



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
Physical Planning Office
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

MAR 8 Rec'd

March 6, 1979

UNIV. OF MINN.
HEALTH SCIENCE
PLANNING OFFICE

Kraus Anderson Inc.
525 South 8th Street
Mpls., MN 55404

Attention: Mr. Arne Nordli, Project Manager

Re: JOML B remodeling
First notice of damage
Room 301 and 302, Owre Hall

Gentlemen:

Enclosed is a copy of the Bio Chemistry Department Administrators letter covering the water leaking from the glass piping above the ceilings of the subject rooms. Lamb Plumbing's foreman Jim Kehoe was advised of the problem verbally on February 26th.

The ceiling tiles and floor tiles have not been replaced in these rooms as of this date and we request that arrangements to do this be made by you as soon as possible.

No estimate of damages to the equipment have been provided to me as yet and I urge you to have your insurance representative contact Mr. Bratt, writer of attached letter, to determine the Bio Chemistry Department's loss to their equipment.

Very truly yours,

Gordon Dahlen by Levy

Gordon Dahlen
Construction Superintendent

GD:aep

Enclosure

cc: Jack Geretz
A. Walter Johnson
Tom Kyle
Paul Maupin ✓
Dr. H. Hogenkamp
Roy Anderson
Job file
Gerry Bratt



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Biochemistry
Medical School
227 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

February 28, 1979

TO: Mr. Gordon Dahlen, Construction Superintendent, U of M
FROM: Gerald T. Bratt, Dept. of Biochemistry *GTB*
SUBJECT: JOML-13 Construction Project-
Water Damage - Deionized Water Line Breakage 2/25/79

A recently installed deionized water line broke or separated in the ceiling space above rooms 301 & 302, 3rd floor Owre on Saturday night - Sunday morning, February 24-25, 1979, causing these laboratory rooms to be flooded. The flood was discovered by Mrs. Vickie Knutson on Sunday morning. Damage was sustained by the building and laboratory equipment in these rooms.

In room 301, several pieces of equipment were damaged by water coming from the ceiling. These include a Bausch & Lomb Spectronic 505 spectrophotometer and a Bausch & Lomb VOM-5 servo recorder which will require immediate service to minimize the damage.

In room 302, a Beckman model 25 spectrophotometer and a Bausch & Lomb Spectronic 20 were also immersed and will require immediate service. No other equipment damage is apparent at this time.

The ceiling tile in these rooms will have to be replaced along with any floor tile loosened by the water.

A review of the method of connecting these glass lines used for deionized water should be undertaken and an inspection of the completed installation done to attempt to correct a reoccurring problem. Occupants should not be faced with the hazard of floods from defective mechanical systems or should the University be burdened with the constant menace and cost of repair of these defects.

cc: Mr. Paul Maupin, Health Science Planning Office
Mr. Tom Kyle, Health Science Planning Office
Mr. Jack Geretz, Engineering & Construction
Dr. H. Hogenkamp, Dept. of Biochemistry

Rec'd 3-2-79



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Biochemistry
Medical School
227 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

MAR 14 Rec'd

March 13, 1979

UNIV. OF MINN.
HEALTH SCIENCE
PLANNING OFFICE

Mr. Paul Maupin
Health Science Planning Coordinator
4106 Powell Hall
Mpls. Campus

Dear Paul:

The JOML Building Advisory Committee had extensive discussions concerning air handling machinery noise levels in this renovation project from the very beginning. Because of the noise air conditioning equipment generates and because this project was going to have a large amount of air handling equipment, the occupants were concerned about the location of that equipment and the noise abatement methods to be employed. Interior fan rooms were rejected in part due to the noise they would transmit to adjacent spaces.

When the external machinery towers were agreed to, assurances were given that their design would significantly attenuate the noise transmitted to the adjacent occupied spaces. The towers were to be physically separated from the existing buildings and sound deadening used between the structures. All air handling ducts were to be installed so that no noise was transmitted along them to the occupied spaces. It was with these assurances that the occupants went ahead with program designs.

The Department of Biochemistry did their planning to relocate the departmental office area in the southeast corner of Millard Hall on the second floor, adjacent to the southeast machinery tower for programmatic reasons and with the belief that we would not have to face a noise problem in the office area. Though this area is not complete as of this date, the ducting from the southeast tower has been completed and the fan units have been turned on. There are no ceilings in place, but all of the partition walls are in place.

This morning, I did an inspection of progress of work in this area and I was aware that the fan unit for this part of the building was on. The level of low frequency noise in our future main office area (room 212 Millard Hall) was extremely high. The partition walls in this area (rooms 212.1 and 212.2) are vibrating with the same low frequency components as there is in the general area. This low frequency noise seems to be coming from the fan units themselves conducted through the air column in the ducts or along the duct structures themselves. The noise is then transferred to the walls and then coupled to the room space acoustically. The installation of the acoustic ceiling would not

March 13, 1979

significantly reduce this mode of noise transmission. The high frequency air noise which is also present will be attenuated by the ceiling tile and insulation.

It is my first impression that the source of the noise is either from the rotating machinery or is due to fan cavitation or so called "buffeting". It is possible that air balancing will reduce the cavitation effect and a lowering of the fan speed will contribute to this goal. Transmission along the duct structure through the building structure will be much more difficult to attenuate at this stage.

This problem of noise in our office area is a serious one. At present, it would be distracting at a minimum, but more likely psychologically harmful after a long term exposure. If the completion of the area does not result in an attenuation of this low frequency noise, it is doubtful we will be able to use the office area.

I am addressing this issue now so that remedial action can be taken before the project is finished. I am requesting a review of this problem should be made by the University and the architects to see if the sound isolation has been properly done and what corrections can be made to make the accoustical environment safe for human occupancy. Therefore, I am requesting a meeting of all appropriate people as soon as possible to discuss this problem and seek an immediate solution.

Sincerely,



Gerald T. Bratt
Department of Biochemistry

cc: H.P.C. Hogenkamp
Tom Kyle, HSPO
Jack Geretz, 26 Folwell Hall
A. Walter Johnson, 26 Folwell Hall
Gordon Dahlen, Construction Superintendent
Paul Kopietz, Director of Engineering and Construction

GTB/blah



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

JOML - File
Mechanical

March 15, 1979

Mr. Bruce Johnson
Health Sciences Architects & Engineers
University Park Plaza - Suite 704
2829 University Avenue S.E.
Minneapolis, Minnesota 55414

Dear Bruce:

Attached is a letter from the Department of Biochemistry concerning the noise levels produced by the equipment in the towers at the various levels of the Jackson/Owre/Millard/Lyon Complex.

As you recall the University had a testing agency take preconstruction noise and vibration measurements for future reference and it was guaranteed by your office that those measurements would not significantly change as a result of the renovation.

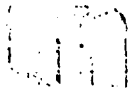
Please respond to Mr. Bratt's letter, in written form to this office. Upon receiving this letter, we will schedule a meeting with the Advisory Committee for you to detail your conclusions.

Very truly yours,

Tom Kyle
Asst. Health Sciences Planning Coordinator

cc: Paul Maupin
Gerry Bratt
H.P.C. Hogenkamp
Jack Geretz
A. Walter Johnson
Gordon Dahlen
Paul Kopietz

TK;jm



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Biochemistry
Medical School
227 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

March 13, 1979

Mr. Paul Naupin
Health Science Planning Coordinator
4106 Powell Hall
Mpls. Campus

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March 13, 1979

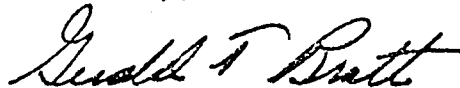
significantly reduce this mode of noise transmission. The high frequency air noise which is also present will be attenuated by the ceiling tile and insulation.

It is my first impression that the source of the noise is either from the rotating machinery or is due to fan cavitation or so called "buffeting". It is possible that air balancing will reduce the cavitation effect and a lowering of the fan speed will contribute to this goal. Transmission along the duct structure through the building structure will be much more difficult to attenuate at this stage.

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Sincerely,



Gerald T. Bratt
Department of Biochemistry

cc: H.P.C. Hogenkamp
Tom Kyle, HSPO ✓
Jack Geretz, 26 Folwell Hall
A. Walter Johnson, 26 Folwell Hall
Gordon Dahlen, Construction Superintendent
Paul Kopietz, Director of Engineering and Construction

GTB/blah

KRAUS · ANDERSON of MPLS, Inc.
CONTRACTORS & CONSTRUCTION MANAGERS

March 16, 1979



Mr. Paul Kopietz
Engineering & Construction Division
University of Minnesota
Room 26, Folwell Hall
9 Pleasant Street, S.E.
Minneapolis, MN 55455

MAR 19 Rec'd

UNIV. OF MINN.
HEALTH SCIENCE
PLANNING OFFICE

RE: JOML-B Remodeling - Completion Schedule
Fourth Floor Owre Hall

Dear Paul:

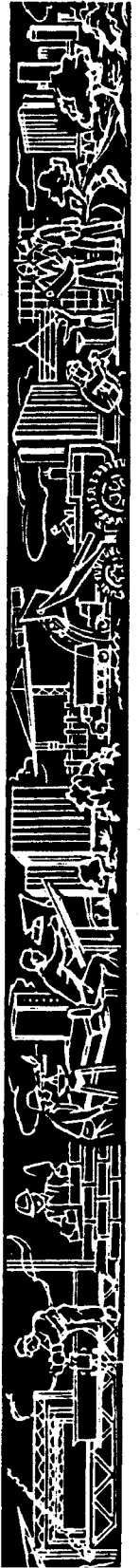
With reference to A.W. Johnson's letter dated March 14, 1979, your note that we are falling behind is correct; but the problem lies with the University, not with Kraus-Anderson.

Some casework necessary to complete the fourth floor Owre is in the occupied areas of the basement and first floor Millard (north area): This casework cannot be removed till the occupants move to first floor Owre and first floor Millard (southeast). This move is scheduled March 23-30. This existing casework has been a big pain in the _____ for the complete job.

In addition, the plans are so inadequate for building, that continuous questions arise. If you look at the bi-weekly meeting notes, you will find repeated questions for this area for the past four months. The answers come very slowly. It is my understanding that some areas are still being held up, pending answers to questions brought up some time ago.

Scheduling of this job has been impossible from the very beginning with all the outages and schedules needed to move mechanical piping and ducts that have come up as walls are torn down and corridor walls opened up. The continuous waiting of University personnel to move unexpected and unscheduled items has been long and very costly for this firm.

Your request for a written reply to confirm the completion of various areas for the fourth floor Owre cannot be given until we are assured of the case-work and the assistance in responding to questions (with positive answers) as soon as they come up. For example, what happens to the ceiling of the fourth floor Owre? Also, when can the metal ceilings go in that are being held up by the telephone lines that go into metal trays above the ceiling?

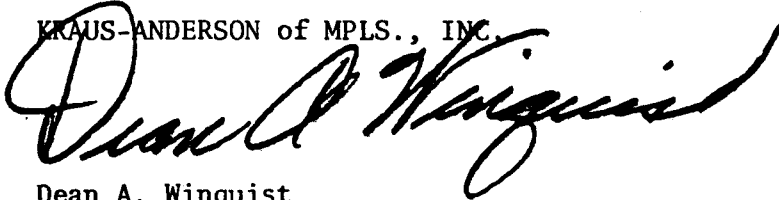


Mr. Paul Kopietz
March 16, 1979
Page 2

Also, what additional areas can we use for storage?

Very truly yours,

KRAUS-ANDERSON of MPLS., INC.



Dean A. Winguist
Vice President/Commercial

DAW/vj

cc: Arne Nordli	Dr. Andreas Rosenberg
Jack Geretz	Roy Anderson
Gordon Dahlen	Steve Fredell
Robert M. [redacted]	Josephine Walaszek
Tom Kyle	

P.S. We should make every effort to turn the Owre first floor over to the occupants by March 23, 1979.



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

April 2, 1979

Mr. Jack Geretz
Engineering & Construction
24 Folwell Hall
Minneapolis, Minnesota 55455

Dear Jack,

Attached is a copy of a letter from Bruce Johnson concerning noise levels associated with mechanical equipment in JOML. Some of the items have been corrected. However, item number 2 seems impossible to change due to space constraints and this seems to be the portion of the duct producing the low level rumble and vibration.

I would appreciate it if you and your engineers would evaluate the problem as Bruce seems only to have identified it for our attention.

Very truly yours,

A handwritten signature in cursive script that reads "Tom Kyle".

Tom Kyle
Asst. Health Sciences Planning Coordinator

cc: Paul Maupin ✓
Paul Kopietz
Gordon Dahlen

TK:jm

HSAE

HEALTH SCIENCES ARCHITECTS AND ENGINEERS INC
UNIVERSITY PARK PLAZA SUITE 704 2829 UNIVERSITY AVENUE S.E. MINNEAPOLIS, MINNESOTA 55414 (612) 378-3833

26 March 1979

MAR 28 1979
UNIV. OF MINN.
HEALTH SCIENCE
PLANNING OFFICE

Mr. Tom Kyle
Senior Architectural Draftsman
University of Minnesota
4107 Powell Hall

RE: JOML-B Complex Remodeling

Dear Tom:

We have received your March 15 letter with attached letter from Gerry Bratt about the apparent mechanical equipment noise. Upon receiving your letter, Bill Poppert, our mechanical engineer, and I went to the jobsite on 20 March and investigated the problem. We were joined there by Gordon Lindholm of University of Minnesota Physical Plant.

The problems mentioned in the letter involved Rooms 212, 212.1 and 212.2 Millard Hall and the Southeast Tower. We also investigated another apparent mechanical noise that day brought to our attention by Muriel Lubauski of the Physiology Department. This problem was in Rooms 411.1 and 411.2 Ovre only. Several problems were discovered in these rooms and all could be contributing to the present noise level. We would recommend that the contractors involved make these adjustments before any measurement for audible sound is made.

Rooms 212, 212.1 and 212.2 Millard Hall and Southeast Tower

1. Return relief air fan RE101 has a bearing or belt noise which can set up a vibration in the ductwork.

? 2. Return air ductwork has been installed with a very abrupt transition between the existing wall and sound attenuator in the tower. This transition is creating a vibration which is being transferred along the ductwork.

3. Vibration isolaters holding the fan should be checked to insure fan is not mounted overly rigid to structure.

4. Metal stud partition walls have been anchored to ductwork which is an unacceptable practice and needs changing. All wall supports and conduit from these walls shall not be in contact with the ductowrk to reduce transmission of any vibration in the ductwork.

Mr. Tom Kyle
26 March 1979
Page Two

5. Balancing contractor is definitely needed on the site to insure that fan is balanced to avoid any rumbling from excess air capacity and the inlet vanes on the dampers are set in the proper position to avoid buffeting noise and vibration.

6. Other lesser items should be done to lessen the transmission of noise. Caulking should be used to seal all pinholes around the ducts from tower to existing building. Some duct leakage was noticed in room ducts and should be sealed. Installation of acoustical ceiling and acoustic sound door to mechanical tower will also help lessen any noise transfer.

Rooms 4111.1 and 411.2 Owre Hall

1. Major problem here is the unnecessarily abrupt 90° duct transition from ceiling through structure of the exhaust duct to the Animal Unit GE-120 in the Fifth Floor Mechanical Room. Air turbulence is creating a lot of noise in the ductwork.

2. Balancing contractor is again needed to check for fan speed as volume of air being pushed through ductwork may not be proper.

3. Installation of acoustical ceiling will also help lessen any noise transfer.

I hope this preliminary analysis may help in correcting potential problems before construction is complete. If there are any questions or further problems, please alert this office.

Sincerely,

HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.



Bruce E. Johnson
BEJ/kn

cc: Paul Maupin
Jack Geretz
A. W. Johnson
Gordon Dahlen
Paul Kopietz
Gerry Bratt



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
~~Physical Plant Operations Office~~ Physical Plant Operations
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

April 2, 1979

APR 3 1979

TO: Jack Geretz

FROM: Gordon S. Dahlen

Gordon Dahlen
By [Signature]

UNIV. OF MINN.
HEALTH SCIENCE
PLANNING OFFICE

RE: JOML-B Remodeling - Meeting March 29, 1979
with Anatomy Department in 356 Jackson-Owre.

Present: Dr. Hamilton
Gordon Herbst
Paul Maupin
Tom Kyle
Gordon Dahlen

This Report is my understanding and record of this Meeting regarding various problems that the Anatomy Department brought forth. Some of these items can be handled by me, but there are some informational and/or requiring action by others.

1. Room 382 Jackson - the wiring for switches does not appear to be installed correctly and controls for dimming, etc. are not installed. The Electrician may have lost the existing dimmer and other controls during this remodeling. Contractor notified by written Memo today to correct this problem right away.
2. Rooms 374-378 - the user states that existing door between these two rooms swings into the new entrance door into 374. The plans do not indicate any work on this partition door on this Contract. Also the problem arose again now about new doors being too narrow for the Anatomy Department's cadaver carts to pass through. The problem was encountered earlier and the Health Sciences Architects/Engineers advised by me of the problem. However, my recollection is that the Architect stated Contractor should install the doors as per plans, because the Anatomy Department had carts that would pass through the doors as designed. This applied to the new doors into Room 76 Millard basement, and I understood it applied to the 374 and 382 Millard doors also. The Anatomy Department feels this is a design error and the door openings should be changed to fit their equipment. Your assistance to handle this problem will be appreciated.

3. Rooms 396 and 398 Jackson Hall - there has been leaking plumbing, possibly new and some from existing lines. The Anatomy Department has had the ceilings in these rooms repaired and repainted, and Dr. Hamilton states that the leaks must be stopped. For the record, on Monday, March 19th, Gordon Lindholm, Roy Anderson, Jim Kehoe, and Dave Berning and this writer met in 296 Jackson to review the leaking pipe - a PVC existing installation as it turned out. It was determined that this pipe leaked because the supporting members holding this pipe in place had been pushed aside in some manner to make way for new ductwork under the Fourth Floor slab for services in the 496 Jackson spaces above. My understanding is that Roy Anderson will resolve this problem with Don Boeser of O'Brien Sheet Metal Co. If there are glass water supply lines in this area of 396-398 Jackson we can most assuredly expect the pattern of coupling failures to continue. Roy Anderson and I met on March 5th with Gordon Lindholm, Bob Stark, Jim Kehoe, John McCormick, Sales Representative for Glass Pipe Manufacturer, reviewing the problems of the couplings on the site. This Meeting produced no results about couplings. On March 6th we met again with same persons plus Robert Dean, the Engineer, from Owens, Illinois, the Manufacturer. He reviewed the problems, asked for and received from Jim Kehoe samples of the couplings that had failed, factory "beaded" glass and job site "beaded" glass to take back to his plant for tests and evaluations. To date I have no record of the results, nor any correspondence regarding this problem of glass pipe/coupling failures. We can only request that the plumbing Subcontractor and the Manufacturer provide the resolution to eliminate any further material failures and thereby assure Dr. Hamilton that the repaired and repainted ceilings will not again be ruined by leaks. Dr. Hamilton indicated he thought this glass pipe/coupling failure is a design error.

4. Room 272 Jackson Hall. Dr. Hamilton feels there is a design error in this room. This may be rectified by the direction given us by Tom Kyle to not remove the base cabinet 46A from its existing place to another room. We are directed to relocate this Unit 46A on wall opposite the existing location. The steel leg table adjoining 46A also shall be relocated to opposite end of the existing sink and cabinets. This will require a longer top for the table, and we are advised the Shops do have some of these man-made stone tops that can be reused by cutting and fitting same into the new space. It is our belief that this modification to the Contract can be accomplished without the extra expense to relocate the existing sink and plumbing service. This modification is approved by the Anatomy Department.

5. Rooms 238 and 239 Owre Hall. Dr. Hamilton indicates and we must agree there is design error here, because the electric outlets' wiring is shown to be removed without any provisions to either relocate, restore or revise them. A field modification has been issued in Memo form by this writer to provide the necessary electric outlets to the General Contractor to be performed on a time and material basis.

6. Room 72 Jackson - Dr. Hamilton states that 220 volt 3-phase power supply for the Shop type machines must be provided. The electrical plans do not show this item to be provided, and this is thought to be a design error also. A field

modification as program modification may be necessary, and the power supply will require being checked to see if there is an adequate supply of power nearby. This writer feels that some Engineering may be necessary and requests assistance from the Electrical Superintendent.

7. Room 88.1 Jackson - The floor, newly installed seamless rolled on type is reported to be cracking. Today is my first information about this problem, and no Report of observation is available as room in full use March 29th. An inspection is scheduled for today at 8:00 A.M. Architect to provide direction to rectify.
8. Room 88.2 Jackson - Gordon Herbst is worried about the plaster walls cracking in this cooler. No observation available until today. There also is a complaint about the glass waste lines in this cooler. I recall these waste lines were not insulated when the work first began on this area. These lines are not the result of this Contract, and may have been a part of the Surgical Pathology Contract that was completed earlier. This problem is not in my area of responsibility as far as JOML-B remodeling is concerned. However, it is hoped this Report will provide the impetus to Engineering and Construction Division, and/or the Health Sciences Plumbing Office to initiate whatever steps are necessary to correct the sweating problem.
9. Rooms 54.3, 54.6 Jackson-Owre, 1, 1.4 Owre have warping countertops causing materials to roll around on tops. These tops are those shipped in by Hamilton from unknown location and Haldeman Homme will be contacted to review and rectify the problems. It must be remembered that these rooms have not yet been final inspected, as they were not completed when the user began classes in them. The Contractor did not get them complete during the five-week mid winter break, and the users now have material stored in them and using other spaces for offices. When the work is complete and materials and personnel with their equipment moves out, a final inspection can be made that will cover all the items and areas. Casework is still missing also.
10. Room 54.2 Jackson-Owre. Dr. Hamilton states that the upper casework with swinging doors is a design error. These doors knock the electronic microscopes off the countertop. This room also was not final inspected, as there was casework missing for some time, and as soon as it arrived and was installed, the room was put to use by Anatomy who was hard pressed for classroom space. This area can be final inspected with the other classrooms.
11. Rooms 54.3, 54.6, Jackson Owre, 1, 1.4, 2 Owre Hall. Dr. Hamilton states the reused casework is a design error, because there were no specifications covering any repairs, except refinishing this casework. Many units in these rooms have had electric outlet openings cut in them that are left with sharp and jagged edges; there are openings at ends of casework not closed up. Units spread as required to support the specified top sizes is the cause of these openings. A modification will be required to correct above problems by the

Jack Geretz
April 2, 1979
Page Four

Contractor and could be done on a field modification with Engineering Construction Division approval.

12. The tops of certain counters are delaminating according to the Anatomy Department, especially on the tan colored tops provided, we are assuming, by Haldeman Homme from Hamilton. Final Inspection will cover this.

13. Dr. Hamilton states new casework is improperly designed. Tom Kyle advises that the Architect was provided with slide boxes so that the drawers could be designed to hold two of them at once, as required by the Anatomy Department. It was further stated by Tom that the drawers are large enough, but there is a protruding item on the upper rail of the cabinet just inside the face that catches the slides so they cannot be stored in the drawers.

14. Dr. Hamilton asked why no security grilles or other means were not provided for the storage room 6.1 Owre windows. He asked that this matter be taken care of right away, so the room can be used as it has been final inspected earlier. Direction on how to provide this is requested from Engineering and Construction Division and/or Health Sciences Planning Office.

15. Dr. Hamilton stated that the reused casework was not painted on the inside in Rooms 210.8 and 242 Owre. The specifications do not require the inside of casework to be painted, only the exterior, and Dr. Hamilton feels this is a design error.

16. Room 364 Jackson-Owre fume hood is not operational, and since this area has been final inspected, this writer will review the problem with Roy Anderson to determine what the problem is holding up this unit from being operational. Dr. Hamilton also complained about the inside of the reused casework not being painted, only exterior which we explained was all that is required.

17. Dr. Hamilton complained about water stains on ceiling of Room 356 Jackson-Owre. These stains could be from water or other liquids. However, no work by this Contractor nor his Subcontractors has been done on the floor above at this time. Until further investigation by this writer it is safe to assume that these stains are caused by the periodic overflowing sinks on Fourth Floor. More investigation is necessary before blaming this Contractor for these stains. It may be that reheat coils are leaking and Roy Anderson will be requested to assist me in the investigation to determine the source of these stains.

18. Dr. Hamilton requests he be informed about the status of the modification to provide the finished ceiling removed by Alternate No. 1 in 2nd Floor Owre - Jackson-Owre corridors. This information will require time to run down, which I have not had to do as yet.

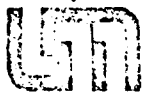
19. There also is paint damaged by oil sprayed on it, 3rd Floor Jackson-Owre Corridor by persons unknown - perhaps the same vandal who has sprayed the basement and first floor walls of corridors in Owre.

Jack Geretz
April 2, 1979
Page Five

This Report is as I understand the comments and statements from Dr. Hamilton, Gordon Herbst and will be used as a guide to properly resolve the problems that are my responsibility. I respectfully request that the other problems be handled by those persons who are responsible for them, and I will assist in every way I can.

GSD:mn

cc: A. Walter Johnson
Roy Anderson
✓ Paul Maupin
Tom Kyle
Dr. Hamilton
Gordon Herbst



UNIVERSITY OF MINNESOTA
TWIN CITIES

Office of the Assistant Vice President

Physical Planning
340 Morrill Hall
100 Church Street S.E.
Minneapolis, Minnesota 55455

May 24, 1979

TO: Vice President Donald Brown
Vice President Lyle French
Mr. John Westerman

FROM: Clint Hewitt *Chewitt*

The attached report was prepared at the request of, and in conjunction with, this office to provide professional guidance in evaluating our options in the use of construction management for Unit J.

The construction manager, in essence, acts as the owner's agent throughout the design and construction process with the two primary responsibilities being cost control and schedule control. The construction manager (CM) establishes and monitors the construction budget, continually evaluating the design as it develops to ensure that the facility remains within the estimated budget. The CM also establishes and monitors a schedule for work, including all activities of the owner, the architect, the construction manager, subcontractors and others, to assure that the work is completed within the established schedule. Although cost control and scheduling are two primary functions, the total services that can be provided are rather extensive and Appendix C includes two lists which outline the construction management services through the design and construction process of Huber, Hunt and Nichols, Inc., General Building Contractors of Indianapolis, Indiana.

The report deals in detail with three basic strategies: construction management, construction management with a guaranteed maximum price and a modified construction management such as we have used on other Health Sciences projects.

It should be pointed out all of these strategies take advantage of phased construction and construction management techniques of schedule and cost control. They all represent substantial potential savings in time and money over conventional construction. This is especially important on this project where the cost of money is a part of our budget.

The report outlines numerous difficulties and costs associated with the guaranteed maximum price. These include:

Increased fees
Inflated estimates

Vice President Donald Brown
Vice President Lyle French
Mr. John Westerman
May 24, 1979
Page Two

Distorted schedules
Reduced program and quality
Separate quality control for work done by construction manager
Increased involvement by University staff
Increased cost of changes
Limited competition
Loopholes leading to constant renegotiation

For the most part these stem from the adversary role foisted upon the construction manager by the element of risk.

The cost comparison in appendix B should be reviewed very carefully. The cost of risk is conservatively estimated at twice the cost of a typical CM, with the Unit F model estimated at less than one-third of the guaranteed maximum price model. The difference in cost between the Unit F model and the guaranteed maximum price model is in excess of \$11 million or about 9½% of the construction budget. Using these funds as an additional contingency, deducted in advance from the budget, it would appear that the Unit F model, substantially expanded, will produce the highest level of assuring award and the lowest overall cost to the University.

After you have had an opportunity to review these documents, I would like to schedule a meeting with some members of the staff to discuss in detail the option the University should take for the Hospital project.

CNH/hd

cc: Mr. Robert Dickler
Mr. Tom Jones
Mr. Dave Preston

P.S. I should emphasize that there are varying opinions about the positive and negative aspects of Construction Management (CM) with a Guaranteed Maximum Price (GMP). The consultant that worked with us, as you will note from the report, has very strong feelings about its value on a project of this scope and scale. On the other hand, there are firms who promote the GMP concept. Although the General Services Administration was an early promoter of a CM with a GMP and experimented with this concept, today, they will not pursue this strategy. However, HEW Guidelines called for a GMP, but they do not allow the CM to do any of the work nor share in any savings.

COST, PLANNING & MANAGEMENT INTERNATIONAL, INC.
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REPORT

CONSIDERATIONS REGARDING USE OF
CONSTRUCTION MANAGEMENT FOR
REPLACEMENT HOSPITAL UNIT "J"

UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA

PREPARED BY

COST, PLANNING AND MANAGEMENT INTERNATIONAL, INC.
DES MOINES, IOWA

21 MAY 1979

INTRODUCTION

Construction is expensive because construction is risky. Critical operations are at the mercy of the weather. Critical materials and subassemblies are produced outside the contractors' control. Multiple crafts, each with its own union and labor agreement, must pull together to meet the schedule. Wage rates are high to compensate for seasonality of work, making labor escalation costs dramatic.

Riskiest, perhaps, each job is a prototype. Industrial efficiencies in material and subassembly production or in construction are seldom achieved. Worse, because of the pressures of time, design documents are frequently less than perfect. Changes correcting errors as well as scope changes occur throughout design and construction.

Profit is the cost of this risk. The traditional construction strategy: design, bid, build, using a single prime contractor, tends to maximize the cost of such risk. The contractor is frequently limited by his bonding capacity, usually ten times net worth, rather than by his management depth or ability.

Typically, the owner has greater financial strength than the contractor; he can use others' money more cheaply and better afford risk, a situation directly opposed to the contracting strategy tradition demands.

In the 1960's, owners began to seek new strategies to deal with this opposition of intent and fact, as well as to cope with the increasing scope and technology of the buildings they needed. The Federal Government's G.S.A. did most of the early thinking to structure contract strategies designed to motivate designers and contractors to act in the owner's interest. The industry responded and by the 1970's Construction Management (CM) was a reality.

The intent was to control cost and time through more efficient design by tapping the contractors' expertise on a professional basis early in the design process. GSA perceived they could only acquire this talent on a professional basis if they eliminated the contractors' risk. Responding to pressures to establish known costs prior to committing construction monies, GSA experimented with Guaranteed Maximum Price (GMP) CM. Today, GSA has discarded this strategy as being contradictory to the objectives of CM.

HEW has taken the opposite position. Its guidelines call for a GMP, disallow the CM from doing any portion of the work and disallow shared savings. The controversy continues with strong advocates of each approach. Most admit, however, the GMP represents a sometimes necessary compromise.

The element of risk is especially important to strategic thinking for such a project as Unit J. \$120,000,000 will consume a significant portion of any candidate's bonding capacity. Only a General Contractor can offer a credible GMP and then only with significant impact on profit potential. If a project is sufficiently risky, can potentially bankrupt and, at the same time, consumes significant profit potential, it will be expensive.

The original GSA philosophy was sound: structure contracts to motivate others to act as you wish them to act, in the owner's best interest.

OBJECTIVES

In considering the employment of Construction Management (CM) for Unit J, the University is seeking to satisfy, in rough order of priority, the following objectives:

1. Assured Budget: Once the first construction dollars are committed, e.g. a foundation contract, the University requires some assurance the total project can be awarded within available dollars.
2. Schedule: Project delivery controls the generation of revenue from the project and has an impact on the total project budget. Delivery on time is imperative.
3. Quality Control: The project must be built to quality standards consistent with the rest of the Health Sciences expansion.
4. Budget Optimization: The University seeks to buy as much program space and quality in the project as can be acquired within the budget.
5. Maintenance of Control: As with all projects, the University requires a significant level of control over what, how and when the project is constructed.
6. Minimization of Staff Involvement: While the University maintains a highly competent Engineering and Construction Division, it has no staff available for performing normal services on this project. CM should minimize the need for new personnel.
7. Accommodation of Change: The management framework should accommodate the inclusion of necessary changes during design and construction at or near actual cost.

These objectives are, to some extent, mutually contradictory. CM provides a variety of options and formats addressing all of these objectives but satisfying each to a greater or lesser extent.

GENERAL CONSIDERATIONS REGARDING CM

Typically, CM firms have grown out of one of three backgrounds: general contracting, architecture/engineering or construction support services such as cost estimating and scheduling. Most firms are, or

began as, subsidiaries or divisions of general contracting organizations or architecture/engineering firms. These backgrounds have created significant differences in approach as well as to contract commitments. Appendix A contains the Standard Form of Agreement Between Owner and Construction Manager as prepared by the AGC and its parallel document, as prepared by the AIA. The AGC document makes provision for a guaranteed maximum price to be provided by the CM; the AIA document does not. While both documents enumerate essentially the same task list for the Construction Manager to perform, the approach to performing these tasks is obviously quite different.

In each case the Construction Manager is conceived as a professional representative of the owner, his agent. As such, he is to perform in parallel with the architect/engineer (A/E) and the owner as an equal member of the team. He is expected to act consistently in the owner's best interest, providing his expertise for the good of the project.

The extent to which this professional relationship will in fact exist is determined, to a large extent, by the element of risk. Most users of CM believe both contractors and A/E's have appropriate backgrounds and skills to bring the tasks of CM. In truth, an effective CM needs experience and staff depth in both areas as well as in mechanical and electrical engineering and construction.

A common misconception gained from a superficial understanding of the CM process is it eliminates or minimizes owner involvement. Both contracts spell out a high level of owner responsibility. The overlap of design and construction creates an extensive decision matrix which can only be satisfied by the owner. These thoughts will be expanded as we discuss each objective individually.

ASSURED BUDGET

The Guaranteed Maximum Price (GMP) would seem to be the short and sure road to assured budget. Careful examination, however, reveals the GMP to have substantial costs which should be understood thoroughly and considered carefully before its use. First, the CM is asked for a GMP before design is complete and before any contracts for actual construction are awarded. On smaller projects the time span between the end of design/development, the most usual milestone for establishing the GMP, and the completion of final documents is fairly short. The CM can, in these cases, obtain hard commitments for the majority of the work. In the case of Unit J, however, this will not be true. The guaranteed maximum, if it is to be useful, will apply to work to be bid and performed years later. This represents a relatively high risk. In smaller projects the amount of risk is small enough it does not limit competition. A \$120,000,000 project can only be guaranteed by a few of the nation's largest General Contractor/Construction Managers. This project is large enough, a series of overruns could impair the CM's ability to continue doing business. This also represents a substantial risk.

Obviously, risk associated with a GMP is greater the earlier it is established. At the same time, it represents less of a guarantee the earlier it is established, since scope changes are more likely and more sweeping in their implications earlier in the project. Hence, a GMP based on a completed program is most expensive and provides the lowest level of guarantee; schematic design next, design/development next and some percentage of contract documents is the least expensive and most thorough guarantee. It is likely, for this project, the appropriate time will be at the end of design/development. Profit is the cost of this risk, but not the only cost.

Inclusion of the guaranteed maximum within the CM contract will drastically change the status and working relationships among the CM, the A/E and the owner. The riskier the guaranteed maximum, the greater the degree to which the CM will become an adversary rather than a team member.

The CM will know he is working toward a guaranteed maximum within a given budget from the beginning. He will be clearly motivated to exercise such power as he has to minimize program and quality throughout programming, schematics and design. His project budget will be inflated with contingencies during these early stages to provide a cushion assuring his ability to offer an acceptable GMP at the appropriate time. A contingency of 15-25% above and beyond his estimates of highest probable construction cost should be anticipated. This will create a situation in which the blending of expertise between A/E and CM will be exceedingly hard to achieve. Disputes between A/E and CM regarding inclusion of desirable program or quality features may be expected to frequently arise. Such disputes must be resolved by the owner, indicating a high level of involvement during the design phases. In short, a second cost of the guaranteed maximum is the potential for lost program or quality within the construction budget.

A GMP of this size should probably be bonded if it is to provide a real guarantee at all. This will have a significant effect on the bonding capacity of the CM for an extended period of time. It is probable that one-half of the construction dollars will not be contracted for as much as two years after the guaranteed maximum is offered. The CM's bonding company will not reduce his risk posture until trade contractor bonds are provided. Contractors' relationships with their bonding companies vary, but it is fair to say at least one-half of these construction dollars will represent reduction in ability to bid other work. If the CM, in establishing his fee, is evaluating the best use of his bonding capacity, bonding will have a measurable impact on his fee.

In establishing fees for offering management services, many contractors make a distinction between risk and no risk jobs. This difference can be very significant. In the standard contract offered by the AGC, this is recognized in Article 7.3.5, calling out costs in excess of the GMP as one of the components of the fee. Based on our experience, the difference in cost should be anticipated to be as high as 8%. On a project of this size that could mean the difference between a 2% and 10% fee with reimbursable costs being additive to either.

Even at this cost, the GMP is not a complete comprehensive guarantee. The AGC standard contract enumerates the following causes for an adjustment to the guaranteed maximum:

- Article 4.2: Refusal of a trade contract recommended by the CM.
- Article 6.1: Delays caused by the owner or architect/engineer.
- Article 9: Changes in the project.
- Article 9.1.5: Concealed conditions.
- Article 9.4.1: His own actions to avert an emergency.

In addition, this contract calls for a fee adjustment if the project is delayed for reasons beyond the CM's control.

Of these, in our opinion, the most dangerous exception is delay caused by the owner or A/E. Such delays are quite common, especially in the construction of complex hospital projects. They can result from "holds" while proposed changes are being evaluated, delays in the timely approval of shop drawings, delays in approving design documents, etc. If the CM is in trouble regarding his guaranteed maximum, any of these occurrences can become the source of severe contention.

Similarly, his role as evaluator of the cost of changes to trade contractors and the schedule implications of changes becomes unclear in the context of a GMP. Once again, the CM will be, to some extent, an adversary.

Interpretation of the exception based on the owner rejection of a recommended trade contractor could cause some difficulties. The main reason this clause is in the contract, we suspect, is to protect the CM from the owners rejecting the lower bidder. On a project with as complex a schedule as Unit J, however, the opposite could be true. In the interest of maintaining a smooth project schedule, the CM may elect not to recommend the lower bidder. Should the University, in this instance, feel it must rigidly comply with competitive bidding laws and award to the lower bidder, despite apparently inadequate resources or a reputation for slow performance, the CM could construe this rejection as a delay caused by the owner.

If the GMP is used, it should apply to the total construction budget and allow the CM maximum flexibility in meeting it. Such modifications as a separate GMP for each bid package severely limit the CM's latitude in managing the project and increases the owner's administrative involvement.

Frequently the CM prepares a bid package budget as a part of the GMP. If a package is higher than his budget, he has the option of performing the work himself. This allows maximum flexibility and should reduce the cost of the GMP.

Shared savings clauses further aggravate the problems outlined above, especially the artificial inflation of estimates.

Other methods of assuring budgets are commonly used. Target price with incentive has been used in the public sector to motivate the CM to exceptional efforts to complete the project within the budget, without adding to his risk. All CM contracts contain a target price. Shared savings are

an optional incentive. While not creating adversary postures as emphatically as the GMP, such incentives cloud the CM's role with a profit motive. The lump sum fee is, in our opinion, the surest way to obtain truly professional services.

In a properly managed project, the saved cost of the GMP represents a substantial contingency against bidding uncertainties.

In the absence of a GMP, the best assurance the owner has of awarding his contracts within the budget is the professional reputation of the CM firm. While this does not provide contractual guarantees, it does provide a clarified role to the CM to act as a professional representative in the best interest of the owner in all cases.

SCHEDULE, DESIGN AND CONSTRUCTION

Construction Management in either format provides a vehicle for the integrated scheduling of design and construction tasks. Careful scheduling with predictable results is a major feature of CM and CM's use fairly sophisticated scheduling tools to achieve these goals. A formal CM relationship is not, however, the only way this can be achieved. The University has experimented, with some success, with modifications to the CM process. It has contracted consulting expertise in the areas of cost management and scheduling. The consultants integrate their professional services with the efforts of the University's Engineering and Construction Division staff. These efforts on Unit F are working well largely by virtue of the close cooperation between the consultant and the University staff and as a result of rigorous monitoring by both parties.

In the context of CM, there are some differences between the AIA and AGC format. The AGC contract strongly prefers the trade contracts be directly with the CM; whereas the AIA format refuses this responsibility. The AGC format creates a higher level of responsibility from contractor to CM and enhances the CM's ability to enforce the schedule.

If the GMP is used, the schedule should be carefully reviewed prior to owner approval for protection against claims. A schedule can be so constructed that any delay by the owner or A/E will show excessive impact on completion and excuse renegotiation of the GMP.

QUALITY CONTROL

Both contract formats list inspection as one of the duties of the CM. The AGC contract, however, specifically refuses inspection responsibility normally taken by the A/E. Typically, General Contractor CM's do not carry errors and omissions insurance.

Should the University not wish to perform inspection with its own forces, as it normally does, an amendment to the AGC format is required, as well as an increase in fee from the norms associated with this contract format.

In selecting a CM, the University should carefully evaluate mechanical and electrical expertise within the CM organization. This is commonly lacking within General Contracting organizations, and absolutely essential in hospital construction.

If the University does not inspect and the CM is performing work, some method of inspecting his work must be established. An outside firm could be retained or the inspection role of the A/E increased.

BUDGET OPTIMIZATION

The basic intent of CM is to maximize program and quality within an available budget. The inclusion of construction expertise early in the design process should provide the vehicle for accomplishing this. As pointed out earlier, the GMP option is in direct opposition to achieving this goal. Should the University opt for a GMP CM contract, it should then expect to allocate other resources to the achieving of this goal. Review for reasonableness of the CM's estimates prior to the establishment of the GMP is completely in order and, in our opinion, quite necessary. Monitoring of these estimates by competent professional cost engineers will provide the necessary basis for negotiations regarding inclusion of quality as well as insulation from claims arising from the overriding of the CM's judgement.

Perhaps the most powerful tool available to the University is the program. If the CM and A/E are presented with a thoughtful comprehensive program, including a detailed construction budget based on conceptual floor plans, a baseline for evaluating all deviations will exist. In this way, cost negotiations will be more open, justification and evaluation of deviations will be significantly clearer, and more readily controlled.

MAINTENANCE OF CONTROL

The CM contract effectively passes control to the Construction Manager. The contract should be structured with a number of key review and approval milestones, assuring the owner of control over major decisions and leaving the CM free to do his day to day work. Obviously, it will be easier for the University to maintain the desired level of control over its project without a GMP. Where the CM is clearly the owner's professional representative, control can be achieved through cooperation. All elements of adversary relationships included, however, will tend to negate owner control.

ACCOMMODATION OF CHANGE

Regardless of contracting strategy, accommodation of change during design and construction is difficult and expensive. The CM format provides greatest latitude for change among available contracting strategies. This accommodation is severely limited by inclusion of a GMP. Without the GMP, inclusion of changes can be accomplished at their real cost. With a GMP, however, every change becomes an opportunity for renegotiation. The owner should always endeavor to keep changes to a minimum. His ability to do this is, to a large extent, the result of his programming and planning

effort. Clearly, a thoughtful program incorporating the best thinking of the hospital professional staff, provided as the basic document for architectural design, can eliminate, or at least minimize, changes resulting from poor communications or changed minds. In all hospital construction, however, there will be changes responding to advances in medical technology.

CM SELECTION

In no case should the CM be selected on the basis of fee alone. If no GMP is used, selection should proceed as with A/E's - selection followed by fee negotiation. If the GMP is used, however, knowing the cost of risk is essential in evaluating proposals.

In either case, the UOM should prepare and send a Request For Proposal (RFP) to interested qualified parties. The RFP should spell out exact services required, anticipated budget and time frame, and proposed contract format.

Care should be taken in the preparation of the RFP to differentiate between services covered by the fee and services reimbursable to the CM. The RFP should make clear proposals are to cover all costs. The fee should be quoted as a lump sum based on the time and budget scope of the project described in the RFP. Reimbursables, however, should be expressed as a detailed budget. This budget should include multipliers against direct salary cost for reimbursable personnel and should make clear that other reimbursables will be billed on an unmarked-up basis. Bond and insurance costs should be included with unmarked-up reimbursables.

Evaluation of proposals and checking of references, track record and pertinent experience will create a "short list" of 3-6 firms.

Any disparity between proposals and requirements can be negotiated at this point. Following interviews, selection can be made on the basis of qualifications and fee. A local CM should be preferred, all else equal, by reason of familiarity with the market.

CONTRACT CONSIDERATIONS

The contract should be closely based on one of the standard forms provided by the AGC or AIA. Both the courts and the candidates are familiar with them, enhancing clarity and legal force.

Specific contract recommendations must follow some basic decisions by the University, especially regarding the GMP.

RELATIONSHIP TO CONTRACTORS

Use of AGC formats and RFP's to AGC members should insure local AGC support. In any case, we seriously doubt any party would contend the appropriateness of CM for a project of this scope. CM should increase trade contractor competition by making smaller bid packages, creating opportunities for Twin Cities' general contractors, otherwise too small, to compete.

Appendix A contains AGC guidelines for selecting a CM.

ANTICIPATED FEES

There are no industry fee standards for CM services. The projections below should represent extremes with probable fees falling near the mean. These fees are based on the AGC contract format as the AIA contract includes only profit in the fee.

	<u>Without GMP</u>	<u>With GMP</u>
Fees	1% to 3%	5% to 10%
Reimbursables	2% to 5%	2% to 5%

The wide variance in fees for GMP responds to market uncertainties and variations in the level of risk associated with the GMP.

As pointed out in the contract, this fee covers only top management time; home office overhead, except data processing; profit and the cost of risk. All on-site activities are reimbursable.

OTHER OPTIONS

Design/Construct: Probably not a feasible strategy for a project of this complexity.

Modified CM Using Multiple Prime Contracts and Phased Construction: The University has in-place the experienced top management to administer this format. They have used it with considerable success on smaller projects such as Unit F.

This approach maximizes control and should produce cost and schedule results comparable to CM. Costs of additional staff and consultants should be much lower.

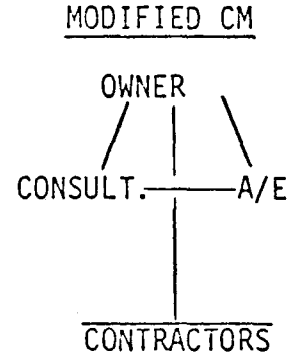
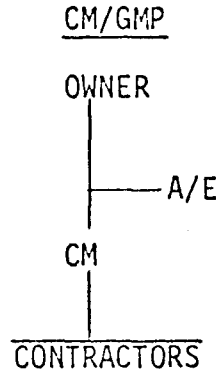
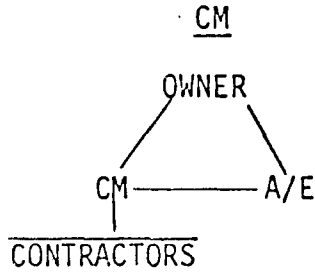
Appendix B is a table comparing fees and reimbursables in each of three formats: CM, CM with a GMP and Modified CM.

In addition to lowering fees this format has the advantages of being familiar to the University administration and of providing the University with greater control.

If the GMP concept is not required, this approach should be seriously considered.

SUMMARY

Some version of CM is appropriate for use on Unit J. Three options can be diagrammed as follows:



The University is experienced with the last of these, but will have to become familiar with unique aspects of administering the first two.

The GMP, while providing some assurance the project will be awarded within the budget, is quite expensive, mitigates the CM's professional responsibility to the owner, and does not constitute a comprehensive guarantee.

Savings generated by the substantial differences in the cost of these strategies may be considered as a contingency further assuring award of a given program within the budget.

If the project is carefully programmed and budgeted, overruns covered by the GMP can be avoided by other, more effective means; with better results and at a lower cost to the people of Minnesota.

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document B801

Standard Form of Agreement Between Owner and Construction Manager

Recommended for use with the current editions of standard AIA agreement forms and documents.

*THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES; CONSULTATION WITH
AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS COMPLETION OR MODIFICATION*

AGREEMENT

made this _____ day of _____ in the year of Nineteen
Hundred and _____

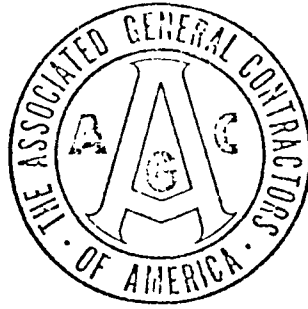
BETWEEN the Owner:

and the Construction Manager:

for service in connection with the following described Project:
(include a full description of project location and scope)

The architect for the Project is:

The Owner and the Construction Manager agree as set forth below.



**STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND
CONSTRUCTION MANAGER**

(GUARANTEED MAXIMUM PRICE OPTION)

(See AGC Document No. 8a for Fixing the
Guaranteed Maximum Price and
AGC Document 8b for recommended General Conditions)

This Document has important legal and insurance consequences; consultation with an attorney is encouraged with respect to its completion or modification.

AGREEMENT

Made this day of in the year of Nineteen Hundred and

BETWEEN

the Owner, and

the Construction Manager.

For services in connection with the following described Project: (Include complete Project location and scope)

The Architect/Engineer for the Project is

The Owner and the Construction Manager agree as set forth below:

Certain provisions of this document have been derived, with modifications, from the following documents published by The American Institute of Architects: AIA Document A111, Owner-Contractor Agreement, ©1974; AIA Document A201, General Conditions, ©1970; AIA Document B801, Owner-Construction Manager Agreement, ©1973, by The American Institute of Architects. Usage made of AIA language, with the permission of AIA, does not apply AIA endorsement or approval of this document. Further reproduction of copyrighted AIA materials without separate written permission from AIA is prohibited.

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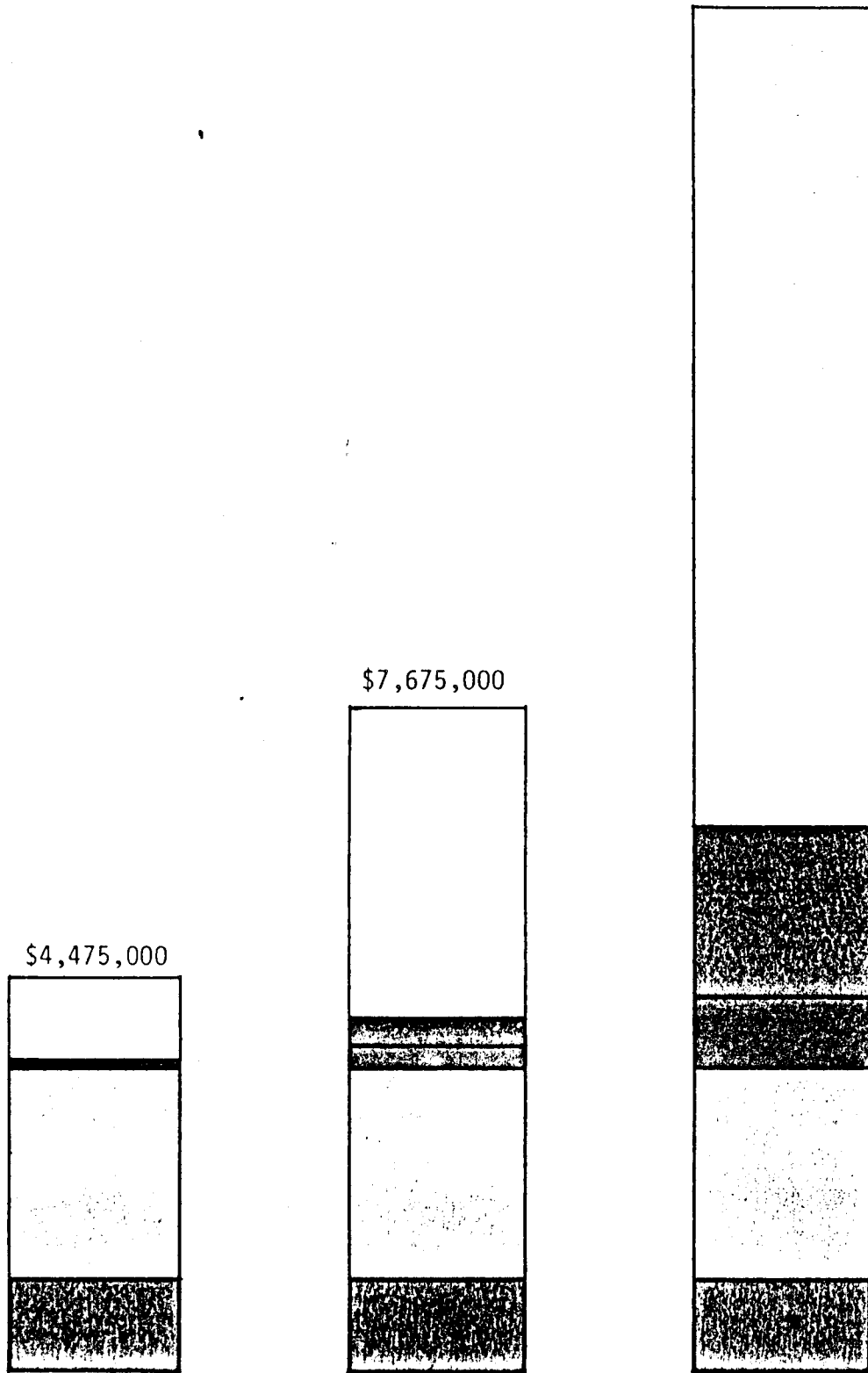
APPENDIX B
MANAGEMENT & ENGINEERING
COST COMPARISON*






<u>ITEM</u>	<u>MODIFIED CM</u>	<u>CM</u>	<u>CM/GMP</u>
A. <u>Contracted By Owner</u>			
1. Tests & Surveys	\$ 100,000	\$ 100,000	\$ 100,000
2. Permits & Fees	500,000	500,000	500,000
3. Group I Equipment Survey	<u>500,000</u>	<u>500,000</u>	<u>500,000</u>
	\$1,100,000	\$1,100,000	\$1,100,000
B. <u>On Site Supervision & Inspection</u>			
1. Salaries	\$1,500,000	\$1,500,000	\$1,500,000
2. Salary Burden	450,000	450,000	450,000
3. Field Eqpt. & Support	<u>375,000</u>	<u>375,000</u>	<u>375,000</u>
	\$2,325,000	\$2,325,000	\$2,325,000
C. <u>Misc. Reimbursables</u>			
1. Travel	\$ 50,000	\$ 50,000	\$ 50,000
2. Liability Insurance	-	150,000	150,000
3. Data Processing	100,000	100,000	100,000
4. Bond	<u>-</u>	<u>-</u>	<u>600,000</u>
	\$ 150,000	\$ 300,000	\$ 900,000
D. <u>University Overview</u>			
1. Staff Costs	-	\$ 350,000	\$1,400,000
2. Consultants	<u>-</u>	<u>-</u>	<u>500,000</u>
	-	\$ 350,000	\$1,900,000
E. <u>Fees</u>	\$ 900,000	\$3,600,000	\$9,600,000
	<u> </u>	<u> </u>	<u> </u>
TOTAL	<u>\$4,475,000</u>	<u>\$7,675,000</u>	<u>\$15,825,000</u>

*Based on \$120,000,000 construction - 2 years design, 4 years construction

APPENDIX B
COST COMPARISON
CHART

Item Modified CM CM CM/CMP
\$15,825,000



-  E. Fees
-  D. Overview
-  C. Misc.
-  B. On Site
-  A. Owner

Huber, Hunt & Nichols, Inc.

OUTLINE OF CONSTRUCTION PHASE SERVICES

The working relationships between an Owner, Architect, Construction Manager and Contractors during actual construction are of the utmost importance. As your Construction Manager, Huber, Hunt & Nichols, Inc. will provide complete management supervision and related services throughout the construction phase of the work.

The following is a broad scope list of Huber, Hunt & Nichols Construction Management Services available to you during construction of your project. At your direction, these services will be performed as determined by your projects specific needs.

1. Provide resident project management for the construction work.
2. Provide a jobsite construction staff to function in an autonomous manner and provide personnel capable of interfacing with the Owner and Architect on a daily basis.
3. Provide the resident project manager with the authority to make decisions on a daily basis without the necessity to obtain support from the home office.
4. Provide a management plan for the Construction Phase, emphasizing the dates and responsibilities of each team member.
5. Provide cost control through continuous on-site monitoring of the work with emphasis on anticipation of potential interface problems and material procurement problems.
6. Establish and maintain a reporting system to the Owner, emphasizing daily as well as monthly summary reporting.
7. Develop and maintain a program to assure quality control of the construction.
8. Establish and maintain coordination procedures for the contractors and for the Owner, as well as the Architect.
9. Analyze contractor labor force and determine adequacy.
10. Hold regular jobsite meetings to review progress, discuss problems and coordinate future work.
11. Receive, process and disseminate all communications between the Architect and contractors, including Revised Drawings, shop drawings, change orders, etc.

Huber, Hunt & Nichols, Inc.

OUTLINE OF CONSTRUCTION PHASE SERVICES

Page Two

12. Maintain a log of daily activities, including manpower records, weather, delays, major decisions, etc.
13. Maintain a roster of companies on the project with names and telephone numbers of key personnel. Provide means of identifying workmen on site.
14. Establish and enforce jobsite rules governing parking, clean up, use of facilities and worker discipline.
15. Maintain a system of review and update approval of shop drawings.
16. Hold field inspections for conformity to Drawings.
17. Provide cost control through project payment review and verification according to the approved schedule and budget.
18. Provide EEO program for the project. Provide contractor advice and monitor program for compliance.
19. Provide labor relations management for harmonious, productive project through national labor agreements and local union involvements.
20. Provide safety program for project to meet OSHA requirements. Assure contractor compliance without relieving them of responsibilities to perform work in accordance with the best acceptable practice.
21. Provide on-site, continuing project inspection and supervision services to supplement the inspection services by the Architect.
22. Provide for an interpretation of the meaning and intent of the drawings and specifications by the Architect and help in securing the necessary day-to-day decisions.
23. Provide full time project inspector(s) with authority to condemn work when, in his or the Architect's opinion, that work does not conform to the requirements of the Contract Document.
24. Secure the services of independent testing laboratories and provide the necessary testing of materials to assure conformance to contract requirements. Also, require special inspection or testing of any work installed or completed.
25. Provide for engineering layout of entire project to assure dimensional and elevation controls.

Huber, Hunt & Nichols, Inc.

OUTLINE OF CONSTRUCTION PHASE SERVICES

Page Three

26. Provide for watchmen and security services for the project.
27. Provide for efficient logistical control of the site, including horizontal and vertical transportation of materials and personnel. Also, assure adequate storage and parking space, etc.
28. Provide for insurance coverage for the project to include builder's risk insurance, property liability, property damage and the various "hold harmless" coverages.
29. Provide for trash and debris control and removal from the site.
30. Provide first-aid services for the project to the extent appropriate.
31. Assure temporary fire protection methods during construction.
32. Provide for most efficient implementation of temporary facilities during construction, including temporary water, heat, power and sanitary facilities.
33. Provide construction cost accountability on a monthly basis.
34. Document changes and account for impact on construction budget.
35. Provide construction scheduling control, including financial responsibility for project completion on schedule desired by the Owner.
36. Provide CPM Schedule for construction showing all interrelationships such as Owner decisions, procurement, shop drawing approvals, delivery timeframes, installation schedules, approvals, inspection, testing and occupancy. Update as appropriate.
37. Provide jobsite administrative functions during construction to assure proper project documentation, including such things as the following:
 - a. Jobsite Meetings. Weekly progress and coordination meetings are essential to any easy flowing project. Items such as timely submittals of shop drawings, samples, etc., and their expeditious processing and return; critical ordering and delivery of materials; work sequencing; inspection and testing coordination; labor allocation, etc., need to be routinely expedited and coordinated through jobsite meetings. Each contractor's work needs review and coordination. The CPM Schedule needs constant review and implementation. Safety requirements need to be continually monitored and enforced.

Huber, Hunt & Nichols, Inc.

OUTLINE OF CONSTRUCTION PHASE SERVICES.

Page Four

The jobsite meeting is the tool for preplanning the work and enforcing schedules.

Procedures, responsibilities and authority of parties will all be clearly understood.

- b. Shop Drawing Submittals/Approvals. The HH&N staff will closely monitor shop drawing submittals and approvals. The staff will implement procedures for submittal and approval, and will review the shop drawings for conformance to the project requirements.
- c. Material and Equipment Expediting. The HH&N staff will closely monitor material and equipment deliveries for all contractors to assure conformance to Schedule. Checking and follow-up procedures on supplier commitments are considered a "must".
- d. Administrative Records. The HH&N staff will maintain at the jobsite, on a current basis, files and records such as the following:

Contracts

Contract Changes

Shop Drawing Submittal/Approval Logs

Purchase Orders

Material Purchase, Delivery Logs

Equipment Purchase, Delivery Logs

Technical Standards

Design Handbooks

Contract Drawings and Specifications with Addenda

"As-Built" Drawings

Warranties and Guarantees

Operating and Maintenance Instructions

Huber, Hunt & Nichols, Inc.

OUTLINE OF CONSTRUCTION PHASE SERVICES. Page Five

Cost Accounting Records

- Labor Costs

- Material Costs

- Equipment Costs

- Force Account Records

Daily Progress Reports

Monthly Progress Reports

Correspondence Files

Owner Change Orders

Payment Request Records

Transmittal Records

Meeting Minutes

Inspection Reports

Cost Estimates--Bulletin Quotations

Bid/Award Information

Bid Analysis and Negotiations

Lab Test Reports

Insurance Certificates and Bonds

Punch Lists

CPM Schedule and Updates

The project records shall be available at all times to the Owner's representative for reference or review.

Huber, Hunt & Nichols, Inc.

OUTLINE OF DESIGN PHASE SERVICES

The greatest impact that a Construction Manager will have on project costs and schedule occur during the design phase of a project. As your Construction Manager, Huber, Hunt & Nichols, Inc. will provide complete construction management control services throughout the design phase of the work.

The following is a broad scope list of Huber, Hunt & Nichols, Inc.'s Construction Management Services available to you during the design of your project. At your direction, these services will be performed as determined by your project's specific needs.

1. Develop an overall management plan and CPM Management Schedule of critical design and construction dates in order to accomplish the stated objectives.
2. Prepare an operation system, setting forth procedures for decision making, design review, etc., outlining the responsibilities of the Owner, the Architect, Construction Manager, contractors and third parties.
3. Establish project goals and priorities, keeping in mind the initial concerns expressed by the Owner and the Architectural Design Team.
4. Prepare a detailed project budget, broken down into major components of the Project.
5. Develop, implement and monitor a system for continuous budget control, including early component budgets as a design tool to be utilized by the design consultants.
6. Provide a design change order control for Owner elected modifications to the established program that would effect budget compatibility. Design change orders will be issued to the design consultant after proper authorization has been received from the Owner. The design change order will incorporate the cost of the program modification as well as any time impact to Schedule.
7. Interface with the Owner to develop the program for the procurement of the property for the Project.
8. Participate, to the extent requested by the Owner, in the procurement of the property and the special surveys, soil borings and other related work to assure the characteristics of the property and coordinate these characteristics into the design parameters.
9. Develop a plan for the demolition of existing structures on the site and implement it through coordination with the evacuation of site occupants and the contracting of the demolition work, if required.

Huber, Hunt & Nichols, Inc.

OUTLINE OF DESIGN PHASE SERVICES

Page Two

10. Schedule demolition and contract for it in the manner jointly developed with the Owner, if required.
11. Hold technical review sessions and coordinate with the Architect design presentations for the Owner.
12. Monitor evolving design and make suggestions to the Architect/Engineer with regard to equipment, material and system selection.
13. Analyze potential for use of systems components and interface with design consultants as to their effect upon time and cost material availability.
14. Consult with the designers on construction means and methods.
15. Review the conceptual design development stage report and the schematic design development documents and objectives with the Owner and the Architect to determine the compatibility of the program and the budget.
16. Submit to the Architect/Engineer upon review of Design Phase submissions input with special regard to adherence to time and cost control.
17. Identify opportunities for phased construction in order to accelerate the program and/or to deal with Schedule constraints, as well as the Owner's constraints.
18. Prepare trade-off studies and conduct value analysis of the evolving designs to insure budget adherence.
19. Revise and update the Critical Date Schedule as necessary.
20. Provide a provisional construction CPM Network for issuance with Specifications. The provisional CPM Network is for the use of prospective bidders to identify and relate to suggested means and methods of carrying out the operation for their scope of work and for the interface of their work with others.
21. Prepare a market analysis regarding materials, methods and potential bidders and suppliers to insure competition.
22. Prepare a site use study allocation for construction operations, allocating space for storage, parking, temporary facilities, etc.

Huber, Hunt & Nichols, Inc.

OUTLINE OF DESIGN PHASE SERVICES

Page Three

23. Identify and arrange bid packaging most responsive to market conditions and identify constraints.
24. Review Plans and Specifications as developed for completeness and clarity with regard to bid packaging.
25. Identify and generate interest of serious bidders in advance. Should it be found that insufficient competition is available in the local market, generate interest external to the immediate area to insure competition on all phases of the work.
26. Develop requirements for Bidding Package Specifications to assure time and cost control during construction, including: time extension rulings, calendar date schedules, progress payments, liquidated damages, superintendent requirements, change order processing and scheduling and reporting sections.
27. Prepare cash flow analysis for Design and Construction Phases of the Project.
28. Schedule and conduct pre-bid conferences in conjunction with the Architect so as to review specifics of the Bidding Documents and stress primary objectives of the Project to the bidders.
29. Provide the advertising and the distribution of construction documents for bidding the work.
30. Monitor bidder activity to insure that those who have committed to bid the job are, in fact, doing so.
31. Maximize the utilizing of small business and minority enterprises through pre-bid contacts and packaging the bidding segments to allow participation.
32. Receive, review and analyze bids with the Owner and the Architect and recommend the award of contracts.
33. Update budget and Schedule consistent with actual bids received and schedule of work.
34. Assist the Owner and the Architect with the preparation of construction contracts or prepare the construction contracts if desired by the Owner.

Huber, Hunt & Nichols, Inc.

OUTLINE OF DESIGN PHASE SERVICES

Page Four

35. Work with the various contractors in developing a detailed Construction CPM Network Schedule, interfacing separate contractor's schedules with the overall Master Schedule for the timely implementation and completion of the Project.
36. Provide a Guaranteed Maximum Price for the Project if desirable to the Owner at a stage to allow for "fast tracking" the Project and maximize Project economy.



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

January 2, 1980

TO: Basic Sciences Department Heads and
JOML departmental project interface persons

FROM: Tom Kyle *Tom Kyle*
Assistant Health Sciences Planning Coordinator

SUBJECT: Basic Sciences Renovation Project

The Health Sciences Planning Office is in the process of assembling material regarding the design and management of this unique renovation. It is our intent to use this information in providing the University with necessary feedback in planning, design and management on future phases and building projects.

Therefore, we would appreciate your "unrestricted comments" concerning your immediate occupied space as well as your impressions of the building.

Thank you very much. Your early response will be appreciated.

TK:mg



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Pharmacology
Medical School
3-260 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-3085

FEB 25 Rec'd

UNIV. OF MINN.
HEALTH SCIENCE
PLANNING OFFICE

February 21, 1980

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall

Dear Dr. French:

The enclosed letters from members of the Council of Basic Health Sciences whose departments are housed in the JOML complex have been sent to me for forwarding to you. As you will note they deal with deficiencies and problems that have occurred in the remodeling of this complex and ask that an effort be made to remedy the situation. If satisfactory solutions cannot be found, undoubtedly they will be brought to the attention of the National Institutes of Health when the project is inspected.

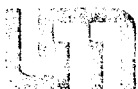
Also, the Council has asked that I express to you its concern about the University's policy of paying a contractor the bulk of the funds available for remodeling or construction well in advance of completion of the work that is to be done. If this policy could be changed, perhaps in the future the situation encountered in the remodeling of the JOML complex might not occur.

Your attention to these concerns of the Council would be appreciated.

Sincerely yours,

F. E. Shideman, M.D., Ph.D.
Chairman, Council of Basic
Health Sciences

cc: Mr. David Preston
Dr. E. Wayne Drehmel
Mr. Paul Maupin
Mr. Thomas Kyle



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Anatomy
4-135 Jackson Hall
321 Church Street S.E.
Minneapolis, Minnesota 55455
(612) 373-2790

February 6, 1980

Lyle A. French, M.D.
Vice President for Health Sciences
432 Morrill Hall
University of Minnesota
Minneapolis, Minnesota 55455

Dear Dr. French:

I am writing to express my dissatisfaction with the results of the JOML renovation that has just been completed, and to urge that you, or someone in your office, assume a direct role in resolving problems identified both by me and by other basic sciences department heads.

My files contain a running inventory of complaints, mishaps, etc. that occurred in the Department of Anatomy beginning in the Fall of 1977, and the records of the Basic Sciences Council reflect the concern and frustrations of all the department heads involved over this time period. My concerns can be grouped under three major headings:

1. Design

I have never been associated with a building project in which architectural errors were so frequent, and where there were so many design changes without proper consultation and without real concern for the projected uses of the rooms. We have examples of rooms designed with no electrical outlets, as well as rooms presently centrally air conditioned that were scheduled to receive new central air conditioning without removal of the old (the architects did not know of the existing air conditioning). When the decision was made to delete central air conditioning from one part of the Anatomy renovation, no provision was made to circulate air through small, specialized culture rooms. These rooms now are practically unusable because of high ambient temperatures. It seems to me that architects have a professional responsibility to see to it that such gross negligence does not occur; we should have legal recourse that would correct the errors.

2. Quality of Materials

My greatest concern is on the quality of materials that have gone into the renovation. Rooms that have been in use less than a year have benches whose tops are peeling away. Wall plaster is falling off. Door handles fall off in your hands and locks are non-functional.

Floors, designed to provide an environmentally safe work area in our mortuary unit, are cracking and buckling. Couplings between lengths of glass pipe regularly break. Already these shoddy facilities have cost thousands of dollars due to malfunction. You are aware of the recurring problem of flooding, I am sure. But are you aware that the Anatomy Department lost \$7,000 of optical equipment because of malfunctioning door hardware?

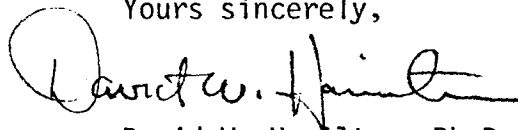
My fear is that instant obsolescence has been created, and we are going to be left holding the bag in the future. Departmental budgets, already strained to the breaking point, are going to have to fund bench top replacements, door hardware replacements, etc. I frankly feel that we have been royally ripped-off.

3. Workmanship

It is difficult to assign blame to workmanship for some of the shoddiness that has resulted, but surely some of the blame has to fall on the workman's shoulders, especially the plumbers. On the other hand numerous examples of "unfinished" finish work exist where with only a slight amount of pride and care they could have produced an acceptable, if not professional job. Painting, plastering, etc. leave a lot to be desired, and in some instances will have to be done over.

As you can see I am disenchanted with the whole project and feel that, unless something is done now to protect us, the future problems will be very significant.

Yours sincerely,



David W. Hamilton, Ph.D.
Professor and Head

DWH:jlm



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Biochemistry
Medical School
227 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

February 5, 1980

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall
Minneapolis Campus

Dear Dr. French:

I want to bring to your attention several disturbing aspects of the remodeling of JOML, involving the renovated space of the Department of Biochemistry.

1) The formica surfaced particle board countertops of the laboratory benches are absolutely unsatisfactory. Approximately one month ago several countertops had to be replaced because the particle board had swollen and completely distorted the formica surfacing. These faulty tops were replaced with the same type of material and consequently they have expanded again. The choice of this particle board material for bench tops by the architects is totally unrealistic for a wet biochemistry laboratory.

2) The deionized water pipeline system is faulty. The couplings between the pyrex tubing are not holding and we have had many quite extensive leaks.

3) The air handling systems, heating, cooling, and ventilating are not yet adjusted.

4) At several locations the new paint is already peeling from the walls, while several walls are not yet painted at all.

These four items are just a few of the gross deficiencies in the JOML project. I hope that these deficiencies can be corrected and more importantly that the future remodeling of the remainder of the JOML complex will be planned, and carried out in a more professional manner.

Sincerely yours,

Harry P.C. Hogenkamp
Professor and Head

HPCH/cw



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Laboratory Medicine and Pathology
Medical School
Box 198 Mayo Memorial Building
420 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8623

February 21, 1980

Vice President Lyle French
Box 501 Mayo
University of Minnesota

Dear Vice President French,

On the request of Dr. Fred Shideman I am writing you about deficiencies in the remodelling program for the Jackson-Owre-Millard-Lyon complex.

In general we were not too dissatisfied with the work done. We were able to keep good track of the project as it went along and attempted to correct deficiencies as they occurred. We believed that Mr. Tom Kyle, the Health Sciences Planning Coordinator, did an excellent job of surveillance on the project.

There were a number of small design problems. These included the following:

1. The dishwashing facilities are too small so they cannot accommodate the units they were supposedly designed for. It was a serious deficiency.
2. Ventillation of hoods was inadequate in general, a mechanical design deficiency that we, of course, cannot detect until the laboratories are occupied.
3. The temperature control in rooms with large windows is quite unsatisfactory.
4. The one dark room in the facility leaked light due to the use of glass pipes. This was an example of poor design.
5. Some of the items on the plans were changed after the plans has been approved.

The additional comments that the occupants have made were as follows:

1. The rooms were not adequately cleaned before the move into them took place.

2. Some parts of the furnishings were missing when the occupants moved in.

3. Replacement of broken items took a long time. Some of the doors of cabinets, for example, are still missing.

Generally, we felt that the response of the project contractors to wishes was slow, cumbersome and sometimes didn't take place at all.

We believe that the architectural work was weak. The architects did not do a very good job. They seemed inexperienced. Better and more experienced architects could have done a better job within the same cost frame.

The most important defects were the poor design of the dish-washing facilities and of the hoods.

It is our suggestion that in another project the architecture be in different hands and that better University of Minnesota architecture and surveillance take place. Again, we want to commend Tom Kyle for an excellent job as planning coordinator.

I hope these comments are helpful to you. With all best regards.

Yours sincerely,

Ellis S. Benson, M.D. / jf

Ellis S. Benson, M.D.
Professor and Head

ESB/jjf

c.c.: Dr. Fred Shideman

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Pharmacology
Medical School
3-260 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-3085

February 7, 1980

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall

Dear Dr. French:

The completion of Phase I of JOML remodeling has left many unresolved problems in the Department of Pharmacology that I wish to bring to your attention at this time.

Responsibility for one of the most costly errors appears to lie with the architects. However, there seems to be an attitude within the University that the architects are beyond reproach. Contractors and equipment manufacturers can be sued but the architects fail to take responsibility for their design errors. Specifically, they advised the University that particle board counters with formica tops would be adequate for our laboratories. Not only do they sustain heat damage, but the numerous seams allow water under the formica, expanding the particle board and causing the tops to warp and peel. I envision this as an ongoing problem that can only be rectified by replacing the tops.

The reassignment of old casework also created many ongoing problems. One drawer is missing and many others do not work properly. When this was brought to the University's attention, they explained the contract did not call for repairing damaged casework. As the remodeling progressed, it was discovered that casework assigned for reuse had disappeared and the new laboratories had to accept substitute casework and at times eliminate casework that could not be found. Unpainted, reused casework and the patching of grey floors with brown tiles also enhances the impression of the poor workmanship on this project.

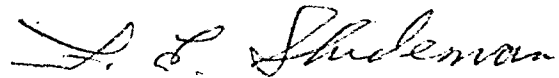
Water damage caused by deionized glass water pipes breaking has cost our department thousands of dollars. Up to this point, we have had to bear the cost, hoping to get reimbursed from the insurance company.

During the planning stages of the remodeling project, we were told that work could be phased around individual investigators. This caused a great deal of difficulty for our department since we were supposed to have 4-5 sub phases during the contract. Removing fume hoods, casework for reassignment and the installation of ducts and pipes through several floors caused

Dr. Lyle French
February 7, 1980

enormous disruptions for our faculty, Some had to move several times to accommodate the contractor before moving into their new laboratories. I cannot emphasize enough the disruption and frustration created by attempting to complete the project in phases.

Sincerely,

A handwritten signature in cursive script that reads "F. E. Shideman". The signature is written in dark ink and is positioned above the typed name.

F. E. Shideman, M.D., Ph.D.
Professor and Head



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Physiology
Medical School
424 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

February 6, 1980

Dr. Lyle French
Vice President for Health
Sciences
432 Morrill Hall

Dear Dr. French:

I am writing to express my continuing concern about the remodelling of the J-O-M-L complex. Because the Department of Physiology has had only a small share of this work, our problems are less extreme than those of the other basic science departments. Nevertheless, we continue to have difficulties in finding anyone who will direct their attention toward the numerous deficiencies in those few areas that were remodelled. While many of these deficiencies are minor, some interfere greatly with the utilization of the space for its intended purpose. Examples are: a controlled temperature and humidity room in which none of the controls work; improperly designed hood ducts that make so much noise that one of our offices is unusable by anyone with normal hearing; the installation of old, corroded casework in supposedly remodelled laboratory space. The real problem is not that such deficiencies exist, but that nothing is done about them.

Sincerely yours,

A handwritten signature in cursive script, appearing to read 'Eugene Grim'.

Eugene Grim
Professor and Head

EG/nb

HSAE

HEALTH SCIENCES ARCHITECTS AND ENGINEERS INC
UNIVERSITY PARK PLAZA SUITE 704 2829 UNIVERSITY AVENUE S.E. MINNEAPOLIS, MINNESOTA 55414 (612) 378-3833

5 March 1980

Mr. Paul J. Maupin
Health Sciences Planning Coordinator
University of Minnesota
4104 Powell Hall
Minneapolis, MN 55455

RE: JOML Complex Remodeling Project
University of Minnesota

Dear Mr. Maupin:

I recently received a copy of a number of letters written to Dr. French by members of the Council of Basic Sciences. It was very disappointing to read that these users were unhappy about the remodeling work. I am sure that many of the problems which they have been experiencing have been disturbing and frustrating.

I am writing this letter to you since several of the letters identified problems which the writers perceived to be the responsibility of the Architect. We have reviewed each of these problems and find that in most cases there are multiple responsibilities associated with each problem or condition and that the Architect is not singularly responsible for the problem and is not contractually in a position to unilaterally solve the problem.

It should be understood that the Architect does not have an "active" supervision role during the construction period and is thus limited in helping to resolve construction problems. TAC and HSAE have been and continue to be available to assist in the resolution of any construction or design problem subject to the appropriate direction from the University.

The JOML Project is a very complex remodeling project which has had many restrictive conditions imposed on the planning, design and implementation. I am sure, however, that all of the problems can be satisfactorily resolved if they are diligently pursued to a resolution. If a meeting would be useful to review the background and

PAGE 2
5 March 1980

circumstances associated with each problem, we would be pleased to attend and participate in such a discussion.

Please advise if we can be of further assistance in this matter.

Sincerely yours,

HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.


Duane E. Blanchard

DEB:cac

cc: Dr. Lyle French
Dr. Fred Shideman
Mr. John Patterson



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

March 27, 1980

TO: Clinton Hewitt
FROM: Paul J. Maupin *Paul*
SUBJECT: JOML-Remodeling Project
Response to Departmental Comments

Attached is this office's response to the impressions and comments by the department heads in the JOML Complex relative to the remodeling project now coming to closure.

This response represents the unified opinion of this office.

cc: Dave Preston
Jack Geretz

PJM: jm



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

March 26, 1980

TO: Paul Maupin
FROM: Tom Kyle *TK*
SUBJECT: JOML - Departmental Comments
Basic Sciences Council

Attached are this office's comments regarding the Basic Sciences chairmen's letters to Dr. French which outline their impressions and concerns related to the recent Jackson/Owre/Millard/Lyon Renovation project - the State and Federally Funded Expansion of the Basic Sciences.

These are individual responses to each chairman's letter, and copies of their letters are also attached.

It is important to mention that the project did have a number of problems; the two most important are:

- 1) Lack of sufficient funds to fulfill program desires and still meet Code Requirements - thus, program reductions were necessary.
- 2) The difficulty of renovating five separate, connected and obsolete buildings while they are occupied by research scientists using chemical laboratories. The impact of field corrections was overwhelming.

The program reductions caused frustration to departments, and information within departments was not disseminated properly by advisory committee members. Each department felt they had sacrificed more than the others. The construction problems relating to field conditions, architectural errors, strikes, etc., caused the construction period to be extended by one year, thus

heightening departments' frustration and concern about quality. In the face of all this adversity, the occupants persisted and aided the contractor and U of M supervision beyond the norm and should be credited for their efforts and patience.

The largest single construction management problem was Krause/Anderson's refusal to submit a reasonable construction schedule and update it monthly. This failure caused undue pressure on occupants and their research planning. The University Supervision Personnel ended up scheduling the project for the contractor and supervising construction, in violation of the specification. It is through the combined effort of supervision, this office, and the occupants that the contractor was able to complete the project with some sense of continuity.

The architectural effort on this project was minimal. One would hope that a firm would automatically understand that renovation is different from new construction and make an effort to verify assumptions. Health Sciences Architects and Engineers made no such effort on this project.

TK:mg
Enc.

1. Design Problems:

It is not a fact that there were design changes without user consultations - however, there are a number of instances where the architects omitted items on the electrical and mechanical sheets that appeared to be covered on the architectural drawings. There was poor contract coordination between the various architectural units; thus, the existing services were removed on the demolition specifications but no new services installed under other sections. These architectural omissions are usually covered by a modification and funded by the contingency budget. This project had little contingency money - about 3% - so it was necessary to cover only absolutely justified modifications that had an effect on the entire project. We did add the required outlets to rooms with none, but of course it took time and money.

The confusion about the air conditioning on the Anatomy fourth floor (new floor numbering systems) is related to the accepting of deductive alternate number one. Of course the architects were aware of the existing air conditioning; however, under the contract, the second floor was to be hooked up to the new system in the new mechanical towers and the old system removed as it was antiquated and did not meet the Energy Conservation Regulations. The tissue culture room did not receive air conditioning because deduct alternate number one deleted the ventilation. The existing air conditioning was not removed and the window units remained. It was necessary to take the deduct, and only the one room was affected; this is standard procedure in awarding contracts on fixed funds. It is unfortunate for the department, however, that that portion of the air conditioning must wait for completion of the next phase of construction.

2. Quality of Materials:

Bench Tops -- Under warranty the faulty tops are being replaced; it is an inconvenience to the department involved.

Plaster -- We have no record of plaster falling off patched walls.

Door Handles - Faulty handles are being replaced under warranty, and warranty period was extended two years to insure replacement.

Floors -- The entrance to the cooler is being replaced under warranty.

The above workmanship problems have not been overlooked by our supervision personnel. The University's contracts allow us to reject work that does not meet University standards or the industry's standards.

We can insist that the specifications and documents are adhered to, but we cannot improve a contractor's performance or quality of installation by doing his work for him or by managing the installation, although we do watch closely and advise to the extent that our manpower allows.

We have a right to expect work to be installed according to the best industry standards and practices. The theft of equipment due to the lock failure has been examined by the University's Insurance Division, and it is assumed a settlement will be made.

Glass Piping and Couplings:

The University has not accepted the glass piping system in the complex.

We have put the contract on notice that litigation is a probability.

We are very sympathetic with the occupants and the problems of glass line ruptures and appreciate their efforts to minimize damage and patience while a solution is pursued.

3. Workmanship:

Workmanship under this contract is up to University and Industry standards. As a cost reduction effort, it was determined that corridors would not be painted under the contract, but by the Physical Plant on their regular maintenance schedule as they had omitted painting for over ten years because the complex was scheduled for renovation. Further, much of the new work does not match the original building in detail as that type of craftsmanship from 60 years ago is no longer the industry standard. We would have to pay a huge premium to duplicate the style or architecture of the early 1900's. We have only renovated twenty-five percent of the complex, and it does appear to be confusing architecturally. The next phase of construction will complete the balance from an aesthetic standpoint.

Overall, the Department of Anatomy has suffered the most from construction errors, accidents, and design omissions or errors in the contract documents. We have processed many, many modifications to correct these unfortunate incidents and will continue to rectify problems.

DEPARTMENT OF PATHOLOGY - Dr. Benson

1. Dishwashing Facilities:

The glasswash room is indeed poorly designed although it is workable. The architects did not show the proper machine orientation on the plans, and the final installation is as tight a working space as is imaginable. All modifications were made in the field to correct problems as best we could. The department is using the room.

2. Hoods:

The hoods have been balanced and meet the minimum requirements of Environmental Health and Safety. However, most of the hoods required some modification of pulleys, etc., to meet standards. Architectural effort was minimum but adequate. Architect did omit ductwork on one hood.

3. Temperature Control:

This will remain a slight problem until new windows are installed under a future request. The system is functioning well but can't respond fast enough to compensate for window problem.

4. Dark Room:

Pipes were painted to cut out light leaks into dark room.

5. Change in Plans:

Some items in layouts were changed when field verification proved plans would not work out. Architects should have verified existing conditions more accurately. Most problems were worked out with departments on item-by-item basis and department approval. Often users do not understand documents and can't visualize meaning.

Tight schedule often had users moving in before contractor was completed or moves were overlapping work. Physical Plant did their best to keep up. Contractor was required to leave area broom clean.

We have no record of missing furnishings although items may have been removed that departments were unaware of.

Contractors' responses to corrections of their work has been slow. U of M supervision has withheld final payment to induce completion of correction of faulty items.

DEPARTMENT OF PHARMACOLOGY - Dr. Shideman

The particle board substrata of the countertops was inappropriate around sinks in the laboratories. The architects advised us that plastic laminate was adequate but not as long-lived as epoxy tops. They never indicated the tops specified would last less than ten years; however, the tops don't hold together a year if water is present in the environment. We are going to correct the problem around sinks by installing epoxy resin drainboards around and on both sides of every durcon sink. The decision to use plastic laminate tops was a condition we accepted to enable us to award the contract with funds available. The University saved over \$50,000.00 by this modification. The project continually suffered from insufficient funds for the scope of work.

Reassignment of used casework was also forced on the project as a cost savings and proved to be troublesome. The Building Advisory Committee and department representatives had been appraised of the condition of the casework during the planning phases and had accepted the facts. Departments had agreed that in those specific instances of rust in some units and doors missing, that they could afford to cover the cost of minimal repairs if the contractor could finish the outsides of the cabinets (paint) so all matched in one lab. This was the premise the contract work was based on. Now the individual occupants are balking at this transferred responsibility. We feel the effort was worth the savings for the bulk of the casework.

As far as renovating spaces that are occupied within the Health Sciences, it is certainly a difficult task with good and bad aspects. Replacement

space for functions is prohibitive but may be the choice in the future. We definitely will employ all the knowledge gained in this project on future renovations. Perhaps whole wings of buildings could be vacated. The issue is not resolved but needs reworking.

DEPARTMENT OF BIOCHEMISTRY - Dr. Hogankamp

1. Countertops - Laminate Problems:

The counterops around the durcon sinks are continually swelling and delaminating. We have decided to replace the area with monolithic epoxy resin to eliminate the possibility of future delaminations. These corrective measures will be taken at sink units only, as the regular bench tops appear adequate. We had the architects advise us as to the durability of plastic laminate and pre-award testing was conducted. We had no indication from either that the tops would not hold up to common laboratory practices at sinks.

2. The Deionized Glass Piping Line:

See Anatomy Department responses; we will probably go into litigation.

3. Air-Handling Systems:

There has been a problem balancing the system while some phases were still under construction, and there have been some equipment failures (volume control boxes). However, all seems to be working according to specifications now. One serious problem is the existing windows are not double-insulating. There is a separate request to central administration for new windows, but it is years away. In the interim, with temperature setting required by the Energy Code at between 65° and 68° F, it will be difficult to maintain perfect conditions as the large single pane glass conducts cool air directly into space.

4. Paint Peeling:

We have no records of paint peeling other than associated with spills and water line ruptures which are covered by insurance.

This office has not been satisfied by the architectural performance on this particular project. The number of errors is staggering, and it is assumed that we have all profited by the experience and will know what to look for in future renovations of this type.

DEPARIMENT OF PHYSIOLOGY - Dr. Grim

This department experienced problems related to slow correction of faulty work by the contractor and subcontractors. U of M supervision is correcting problems by withholding payment requests, and in the future we will work out a more timely arrangement with problem contractors.

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Pharmacology
Medical School
3-260 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-3085

February 21, 1980

FEB 25 1980
UNIV. OF MINN.
HEALTH SCIENCES
PLANNING OFFICE

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HEALTH SCIENCES
PLANNING OFFICE

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall

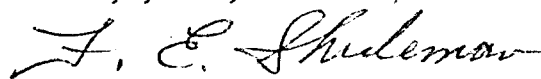
Dear Dr. French:

The enclosed letters from members of the Council of Basic Health Sciences whose departments are housed in the JOML complex have been sent to me for forwarding to you. As you will note they deal with deficiencies and problems that have occurred in the remodeling of this complex and ask that an effort be made to remedy the situation. If satisfactory solutions cannot be found, undoubtedly they will be brought to the attention of the National Institutes of Health when the project is inspected.

Also, the Council has asked that I express to you its concern about the University's policy of paying a contractor the bulk of the funds available for remodeling or construction well in advance of completion of the work that is to be done. If this policy could be changed, perhaps in the future the situation encountered in the remodeling of the JOML complex might not occur.

Your attention to these concerns of the Council would be appreciated.

Sincerely yours,



F. E. Shideman, M.D., Ph.D.
Chairman, Council of Basic
Health Sciences

cc: Mr. David Preston
Dr. E. Wayne Drehmel
Mr. Paul Maupin
Mr. Thomas Kyle



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Anatomy
4-135 Jackson Hall
321 Church Street S.E.
Minneapolis, Minnesota 55455
(612) 373-2790

February 6, 1980

Lyle A. French, M.D.
Vice President for Health Sciences
432 Morrill Hall
University of Minnesota
Minneapolis, Minnesota 55455

Dear Dr. French:

I am writing to express my dissatisfaction with the results of the JOML renovation that has just been completed, and to urge that you, or someone in your office, assume a direct role in resolving problems identified both by me and by other basic sciences department heads.

My files contain a running inventory of complaints, mishaps, etc. that occurred in the Department of Anatomy beginning in the Fall of 1977, and the records of the Basic Sciences Council reflect the concern and frustrations of all the department heads involved over this time period. My concerns can be grouped under three major headings:

1. Design

I have never been associated with a building project in which architectural errors were so frequent, and where there were so many design changes without proper consultation and without real concern for the projected uses of the rooms. We have examples of rooms designed with no electrical outlets, as well as rooms presently centrally air conditioned that were scheduled to receive new central air conditioning without removal of the old (the architects did not know of the existing air conditioning). When the decision was made to delete central air conditioning from one part of the Anatomy renovation, no provision was made to circulate air through small, specialized culture rooms. These rooms now are practically unusable because of high ambient temperatures. It seems to me that architects have a professional responsibility to see to it that such gross negligence does not occur; we should have legal recourse that would correct the errors.

2. Quality of Materials

My greatest concern is on the quality of materials that have gone into the renovation. Rooms that have been in use less than a year have benches whose tops are peeling away. Wall plaster is falling off. Door handles fall off in your hands and locks are non-functional.

Floors, designed to provide an environmentally safe work area in our mortuary unit, are cracking and buckling. Couplings between lengths of glass pipe regularly break. Already these shoddy facilities have cost thousands of dollars due to malfunction. You are aware of the recurring problem of flooding, I am sure. But are you aware that the Anatomy Department lost \$7,000 of optical equipment because of malfunctioning door hardware?

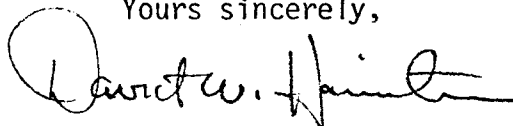
My fear is that instant obsolescence has been created, and we are going to be left holding the bag in the future. Departmental budgets, already strained to the breaking point, are going to have to fund bench top replacements, door hardware replacements, etc. I frankly feel that we have been royally ripped-off.

3. Workmanship

It is difficult to assign blame to workmanship for some of the shoddiness that has resulted, but surely some of the blame has to fall on the workman's shoulders, especially the plumbers. On the other hand numerous examples of "unfinished" finish work exist where with only a slight amount of pride and care they could have produced an acceptable, if not professional job. Painting, plastering, etc. leave a lot to be desired, and in some instances will have to be done over.

As you can see I am disenchanted with the whole project and feel that, unless something is done now to protect us, the future problems will be very significant.

Yours sincerely,



David W. Hamilton, Ph.D.
Professor and Head

DWH:jlm



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Biochemistry
Medical School
227 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

February 5, 1980

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall
Minneapolis Campus

Dear Dr. French:

I want to bring to your attention several disturbing aspects of the remodeling of JOML, involving the renovated space of the Department of Biochemistry.

1) The formica surfaced particle board countertops of the laboratory benches are absolutely unsatisfactory. Approximately one month ago several countertops had to be replaced because the particle board had swollen and completely distorted the formica surfacing. These faulty tops were replaced with the same type of material and consequently they have expanded again. The choice of this particle board material for bench tops by the architects is totally unrealistic for a wet biochemistry laboratory.

2) The deionized water pipeline system is faulty. The couplings between the pyrex tubing are not holding and we have had many quite extensive leaks.

3) The air handling systems, heating, cooling, and ventilating are not yet adjusted.

4) At several locations the new paint is already peeling from the walls, while several walls are not yet painted at all.

These four items are just a few of the gross deficiencies in the JOML project. I hope that these deficiencies can be corrected and more importantly that the future remodeling of the remainder of the JOML complex will be planned, and carried out in a more professional manner.

Sincerely yours,

Harry P.C. Hogenkamp
Professor and Head

HPCH/cw



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Laboratory Medicine and Pathology
Medical School
Box 198 Mayo Memorial Building
420 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8623

February 21, 1980

Vice President Lyle French
Box 501 Mayo
University of Minnesota

Dear Vice President French,

On the request of Dr. Fred Shideman I am writing you about deficiencies in the remodelling program for the Jackson-Owre-Millard-Lyon complex.

In general we were not too dissatisfied with the work done. We were able to keep good track of the project as it went along and attempted to correct deficiencies as they occurred. We believed that Mr. Tom Kyle, the Health Sciences Planning Coordinator, did an excellent job of surveillance on the project.

There were a number of small design problems. These included the following:

1. The dishwashing facilities are too small so they cannot accommodate the units they were supposedly designed for. It was a serious deficiency.
2. Ventillation of hoods was inadequate in general, a mechanical design deficiency that we, of course, cannot detect until the laboratories are occupied.
3. The temperature control in rooms with large windows is quite unsatisfactory.
4. The one dark room in the facility leaked light due to the use of glass pipes. This was an example of poor design.
5. Some of the items on the plans were changed after the plans has been approved.

The additional comments that the occupants have made were as follows:

1. The rooms were not adequately cleaned before the move into them took place.

2. Some parts of the furnishings were missing when the occupants moved in.

3. Replacement of broken items took a long time. Some of the doors of cabinets, for example, are still missing.

Generally, we felt that the response of the project contractors to wishes was slow, cumbersome and sometimes didn't take place at all.

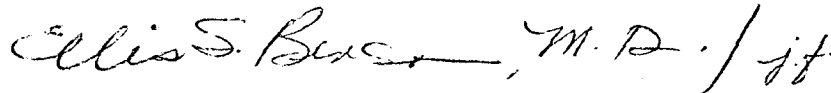
We believe that the architectural work was weak. The architects did not do a very good job. They seemed inexperienced. Better and more experienced architects could have done a better job within the same cost frame.

The most important defects were the poor design of the dishwashing facilities and of the hoods.

It is our suggestion that in another project the architecture be in different hands and that better University of Minnesota architecture and surveillance take place. Again, we want to commend Tom Kyle for an excellent job as planning coordinator.

I hope these comments are helpful to you. With all best regards.

Yours sincerely,



Ellis S. Benson, M.D.
Professor and Head

ESB/jjf

c.c.: Dr. Fred Shideman

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Pharmacology
Medical School
3-260 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-3085

February 7, 1980

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall

Dear Dr. French:

The completion of Phase I of JOML remodeling has left many unresolved problems in the Department of Pharmacology that I wish to bring to your attention at this time.

Responsibility for one of the most costly errors appears to lie with the architects. However, there seems to be an attitude within the University that the architects are beyond reproach. Contractors and equipment manufacturers can be sued but the architects fail to take responsibility for their design errors. Specifically, they advised the University that particle board counters with formica tops would be adequate for our laboratories. Not only do they sustain heat damage, but the numerous seams allow water under the formica, expanding the particle board and causing the tops to warp and peel. I envision this as an ongoing problem that can only be rectified by replacing the tops.

The reassignment of old casework also created many ongoing problems. One drawer is missing and many others do not work properly. When this was brought to the University's attention, they explained the contract did not call for repairing damaged casework. As the remodeling progressed, it was discovered that casework assigned for reuse had disappeared and the new laboratories had to accept substitute casework and at times eliminate casework that could not be found. Unpainted, reused casework and the patching of grey floors with brown tiles also enhances the impression of the poor workmanship on this project.

Water damage caused by deionized glass water pipes breaking has cost our department thousands of dollars. Up to this point, we have had to bear the cost, hoping to get reimbursed from the insurance company.

During the planning stages of the remodeling project, we were told that work could be phased around individual investigators. This caused a great deal of difficulty for our department since we were supposed to have 4-5 sub phases during the contract. Removing fume hoods, casework for reassignment and the installation of ducts and pipes through several floors caused

Dr. Lyle French
February 7, 1980

enormous disruptions for our faculty, Some had to move several times to accommodate the contractor before moving into their new laboratories. I cannot emphasize enough the disruption and frustration created by attempting to complete the project in phases.

Sincerely,

A handwritten signature in cursive script, reading "F. E. Shideman". The signature is written in dark ink and is positioned above the typed name.

F. E. Shideman, M.D., Ph.D.
Professor and Head



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Physiology
Medical School
424 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

February 6, 1980

Dr. Lyle French
Vice President for Health
Sciences
432 Morrill Hall

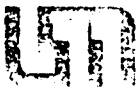
Dear Dr. French:

I am writing to express my continuing concern about the remodelling of the J-O-M-L complex. Because the Department of Physiology has had only a small share of this work, our problems are less extreme than those of the other basic science departments. Nevertheless, we continue to have difficulties in finding anyone who will direct their attention toward the numerous deficiencies in those few areas that were remodelled. While many of these deficiencies are minor, some interfere greatly with the utilization of the space for its intended purpose. Examples are: a controlled temperature and humidity room in which none of the controls work; improperly designed hood ducts that make so much noise that one of our offices is unusable by anyone with normal hearing; the installation of old, corroded casework in supposedly remodelled laboratory space. The real problem is not that such deficiencies exist, but that nothing is done about them.

Sincerely yours,

Eugene Grim
Professor and Head

EG/nb



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
Physical Planning Office
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

July 25, 1980

JUL 30 1980

TO: Paul Maupin
FROM: Eyan B. Merz/Bob Hudalla
RE: Installation of Cold Rooms JOML Complex
Project No. 032-78-0106

We are having operating problems on Rooms 4-178A & (old 267.1 & .2), Rooms 6-218A & B (old 420.1 & .2) and Room 6-212 (old 429) on the above referenced project.

Rooms 4-178A & B and 6-218A & B are combination 4°C Laboratories and -20°C Freezer Laboratories. Entrance to the -20°C Freezer Lab is thru the 4°C Lab. This arrangement causes special problems when ventilation is required to both the 4°C room and the -20°C room. The 4°C room becomes saturated with moisture at 4°C. Condensate forms on the door and panels of the common wall with the -20°C room and ice and frost form at the door jambs. The -20°C Freezer room becomes frosted similar to a home freezer except more rapidly because of the introduction of ventilation air, a situation not previously encountered at the University. John Sever attempted to handle this problem by introducing the ventilation air into the 4°C room and relieving the air thru the -20°C freezer. He hoped to reduce the moisture content of the air with the 4°C room refrigerant coil enough to prevent frosting in the -20°C room. This has proven inadequate. I'm sure John Sever was influenced greatly by a directive to save money, in arriving at his design. As you recall there was a concerted effort to reduce costs from the initial estimates in order to stay within budget.

Jerry Pittman of this office has been investigating this problem for me. See his attached memo dated 18 July, 1980. We have included sketches of the proposed work and a cost estimate.

Room 4-178A & B is in Dr. Goldberg's Pharmacology Dept. Laboratory and he is unable to use the -20°C Freezer Lab at this writing. Doors freeze-up so badly he is unable to open the door even with the door jamb heaters on.

The estimated cost to resolve humidity problem in Room 4-178A & B is \$7900 per estimate dated July 23, 1980.

Rooms 6-218A & B are Physiology Dept. Rooms and have problems similar to Dr. Goldberg's Rooms. The problem is not as severe because less ventilation air is required in the Physiology Dept. cold rooms. However, the -20°C freezer lab has to be shut down frequently in the summer and therefore is too unreliable for use.

Paul Maupin
July 25, 1980
Page 2

The estimated cost to resolve humidity problems in Room 6-218A & B is \$4600 per estimate dated 7/23/80.

Room 6-212 - Problems in room 6-212 are more complex. Room 6-212 is Dr. Grim's, Head of the Physiology Department's, personal laboratory. It has temperature and humidity control requirements that would require one of the more sophisticated manufactured Environmental Rooms. Mr. Sever attempted to design this room in-house using an economical approach. Unfortunately, it does not meet Dr. Grim's requirements.

I discussed Dr. Grim's requirements with him and Muriel Lubansky on April 30, 1980. He indicated a need to control temperature within $\pm 1^\circ\text{F}$ in a temperature range from 68°F to 78°F . He also indicated a need to control humidity within $\pm 5\%$ R.H. in a humidity range from 25% R.H. to 75% R.H.

With the system installed we are able to control temperature as required. However, we are unable to control humidity in the winter months above 45% R.H. at 78°F Room temperature. In fact, we are unable to use the steam humidifier without saturating the supply air which condenses in the supply ducts above adjacent laboratories and drips thru the ceilings. We are able to dehumidify both summer and winter down to 40% R.H. only, because of the control configuration.

Essentially, we do not have humidification control and we only have dehumidification down to 40% to R.H. which does not meet Dr. Grim's needs.

Dr. Grim has indicated this constant temperature and humidty room is to be used to produce artificial membranes for a transplant study. Manufacturing of these membranes must be done under controlled conditions. Certain materials have to dry at 68°F and 25% R.H., others form and dry at 78°F and 75% R.H. to get needed results.

The estimated cost to revise the present system for Room 429 in accordance with the attached proposal and estimate dated 25 July 1980 is \$7100.

As you know, every effort was made to economize in order to bring the project within budget. Apparently in these instances we economized too much. In order to make the above referenced rooms operational we will need funding. The present budget for project #032-78-0106 is depleted. We recommend this work be funded as a separate project thru our office. We would make the necessary revisions with the University Shops. Material would be specified or purchased directly by this office. This will eliminate excessive change order costs and General Contractor profit.

Added funds need as explained above as follows:

Revisions Room 4-178A & B	\$7900.00
Revisions Room 6-218A & B	4600.00
Revisions Room 6-212	<u>7100.00</u>
Total amount required	\$19,600.00

Please let us know what can be done to secure these funds in as much as the Planning Office and ourselves have a responsibility to provide these users

Paul Maupin
July 25, 1980
Page 3

with an operational facility. We've done the preliminary engineering and estimates but we have no access to funds.

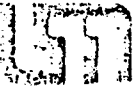
cc: Dave Kerkow

A. Walter Johnson

Vic Scott
Tom Kyle

BH/jp

attachments



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
Physical Planning Office
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

July 28, 1980

TO: Bob Hudalla

FROM: Jerry Pittman *JFP*

RE: Condensation Problems in Cold Room located in JOML Complex, Rooms #4-178.1 & .2 and #6-218.1 & .2

Investigation into this problem indicates condensation occurring on the interior walls of the cold rooms due to the moisture content of the supplied ventilation air. When this air enters the 40°F Room, the room becomes super saturated and condensation occurs on the walls.

The most obvious and economical solution would be to eliminate this supply air, but environmental health specialists and good engineering practices rule this out due to human activity planned for the spaces. The alternative is to dry the supply air until the moisture content is below the saturation dew point of the coldest room, (-4°F). According to the psychrometric chart, the incoming air would have to have less than .00065 lb. moisture per lb. of dry air or 4.6 grains/lb D.A.

At these low temperatures, the only feasible means of drying the supply air is to use a desiccant type of dehumidifier such as those supplied by Bry-Air or Dryomatic. These machines require duct changes and additions plus electrical hook-up, all of which costs money.

The following is an analysis of each room followed by a sketch of the installation with an estimated cost.

Room #4-178.

DATA

- Humidity of air entering a 150 CFM Drier; using 30 CFM make-up air and 120 CFM recirculated air:

$$\left[\frac{30\text{CFM}}{150\text{CFM}} \times 78 \frac{\text{gr}}{\text{lb da}} \right] + \left[\frac{120}{150} \times 4 \frac{\text{gr}}{\text{lb}} \right] = 18.8 \frac{\text{grain}}{\text{lb.}}$$

- Temperature of entering air to dryer:

$$\text{Using: } T_3 = \frac{\dot{m}_{oa} T_{oa} + \dot{m}_{ra} T_{ra}}{\dot{m}_{oa} + \dot{m}_{ra}}$$

To: Bob Hudalla
July 18, 1980
Page 2

$$= \frac{\text{A3}}{\frac{30\text{min}}{13.85} \frac{\text{ft}^3}{16}} (75 + 460) + \frac{120}{12.6} (40 + 460)$$

$$= \frac{3.0}{13.85} + \frac{120}{12.6}$$

$$= \frac{2.17 (535) + 9.52 (500)}{2.17 + 9.52} = 506.48$$

$$= 506.48 - 460 = 46.5^\circ \text{F}$$

At these inlet conditions, the Bry-Air Model#A-1-B performance chart indicates the air supplied to the space will have a moisture content of about 4 Grains/lb.D. which would be sufficient to control the condensation: See Mechanical sketch #1.

Room 6-218

1. Using a 50 CFM dehumidifier with 20 CFM make-up air and 30 CFM recirculated air.

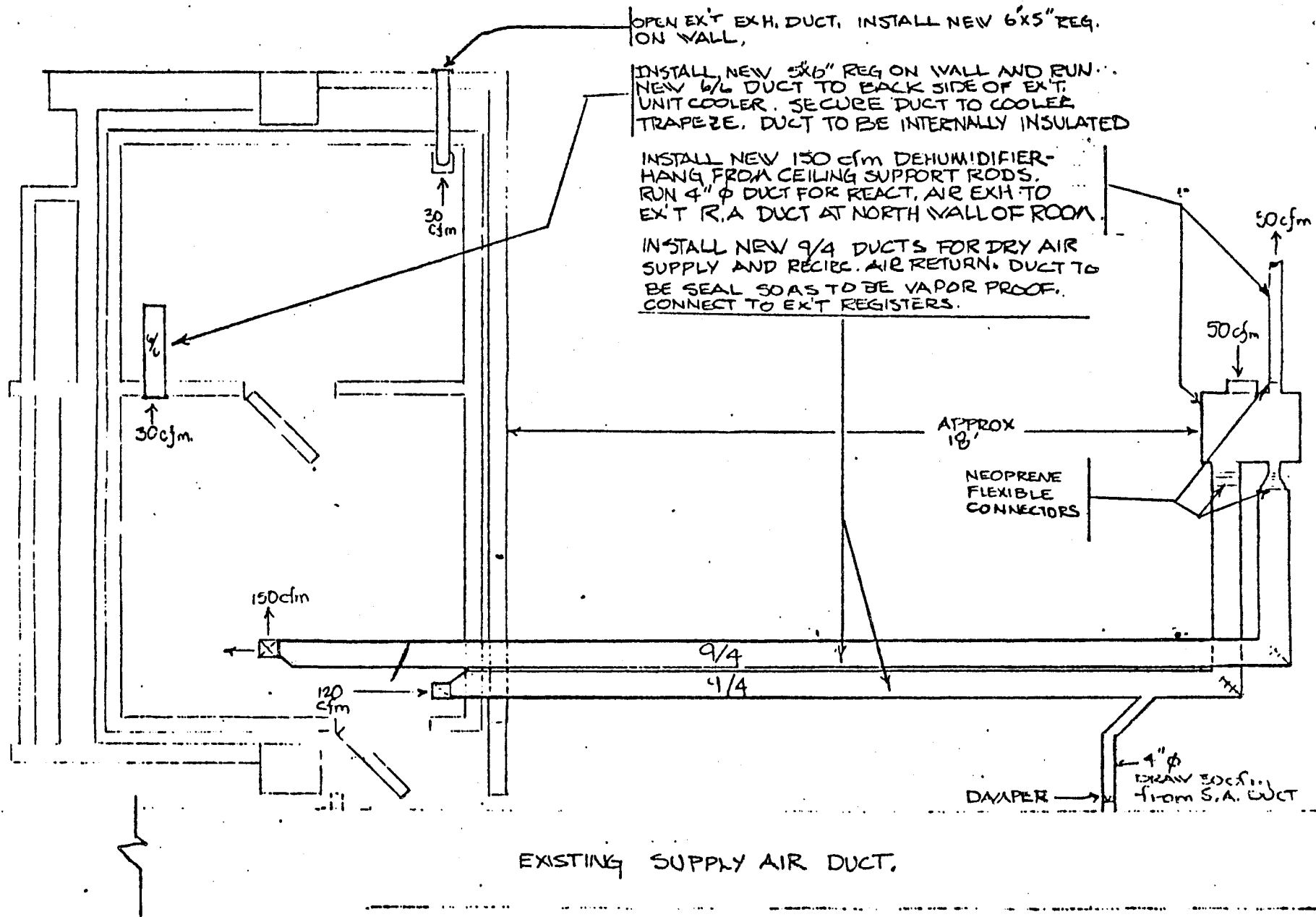
$$W = \frac{20}{50} \times \frac{78\text{gr}}{\#} + \frac{30}{50} \times \frac{4\text{gr}}{\#} = \frac{34\text{gr}}{1\text{b.}}; w = \text{humidity ratio}$$

2. Temp of inlet air (To Dehumidifier):

$$T_3 = \frac{1.44 (540) + 2.38 (500)}{1.44+2.38} - 460 = 55.1^\circ \text{F}$$

At these inlet conditions the BryAir Model A-0.5-B will supply 50 CFM of air with a 4 gr/lb moisture content. See Sketch #2 for installation.

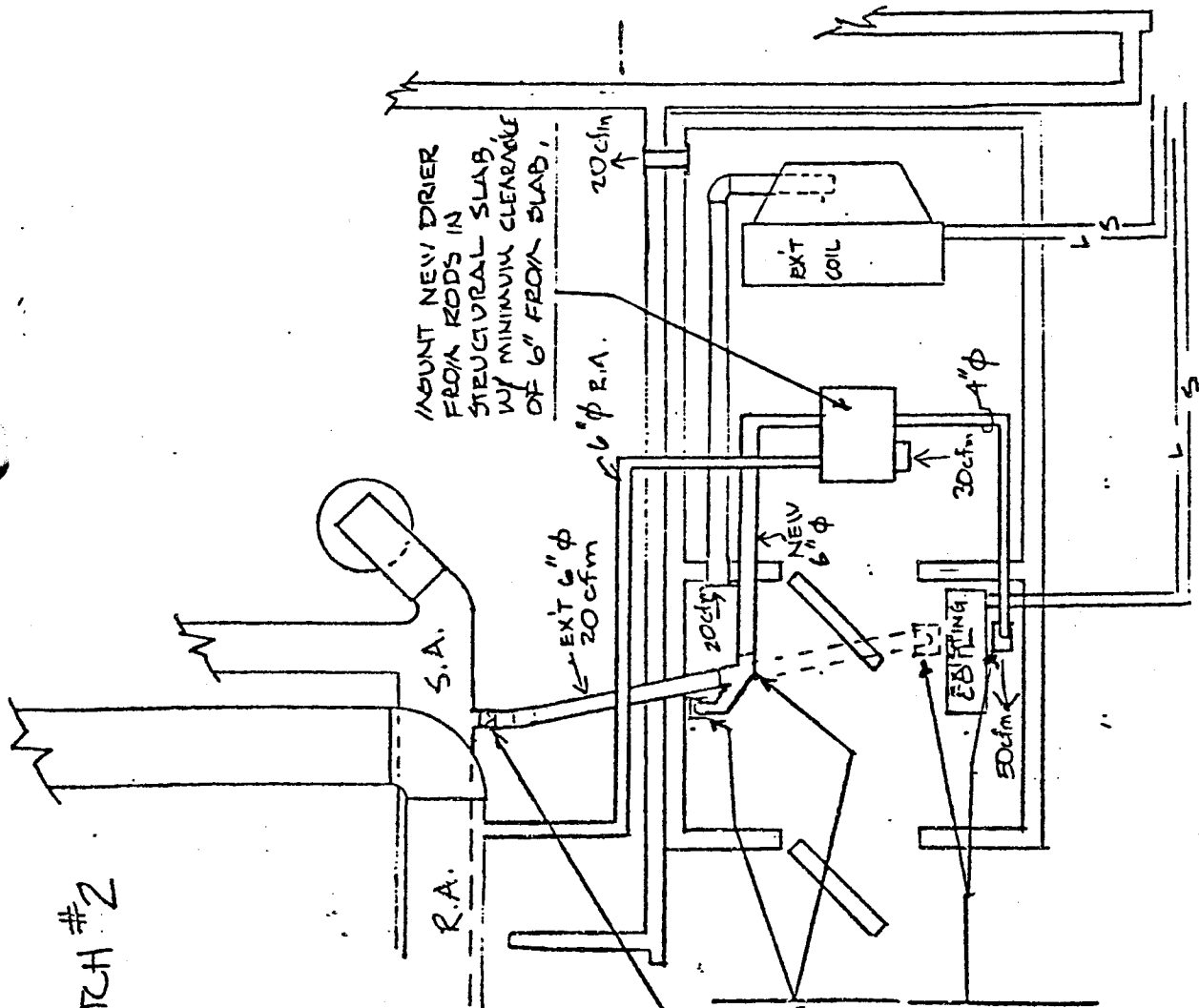
MECHANICAL SKETCH 1



INSTALLATION OF DEHUMIDIFIER FOR COLD ROOM # 4-178, JOML

SCALE 3/4" = 1'-0"

MECHANICAL SKETCH #2



INSTALL NEW DRIER FROM REBARS IN STRUCTURAL SLAB W/ MINIMUM CLEARANCE OF 6" FROM SLAB.

INSTALL LOCKING DAMPER EXT 6" DUCT FROM S.A.
 INSTALL NEW 5x6" RA REBAR AT CEILING W/ DAMPER. CONNECT NEW 4" φ DUCT AND CONNECT TO EXT 6" φ SA DUCT. RUN NEW 6" φ DUCT FROM CONNECTION TO NEW DRIER. ALL DUCT INTERNALLY INSULATED W/ VAPOR BARRIER. RELOCATE EXT SA DIFFUSER AS SHOWN - RUN NEW 4" φ DUCT FROM DISCH. SIDE OF DRIER TO DIFFUSER. PATCH HOLE - PACK WITH FIBERGLASS INSULATION W/ MOISTURE BARRIER.

INSTALL DEHUMIDIFIER OVER ROOF 6-218-JOAL

SCALE: 1/4" = 1'-0"

Project No: 032-78-0106

ESTIMATE

TO: PAUL MAUPIN

Estimate No: _____

FROM

PHYSICAL PLANT DEPARTMENT
UNIVERSITY OF MINNESOTA

Preventive Maintenance Project

Bldg. No. 079

Plant Services Project

Department Project

Building Name LYONS LAB

Charge Time to _____

Requested by _____ Date _____ By Tele _____ By Letter _____

Assigned to E. B. MERZ

Date _____

Estimate Prepared by J. PITTMAN

Date 7/23/80

Instructions: Make itemized estimate by sections with all cost data complete.

Description of Work:

INSTALLATION OF NEW DESICCANT DEHUMIDIFIER WITH ELECTRICAL REGENERATION TO DRY AIR SUPPLIED TO ROOM 4-178 LYON LABS, JOINT COMPLEX, UNIVERSITY OF MINNESOTA, MINNEAPOLIS CAMPUS.

MECHANICAL CONSTRUCTION

MECHANICAL WORK ON THIS PROJECT INCLUDES THE FOLLOWING:

PURCHASE AND INSTALL ONE CEILING-HUNG, DESICCANT DEHUMIDIFIER; FABRICATE AND INSTALL NEW INTERNALLY-SEALED, EXTERNALLY INSULATED, SUPPLY AND RETURN DUCTWORK FROM EXISTING REGISTERS IN ROOM 4-178A TO NEW DRYER; INSTALL NEW TRANSFER GRILL AND DUCT BETWEEN ROOMS A & B; PATCH AND PAINT WALLS TO MATCH EXISTING; BALANCE SYSTEM.

\$5950.00

ELECTRICAL CONSTRUCTION

ELECTRICAL WORK CONSISTS OF CONNECTING POWER SOURCE TO NEW DRYER.

\$ 600.00

CONTRACT COSTS

\$ 6550.00

NON-CONTRACT COSTS

\$ 1350.00

TOTAL EST. COST

\$ 7900.00

PROJECT COST BREAKDOWN

PROJECT TITLE Cold Room Development, Room 4-178, JOML
CAMPUS MPLS, MINN DATE 7/17/80
PROJECT NO. 032-78-0106

I. FUNDS AVAILABLE

II. LAND ACQUISITION

III. BUILDING COST \$6550

- A. General
- B. Mechanical 5950
- C. Electrical 600
- D. Elevator
- E. Fixed Equipment

IV. NON-BUILDING COST \$1350

- A. Sitework
 - 1. Landscaping
 - 2. Utilities
- B. Furnishings and Equipment
- C. Consultant's Fees
- D. Miscellaneous \$1335
 - 1. Contingencies 257
 - 2. Construction Supervision 227
 - 3. Soil Borings
 - 4. Material and Performance Testing
 - 5. University Engineering Services 655
 - 6. Building Activation
 - 7. SAC Charge
 - 8. Building Permit 13
 - 9. Insurance 13
 - 10. Incidental

V. TOTAL PROJECT COST \$7900

Project No: 032-78-0106

ESTIMATE
FROM

TO: PAUL MAUPIN

Estimate No: _____

PHYSICAL PLANT DEPARTMENT
UNIVERSITY OF MINNESOTA

Preventive Maintenance Project

Bldg. No. 054

Plant Services Project

Department Project

Building Name OWRE HALL

Charge Time to _____

Requested by _____ Date _____ By Tele. _____ By Letter _____

Assigned to E.B. KERTZ Date _____

Estimate Prepared by J. PITTMAN Date 7/23/80

Instructions: Make itemized estimate by sections with all cost data complete.

Description of Work:

INSTALLATION OF NEW DEHUMIDIFIER TO DRY AIR SUPPLIED TO ROOM 6-218, JOINT COMPLEX, UNIVERSITY OF MINNESOTA, MINNEAPOLIS CAMPUS.

MECHANICAL CONSTRUCTION

MECHANICAL WORK FOR THIS PROJECT INCLUDES THE FOLLOWING: PURCHASE AND INSTALL ONE NEW CEILING-HUNG, DESICCANT DEHUMIDIFIER; INSTALL NEW RETURN AIR REGISTER IN ROOM A; RELOCATE EXISTING SUPPLY AIR GRILL AND DAMPER IN ROOM A AND PATCH EXISTING HOLE; INSTALL NEW DUCT WORK, INTERNALLY SEALED AND EXTERNALLY INSULATED WITH VAPOR BARRIER, FIBER GLASS INSULATION FOR SUPPLY AND RETURN AIR TO DEHUMIDIFIER; PATCH AND PAINT TO MATCH EXISTING FINISHES; BALANCE THE SYSTEM.

\$3420

ELECTRICAL

CONNECT NEW DEHUMIDIFIER TO PROPER ELECTRICAL SOURCE. \$ 400

NON-CONTRACT \$ 780

TOTAL EST. COST

\$4600.⁰⁰

PROJECT COST BREAKDOWN

PROJECT TITLE Cold Room D-4111111111111111, Room 6-218, JOINT
CAMPUS ADLS DATE 7/16/80
PROJECT NO. 032-78-0106

I. FUNDS AVAILABLE	.....	_____
II. LAND ACQUISITION	.....	_____
III. BUILDING COST	.....	<u>\$3820</u>
A. General	.....	_____
B. Mechanical	.....	<u>\$3420</u>
C. Electrical	.....	<u>\$400</u>
D. Elevator	.....	_____
E. Fixed Equipment	.....	_____
IV. NON-BUILDING COST	.....	<u>\$780</u>
A. Sitework	.....	_____
1. Landscaping	.....	_____
2. Utilities	.....	_____
B. Furnishings and Equipment	.....	_____
C. Consultant's Fees	.....	_____
D. Miscellaneous	.....	<u>780</u>
1. Contingencies	.....	<u>192</u>
2. Construction Supervision	.....	<u>192</u>
3. Soil Borings	.....	_____
4. Material and Performance Testing	.....	_____
5. University Engineering Services	.....	<u>380</u>
6. Building Activation	.....	_____
7. SAC Charge	.....	_____
8. Building Permit	.....	<u>8</u>
9. Insurance	.....	<u>8</u>
10. Incidental	.....	_____
V. TOTAL PROJECT COST	.....	<u>\$4600.⁰⁰</u>

Project No: 032-78-0106

ESTIMATE FROM

TO: PAUL MAUPIN

Estimate No: _____

PHYSICAL PLANT DEPARTMENT UNIVERSITY OF MINNESOTA

Bldg. No. 054

Preventive Maintenance Project

Plant Services Project

Department Project

Building Name OWRE HALL

Charge Time to _____

Requested by _____

Date _____

By Tele. _____

By Letter _____

Assigned to E. B. MERZ

Date _____

Estimate Prepared by J. PITTMAN

Date 7/25/80

Instructions: Make itemized estimate by sections with all cost data complete.

Description of Work:

INSTALLATION OF NEW CONTROLS AND SEQUENCING OF AIR SYSTEM TO CONTROL TEMPERATURE AND HUMIDITY WITHIN THE PARAMETERS REQUIRED BY OWNER FOR ROOM 6-212, J.O.M.L. COMPLEX, UNIVERSITY OF MINNESOTA, MINNEAPOLIS CAMPUS.

MECHANICAL CONSTRUCTION

MECHANICAL WORK FOR THIS PROJECT INCLUDES THE FOLLOWING:

INSTALLATION OF HOT GAS DEFROST SYSTEM TO EXISTING COOLING COIL; FABRICATION AND INSTALLATION OF NEW RECIRCULATING BYPASS SYSTEM FOR EXISTING AIR HANDLER; INSTALLATION OF NEW ELECTRONIC TEMPERATURE SPACE SENSOR IN ROOM TO OPERATE COOLING AND REHEAT COILS; INSTALLATION OF HIGH LIMIT HUMIDITY SENSOR IN DUCT DOWNSTREAM OF EXISTING STEAM HUMIDIFIER; INSTALLATION OF AUXILIARY CONTACT SWITCH & NEW LINKAGE TO OPERATE COOLING CYCLE; INSTALLATION OF NEW CONTROLS AND POWER WIRING; PATCHING AND PAINTING; RE-BALANCE AIR SYSTEM; ADJUSTMENT AND CALIBRATION OF CONTROLS.

ESTIMATED CONTRACT COST \$5860

ESTIMATED NON-CONTRACT COST \$1240

TOTAL ESTIMATED COST \$7100

PROJECT TITLE ENVIRONMENTAL ROOM, 6-212, JOINT COMPLEX

CAMPUS MINNEAPOLIS DATE 7/25/80

PROJECT NO. 032-78-0106

I.	FUNDS AVAILABLE		
II.	LAND ACQUISITION		
III.	BUILDING COST		<u>\$5860</u>
	A. General		
	B. Mechanical	<u>5160</u>	
	C. Electrical	<u>700</u>	
	D. Elevator		
	E. Fixed Equipment		
V.	NON-BUILDING COST		<u>\$ 1240</u>
	A. Sitework		
	1. Landscaping		
	2. Utilities		
	B. Furnishings and Equipment		
	C. Consultant's Fees		
	D. Miscellaneous		<u>\$1240</u>
	1. Contingencies	<u>295</u>	
	2. Construction Supervision	<u>330</u>	
	3. Soil Borings		
	4. Material and Performance Testing		
	5. University Engineering Services	<u>586</u>	
	6. Building Activation		
	7. SAC Charge		
	8. Building Permit	<u>12</u>	
	9. Insurance	<u>12</u>	
	10. Incidental		
V.	TOTAL PROJECT COST		<u>\$ 7100.⁰⁰</u>



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

JOML-
Cold Rooms

August 13, 1980

TO: Evan B. Merz/Bob Hudalla
FROM: Paul J. Maupin *Paul*
SUBJECT: Installation of Cold Rooms - JOML Complex
Project No. 032-78-0106
(re: enclosure)

We concur with your opinions of responsibility to provide operational facilities for occupants of Health Sciences Projects, and we are sympathetic with the problems associated with the Cold Rooms in the JOML Complex.

Would it be possible to provide supply air from the newly installed airconditioning systems in the southern quadrants of the complex rather than purchase additional equipment? As you know there are plans to complete the mechanical systems in the near future and perhaps some other solutions could provide adequate conditions until that time.

This office has no funds or funding sources to assist you. However, by copy of this letter and attachments, we are asking Mr. Hewitt to solicit funds from Central Administration to get the rooms operational.

If you need further clarification or assistance, please contact me.

cc: Clinton Hewitt
Warren Soderberg
Dave Kerkow
Vic Scott

PJM:jm



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
Physical Planning Office
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

July 25, 1980.

JUL 30 1980

TO: Paul Maupin
FROM: Eyan B. Merz/Bob Hudalla
RE: Installation of Cold Rooms JQML Complex
Project No. 032-78-0106

We are having operating problems on Rooms 4-178A & (old 267.1 & .2), Rooms 6-218A & B (old 420.1 & .2) and Room 6-212 (old 429) on the above referenced project.

Rooms 4-178A & B and 6-218A & B are combination 4°C Laboratories and -20°C Freezer Laboratories. Entrance to the -20°C Freezer Lab is thru the 4°C Lab. This arrangement causes special problems when ventilation is required to both the 4°C room and the -20°C room. The 4°C room becomes saturated with moisture at 4°C. Condensate forms on the door and panels of the common wall with the -20°C room and ice and frost form at the door jambs. The -20°C Freezer room becomes frosted similar to a home freezer except more rapidly because of the introduction of ventilation air, a situation not previously encountered at the University. John Sever attempted to handle this problem by introducing the ventilation air into the 4°C room and relieving the air thru the -20°C freezer. He hoped to reduce the moisture content of the air with the 4°C room refrigerant coil enough to prevent frosting in the -20°C room. This has proven inadequate. I'm sure John Sever was influenced greatly by a directive to save money, in arriving at his design. As you recall there was a concerted effort to reduce costs from the initial estimates in order to stay within budget.

Jerry Pittman of this office has been investigating this problem for me. See his attached memo dated 18 July, 1980. We have included sketches of the proposed work and a cost estimate.

Room 4-178A & B is in Dr. Goldberg's Pharmacology Dept. Laboratory and he is unable to use the -20°C Freezer Lab at this writing. Doors freeze-up so badly he is unable to open the door even with the door jamb heaters on.

The estimated cost to resolve humidity problem in Room 4-178A & B is \$7900 per estimate dated July 23, 1980.

Rooms 6-218A & B are Physiology Dept. Rooms and have problems similar to Dr. Goldberg's Rooms. The problem is not as severe because less ventilation air is required in the Physiology Dept. cold rooms. However, the -20°C freezer lab has to be shut down frequently in the summer and therefore is too unreliable for use.

Paul Maupin
July 25, 1980.
Page 2

The estimated cost to resolve humidity problems in Room 6-218A & B is \$4600 per estimate dated 7/23/80.

Room 6-212 - Problems in room 6-212 are more complex. Room 6-212 is Dr. Grim's, Head of the Physiology Department's, personal laboratory. It has temperature and humidity control requirements that would require one of the more sophisticated manufactured Environmental Rooms. Mr. Sever attempted to design this room in-house using an economical approach. Unfortunately, it does not meet Dr. Grim's requirements.

I discussed Dr. Grim's requirements with him and Muriel Lubansky on April 30, 1980. He indicated a need to control temperature within $\pm 1^\circ\text{F}$ in a temperature range from 68°F to 78°F . He also indicated a need to control humidity within $\pm 5\%$ R.H. in a humidity range from 25% R.H. to 75% R.H.

With the system installed we are able to control temperature as required. However, we are unable to control humidity in the winter months above 45% R.H. at 78°F Room temperature. In fact, we are unable to use the steam humidifier without saturating the supply air which condenses in the supply ducts above adjacent laboratories and drips thru the ceilings. We are able to dehumidify both summer and winter down to 40% R.H. only, because of the control configuration.

Essentially, we do not have humidification control and we only have dehumidification down to 40% to R.H. which does not meet Dr. Grim's needs.

Dr. Grim has indicated this constant temperature and humidity room is to be used to produce artificial membranes for a transplant study. Manufacturing of these membranes must be done under controlled conditions. Certain materials have to dry at 68°F and 25% R.H., others form and dry at 78°F and 75% R.H. to get needed results.

The estimated cost to revise the present system for Room 429 in accordance with the attached proposal and estimate dated 25 July 1980 is \$7100.

As you know, every effort was made to economize in order to bring the project within budget. Apparently in these instances we economized too much. In order to make the above referenced rooms operational we will need funding. The present budget for project #032-78-0106 is depleted. We recommend this work be funded as a separate project thru our office. We would make the necessary revisions with the University Shops. Material would be specified or purchased directly by this office. This will eliminate excessive change order costs and General Contractor profit.

Added funds need as explained above as follows:

Revisions Room 4-178A & B	\$7900.00
Revisions Room 6-218A & B	4600.00
Revisions Room 6-212	<u>7100.00</u>
Total amount required	\$19,600.00

Please let us know what can be done to secure these funds in as much as the Planning Office and ourselves have a responsibility to provide these users

Paul Maupin
July 25, 1980
Page 3

with an operational facility. We've done the preliminary engineering and estimates but we have no access to funds.

cc: Dave Kerkow

A. Walter Johnson

Vic Scott
Tom Kyle

BH/jp

attachments



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
Physical Planning Office
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

July 28, 1980

TO: Bob Hudalla

FROM: Jerry Pittman *JFP*

RE: Condensation Problems in Cold Room located in JOML Complex, Rooms #4-178.1 & .2 and #6-218.1 & .2

Investigation into this problem indicates condensation occurring on the interior walls of the cold rooms due to the moisture content of the supplied ventilation air. When this air enters the 40°F Room, the room becomes super saturated and condensation occurs on the walls.

The most obvious and economical solution would be to eliminate this supply air, but environmental health specialists and good engineering practices rule this out due to human activity planned for the spaces. The alternative is to dry the supply air until the moisture content is below the saturation dew point of the coldest room, (-4°F). According to the psychrometric chart, the incoming air would have to have less than .00065 lb. moisture per lb. of dry air or 4.6 grains/lb D.A.

At these low temperatures, the only feasible means of drying the supply air is to use a desiccant type of dehumidifier such as those supplied by Bry-Air or Dryomatic. These machines require duct changes and additions plus electrical hook-up, all of which costs money.

The following is an analysis of each room followed by a sketch of the installation with an estimated cost.

Room #4-178.

DATA

- Humidity of air entering a 150 CFM Drier; using 30 CFM make-up air and 120 CFM recirculated air:

$$\left[\frac{30\text{CFM}}{150\text{CFM}} \times 78 \frac{\text{gr}}{\text{lb da}} \right] + \left[\frac{120}{150} \times 4 \frac{\text{gr}}{\text{lb}} \right] = 18.8 \frac{\text{grain}}{\text{lb.}}$$

- Temperature of entering air to dryer:

$$\text{Using: } T_3 = \frac{\dot{m}_{oa} T_{oa} + \dot{m}_{ra} T_{ra}}{\dot{m}_{oa} + \dot{m}_{ra}}$$

To: Bob Hudalla
July 18, 1980
Page 2

$$= \frac{A3}{13.85} \frac{30 \text{ min}}{\text{ft}^3} (75 + 460) + \frac{120}{12.6} (40 + 460)$$

$$\frac{3.0}{13.85} + \frac{120}{12.6}$$

$$= \frac{2.17 (535) + 9.52 (500)}{2.17 + 9.52} = 506.48$$

$$= 506.48 - 460 = 46.5^\circ \text{F}$$

At these inlet conditions, the Bry-Air Model#A-1-B performance chart indicates the air supplied to the space will have a moisture content of about 4 Grains/lb.D. which would be sufficient to control the condensation: See Mechanical sketch #1.

Room 6-218

1. Using a 50 CFM dehumidifier with 20 CFM make-up air and 30 CFM recirculated air.

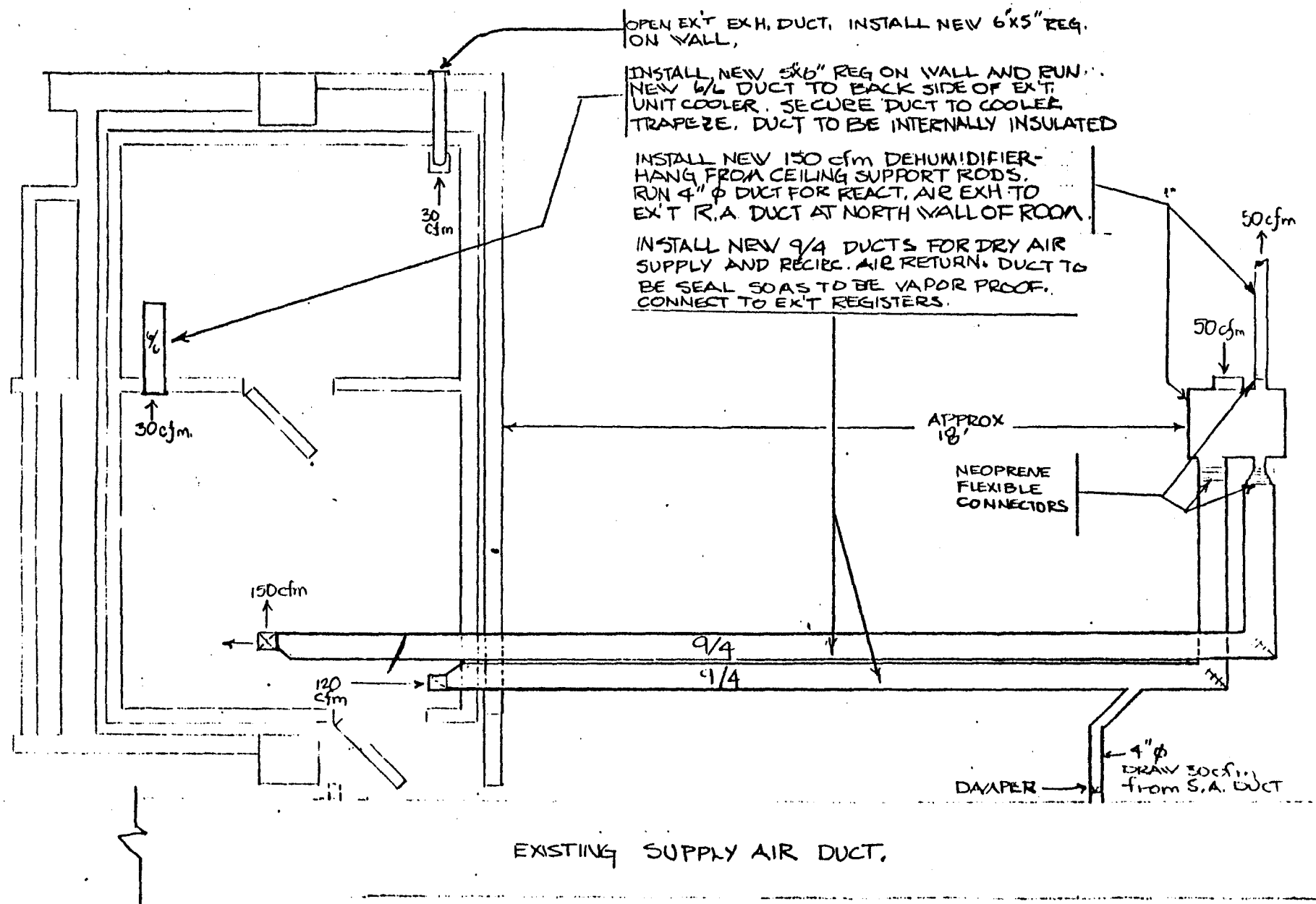
$$W = \frac{20}{50} \times \frac{78 \text{ gr}}{\#} + \frac{30}{50} \times \frac{4 \text{ gr}}{\#} = \frac{34 \text{ gr}}{\text{lb.}}; w = \text{humidity ratio}$$

2. Temp of inlet air (To Dehumidifier):

$$T_3 = \frac{1.44 (540) + 2.38 (500)}{1.44 + 2.38} - 460 = 55.1^\circ \text{F}$$

At these inlet conditions the BryAir Model A-0.5-B will supply 50 CFM of air with a 4 gr/lb moisture content. See Sketch #2 for installation.

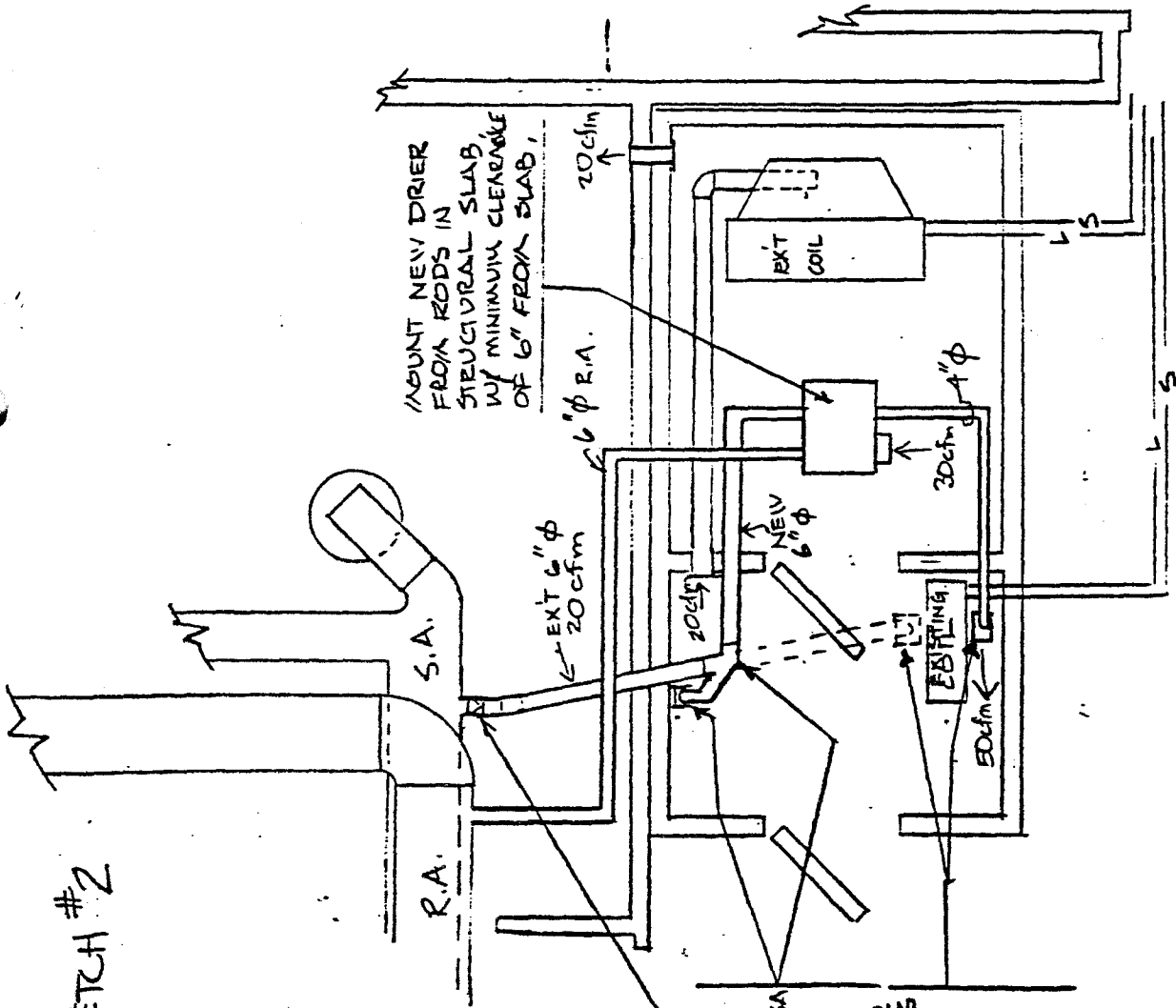
MECHANICAL SKETCH #1



INSTALLATION OF DEHUMIDIFIER FOR COLD ROOM # 4-178, JOML

SCALE 1/4" = 1'-0"

MECHANICAL SKETCH #2



ADJUST NEW DRIER FROM RODS IN STRUCTURAL SLAB W/ MINIMUM CLEARANCE OF 6" FROM SLAB.

INSTALL LOCKING DAMPER IN EXT 6" DUCT FROM S.A.
 INSTALL NEW 5x6" RA REG AT CEILING W/ DAMPER. CONNECT NEW 4" Ø DUCT AND CONNECT TO EXT 6" Ø DUCT. RUN NEW 6" Ø DUCT FROM CONNECTION TO NEW DRIER, ALL DUCT INTERNALLY INSULATED W/ VAPOR BARRIER. RELOCATE EXT SA DIFFUSER AS SHOWN - RUN NEW 4" Ø DUCT FROM DISCH. SIDE OF DRIER TO DIFFUSER. PATCH HOLE - PACK WITH FIBERGLASS INSULATION W/ MOISTURE BARRIER.

INSTALL DEHUMIDIFIER OVER ROOM 6-218-JOAL

SCALE: 1/4" = 1'-0"

Project No: 032-78-0106

ESTIMATE

TO: PAUL NAUPIN

Estimate No: _____

FROM

PHYSICAL PLANT DEPARTMENT
UNIVERSITY OF MINNESOTA

Preventive Maintenance Project

Bldg. No. 079

Plant Services Project

Department Project

Building Name LYONS LAB

Charge Time to _____

Requested by _____ Date _____ By Tele. _____ By Letter _____

Assigned to E.B. MERZ Date _____

Estimate Prepared by J. PITTMAN Date 7/23/80

Instructions: Make itemized estimate by sections with all cost data complete.

Description of Work:

INSTALLATION OF NEW DESICCANT DEHUMIDIFIER WITH ELECTRICAL REGENERATION TO DRY AIR SUPPLIED TO ROOM 4-178 LYON LABS, JOINT COMPLEX, UNIVERSITY OF MINNESOTA, MINNEAPOLIS CAMPUS.

MECHANICAL CONSTRUCTION

MECHANICAL WORK ON THIS PROJECT INCLUDES THE FOLLOWING:

PURCHASE AND INSTALL ONE CEILING-HUNG, DESICCANT DEHUMIDIFIER; FABRICATE AND INSTALL NEW INTERNALLY-SEALED, EXTERNALLY INSULATED, SUPPLY AND RETURN DUCT WORK FROM EXISTING REGISTERS IN ROOM 4-178A TO NEW DRYER; INSTALL NEW TRANSFER GRILL AND DUCT BETWEEN ROOMS A & B; PATCH AND PAINT WALLS TO MATCH EXISTING; BALANCE SYSTEM.

\$5950.⁰⁰

ELECTRICAL CONSTRUCTION

ELECTRICAL WORK CONSISTS OF CONNECTING POWER SOURCE TO NEW DRIER.

\$ 600.⁰⁰

CONTRACT COSTS \$6550.⁰⁰

NON-CONTRACT COSTS \$1350.⁰⁰

TOTAL EST. COST \$7900.⁰⁰

PROJECT COST BREAKDOWN

PROJECT TITLE Cold Room Dehumidifier, Room 4-178, JOAL
CAMPUS MPLS, MINN DATE 7/17/80
PROJECT NO. 032-78-0106

I. FUNDS AVAILABLE

II. LAND ACQUISITION.

III. BUILDING COST \$6550

A. General

B. Mechanical 5950

C. Electrical. 600

D. Elevator.

E. Fixed Equipment

IV. NON-BUILDING COST \$1350

A. Sitework.

1. Landscaping

2. Utilities

B. Furnishings and Equipment

C. Consultant's Fees

D. Miscellaneous \$1335

1. Contingencies 327

2. Construction Supervision. 327

3. Soil Borings.

4. Material and Performance Testing

5. University Engineering Services. 655

6. Building Activation

7. SAC Charge.

8. Building Permit 13

9. Insurance 13

10. Incidental.

V. TOTAL PROJECT COST. \$7900

Project No: 032-78-0106

ESTIMATE
FROM

TO: PAUL MAUPIN

Estimate No: _____

PHYSICAL PLANT DEPARTMENT
UNIVERSITY OF MINNESOTA

Preventive Maintenance Project

Bldg. No. 054

Plant Services Project

Department Project

Building Name OLVRE HALL

Charge Time to _____

Requested by _____ Date _____ By Tele. _____ By Letter _____

Assigned to E.B. MERZ Date _____

Estimate Prepared by J. PITTMAN Date 7/23/80

Instructions: Make itemized estimate by sections with all cost data complete.

Description of Work:

INSTALLATION OF NEW DEHUMIDIFIER TO DRY AIR SUPPLIED TO ROOM 6-218, JOINT COMPLEX, UNIVERSITY OF MINNESOTA, MINNEAPOLIS CAMPUS.

MECHANICAL CONSTRUCTION

MECHANICAL WORK FOR THIS PROJECT INCLUDES THE FOLLOWING: PURCHASE AND INSTALL ONE NEW CEILING-HUNG, DESICCANT DEHUMIDIFIER; INSTALL NEW RETURN AIR REGISTER IN ROOM A; RELOCATE EXISTING SUPPLY AIR GRILL AND DAMPER IN ROOM A AND PATCH EXISTING HOLE; INSTALL NEW DUCT WORK, INTERNALLY SEALED AND EXTERNALLY INSULATED WITH VAPOR BARRIER, FIBER GLASS INSULATION FOR SUPPLY AND RETURN AIR TO DEHUMIDIFIER; PATCH AND PAINT TO MATCH EXISTING FINISHES; BALANCE THE SYSTEM.

\$3420

ELECTRICAL

CONNECT NEW DEHUMIDIFIER TO PROPER ELECTRICAL SOURCE.

\$ 400

NON-CONTRACT

\$ 780

TOTAL EST. COST

\$4600.⁰⁰

PROJECT COST BREAKDOWN

PROJECT TITLE Cold Room Dehumidifier, Room 6-218, JO/ML
CAMPUS ADLS DATE 7/16/80
PROJECT NO. 032-78-0106

I. FUNDS AVAILABLE	_____
II. LAND ACQUISITION.	_____
III. BUILDING COST	<u>\$3820</u>
A. General	_____
B. Mechanical	<u>\$3420</u>
C. Electrical.	<u>\$400</u>
D. Elevator.	_____
E. Fixed Equipment	_____
IV. NON-BUILDING COST	<u>\$780</u>
A. Sitework.	_____
1. Landscaping	_____
2. Utilities	_____
B. Furnishings and Equipment	_____
C. Consultant's Fees	_____
D. Miscellaneous	<u>780</u>
1. Contingencies	<u>192</u>
2. Construction Supervision.	<u>192</u>
3. Soil Borings.	_____
4. Material and Performance Testing	_____
5. University Engineering Services.	<u>380</u>
6. Building Activation	_____
7. SAC Charge.	_____
8. Building Permit	<u>8</u>
9. Insurance	<u>8</u>
10. Incidental.	_____
V. TOTAL PROJECT COST.	<u>\$4600.⁰⁰</u>

Project No: 032-78-0106

ESTIMATE

TO: PAUL MAUPIN

FROM

Estimate No: _____

PHYSICAL PLANT DEPARTMENT
UNIVERSITY OF MINNESOTA

Preventive Maintenance Project

Bldg. No. 054

Plant Services Project

Department Project

Building Name OLVRE HALL

Charge Time to _____

Requested by _____

Date _____

By Tele. _____

By Letter _____

Assigned to E. B. MERZ

Date _____

Estimate Prepared by J. PITTMAN

Date 7/25/80

Instructions: Make itemized estimate by sections with all cost data complete.

Description of Work:

INSTALLATION OF NEW CONTROLS AND SEQUENCING OF AIR SYSTEM TO CONTROL TEMPERATURE AND HUMIDITY WITHIN THE PARAMETERS REQUIRED BY OWNER FOR ROOM 6-212, J.O.M.L. COMPLEX, UNIVERSITY OF MINNESOTA, MINNEAPOLIS CAMPUS.

MECHANICAL CONSTRUCTION

MECHANICAL WORK FOR THIS PROJECT INCLUDES THE FOLLOWING:

INSTALLATION OF HOT GAS DEFROST SYSTEM TO EXISTING COOLING COIL;
FABRICATION AND INSTALLATION OF NEW RECIRCULATING BYPASS SYSTEM FOR EXISTING AIR HANDLER; INSTALLATION OF NEW ELECTRONIC TEMPERATURE SPACE SENSOR IN ROOM TO OPERATE COOLING AND REHEAT COILS; INSTALLATION OF HIGH LIMIT HUMIDITY SENSOR IN DUCT DOWNSTREAM OF EXISTING STEAM HUMIDIFIER; INSTALLATION OF AUXILIARY CONTACT SWITCH & NEW LINKAGE TO OPERATE COOLING CYCLE; INSTALLATION OF NEW CONTROLS AND POWER WIRING; PATCHING AND PAINTING; RE-BALANCE AIR SYSTEM; ADJUSTMENT AND CALIBRATION OF CONTROLS.

ESTIMATED CONTRACT COST \$5860

ESTIMATED NON-CONTRACT COST \$1240

TOTAL ESTIMATED COST \$7100

PROJECT COST BREAKDOWN

PROJECT TITLE ENVIRONMENTAL ROOM, 6-212, JOINT COMPLEX

CAMPUS MINNEAPOLIS

DATE 7/25/80

PROJECT NO. 032-78-0106

I. FUNDS AVAILABLE	.....	_____
II. LAND ACQUISITION	.....	_____
III. BUILDING COST	.....	<u>\$5860</u>
A. General	.....	_____
B. Mechanical	.....	<u>5160</u>
C. Electrical	.....	<u>700</u>
D. Elevator	.....	_____
E. Fixed Equipment	.....	_____
IV. NON-BUILDING COST	.....	<u>\$ 1240</u>
A. Sitework	.....	_____
1. Landscaping	.....	_____
2. Utilities	.....	_____
B. Furnishings and Equipment	.....	_____
C. Consultant's Fees	.....	_____
D. Miscellaneous	.....	<u>\$1240</u>
1. Contingencies	.....	<u>295</u>
2. Construction Supervision	.....	<u>330</u>
3. Soil Borings	.....	_____
4. Material and Performance Testing	.....	_____
5. University Engineering Services	.....	<u>586</u>
6. Building Activation	.....	_____
7. SAC Charge	.....	_____
8. Building Permit	.....	<u>12</u>
9. Insurance	.....	<u>12</u>
10. Incidental	.....	_____
V. TOTAL PROJECT COST	.....	<u>\$ 7100.⁰⁰</u>



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

*OK
File
Paul
8/29/79*

August 29, 1979

TO: Paul Maupin
FROM: Tom Kyle *Tom*
SUBJECT: Restoration of Brick Exteriors

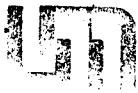
I spoke to Howard Noziska at the Minnesota Masonry Institute, Grant Bergman at North Central Supply and Wayne Brock at Brock-White Company; all advised against coating exterior brick surfaces with anything as it locks moisture in and will cause spalling/cracking. All gentlemen stressed that the bricks need to breathe and that no moisture should be allowed behind the surfaces. They recommend improving, flashing and roofs to insure no water is coming through surfaces from behind.

Another item stressed is tuck-pointing. It must be well done by an experienced, capable tuck pointer as a poor job will allow moisture in between and behind bricks. All these men suggested having entire surfaces properly tuck-pointed to prevent decomposition and further decay in existing surfaces.

Wayne Brock recommended having a few quality tuck-pointers look at surfaces prior to deciding how to refinish them and give us good advice. He feels addition of a coating is for very, very extreme cases where the other solutions have proven inadequate in preventing decay. Listed below are three sources for expert advice:

Allstates Tuck Pointing Company (Don Slipka)
McPhearson Company (Rod McPhearson)
McCord Company

If you need further research, give me a call.



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

January 16, 1980

Mr. Duane Blanchard
Health Science Architects and Engineers, Inc.
University Park Plaza - Suite 704
2829 University Avenue, S.E.
Minneapolis, Minnesota 55414

RE: JOML - fume hoods

Dear Duane:

As part of the Basic Science program for renovation of the Jackson/Owre/Millard/Lyon Complex, there was a request for many additional fume hoods. Your firm completed an investigation of the hoods needed versus budget considerations and recommended reconditioning and reusing as many hoods as possible to cut costs. Bruce Johnson and his team identified the hoods to be reassigned and renovated to meet University Standards applicable at the time. However, upon occupancy and testing by Environmental Health, it has been discovered that many of the hoods installed under these conditions do not meet minimum standards for performance.

One case in point is the fume hood in 454 Owre for Dr. Marriani. The new controls for the hood are not compatible with the type of sash on the hood. The sash does not meet University Standards for a chemical fume hood. Another example is the modifications #11 and #31 should have included the relocated hoods as well as the new as they constitute a new installation. The majority of the re-used fume hoods have required additional modifications to be operational, at cost to the University.

It is assumed that this design deficiency could have been avoided, or would have been avoided had your team been more thoughtful about their charge from the advisory committee. One of the major conditions of the Federal Grant was upgrading of fume hoods and lab safety. Furthermore, I am not personally satisfied with the offhand response to the problem I have received from your

staff. I would expect them to take an interest and at least attempt to solve problems rather than state it as "the University's problem". The construction superintendant and this office will look forward to an improved response from your office with regard to fume hood problems as it is in the best interest of all of us to complete the occupancy of this project.

Sincerely,



Tom Kyle
Assistant Health Sciences
Planning Coordinator

TK:mg

cc: Paul Maupin
Paul Kopietz
Gordon Dahlen
Clint Hewitt

HSAE

HEALTH SCIENCES ARCHITECTS AND ENGINEERS INC
UNIVERSITY PARK PLAZA SUITE 704 2829 UNIVERSITY AVENUE S.E. MINNEAPOLIS, MINNESOTA 55414 (612) 378-3833

3 March 1980

Mr. Thomas Kyle
Senior Architectural Drafting Technician
Health Sciences Planning Office
4107 Powell Hall
University of Minnesota
Minneapolis, Minnesota 55455

Re: JOML-B Remodeling

Dear Tom:

We have received your letter of January 16, 1980 regarding fume hoods and I have talked with you a few weeks ago on the telephone about not agreeing with the accuracy of the comments.

At that time, you mentioned Physical Plant was changing some items on existing hoods, but no response was required from the architects at the time. I have talked to Gordon Dahlen, Construction Superintendent of JOML, several times and he has not indicated that he needed any response or answers regarding the fume hoods.

We assume that this lack of questions regarding the fume hoods indicates no further problems exist on the hods that require our services.

Sincerely,

HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.



Bruce E. Johnson

BEJ:1a

cc: Gordon Dahlen

MAR 4 1980
UNIVERSITY OF MINNESOTA
HEALTH SCIENCES ARCHITECTS AND ENGINEERS

*JOML - Correspondence
Architects*



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

March 2, 1978

Mr. Duane Blanchard
Health Sciences Architects & Engineers
University Park Plaza - Suite 704
2829 University Avenue, S.E.
Minneapolis, Minnesota 55414

Dear Duane:

It has become necessary to remind you and your staff of one of our long-standing procedures concerning contact between your staff and Health Sciences departmental personnel here at the University. All contact between the architects and consultants with Medical School departments or their representatives must be conducted through the Health Sciences Planning Office.

One departure from this procedure occurred on February 24, 1978, when your office sent the contractor's cost breakdown for modification #8-A of the JOML-B contract directly to the Department of Biochemistry with only a copy sent to Tom Kyle. This particular incident denied us the opportunity to compute the associated costs and review the cost breakdown. Another deviation from procedure involved Tom Kyle's request for documentation concerning the cadaver cooler in Jackson Hall. Tom did not receive the requested material from your office; instead Bruce Johnson contacted the department directly. When Tom inquired of Bruce the status of his request, Bruce is reported to have told him, "Not to worry about it, that he had worked it out with the department". This disregard for this office and the responsibility of my staff members is unacceptable, and the examples given are only a few of the many.

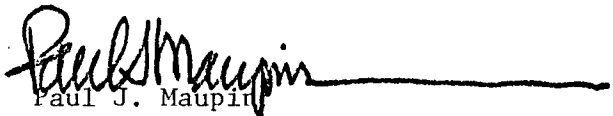
I would further like to comment that when a program modification has cost implications and the architects are requested to keep us apprised of the probable costs during development, we would appreciate compliance of our request.

JOML modification #8-A has a known cost ceiling of \$25,000. Our continued requests for cost updates were ignored, even though it was becoming obvious that the project was going over the budget. Now, of course, A/E fees will have to be paid on a modification that cannot be funded. If we had been given the appropriate information, perhaps we could have changed the program or canceled the modification.

It would appear that we are not receiving adequate professional architectural services on the JOML project. The number of modifications required due to inadequate field surveys during the design phase is alarming. An example would be the complete omission of access panels in the animal area, or the five high pressure steam lines in the Owre entrance that exist at 8'-6" above the floor with the architect calling for a 9'-0" ceiling height. There are many more situations like this where obvious conflicts were not accounted for in the drawings.

I know I can count on your immediate attention to resolving these issues. If you have any questions or wish to discuss this matter further, please contact me.

Yours truly,


Paul J. Maupin
Health Sciences Planning Coordinator
Health Sciences Planning Office

PJM:rt

cc: Paul Kopietz
John Patterson

40718 - Architect Correspondence

UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
Box 75 Powell Hall
4103 Powell Hall
Minneapolis, Minnesota 55455
(612) 373-8981

April 26, 1977

Bruce Johnson
Health Sciences Architects and Engineers
University Park Plaza - Suite 704
2829 University Ave. SE
Minneapolis, Minnesota 55414

SUBJECT: Jackson/ Owre/ Millard/ Lyons - Contract B
Contract Documents

Dear Bruce,

This office has received a number of comments concerning the readability of the Contract Documents for the JOML Complex Renovation. In particular, it is difficult to segregate the areas of new construction from existing. We are, therefore, requesting HSAE to designate the "new construction" on each sheet of the Contract set of drawings by encircling with a bold dashed line, or some other acceptable means, to insure clarity.

This should be done for the bid sets in an effort to assist the bidders and avoid confusion which would unnecessarily increase the bid amounts.

Our experience with contractors illustrates that clarifying the "scope of work" is a definite asset; this is especially true in a renovation such as JOML. We feel as well that this action will reduce to a minimum the number of change orders processed due to misinterpretation of the documents.

Your cooperation is appreciated.

Yours truly,

Tom Kyle

Tom Kyle

TK:mkw

cc: John Scott
John Patterson
Paul Maupin
Warren Forslund
Paul Kopietz



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
~~Physical Planning Office~~ Physical Plant Operations
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

February 20, 1980

FEB 25 Rec'd
UNIV. OF MINN.
HEALTH SCIENCES
PLANNING OFFICE

TO: Jack Geretz

FROM: Gordon Dahlen *GD Dahlen*

REFERENCE: JOML - B Remodeling - Duct Noise Problem
Room 405 Owre Hall
Project No. 000-77-0366

On May 3, 1979, Bruce Johnson forwarded a copy of the L. G. Copley Associates, acoustic engineers' letter to you regarding the excessive noise in Room 405 Owre - along with several others. This letter had three (3) suggestions or approaches on page 3 under (B) fourth floor - - Arrival exhaust system (GE 120):

- Item 1. I have verified that the duct penetration through the 5th floor stub? (slab is meant, I believe), is completely sealed with mortar.
- Item 2. I am not sure what is meant by "duct silencer" is riser duct just under 5th floor stub? (slab), and would appreciate engineering assistance to know if it has been provided, or not. Perhaps someone in our own engineering department could clarify this.
- Item 3. Acoustical "lagging", see Item 5 on page 3, under (C). This looks like a costly procedure, and since no reply was ever received from Arne Nordli at Kraus Anderson to my letter to him (copy enclosed) requesting costs for revising the duct installation to correct this design error it is understood that the Contractor is not, and was not interested in any more extra work.

The Physiology Department Administrator is pressing for a solution to the problem so the room can be used for an office. The Physical Plant can do this "lagging" if they are given approval by us. The first look at the size of the duct and its location leads me to believe that there will be thousands of dollars necessary to remove the existing ceiling grid and tile, apply the insulation, install the wire lath and plaster it up completely and with sufficient thickness to deaden the sound - no matter who does this work.

February 20, 1980

TO: Jack Geretz

Will you please review the problem and the contingency funds available so I can be given direction to proceed or not with the Physical Plant forces. Also, if I can be of any further assistance, please let me know.

GSD/vhd

Enclosure

c.c.: Paul E. Kopietz
A. Walter Johnson
Muriel Lubansky
Tom Kyle
Paul Maupin ✓
Roy R. Anderson



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
~~Physical Plant Operations~~ Physical Plant Operations
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

May 24, 1979

Kraus-Anderson, Inc.
525 South 8th Street
Minneapolis, MN 55404

Attention: Arne Nordli, Project Manager

RE: JOML-B Remodeling - University of Minnesota
Project No. 000-77-0366 - Your Job No. 150.


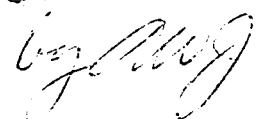
Gentlemen:

Enclosed is a copy of the acoustical consultant's report of his recent inspection of the subject construction. It appears that several items are part of your contract obligations as we see them.

- No. 1: Item A - 2nd floor S.E. Tower the last sentence of first paragraph indicates work not completed at this door. You are also requested to check and make certain the door seals are installed at the other tower emergency exit doors as per plan and specification.
- No. 2: Item b. - mechanical defect in fan.
- No. 3: Item c. - air flow should be checked to make sure what the CFM actually is.
- No. 4: Review items 1 thru 5 of pages 2 and 3 under Item A.
- No. 5: Item B Fourth floor arrival Exhaust System (GE 120) - Possible noise reduction approaches etc. have your mechanical subcontractor verify item 1; review and advise what is involved item 2; review and advise what is involved item 3 including cost if any.

If you have any questions it may be best if you contact Bruce Johnson of Health Science Architects and Engineers.

Sincerely,


Gordon Dahlen 

GD/jmo

cc: A. W. Johnson
Roy Anderson
Bruce Johnson H.S.A.E.

Enclosures: 2 letters and 1 Noise Criteria Graph

Reply to Bruce Johnson letter to Jack written 5-3-79



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

August 12, 1980

TO: Archie Glaser

FROM: Tom Kyle *Tom*

SUBJECT: JOML Complex
Landscaping

The construction superintendent on this project informed me that he had been requested to clear the site for landscaping by July 15, 1980. He further informs me that the contractors vacated the site by that date, but that nothing has been done since that time.

Please let me know what the schedule is concerning improvements to the JOML Site. I assume time is running out for this summer. The area should not go through the winter in its present condition.

TK:mka

cc: Paul Maupin
Fran Trojanek
Clinton Hewitt
Jack Geretz



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TWIN CITIES

Engineering and Construction Division
Physical Plant Operations
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

SEP 10 1980

September 5, 1980

To: Rueben Friederich
From: Gordon Dahlen *GD*
Re: JOML Cold Rooms, Project No. 032-78-0106

Roy Anderson passed on to me yesterday a sketch of the wood thresholds that are required between rooms 267.1 & 267.2 Lyon and 420.1 & 420.2 Owre. We spoke with Craig Widman on the phone about the change from stainless steel to wood. Widman was not certain from our phone description of this sketch that he could provide what is shown - described. It was decided that the openings be measured for the exact space between the edge strips at the vinyl floors each doorway, the edge strip dimensions and opening width should be obtained for these thresholds and the accompanying sketch shows what was found. I suggest very strongly that a specific sketch or drawing be made showing the dimensions at each room properly labeled be sent to the Contractor with written spec on penta treated wood as well as the exact size and type of the wood screws he is to use to provide these thresholds.

I cannot impress on you the extreme importance of being absolutely specific about this or we will never be able to get installed what is required. This Contractor is extremely difficult as he cannot understand what is required unless every single detail is spelled out.

The original bid price that this Contractor provided for the stainless steel thresholds, new bottom sweeps completely installed is \$297.00 which he gave me yesterday. This price is for the records only as I had no figure from him in my files.

Attach:
GD/cb

cc: Jack Geretz
A.W. Johnson
Bob Hudalla
Roy Anderson
Tom Kyle
Jim Burak
Muriel Lubansky

UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

October 1, 1980

TO: Tony Baron
Construction Superintendent
Engineering & Construction
27 Folwell Hall

FROM: Tom Kyle *Tom*
Asst. Health Sciences Planning Coordinator
Health Sciences Planning Office
4108 Powell Hall

SUBJECT: Site Restoration

You have apparently given approval to a contractor (Knudson?) on a hospital project to expand his construction site limits to include a portion of the Basic Sciences Complex (JOML) landscaped area. The University had recently re-sodded the area at the corner of Church Street and Delaware Street and now it is covered with chilled water pipe.

I would like you to respond in writing for my file, that as part of the Hospital Contract the contractor will re-sod the area and repair any damage to curbs, walks, etc., at no cost to the University. Also, would you please send me the construction schedule for the project (completion date) and the name of the project and contractor.

TK:mka

cc: Paul Maupin
Jack Geretz
file ✓



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

October 16, 1980

Dr. David Hamilton
Professor and Head
Department of Anatomy
4-135 Jackson Hall

RE: JOML & Crematory Renovations

Dear David:

There were a few items in your department areas that given enough contingency balance in the funding, we would have completed. Some examples are corridor ceilings, corridor paintin, demolition of the existing cremator. Obviously these items represent work that must be done at sometime, however, the funding situations on both of these projects prohibit additional work.

Both of them were serverly short of funds after actual Bids were tabulated and in the case of Contract 'B', deduct alter-nate number one had to be taken just to award the contract. Then the contingency was only 3% and ultimately 6% was expended for extras.

On the crematory project the footings and foundation corrections cost an extra \$30,000 and the stairwell an extra \$37,000. Thus, both projects had to go begging to complete the spaces with minimum safety compliance.

The ceilings on floor 2 were part of deduct alternate one, and a late estimate to install them was rejected due to cost (@\$10,000).

The only resource available now is to make certain that your departments needs are included in the program for the next Phase of the Basic Sciences Renovation. Phase II is included in the six year capitol request being submitted this year to the Legislature. If you wish to discuss the problems personally please contact this office.

Yours truly,

Thomas W. Kyle
Asst. Health Sciences Planning Coordinator

cc: Paul Maupin, Clint Hewitt, File ✓



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

October 21, 1980

TO: Evan B. Merz
Bob Hudalla

FROM: Tom Kyle *TKM*
Asst. Health Sciences Planning Coordinator

SUBJECT: Installation of Cold Rooms - JOML
Project No. 032-78-0106

I would like to know what plans, if any, you have regarding correction of deficiencies on these environmental rooms, particularly Dr. Grim's room numbered 6-212.

I feel the situation is unacceptable as the room can not be used -- it is idle but Dr. Grim's research of course must continue.

We have received a number of calls lately related to the problems and assume the issue will become much more controversial if nothing is done. We understand that your view is that there weren't enough funds to design the job properly. However, your engineers never indicated that problem to us during design and construction and it was not until completion and start up that the deficiencies became evident.

As explained in a letter to you on August 13, 1980, the Health Sciences Planning Office is unable to identify any funds for additional work on the Cold Rooms. However, we would expect you to pursue some source to eventually get these rooms into operation. Please let me know what you can do.

cc: Paul Maupin ✓
Clint Hewitt
Dr. Grim
Muriel Lubauski
Jack Geretz
Wayne Drehmel

TK: mka



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
Physical Plant Operations
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

NOV 17 1980

November 13, 1980

TO: Tom Kyle
FROM: E. B. Marz
RE: JOML Cold Rooms
Project No. 032-78-0106

In your memo of October 21, 1980, you inquired as to what our plans were to correct the deficiencies in environmental rooms 4-178 A & B, 6-218 A & B, and 6-212, indicating particular concern for the latter.

Our plans were clearly spelled out in a memo to Mr. Maupin dated July 25, 1980, (copy attached) with estimated costs for the required additional work:

4-178 A & B	\$7,900
6-218 A & B	\$4,600
6-212	\$7,100

As indicated in your memo, Mr. Maupin's letter of August 13, 1980 advised that his office did not have funds or a funding source so it was being referred to Mr. Hewitt's office.

Reviewing some of the history behind this project:

In a memo to Mr. Maupin dated October 5, 1977, I stated (in part) "..... and (the) high and low temperature environment room (\$51,040) for 429 Owre, by nature, must be bid as essentially complete package(s)". As detailed elsewhere in that memorandum, this statement presumed a Forma Scientific (or equal) environmental room at a base cost of \$31,250. The additional \$20,000 was general, electrical and mechanical work external to the room itself.

In our final pre-bid summary dated April 17, 1978, the estimated cost for 429 Owre was identified as \$23,100, based on the present design (a standard cold room with field erected environmental control system designed by my staff). Unfortunately, this design is inadequate for the user's needs. However, it should be noted the needed additions would provide a room cost of \$30,200; considerably less than the \$51,000 required for the earlier recommended package environmental room.

Tom Kyle
November 13, 1980
Page 2 -

It's unfortunate that the constant concern expressed by your office during design that costs must be cut wherever possible on this project created a climate where my staff's engineering judgment may have been compromised in the interest of first cost economies.

I am greatly concerned that the required additions to the three laboratories were not in the original bidding documents. The impact of these additions should have been addressed before a contract was awarded.

On the other hand, I also realize that there were delays in awarding a contract on bids that were taken because of funding problems. This additional required work would have further aggravated initial funding problems.

We agree that the situation is unacceptable, but without additional funding, we have done as much as we can do.

EBM/dfs

Attachment

cc: D. B. Kerkow
Clint Hewitt
Dr. E. D. Grim
Wayne Drehmel
Muriel Lubanski
Paul Maupin
Bob Hudalla



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

February 25, 1981

TO: Clinton Hewitt
FROM: Tom Kyle *Tom Kyle*
SUBJECT: JOML-Cold Rooms
Project No. 032-78-0106

We have had a very mild winter and can assume the worst is over. As you know we have had problems with the cold rooms in the JOML project when the temperature and humidity rise. The enclosed letter and proposal indicates the urgent identification of funds needed to complete the corrections of the problems associated with these rooms.

I am writing this letter to remind all involved that warm weather is eminent and the sooner action is taken the more likely we are to avoid additional costs associated with lost research time and material and costly repairs.

If I can be of any additional assistance, please contact me.

cc: Paul Maupin
E.B. Merz
D.B. Kerkow
Dr. E.D. Grim
Wayne Drehmel
Muriel Lubaski
Robert Hudalla

TK:jmw



UNIVERSITY OF MINNESOTA
1 WIN CITIES

Engineering and Construction Division
Physical Plant Operations
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

NOV 17 1980

November 13, 1980

TO: Tom Kyle
FROM: E. B. Merz
RE: JOML Cold Rooms
Project No. 032-78-0106

In your memo of October 21, 1980, you inquired as to what our plans were to correct the deficiencies in environmental rooms 4-178 A & B, 6-218 A & B, and 6-212, indicating particular concern for the latter.

Our plans were clearly spelled out in a memo to Mr. Maupin dated July 25, 1980, (copy attached) with estimated costs for the required additional work:

4-178 A & B	\$7,900
6-218 A & B	\$4,600
6-212	\$7,100

As indicated in your memo, Mr. Maupin's letter of August 13, 1980 advised that his office did not have funds or a funding source so it was being referred to Mr. Hewitt's office.

Reviewing some of the history behind this project:

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In our final pre-bid summary dated April 17, 1978, the estimated cost for 429 Owre was identified as \$23,100, based on the present design (a standard cold room with field erected environmental control system designed by my staff). Unfortunately, this design is inadequate for the user's needs. However, it should be noted the needed additions would provide a room cost of \$30,200; considerably less than the \$51,000 required for the earlier recommended package environmental room.

Tom Kyle
November 13, 1980
Page 2 -

It's unfortunate that the constant concern expressed by your office during design that costs must be cut wherever possible on this project created a climate where my staff's engineering judgment may have been compromised in the interest of first cost economies.

I am greatly concerned that the required additions to the three laboratories were not in the original bidding documents. The impact of these additions should have been addressed before a contract was awarded.

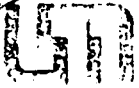
On the other hand, I also realize that there were delays in awarding a contract on bids that were taken because of funding problems. This additional required work would have further aggravated initial funding problems.

We agree that the situation is unacceptable, but without additional funding, we have done as much as we can do.

EBM/dfs

Attachment

cc: D. B. Kerkow
Clint Hewitt
Dr. E. D. Grim
Wayne Drehmel
Muriel Lubanski
Paul Maupin
Bob Hudalla



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
Physical Planning Office
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

July 25, 1980

JUL 30 1980

TO: Paul Maupin
FROM: Eyan B. Merz/Bob Hudalla
RE: Installation of Cold Rooms JOML Complex
Project No. 032-78-0106

We are having operating problems on Rooms 4-178A & (old 267.1 & .2), Rooms 6-218A & B (old 420.1 & .2) and Room 6-212 (old 429) on the above referenced project.

Rooms 4-178A & B and 6-218A & B are combination 4°C Laboratories and -20°C Freezer Laboratories. Entrance to the -20°C Freezer Lab is thru the 4°C Lab. This arrangement causes special problems when ventilation is required to both the 4°C room and the -20°C room. The 4°C room becomes saturated with moisture at 4°C. Condensate forms on the door and panels of the common wall with the -20°C room and ice and frost form at the door jambs. The -20°C Freezer room becomes frosted similar to a home freezer except more rapidly because of the introduction of ventilation air, a situation not previously encountered at the University. John Sever attempted to handle this problem by introducing the ventilation air into the 4°C room and relieving the air thru the -20°C freezer. He hoped to reduce the moisture content of the air with the 4°C room refrigerant coil enough to prevent frosting in the -20°C room. This has proven inadequate. I'm sure John Sever was influenced greatly by a directive to save money, in arriving at his design. As you recall there was a concerted effort to reduce costs from the initial estimates in order to stay within budget.

Jerry Pittman of this office has been investigating this problem for me. See his attached memo dated 18 July, 1980. We have included sketches of the proposed work and a cost estimate.

Room 4-178A & B is in Dr. Goldberg's Pharmacology Dept. Laboratory and he is unable to use the -20°C Freezer Lab at this writing. Doors freeze-up so badly he is unable to open the door even with the door jamb heaters on.

The estimated cost to resolve humidity problem in Room 4-178A & B is \$7900 per estimate dated July 23, 1980.

Rooms 6-218A & B are Physiology Dept. Rooms and have problems similar to Dr. Golberg's Rooms. The problem is not as severe because less ventilation air is required in the Physiology Dept. cold rooms. However, the -20°C freezer lab has to be shut down frequently in the summer and therefore is too unreliable for use.

The estimated cost to resolve humidity problems in Room 6-218A & B is \$4600 per estimate dated 7/23/80.

Room 6-212 - Problems in room 6-212 are more complex. Room 6-212 is Dr. Grim's, Head of the Physiology Department's, personal laboratory. It has temperature and humidity control requirements that would require one of the more sophisticated manufactured Environmental Rooms. Mr. Sever attempted to design this room in-house using an economical approach. Unfortunately, it does not meet Dr. Grim's requirements.

I discussed Dr. Grim's requirements with him and Muriel Lubansky on April 30, 1980. He indicated a need to control temperature within $\pm 1^\circ\text{F}$ in a temperature range from 68°F to 78°F . He also indicated a need to control humidity within $\pm 5\%$ R.H. in a humidity range from 25% R.H. to 75% R.H.

With the system installed we are able to control temperature as required. However, we are unable to control humidity in the winter months above 45% R.H. at 78°F Room temperature. In fact, we are unable to use the steam humidifier without saturating the supply air which condenses in the supply ducts above adjacent laboratories and drips thru the ceilings. We are able to dehumidify both summer and winter down to 40% R.H. only, because of the control configuration.

Essentially, we do not have humidification control and we only have dehumidification down to 40% to R.H. which does not meet Dr. Grim's needs.

Dr. Grim has indicated this constant temperature and humidity room is to be used to produce artificial membranes for a transplant study. Manufacturing of these membranes must be done under controlled conditions. Certain materials have to dry at 68°F and 25% R.H., others form and dry at 78°F and 75% R.H. to get needed results.

The estimated cost to revise the present system for Room 429 in accordance with the attached proposal and estimate dated 25 July 1980 is \$7100.

As you know, every effort was made to economize in order to bring the project within budget. Apparently in these instances we economized too much. In order to make the above referenced rooms operational we will need funding. The present budget for project #032-78-0106 is depleted. We recommend this work be funded as a separate project thru our office. We would make the necessary revisions with the University Shops. Material would be specified or purchased directly by this office. This will eliminate excessive change order costs and General Contractor profit.

Added funds need as explained above as follows:

Revisions Room 4-178A & B	\$7900.00
Revisions Room 6-218A & B	4600.00
Revisions Room 6-212	7100.00
Total amount required	\$19,600.00

Please let us know what can be done to secure these funds in as much as the Planning Office and ourselves have a responsibility to provide these users

Paul Maupin
July 25, 1980
Page 3

with an operational facility. We've done the preliminary engineering and estimates but we have no access to funds.

cc: Dave Kerkow

A. Walter Johnson

Vic Scott
Tom Kyle

BH/jp

attachments



July 28, 1980

TO: Bob Hudalla

FROM: Jerry Pittman *JFP*

RE: Condensation Problems in Cold Room located in JOML Complex, Rooms #4-178.1 & .2 and #6-218.1 & .2

Investigation into this problem indicates condensation occurring on the interior walls of the cold rooms due to the moisture content of the supplied ventilation air. When this air enters the 40°F Room, the room becomes super saturated and condensation occurs on the walls.

The most obvious and economical solution would be to eliminate this supply air, but environmental health specialists and good engineering practices rule this out due to human activity planned for the spaces. The alternative is to dry the supply air until the moisture content is below the saturation dew point of the coldest room, (-4°F). According to the psychometric chart, the incoming air would have to have less than .00065 lb. moisture per lb. of dry air or 4.6 grains/lb D.A.

At these low temperatures, the only feasible means of drying the supply air is to use a desiccant type of dehumidifier such as those supplied by Bry-Air or Dryomatic. These machines require duct changes and additions plus electrical hook-up, all of which costs money.

The following is an analysis of each room followed by a sketch of the installation with an estimated cost.

Room #4-178.

DATA

- Humidity of air entering a 150 CFM Drier; using 30 CFM make-up air and 120 CFM recirculated air:

$$\left[\frac{30\text{CFM}}{150\text{CFM}} \times 78 \frac{\text{gr}}{\text{lb da}} \right] + \left[\frac{120}{150} \times 4 \frac{\text{gr}}{\text{lb}} \right] = 18.8 \frac{\text{grain}}{\text{lb.}}$$

- Temperature of entering air to dryer:

$$\text{Using: } T_3 = \frac{\dot{m}_{oa} T_{oa} + \dot{m}_{ra} T_{ra}}{\dot{m}_{oa} + \dot{m}_{ra}}$$

$$= \frac{A3 \cdot 30 \text{min}}{13.85 \frac{\text{ft}^3}{16}} (75 + 460) + \frac{120}{12.6} (40 + 460)$$
$$\frac{3.0}{13.85} + \frac{120}{12.6}$$

$$= \frac{2.17 (535) + 9.52 (500)}{2.17 + 9.52} = 506.48$$

$$= 506.48 - 460 = 46.5^\circ \text{F}$$

At these inlet conditions, the Bry-Air Model #A-1-B performance chart indicates the air supplied to the space will have a moisture content of about 4 Grains/lb.D. which would be sufficient to control the condensation: See Mechanical sketch #1.

Room 6-218

1. Using a 50 CFM dehumidifier with 20 CFM make-up air and 30 CFM recirculated air.

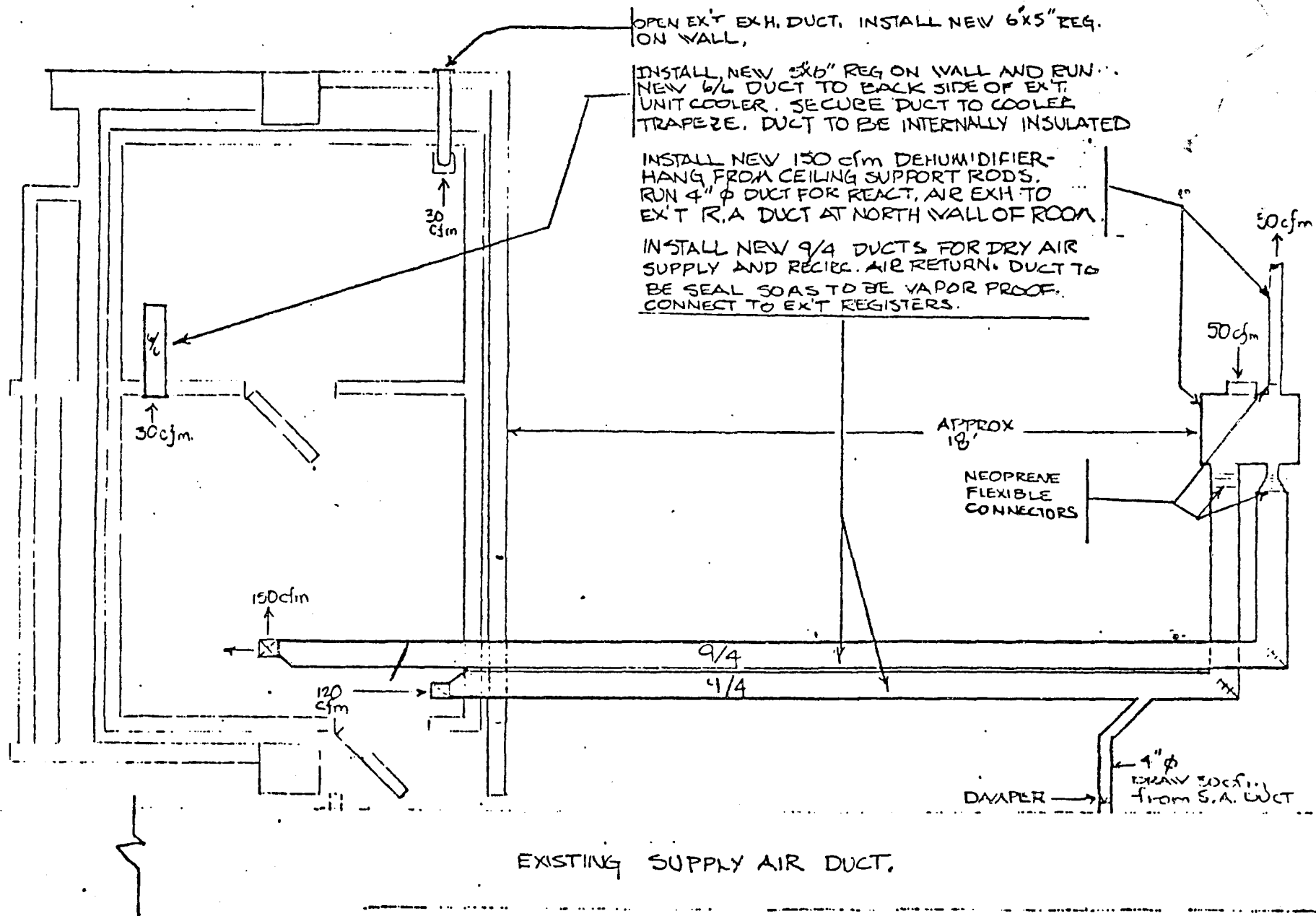
$$W = \frac{20}{50} \times \frac{78 \text{gr}}{\#} + \frac{30}{50} \times \frac{4 \text{gr}}{\#} = \frac{34 \text{gr}}{1 \text{b.}}; w = \text{humidity ratio}$$

2. Temp of inlet air (To Dehumidifier):

$$T_3 = \frac{1.44 (540) + 2.38 (500)}{1.44 + 2.38} - 460 = 55.1^\circ \text{F}$$

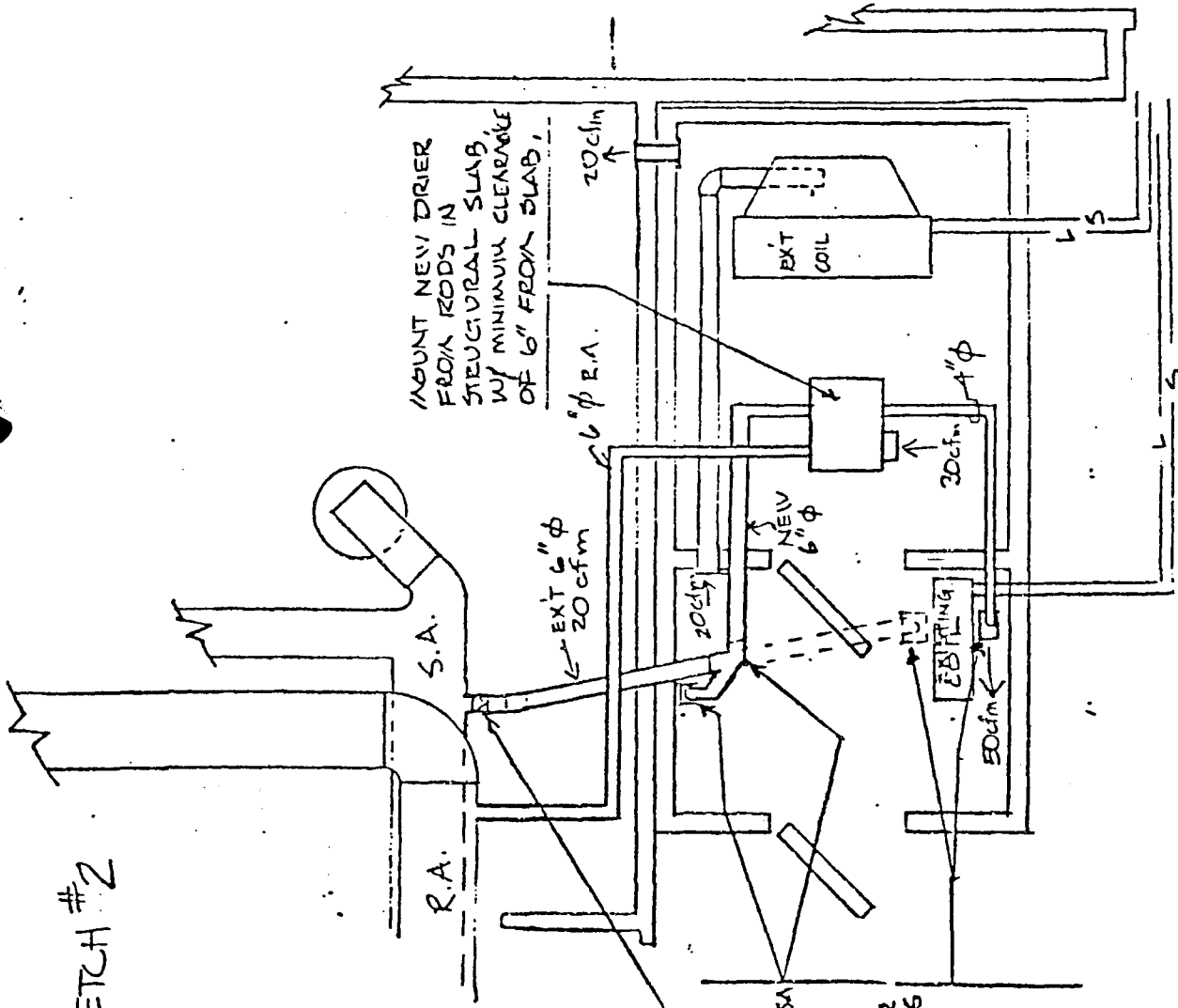
At these inlet conditions the BryAir Model A-0.5-B will supply 50 CFM of air with a 4 gr/lb moisture content. See Sketch #2 for installation.

MECHANICAL SKETCH 1



INSTALLATION OF DEHUMIDIFIER FOR COLD ROOM # 4-178, JOML

MECHANICAL SKETCH #2



INSTALL NEW DRIER FROM RODS IN STRUCTURAL SLAB, W/ MINIMUM CLEARANCE OF 6" FROM SLAB.

INSTALL LOCKING DAMPER EXT 6" DUCT FROM S.A.
 INSTALL NEW 5x6" RA REG AT CEILING W/ DAMPER. CONNECT NEW 4" φ DUCT AND CONNECT TO EXT 6" φ DUCT. RUN NEW 6" φ DUCT FROM CONNECTION TO NEW DRIER, ALL DUCT INTERNALLY INSULATED, W/ VAPOR BARRIER. RELOCATE EXT SA DIFFUSER AS SHOWN - RUN NEW 4" φ DUCT FROM DISCH. SIDE OF DRIER TO DIFFUSER. PATCH HOLE - PACK WITH FIBERGLASS INSULATION W/ MOISTURE BARRIER.

INSTALL DEHUMIDIFIER OVER ROOM 6-218-JOAL

SCALE: 1/4" = 1'-0"

22-78-0106

ESTIMATE

TO: PAUL MAUPIN

FROM

No: _____

PHYSICAL PLANT DEPARTMENT
UNIVERSITY OF MINNESOTA

Preventive Maintenance Project

Bldg. No. 079

Plant Services Project

Department Project

Building Name LYONS LAB

Charge Time to _____

Requested by _____ Date _____ By Tele. _____ By Letter _____

Assigned to E.B. MERZ Date _____

Estimate Prepared by J. PITTMAN Date 7/23/80

Instructions: Make itemized estimate by sections with all cost data complete.

Description of Work:

INSTALLATION OF NEW DESICCANT DEHUMIDIFIER WITH ELECTRICAL REGENERATION TO DRY AIR SUPPLIED TO ROOM 4-178 LYON LABS, JOHL COMPLEX, UNIVERSITY OF MINNESOTA, MINNEAPOLIS CAMPUS.

MECHANICAL CONSTRUCTION

MECHANICAL WORK ON THIS PROJECT INCLUDES THE FOLLOWING:

PURCHASE AND INSTALL ONE CEILING-HUNG, DESICCANT DEHUMIDIFIER; FABRICATE AND INSTALL NEW INTERNALLY-SEALED, EXTERNALLY INSULATED, SUPPLY AND RETURN DUCTWORK FROM EXISTING REGISTERS IN ROOM 4-178A TO NEW DRYER; INSTALL NEW TRANSFER GRILL AND DUCT BETWEEN ROOMS A & B; PATCH AND PAINT WALLS TO MATCH EXISTING; BALANCE SYSTEM.

\$5950.00

ELECTRICAL CONSTRUCTION

ELECTRICAL WORK CONSISTS OF CONNECTING POWER

SOURCE TO NEW DRIER.

\$ 600.00

CONTRACT COSTS

\$ 6550.00

NON-CONTRACT COSTS

\$ 1350.00

TOTAL EST COST

\$ 7900.00

PROJECT TITLE Cold Room Development, Pool 4-178, JOML

CAMPUS APLS, MINN

DATE 7/17/80

PROJECT NO. 032-78-0106

I.	FUNDS AVAILABLE	.....	_____
II.	LAND ACQUISITION	.....	_____
III.	BUILDING COST	.....	<u>\$6550</u>
	A. General	.....	_____
	B. Mechanical	.....	<u>5950</u>
	C. Electrical	.....	<u>600</u>
	D. Elevator	.....	_____
	E. Fixed Equipment	.....	_____
IV.	NON-BUILDING COST	.....	<u>\$1350</u>
	A. Sitework	.....	_____
	1. Landscaping	.....	_____
	2. Utilities	.....	_____
	B. Furnishings and Equipment	.....	_____
	C. Consultant's Fees	.....	_____
	D. Miscellaneous	.....	<u>\$1355</u>
	1. Contingencies	.....	<u>257</u>
	2. Construction Supervision	.....	<u>227</u>
	3. Soil Borings	.....	_____
	4. Material and Performance Testing	.....	_____
	5. University Engineering Services	.....	<u>655</u>
	6. Building Activation	.....	_____
	7. SAC Charge	.....	_____
	8. Building Permit	.....	<u>13</u>
	9. Insurance	.....	<u>13</u>
	10. Incidental	.....	_____
	TOTAL PROJECT COST	.....	<u>\$7900</u>

FROM _____
PHYSICAL PLANT DEPARTMENT
UNIVERSITY OF MINNESOTA

Preventive Maintenance Project

Bldg. No. 054

Plant Services Project

Department Project

Building Name OWRE HALL

Charge Time to _____

Requested by _____ Date _____ By Tele. _____ By Letter _____

Assigned to E.B. MERZ Date _____

Estimate Prepared by J. PITTMAN Date 7/23/80

Instructions: Make itemized estimate by sections with all cost data complete.

Description of Work: INSTALLATION OF NEW DEHUMIDIFIER TO DRY AIR SUPPLIED TO ROOM 6-218, JOINT COMPLEX, UNIVERSITY OF MINNESOTA, MINNEAPOLIS CAMPUS.

MECHANICAL CONSTRUCTION

MECHANICAL WORK FOR THIS PROJECT INCLUDES THE FOLLOWING: PURCHASE AND INSTALL ONE NEW CEILING-HUNG, DESICCANT DEHUMIDIFIER; INSTALL NEW RETURN AIR REGISTER IN ROOM A; RELOCATE EXISTING SUPPLY AIR GRILL AND DAMPER IN ROOM A AND PATCH EXISTING HOLE; INSTALL NEW DUCT WORK, INTERNALLY SEALED AND EXTERNALLY INSULATED WITH VAPOR BARRIER, FIBER GLASS INSULATION FOR SUPPLY AND RETURN AIR TO DEHUMIDIFIER; PATCH AND PAINT TO MATCH EXISTING FINISHES; BALANCE THE SYSTEM.

\$3420

ELECTRICAL

CONNECT NEW DEHUMIDIFIER TO PROPER ELECTRICAL SOURCE.

\$ 400

NON-CONTRACT

\$ 780

TOTAL EST. COST

\$4600.⁰⁰

PROJECT TITLE Cold Room D-UNIVERSITY, Room 6-218, JOINT

CAMPUS ADIS

DATE 7/16/80

PROJECT NO. 032-78-0106

I. FUNDS AVAILABLE	.....	_____
II. LAND ACQUISITION	.....	_____
III. BUILDING COST	.....	<u>\$3820</u>
A. General	.....	_____
B. Mechanical	.....	<u>\$3420</u>
C. Electrical	.....	<u>\$400</u>
D. Elevator	.....	_____
E. Fixed Equipment	.....	_____
IV. NON-BUILDING COST	.....	<u>\$780</u>
A. Sitework	.....	_____
1. Landscaping	.....	_____
2. Utilities	.....	_____
B. Furnishings and Equipment	.....	_____
C. Consultant's Fees	.....	_____
D. Miscellaneous	.....	<u>780</u>
1. Contingencies	.....	<u>192</u>
2. Construction Supervision	.....	<u>192</u>
3. Soil Borings	.....	_____
4. Material and Performance Testing	.....	_____
5. University Engineering Services	.....	<u>380</u>
6. Building Activation	.....	_____
7. SAC Charge	.....	_____
8. Building Permit	.....	<u>8</u>
9. Insurance	.....	<u>8</u>
10. Incidental	.....	_____
V. TOTAL PROJECT COST	.....	<u>\$4600.⁰⁰</u>

PHYSICAL PLANT DEPARTMENT
UNIVERSITY OF MINNESOTA

Bldg. No. 054

Preventive Maintenance Project

Plant Services Project

Department Project

Building Name OLVRE HALL

Charge Time to _____

Requested by _____

Date _____

By Tele. _____

By Letter _____

Assigned to E. B. MERZ

Date _____

Estimate Prepared by J. PITTMAN

Date 7/25/80

Instructions: Make itemized estimate by sections with all cost data complete.

Description of Work: INSTALLATION OF NEW CONTROLS AND SEQUENCING OF AIR SYSTEM TO CONTROL TEMPERATURE AND HUMIDITY WITHIN THE PARAMETERS REQUIRED BY OWNER FOR ROOM 6-212, J.O.M.L. COMPLEX, UNIVERSITY OF MINNESOTA, MINNEAPOLIS CAMPUS.

MECHANICAL CONSTRUCTION

MECHANICAL WORK FOR THIS PROJECT INCLUDES THE FOLLOWING:

INSTALLATION OF HOT GAS DEFROST SYSTEM TO EXISTING COOLING COIL;
FABRICATION AND INSTALLATION OF NEW RECIRCULATING BYPASS SYSTEM
FOR EXISTING AIR HANDLER; INSTALLATION OF NEW ELECTRONIC
TEMPERATURE SENSE SENSOR IN ROOM TO OPERATE COOLING
AND REHEAT COILS; INSTALLATION OF HIGH LIMIT HUMIDITY
SENSOR IN DUCT DOWNSTREAM OF EXISTING STEAM HUMIDIFIER;
INSTALLATION OF AUXILIARY CONTACT SWITCH & NEW LINKAGE
TO OPERATE COOLING CYCLE; INSTALLATION OF NEW CONTROLS
AND POWER WIRING; PATCHING AND PAINTING; RE-BALANCE
AIR SYSTEM; ADJUSTMENT AND CALIBRATION OF CONTROLS.

ESTIMATED CONTRACT COST \$5860

ESTIMATED NON-CONTRACT COST \$1240

TOTAL ESTIMATED COST \$7100

PROJECT TITLE ENVIRONMENTAL ROOM, 6-212, JOINT COMPLEX

CAMPUS MINNEAPOLIS

DATE 7/25/80

PROJECT NO. 032-78-0106

FUNDS AVAILABLE	.....	_____
II. LAND ACQUISITION	.....	_____
III. BUILDING COST	.....	<u>\$5860</u>
A. General	.....	_____
B. Mechanical	.....	<u>5160</u>
C. Electrical	.....	<u>700</u>
D. Elevator	.....	_____
E. Fixed Equipment	.....	_____
V. NON-BUILDING COST	.....	<u>\$1240</u>
A. Sitework	.....	_____
1. Landscaping	.....	_____
2. Utilities	.....	_____
B. Furnishings and Equipment	.....	_____
C. Consultant's Fees	.....	_____
D. Miscellaneous	.....	<u>\$1240</u>
1. Contingencies	.....	<u>295</u>
2. Construction Supervision	.....	<u>330</u>
3. Soil Borings	.....	_____
4. Material and Performance Testing	.....	_____
5. University Engineering Services	.....	<u>586</u>
6. Building Activation	.....	_____
7. SAC Charge	.....	_____
8. Building Permit	.....	<u>12</u>
9. Insurance	.....	<u>12</u>
10. Incidental	.....	_____
V. TOTAL PROJECT COST	.....	<u>\$7100.⁰⁰</u>

university
of
minnesota
memo

date 3-7 1984

to _____

from Jim Burck

Dr. Hogenkamp would also like to meet with the people to show him an example of an unacceptable lab



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Pharmacology
Medical School
3-260 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-3085

FILE

March 1, 1982

TO: Paul Maupin

FROM: Jim Burak

Subject: Concern Regarding JOML Remodeling

I circulated your 2/20/82 memo to our staff, and received the below listed concerns from our faculty. In addition, I am also enclosing the February, 1980 letters from Basic Science Department Heads to Dr. French since the context of these letters is still relevant today.

Major concerns reported to me were:

- . Particle board and formica top laboratory bench tops are delaminating and deteriorating.
- . The windows, especially on the second floor, are not sealed properly.
- . The heating circulation system in rooms 2-255 and 2-261 Millard are totally inadequate. New duct work and ceilings were installed, but not connected to any air conditioning system.
- . Reused casework and cabinetry unacceptable in many circumstances.
- . 2-103E - receptacle covers still not installed in wall outlet, and rust on floor from glass water pipes breaking.

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Pharmacology
Medical School
3-260 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-3085

February 21, 1980

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall

Dear Dr. French:

The enclosed letters from members of the Council of Basic Health Sciences whose departments are housed in the JOML complex have been sent to me for forwarding to you. As you will note they deal with deficiencies and problems that have occurred in the remodeling of this complex and ask that an effort be made to remedy the situation. If satisfactory solutions cannot be found, undoubtedly they will be brought to the attention of the National Institutes of Health when the project is inspected.

Also, the Council has asked that I express to you its concern about the University's policy of paying a contractor the bulk of the funds available for remodeling or construction well in advance of completion of the work that is to be done. If this policy could be changed, perhaps in the future the situation encountered in the remodeling of the JOML complex might not occur.

Your attention to these concerns of the Council would be appreciated.

Sincerely yours,



F. E. Shideman, M.D., Ph.D.
Chairman, Council of Basic
Health Sciences

cc: Mr. David Preston
Dr. E. Wayne Drehmel
Mr. Paul Maupin
Mr. Thomas Kyle

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Anatomy
4-135 Jackson Hall
321 Church Street S.E.
Minneapolis, Minnesota 55455
(612) 373-2790

February 6, 1980

Lyle A. French, M.D.
Vice President for Health Sciences
432 Morrill Hall
University of Minnesota
Minneapolis, Minnesota 55455

Dear Dr. French:

I am writing to express my dissatisfaction with the results of the JOML renovation that has just been completed, and to urge that you, or someone in your office, assume a direct role in resolving problems identified both by me and by other basic sciences department heads.

My files contain a running inventory of complaints, mishaps, etc. that occurred in the Department of Anatomy beginning in the Fall of 1977, and the records of the Basic Sciences Council reflect the concern and frustrations of all the department heads involved over this time period. My concerns can be grouped under three major headings:

1. Design

I have never been associated with a building project in which architectural errors were so frequent, and where there were so many design changes without proper consultation and without real concern for the projected uses of the rooms. We have examples of rooms designed with no electrical outlets, as well as rooms presently centrally air conditioned that were scheduled to receive new central air conditioning without removal of the old (the architects did not know of the existing air conditioning). When the decision was made to delete central air conditioning from one part of the Anatomy renovation, no provision was made to circulate air through small, specialized culture rooms. These rooms now are practically unusable because of high ambient temperatures. It seems to me that architects have a professional responsibility to see to it that such gross negligence does not occur; we should have legal recourse that would correct the errors.

2. Quality of Materials

My greatest concern is on the quality of materials that have gone into the renovation. Rooms that have been in use less than a year have benches whose tops are peeling away. Wall plaster is falling off. Door handles fall off in your hands and locks are non-functional.

Floors, designed to provide an environmentally safe work area in our mortuary unit, are cracking and buckling. Couplings between lengths of glass pipe regularly break. Already these shoddy facilities have cost thousands of dollars due to malfunction. You are aware of the recurring problem of flooding, I am sure. But are you aware that the Anatomy Department lost \$7,000 of optical equipment because of malfunctioning door hardware?

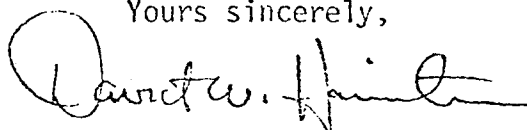
My fear is that instant obsolescence has been created, and we are going to be left holding the bag in the future. Departmental budgets, already strained to the breaking point, are going to have to fund bench top replacements, door hardware replacements, etc. I frankly feel that we have been royally ripped-off.

3. Workmanship

It is difficult to assign blame to workmanship for some of the shoddiness that has resulted, but surely some of the blame has to fall on the workman's shoulders, especially the plumbers. On the other hand numerous examples of "unfinished" finish work exist where with only a slight amount of pride and care they could have produced an acceptable, if not professional job. Painting, plastering, etc. leave a lot to be desired, and in some instances will have to be done over.

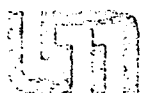
As you can see I am disenchanted with the whole project and feel that, unless something is done now to protect us, the future problems will be very significant.

Yours sincerely,



David W. Hamilton, Ph.D.
Professor and Head

DWH:jlm



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Biochemistry
Medical School
227 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

February 5, 1980

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall
Minneapolis Campus

Dear Dr. French:

I want to bring to your attention several disturbing aspects of the remodeling of JOML, involving the renovated space of the Department of Biochemistry.

1) The formica surfaced particle board countertops of the laboratory benches are absolutely unsatisfactory. Approximately one month ago several countertops had to be replaced because the particle board had swollen and completely distorted the formica surfacing. These faulty tops were replaced with the same type of material and consequently they have expanded again. The choice of this particle board material for bench tops by the architects is totally unrealistic for a wet biochemistry laboratory.

2) The deionized water pipeline system is faulty. The couplings between the pyrex tubing are not holding and we have had many quite extensive leaks.

3) The air handling systems, heating, cooling, and ventilating are not yet adjusted.

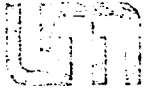
4) At several locations the new paint is already peeling from the walls, while several walls are not yet painted at all.

These four items are just a few of the gross deficiencies in the JOML project. I hope that these deficiencies can be corrected and more importantly that the future remodeling of the remainder of the JOML complex will be planned, and carried out in a more professional manner.

Sincerely yours,

Harry P.C. Hogenkamp
Professor and Head

HPCH/cw



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Laboratory Medicine and Pathology
Medical School
Box 198 Mayo Memorial Building
420 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8523

February 21, 1980

Vice President Lyle French
Box 501 Mayo
University of Minnesota

Dear Vice President French,

On the request of Dr. Fred Shideman I am writing you about deficiencies in the remodelling program for the Jackson-Owre-Millard-Lyon complex.

In general we were not too dissatisfied with the work done. We were able to keep good track of the project as it went along and attempted to correct deficiencies as they occurred. We believed that Mr. Tom Kyle, the Health Sciences Planning Coordinator, did an excellent job of surveillance on the project.

There were a number of small design problems. These included the following:

1. The dishwashing facilities are too small so they cannot accommodate the units they were supposedly designed for. It was a serious deficiency.
2. Ventillation of hoods was inadequate in general, a mechanical design deficiency that we, of course, cannot detect until the laboratories are occupied.
3. The temperature control in rooms with large windows is quite unsatisfactory.
4. The one dark room in the facility leaked light due to the use of glass pipes. This was an example of poor design.
5. Some of the items on the plans were changed after the plans has been approved.

The additional comments that the occupants have made were as follows:

1. The rooms were not adequately cleaned before the move into them took place.

2. Some parts of the furnishings were missing when the occupants moved in.

3. Replacement of broken items took a long time. Some of the doors of cabinets, for example, are still missing.

Generally, we felt that the response of the project contractors to wishes was slow, cumbersome and sometimes didn't take place at all.

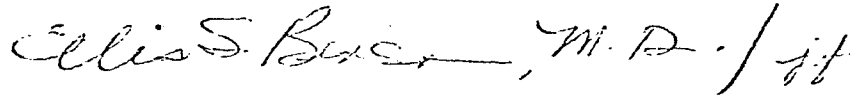
We believe that the architectural work was weak. The architects did not do a very good job. They seemed inexperienced. Better and more experienced architects could have done a better job within the same cost frame.

The most important defects were the poor design of the dishwashing facilities and of the hoods.

It is our suggestion that in another project the architecture be in different hands and that better University of Minnesota architecture and surveillance take place. Again, we want to commend Tom Kyle for an excellent job as planning coordinator.

I hope these comments are helpful to you. With all best regards.

Yours sincerely,



Ellis S. Benson, M.D.
Professor and Head

ESB/jjf

c.c.: Dr. Fred Shideman

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Pharmacology
Medical School
3-260 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-3085

February 7, 1980

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall

Dear Dr. French:

The completion of Phase I of JOML remodeling has left many unresolved problems in the Department of Pharmacology that I wish to bring to your attention at this time.

Responsibility for one of the most costly errors appears to lie with the architects. However, there seems to be an attitude within the University that the architects are beyond reproach. Contractors and equipment manufacturers can be sued but the architects fail to take responsibility for their design errors. Specifically, they advised the University that particle board counters with formica tops would be adequate for our laboratories. Not only do they sustain heat damage, but the numerous seams allow water under the formica, expanding the particle board and causing the tops to warp and peel. I envision this as an ongoing problem that can only be rectified by replacing the tops.

The reassignment of old casework also created many ongoing problems. One drawer is missing and many others do not work properly. When this was brought to the University's attention, they explained the contract did not call for repairing damaged casework. As the remodeling progressed, it was discovered that casework assigned for reuse had disappeared and the new laboratories had to accept substitute casework and at times eliminate casework that could not be found. Unpainted, reused casework and the patching of grey floors with brown tiles also enhances the impression of the poor workmanship on this project.

Water damage caused by deionized glass water pipes breaking has cost our department thousands of dollars. Up to this point, we have had to bear the cost, hoping to get reimbursed from the insurance company.

During the planning stages of the remodeling project, we were told that work could be phased around individual investigators. This caused a great deal of difficulty for our department since we were supposed to have 4-5 sub phases during the contract. Removing fume hoods, casework for reassignment and the installation of ducts and pipes through several floors caused

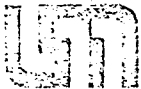
Dr. Lyle French
February 7, 1980

enormous disruptions for our faculty, Some had to move several times to accommodate the contractor before moving into their new laboratories. I cannot emphasize enough the disruption and frustration created by attempting to complete the project in phases.

Sincerely,

A handwritten signature in cursive script, appearing to read "F. E. Shideman". The signature is written in dark ink and is positioned above the typed name.

F. E. Shideman, M.D., Ph.D.
Professor and Head



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Physiology
Medical School
424 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

February 6, 1980

Dr. Lyle French
Vice President for Health
Sciences
432 Morrill Hall

Dear Dr. French:

I am writing to express my continuing concern about the remodelling of the J-O-M-L complex. Because the Department of Physiology has had only a small share of this work, our problems are less extreme than those of the other basic science departments. Nevertheless, we continue to have difficulties in finding anyone who will direct their attention toward the numerous deficiencies in those few areas that were remodelled. While many of these deficiencies are minor, some interfere greatly with the utilization of the space for its intended purpose. Examples are: a controlled temperature and humidity room in which none of the controls work; improperly designed hood ducts that make so much noise that one of our offices is unusable by anyone with normal hearing; the installation of old, corroded casework in supposedly remodelled laboratory space. The real problem is not that such deficiencies exist, but that nothing is done about them.

Sincerely yours,

Eugene Grim
Professor and Head

EG/nb



UNIVERSITY OF MINNESOTA
TWIN CITIES

Office of the Assistant Vice President

Physical Planning
340 Morrill Hall
100 Church Street S.E.
Minneapolis, Minnesota 55455

March 31, 1981

TO: Tom Kyle

FROM: Clint Hewitt *Clint Hewitt*

Last month you wrote a memorandum reminding us that the problems with the cold room in the JOML project still existed and that funds were necessary to complete the correction of these problems.

It is unfortunate that when the decision was made to design the complex cold rooms in-house and construct the rooms on-site rather than purchase and install basically prefabricated cold rooms, as part of the cost saving effort, certain components were eliminated to stay within the budget. Pete Merz acknowledged that his staff's engineering judgment may have been compromised in the interest of first-cost economies. I had previously reviewed this matter with Paul Maupin, but unfortunately I have not been able to obtain the necessary funds to purchase and install the needed control equipment to make these rooms functional.

Pete Merz informed me last week that Warren Soderberg had turned this matter over to Tony Aydinalp and I assume he will be contacting your office for background information. Certainly preventing the loss of research time and materials is a high priority item.

CNH:jr

cc: ✓ Mr. Paul Maupin
Ms. Muriel Lubansky
Dr. E. D. Grim
Dr. Wayne Drehmel
Mr. Tony Aydinalp



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
Health Sciences Complex
Box 726 Mayo Memorial Building
Minneapolis, Minnesota 55455
(612) 373-8981

June 25, 1981

TO: Clint Hewitt
FROM: Paul Maupin *Paul*
SUBJECT: Unit J Review Comments

We submit our review comments on Unit J limited design development drawings and specifications.

PM:nka

cc: Don VanHulzen
Al Eilers
Donna Ahlgren

ENC

JUNE 24, 1981

HEALTH SCIENCES PLANNING OFFICE

UNIT J - REVIEW COMMENTS

1. Where is Unit K/E handicapped entry from River Road? Ramp?
2. Does existing trash dock @ K/E get phased out?
3. Poor practice to place Blood Bank, Hepatitis Lab, Chemistry and Coagulation facilities directly over food preparation facilities.
4. Blood Bank appears smaller than exiting facility in Mayo. Why?
5. Cafeteria access is awkward - not very accessible.
6. Main lobby area is no bigger than Mayo, could be better design to afford more intimate seating for concerned family, etc.
7. Access to Diehl Hall for vehicular traffic is imperative. Ramp should be installed
8. Slope from street to entrance is very steep, could cause problems for impaired persons.
9. Need rear access to sterilizers for maintainance.
10. Provide cart holding at trash room - cart storage
11. Emergency entrance should be one-way - one in and one out drive - flow thru traffic!
12. Level 3, cafeteria entrance door are awkward. Two sets of double doors leading to two sets of double doors?
13. What is reason for extending elevator lobby into corridors with two sets of double doors - why not have one set of doors at elevator walls?
14. There is a high number of apposed leaf double doors throughout corridor system that seem redundant, furthermore this type of door has been a problem for traffic and carts in the past. Should use coordinated single direction double doors, possibly with magnetic hold-open devices.
15. On elevations it appears that intake grills are in line with K/E exhausts. Prevailing winds from west or southwest would enter grills.
16. Power doors to (O.R.) operating rooms could be a problem-maintainance down time?
17. Double room-patient bed away from window is too cramped compaired to area for second bed. Also curtain should be two piece sliding from both ends to provide privacy from corridor door. T.V. Viewing is awkward from both patient beds.



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
Health Sciences Complex
Box 726 Mayo Memorial Building
Minneapolis, Minnesota 55455
(612) 373-8981

DF

December 14, 1981

Richard A. Polinski, P.E.
Chief, Design and Engineering Branch
Regional Operations for Facilities
Engineering and Construction
Region V
300 S. Wacker Drive
Chicago, Ill. 60606

Reference: Minn-(18)
Health Sciences Expansion Unit B/C
University of Minnesota
Minneapolis, Minnesota

Dear Mr. Polinski:

Attached please find the cover letter sent to Mr. George Winter responding to the outstanding items from your final inspection report of August 9, 1979. As you will note, we have submitted information regarding all inquiries and to date have not received any indication that additional information is required. Please check with Mr. Winter regarding this matter.

Additionally, we would appreciate your scheduling final inspections on the following projects:

<u>Jackson/Owre/Millard/Lyon Complex</u>	Minn-HP-05C-070
<u>Unit F Pharmacy/Nursing</u>	Minn-HP-5C-63 and
	Minn-NU-5C-77
Diehl Hall Remodeling Project	Minn-HP-18-A

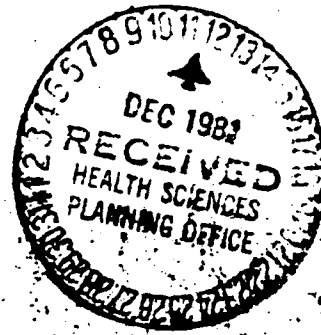
It would be most beneficial to the University to have these inspections done sometime late February or early March.

Very truly yours,


Paul J. Maupin
Health Sciences Planning Coordinator

cc: Thomas J. O'Shea
Vic Scott

May 13, 1981



Mr. George L. Winter, P.E.
Design and Engineering
Division of Regional Operations
for Facilities Engineering &
Construction
Department of Health and Human Services
16th Floor
300 South Wacker Drive
Chicago, Illinois 60606

RE: Minn-18(HP)
Health Sciences Expansion B/C
University of Minnesota
Minneapolis, Minnesota

Dear Mr. Winter:

In response to your letter dated March 28, 1980, regarding your final inspection report of the above referenced project, the following information is furnished:

1. Certification of the design engineer in connection with the Mechanical Data Corporation air balance analysis report. The reports you have in your office. We are also sending at this time, their comments and our course of action to make the necessary corrective measures requested, which are in progress as of this time. This should cover items 1a and 1e of your letter.
2. Item 1h, a copy of a memo to Mr. Dave Kerkow dated January 22, 1981 in regards to testing of the equipotential grounding systems.
3. Item 2, Thermal Insulation information in regards to fittings and equipment covering used on the project. Letter from E & S Insulation Co. is furnished, dated March 30, 1981.
4. Item 7, All necessary action requested for the temporary hold-open devices on fire dampers have been completed.

Page 2
Mr. George L. Winter, P.E.
May 13, 1981

5. Item 12, correspondence and responses to this item are forwarded for your review as furnished by Mr. Bob Swanson, Asst. Health Science Planning Coordinator, dated April 14, 1981.

If there is any additional information you may require, please notify this office.

Very truly yours,

V.E.Scott
Federal Projects Coordinator

VES/gtn



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

March 26, 1980

TO: Paul Maupin
FROM: Tom Kyle *TK*
SUBJECT: JOML - Departmental Comments
Basic Sciences Council

Attached are this office's comments regarding the Basic Sciences chairmen's letters to Dr. French which outline their impressions and concerns related to the recent Jackson/Owre/Millard/Lyon Renovation project - the State and Federally Funded Expansion of the Basic Sciences.

These are individual responses to each chairman's letter, and copies of their letters are also attached.

It is important to mention that the project did have a number of problems; the two most important are:

- 1) Lack of sufficient funds to fulfill program desires and still meet Code Requirements - thus, program reductions were necessary.
- 2) The difficulty of renovating five separate, connected and obsolete buildings while they are occupied by research scientists using chemical laboratories. The impact of field corrections was overwhelming.

The program reductions caused frustration to departments, and information within departments was not disseminated properly by advisory committee members. Each department felt they had sacrificed more than the others. The construction problems relating to field conditions, architectural errors, strikes, etc., caused the construction period to be extended by one year, thus

heightening departments' frustration and concern about quality. In the face of all this adversity, the occupants persisted and aided the contractor and U of M supervision beyond the norm and should be credited for their efforts and patience.

The largest single construction management problem was Krause/Anderson's refusal to submit a reasonable construction schedule and update it monthly. This failure caused undue pressure on occupants and their research planning. The University Supervision Personnel ended up scheduling the project for the contractor and supervising construction, in violation of the specification. It is through the combined effort of supervision, this office, and the occupants that the contractor was able to complete the project with some sense of continuity.

The architectural effort on this project was minimal. One would hope that a firm would automatically understand that renovation is different from new construction and make an effort to verify assumptions. Health Sciences Architects and Engineers made no such effort on this project.

TK:mg
Enc.

1. Design Problems:

It is not a fact that there were design changes without user consultations - however, there are a number of instances where the architects omitted items on the electrical and mechanical sheets that appeared to be covered on the architectural drawings. There was poor contract coordination between the various architectural units; thus, the existing services were removed on the demolition specifications but no new services installed under other sections. These architectural omissions are usually covered by a modification and funded by the contingency budget. This project had little contingency money - about 3% - so it was necessary to cover only absolutely justified modifications that had an effect on the entire project. We did add the required outlets to rooms with none, but of course it took time and money.

The confusion about the air conditioning on the Anatomy fourth floor (new floor numbering systems) is related to the accepting of deductive alternate number one. Of course the architects were aware of the existing air conditioning; however, under the contract, the second floor was to be hooked up to the new system in the new mechanical towers and the old system removed as it was antiquated and did not meet the Energy Conservation Regulations. The tissue culture room did not receive air conditioning because deduct alternate number one deleted the ventilation. The existing air conditioning was not removed and the window units remained. It was necessary to take the deduct, and only the one room was affected; this is standard procedure in awarding contracts on fixed funds. It is unfortunate for the department, however, that that portion of the air conditioning must wait for completion of the next phase of construction.

2. Quality of Materials:

Bench Tops -- Under warranty the faulty tops are being replaced; it is an inconvenience to the department involved.

Plaster -- We have no record of plaster falling off patched walls.

Door Handles - Faulty handles are being replaced under warranty, and warranty period was extended two years to insure replacement.

Floors -- The entrance to the cooler is being replaced under warranty.

The above workmanship problems have not been overlooked by our supervision personnel. The University's contracts allow us to reject work that does not meet University standards or the industry's standards.

We can insist that the specifications and documents are adhered to, but we cannot improve a contractor's performance or quality of installation by doing his work for him or by managing the installation, although we do watch closely and advise to the extent that our manpower allows.

We have a right to expect work to be installed according to the best industry standards and practices. The theft of equipment due to the lock failure has been examined by the University's Insurance Division, and it is assumed a settlement will be made.

Glass Piping and Couplings:

The University has not accepted the glass piping system in the complex.

We have put the contract on notice that litigation is a probability.

We are very sympathetic with the occupants and the problems of glass line ruptures and appreciate their efforts to minimize damage and patience while a solution is pursued.

3. Workmanship:

Workmanship under this contract is up to University and Industry standards. As a cost reduction effort, it was determined that corridors would not be painted under the contract, but by the Physical Plant on their regular maintenance schedule as they had omitted painting for over ten years because the complex was scheduled for renovation. Further, much of the new work does not match the original building in detail as that type of craftsmanship from 60 years ago is no longer the industry standard. We would have to pay a huge premium to duplicate the style or architecture of the early 1900's. We have only renovated twenty-five percent of the complex, and it does appear to be confusing architecturally. The next phase of construction will complete the balance from an aesthetic standpoint.

Overall, the Department of Anatomy has suffered the most from construction errors, accidents, and design omissions or errors in the contract documents. We have processed many, many modifications to correct these unfortunate incidents and will continue to rectify problems.

DEPARTMENT OF PATHOLOGY - Dr. Benson

1. Dishwashing Facilities:

The glasswash room is indeed poorly designed although it is workable. The architects did not show the proper machine orientation on the plans, and the final installation is as tight a working space as is imaginable. All modifications were made in the field to correct problems as best we could. The department is using the room.

2. Hoods:

The hoods have been balanced and meet the minimum requirements of Environmental Health and Safety. However, most of the hoods required some modification of pulleys, etc., to meet standards. Architectural effort was minimum but adequate. Architect did omit ductwork on one hood.

3. Temperature Control:

This will remain a slight problem until new windows are installed under a future request. The system is functioning well but can't respond fast enough to compensate for window problem.

4. Dark Room:

Pipes were painted to cut out light leaks into dark room.

5. Change in Plans:

Some items in layouts were changed when field verification proved plans would not work out. Architects should have verified existing conditions more accurately. Most problems were worked out with departments on item-by-item basis and department approval. Often users do not understand documents and can't visualize meaning.

Tight schedule often had users moving in before contractor was completed or moves were overlapping work. Physical Plant did their best to keep up. Contractor was required to leave area broom clean.

We have no record of missing furnishings although items may have been removed that departments were unaware of.

Contractors' responses to corrections of their work has been slow. U of M supervision has withheld final payment to induce completion of correction of faulty items.

DEPARTMENT OF PHARMACOLOGY - Dr. Shideman

The particle board substrata of the countertops was inappropriate around sinks in the laboratories. The architects advised us that plastic laminate was adequate but not as long-lived as epoxy tops. They never indicated the tops specified would last less than ten years; however, the tops don't hold together a year if water is present in the environment. We are going to correct the problem around sinks by installing epoxy resin drainboards around and on both sides of every durcon sink. The decision to use plastic laminate tops was a condition we accepted to enable us to award the contract with funds available. The University saved over \$50,000.00 by this modification. The project continually suffered from insufficient funds for the scope of work.

Reassignment of used casework was also forced on the project as a cost savings and proved to be troublesome. The Building Advisory Committee and department representatives had been appraised of the condition of the casework during the planning phases and had accepted the facts. Departments had agreed that in those specific instances of rust in some units and doors missing, that they could afford to cover the cost of minimal repairs if the contractor could finish the outsides of the cabinets (paint) so all matched in one lab. This was the premise the contract work was based on. Now the individual occupants are balking at this transferred responsibility. We feel the effort was worth the savings for the bulk of the casework.

As far as renovating spaces that are occupied within the Health Sciences, it is certainly a difficult task with good and bad aspects. Replacement

space for functions is prohibitive but may be the choice in the future. We definitely will employ all the knowledge gained in this project on future renovations. Perhaps whole wings of buildings could be vacated. The issue is not resolved but needs reworking.

DEPARTMENT OF BIOCHEMISTRY - Dr. Hogankamp

1. Countertops - Laminate Problems:

The counterops around the durcon sinks are continually swelling and delaminating. We have decided to replace the area with monolithic epoxy resin to eliminate the possibility of future delaminations. These corrective measures will be taken at sink units only, as the regular bench tops appear adequate. We had the architects advise us as to the durability of plastic laminate and pre-award testing was conducted. We had no indication from either that the tops would not hold up to common laboratory practices at sinks.

2. The Deionized Glass Piping Line:

See Anatomy Department responses; we will probably go into litigation.

3. Air-Handling Systems:

There has been a problem balancing the system while some phases were still under construction, and there have been some equipment failures (volume control boxes). However, all seems to be working according to specifications now. One serious problem is the existing windows are not double-insulating. There is a separate request to central administration for new windows, but it is years away. In the interim, with temperature setting required by the Energy Code at between 65° and 68° F, it will be difficult to maintain perfect conditions as the large single pane glass conducts cool air directly into space.

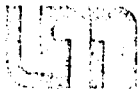
4. Paint Peeling:

We have no records of paint peeling other than associated with spills and water line ruptures which are covered by insurance.

This office has not been satisfied by the architectural performance on this particular project. The number of errors is staggering, and it is assumed that we have all profited by the experience and will know what to look for in future renovations of this type.

DEPARTMENT OF PHYSIOLOGY - Dr. Grim

This department experienced problems related to slow correction of faulty work by the contractor and subcontractors. U of M supervision is correcting problems by withholding payment requests, and in the future we will work out a more timely arrangement with problem contractors.



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Biochemistry
Medical School
227 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

February 5, 1980

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall
Minneapolis Campus

Dear Dr. French:

I want to bring to your attention several disturbing aspects of the remodeling of JOML, involving the renovated space of the Department of Biochemistry.

1) The formica surfaced particle board countertops of the laboratory benches are absolutely unsatisfactory. Approximately one month ago several countertops had to be replaced because the particle board had swollen and completely distorted the formica surfacing. These faulty tops were replaced with the same type of material and consequently they have expanded again. The choice of this particle board material for bench tops by the architects is totally unrealistic for a wet biochemistry laboratory.

2) The deionized water pipeline system is faulty. The couplings between the pyrex tubing are not holding and we have had many quite extensive leaks.

3) The air handling systems, heating, cooling, and ventilating are not yet adjusted.

4) At several locations the new paint is already peeling from the walls, while several walls are not yet painted at all.

These four items are just a few of the gross deficiencies in the JOML project. I hope that these deficiencies can be corrected and more importantly that the future remodeling of the remainder of the JOML complex will be planned, and carried out in a more professional manner.

Sincerely yours,

Harry P.C. Hogenkamp
Professor and Head

HPCH/cw

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Anatomy
4-135 Jackson Hall
321 Church Street S.E.
Minneapolis, Minnesota 55455
(612) 373-2790

February 6, 1980

Lyle A. French, M.D.
Vice President for Health Sciences
432 Morrill Hall
University of Minnesota
Minneapolis, Minnesota 55455

Dear Dr. French:

I am writing to express my dissatisfaction with the results of the JOML renovation that has just been completed, and to urge that you, or someone in your office, assume a direct role in resolving problems identified both by me and by other basic sciences department heads.

My files contain a running inventory of complaints, mishaps, etc. that occurred in the Department of Anatomy beginning in the Fall of 1977, and the records of the Basic Sciences Council reflect the concern and frustrations of all the department heads involved over this time period. My concerns can be grouped under three major headings:

1. Design

I have never been associated with a building project in which architectural errors were so frequent, and where there were so many design changes without proper consultation and without real concern for the projected uses of the rooms. We have examples of rooms designed with no electrical outlets, as well as rooms presently centrally air conditioned that were scheduled to receive new central air conditioning without removal of the old (the architects did not know of the existing air conditioning). When the decision was made to delete central air conditioning from one part of the Anatomy renovation, no provision was made to circulate air through small, specialized culture rooms. These rooms now are practically unusable because of high ambient temperatures. It seems to me that architects have a professional responsibility to see to it that such gross negligence does not occur; we should have legal recourse that would correct the errors.

2. Quality of Materials

My greatest concern is on the quality of materials that have gone into the renovation. Rooms that have been in use less than a year have benches whose tops are peeling away. Wall plaster is falling off. Door handles fall off in your hands and locks are non-functional.

Floors, designed to provide an environmentally safe work area in our mortuary unit, are cracking and buckling. Couplings between lengths of glass pipe regularly break. Already these shoddy facilities have cost thousands of dollars due to malfunction. You are aware of the recurring problem of flooding, I am sure. But are you aware that the Anatomy Department lost \$7,000 of optical equipment because of malfunctioning door hardware?

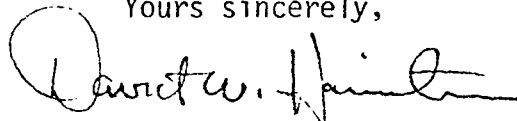
My fear is that instant obsolescence has been created, and we are going to be left holding the bag in the future. Departmental budgets, already strained to the breaking point, are going to have to fund bench top replacements, door hardware replacements, etc. I frankly feel that we have been royally ripped-off.

3. Workmanship

It is difficult to assign blame to workmanship for some of the shoddiness that has resulted, but surely some of the blame has to fall on the workman's shoulders, especially the plumbers. On the other hand numerous examples of "unfinished" finish work exist where with only a slight amount of pride and care they could have produced an acceptable, if not professional job. Painting, plastering, etc. leave a lot to be desired, and in some instances will have to be done over.

As you can see I am disenchanted with the whole project and feel that, unless something is done now to protect us, the future problems will be very significant.

Yours sincerely,



David W. Hamilton, Ph.D.
Professor and Head

DWH:jlm



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Physiology
Medical School
424 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455

February 6, 1980

Dr. Lyle French
Vice President for Health
Sciences
432 Morrill Hall

Dear Dr. French:

I am writing to express my continuing concern about the remodelling of the J-O-M-L complex. Because the Department of Physiology has had only a small share of this work, our problems are less extreme than those of the other basic science departments. Nevertheless, we continue to have difficulties in finding anyone who will direct their attention toward the numerous deficiencies in those few areas that were remodelled. While many of these deficiencies are minor, some interfere greatly with the utilization of the space for its intended purpose. Examples are: a controlled temperature and humidity room in which none of the controls work; improperly designed hood ducts that make so much noise that one of our offices is unusable by anyone with normal hearing; the installation of old, corroded casework in supposedly remodelled laboratory space. The real problem is not that such deficiencies exist, but that nothing is done about them.

Sincerely yours,

Eugene Grim
Professor and Head

EG/nb

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Pharmacology
Medical School
3-260 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-3085

February 7, 1980

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall

Dear Dr. French:

The completion of Phase I of JOML remodeling has left many unresolved problems in the Department of Pharmacology that I wish to bring to your attention at this time.

Responsibility for one of the most costly errors appears to lie with the architects. However, there seems to be an attitude within the University that the architects are beyond reproach. Contractors and equipment manufacturers can be sued but the architects fail to take responsibility for their design errors. Specifically, they advised the University that particle board counters with formica tops would be adequate for our laboratories. Not only do they sustain heat damage, but the numerous seams allow water under the formica, expanding the particle board and causing the tops to warp and peel. I envision this as an ongoing problem that can only be rectified by replacing the tops.

The reassignment of old casework also created many ongoing problems. One drawer is missing and many others do not work properly. When this was brought to the University's attention, they explained the contract did not call for repairing damaged casework. As the remodeling progressed, it was discovered that casework assigned for reuse had disappeared and the new laboratories had to accept substitute casework and at times eliminate casework that could not be found. Unpainted, reused casework and the patching of grey floors with brown tiles also enhances the impression of the poor workmanship on this project.

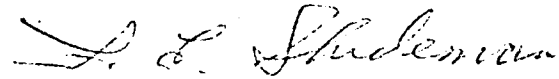
Water damage caused by deionized glass water pipes breaking has cost our department thousands of dollars. Up to this point, we have had to bear the cost, hoping to get reimbursed from the insurance company.

During the planning stages of the remodeling project, we were told that work could be phased around individual investigators. This caused a great deal of difficulty for our department since we were supposed to have 4-5 sub phases during the contract. Removing fume hoods, casework for reassignment and the installation of ducts and pipes through several floors caused

Dr. Lyle French
February 7, 1980

enormous disruptions for our faculty, Some had to move several times to accommodate the contractor before moving into their new laboratories. I cannot emphasize enough the disruption and frustration created by attempting to complete the project in phases.

Sincerely,

A handwritten signature in cursive script, appearing to read "F. E. Shideman".

F. E. Shideman, M.D., Ph.D.
Professor and Head

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Pharmacology
Medical School
3-260 Millard Hall
435 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-3085

February 21, 1980

FEB 25 1980
UNIV. OF MINN.
HEALTH SCIENCES
PLANNING OFFICE

HEALTH SCIENCES
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HEALTH SCIENCES
PLANNING OFFICE

Dr. Lyle French
Office of the Vice President
Health Sciences
432 Morrill Hall

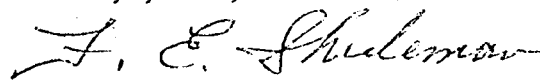
Dear Dr. French:

The enclosed letters from members of the Council of Basic Health Sciences whose departments are housed in the JOML complex have been sent to me for forwarding to you. As you will note they deal with deficiencies and problems that have occurred in the remodeling of this complex and ask that an effort be made to remedy the situation. If satisfactory solutions cannot be found, undoubtedly they will be brought to the attention of the National Institutes of Health when the project is inspected.

Also, the Council has asked that I express to you its concern about the University's policy of paying a contractor the bulk of the funds available for remodeling or construction well in advance of completion of the work that is to be done. If this policy could be changed, perhaps in the future the situation encountered in the remodeling of the JOML complex might not occur.

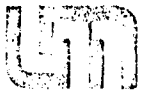
Your attention to these concerns of the Council would be appreciated.

Sincerely yours,



F. E. Shideman, M.D., Ph.D.
Chairman, Council of Basic
Health Sciences

cc: Mr. David Preston
Dr. E. Wayne Drehmel
Mr. Paul Maupin
Mr. Thomas Kyle



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Laboratory Medicine and Pathology
Medical School
Box 198 Mayo Memorial Building
420 Delaware Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8623

February 21, 1980

Vice President Lyle French
Box 501 Mayo
University of Minnesota

Dear Vice President French,

On the request of Dr. Fred Shideman I am writing you about deficiencies in the remodelling program for the Jackson-Owre-Millard-Lyon complex.

In general we were not too dissatisfied with the work done. We were able to keep good track of the project as it went along and attempted to correct deficiencies as they occurred. We believed that Mr. Tom Kyle, the Health Sciences Planning Coordinator, did an excellent job of surveillance on the project.

There were a number of small design problems. These included the following:

1. The dishwashing facilities are too small so they cannot accommodate the units they were supposedly designed for. It was a serious deficiency.
2. Ventillation of hoods was inadequate in general, a mechanical design deficiency that we, of course, cannot detect until the laboratories are occupied.
3. The temperature control in rooms with large windows is quite unsatisfactory.
4. The one dark room in the facility leaked light due to the use of glass pipes. This was an example of poor design.
5. Some of the items on the plans were changed after the plans has been approved.

The additional comments that the occupants have made were as follows:

1. The rooms were not adequately cleaned before the move into them took place.

2. Some parts of the furnishings were missing when the occupants moved in.

3. Replacement of broken items took a long time. Some of the doors of cabinets, for example, are still missing.

Generally, we felt that the response of the project contractors to wishes was slow, cumbersome and sometimes didn't take place at all.

We believe that the architectural work was weak. The architects did not do a very good job. They seemed inexperienced. Better and more experienced architects could have done a better job within the same cost frame.

The most important defects were the poor design of the dishwashing facilities and of the hoods.

It is our suggestion that in another project the architecture be in different hands and that better University of Minnesota architecture and surveillance take place. Again, we want to commend Tom Kyle for an excellent job as planning coordinator.

I hope these comments are helpful to you. With all best regards.

Yours sincerely,

Ellis S. Benson, M.D. / jf

Ellis S. Benson, M.D.
Professor and Head

ESB/jjf

c.c.: Dr. Fred Shideman



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

October 31, 1980

TO: Paul Maupin
FROM: Tom Kyle *Tom*
SUBJECT: JOML - Environmental Rooms
Group II Equipment

We do not have much of a record for the program for the environmental rooms as the requests were essentially for 4°C rooms with $\pm 2^\circ$ tolerance. Also two deep cold rooms at -20°C and two warm rooms, one with humidity control were to be provided. Due to budget constraints all rooms were essentially bare - no casework! The tolerances were lax enough to cause no problems supposedly in engineering.

The problems associated with these boxes have nothing to do with program as all the users want is the boxes to operate as installed. The fact that the boxes were spec'd and installed is prima facia evidence that the designers intended them to be operational.

Mr. Severs, the designer, never cautioned us about performance and we met with him very few times. In a nut-shell he told us what he could do, and we accepted it. Next Engineering and Construction came back to us with the construction documents for approval. Performance never was an issue.

I would be eager to discuss the project with Engineering and Construction Representatives if you like.

TK:mka



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
Physical Planning Office
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

JUL 30 1980

July 25, 1980

TO: Paul Maupin
FROM: Eyan B. Merz/Bob Hudalla
RE: Installation of Cold Rooms JOML Complex
Project No. 032-78-0106

We are having operating problems on Rooms 4-178A & (old 267.1 & .2), Rooms 6-218A & B (old 420.1 & .2) and Room 6-212 (old 429) on the above referenced project.

Rooms 4-178A & B and 6-218A & B are combination 4°C Laboratories and -20°C Freezer Laboratories. Entrance to the -20°C Freezer Lab is thru the 4°C Lab. This arrangement causes special problems when ventilation is required to both the 4°C room and the -20°C room. The 4°C room becomes saturated with moisture at 4°C. Condensate forms on the door and panels of the common wall with the -20°C room and ice and frost form at the door jambs. The -20°C Freezer room becomes frosted similar to a home freezer except more rapidly because of the introduction of ventilation air, a situation not previously encountered at the University. John Sever attempted to handle this problem by introducing the ventilation air into the 4°C room and relieving the air thru the -20°C freezer. He hoped to reduce the moisture content of the air with the 4°C room refrigerant coil enough to prevent frosting in the -20°C room. This has proven inadequate. I'm sure John Sever was influenced greatly by a directive to save money, in arriving at his design. As you recall there was a concerted effort to reduce costs from the initial estimates in order to stay within budget.

Jerry Pittman of this office has been investigating this problem for me. See his attached memo dated 18 July, 1980. We have included sketches of the proposed work and a cost estimate.

Room 4-178A & B is in Dr. Goldberg's Pharmacology Dept. Laboratory and he is unable to use the -20°C Freezer Lab at this writing. Doors freeze-up so badly he is unable to open the door even with the door jamb heaters on.

The estimated cost to resolve humidity problem in Room 4-178A & B is \$7900 per estimate dated July 23, 1980.

Rooms 6-218A & B are Physiology Dept. Rooms and have problems similar to Dr. Golberg's Rooms. The problem is not as severe because less ventilation air is required in the Physiology Dept. cold rooms. However, the -20°C freezer lab has to be shut down frequently in the summer and therefore is too unreliable for use.

The estimated cost to resolve humidity problems in Room 6-218A & B is \$4600 per estimate dated 7/23/80.

Room 6-212 - Problems in room 6-212 are more complex. Room 6-212 is Dr. Grim's, Head of the Physiology Department's, personal laboratory. It has temperature and humidity control requirements that would require one of the more sophisticated manufactured Environmental Rooms. Mr. Sever attempted to design this room in-house using an economical approach. Unfortunately, it does not meet Dr. Grim's requirements.

I discussed Dr. Grim's requirements with him and Muriel Lubansky on April 30, 1980. He indicated a need to control temperature within $\pm 1^\circ\text{F}$ in a temperature range from 68°F to 78°F . He also indicated a need to control humidity within $\pm 5\%$ R.H. in a humidity range from 25% R.H. to 75% R.H.

With the system installed we are able to control temperature as required. However, we are unable to control humidity in the winter months above 45% R.H. at 78°F Room temperature. In fact, we are unable to use the steam humidifier without saturating the supply air which condenses in the supply ducts above adjacent laboratories and drips thru the ceilings. We are able to dehumidify both summer and winter down to 40% R.H. only, because of the control configuration.

Essentially, we do not have humidification control and we only have dehumidification down to 40% to R.H. which does not meet Dr. Grim's needs.

Dr. Grim has indicated this constant temperature and humidity room is to be used to produce artificial membranes for a transplant study. Manufacturing of these membranes must be done under controlled conditions. Certain materials have to dry at 68°F and 25% R.H., others form and dry at 78°F and 75% R.H. to get needed results.

The estimated cost to revise the present system for Room 429 in accordance with the attached proposal and estimate dated 25 July 1980 is \$7100.

As you know, every effort was made to economize in order to bring the project within budget. Apparently in these instances we economized too much. In order to make the above referenced rooms operational we will need funding. The present budget for project #032-78-0106 is depleted. We recommend this work be funded as a separate project thru our office. We would make the necessary revisions with the University Shops. Material would be specified or purchased directly by this office. This will eliminate excessive change order costs and General Contractor profit.

Added funds need as explained above as follows:

Revisions Room 4-178A & B	\$7900.00
Revisions Room 6-218A & B	4600.00
Revisions Room 6-212	7100.00
Total amount required	\$19,600.00

Please let us know what can be done to secure these funds in as much as the Planning Office and ourselves have a responsibility to provide these users

Paul Maupin
July 25, 1980
Page 3

with an operational facility. We've done the preliminary engineering and estimates but we have no access to funds.

cc: Dave Kerkow

A. Walter Johnson

Vic Scott
Tom Kyle

BH/jp

attachments

- sympathetic fact,

suggest use conditional air

we receive - by copy of this

we are asking Hewitt to solicit
funds from interested Admin.

C. C. Hewitt
Sanderberg



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
Box 75 Powell Hall
4103 Powell Hall
Minneapolis, Minnesota 55455
(612) 373-8981

February 8, 1977

TO: Pete Merz
John Sever

FROM: Tom Kyle *Thomas Kyle*

SUBJECT: Jackson/ Owre/ Millard/ Lyon Complex
Cold Rooms

Enclosed is a set of drawings showing each cold room in the current Jackson/ Owre/ Millard/ Lyon remodeling project. There are ten proposed new cold rooms and four existing cold rooms that require renovation. We request that you provide us with your estimated schedule and a preliminary cost estimate for this work. I have walked the space with John Sever, and I believe he has a pretty good understanding of the requirements. Upon receipt of your schedule, we will schedule meetings with you, the users, and our office to finalize the planning efforts.

Please note that we have also enclosed our time schedule on this work indicating progress up through contract award.

TK:mkw

Attachment

JACKSON/ OWRE/ MILLARD/ LYON COMPLEX
 COLD ROOMS

(1)	Basement East	22.1 Millard	New	Biochemistry
(2)	First Floor East	132.1 Millard	Exist	Pharmacology
(3)	First Floor East	125.2 Owre	New	Pharmacology
(4)	Second Floor West	270.1 Lyons	Exist	Pharmacology
(5)	Second Floor West	220.2 Owre	New	Clin. Pharmacology
(6)	Second Floor East	221.4 Millard	New	Biochemistry
(7)	Third Floor East	349.0 Owre	New	Biochemistry
(8)	Third Floor West	314.0 Owre	New	Biochemistry
(9)	Third Floor East	336.2 Millard	Exist	Physiology
(10)	Fourth Floor West	496.2 Jackson	New	Pathology
* (11) *	Fourth Floor West	496.A Jackson	New	Pathology
(12)	Fourth Floor West	466 Owre	New	Pathology
(13)	Fourth Floor West	429 Owre	New	Physiology
(14)	Fourth Floor East	401 Millard	Exist	Physiology

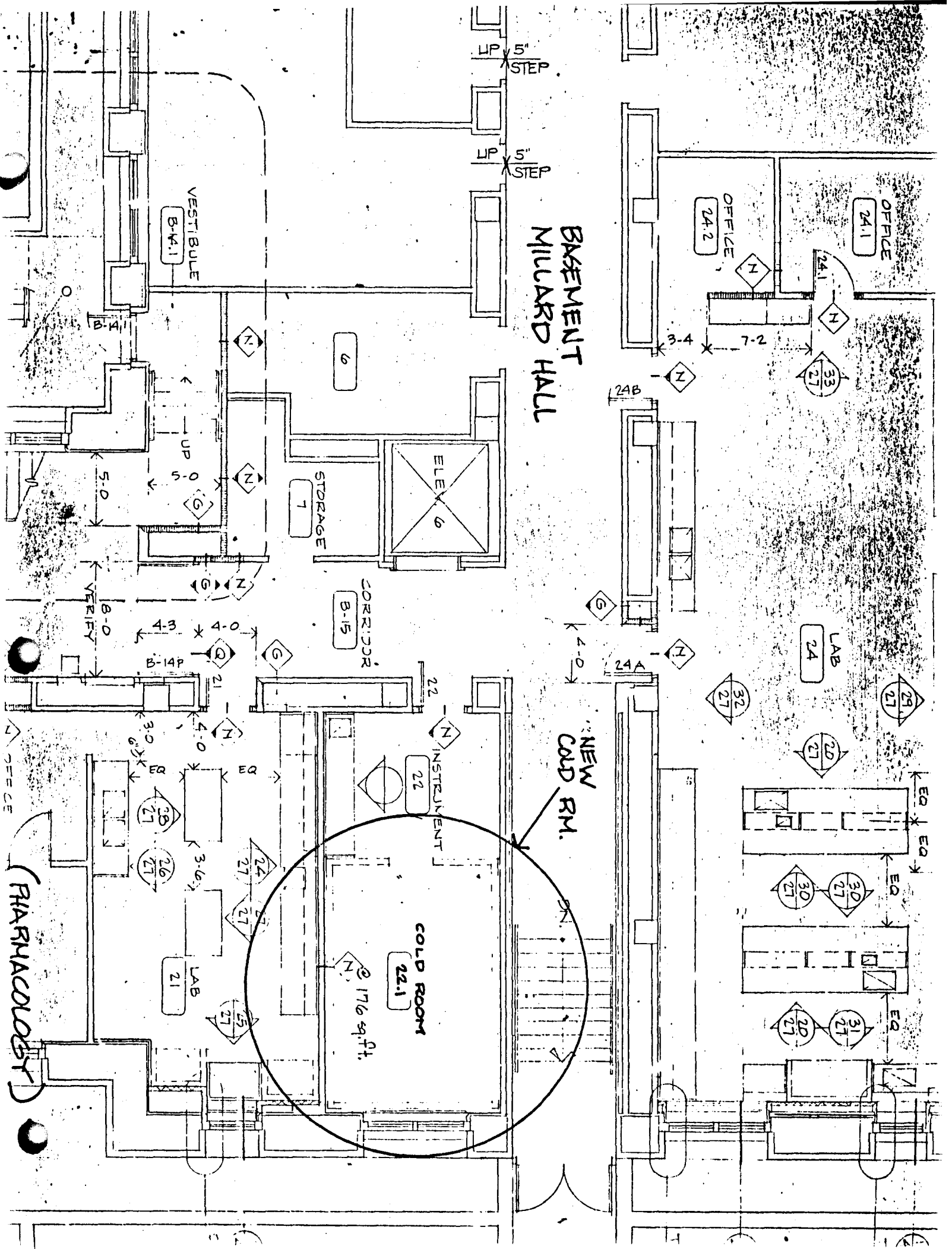
4-Existing

10-New

14-Total cold room number in project

* (11) * = 496 Jackson is hot room- w/const. temp.

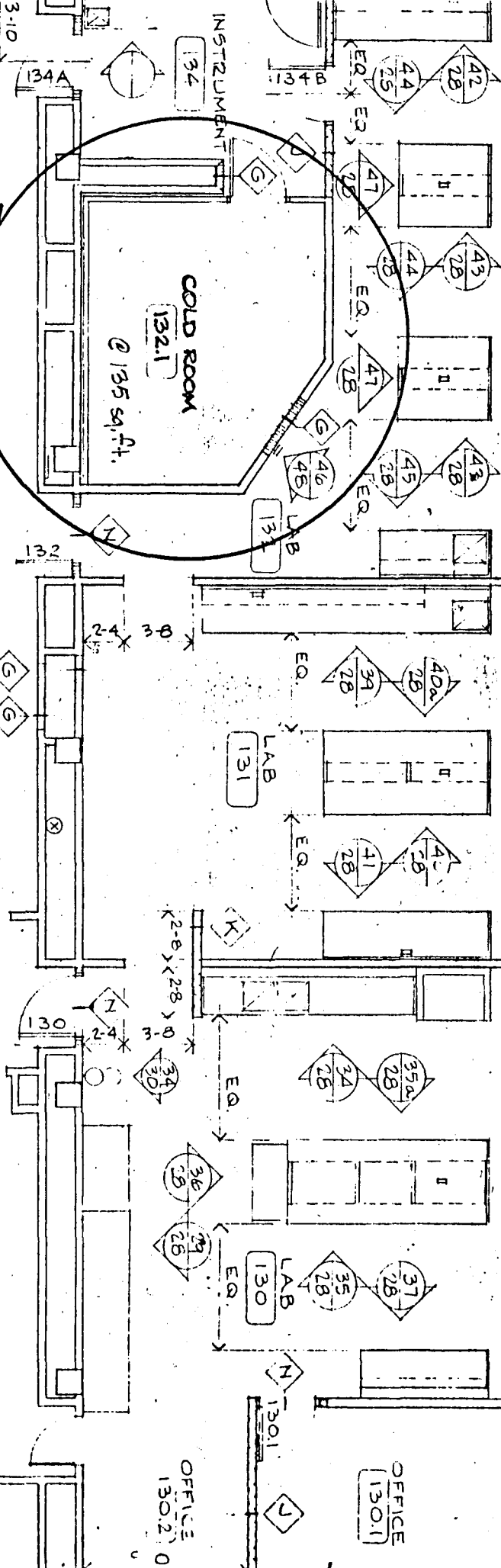
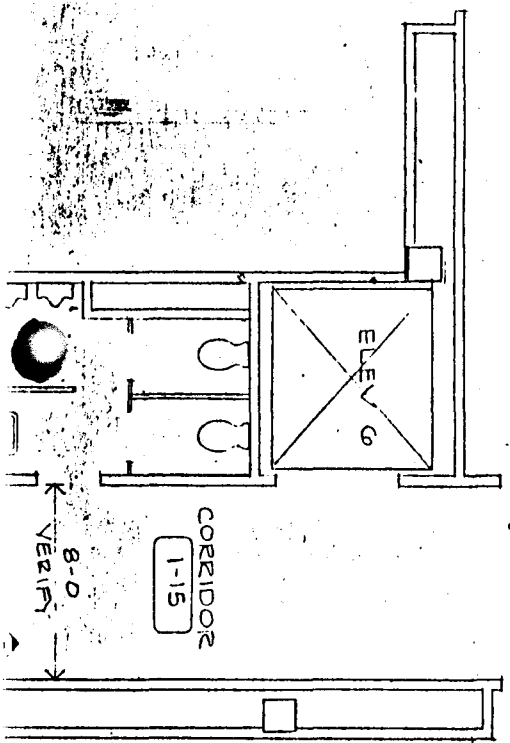
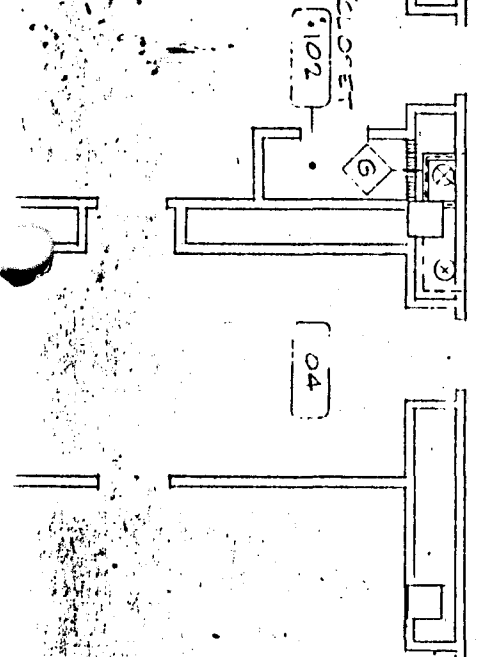
BASEMENT MILLARD HALL



EXISTING
COLD RM.

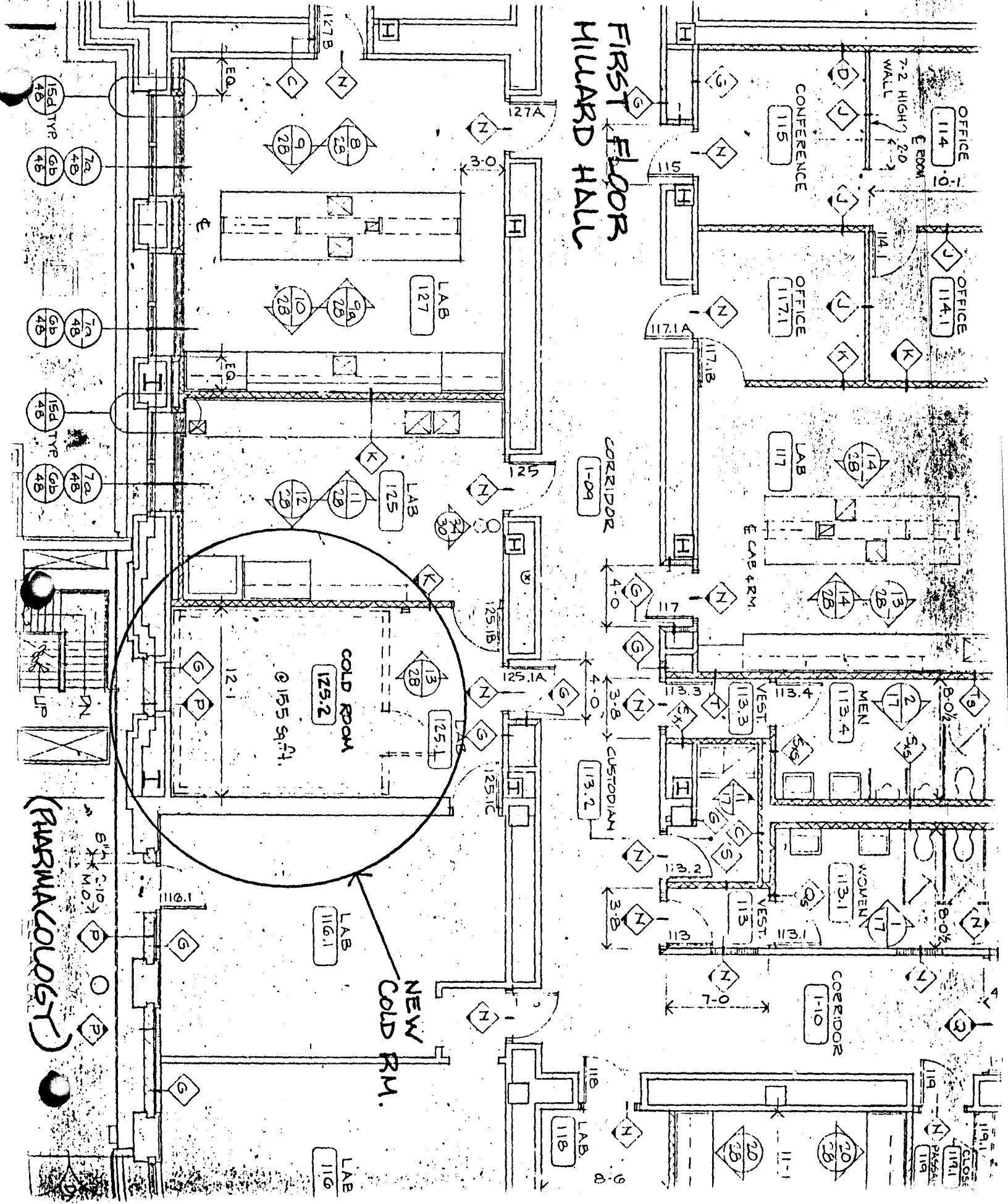
CORRIDOR
1-16

FIRST FLOOR
MILLARD HALL



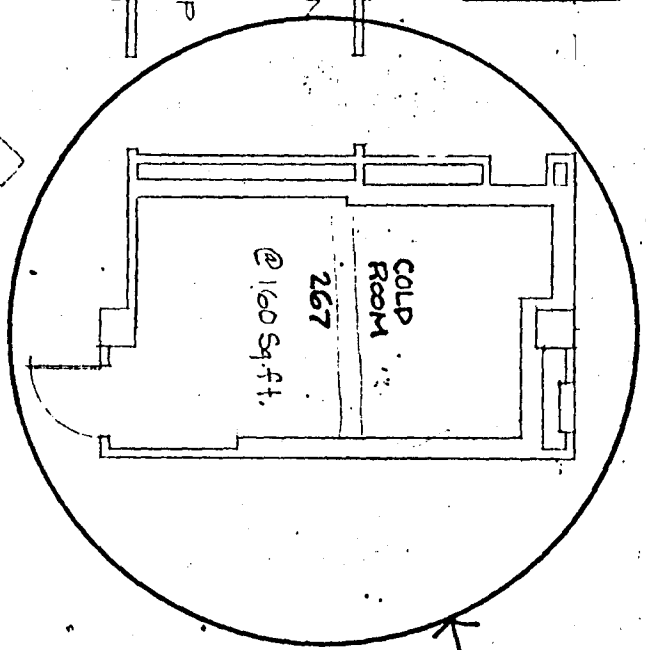
PHARMACOLOGY

FIRST FLOOR HILLARD HALL



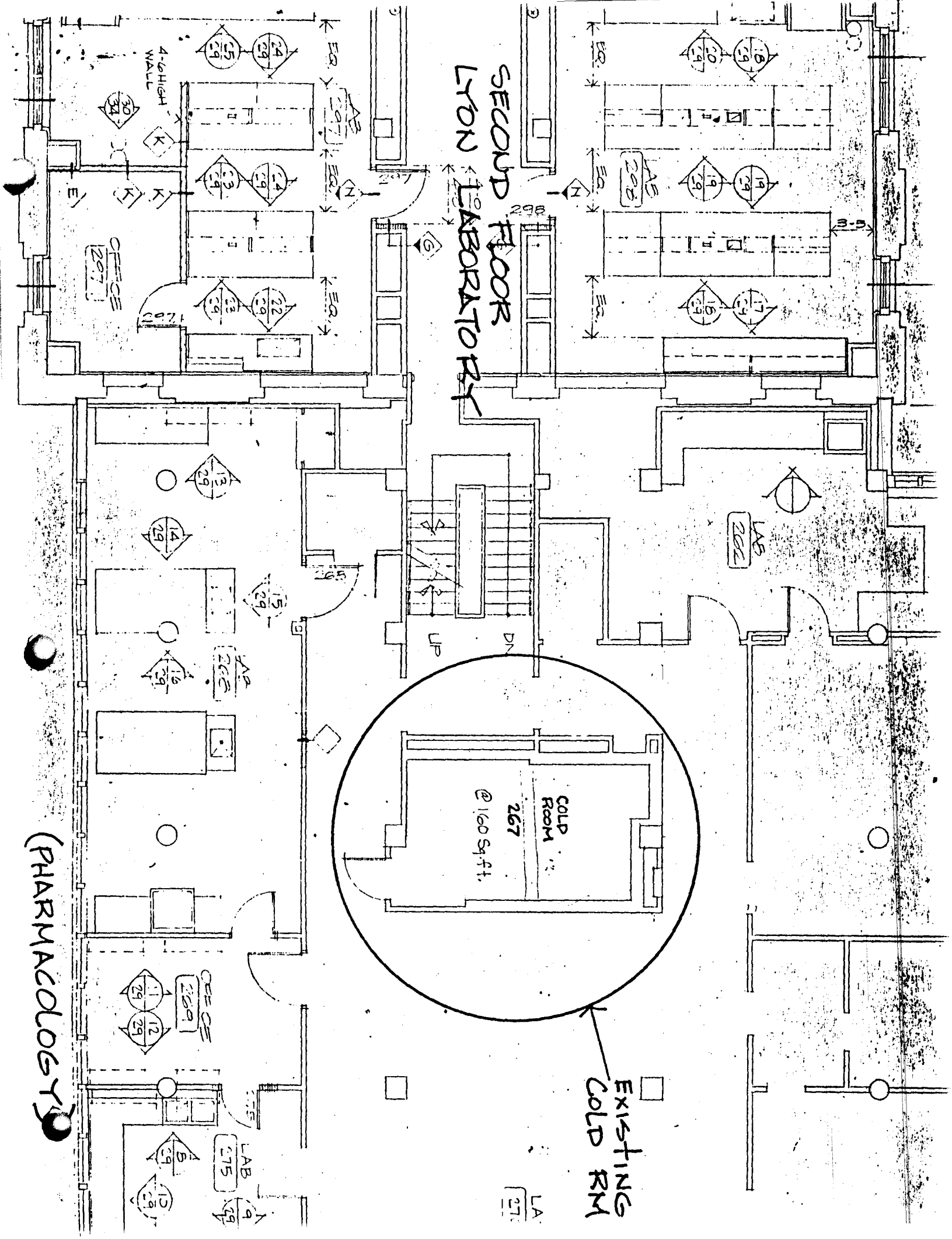
(PHARMACOLOGY)

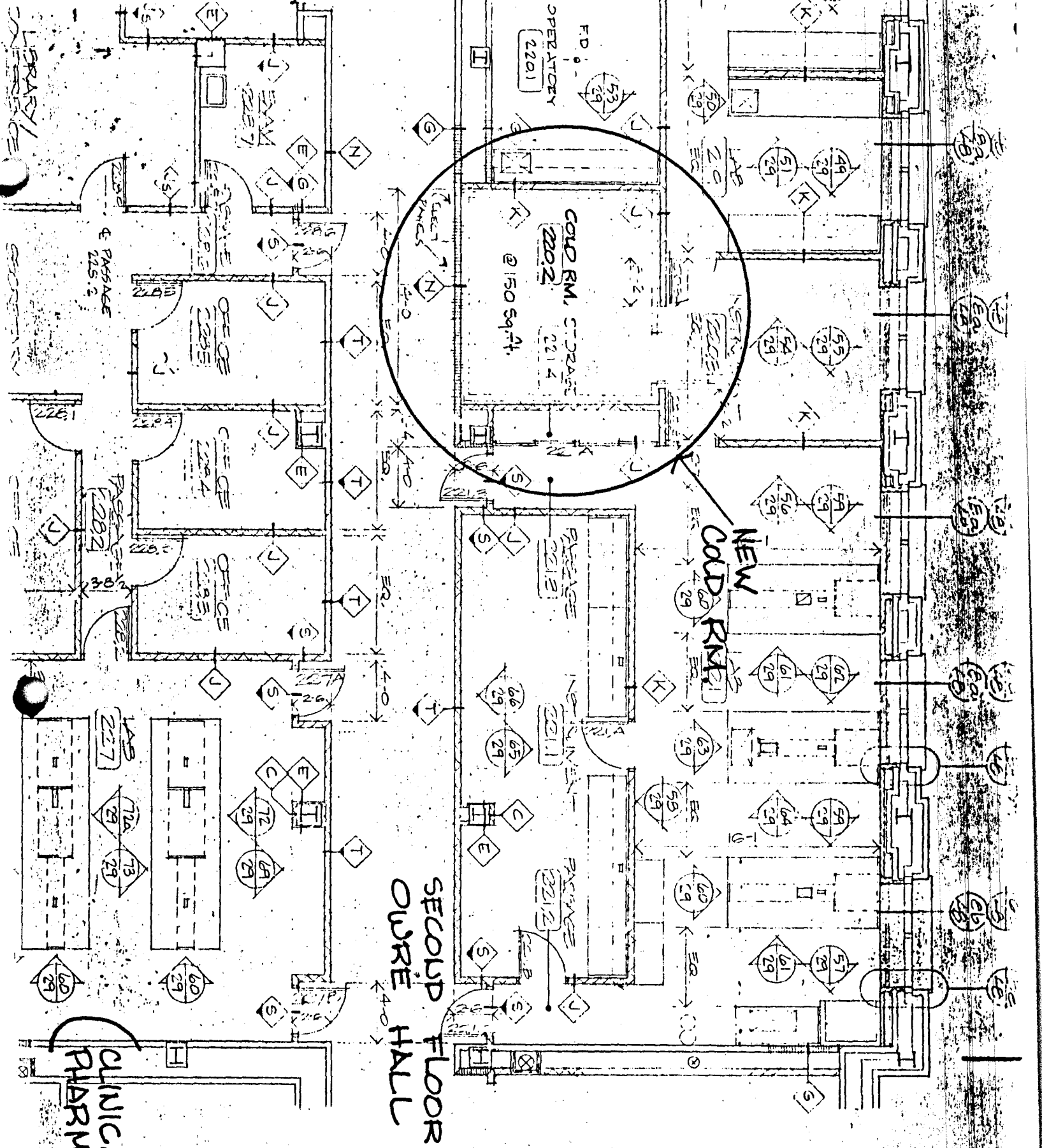
SECOND FLOOR LYON LABORATORY



EXISTING
COLD RM

(PHARMACOLOGY)





SECOND FLOOR
 CURVE HALL

(CLINICAL
 PHARMACOLOGY)

LIBRARY/
 CONFERENCE

LABORATORY

LABORATORY

LABORATORY

LABORATORY

LABORATORY

LABORATORY

LABORATORY

LABORATORY

LABORATORY

LABORATORY

LABORATORY

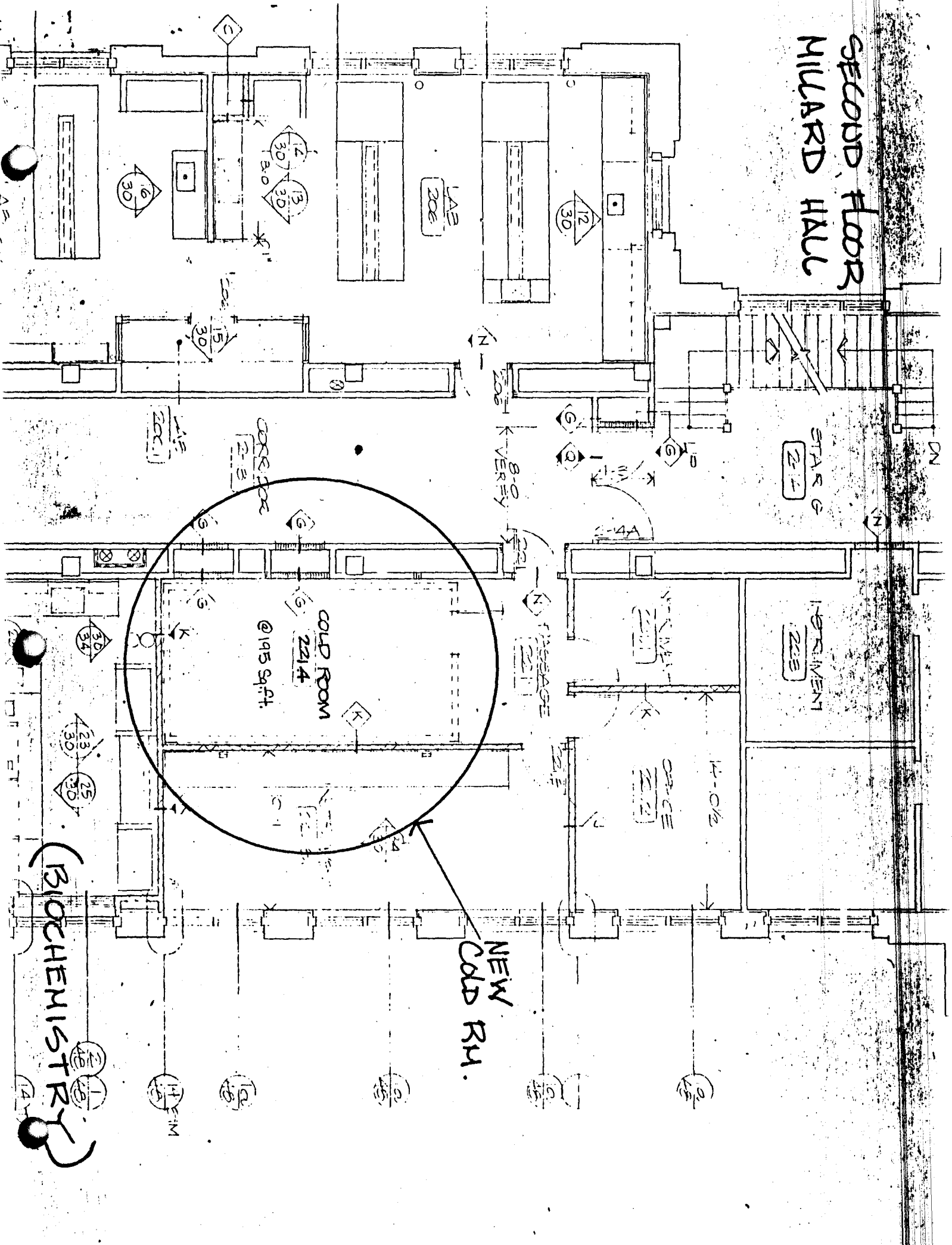
LABORATORY

LABORATORY

LABORATORY

LABORATORY

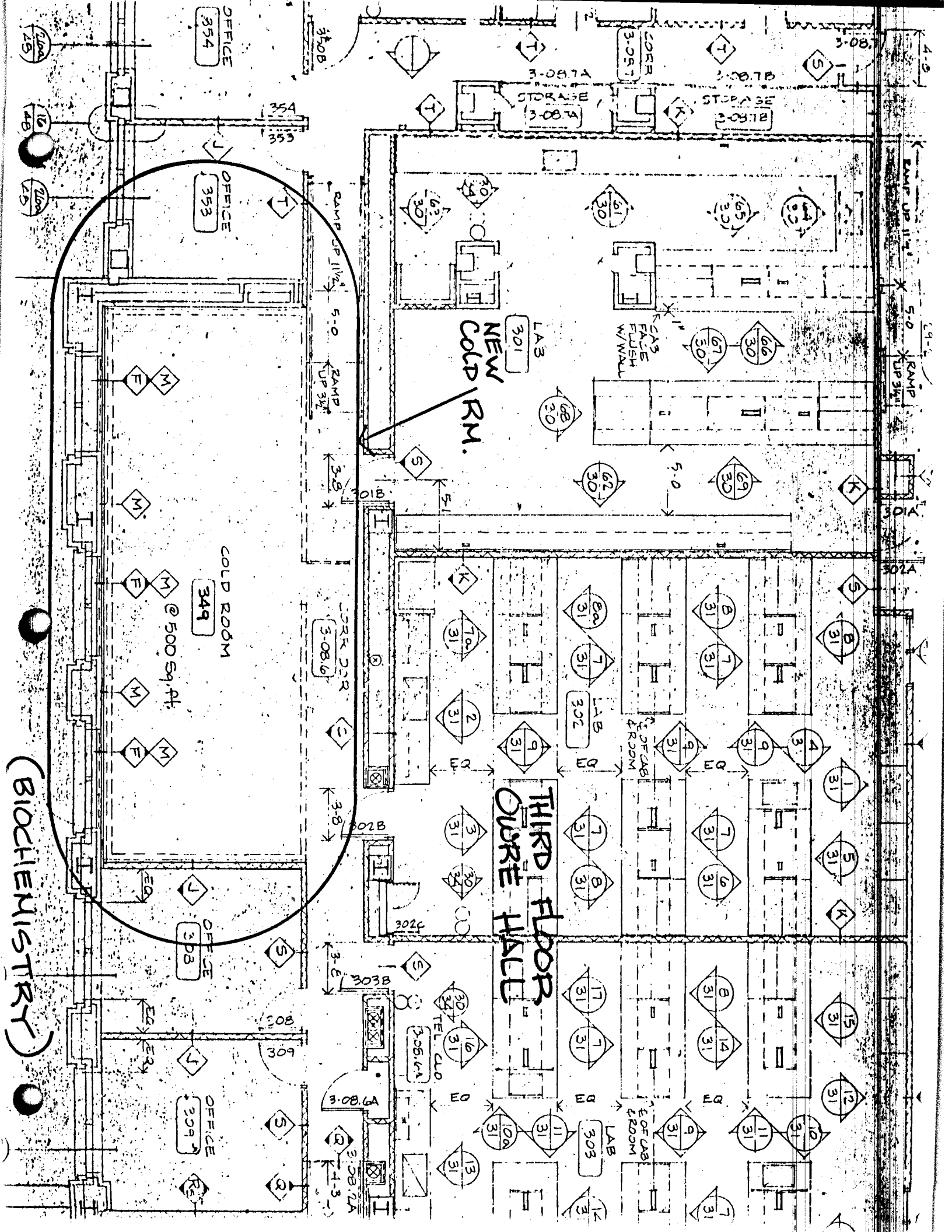
SECOND FLOOR MILLARD HALL



NEW
COLD RM.

COLD ROOM
@ 195 Sq. Ft.
2214

BIOCHEMISTRY

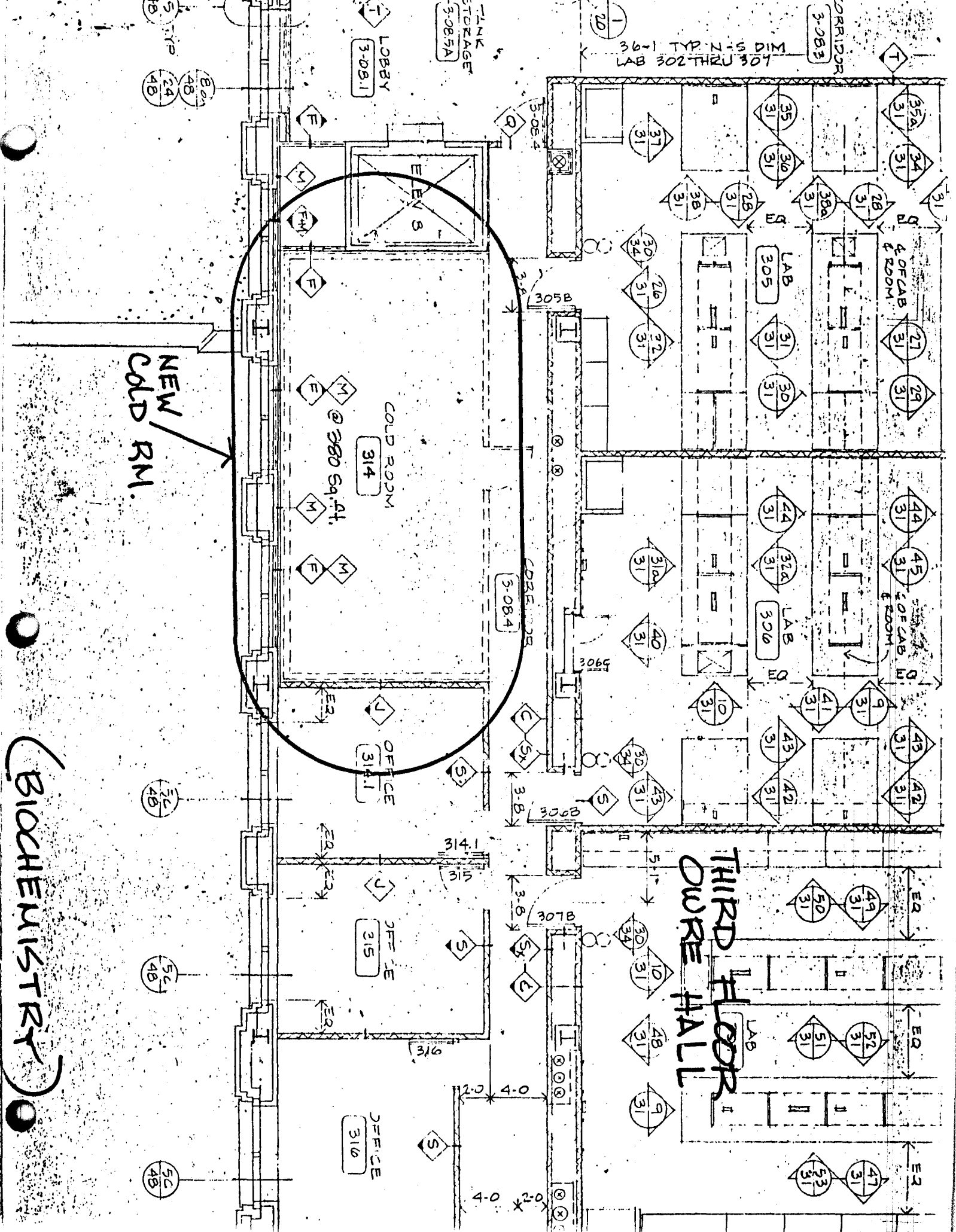


NEW COLD RM.

THIRD FLOOR CORE

COLD ROOM 349 @ 500 Sq. Ft.

(BIOCHEMISTRY)

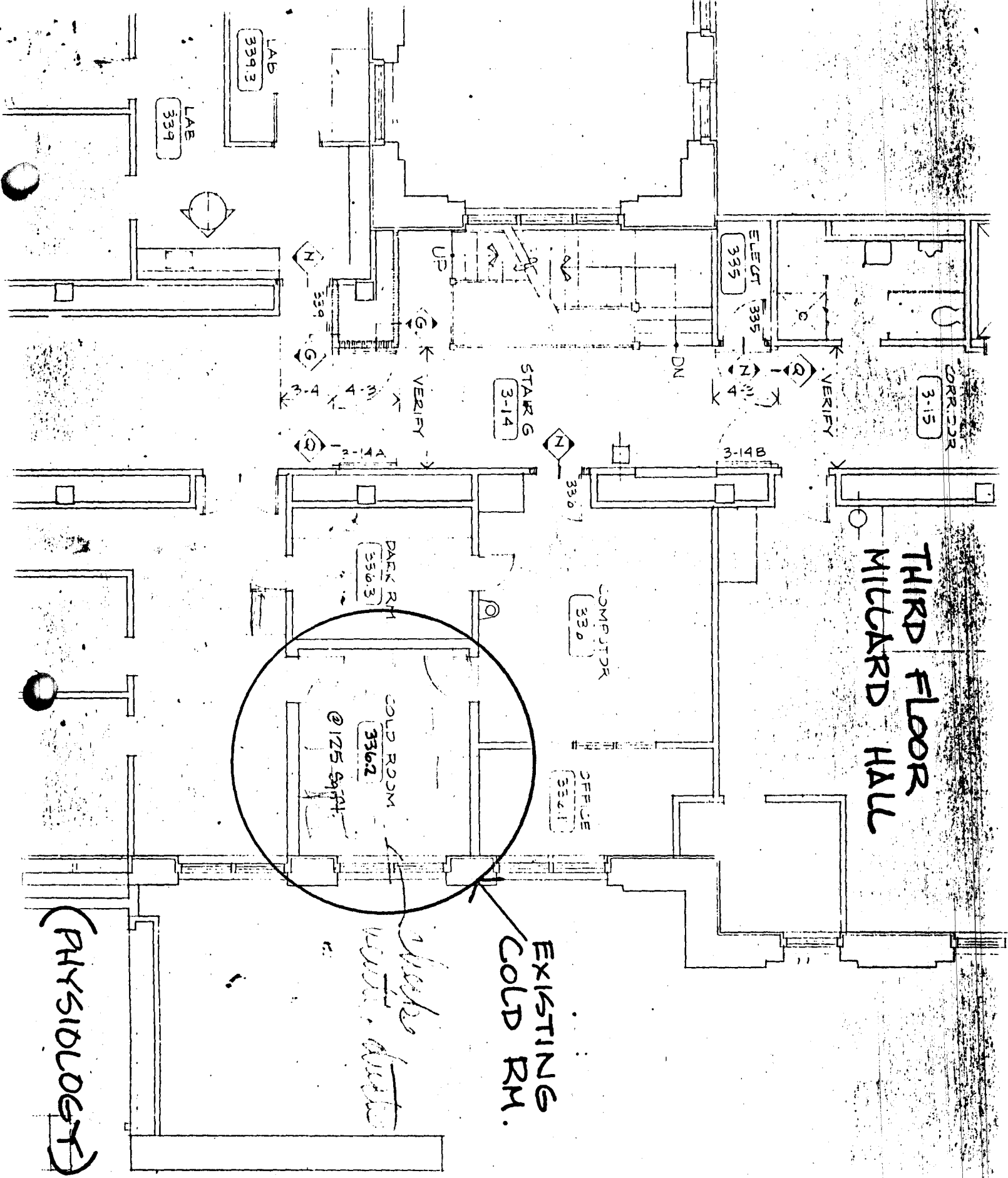


NEW COLD RM.

THIRD FLOOR
CORE HALL

BIOCHEMISTRY

THIRD FLOOR MILCARD HALL

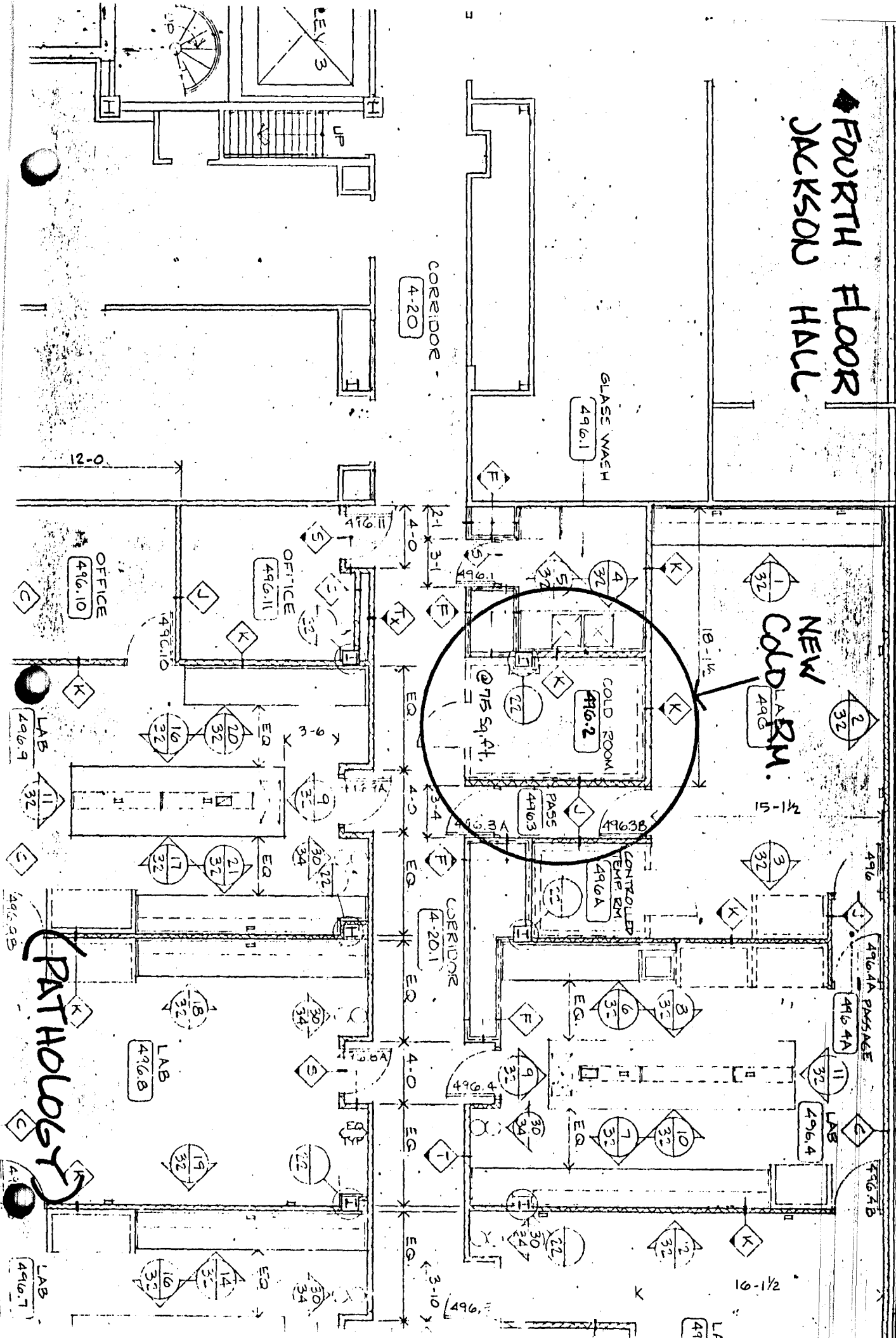


EXISTING
COLD RM.

*shape ducts
with ducts*

(PHYSIOLOGIST)

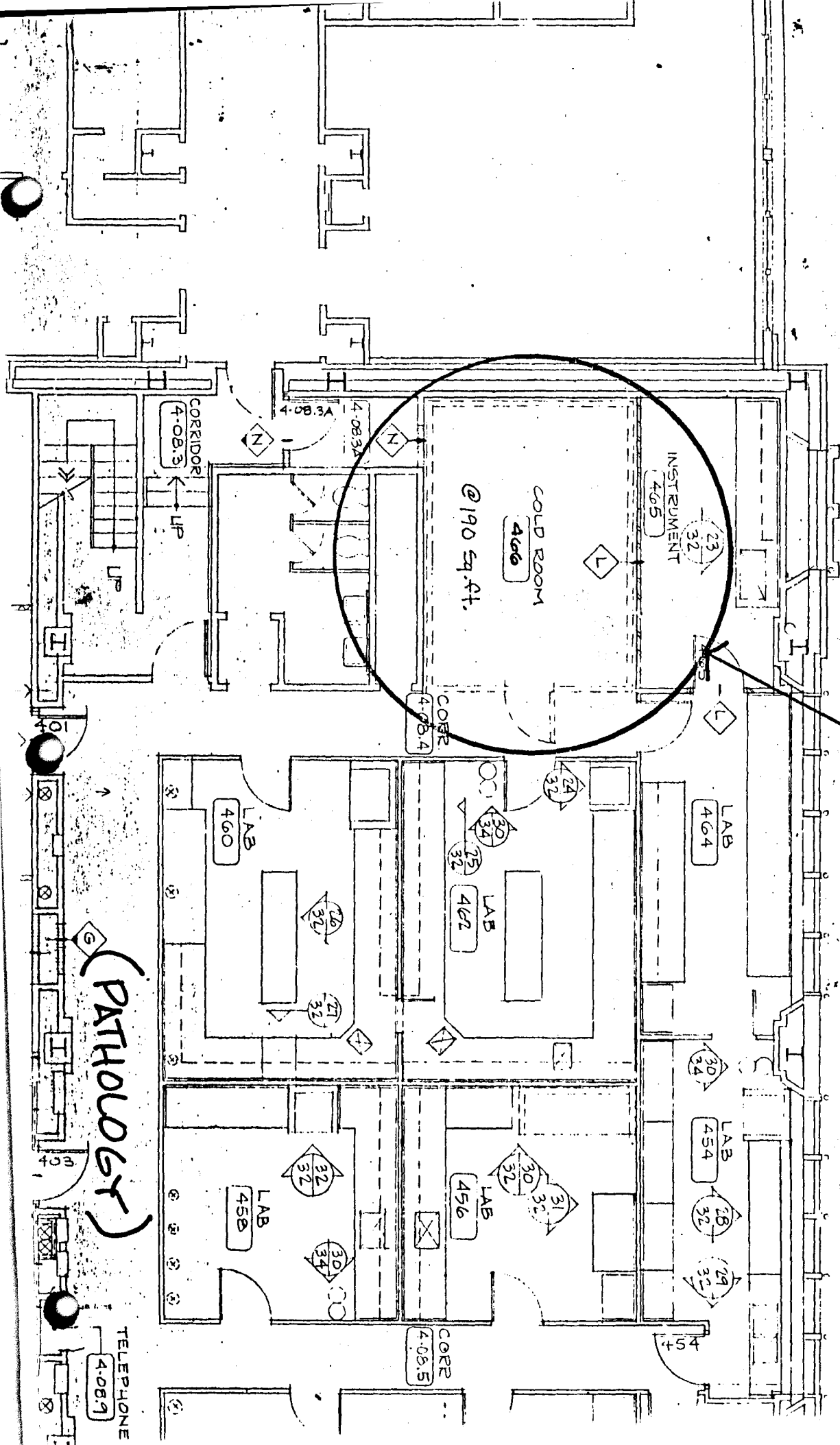
FOURTH FLOOR JACKSON HALL



(PATHOLOGIST)

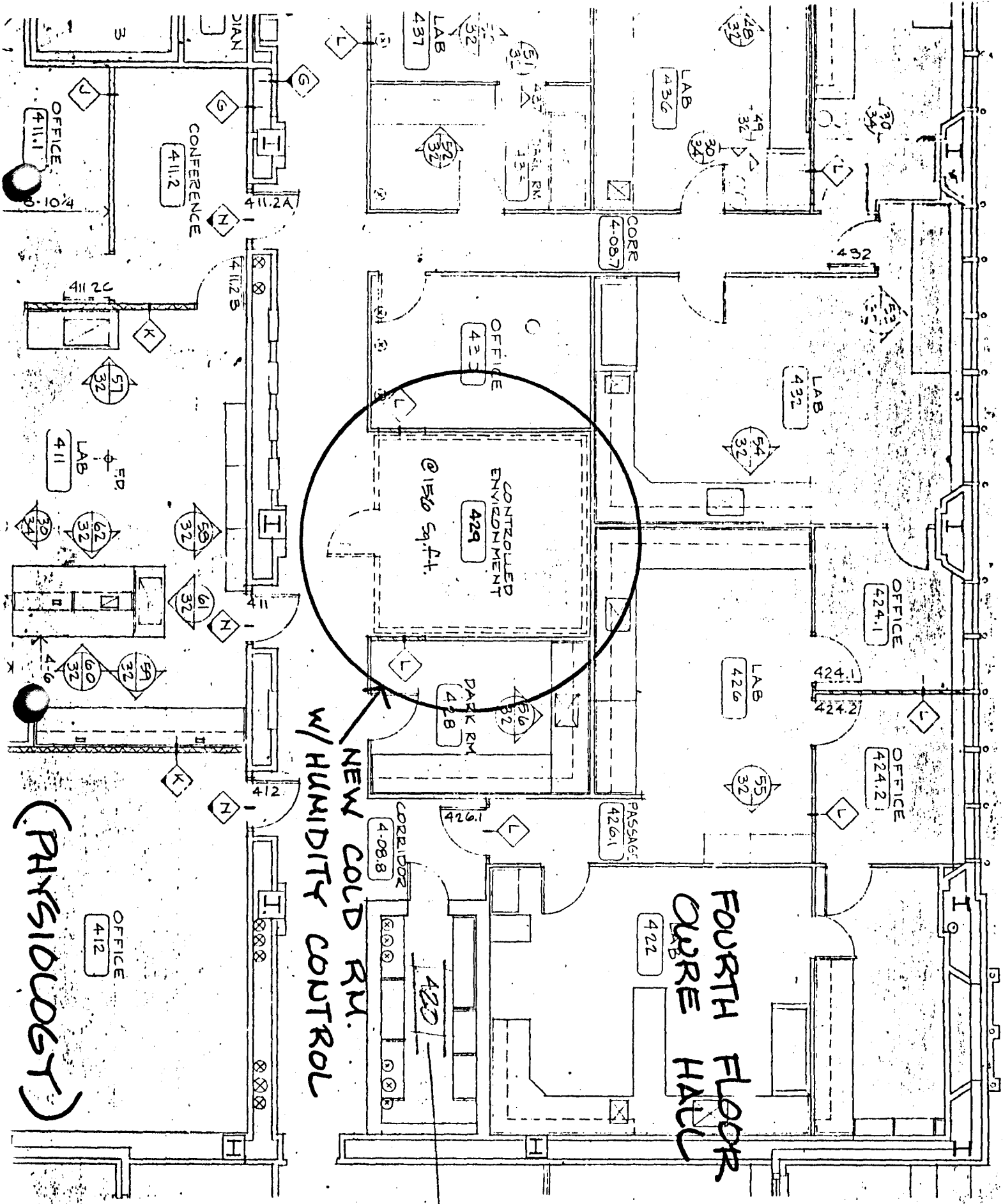
FOURTH FLOOR
CURE HALL

NEW
COLD RM.



(PATHOLOGIST)

TELEPHONE
4-08.9



NEW COLD RM.
w/ HUMIDITY CONTROL

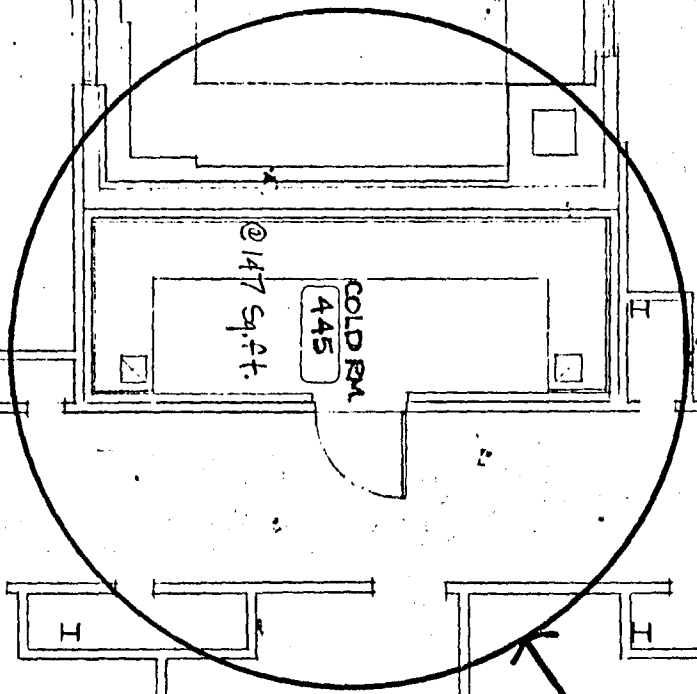
FOURTH FLOOR
CURVE HALL

(PHYSIOLOGIST)

-15°
to -20°

FOURTH FLOOR
MILLARD HALL

STOCK
441

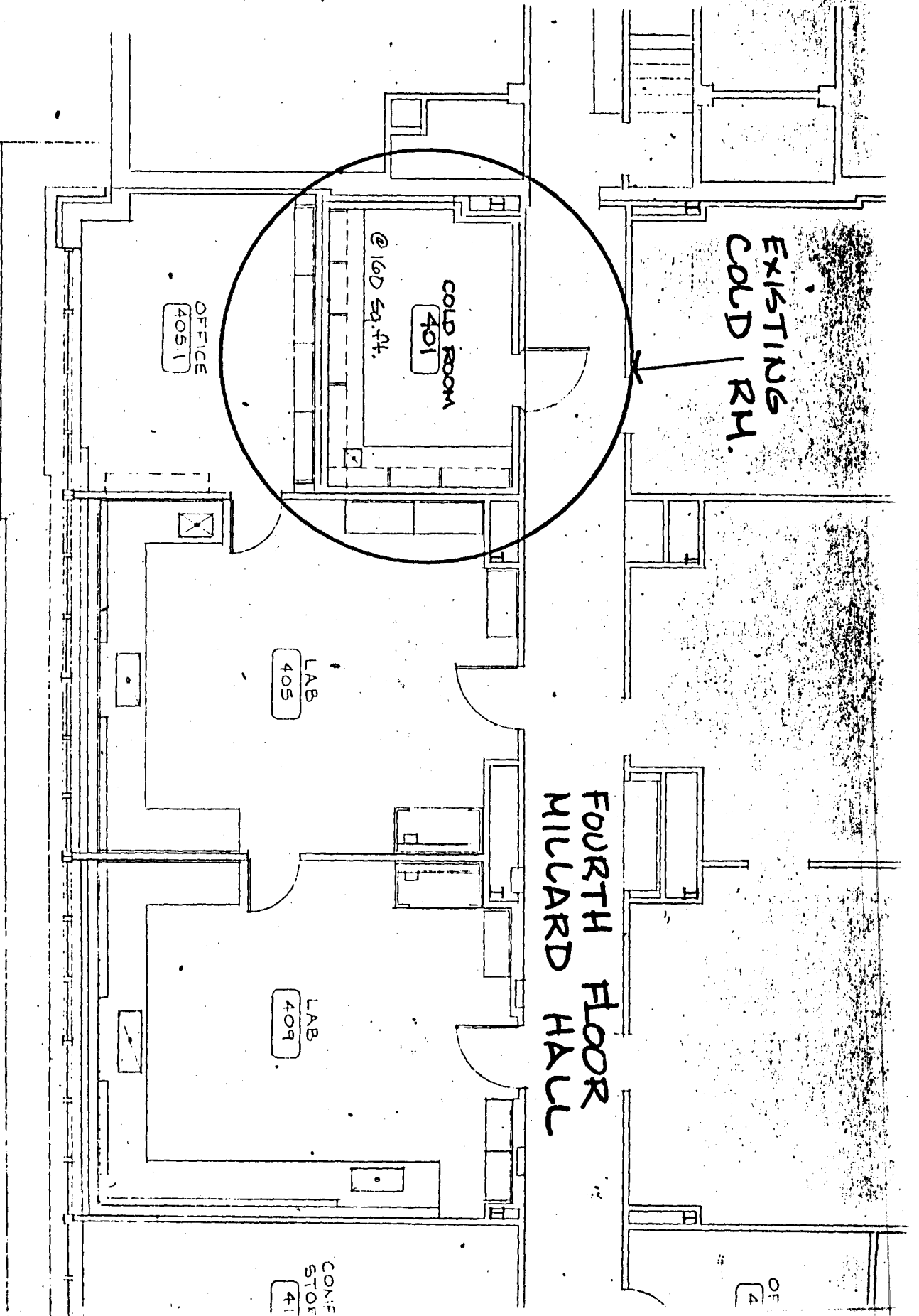


EXISTING
COLD RM.

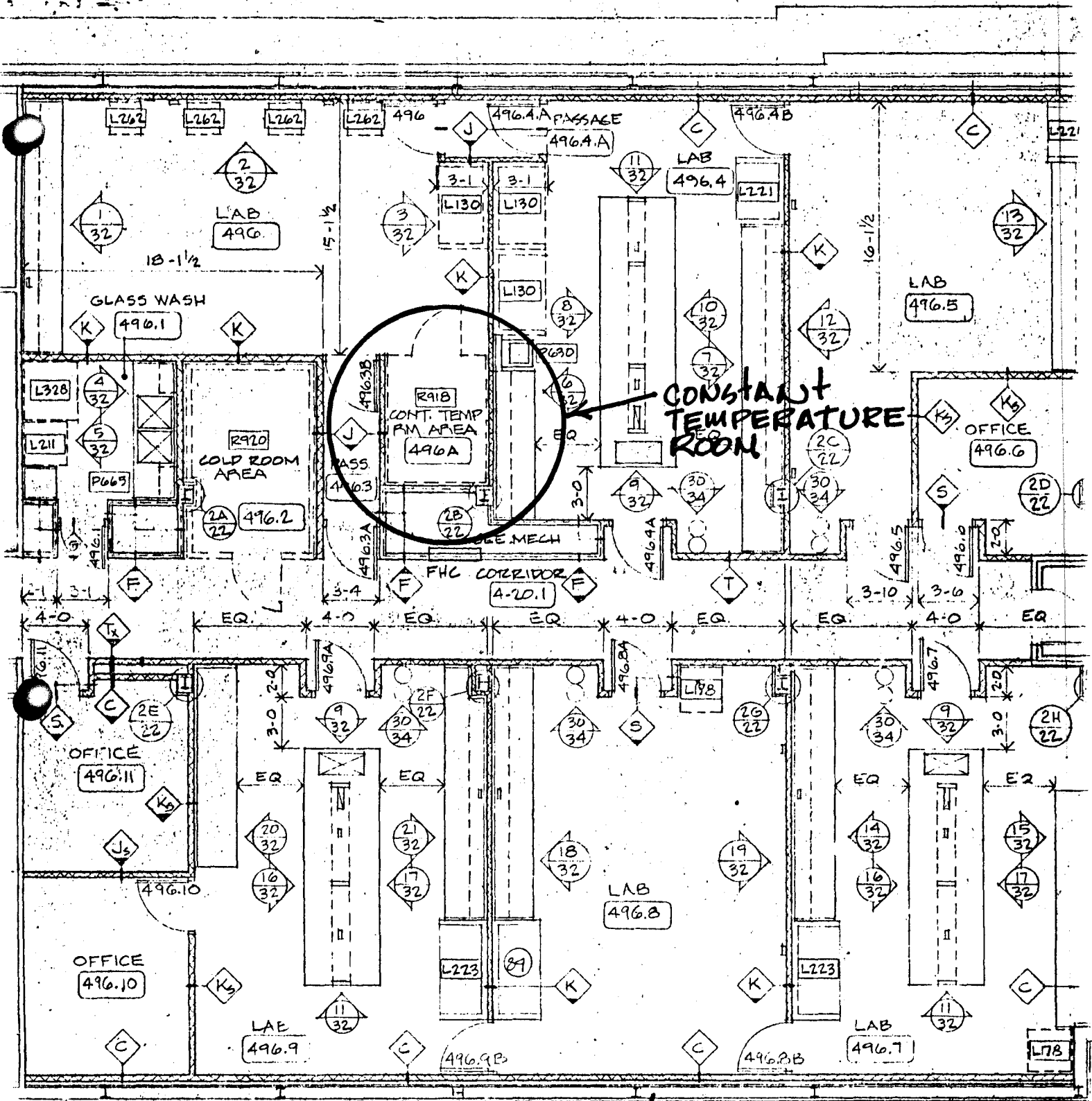
LAB
(PHYSIOLOGY)

EXISTING
COLD RH.

FOURTH FLOOR
MILCARD HALL

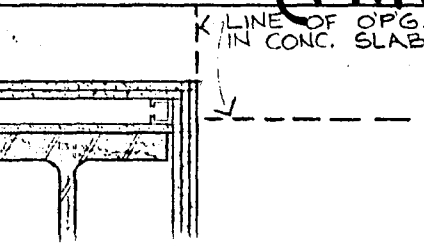
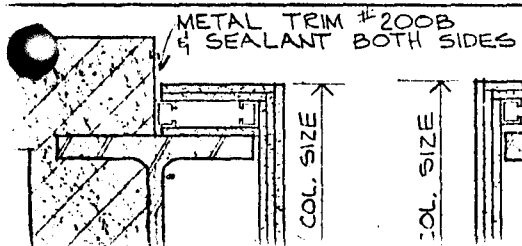


(PHYSIOLOGY)



FOURTH FLOOR JACKSON HALL

(PATHOLOGY)



MECHANICAL TOWERS GYP. BD COL. FIREPROOFING SCHEDULE

RM. NO.	DETAIL NO.	HT. OF GYP. BD.	RM. NO.	DETAIL NO.	HT. OF GYP. BD.
	4A/22	10-11 ³ / ₄		4A/22	9-11 ³ / ₄
	4B/22	10-11 ³ / ₄		4B/22	9-11 ³ / ₄

Physiology

Rooms

5-2-77 - Muriel Lubanski -

1) 40D MILLARD - Refinish room
New Door. & Casework.

2) 445) Scrap Existing Casework -
Renovate interior

3) -15° to -20° C in 420 Oursl.
(16.7° F)

4) 429) $\rightarrow +20^{\circ}$ C - vary humidity
Controlled Humidity Room - from 25% + 75%

5) 336.2 - ? 4° C - talks to women

Talk to Paul about 342 A/C.

FOURTH FLOOR
CORE HALL

422

OFFICE
424.2

424.2

LAB
426

PASSAGE
4261

4261

CORRIDOR
4-08.8

NEW COLD RM.
W/ HUMIDITY CONTROL

CONTROLLED
ENVIRONMENT
429

@ 150 Sq. Ft.

PARK RM
428

OFFICE
424.1

424.1

LAB
422

54
32

CORR
4-08.7

OFFICE
423

432

LAB
435

49
32

30
34

LAB
37

45
32

OFFICE
412

(PHYSIOLOG)

59
32

60
32

62
32

63
32

LAB
411

57
32

412C

CONFERENCE
411.2

411.2

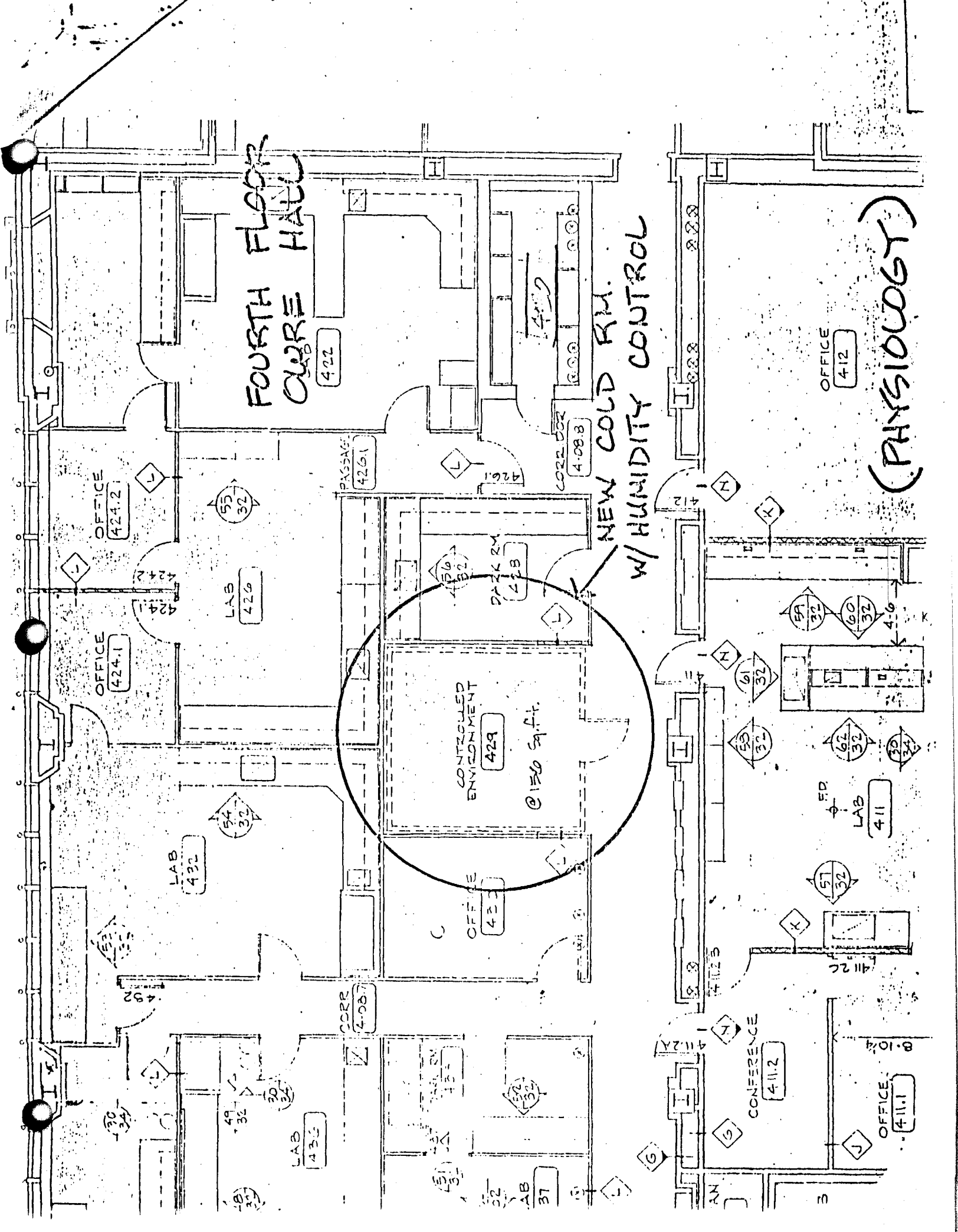
OFFICE
411.1

8-104

LAB
37

45
32

30
34



ENVIRONMENTAL ROOMS - JACKSON/OWRE
MILLARD/LYON COMPLEX

BASEMENT LEVEL

22 MILLARD HALL - 200 sq.ft.
(PHARMACOLOGY)

FIRST FLOOR

123 OWRE HALL - 300 sq.ft.
(PHARMACOLOGY)

SECOND FLOOR

267 LYON LABS - 179 sq.ft. EXISTING*
(PHARMACOLOGY)

223 MILLARD HALL - 200 sq.ft.
(BIOCHEMISTRY)

THIRD FLOOR

301 OWRE HALL - 2 BOXES: 550 sq.ft.
(BIOCHEMISTRY) 440 sq.ft.

FOURTH FLOOR

~~438~~ 438 OWRE HALL - 120 sq.ft.
(PATHOLOGY)

496 JACKSON HALL - SIZE NOT DETERMINED
(PATHOLOGY) INCUBATOR - 37°C.

401 MILLARD HALL - 190 sq.ft. EXISTING*
(PHYSIOLOGY)

445 MILLARD HALL - 165 sq.ft. EXISTING*
(PHYSIOLOGY)

420 OWRE HALL - 98 sq.ft. EXISTING*
(PHYSIOLOGY)

429 OWRE HALL - 193 sq. Ft.
(PHYSIOLOGY) CONSTANT HUMIDITY ROOM.

* denotes existing rooms that need upgrading
or modification

Summary

- 6 new boxes
- 1 new incubator
- 1 new humidity room
- 4 existing to modify

12 total units

+5°C ± 2° — (203 Millard is typical)
w/ high temp alarm.

resilient floor covering

gas, air, HW, CW, DW, at sinks.
↑ pressure waste line

→ Schedule meetings w/ Sever & Warren & Uses

(1)	BASEMENT EAST	- 22.1	MILLARD	- NEW	- BIOCHEM.
(2)	FIRST FL. EAST	- 132.1	MILLARD	- EXIST	- PHARMA.
(3)	FIRST FL. EAST	- 125.2	OWRE	- NEW	- PHARMAC.
(4)	SECOND FL. WEST	- 270.1	LYONS	- EXIST	- PHARMAC.
(5)	SECOND FL. WEST	- 220.2	OWRE	- NEW	- CLIN. PHARM.
(6)	SECOND FL. EAST	- 221.4	MILLARD	- NEW	- BIOCHEM.
(7)	THIRD FL. WEST	- 349.0	OWRE	- NEW	- BIOCHEM.
(8)	THIRD FL. WEST	- 314.0	OWRE	- NEW	- BIOCHEM.
(9)	THIRD FL. EAST	- 336.2	MILLARD	- EXIST	- PHYSIOL.
(10)	FOURTH FL. WEST	- 496.2	JACKSON	- NEW	- PATH
* (11)*	FOURTH FL. WEST	- 496. A	JACKSON	- NEW	- PATH
(12)	FOURTH FL. WEST	- 466	OWRE	- NEW	- PATH
(13)	FOURTH FL. WEST	- 429	OWRE	- NEW	- PHYSIOL.
(14)	FOURTH FL. EAST	- 401	MILLARD	- EXIST	- PHYSIOL.

4 - EXISTING
10 - NEW

14 - TOTAL COLD ROOM NUMBER IN PROJECT

* (11)* = 496 JACKSON is HOT ROOM - w/CONST. TEMP.



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
4103 Powell Hall, Box 75
500 Essex Street S.E.
Minneapolis, Minnesota 55455
(612) 373-8981

June 7, 1978

TO: Pete Merz
FROM: Paul Maupin *Paul Maupin*
SUBJECT: JOML Environmental Rooms

The Basic Sciences Council, consisting of the various Basic Sciences department chairmen, has reviewed the documents prepared by your office for the environmental rooms that are part of the current renovation of the Jackson-Owre-Millard-Lyon complex. The Council has approved and endorses the proposal, and this letter should therefore be considered official approval by this office to advertise for bids for the construction and renovation of fourteen (14) environmental rooms and one add-alternate room in the JOML complex.

We have reviewed the proposed budget, and it is within the available funds, including the 10% bidding contingency proposed by your office. It is our understanding that the bid period will be thirty days, and construction is to be phased to interface with the JOML-B construction schedule.

PJM:rt

cc: Tom Kyle
Bob Hudalla



UNIVERSITY OF MINNESOTA
TWIN CITIES

Engineering and Construction Division
Physical Planning Office
26 Folwell Hall
9 Pleasant Street S.E.
Minneapolis, Minnesota 55455

April 17, 1978

TO: Paul J. Naupin
FROM: E. B. Merz
RE: JOML Cold Rooms (032-78-0106)

Attached is a copy of our final pre-bid cost summary for the referenced project.

As I recall, the JOML budget (after receipt of construction bids) was set up dedicating a total of \$250,000 for these cold rooms.

Our earlier estimate, in the amount of approximately \$450,000, included all items required to satisfy complete programmatic needs of the user departments. Through the design phase, desired elements, where practicable, were omitted, standardization was employed and other efforts were made to at least provide all of the rooms requested.

These rooms are now essentially "bare bones" rooms - there are no "soft" areas that can be considered as alternates. Exception: the Unistruts specified for future shelving (\$22,000) could be omitted, but at the expense of future integrity of the insulated wall systems. We strongly recommend that this not be considered.

Based on our cost summary and funds available for the work (\$250,000 initial budget plus \$24,945 for an additional non-program cold room), we are short \$91,000.00 (\$57,750 plus 10% bidding cushion).

As indicated above, all rooms programmed are presently included, but with minimal add-on features. Therefore, it would appear that, if additional funding is not available, some rooms will have to be omitted.

Assuming that the decision is to proceed with a base bid to include all programmed rooms, omission of individual rooms on a "deduct" basis would require that the nonprogrammed room be included first as an "add" alternate (to establish its cost for budget purposes) and other rooms listed as deducts on a priority basis.

In order to facilitate your staff's discussion with user departments concerning priorities, the following is the construction cost breakdown for the various rooms:

Paul J. Maupin
April 17, 1978
Page Two

22.1	20,960
125.1	17,895
132.1	7,875
220.2	14,730
221.4	17,810
267.1, .2	21,020
314	24,970
336.2	9,915
349	25,340
420.1, .2	18,845
429	23,100
466	21,505
496A	6,215
496.2	<u>9,335</u>
	239,515

The balance of the construction cost estimate (\$49,975) includes tower ventilation, the additional cold room and the Unistrut wall channels.

Within a week or so, we will be ready to advertise for bids. It is assumed your staff will review funding, obtain concurrence from user departments if omissions are necessary, and establish the bidding only so that administrative approval may be obtained to take bids.

EBM:mn

Enclosure

cc: Paul E. Kopietz
John Sever

PROJECT COST BREAKDOWN

Project #032-78-0106

PROJECT TITLE JOML Cold Rooms

CAMPUS Mpls. 032 DATE 4/12/78

I. FUNDS AVAILABLE		
II. LAND ACQUISITION		
III. BUILDING COST		<u>\$289,490</u>
A. General	<u>\$ 54,710</u>	
B. Mechanical	<u>\$181,675</u>	
C. Electrical	<u>\$ 53,105</u>	
D. Elevator	<u> </u>	
E. Fixed Equipment	<u> </u>	
IV. NON-BUILDING COST		<u>\$ 43,205</u>
A. Sitework	<u> </u>	
1. Landscaping	<u> </u>	
2. Utilities	<u> </u>	
B. Furnishings and Equipment	<u> </u>	
C. Consultant's Fees	<u>\$ 20,650</u>	
D. Miscellaneous	<u>\$ 22,555</u> <i>unit</i>	
1. Contingencies	<u>\$8,680</u>	
2. Construction Supervision	<u>\$4,295</u>	
3. Soil Borings	<u> </u>	
4. Material and Performance Testing	<u> </u>	
5. University Engineering Services	<u>\$2,500</u>	
6. Building Activation Fire Alarm System	<u>\$6,000</u>	
7. SAC Charge	<u>- -</u>	
8. Building Permit	<u>\$580</u>	
9. Incidental Printing	<u>\$500</u>	
V. TOTAL PROJECT COST		<u>\$332,695</u>

ITEM	DEPARTMENT & LOCATION		TYPE *
	Arch Room No.	New Room No.	
1) Aquarium 'Instant Ocean' Model CS-250 Serial #145	513 Owre	7-106 Physiology	
2) Aquarium 'Instant Ocean' Model CS-60 Serial #432	467 Lyon	6-188 Physiology	
3) Aquarium 'Instant Ocean' Model CS-60 Serial #431	340 Millard	5-245 Physiology	
4) Cold Room 198 sq. ft. sink unistrut	22.1	2-257 Pharmacology	A
5) Cold Room 153 sq. ft. sink unistrut	125.1	3-223 Pharmacology	A
6) Cold Room 135 sq. ft. sink unistrut	132.1	3-267 Pharmacology	B
7) Cold Room 174 sq. ft. sink unistrut recorder	246.1	4-119 Anatomy**	A add alternate**
8) Cold Room 166 sq. ft. sink unistrut	220.2	4-202 Clinical Pharmacology	A
9) Cold Room 220 sq. ft. sink unistrut	221.4	4-233 Biochemistry	A

funded
separately

ITEM	DEPARTMENT & LOCATION		TYPE*
	Arch. Rm. #	New Rm. #	
10) Cold Room/Freezer 160 sq. ft. unistrut	267.2	4-178 Pharmacology	A
11) Cold Room 299 sq. ft. two sinks unistrut	314	5-205 Biochemistry	A
12) Cold Room 370 sq. ft. two sinks unistrut	349	5-113 Biochemistry	A
13) Environmental Room 125 sq. ft. sink unistrut	336.2	5-249 Physiology	B
14) Constant Temp./ Humidity Room 156 sq. ft. sink unistrut	429	6-212 Physiology	A
15) Freezer Room 105 sq. ft. unistrut	420.1	6-218 Physiology	A
16) Cold Room 78 sq. ft. cup sink unistrut	496.2	6-173 Pathology	A
17) Environmental (warm) Room humidity control 60 sq. fat.	496.A	6-175A Pathology	A
18) Cold Room 196 sq. ft. sink unistrut	466	6-128 Pathology	A

* Type A - new box
Type B - renovated box

** Department of Anatomy funded this Cold Room by adding \$22,075.00 to account.



UNIVERSITY OF MINNESOTA
TWIN CITIES

Health Sciences Planning Office
Physical Planning
Health Sciences Complex
Box 726 Mayo Memorial Building
Minneapolis, Minnesota 55455
(612) 373-8981

February 11, 1982

Richard A Polinski, P.E.
Chief, Design and Engineering
Division of Regional Operations
Department of Health and Human Services
Region V
300 S. Wacker Drive
Chicago, Ill. 60606

Reference: MINN-HP-0018A
Diehl Hall Remodeling Project
MINN-HP-5C-63 and MINN-NU-5C-77
Unit F Pharmacy and Nursing Facility
MINN HP-05C-070
Jackson/Owre/Millard/Lyon Complex

Dear Mr. Polinski:

This letter will confirm that the suggested dates of March 2,3 and 4 for the inspections of the referenced projects meets with the approval of the University and other interested parties.

We are suggesting that the projects be inspected in the following order to arrange for various University personnel who will need to be involved:

March 2, 1982	Jackson/Owre/Millard/Lyon Complex
March 3, 1982	Unit F Pharmacy/Nursing
March 4, 1982	Diehl Hall Project and wrap up meetings

We suggest that we meet at 508 Botany Building the morning of March 2, 1982 to begin the inspections and conclude on March 4, 1982 with the wrap up meeting in Room 509 Botany beginning at 1:30 P.M.

We suggest that Mr. O'Shea contact the University Inn, located at 2600 University Avenue S.E. (1-612-379-2313) to arrange for motel accomodations. This motel is within walking distance of the University.

Mr. Polinski
Page Two
February 11, 1982

If Mr. O'Shea has any comments or concerns please have him contact my office.

We will look forward to meeting with Mr. O'Shea and successfully concluding the inspections on the referenced projects.

Very truly yours,



Paul J. Maupin
Health Sciences Planning Coordinator

cc: Mr. Duane Blanchard
Health Sciences Architects & Engineers

Mr. Richard Carlson
Health Sciences Architects & Engineers

Jack Geretz
University Department of Construction and Engineering

Vic Scott
Federal Projects Manager

Mr. Thomas O'Shea
Department of Health and Human Services

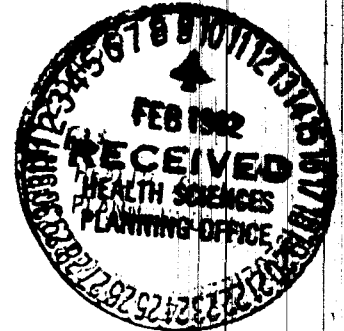
PJM:jmw

Region V
300 S. Wacker Drive
Chicago, IL 60606

FEB 4 1982

Our Reference: MINN-HP-0018

- Health Sciences Expansion Unit B/C
MINN-HP-0018A
- Diehl Hall Remodeling Project
MINN-HP-5C-63 and MINN-NU-5C-77
- Unit F Pharmacy/Nursing
MINN HP-05C-070
- Jackson/Owre/Millard/Lyon Complex



Mr. Paul J. Maupin
Health Science Planning Coordinator
University of Minnesota
4104. Powell Hall
Minneapolis, Minnesota 55455

Dear Mr. Maupin:

Thank you for your letter of December 14, 1981, regarding final inspections on above referenced projects with the exception of MINN-HP-0018, Health Sciences Expansion Unit B/C.

CU We would like to make final inspections the first week in March. Preferably March 2, 3, and 4 leaving Monday and Friday open for salesmen who travel on these days.

CU Mr. O'Shea would arrive on Monday night on March 1, 1982, in order to get an early start on Tuesday, March 2, 1982, preferably at eight o'clock.

We should be able to conduct the final inspections in three days with time left over for exit conference and discussion of change orders and how to bring the projects to a successful conclusion as expeditiously as possible in order that the University may receive its close out funds promptly.

Schedule Meeting
Personnel required to conduct final inspections would be a representative of the University, the architect's office and the Department of Health and Human Services, U. S. Government. It will not be necessary for a representative of the contractors to be present unless the University so desires.

The final inspections basically will be conducted to verify compliance with the Life Safety Code 101 of the National Fire Protection Association and the requirements for the physically handicapped on architectural barrier free design.

CU We would like a letter of confirmation of the final inspections at least one week in advance in order that travel arrangements may be made.

Also, it would be appreciated if a hotel or motel be recommended that is close to the University in order to cut down on commuter expenses.

Page 2 - Mr. Paul J. Maupin

Inquiry relative to comments contained herein may be directed to Thomas J. O'Shea, P.E., at this address or by telephone on (312) 886-5516.

Sincerely yours,

A handwritten signature in cursive script, reading "Richard A. Polinski". The signature is written in black ink and is positioned above the typed name.

Richard A. Polinski, P.E.
Chief, Design and Engineering
Division of Regional Operations
Facilities Engineering and Construction



DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of the Principal
Regional Official

Region V
300 S. Wacker Drive
Chicago, IL 60606

March 15, 1982

Our Reference: Minn-HP-0018
Health Sciences Expansion Unit B/C
Minn-HP-0018A
Diehl Hall Remodeling Project ✓
Minn-HP-5C-63 and Minn-NU-5C-77
Unit F Pharmacy/Nursing ✓
Minn-HP-05C-070
Jackson/Owre/Millard/Lyon Complex ✓



Mr. Paul J. Maupin
Health Science Planning Coordinator
University of Minnesota
4104 Powell Hall
Minneapolis, Minnesota 55455

Dear Mr. Maupin:

Final inspections on the above referenced projects were made on March 1, 2, 3, and 4, 1982. Personnel in attendance at the inspections were as follows:

Bruce Johnson - Architect - H.S.A.E.
Thomas Kyle - Coordinator - U/M
Glenn Hawkinson - Mech. Engr. - H.S.A.E.
Dennis G. Leslie - Elec. Engr. - H.S.A.E.
Warren G. Forslund - Coordinator - U/M
Robert Swanson - Coordinator - U/M
Paul J. Maupin - H.S.P.O. - U/M
Duane Blanchard - Architect - H.S.A.E.
Gordon Dahlen - Const. and Contracts - U/M
V. E. Scott - Physical Planning - U/M
Jack Geretz - Const. and Contracts - U/M
Wally Mellam - Const. and Contracts - U/M
Harry Wkcox - Arch./Engr. - H.S.A.E.
A. Walter Johnson - Sr. Const. Supt. - U/M
Dick Carlson - Architect - H.S.A.E.

Please respond to the required actions listed below and advise this office when all actions have been accomplished.

Final Inspection Report:

1. Provide certification from University that all operating and maintenance manuals have been turned over to the University by the Contractor's.
2. Provide certification from University that all Air Balance Reports have been turned over to the University by the Contractor.
3. Provide certification from University that Fire Alarm Systems have been inspected and approved by local Fire Department.
4. Provide certification that University has inspected and tested all Mechanical and Electrical Systems, and found them to be acceptable.
5. Jackson/Owre/Millard/Lyon Complex:

It was found at time of final inspection that many corridors are in excess of 300 feet which is in violation of The Life Safety Code No. 101-1973 which requires corridors to be no more than 200 feet for Business Occupancy. Since these corridors were not part of the construction project it is recommended that the University correct this deficiency when funds are made available.

6. Diehl Hall Project:

The air handling unit does not have smoke detectors in the supply air duct, and return air duct to shut down supply air fan, and return air fan in case of fire. This is not in accordance with The National Fire Protection Association (NFPA) Code No. 90A. Since the air handling unit was not part of the construction project it is recommended that the University install smoke detectors as mentioned above as soon as funds are made available.

7. Unit F Pharmacy/Nursing:

It is recommended that an Emergency Battery pack be installed at Emergency Generator located in basement. This will provide illumination at Emergency Generator in event of a power failure, and Emergency Generator fails to go on line in allotted time. A maintenance man will not have to stand at Emergency Generator with a flash light, and try to start Emergency Generator. This is getting to be a common practice now.

Project Close Out:

1. Submit project close out costs for each project listed above to The Chicago Regional Office of The Department of Health and Human Services (HHS) Regional Office of Facilities Engineering and Construction (ROFEC). This is to include all Contracts and Change Orders issued for each project. This should agree with project close out costs sent to Mr. James Durham, Program Officer in Washington. We would like to remind the applicant that money has value with regards to interest it can earn which is now approximately 20 per cent annually. The sooner the University submits the information requested in the Final Inspection Report, and close out costs, the sooner it will receive the final grant amount.

We would like to thank the Architect, and University Personnel involved in the design of the above referenced projects for complying with The Life Safety Code, and Barrier Free Design for The Physically Handicapped. That is why there are no outstanding items of omissions, and deficiencies found at time of final inspections, and why we were ~~able~~ to conduct the final inspections in such a relatively short period of time.

Inquiry relative to comments contained herein may be directed to Thomas J. O'Shea, P.E. at this address, or by telephone on (312) 886-5516.

Sincerely yours,



Richard A. Polinski, P.E.
Chief, Design and Engineering Branch
Regional Operations for Facilities
Engineering and Construction