

First Draft – 3 March 2001

**Concerns, Needs, and Dreams
for Lecture Halls 12A, 12, and 12B
with additional, limited consideration of future renovations to CSC-130 & 132**

Committee is composed of Ken Jordan, Eugene Wagner, and Joe Grabowski (committee chair). Rebecca Claycamp participated in many of the discussions/activities of the committee. Greg Meisner provided considerable technical insight. All faculty were invited to provide input – drafts of all versions of this document were posted to the web for their access (<http://cwt3.chem.pitt.edu/~joeg/RENOVATIONS/index.html>); several faculty did provide comments.

Charge to the Committee (in memo dated 1 Feb 2001):

"Your charge is to review the uses and inadequacies of Rooms 12, 12A, 12B, 130, and 132 and to recommend how these rooms should be modified to best serve our teaching needs. This will include a recommendation for seating in those rooms where replacement seating is needed. We are all aware that we need more and better projection capabilities in all of those rooms. We need good internet access and a technology that encourages the use of computers for presentations."

The complete "Charge to the Committee" memo can be found elsewhere. Importantly, it points out that: "Your first draft of the plan should be ready no later than March 10, 2001." Since then, we have learned that Facilities Management and Media Services are eager to have this project completed by the start of the Fall Semester and would like our "report" as of Feb 8, 2001. We are therefore working on an extremely tight time schedule. To assist in ensuring timely completion, we have decided on the following time schedule...

14 February 2001	Distribute initial material to all faculty (via web) and solicit input.
15 February 2001	Visit other classrooms.
19 February 2001	Communicate decision about chairs to Facilities Management
20 February 2001	Weekly committee meeting, 9:00 am in CSC-706 (open to all)
21 February 2001	Communicate decision about LECTURERS BENCHES to Facilities Management.
27 February 2001	Weekly committee meeting, 9:00 am in CSC-706 (open to all)
28 February 2001	Complete First Draft of report, circulate.
8 March 2001	Final Committee Meeting, 9:00 am in CSC-706 to consider all responses and to revise/redraft First Draft as appropriate.

How is this report organized?

Miscellaneous comments/issues/etc. – This section contains notes that do not fit elsewhere with how the report is current organized.

The "Miscellaneous" section is then followed by a series of bulleted items that each touches upon one issue. Each issue thus raised then has a comment (or a space for a comment) for each of the five classrooms being considered.

Miscellaneous comments/issues/etc.

- Committee Activities included...
 - 1st Committee Meeting, Tuesday, 6 Feb 2001, 9-10 am (KJ, EW, JG).
 - Met with Sam Conte (Registrar), Rich (Facilities), Mike Arenth (Media Services), and Ed Gyurisin (CIDDE Engineer) (EW, JG, RC) on Thursday, 8 Feb 2001.
 - 2nd Committee Meeting, Tuesday, 13 Feb 2001, 9-10 am.
 - Visited numerous Classrooms beginning 7:30 on Thursday, 2/15/01.
 - Posted all drafts of the Report on web, as well as discrete documents that deal with the student's and lecturer's workspaces.
 - 3rd Committee Meeting, Tuesday, 20 Feb 2001, 9-10 am.
 - 4th Committee Meeting, Tuesday, 27 Feb 2001, 9-10 am.
 - EG, JJG, and RC met w/ E. Gyurisin, Media Services on 3/1/01 to review report.
- It is assumed that both the registrar and the department are aware that the three lecture halls are all simultaneously available only for construction work beginning with the end of the Spring term 2001 and continuing until the start of Fall term 2001. Furthermore, it is desired that the **renovations will be completed** by the start of the Fall term 2001 but we have been advised that it might not be possible to have all new chairs installed by that time and the new AV technology may also not be complete by the start of the Fall term 2001.
- We briefly discussed, but decided we did not have time to address in detail at this time, how the lecture hall renovations would hinder/help “**cheating**”.
- The renovation should ensure that adequate **temperature controls** are in place and always functioning (too many student complaints are currently received about the lecture halls being too hot or too cold).
- All **blackboards** surfaces must be replaced with brand new boards that can easily be seen by the most remote student. (Permanently mounted whiteboards and electronic whiteboards do not appear to be practical in 12A, 12B, or 12 at this time, though they may be appropriate for 130/132.) The total, simultaneously viewable chalkboard square footage should not be decreased over what is currently present in 12, 12A and 12B. The feasibility of replacing the electric driven movement by hand movement should be explored – several faculty favor hand movement of the boards. It is presumed that if the chalkboards remain electrically driven that the up/down buttons for ALL boards will be located identically in 4 discrete places – under each column of boards (3 places) and on the lecturer's control panel (4th location).
- Media Services will design and implement a checklist of **weekly maintenance** of all audiovisual equipment. List should include cleaning of optics and cases, checking for tangled or missing cables, ensuring all lamps are functioning, ensuring batteries are working and spares are on hand, as well as taking broken equipment to the correct unit for repair and/or replacement.
- The Chemistry Department should design a weekly maintenance list for the computers and designate someone to implement it. The weekly maintenance should include upgrading and installing new software as requested by the lecturers.
- It is assumed that in 12A, 12, and 12B, the major **projection area** will be the wall above the chalkboards. This might necessitate removal of the sound baffling installed on those walls in 12A and 12B – but it should first be ascertain that removing the existing panels

in 12A and 12B does not disturb the well-tuned acoustics in those two rooms. If removing the panels disturbs the acoustics, should we install a roll down screen immediately in front of the front wall acoustic panels?

- **Periodic tables** will be available via the data projector/computer hookup, using any of a number of excellent available over the web. The Chemistry Department will have to detail someone to select the appropriate one and have it set up on each of the data systems in each of the lecture halls.
- We anticipate that increasingly, educators will need to **simultaneously** use several images as well as the blackboard.
- **Security** of all permanently installed, and all portable technology items must be carefully considered and correctly implemented.
- It is assumed that wireless microphones, and all portable technology will be **available in the lecture halls** (obviating the requirement that microphones used on the 1st floor must be obtained from the 2nd floor). Media Services will provide and maintain these microphones.
- **Audience response systems** for the lecture halls, if used, will be wireless (RF or IR) and are not further considered herein. We encourage the Department to seek funding to establish this capability in the appropriate scale for the number of students in 12 and/or 130. We discussed pros and cons of the simple type (i.e., chose A, B, C, or D buttons) or more elaborate technology (i.e., handheld computers or inexpensive notebooks) but did not attempt to reach a recommendation for which the department should pursue.
- The **signage**, indicating where the various lecture halls are should be permanently increased over what is currently available and improved – obviating the necessity of the routine pasting of paper signs each term. This may include an appropriate sign just inside the lobby doors – perhaps on the doors to the Ashe Auditorium. On the exterior of each door into 12, 12A, and 12B from the lobby level must have a prominent sign that states: "Please enter from the rear of the hall if the lecture is already in session." This may be the responsibility of the Chemistry Department and should be reconsidered after "all renovations" are complete.
- The eventual move of the **JCC** from the its current location to Eberly Hall, and the "reclamation" of CSC-135 as a classroom was noted.
- All class rooms should have several **pencil sharpeners installed** – these are absolutely necessary during many exams. This may be the responsibility of the Chemistry Department and should be reconsidered after "all renovations" are complete.
- A scheme must be devised so that the **chalkboards are cleaned after every lecture** class. Presumably a janitor, or workstudy student can be equipped with a rolling cart containing the buckets, solutions, squeegee, clean erasers and extra chalk to ensure a clean, dry board with usable erasers for the next lecturer. This is a responsibility of the Department and the solution should be reexamined once "all renovations" are complete.
- Currently, about 3 **microphone/transmitter** pairs (\$310/pair) are "lost" each year and a fourth is destroyed by accidental crushing. A solution to minimize this expense and frustration would be useful.

- This report takes into account **suggestions received from** the committee as well as: GW, PS, GB, GM, DPC, DW, and MG.
- Students who to 'store' backpacks and coats during lecture can be accommodated by installing **coat hooks** on the walls of 12 like currently exist on one wall each in 12A and 12B. In 12A and 12B, additional coat hooks can be added to the second wall as well.
- It is assumed that Facilities Management will install the appropriate number of tablet chairs for **left-handed students** as is appropriate for the size of each of these lecture halls.

- ▶ What is the **current capacity** of the classroom and the **target capacity** after renovation?

	Current	Target
Lecture Hall 12	240	240 - 280
Lecture Hall 12A		remains the same
Lecture Hall 12B		remains the same
Classroom 130		
Classroom 132		

- ▶ What campus classrooms could we and did we **visit**?

Could	Did
Masonic Temple	
Thaw Hall 11	
Thaw Hall 102	Visited 2/15
Thaw Hall 104	Visited 2/15
Mervis 110	Visited 2/15
Mervis 75 (multimedia, distance)	Visited 2/15
Lawrence Hall 104, 120	Visited 2/15
Clapp L9	Visited 2/15
Langley small lecture halls	Visited 2/15
Law Building 107	
Engineering (Len's classroom)	
Cathedral G24	Visited 2/15
David Lawrence Hall 211	Visited by JJG 2/24; this room could be a good model of 130/132.

- ▶ What **acoustical problems** need to be fixed?

Lecture Hall 12	<ul style="list-style-type: none"> • “Leakage” of amplified voice into Lecture halls 12A & 12B. • Inadequate sound system with lack of lecturer accessible controls. • Microphone not stored in the Lecture hall. • Fix echo (i.e., damp) in this hall like was done in 12A and 12B.
Lecture Hall 12A	<ul style="list-style-type: none"> • “Leakage” of amplified voice from Lecture hall 12. • Inadequate sound system with lack of lecturer accessible controls. • Microphone not stored in the Lecture hall.
Lecture Hall 12B	<ul style="list-style-type: none"> • “Leakage” of amplified voice from Lecture hall 12. • Inadequate sound system with lack of lecturer accessible controls. • Microphone not stored in the Lecture hall.
Classroom 130	<ul style="list-style-type: none"> • One of 130/132 has a really noisy fan – fix!
Classroom 132	<ul style="list-style-type: none"> • One of 130/132 has a really noisy fan – fix!

We leave the solution of these problems to the acoustical experts but would be happy to be consulted with regard to proposed solutions.

► What aspects of the **room lighting** should be improved?

Lecture Hall 12	<ul style="list-style-type: none"> • Rewire the 4x4 fluorescent light panels so that half of the tubes in any one panel can be turned on AND the panels in the front half of the classroom are controlled independently of the panels in the back half of the classroom. • All lights (including board lights) must be controlled from one location. • Retain the adjustable incandescent house lights.
Lecture Hall 12A	<ul style="list-style-type: none"> • Front Spots are not useful as currently configured. • Rewire the 4x4 fluorescent light panels so that half of the tubes in any one panel can be turned on AND the panels in the front half of the classroom are controlled independently of the panels in the back half of the classroom. • All lights (including board lights) must be controlled from one location. • Retain the adjustable incandescent house lights.
Lecture Hall 12B	<ul style="list-style-type: none"> • Front Spots are not useful as currently configured. • Rewire the 4x4 fluorescent light panels so that half of the tubes in any one panel can be turned on AND the panels in the front half of the classroom are controlled independently of the panels in the back half of the classroom. • All lights (including board lights) must be controlled from one location. • Retain the adjustable incandescent house lights.
Classroom 130	
Classroom 132	

- All existing lights need to be routinely maintained – too many burned out fluorescent tubes currently exist in (at least) 12A.

► What is the preferred **student workspace?**

	Current	Target
Lecture Hall 12	2-person table	Remove all tables and replace with tablet chairs, 15 chairs per row (see details as described below).
Lecture Hall 12A	tablet chairs	Replace in kind (see details as described below).
Lecture Hall 12B	tablet chairs	Replace in kind (see details as described below).
Classroom 130	1960's desk chairs	tables
Classroom 132	1960's desk chairs	Replace in kind

(We do not envision requesting electrical outlets or data ports for each student in any of the three lecture halls at this point. We do envision equipping either or both 130/132 with AC outlets and/or dataports or a wireless internet connection system.)

The current chair placement in 12 leads to too low a student density and with too many students too far from the lecturer for effective eye contact. Most faculty would like to see more students in the same space, and closer to the front. One oft-requested configuration is tables/chairs and without all the aisles currently in 12. In all rooms with 3 foot deep risers that we visited on campus (12, 12A, and 12B all have 3' risers), there were only tablet chairs. Rooms that we visited on campus with 4 foot deep risers can accommodate bench-tables and chairs. The only way to get a table/chair pair per student in 12 is to replace in kind (i.e., with each chair accessible from an aisle).

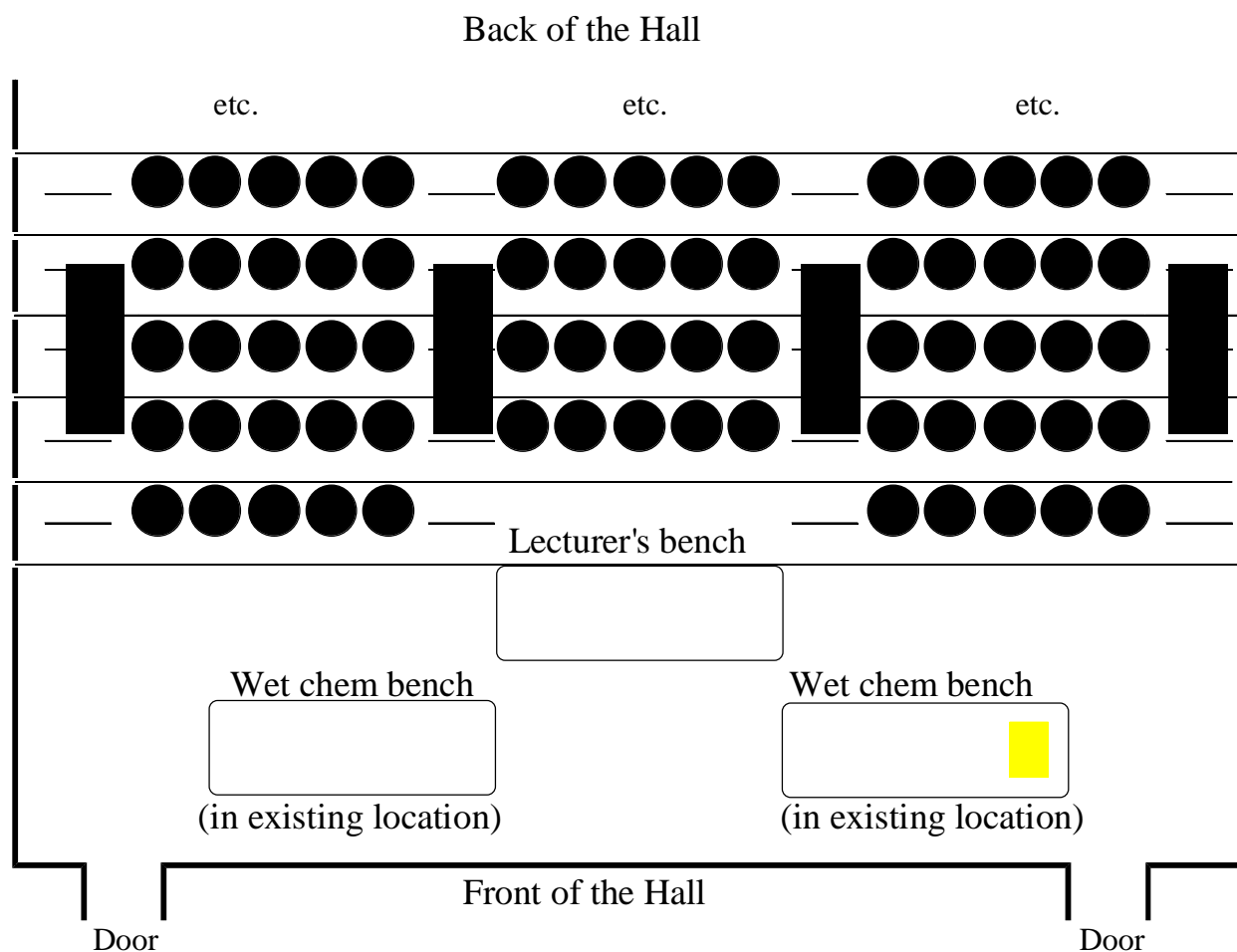
Essentially all work surfaces on the tablet chairs in most campus lecture halls that we visited are too small for the tasks we expect our students to accomplish in the lecture hall. Thaw 102, and 104 were the only rooms that had a tablet of adequate size. We believe chairs with these sized tablet areas would suffice for our needs in the chemistry department. However, there is some concern that taller students will be uncomfortable in chairs with such low backs.

Considering the above, here is the recommendation:

Replace all chairs in 12A and 12B with tablet chairs similar to those in Thaw 102/104 with the most important constraints being the large tablet area and the comfort of the chair. When the new chairs are installed, no gaps should be left in any row (as there is currently for projection equipment).

Assuming that it is impossible to have tables/chairs in Lecture 12 in which 5 students are at a common bench (i.e., attaining a much higher student density than is currently available with the 2 students/common bench) leads to the following recommendation for Lecture Hall 12. Remove all tables and chairs in 12 and replace with the same type of tablet chairs described above for Halls 12A and 12B. In Lecture Hall 12, the first row of chairs which are currently mounted on the floor would be removed and NOT reinstalled. Each riser would be reconfigured to have 4 aisles (one on each exterior of the chair set and two interior aisle) flanking three sets of 5-chairs. (See sketch on next page.) The new first row would only contain 10 chairs (the center 5 would be omitted to account for the lecturer's bench which will block sight lines from those chairs). This configuration necessitates that some additional concrete be poured where three of the existing aisles are reconfigured to support a extra chair. This new configuration changes the number of seats in a row from 12 to 15 (excepting one row is completely lost and the new first row {old second row} only has 10 chairs) and could change the total seating capacity from 240 to

280. Someone will have to ensure such an increase is compatible with safety codes. Alternatively the last two rows of chairs could not be installed.



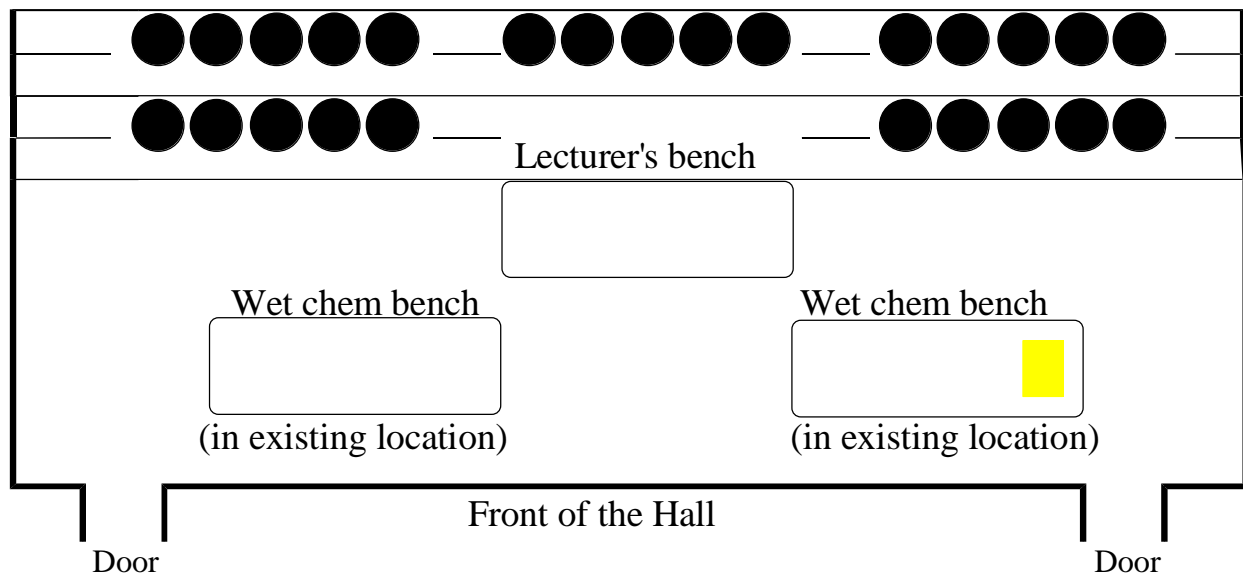
The above described new configuration is the best compromise for effective current and future (as good as our crystal balls can tell us anyway) teaching practices. It is far superior to the current configuration but not nearly as effective as what one would design from scratch today.

A regular (monthly) maintenance schedule should be implemented to inspect, repair or replace broken chairs.

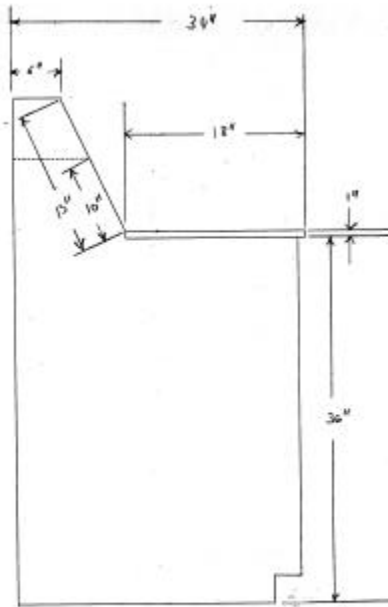
Because 130 and 132 are sometimes used in a manner in which a class is broken up into small groups, at least one of the 130/132 rooms should not have permanently installed (i.e., non-movable) tables. David Lawrence Hall 211 might be a useful "model" for 130/132 renovation.

► What is the preferred **Lecturer's workspace**?

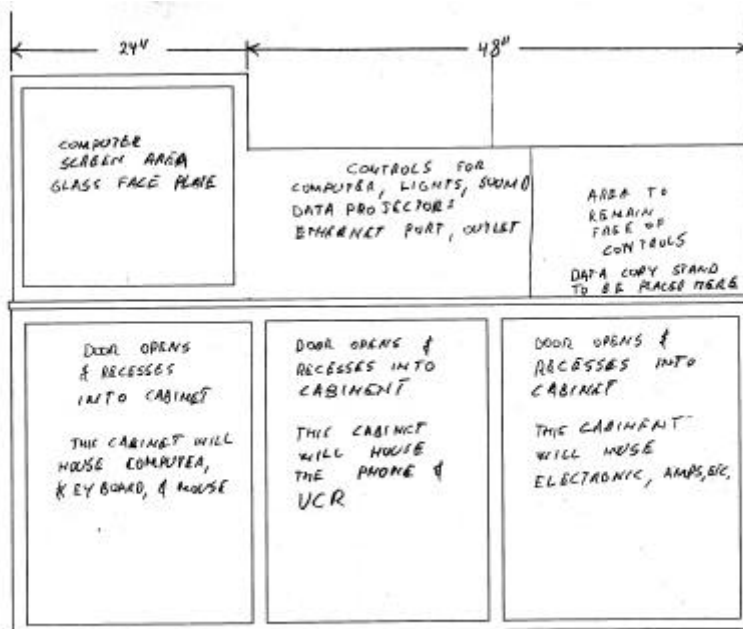
The answer for Lecture Hall 12....



1. An important concern here is to clearly separate the wet chemistry bench from the electronics bench which also simultaneously eases the problem of "residue and spills" left from the previous lecturer's demos interfering with the next lecturer's use of the desktop for notes and electronic devices. Therefore, divide the existing Lecturer's Bench into 3 separate benches as shown in the above Figure.
2. All surfaces of all benches to be acid resistant black Formica.
3. The wet chemistry benches should be 8-feet in length, with new or repainted cabinets and should be identical in height to the existing demo bench.
4. The two wet chemistry benches are to be equipped with air and gas jets and with at least 8 electrical outlets each. All services are to be side mounted, as on the current benches
5. A sink is needed in at least one of the wet chemistry benches.
6. Each wet chemistry bench must be wired for a portable video camera (to be used to project demonstrations through the data projector) with the signal being routed to the lecturer's bench.
7. The lecturer's bench will contain all electronics and **all** controls and switches and adjustments (a media closet in the far corner of the lecture hall should be only contain those components that the Lecturer never needs to access; audio-visual units that the Lecturer needs to access should be installed in the Lecturer's bench).
8. The lecturer's bench should be permanently mounted against the first riser.
9. The exact contents of the audio-visual equipment in the lecturer's bench, and the controls needed will be elaborated below. However, the major design of this bench is established here and is based on what is most convenient for the lecturer (i.e., looking at/towards the students rather than down; not having to stoop to adjust controls in mid-lecture; not having to walk to different places to control playback units or light settings, etc.).
10. The side cross-sectional view of the 6-foot long lecturer's bench is shown in the next figure – the angled part will house a LCD monitor for the PC.



LECTURE TABLE SIDE VIEW



LECTURE TABLE FRONT VIEW

11. The lecturer' view of the 6-foot long lecturer's bench is shown in the above figure. The exact details of the electronics and controls will be specified elsewhere. The conceptual details are:
- a. The top left contains a glass enclosed 15" color LCD monitor. (The keyboard and mouse will be housed on the top of counter immediately in front of this monitor – the keyboard and mouse will be stored in a drawer and connected to easily accessible connectors when the lecturer needs).

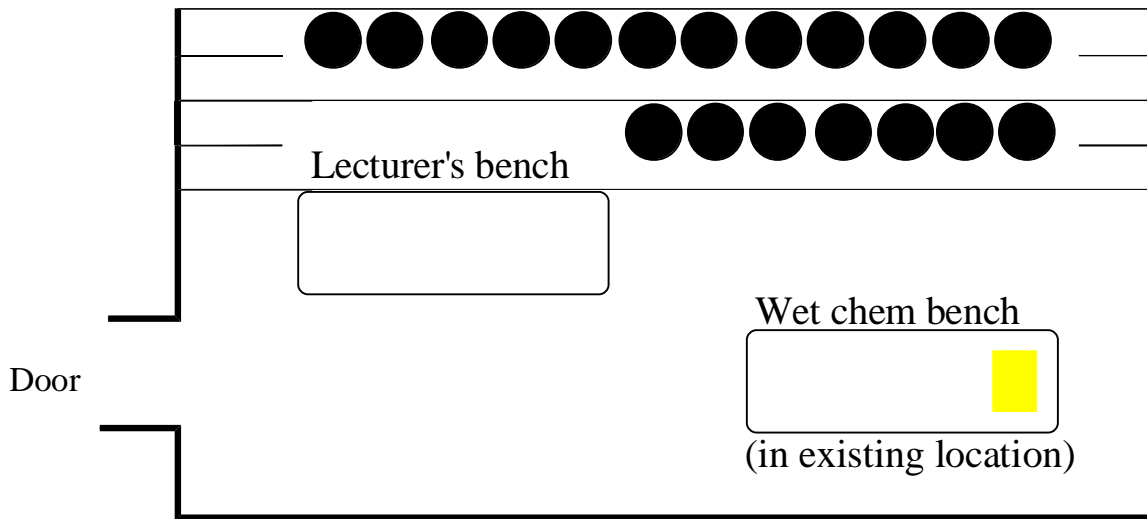
- b. Also above the countertop and to the right of the monitor, is a control panel for all switches and light controls (details to be specified elsewhere).
 - c. The most right hand portion of the lecturer's bench is to be open and of sufficient size to comfortably support a Video Copy Stand.
 - d. The cabinet below the counter top and at the left edge will house the computer and keyboard and mouse storage areas.
 - e. The center cabinet will house electronics units yet to be specified (including the phone, and the VCR playback unit).
 - f. The right cabinet will house the speaker system volume controls and the amps.
 - g. Looking down from above: the left portion of the countertop (i.e., in front of the LCD monitor) will be used to support the lecturer's portable computer in lieu of using the installed PC.
 - h. The center part of the countertop will support the lecturer's notes.
 - i. The right portion of the countertop will support the video copy stand.
12. Some additional details...
- a. All items in the lecturer's bench must be secure enough to prevent theft. This includes the copy stand which will sit on the top of the bench. Several ideas that could be considered are a roll top cover or a fiber optic security cable. We strongly recommend that a security camera be mounted to always monitor the lecturer's bench.
 - b. The left and center cabinets should be keyed alike and all three lecture halls should share the same key for these two cabinets. The right hand cabinet should be keyed to a CIDDE-only key..
 - c. The video signal from the portable camera used at the wet chemistry benches must feed through the controls on the lecturer's bench so the image can be displayed as desired.
 - d. All lecturer adjustments should be accessible from the one control panel, including raising and lower the chalkboards.

► What is the preferred **lecturer's workspace**?

The answer for for Lecture Hall 12A and 12B...

1. The Lecturer's (electronics) bench in all three lecture halls should be identical in design. The audio-visual equipment will differ only slightly between these three lecture halls (those details are provided elsewhere). Again, a separate media closet is not needed in Lecture Halls 12A and 12B.
2. The wet chemistry benches in 12A and 12B should be identical to those in 12 – the only difference is that there is only one wet chemistry bench in 12A and 12B and two in 12. (If a lecturer needs additional wet chemistry space, the department should provide a solid table that can be wheeled into 12A or 12B with the demo already installed upon it).
3. If possible, the wet chemistry bench should be the inside wall of the lecture hall.
4. The following drawing depicts Lecture Hall 12A; 12B would be similar – but the mirror image.

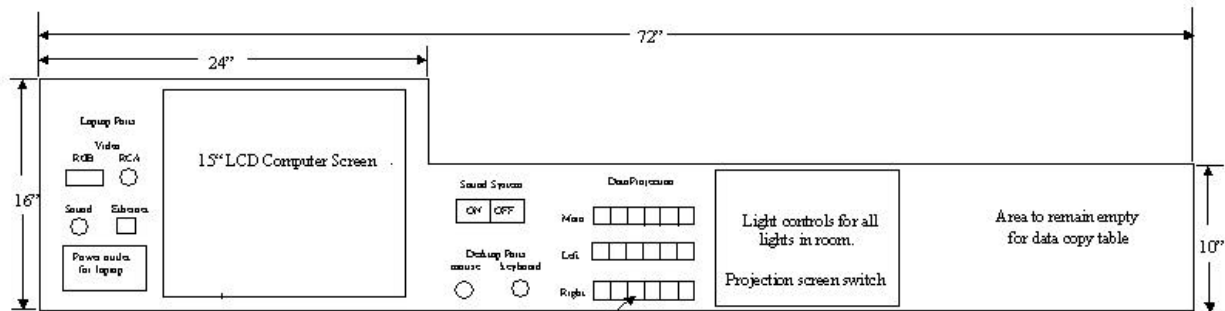
Back of the Hall
etc



► What **technology** should be permanently mounted/installed in each lecturer's bench?

	12A	12	12B	130	132
Campus Phone	•	•	•	•	•
Data Copy Stand (e.g., Elmo HV-5000XG) – image will be projected via one of the data projectors. We leave it for the Media Services people to advise us as to whether a "portable unit" or a permanently mounted camera/pencil spotlights (e.g., as in David Lawrence Hall 211) is better within the configuration of our classrooms.	•	•	•	•	•
Data projector capable for central image. See Note A		•		•	•
Data projector for left half of screen area. See Note A	•	•	•		
Data projector for right half of screen area. See Note A	•	•	•		
PC (including CD & DVD playback capability; zip disk and LCD 15" monitor; sound output of computer must be wired into lecture hall sound system). Before the computer is purchased, special consideration should be given to the memory and video card requirements. Battery backup system to prevent the computer from recycling if power is lost for several minutes.	•	•	•	•	•
Location and "services" (Ethernet port, AC outlet, data projector cable) for the lecturer's portable.	•	•	•	•	•
Portable Video camera – projected via the data projector, to allow demo's to be displayed on the wall. Each wet chemistry bench must be wired for the portable video camera.	•	•	•		
Permanent internet access to installed PC	•	•	•	•	•
Second internet port for the lecturer's portable	•	•	•	•	•
VCR Playback Unit (wired to sound system and data projectors).	•	•	•		

- All of the electronics technology that the Lecturer's to access should be mounted in the lecturer's bench obviating the need for a media closet.
- Note A: All seven data projectors should be ceiling mounted, should have True Resolution of at least SXGA (1280 x 1024 pixels) and should be very, very bright.
- A schematic diagram of the control panel to be mounted on the center of the Lecturer's bench is shown in a Figure below. The "Laptop Ports" at the extreme left might best be mounted on the side of the cabinet as discussed at the 3/1 meeting, rather than on the indicated top panel.



All dimensions are estimates

Operation of each projector through six lighted push button controls

Button	Input
1	Off
2	Computer
3	Data Copy
4	Demo Camera
5	VCR
6	Aux.

► What **technology** should be available as a portable device for each room?

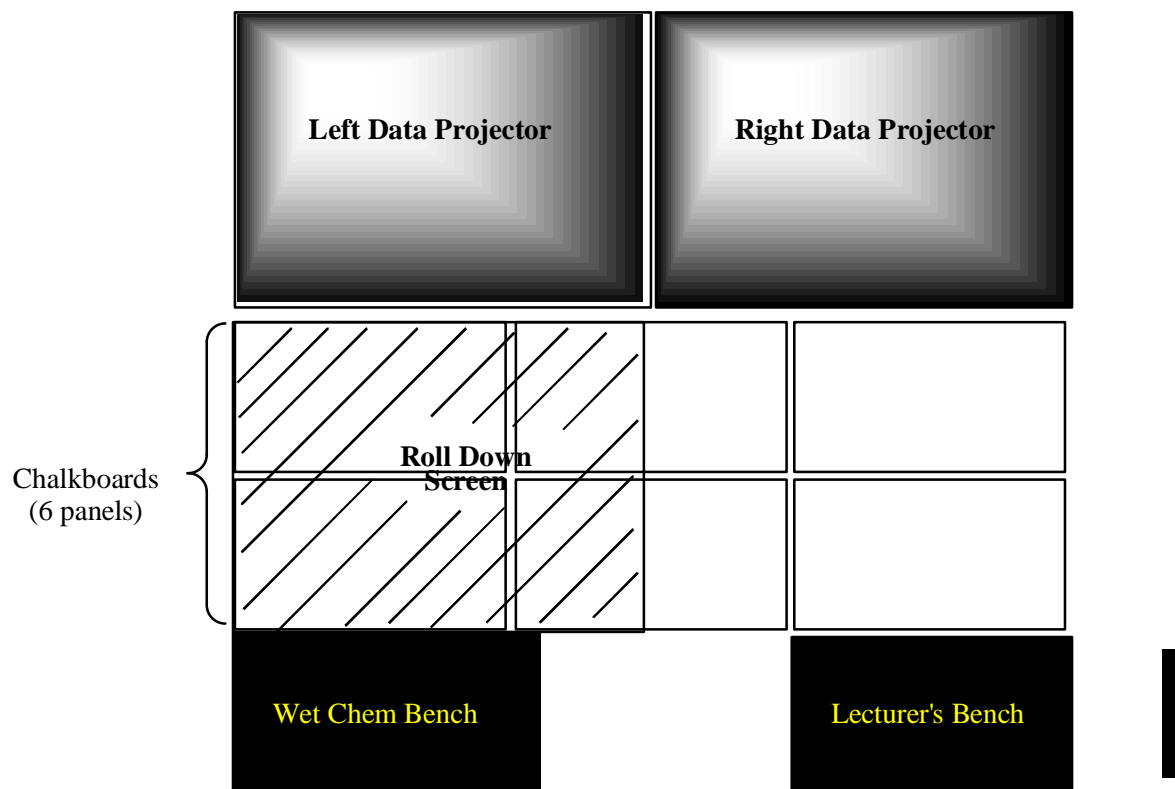
	12A	12	12B	130	132
Really good overhead projector	•	•	•	•	•
Slide projector	•	•	•		
Video camera for demonstrations	•	•	•		
Wireless microphone/transmitter	•	•	•		
Laser pointer	•	•	•		

- All portable technology must be stored in a secure location, that is accessible to faculty even after normal business hours. Preferably the left and center cabinets in the Lecturer's bench should be keyed with a common key for all three lecture halls – the portable technology can be kept there. The right cabinet containing the sound system power amp can be keyed differently to limit access.

► Where should the projection **screens** be located in each classroom?

- See Figure below for 12A, for 12B consider the mirror image.
- In 12A and 12 B, the existing roll-up screen should be relocated to off-center (to the inside of the lecture hall) and should be so configured as to allow as much of the chalkboard surface to be viewable as possible. The current screens should be replaced.
- The major projection area in each lecture hall will be the large wall above the chalkboards. In 12A and 12B this necessitates removing existing sound baffling panels – the appropriate acoustic engineer should affirm that this will not detract from the nicely sound balanced features of 12A and 12B.
- Since the major projection area in each lecture hall will be the large wall above the chalkboards, these walls should be painted with a paint expressly designed for this purpose.
- The major projection area in each lecture hall will be the large wall above the chalkboards – the two data projectors installed in each of 12A and 12B should be

ceiling mounted and so focused so that both can be used simultaneously (i.e., we need side-by-side image projection).

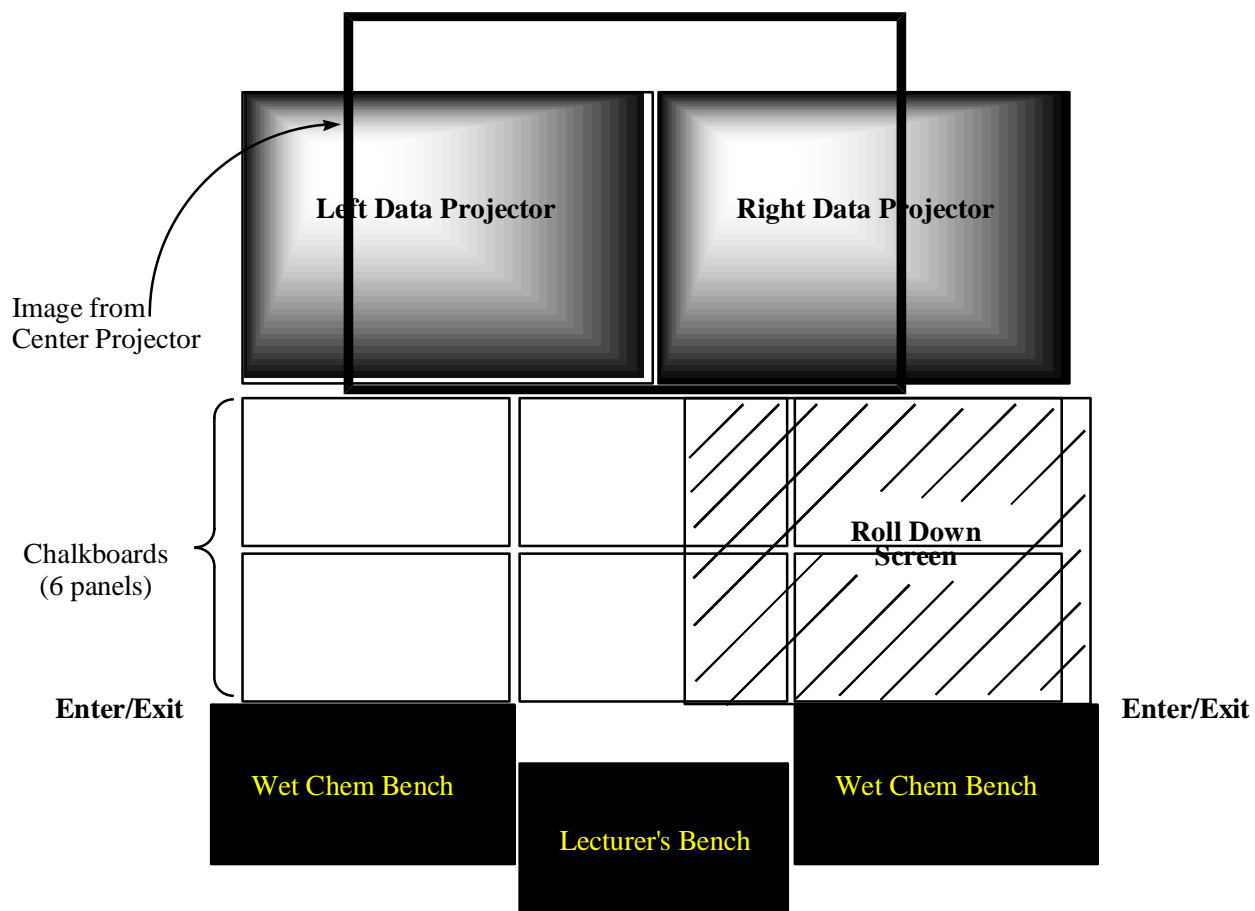


Student's View of the Front of 12A

For Lecture Hall 12...

- See Figure below for 12.
- In 12, the existing roll-up screen should be replaced with a considerably larger one, relocated off-center (to the right as viewed from the student's perspective), and should be so configured to allow as much of the chalkboard surface to be viewed as possible.
- The major projection area in Lecture Hall 12 will be the large wall above the chalkboards. The appropriate acoustic engineer should affirm that using this wall for video projection rather than acoustic baffling will not detract from the solving all acoustical problems currently existing in 12.
- Since the major projection area in Lecture Hall 12 will be the large wall above the chalkboards, this wall should be painted with a paint expressly designed for this purpose.
- The major projection area in each Lecture Hall 12 will be the large wall above the chalkboards – the three data projectors installed should be ceiling mounted and so focused so that either the right and left ones can be used simultaneously (i.e., we need

side-by-side image projection) or only the center one (see sketch below). Provided the image quality does not suffer, the projectors could be located in the projection booth if that is deemed more appropriate.



Student's View of the Front of 12