24 in., 60 lbs.</td>
<td><strong>CW</strong> Bluh cfm exh. <strong>Vac</strong> <strong>Power type</strong> <strong>Status</strong> <strong>Status</strong> <strong>Status</strong> <strong>Status</strong> <strong>Services</strong> <strong>Services</strong> <strong>Services</strong> <strong>Services</strong></td>
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**Mtg:** F (floor), B (bench), W (wall), C (ceiling)  
**Status:** E (existing), P (proposed)  
**Electric Power Type:** N (normal), S (standby)  
**Services:** CW (cold water), HW (hot water), LW (lab grade water), VAC (vacuum), A (compressed air: <100 psi), N2 (nitrogen), NG (natural gas), Other
### Detailed Equipment Requirements

**Room Name:** Ellington 23

**User:** Karen Vail

**Department:** Entomology & Plant Pathology

**Contact:** kvail@utk.edu

<table>
<thead>
<tr>
<th>Qty</th>
<th>Equipment</th>
<th>Manufacturer/Model</th>
<th>Characteristics</th>
<th>Services</th>
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<tr>
<td>1</td>
<td>Bookcase</td>
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<td></td>
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</tr>
<tr>
<td>1</td>
<td>Scale</td>
<td>Mtg. × F</td>
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</tr>
<tr>
<td>1</td>
<td>Storage cabinet</td>
<td>Mtg. × F</td>
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<tr>
<td>1</td>
<td>Pesticide storage cabinet</td>
<td>Mtg. × F</td>
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<tr>
<td>1</td>
<td>Chest Freezer</td>
<td>Mtg. × F</td>
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<tr>
<td>1</td>
<td>Microscope, light, camera, and computer</td>
<td>Mtg. × F</td>
<td></td>
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<tr>
<td>1</td>
<td>Microscope and light</td>
<td>Mtg. × F</td>
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<td>1</td>
<td>Double sink</td>
<td>Mtg. × F</td>
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<tr>
<td>2</td>
<td>File cabinets</td>
<td>Mtg. × F</td>
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**Characteristics: Services

**Mtg:** F (floor), B (bench), W (wall), C (ceiling)  
**Status:** E (existing), P (proposed)  
**Electric Power Type:** N (normal), S (standby)  
**Services:** CW (cold water), HW (hot water), LW (lab grade water), VAC (vacuum), A (compressed air: <100 psi), N2 (nitrogen), NG (natural gas), Other
### Detailed Equipment Requirements

**ROOM DATA:**
- **NAME:** Ellington PSB 227
- **CONTACT:** Dr. Trout Fryxell

**DEPARTMENT:** Entomology and Plant Pathology

**PHONE:** 4-7138

**E-MAIL:** rfryxell@utk.edu

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<tr>
<th>Qty</th>
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<th>Characteristics</th>
<th>Services</th>
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<td>Amana</td>
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<td>CW LW VAC</td>
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<td>Deep Freezer</td>
<td></td>
<td></td>
<td>A N2 NG</td>
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<td></td>
<td>Refrigerator/Freezer</td>
<td>Roper</td>
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<td>CW LW VAC</td>
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<td></td>
<td></td>
<td>A N2 NG</td>
</tr>
<tr>
<td></td>
<td>desk/tables</td>
<td></td>
<td></td>
<td>CW LW VAC</td>
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<td></td>
<td></td>
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<td>table/counter</td>
<td></td>
<td></td>
<td>CW LW VAC</td>
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<td></td>
<td></td>
<td></td>
<td>A N2 NG</td>
</tr>
<tr>
<td></td>
<td>shelf units</td>
<td></td>
<td></td>
<td>CW LW VAC</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>A N2 NG</td>
</tr>
<tr>
<td></td>
<td>bookshelves/file cabinets</td>
<td></td>
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<td>CW LW VAC</td>
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<td></td>
<td></td>
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<td>A N2 NG</td>
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**Remarks:**
- already have, just need the space
- already have, just need the space
- already have, just need the space
- already have, could use 2 more and the space
- already have, just need the space
- already have, just need the space
- already have, just need the space

**Services:**
- CW (cold water)
- HW (hot water)
- LW (lab grade water)
- VAC (vacuum)
- A (compressed air: <100 psi)
- N2 (nitrogen)
- NG (natural gas)
- Other

---

UT Institute of Agriculture
Energy & Environmental Science Education Research Center

Lord, Aeck & Sargent
410. Existing Ellington Space Summary [cont]
<table>
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<tr>
<th>Room #</th>
<th>Area</th>
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<tr>
<td><strong>Total</strong></td>
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<tr>
<td><strong>Storage</strong></td>
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<tr>
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<td>8009</td>
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<tr>
<td><strong>Classroom Support</strong></td>
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<tr>
<td>100C</td>
<td>217 sf</td>
<td>Table/Chair Storage</td>
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<tr>
<td>100D</td>
<td>217 sf</td>
<td>Kitchen</td>
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<tr>
<td>100H</td>
<td>808 sf</td>
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<tr>
<td>125A</td>
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<tr>
<td>126A</td>
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<tr>
<td>130A</td>
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<td>Storage</td>
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<tr>
<td>130B</td>
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<td><strong>Total</strong></td>
<td>1,395 sf</td>
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<tr>
<td><strong>Teaching Laboratory</strong></td>
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<td>982 sf</td>
<td>Teaching Lab (General Wet Chemistry, Instructional Tech)</td>
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<tr>
<td><strong>Research Laboratory</strong></td>
<td>Room #</td>
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<tr>
<td>105</td>
<td>930 sf</td>
<td>Biogeochemistry</td>
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<tr>
<td>301</td>
<td>447 sf</td>
<td>Pedology &amp; Mineralogy (X-Ray Room - XRD)</td>
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<tr>
<td>303</td>
<td>440 sf</td>
<td>Soil Carbon &amp; Ag Sustainability</td>
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<tr>
<td>304</td>
<td>129 sf</td>
<td>Soil Sample Preparation</td>
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<tr>
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<td>Soil Sample Preparation</td>
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<tr>
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<td>314</td>
<td>594 sf</td>
<td>Soil Chemistry</td>
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<tr>
<td>315</td>
<td>468 sf</td>
<td>Soil Survey &amp; Characterization</td>
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<tr>
<td>317</td>
<td>455 sf</td>
<td>Environmental Soil &amp; Remediation (10% Hydrogen Gas Atmos)</td>
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<tr>
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<td>567 sf</td>
<td>Climatology, Nutrient Management -or- Plant Sciences-Plant Ns.</td>
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<tr>
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<td>455 sf</td>
<td>Soil Physics &amp; Hydrology</td>
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<tr>
<td><strong>Laboratory Support</strong></td>
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<tr>
<td>105A</td>
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<tr>
<td>105B</td>
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<tr>
<td>105C</td>
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<tr>
<td>116A</td>
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<tr>
<td>116B</td>
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<tr>
<td>326</td>
<td>183 sf</td>
<td>Soil Map Drafting &amp; Storage</td>
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<td>327</td>
<td>72 sf</td>
<td>Soil Map Drafting &amp; Storage</td>
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<td><strong>Total</strong></td>
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<tr>
<td><strong>Office</strong></td>
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</tr>
<tr>
<td>340</td>
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<td>Research Associates</td>
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<tr>
<td>353</td>
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<td>Emeriti Faculty</td>
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<tr>
<td>377</td>
<td>108 sf</td>
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<td><strong>Total</strong></td>
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### Existing Ellington Space Summary [cont] - 2013

#### Entomology & Plant Pathology

<table>
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<tbody>
<tr>
<td>101</td>
<td>836 sf</td>
<td>IPM, Economic Entomology, Veterinary Entomology, Field Crops and Vegetable Insects</td>
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<tr>
<td>112</td>
<td>584 sf</td>
<td>Insect Museum</td>
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<tr>
<td>127</td>
<td>438 sf</td>
<td>Pesticide Safety Education Program Testing and Training</td>
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<td>1,858 sf</td>
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#### Research Laboratory

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<tr>
<td>106</td>
<td>302 sf</td>
<td>Extension Diagnostics and Communications</td>
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<tr>
<td>227</td>
<td>441 sf</td>
<td>Medical / Veterinary Entomology Dirty Lab</td>
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<td>234</td>
<td>304 sf</td>
<td>Urban Pest Bioassays / Chemical Evaluations</td>
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<tr>
<td>235</td>
<td>392 sf</td>
<td>Urban Pest Rearing Room</td>
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<td>1,138 sf</td>
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#### Laboratory Support

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<td>Media Prep (Wiley Mill, Autoclaves)</td>
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<tr>
<td>235B</td>
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<td>487 sf</td>
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#### Office

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<td>205</td>
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<td>Reception and Package/Specimen Delivery Area</td>
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<td>95 sf</td>
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#### Office Support

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<td>205A</td>
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<td>Computer Room and EPP Mailroom, Refrigerators</td>
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#### Storage

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<tr>
<td>B013a</td>
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<td>Equipment Storage (power sprayer, back sprayer, etc.)</td>
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#### Total

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#### Forestry, Wildlife & Fisheries

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#### Research Laboratory

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#### Office

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#### Energy + Environmental Science Education Research Center

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### CASNR

#### Classrooms

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Total: 2,987

#### Classrooms Support

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Total: 1,794

#### Total

Total: 4,781

### Entomology and Plant Pathology

#### Offices

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<td>Office, faculty</td>
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Total: 1,552

#### Teaching Labs

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<td>828 EPP's Classroom</td>
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</tbody>
</table>

Total: 828

#### Research Lab

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Floors</th>
<th>Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>106</td>
<td>Lab-WET, research/non-class</td>
<td>4</td>
<td>292 State; research team helped du summer</td>
</tr>
<tr>
<td>112</td>
<td>Laboratory, research/non-class</td>
<td>2</td>
<td>574 Insect Museum</td>
</tr>
<tr>
<td>227</td>
<td>Laboratory, research/non-class</td>
<td>4</td>
<td>423 Trout lab</td>
</tr>
<tr>
<td>228</td>
<td>Lab-WET, research/non-class</td>
<td>4</td>
<td>386 State; not claimed on survey</td>
</tr>
<tr>
<td>233</td>
<td>Laboratory svc, res/n-c-autoclav</td>
<td>0</td>
<td>268 Autoclave; all EPP use</td>
</tr>
<tr>
<td>234</td>
<td>Lab-WET, research/non-class</td>
<td>2</td>
<td>285 State</td>
</tr>
<tr>
<td>235</td>
<td>Lab-WET, research/non-class</td>
<td>2</td>
<td>381 State; Brad Hines stud will start</td>
</tr>
<tr>
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<td>75 State; com server</td>
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<tr>
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<td>189 State; training lab</td>
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<tr>
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Total: 3,001

#### Total

Total: 5,920
## Existing Ellington Space Summary [cont] - 2018

### Forestry Univ.

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<tr>
<td>244</td>
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<tr>
<td>246</td>
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<td>247</td>
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<tr>
<td>248</td>
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<tr>
<td>274</td>
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</tr>
<tr>
<td>277</td>
<td>Office, clerical</td>
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<tr>
<td>278</td>
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<tr>
<td>307</td>
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<tr>
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<tr>
<td>274B</td>
<td>Office service</td>
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</tr>
<tr>
<td>274D</td>
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<tr>
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Total: 2,146

### Research Lab

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<tr>
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<tr>
<td>201</td>
<td>Laboratory, research/non-class</td>
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</tr>
<tr>
<td>203</td>
<td>Laboratory, research/non-class</td>
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</tr>
<tr>
<td>216</td>
<td>Laboratory, research/non-class</td>
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<tr>
<td>217</td>
<td>Laboratory, research/non-class</td>
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<tr>
<td>231</td>
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<tr>
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<td>Laboratory, research/non-class</td>
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<tr>
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<tr>
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Total: 2,702

### Classrooms

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<tr>
<td>113</td>
<td>Classroom, special purpose</td>
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</tr>
<tr>
<td>115</td>
<td>Classroom, special purpose</td>
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Total: 1,474

### Offices

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<tr>
<td>241</td>
<td>Office, graduate teaching assit</td>
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</tr>
<tr>
<td>242</td>
<td>Office, faculty</td>
<td>1</td>
</tr>
<tr>
<td>243</td>
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<tr>
<td>245</td>
<td>Office, faculty</td>
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</tr>
<tr>
<td>250</td>
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</tr>
<tr>
<td>257</td>
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</tr>
<tr>
<td>276</td>
<td>Office, clerical</td>
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<tr>
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Total: 1,171

### Teaching Labs

<table>
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<td>204</td>
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Total: 1,587

### Total

<table>
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<tr>
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**Energy + Environmental Science Education Research Center**

University of Tennessee - Institute of Agriculture - Knoxville
## FS Admin

<table>
<thead>
<tr>
<th>Offices</th>
<th></th>
<th></th>
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</thead>
<tbody>
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<td>B004 Office, other non-exempt</td>
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<td>166</td>
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<tr>
<td>B009 Shop</td>
<td>0</td>
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## Institutional Animal Care and Use Commit

<table>
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<tbody>
<tr>
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<tr>
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## Institute of Agriculture - Admin

### Classrooms

<table>
<thead>
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<tbody>
<tr>
<td>100 Assembly</td>
<td>370</td>
<td>4,346 Chair/Tables upto 370</td>
</tr>
<tr>
<td>100C Assembly service</td>
<td>0</td>
<td>209  Table/Chair Storage</td>
</tr>
<tr>
<td>100D Assembly service</td>
<td>0</td>
<td>209  Kitchen</td>
</tr>
<tr>
<td>100H Assembly service</td>
<td>0</td>
<td>788  Foyer</td>
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### Offices

<table>
<thead>
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<td>151  Jessica Woolter</td>
</tr>
<tr>
<td>370 Office, staff</td>
<td>1</td>
<td>97   Brian Ranger</td>
</tr>
<tr>
<td>371 Office, staff</td>
<td>1</td>
<td>101  Linda Hamilton</td>
</tr>
<tr>
<td>373 Office, staff</td>
<td>1</td>
<td>99   Elizabeth P Bailey</td>
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<td><strong>Total</strong></td>
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<td><strong>Total</strong></td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>258 Office, staff</td>
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<tr>
<td></td>
<td>259 Office, clerical</td>
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<tr>
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<td>260 Office, clerical</td>
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<tr>
<td></td>
<td>261 Office service</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>263 Office, faculty</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td>267 Office, faculty</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<td></td>
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<td></td>
<td>347 Office, faculty</td>
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</tr>
<tr>
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<td></td>
<td>351 Office, staff</td>
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<tr>
<td></td>
<td>352 Office, staff</td>
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<tr>
<td></td>
<td>354 Office, faculty</td>
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<tr>
<td></td>
<td>355 Office, faculty</td>
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<tr>
<td></td>
<td>356 Office, graduate assistant</td>
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<td></td>
<td>357 Office, faculty</td>
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</tr>
<tr>
<td></td>
<td>359 Office, graduate assistant</td>
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<td>360 Office, staff</td>
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<tr>
<td></td>
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<tr>
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<tr>
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<table>
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<tr>
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<tbody>
<tr>
<td>117 Unit storage</td>
</tr>
<tr>
<td>129 Central computer/telecommun</td>
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<td>265 Unit storage</td>
</tr>
<tr>
<td>106C Central computer/telecom svc</td>
</tr>
<tr>
<td>129A Office service</td>
</tr>
<tr>
<td>270A Office service</td>
</tr>
<tr>
<td>270B Office service</td>
</tr>
<tr>
<td>306A Office storage</td>
</tr>
<tr>
<td>B002 Unit storage</td>
</tr>
<tr>
<td>B002A Unit storage</td>
</tr>
<tr>
<td>B012 Unit storage</td>
</tr>
<tr>
<td>B017 Unit storage</td>
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</table>

<table>
<thead>
<tr>
<th>Teaching Labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>103 Laboratory, class</td>
</tr>
<tr>
<td>105 Laboratory, class</td>
</tr>
<tr>
<td>105A Laboratory service, class</td>
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<tr>
<td>105B Laboratory service, class</td>
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<table>
<thead>
<tr>
<th>Research Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>229 Laboratory, research/thesis</td>
</tr>
<tr>
<td>316 Laboratory, research/postdoc</td>
</tr>
<tr>
<td>322 Laboratory, research/thesis</td>
</tr>
<tr>
<td>323 Laboratory, research/postdoc</td>
</tr>
<tr>
<td>325 Laboratory, research/postdoc</td>
</tr>
<tr>
<td>327 Unclassified/blank, available</td>
</tr>
<tr>
<td>328 Laboratory svc/res/coldrm</td>
</tr>
<tr>
<td>330 Laboratory, research/thesis</td>
</tr>
<tr>
<td>331 Laboratory svc/res/coldrm</td>
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<tr>
<td>103A Laboratory svc/res/coldrm</td>
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411 Existing Plant Biotech Building Space Summary

First Floor Level

Second Floor Level

Basement Level
Existing Plant Biotech Building Space Summary [cont]

Third Floor Level

Fourth Floor Level
A List of Departmental Needs while displaced from Ellington. (We will focus on the laboratory requests. Be specific: such as linear feet of bench, sinks, gases, bottled gases, specialty environmental space such as cold room, growth chambers, fume hoods, dry bench space.)

Nine ESS faculty members currently occupy approximately 3,810 SF in Ellington. During the displacement of Ellington, minimum laboratory needs are:

- Clean, analytical chemistry lab space (Ellington)
  1. With floor space for three (3) centrifuge units, two refrigerators, one (1) freeze dryer, and a glove box.
  2. 120 linear feet of wet lab bench space consistent with Ellington 314, which includes bench space for analytical balances, pH meters and other minor equipment, a temperature-controlled water bath unit, two (2) drying ovens, a zeta-meter, and a shaker.
  3. Two (2) sinks are required with drying racks and dishwashing space.
  4. Wall space for water purification system, proximate to sink is required, as well as space for carboys that contain purified water (also proximate to sink).
  5. Total of 60 SF of storage, including spaces for dry chemicals, and storage for acids/bases and volatile/flammable organic solvents.
  6. Total of 30 SF storage for glassware and other laboratory supplies (consistent with 314) is also required.
  7. House gas, vacuum, and compressed air, as well as space for ten (10) gas cylinders are needed.

- Instrumentation Lab (Community lab, Ellington in charge)
  - Beckman Coulter SA 3100 Surface area analyzer
    Normal plug – no exhaust requirement
  - Beckman Coulter LS 13 320 Laser diffraction particle size analyzer
    Normal plug – no exhaust requirement
  - Bruker D8 Advance XRD
    Weight – load requirements 717 kg/m2
    Mains supply voltage
    One phase supply:
    208 VAC (+/- 10%)  
    230 VAC (+/- 10%)  
    240 VAC (+/- 10%)

- As indicated above, program space is greatly reduced in the utilization of McCord Hall. Diagrams of Laboratory Modular Buildings are included for more potential Surge Space. Each of the larger units would house two laboratory units.

- Combined Existing Storage at Ellington is 2,776 SF. The bulk of this requires conditioned space.

- Necropsy space is included in McCord at 722 SF and a Classroom for FWF courses.

### Departmental Needs

<table>
<thead>
<tr>
<th>Department</th>
<th>Existing Ellington Laboratory SF</th>
<th>Proposed SF (McCord)</th>
<th>Additional SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>BESS</td>
<td>4,734</td>
<td>2,567</td>
<td>2 Labs</td>
</tr>
<tr>
<td>EPP</td>
<td>1,449</td>
<td>*531</td>
<td>1 Lab, PSEPTC Space and 12 Offices</td>
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<tr>
<td>FWF</td>
<td>2,671</td>
<td>0</td>
<td>7 Labs, 3 Classrooms, 1 Necropsy Teaching Lab and 23 Offices</td>
</tr>
<tr>
<td>PSS</td>
<td>3,334</td>
<td>809</td>
<td>8 Labs, 1 Seed and Processing Area, 23 offices</td>
</tr>
<tr>
<td>Biosafety</td>
<td>IACUC</td>
<td>OHP</td>
<td>OLAC</td>
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</table>

* Necropsy space is included in McCord at 722 SF and a Classroom for FWF courses.
Three phase supply:
3 x 120 VAC (+/- 10%)
3 x 230 VAC (+/- 10%)
3 x 240 VAC (+/- 10%)

Frequency range – 47-63 Hz
D8 maximum power consumption without water cooling system – max. 6 kVA

Water chiller for XRD – 240 plug 50/60Hz

**Needs fume hood to operate**

Oven – American Scientific products DK 62 Oven
Voltage 115V
Hz 60
Amps 15
**Needs fume hood to operate**

Spectro ICP (requires its own room, consistent with Ellington 311; requires proximate clean wet lab)
3 x 230 V +/-10%
50/60 Hz
Alternating current + neutral wire + PE, 400/230V +/- 10%
Fuse 32A per phase (slow blow) or 230V between 2 line wires/45V fuse protection
Exhaust minimum 500 m3.hr (adjustable)
Weight 550lbs
** needs year round air conditioning in room**

**Soil Physics Lab (Lee)**
1. With floor space for one refrigerator, and 80 linear feet of wet-lab bench space consistent with Ellington 333, which includes bench space for analytical balances, fraction collectors, and other minor equipment, one (1) drying oven, and a shaker.
2. One (1) sink is required, but two (2) are preferred with drying racks and dishwashing space.
3. Wall space for hanging water column.
4. Total of 30 SF of storage, including spaces for dry chemicals, and storage for acids/bases and volatile/flammable organic solvents.
5. A fume hood.
6. Total of 50 SF storage for glassware and other laboratory supplies is also required.
7. House gas, vacuum, and compressed air.

**Soil and Plant sample preparation Lab (Community Lab)**
Minimum of 200 SF dirty lab space for grinder, two (2) drying ovens, and one (1) sink.

**Cold room**
50 SF of cold room storage space for various solid and liquid samples.

**Sustainable Ag and Environment Lab (Eash, Walkers)**
1. With floor space for one refrigerator, and 80 linear feet of wet-lab bench space consistent with Ellington 302, which includes bench space for analytical balances and other minor equipment, one (1) drying oven, and a shaker.
2. Bench space for CN Analyzer, computer, and hood.
3. One (1) sink is required, but two (2) are preferred with drying racks and dishwashing space.
4. Total of 30 SF of storage, including spaces for dry chemicals, and storage for acids/bases and volatile/flammable organic solvents.
5. A fume hood.
6. Total of 30 SF storage for glassware and other laboratory supplies is also required.
7. House gas, vacuum, and compressed air.

**Environmental Characterization Lab (Jardine, Zhuang, Logan, Savoy)**
1. With floor space for one refrigerator, and 80 linear feet of wet-lab bench space consistent with Ellington 317, which includes bench space for autoclave, analytical balances and other minor equipment, one (1) drying oven, and a shaker.
2. Floor space for a glove bag (10 by 4 ft) and five (5) gas tanks.
3. One (1) sink is required, but two (2) are preferred with drying racks and dishwashing space.
4. Total of 50 SF of storage, including spaces for dry chemicals, and storage for acids/bases and volatile/flammable organic solvents.
5. A fume hood.
6. Total of 50 SF storage for glassware and other laboratory supplies is also required.
7. House gas, vacuum, and compressed air.
<table>
<thead>
<tr>
<th>Room/Space</th>
<th>Utilization</th>
<th>Faculty/Extension Specialist Responsible</th>
<th>Staff/Student Utilizing Space</th>
<th>Approximate Sq. Ft.</th>
<th>Additional Future needs</th>
<th>Interim Space Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Mechanical equipment room (closing of plot barn required much of our large, bulky equipment (power sprayer, back sprayers, etc.) to be stored here)</td>
<td>Karen Val, Danielle Hensley (11 cabinets for EPP), Paris Lambdin, etc.</td>
<td>Need area to store large and bulky equipment.</td>
<td>Need area to store large and bulky equipment. Can be located off site as long as we have access to it.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Ag. Bid. Storage (EPP) Storage - Extension Publications, Dept. Displays, etc.</td>
<td>All</td>
<td>(Aside: Basement ridden with brown recluse spiders. Do not relocate stored materials in cardboard boxes, a preferred habitat of these spiders. Destroy cardboard and store in plastic totes)</td>
<td>Will need storage space to accommodate these items.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outside 36</td>
<td>JESP storage</td>
<td>3 large cabinets each 36&quot; X 24&quot; X 6.5 ft</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Lab Classroom - capacity 18</td>
<td>S. D. P. M. (Jeremy Grant); 321 Economic Entomology (Paris Lambdin); 325 Veterinary Entomology (Reid Gerhardt); 523 Field Crops and Vegetable Insects (Jerome Grand)</td>
<td>will need space for storing collections and &quot;better&quot; microscopes</td>
<td>Classroom will need space for storing collections and microscopes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>106</td>
<td>Extension Diagnostics and Communications Ecot (EAB, CAPS) Pest Survey and Detection project work area (Long), includes insect trap set up area, dirty benches with microscope area for evaluation and identification of insect and disease field specimens,</td>
<td>Hensley, Long, and other Extension personnel</td>
<td>Summer workers 24.5 ft X 24 ft</td>
<td>Need a dirty lab work area (reverse) facility require this dirty space to work with field soil and plant material, sink area with hot, cold and distilled water, large walk-in cooler and refrigerator for holding plant material and insect specimens. Need</td>
<td>Very minimum - will need space for dissecting and compound microscopes and lights; storage area for exotic pest survey reference materials and insects. Will also need space for insect trap storage (this can be off site), but we will also need</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interim Space Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean bench space for preparation of educational and outreach materials, such as disease and insect display, Storage educational materials, reference materials for exotic insects, storage of Cornell drawers and insect traps and vials with exotic pest catches from survey and detection work (Long), Distance Diagnostics area with computers, compound and stereomicroscope set up with digital camera. (Hensley)</td>
</tr>
<tr>
<td>Storage area for exotic pest survey reference materials and insects (perhaps extra cabinet storage in the insect museum), laboratory supplies, educational and outreach materials, and pest educational literature and handouts. Chemical fume hood needed. Also need a clean lab microscope work area, plus a separate distance diagnostic laboratory worktable set up for several microscopes and digital camera units and computer for access to UT EPP Distance Diagnostics Database. Soil sink/strip needed (see north greenhouse).</td>
</tr>
<tr>
<td>Insect Museum</td>
</tr>
<tr>
<td>Classroom</td>
</tr>
<tr>
<td>Classroom</td>
</tr>
</tbody>
</table>
## 2013 Surge Space Requirements (cont)

### 1.27 Pesticide Safety Education Program Testing Center
- **Kimberly Gwinn**
- **Darrell Hensley**
- **Josh Anderson**

Needs to accommodate a testing area for 10-12 people monthly and others training/testing upon request.

### 1.28 Classroom/Seminar room
- **Kimberly Gwinn**

### 205 Reception and package/specimen delivery area
- **Debby Edinger**

EPP needs a secure reception area where EPP packages can be stored and refrigerated. Space for 2 staff members needed.

### 206 Undergraduate Honors Program
- **Kimberly Gwinn**
- **Grant Davis (Intern)**

The programs housed in this room are responsible for more undergraduates than many departments. The original request was to house this office in Plant Biotech Building because of the proximity to the conference rooms and Dr. Gwinn’s office. Housing student records in a separate section of office is highly desired.

### 207 Office
- **John Skinner**

Will need office with hardwired internet. Supposedly the research incubator building is off limits to us, but I wonder if the offices are unoccupied, if we could temporarily move in, but offer to move out if space needs change. This would be very convenient for Dr. Skinner because his lab would nearby, across a small parking lot.

### 208 Office
- **J. Patrick Parkman**

### 209 Office
- **Rod Gerhardt**

### 210 Office
- **Ashley Lamb (Post-doc)**
- **David Paulson**

Will need office with hardwired internet.

### 211 Office
- **John Skinner**
- **Phillip Moore, Michael Wilson, Ent. Spec.**

Will need office space with 2 desks and hardwired internet as Michael spends most of the day working with web pages, video editing, etc. for eXtension BeeHealth internet site. John’s support staff has agreed to move into Bee Lab, if and only if, a hardwired internet line is installed. Can this line be run from Research Business Incubator Building?

### 212 Office
- **Elizabeth (Beth) Long**

Will need office with hardwired internet. The best fit for Beth Long and Darrell Hensley would be to find office and storage space at the UT Plant Science Farm.
<table>
<thead>
<tr>
<th>Page</th>
<th>Location</th>
<th>Name</th>
<th>Name</th>
<th>Special Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>213</td>
<td>Office</td>
<td>Karen Vail</td>
<td>Pat Bamwell</td>
<td><strong>Will need office with hardwired internet</strong></td>
</tr>
<tr>
<td>214</td>
<td>Office</td>
<td>Karen Vail</td>
<td></td>
<td><strong>Will need 18 x 12 office with hardwired internet</strong></td>
</tr>
<tr>
<td>215</td>
<td>Office</td>
<td>Karen Vail</td>
<td>Jennifer Chandler</td>
<td><strong>Will need office with hardwired internet</strong></td>
</tr>
<tr>
<td>218</td>
<td>Computer room and EPP mailroom, refrigerators</td>
<td></td>
<td></td>
<td>Need a mailroom, breakroom, and a conference room.</td>
</tr>
<tr>
<td>219</td>
<td>Office</td>
<td>Gene Burgess</td>
<td></td>
<td>156.27</td>
</tr>
<tr>
<td>220</td>
<td>Office</td>
<td>Darrell Hensley</td>
<td></td>
<td>184</td>
</tr>
<tr>
<td>221</td>
<td>Office</td>
<td>Darrell Hensley</td>
<td>Josh Anderson</td>
<td>184</td>
</tr>
</tbody>
</table>

The TDA building because they work so closely with TDA. Is there any space in the buildings that the East Tennessee Regional Extension Office vacated about a year ago?

Will need 12x15 ft office with hardwired internet. The best fit for Beth Long and Darrell Hensley would be to find office and storage space at the UT Plant Science Farm near the TDA building because they work so closely with TDA. Is there any space in the buildings that the East Tennessee Regional Extension Office vacated about a year ago?

Will need 12x15 ft office with hardwired internet. The best fit for Beth Long and Darrell Hensley would be to find office and storage space at the UT Plant Science Farm near the TDA building because they work so closely with TDA. Is there any space in the buildings that the East Tennessee Regional Extension Office vacated about a year ago?

4.6 microscope work stations (with working drawers); 4-6 (other side perhaps) long table for making a mess; excellent shelving/holding/storage areas for large and small items; 10x10 area that is 'sectioned' off for cleaner things (DNA extractions) small hood space; office separation area where food (pika coffee) is permitted; insect rearing area (or area to hold multiple growth chambers) to maintain and contain potential vectors such as mosquitoes); minimum of 2 sinks

David Paulsen (needs office space), Brian Hendricks, and several student hourly workers. **expecting to have 3 people working concurrently plus an hourly student or two (n = 5) | 227 | Medical/Veterinary Entomology Dirty Lab | Rebecca Trout Fryxell | David Paulsen (needs office space), Brian Hendricks, and several student hourly workers. **expecting to have 3 people working concurrently plus an hourly student or two (n = 5); 4-6 microscope work stations (with working drawers); 4-6 (other side perhaps) long table for making a mess; excellent shelving/holding/storage areas for large and small items; 10x10 area that is 'sectioned' off for cleaner things (DNA extractions) small hood space; office separation area where food (pika coffee) is permitted; insect rearing area (or area to hold multiple growth chambers) to maintain and contain potential vectors such as mosquitoes); minimum of 2 sinks

 Expecting to have 3 people working concurrently plus an hourly student or two (n = 5); 4-6 microscope work stations (with working drawers); 4-6 (other side perhaps) long table for making a mess; excellent shelving/holding/storage areas for large and small items; 10x10 area that is 'sectioned' off for cleaner things (DNA extractions) small hood space; minimum of 2 sinks; Area to rear insects (Doesn't currently have growth chambers?); VERY MINIMUM - counter space for 2-3 microscopes and a dirty work bench (a holding table to like space may suffice) in McCord; storage space for colonies and rest of field equipment in Johnson facility? or mini-
| 234 | Media prep (Vail lab uses autoclave to sterilize soil occasionally and to potentially kill bed bugs on lab coats.) | Kimberly Gwinn | Wiley mill & autoclaves in separate rooms. Needs exhaust for steam & smells. Disin's needed.  
(See Volume I pages 32-35 for Surge Building Updates)  
Will need access to autoclave and mills. Best if these aren’t stored in the same room. |
|---|---|---|---|
| Urban pest Bioassays /Chemical Evaluations: Chemical Storage; and Hood for burning plastic ant cells and mixing/spraying pesticides and other chemicals. This second lab is important to keep chemicals out of rearing areas/rooms to avoid pesticide exposure prior to testing. Cabinets to store Cornell drawers of insect specimens. | Karen Vail  
Joseph Maples, Brad Hinds, Jennifer Chandler and Pat Barnwell | This room contains a chemical storage cabinet and a large hood with hazardous waste storage below.  
17Wx24.5L x40.5  
Need similar amenities: (chemical safety hood, chemical storage cabinets, benches and storage space) as in the current space.  
Counter space is essential to run bioassays. Benches surround room plus additional center bench.  
See attached Excel sheets for equipment space size needs. |
| Additional use of 234 microscopes, storage space for outreach materials, laboratory supplies and publications. | Elizabeth Long, Pat Parkman and Darrell Hensley | Need occasional access to chemical safety fume hood with outreach specimen preparation (Long).  
(See Volume I pages 32-35 for Surge Building Updates)  
Because we rear potentially annoying insects (bees, flies, bugs, ants, spiders, etc.); Vail’s Urban IPM Group (rooms 213, 214, 215) and Trout Fryxell’s Group (Room 227 and office for Dave Paulsen) needs may be best met by installing a portable building or better control of rearing space may be found in JARTU. We will research the size needed and forward this to Steve Glafenhein. |
| Urban Pest Rearing Room (Bed bugs, brown recluse spiders, ants, wood-boring and other pests); small rearing alcove with shelving; bread racs for rearing; Urban IPM specimen identification; training publications and other materials; large metal cabinets for equipment (cameras, microscopes, monitors, computers) and rearing supplies; freezer, refrigerators, large metal cabinets for storing both which must remain separate from strong-smelling chemicals in room 234. | Karen Vail  
Joseph Maples, Brad Hinds, Jennifer Chandler and Pat Barnwell | Rearing alcove: 8.5 W x 4.5 D = 38.25  
Main room: 17.8 W x 20 L = 356  
Need similar amenities: as freezer, rearing alcove (ideally a growth chamber), floor space to hold the 6 bread (ant colony sweater boxes) storage racs, benches, large double sink to wash large sweater boxes, a distilled water supply, 2 microscope benches, and counters/benches and storage.  
See attached Excel sheets for equipment space size needs. |
| Storage by elevator 2nd floor | PSPE | Darrell Hensley | 8 ft x 6.66 ft x 9 ft  
JARTU |
| Cabinets outside 220, 221, and 219 | PSPE | Darrell Hensley | 20 ft x 12 ft x 7 ft H  
JARTU |
Existing Ellington Plant Science (EPS) Research Labs for FWF -

Room 201
- 25 linear feet of bench space, with cabinets above
- 3 sinks
- 7 desks for graduate students
- 2 work tables

Room 203
- 55 linear feet of bench space, with cabinets above
- chest freezer
- small refrigerator
- 2 sinks
- fume hood
- flammable liquid storage cabinet
- 2 desks

Room 204
- 35 linear feet of bench space, with cabinets above
- 2 sinks
- 3 desks
- drying oven (benchtop)

Room 216
- 21 linear feet of bench space, with cabinets above
- fume hood
- drying oven
- chemical storage cabinet (2'x4'x7' tall)
- hazardous waste storage cabinet
- work table (3'x6')
- 2 sinks
- 4 gas cylinders

Room 217
- 8 linear feet of bench space
- 5 desks
- 1 sink
- 1 gas cylinder

Room 230
- 40 linear feet of bench space, with cabinets above
- fume hood
- 3 sinks

Room 231
- 60 linear feet of bench space, with 30' of cabinets above (includes approx 30' of low bench space in center of lab used as desk space for 8 grad students)
- 2 sinks
- chest freezer

Room 232
- 56 linear feet of bench space, with 18' of cabinets above
- fume hood
- 2 sinks

Existing EPS Teaching Lab for FWF -

Room 107
- 52 linear feet of bench space w/storage cabinets above
- fume hood
- sink
- necropsy table with sink
- 11 storage cabinets for animal specimens (~3'x5' footprint), 4 of 11 are stacked on top of others

Existing EPS Classrooms for FWF -

Room 113
- 3 large specimen cabinets (2'x4'x7' tall)
- 1 large microscope cabinet (2'x4'x7' tall)
- wood block specimen storage drawers (1'x12'x5' tall)

Room 114
- approx. mounted 50 animal and bird specimens

Room 115
- 11 large storage cabinets for plant specimens (2'x3'x7' tall)
- 2 map cases (3'x4'x4' tall)
- 1 microscope cabinet (2'x4'x7' tall)
Teaching Space:

Classroom 113 -
- 3 large specimen cabinets (2'x4'x7'tall)
- 1 microscope cabinet (2'x4'x7'tall)
- Wood block specimen drawers (two stacked units; bottom unit 13' deep x 45' high x 12' wide, top unit 13' deep x 23' high x 12' wide)
- Storage space for wall mounted wood panel specimens (22.5' long, 3' high)

Classroom 114-
- 1 microscope cabinet (2'x4'x7'tall)
- Large TV stand (2'x3'x5'tall)
- Storage space for approximately 70 mounted animal and bird specimens (heads and full body mounts)

Classroom 115-
- 11 large plant specimen* cabinets (2'x3'x7'tall)
- 2 map cases (4'x3'x4' tall)
- 1 microscope cabinet (2'x4'x7'tall)
- Smart podium
- Large TV stand
- 1 small cabinet (2'x2'x4' tall)
- ~30 "file size" boxes with additional plant specimens

Teaching Lab 107-
- Necropsy table with sink and exhaust pipe hookup (30"x60"x3' tall)
- Fume hood
- 2 upright freezers
- Multi-head microscope table (18"x72"x3' tall; room for 6 students to view microscope simultaneously)
- 11 animal specimen storage cabinets (28"x47"x3.5' tall); can be stacked two-high
- Additional sink
- 52 linear feet of bench space with storage cabinets above

*specimens need to be accessible and reasonably close to where we teach during the interim.

Research Lab Space:

Room 201 and 203 (Gray) -
- Counter tops for processing specimens (approx ... 50 linear feet) with storage cabinets above and below
- Fume hood
- 2 sinks minimum (currently have 5)
- Low table space (i.e., need space for microscope work so it needs to be less than bench height)
- Space for small refrigerator, upright freezer, and flammable liquid storage cabinet
- Office space for approximately 4 graduate students

Room 204 (Clatterback) -
- 20 feet of bench space with storage cabinets
- Sink
- Office space for 4 grad students

Room 216 and 217 (D. Harper) -
- Approximately 750 ft² of space
- Fume hood
- Vented furnace
- Water
- Sink with water
- Eye wash station
- DF water
- Dry air
- Counter space and cabinets
- Flammables cabinet
- 4 Mounts for compressed gas storage
- 220 power
- Lots of 110 power outlets
- A window would be very nice too.

Room 230 (Miller) -
- Counter tops for processing specimens (approx ... 40 linear feet) with storage cabinets above and below
- Fume hood
- Sink

Room 231 (Buehler) -
- Counter tops for processing specimens (approx ... 30 linear feet) with storage cabinets above and below
- Sink
- Fume hood if possible
- Office space for 4 graduate students

Room 232 (Keyser/Clark) -
- Counter tops for processing specimens (approx ... 30 linear feet) with storage cabinets above
- Low table space (i.e., need space for microscope work so it needs to be less than bench height)
- Fume hood if possible
- Storage space (for field equipment mainly but also for samples)
- Secure storage space for chemicals (specifically ethanol)
- Office space for 2 graduate students

Ellington Basement Storage:

Room 11 (15'x20') - miscellaneous materials (publications, displays, equipment, student organization items) needing both floor space and shelving units

Room 13 (15'x30' caged area) - miscellaneous materials needing both floor space and shelving units
- Research wood samples in bags (branches), upright (slabs), and tubs (cross-sections), occupy floor space approx. 6x8'
- ~115 wooden boxes (12"x12"x15") containing wood block specimens for teaching (currently in shelving units)
- 4 large cabinets (18"x36"x7" tall)
- 2 wooden bookshelves (2'x4'x7" tall)
- 40 misc. file-size boxes
- 25 storage tubs (18"x18"x28")

Room 18 (10'x12') - field equipment storage, approximately 1/2, floor space, 1/2, shelving unit space required
Detail of laboratory needs while displaced from Ellington:

Dr. Chen and Dr. Stewart – below approximates what they currently have and are losing in PBB 201-202-203 when they move to PBB later this winter:
- Two fume hoods (with gas/vac/air connections)
- Laminar flow hood (with gas connections)
- Space and receptacles for four growth chambers (two 110 V receptacles for each chamber)
- Plenty of 110 V and a few 220 V receptacles
- Hazardous chemicals storage cabinet
- Room for two -80 freezers, two -20 freezers and four refrigerators
- Eye wash
- Safety shower
- 1120 linear feet laboratory bench, standard width. Some desk height with cut-outs, some counter height
- Standard lab cabinetry above benches, and cabinetry and drawers beneath benches
- Eight Vac/Gas/Air distributed along benches
- Four sinks, with deionized water tap

Dr. Fulcher and Dr. Armel replacement (PSB 229):
- 950 linear feet laboratory bench, standard width. Some desk height with cut-outs, some counter height
- Eight Vac/Gas/Air distributed along benches
- Standard lab cabinetry above benches, and cabinetry and drawers beneath benches
- Hazardous chemicals storage cabinet
- Plenty of 110 V and a few 220 V receptacles
- Fume hood
- Room for four refrigerators
- Room and receptacle for one -80 freezer
- Plenty of 110 V and a few 220 V receptacles
- Eye wash
- Safety shower
- Three sinks, with deionized water tap

Dr. Allen, Dr. Bates, Dr. Wszelaki, Dr. Denton (PSB 325):
- 450 linear feet laboratory bench, standard width. Some desk height with cut-outs, some counter height
- Three Vac/Gas/Air distributed along benches
- Standard lab cabinetry above benches, and cabinetry and drawers beneath benches
- Two sinks, with deionized water tap
- Eye wash
- Safety shower
- Plenty of 110 V and a few 220 V receptacles
- Hazardous chemicals storage cabinet
- Room for one -80 freezer and three refrigerators
- Fume hoods (with gas/vac/air connections)

Dr. Augé (PSB 323):
- 450 linear feet laboratory bench, standard width. Some desk height with cut-outs, some counter height
- Three Vac/Gas/Air distributed along benches
- Standard lab cabinetry above benches, and cabinetry and drawers beneath benches
- Two sinks, with deionized water tap
- Eye wash
- Safety shower
- Plenty of 110 V and a few 220 V receptacles
- Hazardous chemicals storage cabinet
- Room for one -80 freezer and three refrigerators
- Fume hoods (with gas/vac/air connections)

Seeds/plant sample/soil samples processing (PSB 322):
- 450 linear feet laboratory bench, standard width. Some desk height with cut-outs, some counter height
- Three Vac/Gas/Air distributed along benches
- Standard lab cabinetry above benches, and cabinetry and drawers beneath benches
- Two sinks, with deionized water tap
- Eye wash
- Safety shower
- Plenty of 110 V and a few 220 V receptacles
- Hazardous chemicals storage cabinet
- Room for one -80 freezer and three refrigerators
- Fume hoods (with gas/vac/air connections)
06 SURGE FACILITY OPTIONS

1|option
a. Existing Publications Building to remain "as-is". (Long Range Master Plan-18,000GSF Research Building at PB Site)
b. New surge building consisting of (10) labs, (58) offices, (5) classrooms and (29) workstations. (21-23,000GSF/metal building)
c. Potential on/off campus locations to be analyzed
(d) Labs to be dispersed and or shared among existing buildings-Animal/Food Science, PBB, BESS. (4) Labs on First Floor McCord
e. New Plant Biology Program dedicated to Ground Floor McCord, (10) offices, (5) Labs. (Potential surge space if program not funded)
f. New surge building SF would reduce total space required in New Ellington, campus standard building
   (brick) (Potential for single department usage) – See Note.

2|option
a. Renovate (6,000GSF)/addition (10,000GSF) to existing publications building. LAS Concept plan would require approval from Campus Planning and Design Committee for deviation from Campus Master Plan designation for this site
b. New Publications Building off-site 6-7,000GSF metal building type
c. (8) Labs to be dispersed and or shared among existing buildings-Animal/Food Science, PBB, BESS. Shortage of (33) offices, (5) specialty classrooms need to be accounted for (7-8,000GSF shortage). Potentially a new metal building on Ag Campus or use of nationalized classrooms elsewhere.
d. Refer to note e. 1|option

3|option
a. Existing Publications Building to remain "as-is"
b. New Portable Buildings for lab surge (6 buildings with 2/labs each =12 labs). Off-campus location
c. (6) Labs to be dispersed and or shared among existing buildings-Animal/Food Science, PBB, BESS
d. New on/off campus surge facility-(58) offices, (5) specialty classrooms, (29) workstations (15-17,000 GSF)

4|option
a. Existing Publication Building to remain "as-is"
c. 50% of all space could be department specific and this SF could reduce overall EESERC program by ±10,000GSF (The remaining ±10,000GSF would be designated for current and future surge requirements)
d. Study potential site options-(1) Existing Plant Science Annex B, (2) UT Garden, Southwest of existing South Greenhouse (3) Off-campus-JARTU site

Note: Current surge diagrams represent minimum requirements for "short term" usage. Each lab is 21'-4" x 24'-0" (510 SF). The research labs in the new EESERC building are programmed to be 630 SF. If the surge building is to remain permanently, the lab spaces would need to increase in size.
.07 MCCORD HALL BUILDING PLAN - SURGE SPACE LAYOUT OPTION
Note that these layouts from 2013 are no longer valid, and are for information only

*Entire floor reserved for New Plant Biology Department
.07 MCCORD HALL BUILDING PLAN - SURGE SPACE LAYOUT OPTION
Note that these layouts from 2013 are no longer valid, and are for information only
08 SURGE FACILITY OPTION LAYOUTS
Note that these layouts from 2013 are no longer valid, and are for information only.
412 2013 Surge Space Requirements [cont]
(see Volume I pages 32-35 for Surge Building Updates)

.08 Surge Facility Option Layouts
Note that these layouts from 2013 are no longer valid, and are for information only.

Option 3

Option 4

Modular Units for Lab and Office Space. See pages 240-241 for additional information.
.09 POSSIBLE OPTION FOR TEMPORARY, FLEXIBLE LAB SPACE

Option shown above is a 24'x56' Office Trailer from Modspace
http://www.modspace.com/modular-solutions/mobile-offices

Specifications
24'x56' building size
24'x60' overall size with towing hitch
(4) 12'x12' private offices
(1) 24'x32' common area
1,344 square feet of office space
Electric, plumbing, heat and air conditioning
50 lbs. per square foot allowable floor load

Features
Insulated walls, ceilings and floors
1/8" vinyl floor tile
.019 deluxe aluminum siding or decorative siding
Paneled or vinyl covered gypsum walls
Sliding windows
120V electrical outlets

.10 POSSIBLE OPTION FOR TEMPORARY, BUG REARING LAB SPACE

Option shown above is a 10'x44' Office Trailer from Modspace
http://www.modspace.com/modular-solutions/mobile-offices

Specifications
10'x44' building size
10'x48' overall size with towing hitch
(1) 10'x13' private office
(1) 10'x11' private office
(1) 10'x20' main office
440 square feet of interior floor space
Electric heat and air conditioning

Features
Insulated walls, ceilings and floors
1/8" vinyl floor tile
.019 deluxe aluminum siding or decorative siding
Paneled walls
Sliding windows
120V electrical outlets
(2) 36"x80" lockable exterior doors

Restroom optional
11 POSSIBLE OPTION FOR DUCTLESS FUME HOOD EQUIPMENT

Options shown are Polypropylene Ductless Fume Hoods from AirClean Systems
http://www.aircleansystems.com/OP_PHoods.htm

Folding Sash Features
- Polypropylene construction for excellent chemical resistant properties. The result - "NO MORE RUST" which allows for longer service compared to standard metal enclosures
- Wide range of activated carbon, impregnated chemisorptive, and HEPA filters for containment of virtually any toxic vapor, fume, gas, and particulate
- AirZone™ baffling establishes a proper horizontal airflow pattern and directs toxins away from the operator in a predictable pattern, removing "dead spots" within the enclosure
- No ducting required
- Integral vapor-proof fluorescent lighting
- No installation costs. All AirClean® Systems bench-top hoods are shipped completely assembled (filters installed) and ready to use
- Available in 110V or 220V AC versions
- New 36" deep models available!

Options
- Vented and unvented polypropylene base cabinets
- Slip hatch electrical access ports
- Polypropylene sink and water fixture
- Optional sturdy mobile cart
- Metal or stainless steel liner

Sliding Sash Features
- AirSafe™ automatic safety controller
- Vertical sliding safety glass sash
- Dual wall construction allows for front mounting of services such as water, gas, or electrical outlets.
- Access to panels on either side of the hood enable field service of all fixtures.
- FlowSmooth™ airfoil on sash lip promotes laminar airflow
- Polypropylene construction for excellent chemical resistant properties. The result - "NO MORE RUST" which allows for longer service compared to standard metal enclosures
- Wide range of activated bonded carbon, impregnated chemisorptive, and HEPA filters for containment of virtually any toxic vapor, fume, gas, and particle
- Integral vapor-proof fluorescent lighting system
- Available in 110V or 220V AC versions
- No duct required for operation
- Shipped fully assembled

Options
- Sturdy mobile cart
- Vented and unvented polypropylene base cabinets
- Remote services - gas, water, vacuum, and air
- Duplex electrical outlets
- Polypropylene sink and water fixtures
- Slip hatch electrical access ports
DESIGN GUIDELINES
University of Tennessee, Knoxville
Recycling Station Standard (DRAFT)
June 2012

Document Outline:
I. General Description
   A. Paper
   B. Bottles/Cans/Plastic
   C. Corrugated Cardboard
   D. Food Waste
II. Corridor Niche/Cabinets Specifications
    A. Standard Cabinets
    B. Modified Cabinets
       1. Classrooms
       2. Kitchens/Break rooms
    C. Composting Cabinets
III. Consolidation/Storage Area Specifications
IV. Outdoor Corrugated Cardboard Specifications
V. Food Waste Composting Specifications

I. General Description:
UT Recycling collects 4 main recyclable materials from campus buildings:
A. Paper
   B. Aluminum Cans, Steel Cans, Plastics #1-7, and Glass Bottles all mixed together under the title “Bottles/Cans/Plastic”
   C. Corrugated Cardboard
   D. Food Waste

A. Paper:
   Collected at desk-side in 7-gallon blue recycling containers and in classrooms in 23-gallon blue “Slim Jim” recycling containers. The paper from these two sources is consolidated into 95-gallon rolling carts (“95s”) which are stored inside the building and set outside at ground level (i.e. NOT from a loading dock into the truck) on designated nights (Tues, Wed, Thurs) for collection by UT Recycling staff in their own rear-load truck with a semi-automated 2-bar lifter. The truck is up to 35 feet in length and 13.5 feet in height. Paper is also collected in hallway locations in cabinets with 35-gallon rolling carts (35s) inside that can be swapped out for empty 35-gallon rolling carts that are in a storage room, and can then be wheeled outside to be emptied by the same truck mentioned above. See sections below on Corridor Niche/Cabinets and Consolidation/Storage Areas for specifications.

. “Bottles/Cans/Plastic”:
   Collected in all of the same ways as paper except it is NOT collected at the desk-side. Consolidation containers (95s) are still needed, but they can be fewer in number than for paper at a 2:1 ratio of paper to bottles/cans/plastic. However, more of the 35s for hallway cabinets are needed for “Bottles/Cans/Plastic” than are needed for paper both for volume reasons and for collection schedule reasons (2x per week for bottles/cans/plastic and 3x per week for paper). 35s should be at a 1:1.5 ratio of paper to bottles/cans/plastic. This material is picked up by UT Recycling staff in the same type of truck as for paper.

. Corrugated Cardboard:
   Set in hallways at the end of the day and taken by building cleaners to an outdoor collection area. UT Recycling staff collect it from the outdoor collection area of every building every night. See section below on Outdoor Corrugated Cardboard Collection.

. Food Waste:
   Collected in generation areas such as coffee shops and major kitchens on campus, typically in small containers that are then taken to larger containers at the loading dock of the building by kitchen staff. The material is collected from the larger containers outside and taken to the compost site by UT Recycling staff at least twice a week. The containers can be emptied directly into the large rear-loading compactor truck, or swapped out for empty containers.

. Corridor Niche/Cabinets Specifications:
   A. Standard Cabinets:
      • One (1) 3-section niche/cabinet per 100 people --OR--
      • One (1) 3-section niche/cabinet per 100 linear feet of hallway --AND--
      • One (1) 3-section niche/cabinet outside auditoriums or high traffic-generating areas

Standard niche and cabinet should have 3 sections, two for recycling and one for trash. The cabinets should be sufficient for two (2) 35-gallon bins spaced side-by-side for recycling, and one (1) 44-gallon round trash can on a dolly for the trash section. The countertop should be sloped toward the front to prevent people from placing items on the countertop. A headboard at the top of the slope or at the top of the doors to the cabinet should contain vertical signage with labels reading:
   • “Bottles/Cans/Plastic” “Paper Only” and “Trash”
   • Openings shall be made in sloped countertop for:
      • “Bottles/Cans/Plastic”: 4.5” round
      • “Paper Only”: 2.5” x 18” slot
      • “Trash”: 12” square

35-gallon recycling carts (35s) are approximately 24” x 24” x 40” (w x d x h)
44-gallon trash cans on a dolly are approximately 24” in diameter x 40” tall
B. Modified cabinets:

1. Classrooms:
   - One (1) 3-section niche/cabinet in each classroom —OR— in large classrooms (over 100 seats) one (1) 3-section niche/cabinet per entrance.
   - Each section of the cabinet should accommodate a “Slim Jim with Venting Channels” container. Bin dimensions are 22” x 11” x 30” (w x d x h)
   - Must be able to easily slide full container in and out of cabinet (at least an inch clearance on each side and top. One approach is to put Slim Jims on dollies, which would add approximately 2” x 4” x 5” (w x d x h) for a total of 24” x 15” x 35” (w x d x h), but that is not required.

2. Kitchens/Break Rooms
   - One (1) 2-section niche/cabinet inside each kitchen or break room- 1 section for “bottles/cans/plastic” and one for “Trash”.
   - The containers inside the cabinet could be either of the two sizes above in A or B, depending on the size of the kitchen or break room.

C. Composting Cabinets:

This is a new area, so please contact Jay Price at jayprice@utk.edu or 865-974-3480 to discuss kitchens and break rooms for millwork cabinets and composting in general. Below are some general guidelines:

- If kitchen or break room has significant volume, AND all compostable materials were being utilized by the staff, there would be 3 sections in a sloped countertop in either of the two sizes above.
  - “Bottles/Cans/Plastic”: 4.5” round
  - “Food and Paper Only”: square or rectangle (NOT slot), depending on size
  - “Other Trash”: square or rectangle, depending on size

III. Consolidation/Storage Area Specifications:

Storage area for 95s and 35s.

Per 100,000 gsf the room should have sufficient space for six (6) 95s and as many of them as 35s are required for the standard niches described above AND with room to maneuver them (i.e. tilt them back and roll them out past one another). Preferably the area is enclosed with double doors or a garage-style door. It could be outside at a dock or inside the main building. There must be ground-level access to the bins - i.e. include ramp if it is at a loading dock.

95-gallon recycling carts (95s) are approximately 30” x 32” x 48” (w x d x h)
35-gallon recycling carts (35s) are approximately 24” x 24” x 40” (w x d x h)

IV. Outdoor Corrugated Cardboard Specifications:

These areas should typically be outside near the dumpster or on a loading dock where a large rear-loading recycling truck (up to 35’ in length and up to 13.5’ in height) can access.

Cardboard recycling station per 100,000 gsf will need to hold at least one container that is 17 inches wide by 30 inches deep by 40 inches high with room around the containers to get cardboard in and out.

We will need to look at each building and area to determine where and how many might be needed to meet the needs of the building. A standard office facility can probably get by with just one smallest container per 100,000 gsf, but a facility with a lot of receiving (especially dining facilities) may need more, and may need some in individual spaces in the building with the containers located in a niche.

Sizes of cardboard containers:

- Size 1: 17” x 30” x 40” (w x d x h) = approx. 0.4 cubic yards
- Size 2: 42” x 50” x 52” (w x d x h) = approx. 1.8 cubic yards
- Size 3: 42” x 50” x 76” (w x d x h) = approx. 2.7 cubic yards
- Size 4: 84” x 93” x 52” (w x d x h) = 4 cubic yds- semi-automated collection
- Size 5: 84” x 130” x 52” (w x d x h) = 6 cubic yds- semi-automated collection
- Size 6: 84” x 130” x 66” (w x d x h) = 8 cubic yds- semi-automated collection
- Size 7: 84” x 163” x 66” (w x d x h) = 10 cu yds- semi-automated collection

Height clearance needed is 14’ for Size 6 containers and 17’ for size 7 containers. Container sizes 4 – 7 need to be on the ground (i.e. they CANNOT be on a dock) with access for 35’ long truck. Container sizes 2 - 4 can have wheels, which add approximately 6” to the height. Containers larger than 4 cubic yards CANNOT have wheels and must be stationary with a 35’ long truck backing up directly to the front of the container and hoisting the container in the air.

V. Food Waste Composting Specifications

Contact Jay Price at jayprice@utk.edu or 865-974-3480 for more information in this regard. This is a newer area for UT, and each case needs to be examined for need.

Generally speaking, small containers are used inside major kitchens for staff to capture material at their stations, and they take their material to a larger container, such as a 35-gallon, 95-gallon, or even rear-load dumpster tucked in a corner of the kitchen or placed outside on a dock or on the ground near a trash dumpster. Millwork cabinets can also be used in 3-section set-ups with “Food and Paper Only”, “Bottles/Cans/Plastic”, and “Other Trash.”

See section II. C. for more information about composting cabinets.