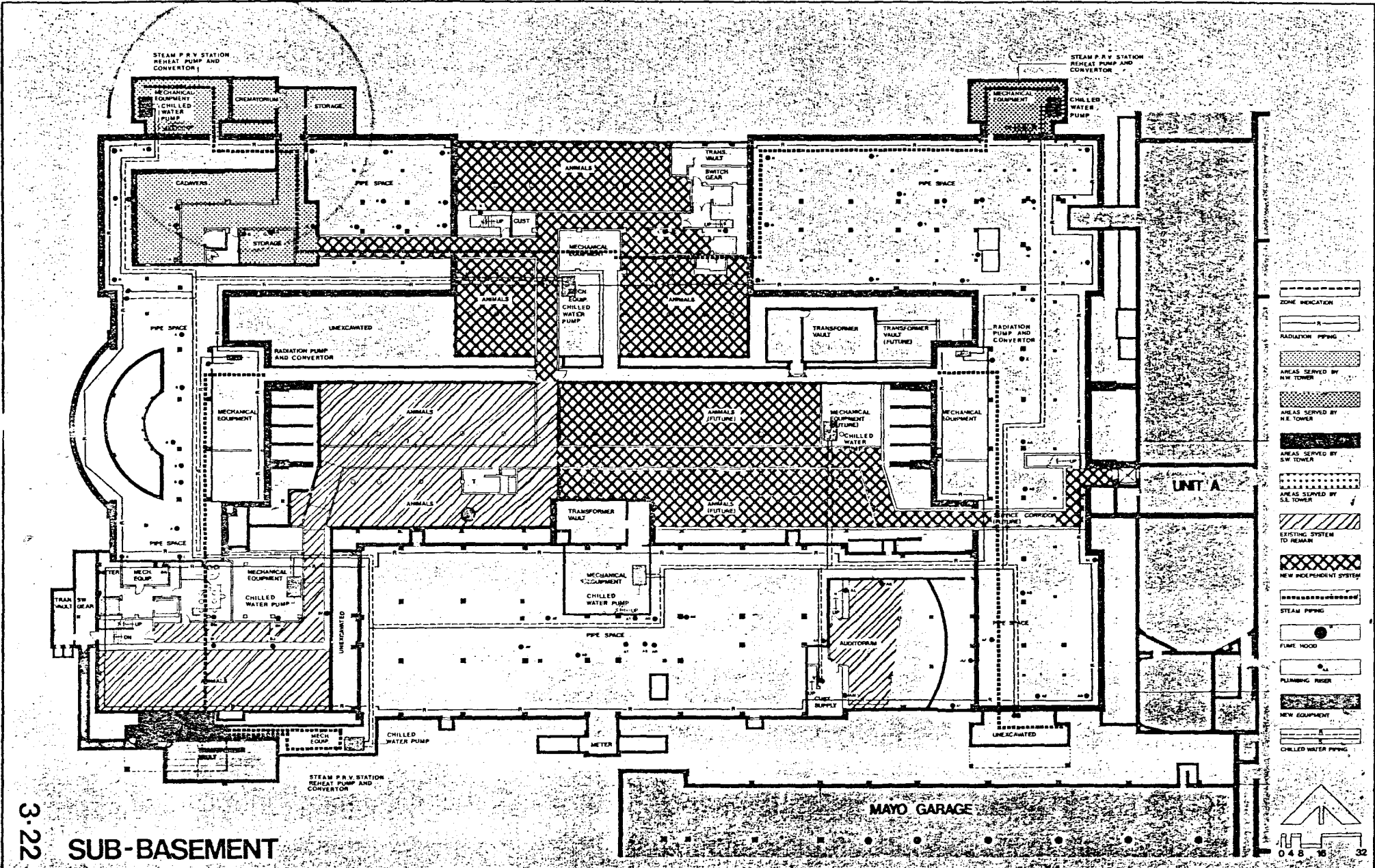


HEALTH SCIENCES PLANNING OFFICE  
4107 POWELL HALL  
UNIVERSITY OF MINNESOTA

Attached here is the history of the request for a crematory for the Department of Anatomy. As these documents illustrate, the proposed location for the new crematory would be in the sub-basement level of the north end of Jackson Hall. In this location the crematory would relate well to the existing cadaver cooler in that level of the building. It would be served by a departmental elevator and is the most discrete location in the complex, unlike the existing incinerator which is on a public corridor. The room that the existing converted incinerator occupies is not large enough for a commercial crematory. The plan to locate the new facility in the lowest level of the future mechanical tower was developed in the Master Plan for the Basic Sciences with the assistance of the Jackson-Owre-Millard-Lyon Building Advisory Committee, the consultants (Health Science Architects and Engineers), and The Health Sciences Planning Office.



322

**SUB-BASEMENT**

**UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION**  
 MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. & THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.  
 THE ENGINEER ASSOCIATES  
 MICHAEL CRAWFORD & ASSOCIATES, INC.  
 STEVEN LEACH & CHRISTOPHER INC.

**JOML**  
 JACKSON OWNE MELLARD LYON  
 COMPLEX REMODELING

**CONCEPT - MECHANICAL**

048 16 32

HEALTH SCIENCES, TWIN CITIES

ITEM 1

\$138,503

CREMATORY/PATHOLOGICAL INCINERATOR

HISTORY

Requested in 1976.

DETAIL OF THIS REQUEST

Funds are requested for the construction of an underground facility to house a crematory and hazardous waste incinerator. The structure is to be a single level concrete structure at the sub-basement level of the northwest corner of Jackson Hall. It will abut and connect with the existing cadaver storage in the Department of Anatomy, and contain approximately 280 square feet with an enclosed flue extending above the roof of the complex. Funds for the retort (crematory) are included in this request.

BASIS FOR REQUEST

The present crematory facility is located in S67 Jackson-Owre. The retort currently used was purchased as an incinerator in 1958 when the building was constructed, and was modified in 1966 to be used as a crematory. This facility is used to cremate cadavers acquired from the "University Bequest Program", and preserved pathological, post partal placental and other human tissues acquired from various departments of University Hospital that require disposal of this nature. The demands of this facility far exceed its capabilities.

On several occasions the University has been threatened with citation and possible shut-down due to black hydrocarbon smoke escaping from the stack of the crematory unit. An open lift used to lower materials to the hearth level is in violation of OSHA regulations. Rebuilding the unit is not a credible consideration in view of the facts that it was rebuilt in 1966 and is not adequate to meet the demands for its use. The present location requires use of a public elevator and a public corridor for transportation of materials which would be eliminated at the new location. Teaching programs would be severely hampered in the event a shut-down would be ordered for this facility.

COST ESTIMATE

Construction Cost	\$ 77,687
Non-building Costs	33,816
Equipment Costs (Retort)	<u>27,000</u>
TOTAL REQUEST	\$ 138,503

ITEM 1

CREMATORY

Construction Cost:	General Construction	\$ 77,687	
	Cost of Retort	<u>27,000</u>	
			\$ 104,687

Non-building Costs:

Sitework:			
Landscaping		\$ 1,493	
Miscellaneous Shops Work		1,000	
Utilities		400	
A/E Fees (including travel) (15%)		15,703	
Contingency (3%)		3,140	
Supervision (3%)		3,140	
Site Survey & Soil Borings		500	
Material & Perf. Testing		1,000	
Miscellaneous Engineering		1,500	
Building Activation		1,000	
SAC Charge		400	
Permits		900	
Incidentals		500	
Health Sciences Planning Office (3%)		3,140	
Crematory (Retort) included in construction cost			<u>33,816</u>

TOTAL	\$ 138,503
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## CREMATORY

The present crematory facility in S67 Jackson-Owre is an incinerator which was modified in 1966 so it could be used as a crematory. The retort was purchased as an incinerator in 1958 when the building was constructed and was converted in 1966.

This facility is currently used to cremate the bodies acquired chiefly from the University Bequest Program. These bodies are used for scientific purposes such as Gross Anatomy dissection for Medical and Dental students. Also infants from the "Bequest of Infant" study are currently being cremated in this facility. From July 1, 1974 through June 30, 1975, 107 cremations were done on anatomy related material.

The facility is also used to cremate University Hospital waste tissue from the morgue, surgical pathology, preserved pathological tissue from Laboratory Medicine and Pathology and post partal placental tissue from Obstetrics and Gynecology. This material is cremated once each week.

The location of the crematory is such that the use of a public elevator is necessary to transport cadavers from the teaching laboratories to the crematory. This is a potential problem, but not the most acute problem which we face.

The major problem is the presence of black hydrocarbon smoke escaping from the stack of the crematory unit. It was documented three times last year and twice this year. The amount of air pollution occurring as a result of this malfunction of the equipment is great enough to result in our receiving a citation; an order to shut down, and/or a possible fine. Engineers from Physical Plant have been notified of this problem.

Another problem is our use of an open lift to get bodies to the level of the hearth. OSHA regulations do not permit the use of open lifts in a situation like this. This is another area where we could be cited to be in violation.

The limited storage facilities available in the event of an ordered shut down would have severe consequences on the teaching programs using cadaver material.

June 8, 1976

## CREMATORY

The crematory facility located in S67 Jackson-Owre is used primarily to cremate bodies acquired chiefly from the University Bequest Program. The crematory was operated by Anatomy employees to perform 176 burns of anatomical material from July, 1974 through June, 1975. This facility is also used to cremate University Hospital waste tissue once each week.

### Problems with present facilities:

1. The location of the crematory requires the use of a public elevator and passage through a public hall to transport cadavers from the teaching laboratories to the crematory.
2. A major problem is the escape of black hydrocarbon smoke from the stack of the crematory unit. This phenomena occurred (has been documented) three times last year and twice this year. This is in violation of the "clean air standards".
3. An open lift is used to lower the bodies to the level of the hearth. Safety regulations do not permit the use of open lifts in a situation like this.
4. The hearth is constructed so that fluids drain from the retort to the outside which is undesirable and unacceptable from the standpoint of environmental safety.

### Proposals for disposal of bodies:

1. Rebuild present facility
2. Build new facility
3. Contract with outside agency
4. Continue using present facility until shut-down by Environmental Health and Safety.

The status of the present facility has been discussed with Don Holberg of Physical Plant and he is of the opinion we try to use our present facility until a new one can be constructed or we find some other means of disposal for the anatomical material. Our present retort was an incinerator purchased in 1958 and remodelled in 1966 so it could be used as a cremator. The continued long term use of the present facility would necessitate a large expenditure of money and result in a marginal facility.

The construction of a new facility could be done adjoining Jackson Hall at the sub-basement level on the northwest corner of the building. It would abut on the proposed northwest tower and the stack could eventually be incorporated into the tower construction. The stack and underground excavation could be done prior to construction of the tower as suggested by the Health Sciences Planning Office.

This site seems to have many advantages over other locations in the complex. The advantages are the easy accessibility of the proposed new facility from the existing structure. The existing elevator is key operated and allows the transportation of bodies in a restricted area which is highly desirable. The crematory would be close for supervision by employees in the Mortuary Unit. The ease of installation of a retort outside the existing building is an advantage as it comes assembled and weighs approximately 10 tons. Installation in the present quarters is prohibitive unless the unit is cut apart and reassembled. The cost then becomes much greater.

A preliminary estimate as to the cost of excavation and construction of this new facility is approximately \$130,000. This is a rough guess and a closer approximation would require the services of an architect and planning money which is not now available.

Contract with outside agency:

The possibility of contracting with an agency outside of the University is another option which has been investigated. Four outside agencies were found that had facilities which could possibly handle the cadaver material. Two of the agencies were not interested in contracting for such a service at this time. Sunset Memorial Park indicated they were possibly interested in contracting for such services. In the event these services were contracted to an outside agency, a tray would be necessary to transport the cadaver from the University to the facility and additional transportation would be necessary. Additional record keeping would result in additional costs. Other potential problems not discussed at this time were the large amounts of fluid and grease from our material which eventually will cause the contractor's retort to malfunction and the effect of the strong odor from our fixatives which would likely cause complaints or termination of the contract.

An additional important factor is the risk of an accident involving the cadaver material. Adverse publicity could have a devastating impact on our bequest program. Keeping the cadaver material on campus would reduce this risk to near zero.



Estimated cost breakdown (per cadaver)

	<u>Done at U.</u>	<u>Lakewood</u>	<u>Sunset</u>
1. Transportation			
a. Outside contract	-0-	20.00	20.00
b. U. rental vehicle	-0-	20.30	20.30
2. Tray	-0-	11.00	11.00
3. Labor	7.40/body	-0-	-0-
4. Use of cremator	5.00/body	55.00	65.00
TOTAL	12.40	86.30	96.30
1974-75 (176)	2,182.00	15,188.80	16,948.80
One time purchase and installation	30,000.00	-0-	-0-
Room construction costs	130,000.00	-0-	-0-
TOTAL	160,000.00		

A citation by government inspectors most likely would result in a shut-down of our operations which would bring our teaching programs using cadavers to a halt.

UNIVERSITY OF MINNESOTA  
TWIN CITIES

Department of Anatomy  
262 Jackson Hall  
Minneapolis, Minnesota 55455

August 9, 1976

Dr. N. L. Gault, Dean  
Medical School  
University of Minnesota  
Minneapolis, Minnesota 55455

Dear Dr. Gault:

The receipt of a draft of the Minnesota Air Pollution Code reinforces the seriousness of the violations of this code by the effluent from the crematory located in Jackson-Owre addition. The retort currently in use was purchased as an incinerator in 1958 and was rebuilt in 1966 so it could be used as a crematory.

The crematory facility is used primarily to cremate bodies from the University Bequest Program. This facility is also used to cremate University Hospital human pathological tissue once each week.

The problems with the present facilities are:

1. The escape of black hydrocarbon smoke from the stack of the crematory unit. This situation occurred (has been documented) three times last year and twice this year. This is in violation of the "clean air standards."
2. The hearth is constructed so that fluids drain from the retort to the outside which is undesirable and unacceptable from the standpoint of environmental safety.
3. An open lift is used to lower the bodies to the level of the hearth. Safety regulations do not permit the use of open lifts in a situation like this.
4. The current location of the crematory requires the use of a public elevator and passage through a public hall to transport cadavers from the teaching laboratories to the crematory. While this is not in violation of any code, it is not a satisfactory arrangement.

The status of the present facility has been discussed with Don Holberg of Physical Plant and he is of the opinion that we try to use our present facility until a new one can be constructed or we find some other means

Dean Gault  
Page 2  
August 9, 1976

of final disposition for the anatomical material. The continued long term use of our present facility would necessitate a large expenditure of funds and it would still be a marginal facility.

Alternative methods of disposition of anatomical material include a contract with an outside agency. This option has been investigated and four outside agencies were found to have facilities which could possibly handle the cadaver material. Two of the agencies were not interested in contracting for such a service at this time. Two agencies did respond with an interest in investigating the contract for cremation. The estimated cost of contracting (see appendix 1) with an outside agency is expensive and not feasible in our situation. In the event these services were contracted to an outside agency, a tray would be necessary to transport the cadaver from the University to the facility and additional transportation costs would arise. Additional record keeping would result in additional costs. Other potential problems are the unusually large amounts of fluid from our material could eventually cause the contractors retort to malfunction. The strong odor from our fixative would likely cause complaints or termination of the contract.

An additional important factor is the risk of an automobile accident involving the cadaver during transport from the University to the outside crematory. Adverse publicity could have a devastating impact on our now highly successful bequest program. Keeping the cadaver material on campus would reduce this risk to near zero.

A citation by government inspectors most likely would result in a shut-down of our operation which would bring our teaching programs using cadavers to a halt.

The preference would be that the crematory be retained on campus and preferably in the Medical complex. This appears to be economical at the present time and predicted inflation may result in even greater costs on a contract basis. The risk of an accident resulting in adverse publicity can be avoided by retaining the crematory on campus, and space adjoining the preparation area would be most desirable because the cadavers would not be transported in public halls and elevators.

It is our preference to move the crematory from its present location to the new location because a new retort is purchased assembled and weighs approximately ten tons. It would seem difficult and costly to attempt to install the new retort in the existing space. The room size is cramped and the open lift is difficult to eliminate in the existing facility.

Sincerely,

*Gordon H. Herbst*

Gordon H. Herbst  
Instructor, Department of Anatomy

*Donald W. Robertson*

Donald W. Robertson, Ph.D.  
Chairman, State Anatomical Committee  
Course Director, Human Gross Anatomy

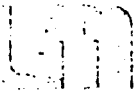
*Morris Smithberg*  
Morris Smithberg, Ph.D.  
Acting Head, Department of Anatomy

Appendix 1

Estimated cost breakdown (per cadaver)

	<u>Done at Univ.</u>	<u>Lakewood</u>	<u>Sunset</u>
1. Transportation			
a. Outside contract	-0-	20.00	20.00
b. U rental vehicle	-0-	20.30	20.30
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3. Labor	7.40/body	-0-	-0-
4. Use of cremator	5.00/body	55.00	65.00
TOTAL	12.40	86.30	96.30
1974-75 (176)	2,182.00	15,188.80	16,948.80

8/9/76



UNIVERSITY OF MINNESOTA  
TWIN CITIES

Physical Plant Maintenance and Operations  
200 Shops Building  
Minneapolis, Minnesota 55455

June 13, 1974

TO: W. E. Soderberg, Director of Physical Plant.  
FROM: D. L. Holberg, Assistant Supervising Engineer.  
SUBJECT: Health Science Crematory.

The Jackson-Owre Building design, 1958, provided for a Pathology hearth to be used for hospital tissue, and a second unit, a conventional building waste disposal incinerator. The medical center crematory was then located in Jackson Hall.

In 1966, the operating crematory in Jackson Hall was phased out and the conventional waste disposal incinerator in Jackson-Owre was re-designed to be used as the crematory. The Jackson-Owre incinerator room size did not permit the new crematory to be designed in the conventional manner, end-charge. Rather, it was necessary to construct a slide door the length of the hearth for charging the unit. The burners were installed at the one end of the unit, with an after burner in the secondary pass. Hence, this design does not permit preheating the hearth.

This unit functioned satisfactorily during the first years when the quantity of material to be cremated was within design limits. However, as the Health Sciences increased in size, the quantities of material to be cremated has more than doubled.

Because of both the location of the unit and the design of the unit, there are definite problems in keeping up with the generated capacity of material and maintaining a non-polluting flue gas.

There is an additional problem which exists with the present location of the crematory. An in-house type lift is presently being used to lower the material to the burning level. This lift does not meet the State of Minnesota code and if the crematory is to be kept in the present location, this lift will have to be modified.

In view of the foregoing, it is recommended consideration be given for the design and construction of a new crematory which can accommodate the existing and estimated future requirements and operate within the pollution control limits.

DLH:lw  
cc: Dale Stroud



UNIVERSITY OF MINNESOTA  
TWIN CITIES

Physical Plant Maintenance and Operations  
200 Shops Building  
Minneapolis, Minnesota 55455

March 22, 1976

Professor Dale E. Stroud  
Mortuary Science  
Room 114, Vincent Hall

Dear Professor Stroud:

The Health Sciences crematory, a converted waste disposal incinerator, has, for the most part, operated with minimum problems. However, under certain climatic conditions, the unit malfunctions, and we pollute the atmosphere.

COPY

To date, we have been fortunate that the Minnesota Pollution Control Agency or the Minneapolis Air Pollution Control Agency has not witnessed a malfunction. Had they witnessed a malfunction, I feel quite confident that a citation would have been issued.

In addition, there is a second hazardous operation in the crematory room. An in-house built lift is used to lower the material to the burning level. This lift does not meet any of the State of Minnesota Elevator Codes or O.S.H.A. Codes. There is no question the entire operation would be shut down if the lift were to be inspected either by O.S.H.A. or the Elevator Division of the State of Minnesota.

The unit proper, which is located in the sub-basement of Jackson-Owre, makes accessibility very difficult -- moving cadavers in elevators, through corridors, into the cremation room and lowering the material on an illegal hoist into the pit-like area where the incinerator is located.

Certainly these problems should be justification for immediate planning of a new location and a new Code-approved properly sized crematory to accommodate such a large responsibility.

Yours very truly,

D. L. Holberg

*D. L. H.*  
*(DH)*

DLH:lw

cc: Gordon Herbst      Clint Hewitt  
    Paul Maupin        Paul Kopietz  
    W. E. Soderberg

June 8, 1976

## CREMATORY

The crematory facility located in S67 Jackson-Owre is used primarily to cremate bodies acquired chiefly from the University Bequest Program. The crematory was operated by Anatomy employees to perform 176 burns of anatomical material from July, 1974 through June, 1975. This facility is also used to cremate University Hospital waste tissue once each week.

### Problems with present facilities:

1. The location of the crematory requires the use of a public elevator and passage through a public hall to transport cadavers from the teaching laboratories to the crematory.
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1. Rebuild present facility
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The status of the present facility has been discussed with Don Holberg of Physical Plant and he is of the opinion we try to use our present facility until a new one can be constructed or we find some other means of disposal for the anatomical material. Our present retort was an incinerator purchased in 1958 and remodelled in 1966 so it could be used as a cremator. The continued long term use of the present facility would necessitate a large expenditure of money and result in a marginal facility.

The construction of a new facility could be done adjoining Jackson Hall at the sub-basement level on the northwest corner of the building. It would abut on the proposed northwest tower and the stack could eventually be incorporated into the tower construction. The stack and underground excavation could be done prior to construction of the tower as suggested by the Health Sciences Planning Office.

This site seems to have many advantages over other locations in the complex. The advantages are the easy accessibility of the proposed new facility from the existing structure. The existing elevator is key operated and allows the transportation of bodies in a restricted area which is highly desirable. The crematory would be close for supervision by employees in the Mortuary Unit. The ease of installation of a retort outside the existing building is an advantage as it comes assembled and weighs approximately 10 tons. Installation in the present quarters is prohibitive unless the unit is cut apart and reassembled. The cost then becomes much greater.

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The possibility of contracting with an agency outside of the University is another option which has been investigated. Four outside agencies were found that had facilities which could possibly handle the cadaver material. Two of the agencies were not interested in contracting for such a service at this time. Sunset Memorial Park indicated they were possibly interested in contracting for such services. In the event these services were contracted to an outside agency, a tray would be necessary to transport the cadaver from the University to the facility and additional transportation would be necessary. Additional record keeping would result in additional costs. Other potential problems not discussed at this time were the large amounts of fluid and grease from our material which eventually will cause the contractor's retort to malfunction and the effect of the strong odor from our fixatives which would likely cause complaints or termination of the contract.

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UNIVERSITY OF MINNESOTA  
TWIN CITIES

Department of Anatomy  
262 Jackson Hall  
Minneapolis, Minnesota 55455

August 9, 1976

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Medical School  
University of Minnesota  
Minneapolis, Minnesota 55455

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Dean Gault  
Page 2  
August 9, 1976

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Sincerely,

*Gordon H. Herbst*

Gordon H. Herbst  
Instructor, Department of Anatomy

*Donald W. Robertson*

Donald W. Robertson, Ph.D.  
Chairman, State Anatomical Committee  
Course Director, Human Gross Anatomy

*Morris Smithberg*  
Morris Smithberg, Ph.D.  
Acting Head, Department of Anatomy

Appendix 1

Estimated cost breakdown (per cadaver)

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TOTAL	12.40	86.30	96.30
1974-75 (176)	2,182.00	15,188.80	16,948.80

8/9/76

FUNCTIONAL SPACE PROGRAM SUMMARY

The crematory facility is to be located at the sub-basement level of Jackson Hall, north on Washington Street, adjacent and connected to the existing cadaver cooler. The design and construction is to facilitate and be compatible with the construction of the northwest mechanical tower in the future; as per the Phase I master plan for the Jackson-Owre-Millard-Lyon complex remodeling. The structure is to be a single level concrete structure and contain approximately 440 square feet with an exhaust flue extending above the roof of the complex; the flue will eventually be incorporated within the mechanical tower. This new construction will be north of the foundation wall and abutting Jackson Hall with a connecting corridor through the foundation to the existing sub-basement storage area. This new construction will house a retort (crematory) that will be selected and installed by the University, and must be compatible with the equipment selected.

# G.&S. Crematory Co.

CREMATORY BUILDING AND REPAIR

4800 PERSHING RD. • DOWNERS GROVE, ILL. 60515  
Feb. 20, 1978

Anatomy Dept.  
Mortuary Unit  
88 Jackson Hall  
321 Church St.  
Mpls, Minn. 55455

Att: Dave Lee,

Enclosed find information for a new crematory to be built at U. of Minn. as we discussed on the phone.

The cost to construct the unit will be \$18,350.00.

This includes: Two Incinomite gas burners with timers, capable of putting out 1,200,000 BTU each.

Barber Coleman Temperature Indicator with one probe in the combustion chamber and one in the cremation chamber, with blower for auxiliary air and timers to be set manually.

An Automatic Panel is available for an added cost, but is hardly worth it.

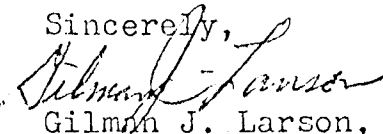
We do all our own construction work with either my Son or myself on the job at all times.

Our units are so constructed that any part can be repaired without removing the entire unit. They all need repairs sooner or later.

The stack and foundation, as we discussed on the phone, should be let with the building. We will be glad to furnish the fire brick at our cost to you for the lining and also to work with the Bldg. Contractor to see that it is installed right. If you so desire we will meet with you to answer any questions you may have.

Feel free to call any of the people on the enclosed reference list or anywhere else we have done work.

Sincerely,



Gilman J. Larson, Pres.

GJL/kl

# G. & S. Crematory Co.

CREMATORY BUILDING AND REPAIR

4800 PERSHING RD. • DOWNERS GROVE, ILL. 60515

Thank You for your inquiry for a G&S Steel Encased Cremator. Enclosed is a brochure describing our unit.

We have discontinued the manufacture of the portable unit, one that is put together in a plant and shipped out. We simply can not make them stand up. They have to be put together with the lightest and least material to keep the weight down for shipping around 16,000pds. Our weight is approximately 32,000pds.

Ours are assembled and the fire brick layed up on the job-site. Our units can be carried in thru a normal door. No need for a crane, or to remove the walls or roof.

We have been working on crematories over 30 years and find it is the best way to go. We do repair work on all makes and models so are aware of the weak points to stay clear of.

If you need further information please call or write. I would be happy to call on you and explain further. The writer has many suggestions about the operation of a crematory unit, that are not covered in our brochures. G&S Crematory Company purchased the Jones Crematory Company in 1974 after working for them for 25 years.

Enclosed is an old Jones Crematory Company brochure, the writer has personally been involved in the construction of all the units. Also enclosed is a partial list of some jobs we have done as G&S Crematory Company, feel free to call any of them for references.

The price is approximately \$18,000.00 depending



# G. & S. Crematory Co.

CREMATORY BUILDING AND REPAIR

4800 PERSHING RD. • DOWNERS GROVE, ILL. 60515

April 17, 1974

G & S Crematory Co.  
Gilman J. (Tiny) Larson  
Steven L. Larson  
4800 Pershing Rd.  
Downers Grove, Ill. 60515

Upon my discharge from the Army in 1945, I was employed by Jones Crematory Co., to build and repair crematories. In Feb. 1970, when the company changed hands, my son Steve; and myself formed "The G & S Crematory Co." to put into practice the solutions to the many problems that have come up over the years and make it possible for us, doing our own refractory work and using super duty brick, to remodel, rebuild and make as pollution free as possible the many old units that have done a good job for many years and need only the refractory repaired or replaced. We also build new units and make future maintenance of the units as uncomplicated as possible. I have been remodeling and constructing Crematories for the past 29 yrs. See our add in the AM. Cemetery Magazine.

Please call or write for information. All work guaranteed.

Yours truly,  
*G. "Tiny" Larson*  
G. "Tiny" Larson

Some jobs recently completed by G & S Crematory Company:

Minneapolis, Minnesota  
Lakewood Cemetery - 2 units  
Sunset Cemetery - 1 unit  
Forest Lawn Cemetery - 2 units

Denver, Colorado  
Fairmont Cemetery - 2 units  
Riverside Cemetery - 1 unit

Milwaukee, Wisconsin  
Wisconsin Memorial Park - 2 units  
Forest Home Cemetery - 2 units

Colorado Springs, Colorado  
Evergreen Shrine of Rest - 1 unit

St. Louis, Missouri  
Valhalla Cemetery - 4 units  
Hillcrest Abbey - 2 units

Chicago, Illinois  
Graceland Cemetery - 6 units  
Mount Hope Cemetery - 4 units  
Oakwoods Cemetery - 3 units  
Acacia Park Cemetery - 4 units.

Mundelion, Illinois  
Willow Lawn Cemetery - 1 unit

Dalton, Illinois  
Oakland Memorial Lanes - 2 units

GI:kl

*In June of 1974 we purchased the Jones Crematory Co. and merged it into G & S Co.*

# G.&S. Crematory Co.

CREMATORY BUILDING AND REPAIR

4800 PERSHING RD. • DOWNERS GROVE, ILL. 60515

## REFERENCES:

A partial list of New and Rebuilt Crematories installed by  
G. & S. CREMATORY CO.

OAKLAND MEMORY LANES  
15200 LINCOLN ST.  
DOLTON, ILL.  
GEORGE SHAPEN, OWNER  
312-841-5800

ERIE CEMETERY  
2116 CHESTNUT ST.  
ERIE, PA.  
TOM MCKENZIE, PRES.  
814-833-4401

WILLOW LAWN CEMETERY  
RR 1 BOX 207  
MUNDELIEN, ILL.  
VIC BARCROFT, PRES.  
312-634-3787

VALHALLA CEMETERY  
7600 ST. CHARLES RD.  
ST. LOUIS, MO.  
MRS. ZEIL, PRES.  
314-PA1-4900

WISCONSIN MEM. PARK  
13235 CAPITOL DRIVE  
P.O. BOX 383  
BROOKFIELD, WISC.  
WM. J. DOWNEY, PRES.  
414-781-7474

MT. HOPE CEMETERY  
115 FAIRFIELD  
BLUE ISLAND, ILL.  
WM. TEMPEITON, PRES.  
312-238-0348

ELM LAWN CEMETERY  
3939 DELAWARE AVE.  
KENMORE, NEW YORK  
KIETH WINSHIP, EX.V.P.  
716-876-8131

DESERT LAWN MEM. PK.  
P.O. BOX 1311  
YUMA, ARIZ.  
GARY MUNK, PRES.  
602-782-1633

OAK WOODS CEMETERY  
1035 E. 67th ST.  
CHICAGO, ILL.  
GEORGE OBERG, PRES.  
312-288-3800

ACACIA PARK CEM.  
7800 W. IRVING PK. RD.  
CHICAGO, ILL.  
MRS. LIGHTFOOT, PRES.  
312-625-7800

LAUREL LAND MEM. PK.  
P.O. BOX 6520  
FORT WORTH, TEXAS  
HAROLD S. ROBERTS, PRES.  
817-293-1350

GRACELAND CEM. ASSN.  
4001 N. CLARK ST.  
CHICAGO, ILL.  
FRANK IUTE, MGR.  
312-LA5-1105

FAIRMOUNT CEMETERY  
EAST ALAMEDA & QUEBEC ST.  
DENVER, COLORADO  
RAYMOND E. NICKOLS, VICE PRES.  
303-399-0692

Forest Lawn Mem. Park  
1800 Edgerton St.  
St. Paul, Minn. 55117  
Bob Ready, Mgr.  
612-776-6420

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Lakewood Cemetery  
3600 Hennepin Ave.  
Minneapolis, Minn. 55408  
Dave Hatlestad, Exec. V.P.  
612-822-2171

---

Sunset Mem. Park  
ST. Antony Blvd & 22nd St. N.E.  
Minneapolis, Minn. 55418  
Elizabeth Hanley, Pres.  
621-789-3596

---

Windward Crematory Inc.  
P.O. Box 3164  
Honolulu, Hawaii 96802  
Clarence Gray, Pres.  
808-537-2587

---

Springfield Cemetery  
171 Maple St.  
Springfield, Mass. 01105  
Donald Hanson, Gen. Mgr.  
413-734-8875

---

Mt. Pleasant Cemetery  
39 Mt. Pleasant St.  
St. Johnsbury, Vt. 05819  
Wm. Pearl, Gen. Mgr.  
802-748-3063

---

Green Lawn Cemetery Assoc.  
1000 Greenlawn Ave.  
Columbus, Ohio 43223  
Ed Sloan, Sec. Treas., Gen. Mgr.  
614-444-1123

---

Lakeview Mem. Chapel  
21 Big Tree ST., Rt. 15  
Livonia, N.Y. 11487  
Al. Drown, Gen. Mgr.  
716-346-5401

---

Woodlawn Cemetery  
19975 Woodward Ave.  
Detroit, Mich. 48203  
Jim Hoover, Gen. Mgr.  
313-368-0010

---

Greenwood Cemetery  
1010 Brown Ave.  
Rockford, Ill. 61102  
G.J. Strombeck, Supt.  
815-963-7522

---

White Haven Mem. Pk.  
210 Marsh Rd.  
Pittsford, N.Y. 14534  
Clint Adams Sec. Treas, Gen. Mgr.  
716-586-5250

---

Oakridge Cemetery  
Roosevelt Rd. & Oakridge  
Hillside, Ill. 60162  
John Westbury, Gen. Mgr.  
312-626-4200

---

Oak Grove Cemetery  
7800 St. Charles Rd.  
St. Louis, Mo. 63114  
Earl Stanza, Pres.  
314-721-7260

---

Flint Mem. Pk.  
G9506 N. Dort Hyw.  
Mt. Morris, Mich. 48458  
Jim Van Linden, V.P., Gen. Mgr.  
313-686-3660

---

G&S CREMATORY CO.  
4800 PERSHING RD.  
DOWNERS GROVE, ILL. 60515  
312-969-0305

UNIVERSITY OF MINNESOTA  
HEALTH SCIENCES EXPANSION  
BASIC SCIENCES REMODELING

PROCEED ORDER NO. 3  
JACKSON-OWRE-MILLARD-LYON COMPLEX  
CREMATORY FACILITY AND  
ASSOCIATED SUPPORT SPACES

27 February 1978

Purchase Order No. \_\_\_\_\_

TAC/HSAE Job No. \_\_\_\_\_

THE ARCHITECTS COLLABORATIVE, INC. of Cambridge, Massachusetts and HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC. of Minneapolis, Minnesota, a Joint Venture, are hereby authorized to provide Professional Services to the University for the design, bidding and construction phases for a Crematory Facility at the sub-basement level of Jackson Hall as provided in the Owner and Architect Agreement of January 28, 1976 for the Jackson-Owre-Millard-Lyon Complex Remodeling. It is understood that HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC. will assume the primary responsibility for overall project management.

The conditions of the above referenced Owner and Architect Agreement shall apply to this Proceed Order as follows:

ARTICLE I - PROFESSIONAL SERVICES

The provisions of this article shall apply for Phases II through VI as appropriate to the scope of the work. The construction of the Crematory Facility is to be done as a single prime contract and the work is to be complete for operational use by January 10, 1979. Periodic site visits and attendance at scheduled meetings of the Contractors and the University shall not exceed one-half day per month during the Construction Phase.

ARTICLE II - COST OF THE PROJECT

The budgeted construction cost of the project segment is \$77,687. The purchase and installation of the retort and other Group II Equipment is not included in the construction cost.

ARTICLE III - COMPENSATION

Compensation shall be in accordance with the provisions of this article for the work performed.

ARTICLE IV - REIMBURSEMENT

Reimbursement shall be in accordance with the provisions of this article.

ARTICLE V - EXTRA SERVICES AND SPECIAL CASES

The provisions included in this article shall apply to this Proceed Order.

ARTICLE VI - CREDITS

The article does not apply to this Proceed Order.

ARTICLE VII - UNIVERSITY CONSULTANTS

The provisions included in this article shall apply to this Proceed Order.

ARTICLE VIII - DATA TO BE FURNISHED BY THE UNIVERSITY

The provisions included in this article shall apply to this Proceed Order.

ARTICLE IX - ORDER OF PROCEDURE

The provisions included in this article shall apply to this Proceed Order except for the ones associated to the Design Concept and Scheduling Phase.

ARTICLES X, XI AND XII

The provisions included under these articles shall apply to this Proceed Order.

If this Proceed Order meets with your approval, please sign three copies and return to this office.

Sincerely,

Clinton N. Hewitt  
Assistant Vice President  
Physical Planning  
University of Minnesota

APPROVED:

THE ARCHITECTS COLLABORATIVE, INC.

By \_\_\_\_\_

Title \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.

By \_\_\_\_\_

Title \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

FUNCTIONAL SPACE PROGRAM SUMMARY

The crematory facility is to be located at the sub-basement level of Jackson Hall, north on Washington Street, adjacent and connected to the existing cadaver cooler. The design and construction is to facilitate and be compatible with the construction of the northwest mechanical tower in the future; as per the Phase I master plan for the Jackson-Owre-Millard-Lyon complex remodeling. The structure is to be a single level concrete structure and contain approximately 440 square feet with an exhaust flue extending above the roof of the complex; the flue will eventually be incorporated within the mechanical tower. This new construction will be north of the foundation wall and abutting Jackson Hall with a connecting corridor through the foundation to the existing sub-basement storage area. This new construction will house a retort (crematory) that will be selected and installed by the University, and must be compatible with the equipment selected.

January, 1978

CREMATORY - JOML PROBABLE COST SUMMARY

Construction Cost \$ 77,687 \$ 77,687

NON-BUILDING COSTS

Sitework:

Landscaping 1,493  
Misc. Shops Work 1,000

Utilities 400

A/E Fees (including travel) (15%) 11,653

Contingency (3%) 2,330

Supervision (3%) 2,330

Site Survey 500

Material & Perf. Testing 1,000

Miscellaneous Engineering 1,500

Building Activation 1,000

SAC Charge 400

Permits 900

Incidentals 500

Health Sciences Planning Office (3%) 2,330

Equipment

Group # (including retort) 33,480 60,816

PROJECT TOTAL

\$138,503

*Tom Kyle*

THE ARCHITECTS COLLABORATIVE, INC.  
HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.

RECEIVED

UNIVERSITY OF MINNESOTA  
HEALTH SCIENCES EXPANSION

MAR 17 1978

UNIV. OF MINN.  
HEALTH SCIENCES  
PLANNING OFFICE

MEMORANDUM

MEMO TO: Crematory Facility File (Comm No. 280.13)  
MEMO BY: Bruce Johnson  
DATE: 15 March 1978  
SUBJECT: Minutes of Meeting  
PRESENT: Dr. Stan Erlindson, Dr. Hamilton, Gordon Herbst, Dave Lee,  
Anatomy Department; Tom Kyle, HSP0; Bruce Johnson, HSAE.

1. The Architect reviewed the feasibility of remodeling the existing facility versus the construction of a new facility under the North-West tower. Use of the existing facility is hampered by vertical transportation and contact with public areas.
2. It was determined that, even though costs are greater, the Architect was to proceed with a schematic design incorporating a crematory under the future N.W. Mechanical tower near Jackson Hall.
3. Information and a sketch of equipment within the facility was transmitted to the Architects. Exhausted air hood over bone crushing area was to be researched by Dave Lee and Tom Kyle as Group II item.
4. Stan Erlindson pointed out concern of construction vibration with instruments in his adjacent laboratory space.

cc: Tom Kyle



PRELIM 5-4-78

MAY	JUNE	JULY	AUGUST	SEPT	OCTOBER	NOV	DEC	JAN
1 8 15 22 29	5 12 19 26 3	10 17 24 31	7 14 21 28 4 11 18 25 2 9 16 23 30	6 13 20 27 4 11 18 25 1				

SYNTHETIC DESIGN

U/M REVIEW

DESIGN DEVELOPMENT

U/M REVIEW

CONSTRUCTION DOCUMENTS & ISSUE

RIBBONS

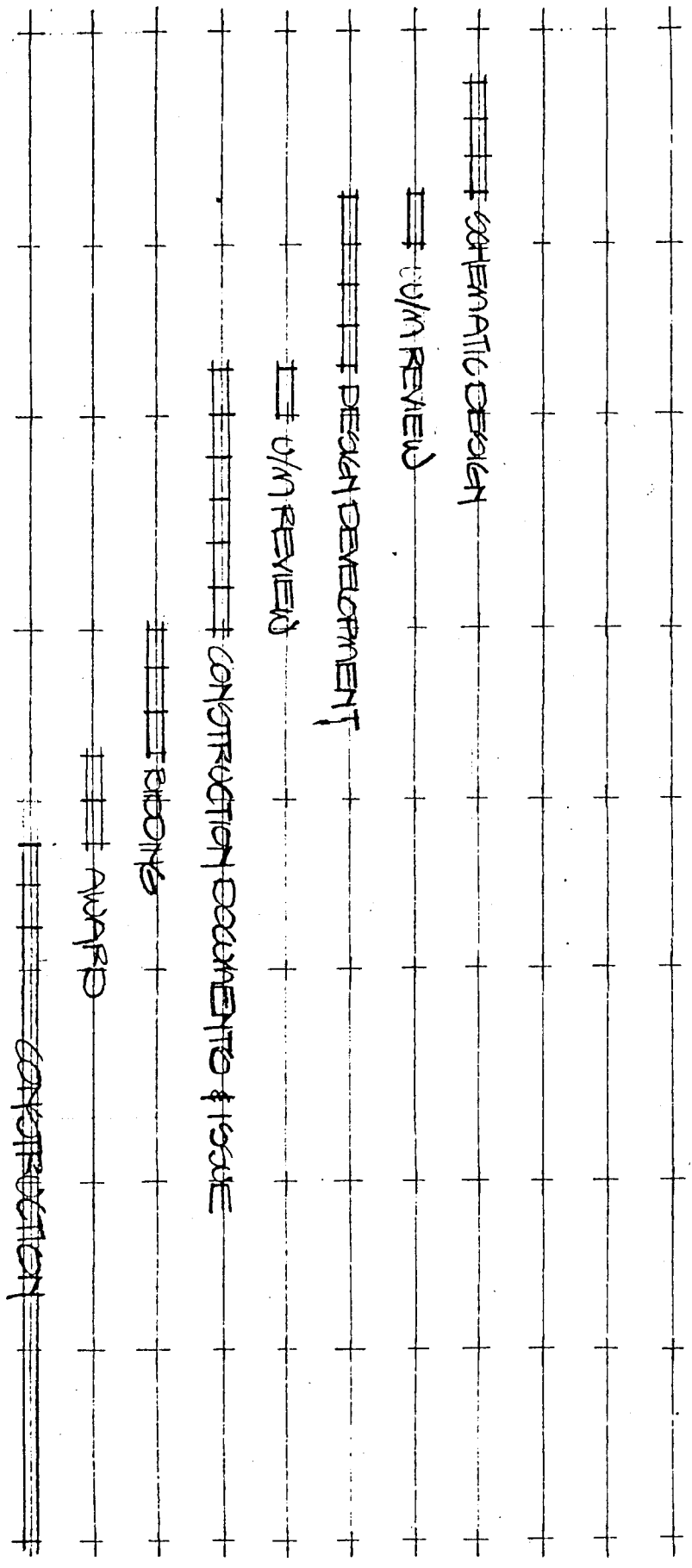
AWARD

CONSTRUCTION

JOML CREMATORY / PROPOSED SCHEDULE

Prelim 5-4-78

MAY                  JUNE                  JULY                  AUGUST                  SEPT                  OCTOBER                  NOV                  DEC                  JAN  
1 8 15 22 29 5 12 19 26 3 10 17 24 31 7 14 21 28 4 11 18 25 2 9 16 23 30 6 13 20 27 4 11 18 25 1



JOINT CREMATORY / PROPOSED SCHEDULE

Ray Brainer, B. Johnson, P. P. P. P., G. Herbert, Dove Lee,  
Dr. Hami G. — Tom K. , Dale S. STROUD

5-4-78 - Mort. Sci. & ANATOMY CREMATORY.

PROBABLE Cost WITHIN A MONTH!

probably a cost over ~~run~~ of \$20,000.

July - Document Completion.

|| What Piece of Equipment?

G & S was approved.

Prelim. 5-4-78

MAY 1 8 15 22 29 JUNE 5 12 19 26 3 JULY 10 17 24 31 AUGUST 7 14 21 28 4 11 18 25 2 OCTOBER 9 16 23 30 6 13 20 27 4 11 18 25 1 JAN

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||||| SCHEMATIC DESIGN

||| U/M REVIEW

||||| DESIGN DEVELOPMENT

||| U/M REVIEW

||||| CONSTRUCTION DOCUMENTS ISSUE

||||| BIDDING

||||| AWARD

||||| CONSTRUCTION

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JOINT CREMATORIUM / PROPOSED SCHEDULE



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

May 8, 1978

Mr. Duane Blanchard  
Health Science Architects & Engineers  
2829 University Avenue S.E.  
Minneapolis, Minnesota 55414

Regarding: Creamatory - Project Budget

Dear Duane,

After our meeting last Thursday, Paul and I were discussing your proposed construction budget increase of 10 to 15 percent, and we find that increase unacceptable. We have no intention of building the entire basement level of the future tower and would request that you design within our identified budget and program for this crematory project only. We understand the desire to complete the tower foundation but can not endorse the expense at this time.

This office will manage the project and will be in charge of all equipment purchases. All meetings with University personnel and vendors are to be coordinated through the Health Sciences Planning Office and its representatives. If you need further clarification of the budget, please contact either Paul or myself.

Yours Truly,

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

Tom Kyle

cc: Paul Maupin  
Pete Merz

THE ARCHITECTS COLLABORATIVE, INC.  
HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.

UNIVERSITY OF MINNESOTA  
HEALTH SCIENCES EXPANSION

RECEIVED

MAY 10 1978

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

MEETING NOTES

---

DATE: 4 May 1978  
SUBJECT: JOML-Crematory Facility  
NOTES BY: Bruce Johnson  
PRESENT: Dr. David Hamilton, David Lee, Dale Stroud, Gordon Herbst,  
Department of Anatomy; Tom Kyle, HSP0; Ray Bressler, Engineering  
and Construction, U/M; and Duane Blanchard, HSAE.

---

1. Presented schedule of construction to meet January 1979 occupancy. Construction drawings to be ready in July with construction to start September 1, 1978 or before, if possible.
2. Discussed procedure for architectural drawings and University requirements. Architects to develop by May 30, 1978 schematic/ design development drawings for University review and comment. Architects pointed out an early cost comparison estimate indicated a cost of \$90,000 in lieu of the \$77,687 indicated in the proceed order. The architect will develop an estimate of the probable construction cost as soon as possible based upon specific design information developed.
3. Dave Lee will verify with the supplier of the retort unit what ordering lead time is necessary. Ray Bressler will be writing the specifications for the retort unit.

cc: All present  
Craig Hinrichs

THE ARCHITECTS COLLABORATIVE, INC.  
HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.

HEALTH SCIENCES EXPANSION  
UNIVERSITY OF MINNESOTA

RECEIVED

JUN 8 1978

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

MEETING NOTES

SUBJECT: Crematory Facility Meeting  
BY: Bruce Johnson  
DATE: 5 May 1978  
PRESENT: Dr. Hamilton, Gordon Herbst, Dale Stroud, Dave Lee, Department of Anatomy; Ray Bressler, Engineering & Construction; ~~Tom~~ Kyle, Health Sciences Planning Office and Bruce Johnson, HSAE.

1. Schematic/Design Development drawings were presented by the Architects indicating rerouted mechanical lines, above grade chimney location, tower mechanical room and possible future use of storage room as mechanical space. This proposed crematory scheme appeared to meet with approval and any changes will be forwarded to the Architects.
2. Dr. Hamilton indicated new window air conditioners were placed in basement level windows for electron microscopes. Architects were to investigate only removing the area wall window next to Room 88 (cadaver cooler) in basement in lieu of all those shown on plan.
3. Dave Lee has arranged meeting with Mr. Gilman of G & S Crematory for Monday, June 12, at 1:00 p.m. at his office. Architects will be there to ask any questions about the unit.
4. The Architects told of several unanswered questions needing resolution soon. Tom Kyle will check with the MTC about moving their bus stop during construction and also have a surveyor obtain accurate location of property line from face of Jackson Hall. If new crematory is over the property line, the University will have to seek a variance. The Architects were directed to use sheeting to hold excavation along Washington Avenue rather than move construction fence to street. Ray Bressler will check capacity of sewer line in Washington Avenue to determine feasibility of connection and also informed everyone of Minnegasco's present plan to rework gas lines in Washington Avenue this summer.
5. Architects gave cost estimates for doing work shown on plans, and are printed following. To keep the project on schedule, within two weeks directions will be given to the Architects whether to proceed with drawings showing complete sub-basement of tower or whether to do the crematory facility only.

Con't on next page.

PRELIMINARY CONSTRUCTION COST ESTIMATE

Complete Tower Sub-basement

General, Elec  
Mech w/O.H. & P.

TOTAL \$90,000 - 110,000

Crematory Facility Only

General, Elec  
Mech w/O.H. & P.

TOTAL \$75,000 - 90,000

If sub-basement of tower is not constructed now but @ later date, one has to again pay for shoring, underpinning, rewaterproofing, etc. Annual inflation is additional.

TOTAL \$25,000 - 40,000

cc: All Present





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

H S A E	
REC'D	5-11-78
ARCH	BJ
MECH	HW
ELEC	GH
STR'L	—
TAC	JPX
	DBB
FILE	<i>Small Crematory</i>

May 8, 1978

Mr. Duane Blanchard  
Health Science Architects & Engineers  
2829 University Avenue S.E.  
Minneapolis, Minnesota 55414

Regarding: Crematory - Project Budget

Dear Duane,

After our meeting last Thursday, Paul and I were discussing your proposed construction budget increase of 10 to 15 percent, and we find that increase unacceptable. We have no intention of building the entire basement level of the future tower and would request that you design within our identified budget and program for this crematory project only. We understand the desire to complete the tower foundation but can not endorse the expense at this time.

This office will manage the project and will be in charge of all equipment purchases. All meetings with University personnel and vendors are to be coordinated through the Health Sciences Planning Office and its representatives. If you need further clarification of the budget, please contact either Paul or myself.

Yours Truly,

Tom Kyle

cc: Paul Maupin  
Pete Merz

NOTE: SEE HSAE RESPONSE  
TO THIS LETTER DATED  
15 MAY 1978.

# HSAE

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

15 May 1978

**RECEIVED**

Mr. Tom Kyle  
4107 Powell Hall  
University of Minnesota  
Minneapolis, MN 55455

**MAY 17 1978**

**UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE**

Regarding: JOML Crematory Project  
Project Budget and Design Status

Dear Mr. Kyle:

Your letter to me, dated May 8, 1978, suggests that you do not understand the intent of the cost information provided to you on May 4th. One of the initial steps in our design process is to analyze the Owner's program and budget to determine if they are compatible. Our initial analysis of the University's program and budget indicates that the budget may be low by approximately 10 percent. This information was given to Mr. Hewitt at the time the signed Proceed Order was returned to the University. This information did not change the budget nor was it a recommendation by the Architect to make such a budget change. We further indicated that, due to this potential budget deficiency, we would develop an estimate of the probable construction cost as soon as possible so that any conflict between the program scope and the budget could be resolved by the University and Architect as soon as possible.

Your letter also suggests that you have a pre-conceived design solution which does not include any basement or foundation work associated with future construction. We have not reached any conclusion as to the design solution which will facilitate and be compatible with the future mechanical tower. We will be addressing these considerations during the initial design phases.

I assume your reference to managing the project is associated to the University project responsibilities as they relate to the Architect.

Please contact me if you need any further clarification on the subject matter included in this letter.

Sincerely,

HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.



Duane E. Blanchard  
vsw

cc: Paul Maupin

RECEIVED

MAY 19 1978

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

Architectural/Engineering Services  
Crematory Facility, JOML Complex

To provide architectural and engineering services for  
a Crematory Facility at the sub-basement level of Jackson  
Hall as provided in the Owner/Architect Agreement,  
dated January 28, 1976 for the Jackson-Owre-Millard-  
Lyons Complex Remodeling.

11,653 00

REFER TO: The Architects Collaborative, Inc.  
46 Brattle Street  
Cambridge, Massachusetts 02138

NOTE TO PURCHASING:

Please do not indicate an amount on the order to the  
architect. It is for accounting purposes only.

11,653.00

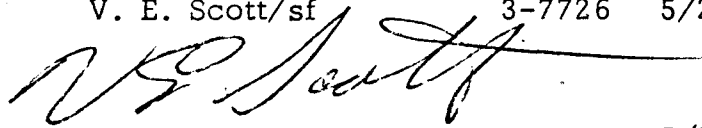
Physical Planning

No delivery.

V. E. Scott/sf

3-7726

5/2/78



5/2/78

UNIVERSITY OF MINNESOTA  
HEALTH SCIENCES EXPANSION  
BASIC SCIENCES REMODELING

RECEIVED

MAY 19 1978

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

PROCEED ORDER NO. 3  
JACKSON-OWRE-MILLARD-LYON COMPLEX  
CREMATORY FACILITY AND  
ASSOCIATED SUPPORT SPACES

27 February 1978

Purchase Order No. F-55495

THE ARCHITECTS COLLABORATIVE, INC. of Cambridge, Massachusetts and HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC. of Minneapolis, Minnesota, are hereby authorized to provide Professional Services to the University for the design, bidding and construction phases for a Crematory Facility at the sub-basement level of Jackson Hall as provided in the Owner and Architect Agreement of January 28, 1976 for the Jackson-Owre-Millard-Lyon Complex Remodeling. It is understood that HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC. will assume the primary responsibility for overall project management.

The conditions of the above referenced Owner and Architect Agreement shall apply to this Proceed Order as follows:

ARTICLE I - PROFESSIONAL SERVICES

The provisions of this article shall apply for Phases II through VI as appropriate to the scope of the work. The construction of the Crematory Facility is to be done as a single prime contract and the work is to be complete for operational use by January 10, 1979. Periodic site visits and attendance at scheduled meetings of the Contractors and the University shall not exceed one-half day per month during the Construction Phase.

ARTICLE II - COST OF THE PROJECT

The budgeted construction cost of the project segment is \$77,687. The purchase and installation of the retort and other Group II Equipment is not included in the construction cost.

ARTICLE III - COMPENSATION

Compensation shall be in accordance with the provisions of this article for the work performed.

ARTICLE IV - REIMBURSEMENT

Reimbursement shall be in accordance with the provisions of this article.

ARTICLE V - EXTRA SERVICES AND SPECIAL CASES

The provisions included in this article shall apply to this Proceed Order.

ARTICLE VI - CREDIT'S

The article does not apply to this Proceed Order.

ARTICLE VII - UNIVERSITY CONSULTANTS

The provisions included in this article shall apply to this Proceed Order.

ARTICLE VIII - DATA TO BE FURNISHED BY THE UNIVERSITY

The provisions included in this article shall apply to this Proceed Order.

ARTICLE IX - ORDER OF PROCEDURE

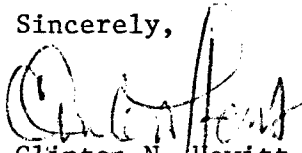
The provisions included in this article shall apply to this Proceed Order except for the ones associated to the Design Concept and Scheduling Phase.

ARTICLES X, XI AND XII

The provisions included under these articles shall apply to this Proceed Order.

If this Proceed Order meets with your approval, please sign three copies and return to this office.

Sincerely,



Clinton N. Hewitt  
Assistant Vice President  
Physical Planning  
University of Minnesota

APPROVED:

THE ARCHITECTS COLLABORATIVE, INC.

By CRAND FOSTER

Title PRINCIPAL

By John W. Patton

Title ASSOCIATE

HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.

By Deane E. Blanchard

Title Vice President

By Lu. Ann Ashen

Title Secy - Trust

FUNCTIONAL SPACE PROGRAM SUMMARY

The crematory facility is to be located at the sub-basement level of Jackson Hall, north on Washington Street, adjacent and connected to the existing cadaver cooler. The design and construction is to facilitate and be compatible with the construction of the northwest mechanical tower in the future; as per the Phase I master plan for the Jackson-Owre-Millard-Lyon complex remodeling. The structure is to be a single level concrete structure and contain approximately 440 square feet with an exhaust flue extending above the roof of the complex; the flue will eventually be incorporated within the mechanical tower. This new construction will be north of the foundation wall and abutting Jackson Hall with a connecting corridor through the foundation to the existing sub-basement storage area. This new construction will house a retort (crematory) that will be selected and installed by the University, and must be compatible with the equipment selected.

January, 1978

CREMATORY - JOML PROBABLE COST SUMMARY

Construction Cost \$ 77,687 \$ 77,687

NON-BUILDING COSTS

Sitework:

Landscaping 1,493  
Misc. Shops Work 1,000

Utilities 400

A/E Fees (including travel) (15%) 11,653

Contingency (3%) 2,330

Supervision (3%) 2,330

Site Survey 500

Material & Perf. Testing 1,000

Miscellaneous Engineering 1,500

Building Activation 1,000

SAC Charge 400

Permits 900

Incidentals 500

Health Sciences Planning Office (3%) 2,330

Equipment

Group # (including retort) 33,480 60,816

PROJECT TOTAL \$138,503

THE ARCHITECTS COLLABORATIVE, INC.  
HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.

HEALTH SCIENCES EXPANSION  
UNIVERSITY OF MINNESOTA

RECEIVED

JUN 8 1978

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

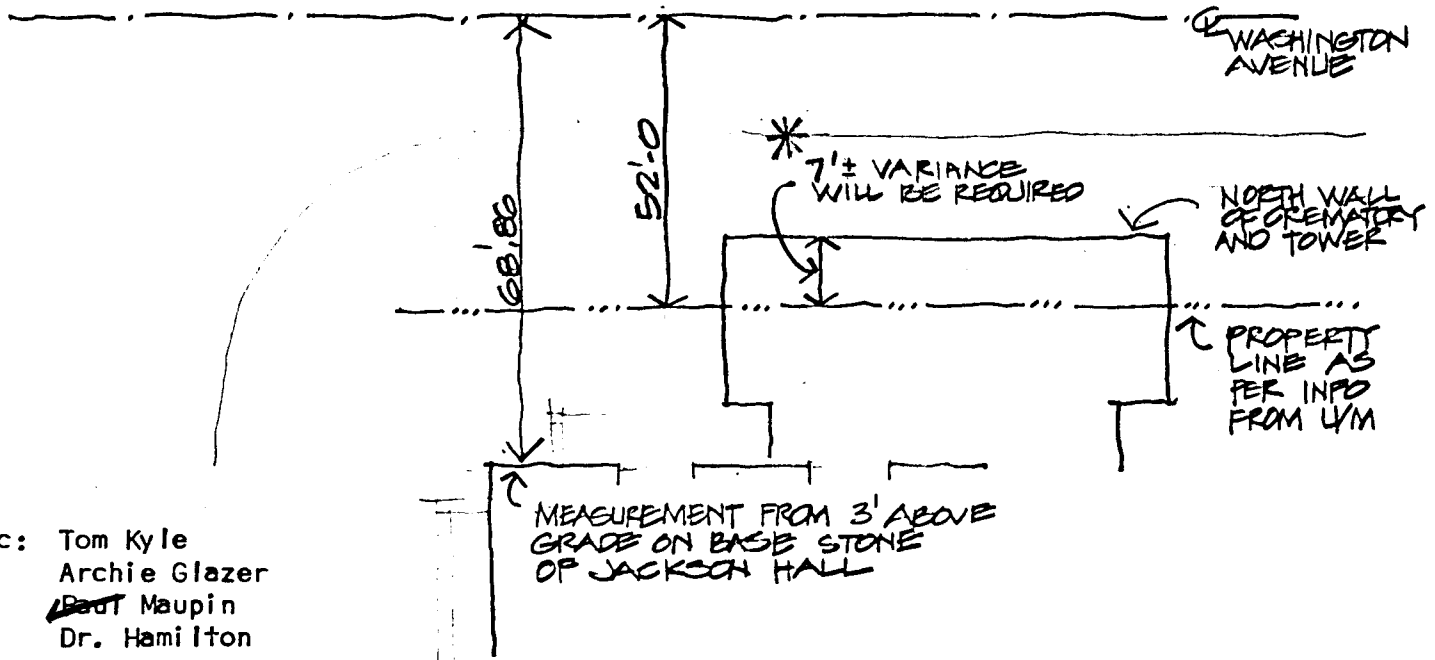
MEMORANDUM

MEMO TO: Crematory Facility File  
MEMO BY: Bruce Johnson  
DATE: 6 June 1978  
SUBJECT: Property Line

Per 6 June phone call from Archie Glazer of University Engineering and Construction:

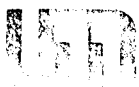
The information and sketch below was conveyed to the Architects via the above conversation.

1. State Highway Department took more property when widening street for Washington Avenue Bridge.
2. Variance request may take 2 months to get final approval from city council.
3. University should expedite variance request to avoid delay in project and determine whether Architects are to proceed with drawings under assumption the variance will be granted.



cc: Tom Kyle  
Archie Glazer  
~~Paul~~ Maupin  
Dr. Hamilton





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

July 20, 1978

Mr. Jerome O. Nelson  
Engineering & Construction  
26b Folwell Hall  
Minneapolis Campus

Dear Jerry,

The Master Plan document of 1976, for the Jackson-Owre-Millard-Lyon Complex, provided four mechanical towers to be constructed, one in each quadrant of the complex, to house the air conditioning and ventilation equipment demanded in the Complex. In the current renovation the two southern towers were constructed; the two on the north side of the Complex are to be built in the forthcoming completion phase of the renovation of the total Basic Sciences Complex.

It was determined by Administration to construct the new crematory now; it is located in the sub-basement level of the northwest tower (future). It is necessary for the University to acquire title to the property 25 feet north of the existing Jackson and Millard Halls, to accommodate these constructions. The future tower constructions are included, as I understand it, in the Health Sciences Capital Requests for 1979-80. Therefore, it seems reasonable to purchase the necessary property at one time, that time being now so the crematory project may proceed.

I have included a plan view from the Master Plan showing the towers and necessary dimensions. If you require additional information please call me.

Yours truly,

Tom Kyle  
Health Sciences Planning Office

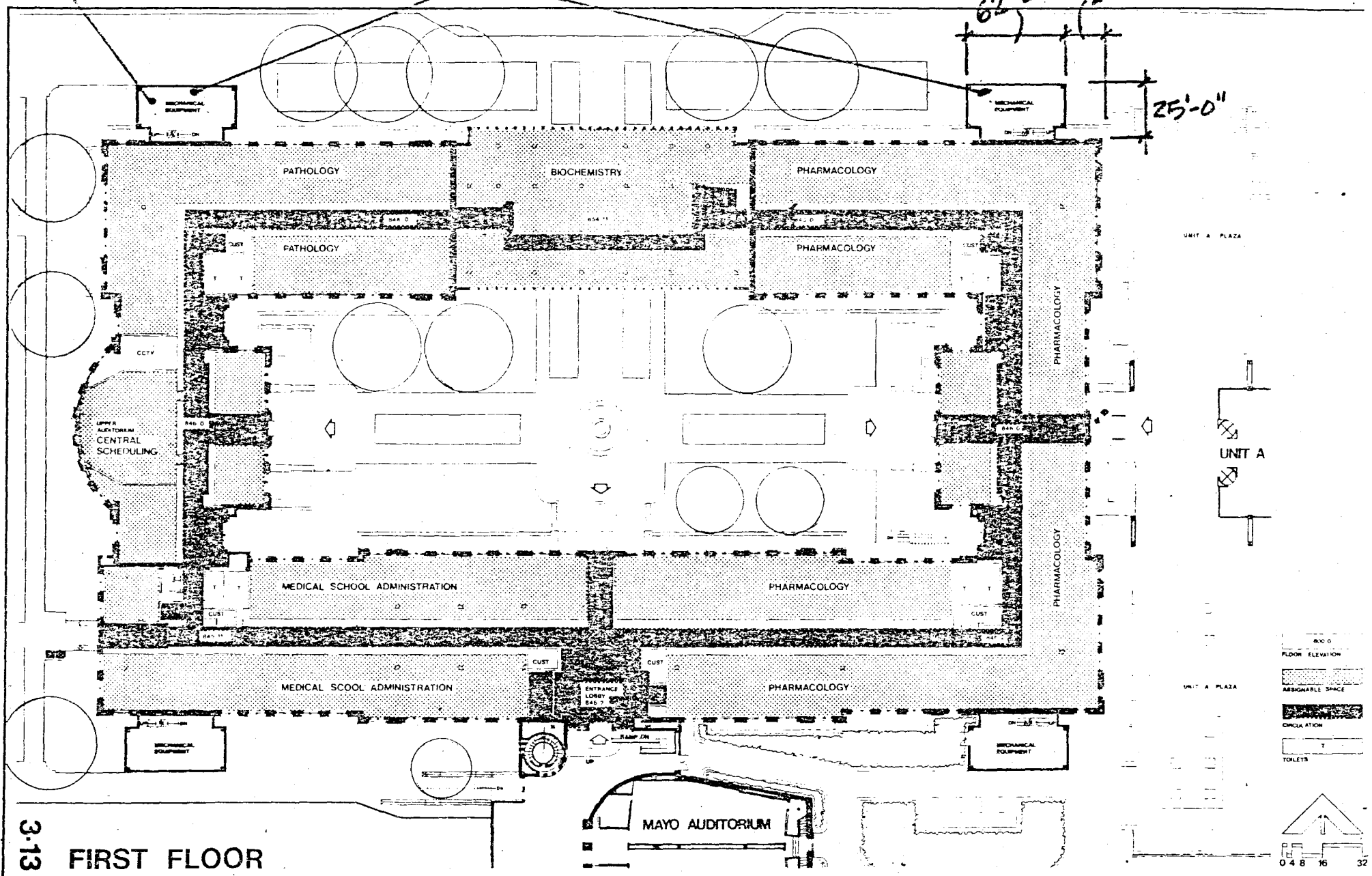
TK:cl

cc: Paul Maupin

CREMATORY (1978)  
(BASEMENT LEVEL)

FUTURE TOWERS (1980)

62'-0" 23'-0" 25'-0"



3-13 FIRST FLOOR



**UNIVERSITY OF MINNESOTA**  
**HEALTH SCIENCES EXPANSION**  
MINNEAPOLIS MINNESOTA

THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. & THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.  
JOML  
THE CERRY ASSOCIATES, INC.  
MINNEAPOLIS, MINNESOTA

JACKSON OWRE MILLARD LYON  
COMPLEX REMODELING  
MINNEAPOLIS, MINNESOTA

**CONCEPT - ARCHITECTURAL**

Health Sciences Planning Office

July - 1978



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

July 27, 1978

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

Dear Bruce:

You may consider this letter as a request to proceed with the crematory project design. Your proposed budget of \$90,000.00 for the complete tower sub-basement construction cost is an acceptable target and you are requested to proceed with that scheme.

To complete the design development phase of your contract, we will require three sets of the design development drawings and one reproducible transparency of the drawings. It is our understanding that the schematic and design development phases of this project were combined due to the project's simplicity. We will also require an updated proposed budget at this time and phase.

Yours truly,



Tom Kyle  
Health Sciences Planning Office

TK:c1



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

September 1, 1978

TO: Paul Maupin  
FROM: Tom Kyle  
SUBJECT: New Crematory - Project Status

The Design/Development phase of the project is completed and approved pending the transmittal of the D & D documents. The Architects design concept is for the sub-basement level of the future Mechanical Tower at the Northwest quadrat of the Jackson/Owre/Millard/Lyon complex. The crematory facility will be located in a large portion of the sub-basement and the exhaust flue will be run exposed on the North side of Jackson Hall. The flue and any exposed construction will be incorporated into the future tower design when that construction occurs.

The revised design schedule for this project shows an advertisement for bid date of September 27, 1978. Award should in about 35 to 45 days. The construction completion date is identified as February, 1978. As the design proceeds, these dates will be clarified.

During the design/development phase of this project, it was discovered that the University did not own title to the property identified in the master plan for the tower constructions. Appropriate action is being taken to purchase the property from the State for approximately \$31,000.00, which is the price the University sold the property to State in 1968.

PRELIMINARY PROJECT COST ESTIMATE

Complete Tower Sub-Basement

Construction Cost	\$110,000.00
Cost of Crematory Unit	27,000.00

Non-building Costs:

Landscaping	1,493
Misc. shops work	1,000
Utilities	400
A/E fees	16,500

September 1, 1978  
Crematory Project Status  
Page Two

Contingency (3%)	3,300	
Supervision (3%)	3,300	
Site Survey	500	
Material Testing	1,000	
Misc. Engineering	1,500	
Activation	1,000	
SAC Charge	400	
Permits	900	
Incidentals	500	
Health Sciences Planning Office @ (3%)	<u>3,300</u>	
	35,093	<u>35,093</u>
PROJECT TOTAL		\$172,093
Cost of Property		<u>31,284</u>
TOTAL		<u><u>\$203,377</u></u>

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

14 September 1978

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

SEP 14 1978

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

Regarding: Crematory Facility

Dear Paul:

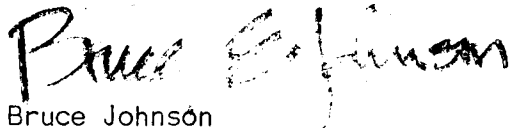
The attached is a copy of the construction cost estimate and drawings to complete the contract requirements for the design development phase.

Due to a change in schedule for this job, we will experience added costs as indicated for winter construction, protection and inflation. As of this date, we still have not received a letter from the University indicating the property required for this building has been purchased and legally owned by the University. We would appreciate receiving a copy as soon as it is available.

We are proceeding with contract documents as directed and will be ready September 28, 1978 for final University review.

Sincerely,

HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.



Bruce Johnson  
VSW

SEP 14 1978

THE ARCHITECTS COLLABORATIVE, INC.  
HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

UNIVERSITY OF MINNESOTA  
HEALTH SCIENCES EXPANSION

CREMATORY FACILITY

ESTIMATE OF PROBABLE CONSTRUCTION COSTS

Crematory Facility Basement  
Shell Space of N.W. Tower of JOML,  
Chimney Stack, Associated Site  
Work, Mechanical and Electrical Work

(Estimated in May)

\$90,000 - 110,000

Winter Construction (15 Nov. to 1 March)  
Replacement of Existing Sidewalk Due to  
Sewer Pipe Installation

Inflation of Construction Costs

\$10,000

---

TOTAL

\$100,000 - \$120,000

If, indeed, the bidding climate shows  
these figures to be representative of  
existing market conditions, we have the  
ability to reduce these costs by deleting  
the shell space area of the future tower.

(15,000 - 20,000)

---

TOTAL CONSTRUCTION COST

\$ 85,000 - \$100,000



UNIVERSITY OF MINNESOTA  
TWIN CITIES

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

*FILE*  
*3/12/79*  
*Paul*

October 20, 1978

OCT 23 1978

Paul J. Maupin, Coordinator  
Health Science Planning Office  
4-104 Powell Hall

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

Minneapolis Campus

REFERENCE: Jackson Hall Crematory

Dear Paul:

It is with no little concern that I view the most recent developments related to the Jackson Crematory, particularly as it affects the involvement of my staff.

We initially undertook this project only because first cost economies (a reduction in engineering fees) were anticipated if the University were to pre-purchase a package cremator. Now, I'm advised that a custom-designed, field erected cremator is being considered.

Some of the advantages cited for this change in program requirements presumably are valid; the validity of others would be conditional. And it must be remembered that a custom designed, field erected unit will have to be competitively bid as this office would seriously question the advisability of "sole source" construction documents, particularly in light of our experience with the reduction kilns for Studio Arts, Phase I.

However, we have neither the expertise to undertake such a design (and exercise the necessary control over the end product) nor the manpower available. This was true in December, 1977, when this project was identified as a critical need - - it is even more true since the loss of one of our more experienced engineers through promotion within the University.

If the decision has been made to design and take bids on a field erected unit, it will be necessary for the University to commission a consultant to undertake the project. It is unfortunate that this possibility was not identified in December.

Very truly yours,

E. B. Merz  
Assistant Supervising Engineer

EBM/vhd

c.c.: C. N. Hewitt  
Paul E. Kopietz  
Tom Kyle  
Ray Bressler





UNIVERSITY OF MINNESOTA  
TWIN CITIES

Physical Planning  
503 Morrill Hall  
100 Church Street S.E.  
Minneapolis, Minnesota 55455  
(612) 373-5765

OCT 30 1978

October 24, 1978

TO: Clinton Hewitt  
Paul Maupin  
*Barb Quade*

FROM: Barb Quade for John Brooker, Art Halpin,  
Roger Huss, Barb Quade, Bob Shopbell

RE: Location of Construction Fence  
Crematory at Jackson Hall

Last week we held a meeting with Tom Kyle, Health Sciences Planning Office, regarding the possible relocation of the bus shelter at Lyon Lab. The drawings which Mr. Kyle received from the architects indicated that the construction fence for the crematory project at Jackson Hall would move out to the curb line.

Should this occur, the bus shelter would have to be removed; in this case, a temporary relocation would be desirable. It is recommended that the construction fence line be maintained around the south side of the shelter for several reasons:

- The existence of the shelter defines the bus stop and facilitates bus pick-ups and discharges for the campus and commuter routes.
- There are heavy pedestrian volumes on the south side of Washington Avenue, and eliminating the sidewalk here would pose a safety hazard.
- This stop presently serves an intercampus line and a commuter bus route and two city routes.
- It would be confusing for passengers to have this stop moved to 2 or 3 new sites.
- It is more economical to maintain the shelter in its present location than to temporarily relocate it.
- The shelter is owned by the MTC and there is the possibility that they would be adverse to moving the shelter.

Clinton Hewitt/Paul Maupin  
October 24, 1978  
Page Two

Tom Kyle indicated that he would communicate to the architects that maintaining the existing fence line is necessary.

Your assistance in furthering this request would be appreciated.

BQ/pl

cc: Laszlo Fulop  
Greg Kittelsen  
Tom Kyle



UNIVERSITY OF MINNESOTA  
TWIN CITIES

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

November 3, 1978

NOV 7 1978  
UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

Health Sciences Architects and Engineers  
University Park Plaza  
Suite 704  
2829 University Avenue Southeast  
Minneapolis, Minnesota 55414

Subject: JOML-B Crematory Addition  
Jackson Hall  
Minneapolis Campus  
Project No. 032-77-0333

Gentlemen:

I am enclosing review comments on the subject project, as made by the Mechanical and Electrical Sections for your information and appropriate action. If you have any questions concerning these Reviews, please contact the people identified.

Very truly yours,

  
Paul E. Kopietz  
Director of Engineering and Construction

PEK:mn

Enclosure

cc: Thomas W. Kyle



UNIVERSITY OF MINNESOTA  
TWIN CITIES

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

October 25, 1978

TO: Paul Kopietz  
FROM: Evan B. Merz  
SUBJECT: Preliminary Review of Mechanical Plans and Specifications  
JOML-Crematory Addition  
Jackson Hall, Minneapolis Campus, Project No. 032-77-0333

The subject drawings and specifications have been reviewed by this office. H.S.A.&E. should note the following comments and make appropriate corrections and/or additions prior to release of contract documents for bidding purposes. Any questions regarding this review may be directed to this office or Ray Bressler at 373-0394.

Sheet M-1

1. How is gas and water service to Jackson Hall going to be maintained during excavation and construction?
2. Will gas vent be required at the new meter location? If so, this should be shown on the drawings.
3. Relocate the thermostat in the crematory room. Present location will be influenced by the combustion air intake.
4. Are throw-away filters adequate for the exhaust from the bone room?
5. Provide a drain pipe from the air intake drip pan.
6. Are there any alternatives to the air intake shaft? Will there be a louver in the opening?
7. Change the unit heater controls to a type that controls hot water to the units. Constant hot water to the unit heaters will generate too much radiant heat to the space.
8. What is the purpose of the aquastat on the unit heaters?

Sheet A-1

1. Show the rerouting of the 4" fire main to Lyon Labs.

Sheet A-2

1. Provide mounting details for the window air conditioners.
2. Now that the windows are being eliminated in rooms 96 and 96B will there be a need for mechanical cooling during the winter in these areas?

Specifications

- 15110.2.1.6 - Natural gas - SBC 800Z "all gas piping 2½" and larger shall be welded."
- 15650.2.1 - Capacity schedule for unit heaters is listed in the specifications not on the drawings.

EBM/RB/gsc



UNIVERSITY OF MINNESOTA  
TWIN CITIES

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

October 25, 1978

TO: Paul Kopietz

FROM: Dave Kerkow

SUBJECT: Check by Electrical Section (W.R. Coffin) of Preliminary Drawings and Specifications on Jackson Owre Millard Lyon Complex - Crematory Job No. 438 (280.13), Minneapolis Campus Dated September 28, 1978

The following comments are made as a result of our review of the subject documents:

DRAWING E-1

Motor Number 6, 2 HP, 208 volt, single phase should be energy efficient motor or capacitors for power factor correction should be provided.

Who will remove starter in Room S67 and remove wiring back to panel in circuit to be abandoned?

Electrical installation shall be so made that the possible spread of fire or products of combustion through fire-rated, fire-resistant or fire-stopped walls, partitions, ceilings and floors, will not be substantially increased.

SPECIFICATIONS

Section 16010-6

1.10 A Change to galvanized.

Section 16100-5

3.2 C Change to NEC Table 250-95.

Section 16300-2 B

If only panelboard mentioned is 30 circuit why give information on 42 circuit panelboard?

Section 16300-2 C

In no feeders pass through panelboard, why give requirement for additional width on side for various sized feeders?

Include section on Fire Alarm

Should include complete information, tests, to be performed equipment, method of mounting, and any other requirements such as wire size.

DK/WRC/gsc



UNIVERSITY OF MINNESOTA  
TWIN CITIES

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

November 3, 1978

NOV 8 1978

Paul J. Maupin, Coordinator  
Health Science Planning Office  
4-104 Powell Hall

Minneapolis Campus

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

REFERENCE: Jackson Hall Crematory

Dear Paul:

This is intended to confirm our discussions of November 1, 1978, concerning this project.

1. On the basis of my reiteration of my staffing problems and concern over the pitfalls of "performance" type documents and the implied "sole source" concept for the cremator, your office will work with the user department and HSAE to:
  - a) identify the cremator as "equipment" and pursue the "sole source" method of obtaining the unit, or
  - b) add the cremator to the construction documents already prepared by HSAE.
2. Additionally, your staff would again review the viability of locating the new cremator where the present unit is located. Obvious advantages of this location would be:
  - a) initially postpone construction of a portion of the future NW mechanical tower and, more importantly,
  - b) eliminate the need for installing an exposed stack on the north side of Jackson Hall.

As I indicated during our meeting, I remain convinced that the best price with the least problems can only be obtained by open bidding on a completely designed unit. The press of time and lack of expertise forced us to follow essentially the same approach for the reduction kilns for Studio Arts I that your staff (and using department) is recommending for the cremator. Result: Questions concerning propriety of bidding procedure, labor problems,



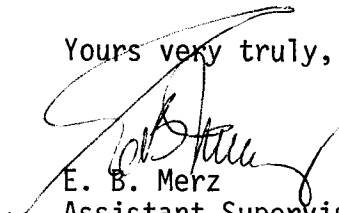
November 3, 1978

Paul J. Maupin, Coordinator

and, (unfortunately) inadequate equipment for the service required. By completely designing the Phase II kilns and burn-out furnaces in-house, hopefully, we will avoid these difficulties.

In the context of the foregoing, as time allows, we stand ready to be of assistance in obtaining a satisfactory unit for the using department.

Yours very truly,



E. B. Merz

Assistant Supervising Engineer

EBM/vhd

c.c.: C. N. Hewitt  
Paul E. Kopietz

# HSAE

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

6 November 1978

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

NOV 6 1978

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

Re: JOML Crematory Addition

Dear Paul:

On October 6, 1978, five sets of the contract documents were delivered to your office for review before bidding. We are now enclosing four additional sets recently requested to aid in the University review process.

During this review period we have been reviewing our earlier cost estimates against the now completed contract documents. On 14 September we provided your office with a design development phase estimate of \$100 - \$120,000. The construction market is under such demand now that we employed a local contractor to estimate what current costs would be for this job. This estimate came back to us, and in our opinion, was very high above earlier estimates.

In an attempt to provide you with a final estimate for this contract document phase, I have put together the accompanying chart of estimates which itemizes each subsection of the contract work.

The first column was obtained from the contractor's cost breakdown of September 1976 for JOML-A. Here two towers were erected with nine total floor levels for \$518,000. Appropriate figures were extracted from this breakdown as applicable for constructing their similar below grade levels only. An inflation factor was applied to account for 2 years and by reasonable assumption, the present project should be able to be built for this amount.

The second column is our earlier estimate for the design development phase where all specific details were not known at the time.

The third column is from our consultant contractor who used the current contract document review set to obtain his estimate. He has pointed out to us how difficult it is to obtain subcontractors at this time to perform work. This is reflected in the prices he received from subcontractors where the law of supply and demand has raised prices considerably.

Mr. Paul Maupin  
6 November 1978  
Page Two

The fourth column is our evaluation of his estimate which under closer observation was high in quantities or complexity of work involved. It would appear that due to winter construction, current market conditions and the increased scope of utility relocation and ventilation requirements, the project may have a construction cost of \$170,000. Acceptance of Alternate #1 (deleting future tower space) would probably decrease the construction cost by \$30,000 to arrive at a final cost of \$140,000.

We hope this analysis will help your review process and point out the complexities in providing construction estimates in the current construction market. Since we have this uncertainty in the estimates, and also being aware of your budget requirements, we would recommend that a professional cost estimator or contractor be retained to provide a detailed materials take off with an associated cost estimate.

If you have any questions or feel that a meeting may be necessary, please call me.

Sincerely,

A handwritten signature in black ink that reads "Bruce E. Johnson". The signature is written in a cursive style with a large, looping "J" at the end.

Bruce E. Johnson

BEJ:mb

Enclosure

Section	General Conditions	JOML-A CONTRACT COST BREAKDOWN SEPT. 1976	ARCHITECT'S DESIGN DEVELOPMENT ESTIMATE AUGUST 1978	CONSULTANT CONTRACTOR'S ESTIMATE OCT. 1978	ARCHITECT'S CONSTRUCTION DOCUMENT ESTIMATE NOV. 1978
		10,000	12,900	25,000	25,000
01910	Demolition	-	10,000	in Sec. 03300	
02200	Excav. & Backfill	10,000	9,000	27,000	16,000
02400	Excav. Support Walls	-	11,500	21,000	20,000
03200 03300	Conc. Reinforcement Concrete Work	38,000	36,000	45,000	45,000
04100	Conc. Block Partition	900	9,000	10,000	10,000
05120	Structural Steel	9,000	10,000	13,500	12,000
05500	Misc. Metal	1,000	Not in Est.	3,000	2,000
07110 07210	Waterproofing Building Insulation	4,000	3,800	6,500	5,000
07620	Sheet Metal Flashing	6,000	Not in Est.	2,500	2,500
07900	Sealants	1,200	Not in Est.	2,500	2,500
08110	Hollow Metal	1,400	1,300	1,500	1,500
08700 09100	Hardware Lath and Plaster	-	Not in Est. Not in Est.	1,500	1,500
09900	Painting	1,000	Not in Est.	6,000	2,000
15000	Mechanical	9,000	17,000	20,000	20,000
16000	Electrical	5,000	3,000	10,000	5,000
	Subtotal	\$96,500			
	Maximum inflation rate @ 1% (20% 2 years)	<u>20,000</u>			
	Construction Total (Nov. 1978 Alternate #1	\$116,500 -	\$120,000 (-20,000)	\$195,000 (-50,000)	\$170,000 (-30,000)
	Total	-	\$100,000	\$145,000	\$140,000



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

November 13, 1978

TO: Pete Merz

FROM: Paul Maupin

SUBJECT: Crematory Project

Last February when it was decided that your division would write a performance specification for the Crematory Project, you assigned the project to Ray Bressler.

Ray informed our office that he had scheduled the work for September in order to fit the construction schedule. He attended all of our meetings with the consultants and always concurred with our opinions that the G & S is a packaged crematory unit. We met with G & S representatives and made certain design decisions based on those meetings. During this period of time, there was never any mention of a problem about specification of the G & S unit.

We still maintain that the G & S unit identified during project development is a packaged unit from a specification standpoint.

We do, however, understand your reluctance to prepare a specification from the standpoint of your manpower problems and the possibility of preparing a proprietary specification.

We have scheduled a meeting with the department and Mr. Donald Holberg to review the project. We will advise you of the meetings conclusions.

cc: Clint Hewitt  
Paul Kopietz  
Tom Kyle  
Ray Bressler

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

November 14, 1978

NOV 15 1978  
UNIV. OF MINN.  
HEALTH  
PLANNING

Health Sciences Architects and Engineers  
University Park Plaza  
Suite 704  
2829 University Avenue Southeast  
Minneapolis, Minnesota 55414

Subject: JOML Crematory Addition  
University of Minnesota  
Project No. 032-77-0333

Gentlemen:

I am enclosing for you the Review Comments on the subject project, as made by the Civil Engineering Section for your review and appropriate action. There are some rather significant items in this review that call for some substantial changes to the present document, but we really feel that they will produce a much better project, and it would be my guess probably save some funds.

Very truly yours,

Paul E. Kopietz  
Director of Engineering and Construction

PEK:mn

Enclosure

cc: ✓ Paul J. Maupin



UNIVERSITY OF MINNESOTA  
TWIN CITIES

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

November 1, 1978

TO: Paul E. Kopietz  
FROM: O. J. Nelson  
RE: JOML - Crematory Addition  
Project No. 032-77-0333

I have reviewed the final plans and specifications, and I have the following comments.

1. The plans and specifications were not marked preliminary, and did not come through the proper channels.
2. The site area includes the sidewalk on the south side of Washington Avenue east of Church Street. This will push pedestrians out into the street into eastbound traffic. To do this would require a protected walking area along this fence, as well as setting out flashers and barricades to the west of Church Street. This will enormously complicate traffic at this intersection, especially the turning movements north out of Church Street.

The Minneapolis Traffic Department should be consulted on this matter, as well as our Police Department.

There is a better way to do this. See Items 3 and 4 below.

3. The fire service to Lyons Lab will have to be revised. The City Water Department will not allow a combined domestic and fire line. The fire line will have to be relocated to direct connection into Lyons Lab from the 12" main in Washington Avenue. This will save space needed for excavation at the Crematory.

4. The storm sewer should be rerouted by attaching the pipe to the outside wall of the Crematory Building. A beam support should be provided for this purpose. This sewer can be cut off during construction, and the Contractor made responsible to provide a temporary service during construction. This will allow the sheeting wall to be brought back close to the new crematory wall. Then the sidewalk can stay open for pedestrian traffic instead of routed out into Washington Avenue.

Paul E. Kopietz  
November 1, 1978  
Page Two

5. The new site plan does not show the new air vent or chimney.
6. The test borings were relocated. We will send a revised plan when the boring report is received.

General Specifications

7. In reference to Section 01500, 1.04B, no temporary water service is needed for the building. An inside loop exists inside the JOML Complex to provide domestic water service. The fire line to Lyons Lab can be shut down during the necessary time for relocation, and the Contractor shall notify the Owner and the Fire Department prior to the shutdown.

8. In Section 02200, 2.1C, it should be revised to state that top soil will be provided by the Owner. This is through funds estimated for JOML-B Contract.

This concludes my comments on this project. We should schedule a Meeting with the Architects to show them what is required for these relocations of utilities.



OJN:AG:MN





UNIVERSITY OF MINNESOTA  
TWIN CITIES

Physical Plant Operations  
200 Shops Building  
319 15th Avenue S.E.  
Minneapolis, Minnesota 55455

December 15, 1978

DEC 15 1978  
UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

TO: Tom Kyle  
Health Science Planning Office

FROM: Don Holberg  
Physical Plant Department *DH*

SUBJECT: Health Science Crematory Replacement

The replacement of the crematory in the existing location in Jackson-Owre presents a couple of problems.

Should the new unit be installed in the lower level of the existing room a new code compliance hydraulic freight elevator would have to be installed to lower the material to the operating floor.

The fresh air ventilation is inadequate. It provides combustion air only, and as a result the room overheats during firing periods. Secondly, the air used for combustion is exhaust air from the laboratory and animal areas on the basement floor of Jackson-Owre. Certainly, this is a condition which should be changed.

Needless-to-mention, the accessibility to the existing room is difficult moving cadavers through elevators and through corridors active with people.

To our knowledge the two stacks in the existing crematory location are serviceable; however, to assure this the stacks should be checked.

These are the first problems which should be considered if the new unit is to be installed in the existing location.

DLH:jme

cc: W. E. Soderberg  
Pete Merz

## PART 1: GENERAL

1.1 SCOPE

- A. Conditions of Contract and Division I General Requirements govern work of this section.
- B. Work Included: Gas-fired cremator complete with installed refractory firebrick work from cremator to bottom of roof slab at chimney.
- C. Work Not in this Section:
1. Foundation for cremator.
  2. Pre-fabricated chimney.
  3. Precast concrete floor access panel.
  4. Electrical and gas connections to cremator.
  5. Field applied finish painting.
  6. Concrete block masonry work.

1.2 SUBMITTALS

- A. Shop Drawings: Provide in accordance with Section 01300.
- B. Maintenance and Instruction Manual: Provide University with printed service instruction and operation instructions manual contained in a hard bound binder. Operational instructions shall also be affixed at the cremator for instant reference.

1.3 QUALITY ASSURANCE

- A. Applicable Codes and Standards: Furnish in accordance with applicable requirements of the following codes and standards.
1. National Fire Protection Association
  2. National Electrical Code
  3. Gas Appliance Manufacturers Association
  4. Uniform Building Code
- B. Qualifications: All work of this section shall be furnished and installed by a subcontractor having a minimum of five years experience in successful installations of cremators of the type as herein specified. If requested by the University, furnish a list of completed installations and references.
- C. Approved Subcontractors: G & S Crematory Company, 4800 Pershing Road, Downers Grove, Illinois 60515, 312-969-0305.
- D. Other Subcontractors: Conform to procedure established under Instructions to Bidders, Article 12, and General Conditions of the Contract, Article 7.12.

#### 1.4 PERSONNEL TRAINING

A. Provide cremator personnel with a one session thorough training lesson in cremator operation, scheduled in cooperation with the University.

#### 1.5 REQUIREMENTS

A. Design and Dimensions:

1. Cremator shall be 5'-4" wide, 10'-0" long, and 5'-6" high above finished floor, with a minimum ceiling height of 10'-0".

2. Cremator shall have three chambers, consisting of (1) Cremation, (2) Combustion, and (3) Secondary Combustion.

B. Capacity: The Cremator shall be able to completely cremate the average body (approximately 150 pounds) and wooden casket on an average of 90 minutes without nuisance from smoke, ash, and in accordance with smoke abatement and air pollution regulations.

#### 1.6 GUARANTEES

A. General: Repair or replace at no cost to the University, work of this section which may fail because of defective material or faulty workmanship within a period of one year from date of initial operation.

B. Additional Guarantees: The following conditions of operation shall be fulfilled when the cremator is being operated by a competent attendant, using natural gas fuel having not less than 1000 BTU per cubic foot:

1. Not more than one attendant will be required to operate the cremator in simultaneous operation.

2. The time required to completely reduce the average body and wooden casket will average 90 minutes.

3. The residue of cremation will be thoroughly reduced and will contain no unconsumed organic matter.

4. When operated in accordance with the subcontractor's instructions, there will be no smoke of an objectionable density from the chimney, and operation will be in compliance with smoke abatement and air pollution regulations. Also, there will be no obnoxious odors or gases emitted from the chimney.

### PART 2: PRODUCTS

#### 2.1 CREMATOR

A. Steel Casing: The Cremator shall be encased in 3/16" steel plates, properly fabricated to withstand stresses of thrust due to firebrick expansion. Steel work shall be shop fabricated and bolted together in the field. No part of the metal casing shall be exposed internally.

B. Refractories: All firebrick shall be of standard shapes, Super duty dry press grade backed up with first quality brick. All refractories shall be laid up in air setting high temperature cement, with the joints as thin as possible and free from voids. All firebrick walls in the cremation and combustion chamber as well as top arch shall be a minimum thickness of 9". The hearth floor shall be 2-1/2" thick. The side walls of the exhaust chamber and lower two arches shall be a minimum of 4-1/2" thick, with a floor of 2-1/2" thick in the exhaust chamber.

C. Insulation: The insulation between the steel casing and refractory lining of the cremator over the main arch, between the concrete foundation and refractory lining, shall be of 2000°F. high temperature block insulation and laid dry with broken joints. The steel charging door shall be insulated with above block and lined with at least 4-1/2" thickness of insulating brick which will withstand 2600°F. The observation ports shall be protected by insulating firebrick, properly rasped out to correct size and shape.

D. Apertures: Each cremator shall have the requisite number of observation ports, exhaust ports, air supply jets, and burner opening. The observation port shall be closed with door fitted with pyrex glass.

F. Flues: Insulate and line the underfloor flue between the cremator unit foundation and chimney. Minimum insulation shall be 2" thick on sides, and 4" thick over arches.

F. Vestibule Doors: The cremator shall be equipped with a pair of steel hinged vestibule doors and frame, attached to steel vestibule front, and equipped with handles and latch bars for convenient operation.

G. Closure Door: Each cremator shall be equipped with a welded steel closure door insulated and lined, which shall operate vertically in channel-iron guides, and shall be counterbalanced for manual operation. Door shall be hung on roller chair over cast iron spocket and shaft mounted in ball bearing pillow blocks. Door shall be equipped with fast acting latch screws and asbestos millboard seal.

## 2.2 GAS BURNERS

A. General: Provide two gas burners with timers. Both the cremation and combustion burners shall have an input capacity of 1,200,000 BTU per hour, designed to meet local code requirements.

B. Ignition: Each burner shall be equipped with gas electric ignition and electronic flame failure devices similar to RAE-890.

C. Minimum Design and Performance Requirements:

- |                          |                              |  |
|--------------------------|------------------------------|--|
| 1. Waste Type:           | 75# Casket:<br>150# Cadaver: | Type 0 Waste - 300#/hr.<br>Type 4 Waste - 100#/hr. |
| 2. Average Heating Value |                              | 6,625.B.T.U./lb.                                   |
| 3. Average Flow Rate:    |                              | 60.6 cu. ft./sec. @1400°F.                         |
| 4. Hearth Area:          |                              | 21.95 sq. ft.                                      |

- |   |  |
|---|--|
| 5. Burning Rate:                          | 18.2#/hr./sq. ft. of Hearth  |
| 6. Primary (Cremation) Chamber Volume:    | 78.8 cu. ft.   |
| 7. Secondary (Combustion) Chamber Volume: | 92.1 cu. ft.   |
| 8. Total Cremator Volume:                 | 168.9 cu. ft.  |
| 9. Total Heat Available:                  | 4,083,333 B.T.U./hr.   |
| 10. Primary Chamber Heat Release:         | 42,318 B.T.U./hr./cu. ft.  |
| 11. Total Heat Release:                   | 24,176 B.T.U./hr./cu. ft.  |
| 12. Velocity of Secondary Chamber:        |  |
| a. Down Pass:                             | 26.93 ft./sec.   |
| b. First Pass:                            | 2.78 ft./sec.  |
| c. Checkerwork:                           | 9.6 ft./sec.   |
| d. Second Pass:                           | 12.4 ft./sec.  |
| e. Flue Tunnel:                           | 25.53 ft./sec.   |
| 13. Total Retention Time:                 | 1.36 sec.  |
| 14. Air Supply:                           | Provide fan for each burner for obtaining adequate combustion air from operating room. |

D. Control Wiring: Provide all necessary control wiring associated with the above burners as a part of this section. The following devices and controls shall be supplied and wired as a part of the cremator: timer switches, flame failure device, thermal switches, automatic gas valves, limit or operating controls, igniter valves, and necessary relays and motor end switches for automatic cooling system operation.

### 2.3 PAINTING

A. Primer: All steel work shall be given a protective coat of tmemec #1009 Gray Metal Primer.

## PART 3: EXECUTION

### 3.1 INSTALLATION

A. General: Install to accomplish proper functioning and operating crematory.

B. Drying Out: On completion of construction, dry out refractory work by means of a slow fire, which shall be gradually increased in temperature and intensity until all moisture is evaporated and the brickwork is ready for high temperatures.

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**HSAE**

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

18 January 1979

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

JAN 22 Rec'd  
UNIV. OF MINN.  
HEALTH SCIENCES  
PLANNING OFFICE

Dear Paul:

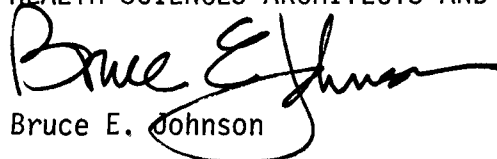
We have received your letter of 9 January 1979. A copy of the specification for the retort was sent to G & S Crematory Company, Dave Lee and Tom Kyle on 4 January 1979 for their comments.

Our response to the review comments sent to our office are enclosed. Your letter mentions that "changes are extensive" and the University will need a second review of the documents. Based upon the comments we received, we feel the changes are minimal and would suggest that you verify that all comments were sent to this office.

If this is the extent of the comments, and the specification for the retort is acceptable, we would advise setting a bid advertisement date as soon as possible to avoid increased inflation costs to the project.

Sincerely,

HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.

  
Bruce E. Johnson

cc: Tom Kyle

Enclosure

BEJ/kn

THE ARCHITECTS COLLABORATIVE, INC.  
HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.

UNIVERSITY OF MINNESOTA  
HEALTH SCIENCES EXPANSION

MEMORANDUM

MEMO TO: JOML Crematory Addition File  
MEMO BY: Bruce E. Johnson  
DATED: 17 January 1979  
SUBJECT: Response to the University Review Comments to JOML Crematory  
Addition Contract Documents.

The following items respond to the comments made in the memorandums  
in the same order as the memorandum.

MEMO FROM EVAN B. MERZ TO PAUL KOPIETZ DATED 25 OCTOBER 1978

Sheet M-1

1. The comments of O. J. Nelson address this subject for water service, and a temporary gas section will be added to the specification.
2. Gas vent will be installed by gas company and will be so marked on plan.
3. The thermostat will be relocated north on the same wall to avoid any influence of cold air movements.
4. Throw away filters are adequate for the bone crushing room exhaust per the users recommendations.
5. A drain pipe to the drip pan will be provided.
6. No logical alternatives exist for the air intake shaft. The intake screen will be changed to the more expensive weatherproof louver and bird screen.
7. The unit heater controls will be changed to the more expensive type indicated.
8. The aquastat on the unit heaters will be removed now with the addition of the other controls.

Sheet A-1

1. Rerouted section of water main was already shown on Detail 1/A-1 with a dashed heavy line.

Sheet A-2

1. A window air conditioner mounting detail has been added to the drawings.
2. The same existing window air conditioners will be in the space and may be used to draw in cool air during winter if room temp is increased.

### Specifications

15110.2.1.6 - The 2 1/2" or larger welding of gas piping will be added to the specification.

15650.2.1 - The capacity section for unit heaters in the specification will be shown on the drawings also.

MEMO FROM DAVE KERKOW TO PAUL KOPIETZ DATED 25 OCTOBER 1978

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### Drawing E-1

A capacitor will be added to motor no. 6 to make it more energy efficient.

Electrical contractor to remove starter as mentioned on note 3, and a note will be added to the drawings to include wiring back to electrical panel.

A note will be added to the specifications stating fire rated fittings are required in all new concrete block walls. Other penetrations are existing or thru crawl space areas and no fire ratings exist.

### Specifications

Section 16010-6 (1.10A) Spelling of galvanized has been corrected.

Section 16100-5 (3.2C) Spelling of NEC has been corrected.

Section 16300-2B Extra information on 42 circuit panelboard has been deleted from specification.

Section 16300-2C Extra information on feeders through panelboards has been deleted from specification.

### Fire Alarms

A smoke detection alarm system will be incorporated into the contract documents. Detectors will be placed in the sub-basement corridor between the stairway and the cremator room. Future detectors can be installed in the mechanical room with the tower addition.

MEMO FROM O. J. NELSON TO PAUL KOPIETZ DATED 1 NOVEMBER 1979

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1. The specification were marked for review, while the plans were not marked preliminary but were unsigned. These documents were delivered by the architect to the Health Sciences Planning Office as per all previous Health Science work.

2. See items 3 and 4.



3. Contract documents will be changed to show:
  - a. Water service to Jackson Hall through Crematory will remain.
  - b. Existing water line to Lyon Lab and manhole off the above line will be abandoned.
  - c. New fire water line will come perpendicular from Lyon Lab existing entrance out to 12" water main in Washington Avenue.
4. Contract documents will be changed to show:
  - a. Rerouting of existing storm sewer line between existing manholes will be run alongside north wall of Crematory, and new manholes possibly may be eliminated.
  - b. Sheeting will be brought in to inside of sidewalk line which will increase cost of construction.
  - c. Sidewalk and curb work will be done by owner.
5. The below grade location of the chimney and air vent has been added to detail 1/A-1.
6. Test boring locations have been changed as per the drawings received.

#### General Specifications

7. Section 01500, 1.04B - Contract documents have deleted reference to temporary water service since existing loop system will suffice.
8. Section 0220, 2.1.c - Contract documents were changed to indicate topsoil is by owner.

A phone conversation with O. J. Nelson, Archie Glaser, and Bruce Johnson conveyed to the architects what Engineering and Construction desires to be changed. It should be noted that these additional items will escalate the construction cost.

kn



UNIVERSITY OF MINNESOTA  
TWIN CITIES

Boynton Health Service  
410 Church Street S.E.  
Minneapolis, Minnesota 55455

JAN 22 Rec'd  
January 22, 1979  
UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

MEMORANDUM

To: Tom Kyle, Health Sciences Planning Office, 4104 Powell Hall, East Bank Campus

From: Keith Carlson, Industrial Hygienist, Department of Environmental Health and Safety

Subject: Comments on Proposed Crematory

I have just read the specification sheet for the Health Sciences Crematory and have found a possible oversight. In order to guarantee that the crematory does indeed comply with air pollution standards, the unit will have to be monitored for effluent emissions. The crematory should be equipped with sampling ports so that such monitoring may be conducted in an efficient and accurate manner. Although many "standard" crematory units run quite cleanly and have a plethora of emission study data, sampling ports are still necessary to make sure that the newly installed crematory meets pollution standards.

If you have any questions or comments, please call me at 373-3292.

KC: db

cc: Paul Maupin



UNIVERSITY OF MINNESOTA  
TWIN CITIES

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

January 29, 1979

TO: Thomas W. Kyle  
FROM: E. B. Merz  
REFERENCE: JOML Crematory Addition  
Minneapolis Campus

JAN 30 Rec'd  
UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

Referring to Section 13995 (Cremator) of the specifications for the JOML Crematory Addition:

1. The documents provide for only one approved sub-contractor. Who will evaluate any prior approval requests? How defensible is the 5-year experience requirement?
2. What does "on an average of 90 minutes" mean? One may take 50 minutes, another 130 minutes?
3. Under "Guarantees", if the cremator does not operate in compliance with smoke abatement and air pollution regulations, does it mean that it isn't being operated according to the manufacturers' instructions?
4. Having only the 3/16" steel casing specified seems hardly adequate to define structural characteristics of the unit.
5. Are castable refractories unacceptable?
6. What is meant by "requisite number of observation ports, exhaust ports,...."?
7. Specify an approved gas burner, including size so that a level of quality is established.
8. Review for correct figures under "Minimum Design and Performance Requirements". Why is this item identified under "2.2 Gas Burners"?
9. Who will wire controls? do gas piping?
10. It is assumed the approved Sub-contractor listed is aware of, (and will) comply with all pertinent requirements of the specifications.

From the above, it should be evident that this office feels the cremator specifications are inadequate. The specifications do not even provide a basis upon which prior

January 29, 1979

TO: Thomas W. Kyle

approval requests can be satisfactorily evaluated, let alone provide a basis to review and approve shop drawings from any manufacturer.

It is apparent that your office has opt for a "performance" specification in lieu of a completely designed unit as recommended by this office.

If you are lucky, no other manufacturers will indicate an interest in providing the cremator. Then you'll have to only be concerned about the approved sub-contractor meeting all the conditions of the contract. My opinion is that the Universities' best interests are not being addressed by proceeding in this manner.

EBM/vhd

c.c.: Paul E. Kopietz

## PART 1: GENERAL

1.1 SCOPE

A. Conditions of Contract and Division I General Requirements govern work of this section.

B. Work Included: Gas-fired cremator complete with installed refractory firebrick work from cremator to bottom of roof slab at chimney.

C. Work Not in this Section:

1. Foundation for cremator.
2. Pre-fabricated chimney.
3. Precast concrete floor access panel.
4. Electrical and gas connections to cremator.
5. Field applied finish painting.
6. Concrete block masonry work.

1.2 SUBMITTALS

A. Shop Drawings: Provide in accordance with Section 01300.

B. Maintenance and Instruction Manual: Provide University with printed service instruction and operation instructions manual contained in a hard bound binder. Operational instructions shall also be affixed at the cremator for instant reference.

1.3 QUALITY ASSURANCE

A. Applicable Codes and Standards: Furnish in accordance with applicable requirements of the following codes and standards.

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D. Other Subcontractors: Conform to procedure established under instructions to Bidders, Article 12, and General Conditions of the Contract, Article 7.12.

## 1.4 PERSONNEL TRAINING

A. Provide cremator personnel with a one session thorough training lesson in cremator operation, scheduled in cooperation with the University.

## 1.5 REQUIREMENTS

A. Design and Dimensions:

1. Cremator shall be 5'-4" wide, 10'-0" long, and 5'-6" high above finished floor, with a minimum ceiling height of 10'-0".

2. Cremator shall have three chambers, consisting of (1) Cremation, (2) Combustion, and (3) Secondary Combustion.

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2. The time required to completely reduce the average body and wooden casket will average 90 minutes.

3. The residue of cremation will be thoroughly reduced and will contain no unconsumed organic matter.

4. When operated in accordance with the subcontractor's instructions, there will be no smoke of an objectionable density from the chimney, and operation will be in compliance with smoke abatement and air pollution regulations. Also, there will be no obnoxious odors or gases emitted from the chimney.

## PART 2: PRODUCTS

### 2.1 CREMATOR

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B. Refractories: All firebrick shall be of standard shapes, Super duty dry press grade backed up with first quality brick. All refractories shall be laid up in air setting high temperature cement, with the joints as thin as possible and free from voids. All firebrick walls in the cremation and combustion chamber as well as top arch shall be a minimum thickness of 9". The hearth floor shall be 2-1/2" thick. The side walls of the exhaust chamber and lower two arches shall be a minimum of 4-1/2" thick, with a floor of 2-1/2" thick in the exhaust chamber.

C. Insulation: The insulation between the steel casing and refractory lining of the cremator over the main arch, between the concrete foundation and refractory lining, shall be of 2000°F. high temperature block insulation and laid dry with broken joints. The steel charging door shall be insulated with above block and lined with at least 4-1/2" thickness of insulating brick which will withstand 2600°F. The observation ports shall be protected by insulating firebrick, properly rasped out to correct size and shape.

D. Apertures: Each cremator shall have the requisite number of observation ports, exhaust ports, air supply jets, and burner opening. The observation port shall be closed with door fitted with pyrex glass.

F. Flues: Insulate and line the underfloor flue between the cremator unit foundation and chimney. Minimum insulation shall be 2" thick on sides, and 4" thick over arches.

F. Vestibule Doors: The cremator shall be equipped with a pair of steel hinged vestibule doors and frame, attached to steel vestibule front, and equipped with handles and latch bars for convenient operation.

G. Closure Door: Each cremator shall be equipped with a welded steel closure door insulated and lined, which shall operate vertically in channel-iron guides, and shall be counterbalanced for manual operation. Door shall be hung on roller chair over cast iron spocket and shaft mounted in ball bearing pillow blocks. Door shall be equipped with fast acting latch screws and asbestos millboard seal.

## 2.2 GAS BURNERS

A. General: Provide two gas burners with timers. Both the cremation and combustion burners shall have an input capacity of 1,200,000 BTU per hour, designed to meet local code requirements.

B. Ignition: Each burner shall be equipped with gas electric ignition and electronic flame failure devices similar to RAE-890.

C. Minimum Design and Performance Requirements:

- |                          |               |                            |
|--------------------------|---------------|----------------------------|
| 1. Waste Type:           | 75# Casket:   | Type 0 Waste - 300#/hr.    |
|                          | 150# Cadaver: | Type 4 Waste - 100#/hr.    |
| 2. Average Heating Value |               | 6,625.B.T.U./lb.           |
| 3. Average Flow Rate:    |               | 60.6 cu. ft./sec. @1400°F. |
| 4. Hearth Area:          |               | 21.95 sq. ft.              |

- |   |  |
|---|--|
| 5. Burning Rate:                          | 18.2#/hr./sq. ft. of Hearth  |
| 6. Primary (Cremation) Chamber Volume:    | 78.8 cu. ft.   |
| 7. Secondary (Combustion) Chamber Volume: | 92.1 cu. ft.   |
| 8. Total Cremator Volume:                 | 168.9 cu. ft.  |
| 9. Total Heat Available:                  | 4,083,333 B.T.U./hr.   |
| 10. Primary Chamber Heat Release:         | 42,318 B.T.U./hr./cu. ft.  |
| 11. Total Heat Release:                   | 24,176 B.T.U./hr./cu. ft.  |
| 12. Velocity of Secondary Chamber:        |  |
| a. Down Pass:                             | 26.93 ft./sec.   |
| b. First Pass:                            | 2.78 ft./sec.  |
| c. Checkerwork:                           | 9.6 ft./sec.   |
| d. Second Pass:                           | 12.4 ft./sec.  |
| e. Flue Tunnel:                           | 25.53 ft./sec.   |
| 13. Total Retention Time:                 | 1.36 sec.  |
| 14. Air Supply:                           | Provide fan for each burner for obtaining adequate combustion air from operating room. |

D. Control Wiring: Provide all necessary control wiring associated with the above burners as a part of this section. The following devices and controls shall be supplied and wired as a part of the cremator: timer switches, flame failure device, thermal switches, automatic gas valves, limit or operating controls, igniter valves, and necessary relays and motor end switches for automatic cooling system operation.

### 2.3 PAINTING

A. Primer: All steel work shall be given a protective coat of tmemec #1009 Gray Metal Primer.

## PART 3: EXECUTION

### 3.1 INSTALLATION

A. General: Install to accomplish proper functioning and operating crematory.

B. Drying Out: On completion of construction, dry out refractory work by means of a slow fire, which shall be gradually increased in temperature and intensity until all moisture is evaporated and the brickwork is ready for high temperatures.

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UNIVERSITY OF MINNESOTA  
TWIN CITIES

Physical Planning  
503 Morrill Hall  
100 Church Street S.E.  
Minneapolis, Minnesota 55455  
(612) 373-5765

February 14, 1979

TO: Archie Glaser  
Tom Kyle

FROM: Barb Quade *Barb* / Roger Huss *Roger*

RE: Bus Shelter/Lyon Lab

It was recently learned that it might be necessary to remove the shelter at the Lyon Lab stop so that a storm sewer could be relocated as the result of the crematory's construction. As I indicated earlier, it would be necessary to investigate this possibility with the MTC. The results of this investigation are discussed below.

It is imperative that the existing stop be retained. If it were to move further east, it would be necessary to go as far as Walnut Street, and this would be unreasonable. If it were to move west to Coffman, it would cause another set of problems.

With the retention of the stop, it is hoped that the shelter can remain as is. If work on the storm sewer prevents this, it is recommended that we have the MTC remove the shelter and store it until it can be returned to its original location. (It is assumed that the construction period would extend from April until the beginning of Fall Quarter.)

The MTC would require that they move and reinstall the shelter themselves at an approximate cost of \$576. The nonbuilding costs for the construction project would be responsible for picking up this cost as well as the cost for reinstating the pad, retaining wall and electrical connection when the shelter is returned.

It is infeasible to relocate the shelter for a variety of reasons:

- The MTC would charge approximately \$860 for temporary relocation of the shelter.
- The shelter could not be located west of the Lyon Lab driveway without a concrete pad.
- It wouldn't be advantageous to move the shelter adjacent to the Lyon Lab driveway when bus patrons can use the protection of Lyon Lab in lieu of a shelter for a few months.

Archie Glaser/Tom Kyle  
February 13, 1979  
Page Two

In analyzing the variables in this project, it should be noted that the MTC requires a week's notice to remove or relocate the shelter. It would be appreciated if you could keep us updated on any decision made which might affect the shelter's location.

BQ/RH/p1

# HSAE

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

22 February 1979

FEB 26 Rec'd

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

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

RE: JOML-B - Crematory Facility

Dear Paul:

We have received additional review comments after my 18 January letter to your office. One memo was received 26 January from Keith Carlson of Environmental Health and another from E. B. Merz of Engineering and Construction on 12 February 1979. Following are our responses to the comments:

January 22 Memo from Keith Carlson

The sampling ports requested have been added to the specifications.

January 29 Memo from E. B. Merz

1. HSAE with assistance from the University will evaluate any prior approval requests. We feel the five year experience requirement is a legitimate evaluation criteria to judge acceptability of manufacturer's products.
2. The 90 minutes is a guide. Other manufacturers may take shorter or longer periods and could be part of any evaluation.
3. Yes, improper operation could produce smoke and air pollution non-compliance, or, if properly operated, could be caused by a malfunctioning unit.
4. Steel casing is to contain and cover the clay refractory inside. Design details of this casing may vary with manufacturer's details.
5. The Department of Anatomy has rejected use of castable refractories as they desire a field constructed unit to aid in future maintenance.
6. Number of apertures may vary with manufacturer's design, thusly the term "requisite" is used.

Mr. Paul J. Maupin  
22 February 1979  
Page Two

7. Specifications have now called for "J" Series Incinomite gas burners by Mid Continent Metal Products Company, 2717 North Greenview Avenue, Chicago, Illinois 60614 or approved equal.

8. Item has been revised by separating paragraphs.

9. Mechanical and Electrical Contractor will provide hookup as stated in Item C.4 of 1.1 Scope of the work.

10. Yes, the approved cremator supplier can meet these specifications.

Contrary to the last statements made in the memo, we feel this specification can be used to effectively evaluate any other cremator manufacturer supplying built-in-place refractories. Our office is not in business to design equipment and if you feel this specification is not what is wanted, it can be removed from the contract and provided by the Owner.

In addition to these comments, we have been in contact with Archie Glazer of Engineering and Construction. It has been decided that the water line and fire line mentioned in comments of my previous letter will now be constructed by the University before this Contractor does his excavation.

We also have received a letter from Tom Kyle dated 21 February requesting ten (10) sets of contract documents and a new construction cost estimate. The contract documents will be printed and released after a bid opening date is set by the University. We feel the previous construction estimate of \$170,000 given to your office on 6 November 1978 is valid with the following additions. A total of \$5,000 should be added to cover an inflation rise from the previous November construction start to a delayed start now in April. In addition, the cremator unit is now part of the construction project and its estimated \$20,000 cost should be figured. Thus, for an April construction start, we feel the construction cost estimate is \$195,000.

Please call if there is anything else your office needs to commence with construction of this project.

Sincerely,

HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.

  
Bruce Johnson

BJ/kn

cc: Tom Kyle

UNIVERSITY OF MINNESOTA  
HEALTH SCIENCES EXPANSION  
BASIC SCIENCES REMODELING

PROCEED ORDER NO. 3  
JACKSON-OWRE-MILLARD-LYON COMPLEX  
CREMATORY FACILITY AND  
ASSOCIATED SUPPORT SPACES

27 February 1978

Purchase Order No. \_\_\_\_\_

TAC/HSAE Job No. \_\_\_\_\_

THE ARCHITECTS COLLABORATIVE, INC. of Cambridge, Massachusetts and HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC. of Minneapolis, Minnesota, a Joint Venture, are hereby authorized to provide Professional Services to the University for the design, bidding and construction phases for a Crematory Facility at the sub-basement level of Jackson Hall as provided in the Owner and Architect Agreement of January 28, 1976 for the Jackson-Owre-Millard-Lyon Complex Remodeling. It is understood that HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC. will assume the primary responsibility for overall project management.

The conditions of the above referenced Owner and Architect Agreement shall apply to this Proceed Order as follows:

ARTICLE I - PROFESSIONAL SERVICES

The provisions of this article shall apply for Phases II through VI as appropriate to the scope of the work. The construction of the Crematory Facility is to be done as a single prime contract and the work is to be complete for operational use by January 10, 1979. Periodic site visits and attendance at scheduled meetings of the Contractors and the University shall not exceed one-half day per month during the Construction Phase.

ARTICLE II - COST OF THE PROJECT

The budgeted construction cost of the project segment is \$77,687. The purchase and installation of the retort and other Group II Equipment is not included in the construction cost.

ARTICLE III - COMPENSATION

Compensation shall be in accordance with the provisions of this article for the work performed.

ARTICLE IV - REIMBURSEMENT

Reimbursement shall be in accordance with the provisions of this article.

ARTICLE V - EXTRA SERVICES AND SPECIAL CASES

The provisions included in this article shall apply to this Proceed Order.

ARTICLE VI - CREDITS

The article does not apply to this Proceed Order.

ARTICLE VII - UNIVERSITY CONSULTANTS

The provisions included in this article shall apply to this Proceed Order.

ARTICLE VIII - DATA TO BE FURNISHED BY THE UNIVERSITY

The provisions included in this article shall apply to this Proceed Order.

ARTICLE IX - ORDER OF PROCEDURE

The provisions included in this article shall apply to this Proceed Order except for the ones associated to the Design Concept and Scheduling Phase.

ARTICLES X, XI AND XII

The provisions included under these articles shall apply to this Proceed Order.

If this Proceed Order meets with your approval, please sign three copies and return to this office.

Sincerely,

Clinton N. Hewitt  
Assistant Vice President  
Physical Planning  
University of Minnesota

APPROVED:

THE ARCHITECTS COLLABORATIVE, INC.

By \_\_\_\_\_

Title \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.

By \_\_\_\_\_

Title \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

FUNCTIONAL SPACE PROGRAM SUMMARY

The crematory facility is to be located at the sub-basement level of Jackson Hall, north on Washington Street, adjacent and connected to the existing cadaver cooler. The design and construction is to facilitate and be compatible with the construction of the northwest mechanical tower in the future; as per the Phase I master plan for the Jackson-Owre-Millard-Lyon complex remodeling. The structure is to be a single level concrete structure and contain approximately 440 square feet with an exhaust flue extending above the roof of the complex; the flue will eventually be incorporated within the mechanical tower. This new construction will be north of the foundation wall and abutting Jackson Hall with a connecting corridor through the foundation to the existing sub-basement storage area. This new construction will house a retort (crematory) that will be selected and installed by the University, and must be compatible with the equipment selected.

January, 1978

CREMATORY - JOML PROBABLE COST SUMMARY

Construction Cost \$ 77,687 \$ 77,687

NON-BUILDING COSTS

Sitework:

Landscaping 1,493  
Misc. Shops Work 1,000

Utilities 400

A/E Fees (including travel) (15%) 11,653

Contingency (3%) 2,330

Supervision (3%) 2,330

Site Survey 500

Material & Perf. Testing 1,000

Miscellaneous Engineering 1,500

Building Activation 1,000

SAC Charge 400

Permits 900

Incidentals 500

Health Sciences Planning Office (3%) 2,330

Equipment

Group # (including retort) 33,480 60,816

PROJECT TOTAL \$138,503





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 28, 1979

TO: Vic Scott  
FROM: Paul Maupin *Paul*  
SUBJECT: Health Sciences Crematory Replacement Project

Enclosed please find a copy of the Final Project Cost Estimate for the Crematory Replacement Project.

With this information, I understand that you will be advertising for bids sometime next week.

cc: Clint Hewitt  
Gary Summerville  
Paul Kopietz

PJM:jm

# PRELIMINARY

February 28, 1979

## HEALTH SCIENCES CREMATORY REPLACEMENT PROJECT

### FINAL PROJECT COST ESTIMATE

#### CONSTRUCTION COSTS:

General Construction	\$175,000	
Equipment (Group I) Cremator/Retort	<u>20,000</u>	\$195,000

#### NON-BUILDING COSTS - FEES:

A/E Base Fee @ 15%	29,250	
A/E Extra Services	-0-	
A/E Reimbursables	1,000	
Consultants		
Special	1,000	
Testing	<u>500</u>	31,750

#### NON-BUILDING COSTS - SITE:

Landscaping	5,000	
Signs, Guardrails, Etc.	500	
Electric Service	1,000	
Testing	<u>1,000</u>	7,500

#### NON-BUILDING COSTS - MISC:

Testing and Balancing	1,000	
Temporary Heat and Power	-0-	
Site Survey	500	
SAC Charge	400	
Construction Supervision	5,850	
Miscellaneous Expense	1,500	
Misc. Engineering	3,000	
Materials Testing	1,000	
Building Activation	1,000	
Control Center Wiring	5,000	
Building Permits	500	
HSPO Salaries and Expenses	5,850	
Builders Risk Insurance (@ 13 1/2¢ per \$100 Of construction dollars)	264	
Contingency @ 5%	<u>9,750</u>	<u>35,614</u>

#### MOVABLE EQUIPMENT/FURNISHINGS COSTS:

Equipment	-0-	
Furnishings	-0-	
Telephone	500	
Graphics	500	
Shared Overhead	500	
Housekeeping	1,000	
Moving	1,000	
Contingency	<u>300</u>	3,800

#### TOTAL PROJECT COST ESTIMATE

\$273,664.00

Prepared by:  
Health Sciences Planning Office



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 15, 1979

TO: Clint Hewitt  
FROM: Paul J. Maupin *Paul*  
SUBJECT: Crematory Project

As per your request, I have enclosed a Historical Outline for the above mentioned project, along with the most recent estimated project costs.

cc: Gary Summerville  
Vic Scott  
Cherie Perlmutter

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 15, 1979

HISTORICAL OUTLINE AND DESCRIPTION OF THE BUDGET FOR  
THE HEALTH SCIENCES CREMATORY REPLACEMENT PROJECT

February 1, 1976

Construction Costs	\$ 55,000
Non-building Costs	25,940
Equipment Cost	<u>30,000</u>
Legislative Request	\$110,950

February 1, 1978

Construction Costs	\$ 77,687
Non-Building Costs	33,816
Equipment Costs	<u>27,000</u>
HSAE contract signed to design with this budget	\$138,503

September 14, 1978

Health Sciences Architects and Engineers revises construction  
cost during design development due to bidding climate to: \$120,000

November 6, 1978

Health Sciences Architects and Engineers revises construction  
cost during contract document phase to: \$170,000

February 26, 1979

Final bidding construction cost estimate from Health Sciences Architects and Engineers with inflation factor:	\$175,000
Plus \$20,000 for equipment	<u>20,000</u>
Total	\$195,000
TOTAL ESTIMATED PROJECT COST:	<u>\$286,511.</u>

March 15, 1979  
Crematory Historical Outline  
Page Two

At each of the last four dates, the above costs escalated due to area wide bidding climate. Additionally, the scope of the project escalated due to unforeseen conditions related to utilities and the requirement to relocated the storm sewer serving the complex. These last two items affect the non-building costs as the relocations are to be done by the University. Most of the construction cost increase can be attributed to excavation, shoring and general conditions. The site constraints contributed to these increase costs; constraints such as:

Washington Avenue Traffic Control  
MTC Bus Pickup disruption  
Sheeting of excavation at property line, etc.

Usually the non-building cost represents a percentage of the project cost and increases in the amount of dollars as the construction cost increases. This percentage is above average in this estimate due to the amount of site preparation to be done prior to contract start, i.e. sewer relocation.

Attached are explanatory preliminary cost estimates.

It is obvious, in retrospect, that the original construction cost assumptions presented by the consultants, were far too low in light of the bidding climates over these last four years.

TK:jmm

March 5, 1979

HEALTH SCIENCES CREMATORY REPLACEMENT PROJECT

FINAL PROJECT COST ESTIMATE

CONSTRUCTION COSTS:

General Construction	\$175,000	
Equipment (Group I) Cremator/Retort	<u>20,000</u>	\$195,000

NON-BUILDING COSTS - FEES:

A/E base Fee @ 15%	29,250	
A/E Extra Services	-0-	
A/E Reimbursables	1,000	
Consultants:		
Special	1,000	
Testing	<u>500</u>	31,750

NON-BUILDING COSTS - SITE:

Landscaping	\$ 6,922	
Waterline	<u>12,500</u>	19,422

NON-BUILDING COSTS - Miscellaneous:

Testing and Balancing	1,000	
Temporary Heat and Power	-0-	
Site Survey (includes soil borings)	1,425	
SAC Charge	400	
Construction Supervision	5,850	
Miscellaneous Expense	1,500	
Miscellaneous Engineering	3,000	
Materials Testing	1,000	
Building Activation	1,000	
Control Center Wiring	5,000	
Building Permits	500	
HSPO Salaries and Expenses	5,850	
Builders Risk Insurance (@ 13 1/2¢ per \$100 of Construction dollars)	264	
Contingency @ 5%	<u>9,750</u>	36,539

MOVABLE EQUIPMENT/FURNISHINGS COSTS:

Equipment	-0-	
Furnishings	-0-	
Telephone	500	
Graphics	500	
Shared Overhead	500	
Housekeeping	1,000	
Moving	1,000	
Contingency	<u>300</u>	3,800

\$286,511

Prepared by:  
Health Sciences Planning  
Office

MAR 5 Rec'd

PRELIMINARY

FINAL

ESTIMATE FOR NON-BUILDING COSTS-ENGINEERING AND CONSTRUCTION

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

Building Name JOML-Crematory

Building No. 032 Campus Mpls. Date 3-1-79

		Funded	Not Funded
LANDSCAPING			
1	Walks, Steps, Curbs, Etc		3,542
2	Street and Service Drives		--
3	Sod		1,380
4	Planting		2,000
5	Fencing (Permanent and Temporary)		
6	Remove Existing Facilities	None	
7	Temporary walks and drives	None	
8	Bicycle Racks	None	
9	Plaza Paving	None	
10	Area Lighting	None	
11	Signs, Painting, Etc.	None	
		Subtotal	6,922
		Total	6,922
UTILITIES			
1	Sanitary Sewers	None	
2	Storm Sewers	By Mech. Contractor	
3	Sewer Tunnels	None	
4	Heating Tunnels	None	
A. Piping			
B. Lighting and Power			
5	Gas Service	By Mech. Contractor	
6	Water Service including Hydrants		12,500
7	Telephone Service	None	
8	Electric Service	None	
		Subtotal	12,500
		Total	12,500
1	Soil Borings	925	
2	University Engineering Services (Civil, Elect., Mech.) M-80078	1,500	
3	Testing and Balancing Air Handling Systems		-
4	S.A.C. Charge		-
5	Delta 2000 Connection		-
Engineering, Survey and Business Office costs included in each item		2,425	19,422

cc: G.J. Nelson ✓ E. Wheeler ✓  
P.C. Kopietz ✓ H. Jansen ✓  
Vic Scott ✓ T. Kyle ✓  
D.E. Kerber ✓ E. Mueller ✓  
E.E. Herz ✓ File ✓

Prepared By [Signature]

Section	General Conditions	ARCHITECT'S DESIGN DEVELOPMENT ESTIMATE AUGUST 1978	CONSULTANT CONTRACTOR'S ESTIMATE OCT. 1978	ARCHITECT'S CONSTRUCTION DOCUMENT ESTIMATE NOV. 1978
	General Conditions	12,900	25,000	25,000
01910	Demolition	10,000	in Sec. 03300	
02200	Excav. & Backfill	9,000	27,000	16,000
02400	Excav. Support Walls	11,500	21,000	20,000
03200 03300	Conc. Reinforcement Concrete Work	36,000	45,000	45,000
04100	Conc. Block Partition	9,000	10,000	10,000
05120	Structural Steel	10,000	13,500	12,000
05500	Misc. Metal	Not in Est.	3,000	2,000
07110 07210	Waterproofing Building Insulation	3,800	6,500	5,000
07620	Sheet Metal Flashing	Not in Est.	2,500	2,500
07900	Sealants	Not in Est.	2,500	2,500
08110	Hollow Metal	1,300	1,500	1,500
08700 09100	Hardware Lath and Plaster	Not in Est. Not in Est.	1,500	1,500
09900	Painting	Not in Est.	6,000	2,000
15000	Mechanical	17,000	20,000	20,000
16000	Electrical	3,000	10,000	5,000
	Subtotal			
	Maximum inflation rate @ 1% (20% 2 years)			
	Construction Total (Nov. 1978)	\$120,000	\$195,000	\$170,000





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

April 5, 1979

TO: Paul E. Kopietz

FROM: David B. Kerkow

SUBJECT: Check by Electrical Section (W.R. Coffin) of Final Drawings and Specifications on Jackson-Owre Millard Lyon Complex - Crematory Minneapolis Campus  
Project NO. 032-77-0333

The following comments are made as a result of our review of the subject documents:

#### Drawings

E-1 Clarify fractional type starters in motor schedule. Since two motors are over one horse power this notation does not seem appropriate.

Give voltage of AC in detail 3a.

Provide on-off switch at 5' M.H. for A/C.

Show location of telephone cabinet in Room 75 for telephone in Room NWSB3.

Which is new fixture and where are existing fixtures? Existing fixtures should show as existing either by dashed lines or identified.

Show or identify location of panelboard feeding existing bone crusher to be removed.

#### Specifications

Is a redundant reference to an article legal?

160101.5 Delete requirement for megger test of wiring. This is not usually performed as required on wiring with insulation values of 600 volts.

16010 1.5 4 a1 Delete requirement for megger test on wiring and devices with only 600 volt insulation.

Section 16300 2.3 D. Ampacity of circuit breaker shall be readily visible without removing trim or cover plates.

Paul E. Kopietz  
Page 2  
April 5, 1979

2.2A6 Who will do the actual connection to the existing System 3, including the test and notifying of proper personnel?

2.2.C3 We question the requirement for 40 hours of instruction for fire alarm change (or addition).

16500 D5 change to alarm.

Is Adequate DC power available, provided, or will new power supply panel be required for fire alarm.

If this Crematory is a new zone will the existing fire alarm system have the capability to accept a new zone or will equipment have to be added?

DBK/WRC/jmo

13 April 1979

First Addendum to conditions, specifications, related documents and drawings entitled:

JOML CREMATORY ADDITION

APR 18 Rec'd

UNIVERSITY OF MINNESOTA - MINNEAPOLIS CAMPUS  
HEALTH SCIENCES EXPANSION

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

THE ARCHITECTS COLLABORATIVE, INC.

Cambridge, Massachusetts

HEALTH SCIENCES ARCHITECTS &amp; ENGINEERS, INC.

University Park Plaza - Suite 704  
2829 University Avenue Southeast  
(612) 378-3833

Minneapolis, Minnesota  
55414

The additions, revisions, omissions, corrections and clarifications contained herein shall be made to drawings and specifications for the project and shall be included in the scope of work and proposals to be submitted. References made below to specifications and drawings shall be used as a general guide only. Bidders and Contractors shall determine for themselves the work affected by Addendum items.

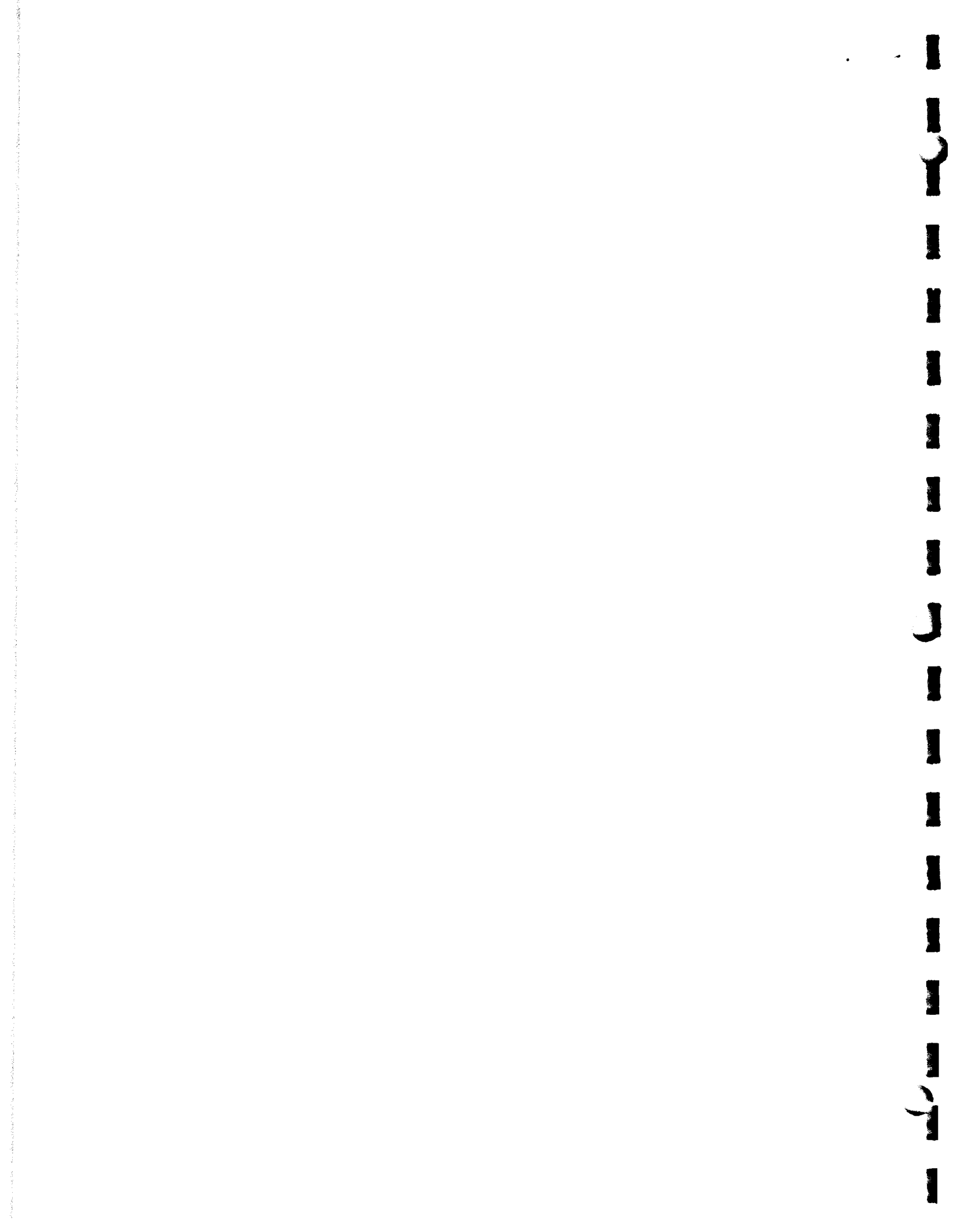
#### SPECIFICATIONS - MECHANICAL

- 1 - Section 15800 - Ventilation: (A) The Mechanical Contractor shall locate existing A.C. units in new wall sleeve (by General Contractor). See original electrical detail 3a/E-1; see approvals.
- 2 - Acceptable Manufacturers - Mechanical. The below listed manufacturers of equipment are acceptable, subject to final acceptance as to satisfying all requirements of the Contract Documents. The extra cost of any changes in other trades' work as a result of substitutions shall be borne by the Contractor making the substitutions.

<u>Section</u>	<u>Item</u>	<u>Manufacturer</u>
15140	Pipe hangers	Michigan Hanger Company
15300	Plumbing carriers	Jay R. Smith
15650-2.1	Unit heater	Reznor
15800-2.6	Utility blower	Twin City Fan
	Fan sets	Greenheck
15810	Crematory chimney	Suscon

#### SPECIFICATIONS - ELECTRICAL

- 3 - Section 16010 - General Provisions Electrical: (A) Article 1.5.A. Change first sentence to read: "All wiring shall be tested for opens, shorts, and grounds with approved equipment designed for the purpose prior to acceptance".



4 - Section 16300 - Electrical Distribution System: (A) Article 2.3.D.

Add the following paragraph:

D. Circuit breaker current rating shall be visible without removal of cover plate or trim.

5 - Section 16500 - Communications Systems: (A) Article 2.2.C.3. Change the last sentence to read: "A minimum of four hours of instruction .." in lieu of 40 hours as indicated.

(B) Article 2.2.D.5. Change the spelling of the first word to "alarm".

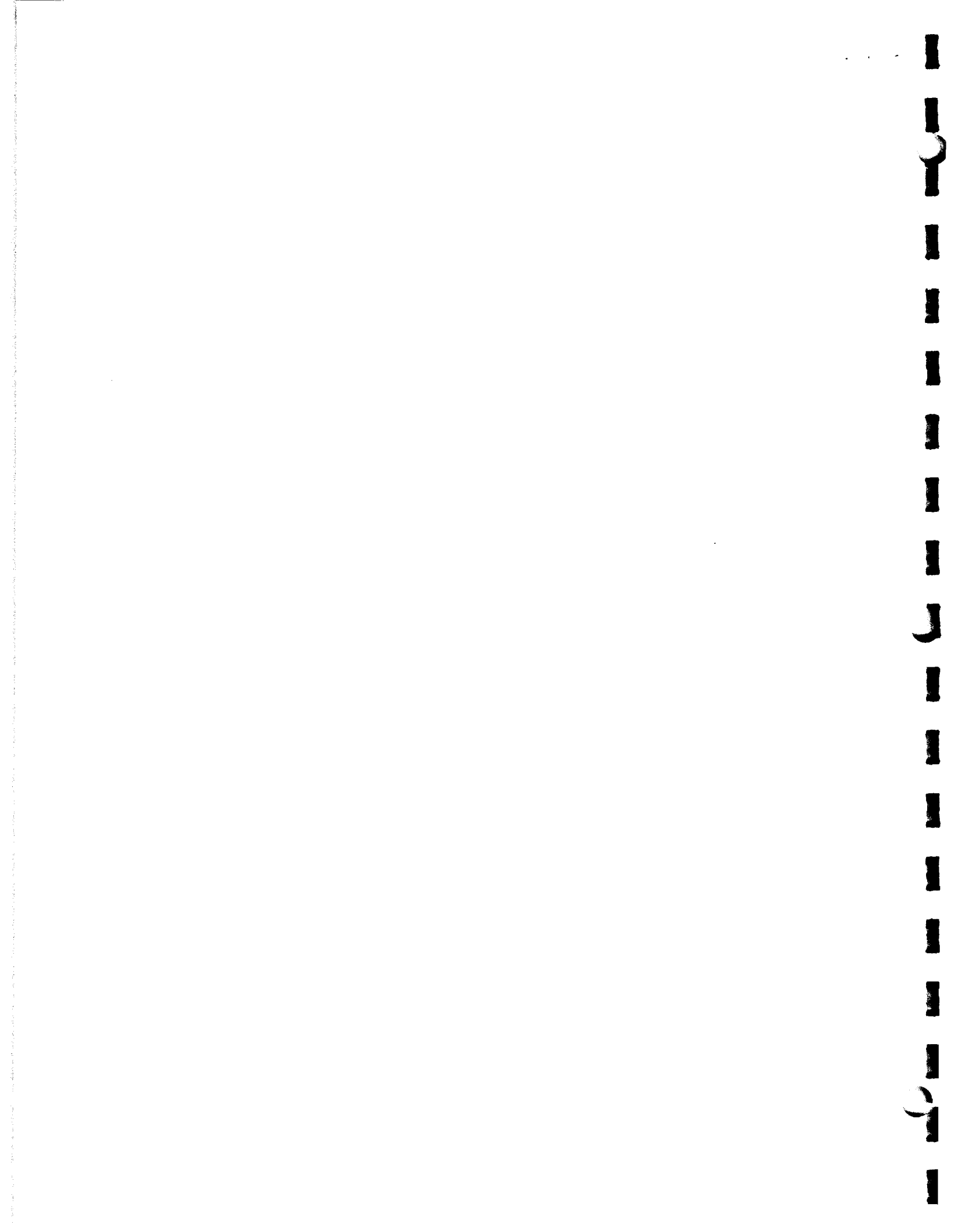
DRAWINGS - ELECTRICAL

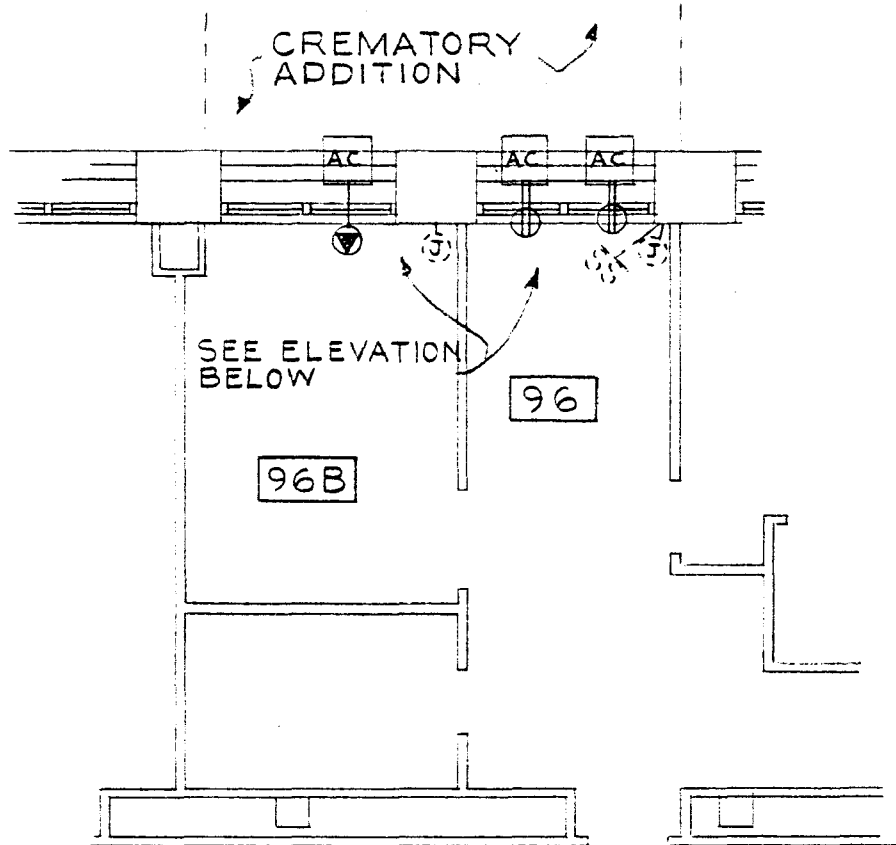
6 - Sheet E-1: (A) Motor Schedule. For motors #1 and #6 change reference of fractional starter to "Manual" starter equipped with thermal protection.

(B) Details #3 and 3a. Delete details #3 and 3a. See attached drawing #1, dated April 13, 1979, for revised power circuits for A.C. unit installation.

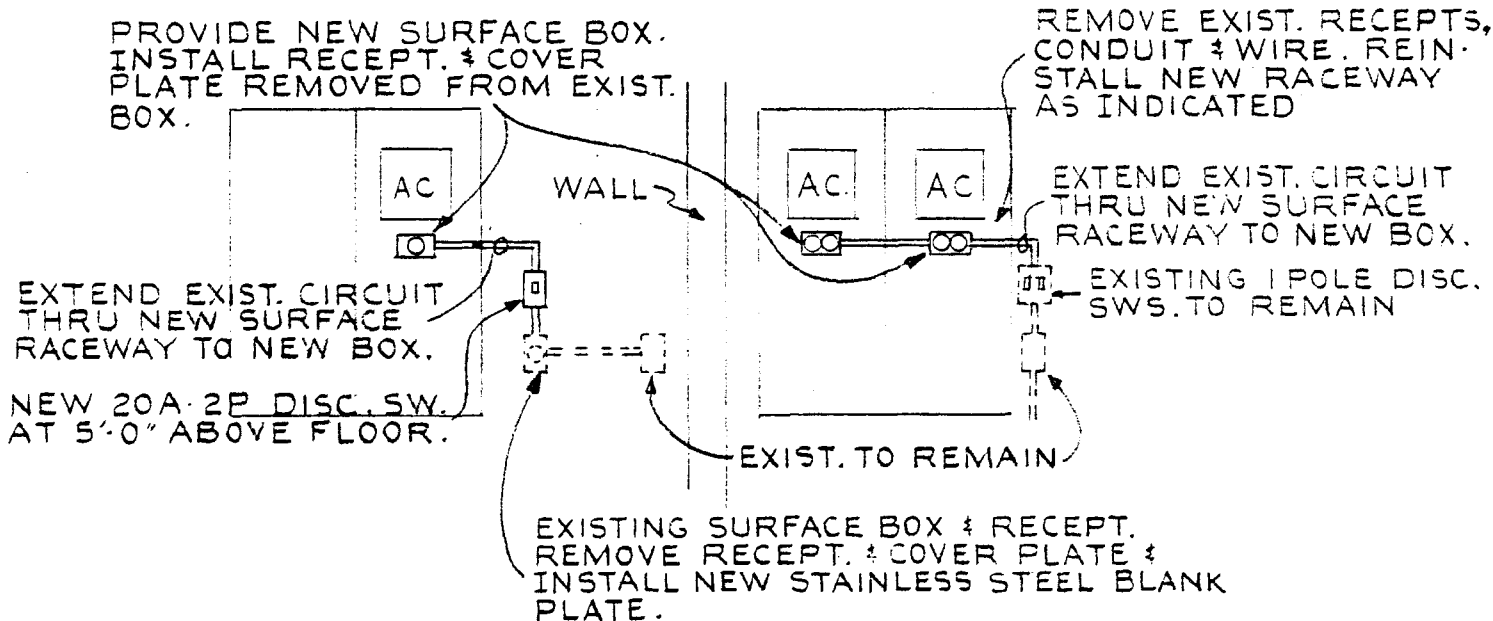
(C) Room S67. Existing branch circuit wiring noted to be removed back to panel, originates in existing panel immediately west of entrance to Room #S67 and shall be removed to this point.

ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE PROPOSAL FORM





PARTIAL PLAN - BSM'T. JACKSON HALL



NOTES:

1. NEW SURFACE METAL RACEWAY SHALL BE WIREMOLD # 500. NEW BOX SHALL BE WIREMOLD # 5748.
2. VERIFY EXACT MOUNTING HEIGHT OF BOX

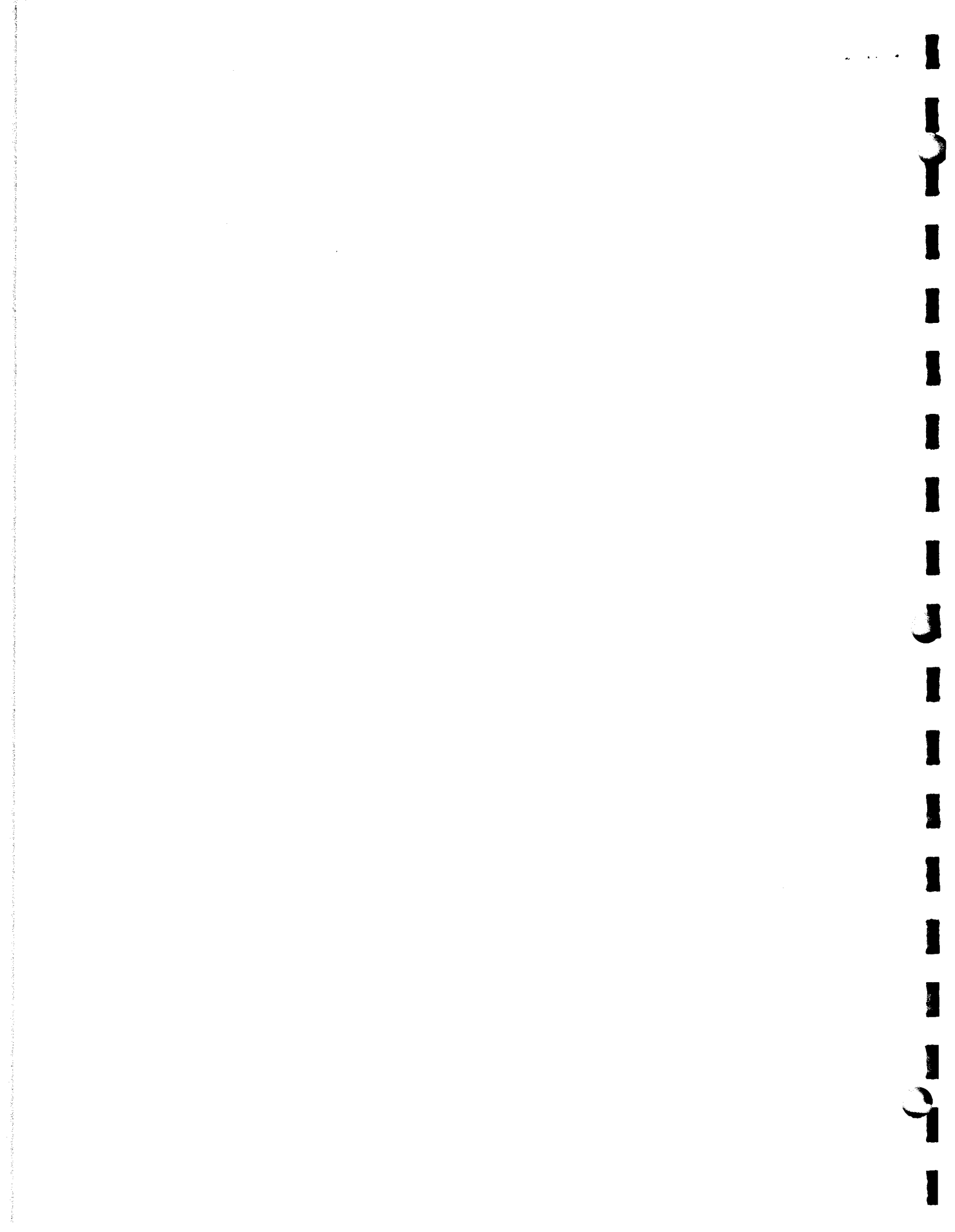
**UNIVERSITY OF MINNESOTA  
HEALTH SCIENCES EXPANSION**  
THE ARCHITECTS COLLABORATIVE, INC. CAMBRIDGE, MASS. &  
THE HEALTH SCIENCES ARCHITECTS & ENGINEERS, INC.

JOB NO	280.13
DRAWN	J.H.B.
CHECK	G.A.H.
SCALE	NONE
DATE	13 APRIL 79

JOML CREMA-  
TORY ADD'N.  
ADDENDUM NO. 1

SHEET NO









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 20, 1979

TO: Clinton Hewitt  
FROM: Paul J. Maupin *Paul*  
SUBJECT: Crematory Replacement Project

After reviewing the bids submitted by Arkay Construction and Karl Dedolph Construction, it is the feeling of this office that the bids are valid with current market conditions.

It is our recommendation that we proceed with this project.

cc: Gary Summerville

PJM;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 April 1979

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

MAY 2 Rec'd  
UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

RE: JOML CREMATORY FACILITY  
BID EVALUATION

Dear Mr. Maupin:

The purpose of this letter is to provide you with our evaluation of the bid results for the JOML Crematory Facility. We were disappointed that the bids exceeded our estimate, but believe the bids are good and consistent with the scope of work defined in the contract documents. We offer the following comments concerning the bids and our recommendation regarding the award of a contract.

- A. BID RESULTS: Five contractors secured documents from our office, but only two bids were submitted for the work. The results of these bids are as follows:

<u>BIDDER</u>	<u>BASE BID AMOUNT</u>	<u>DEDUCTIVE ALTERNATE</u>	<u>BASE BID LESS ALTERNATE</u>
ARKAY CONSTRUCTION CO.	\$268,000	(-) \$35,000	\$233,000
DEDOLPH CONSTRUCTION CO.	\$269,425	(-) \$41,000	\$228,425

The two bids are very close with Arkay Construction Company the low bidder by \$1,425. However, Dedolph Construction Company is the low bidder by \$4,575 if the deductive alternate is accepted.

Arkay Construction Company has been the lower bidder on many University projects and, therefore, we believe these are good competitive bids in spite of the fact that there were only two bidders.

- B. BID ANALYSIS: Our estimate for the project construction cost was submitted to the University on November 6, 1978. The estimate was based upon input from a local contractor and our cost experience on the two JOML Mechanical Towers previously constructed. Subsequent to the final estimate, the Cremator Unit was added to the Construction Contract at an estimated cost of \$20,000, bringing the estimated Construction Cost to \$195,000 including some escalation.

Mr. Paul J. Maupin  
26 April 1979  
Page Two

Our review of the bid amount and our cost estimate suggests that the excavation and support wall work was substantially more expensive than anticipated. This cost combined with some additional mechanical and electrical costs account for the majority of the difference between the cost estimate and the low base bid amount. Our cost investigation indicated that the deductive alternate amount offered is appropriate, but that the associated cost to do this work in the future would be two to three times greater than the deduct amount offered. Therefore, acceptance of the deductive alternate does not appear to be a prudent decision.

C. PROGRAM COSTS:

The construction costs suggests that those costs associated with the future mechanical tower structure and below grade envelope is equal to approximately \$185,000 and that the costs associated with the addition of the Crematory program into the tower space is equal to approximately \$83,000. This does not account for any allocation of the basic building costs to the crematory program which would be an administrative decision.

D. RECOMMENDATION:

The three basic options for the University at this time are:

1. Accept the base bid.
2. Accept the low bid with the Deductive Alternate included.
3. Reject all bids.

We recommend acceptance of the base bid if at all possible. Acceptance of the deductive alternate does not appear to be a wise decision related to the future needs of the JOML Complex and rejection of the bids would only delay the construction of the facility at increased costs.

Please advise me if you need any additional information concerning the bid results or need any clarification of the information presented in this letter.

Sincerely yours,

HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.



Duane E. Blanchard

DEB/kn

cc: 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

May 2, 1979

TO: Clint Hewitt  
FROM: Paul J. Maupin *Paul*  
SUBJECT: JOML Crematory Facility

Attached please find a copy of Mr. Duane Blanchard's letter providing the architect's evaluation of the bid results on the JOML Crematory Facility.

After a review of the letter and a review of the project by this office, we recommend that the University proceed with the base bid on this project. The base bid being the one submitted by Arkay Construction Co.

It is important to remember that these bids may be withdrawn after a 30 day period of time. Our decision must be made before May 18, 1979.

If you have any questions, give me a call.

cc: Gary Summerville  
Vic Scott

# HSAE

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

26 April 1979

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

MAY 2 Rec'd  
UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

RE: JOML CREMATORY FACILITY  
BID EVALUATION

Dear Mr. Maupin:

The purpose of this letter is to provide you with our evaluation of the bid results for the JOML Crematory Facility. We were disappointed that the bids exceeded our estimate, but believe the bids are good and consistent with the scope of work defined in the contract documents. We offer the following comments concerning the bids and our recommendation regarding the award of a contract.

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Mr. Paul J. Maupin  
26 April 1979  
Page Two

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Please advise me if you need any additional information concerning the bid results or need any clarification of the information presented in this letter.

Sincerely yours,

HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.



Duane E. Blanchard

DEB/kn

cc: 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

*al  
Bill*  
*Does not  
include 1/16  
from 1/16*

August 7, 1979

TO: Paul Maupin  
FROM: Tom Kyle *Tom Kyle*  
SUBJECT: Crematory Project - Underpinning

After the contractor (Arkay Construction) began excavating to a depth of 8' - 0", he informed the Construction Division that the existing footings for Jackson Hall were approximately 7'-0" shallower into the sub-soil than indicated. The crematory and future mechanical space must penetrate the earth adjacent to the sub-basement level, thus underpinning of the Jackson Hall footings for a length of about 50' to 60' and depth of 7'-0" is necessary. The probable cost at this time is estimated to be between \$30,000 to \$50,000.

The reason for the error is that the original as built drawings turned over to the architects were not corrected after construction in 1910 and had never been corrected in subsequent renovations. At this time the University and Architects had no reason to doubt the records of the original construction.

During the planning there was every indication that the "as-builts" were correct, for example: an existing elevator at the site is at the correct elevation.

Consultants are investigating solidifying the soil as one option or intrusion pre-packing as a means of support until the underpinning is completed.

I hope this information will explain the situation.

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

30 August 1979

SEP 4 Rec'd

UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

Mr. Jack Geretz  
Assistant Supervising Engineer  
Engineering and Construction  
26C Folwell Hall  
9 Pleasant Street Southeast  
University of Minnesota  
Minneapolis, Minnesota 55455

Re: JOML Crematory Facility

Dear Jack:

We received your letter and accompanying sketch yesterday. We had completed drawings of the scheme everyone agreed upon at our last meeting and forwarded six advance copies to the contractor last week for him to begin work as we were directed to expedite this change.

After again discussing the problems with this new solution at our meeting today, I drew the enclosed sketch as a compromise which should be verified as acceptable. Two things need acceptance: raised level of the bone room and treating access from mechanical room sub-basement level as emergency access (tower access will be from floors above in future). We are now proceeding with this solution unless we are told to change.

This will be Modification 3-E and you should receive a final copy next week.

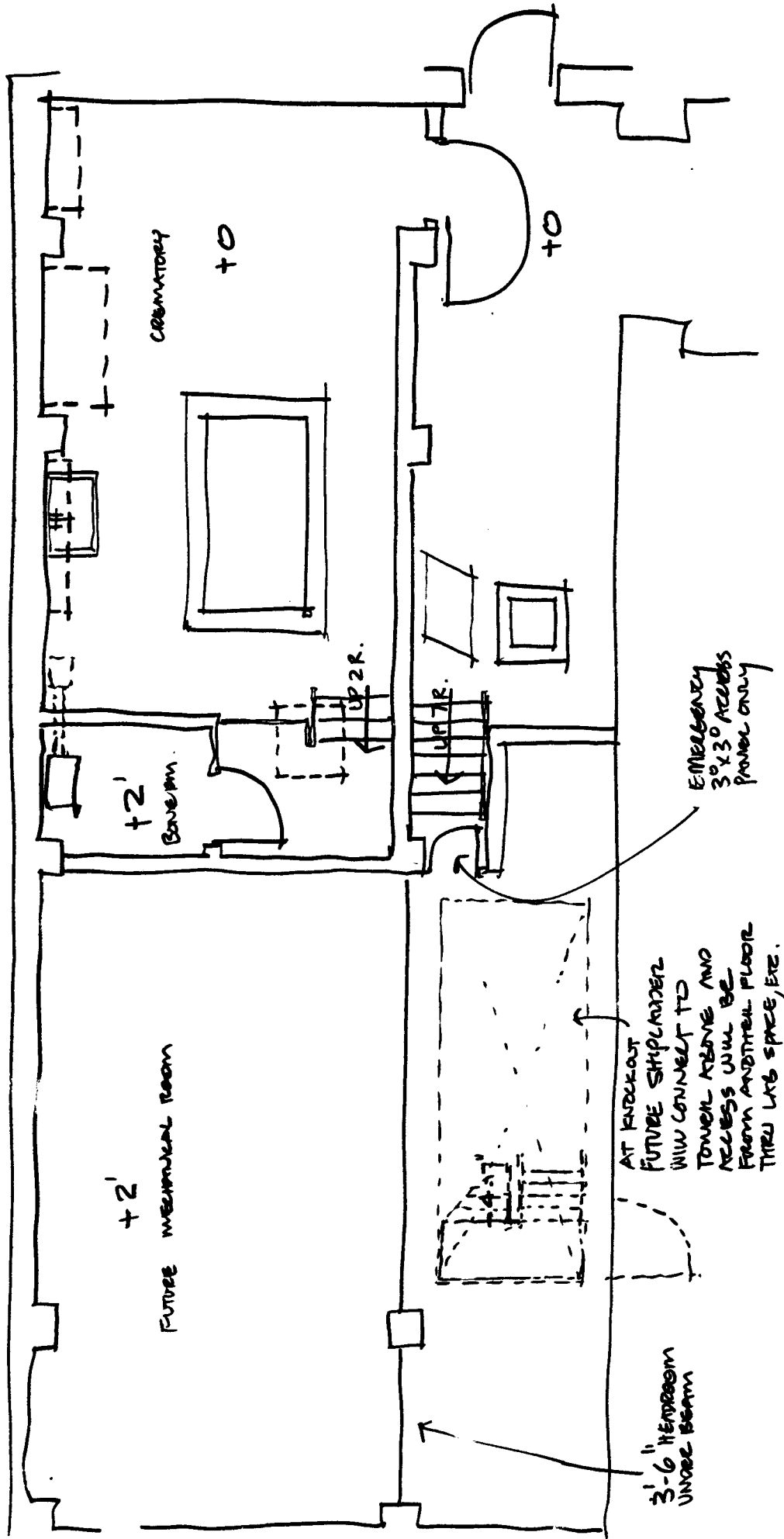
Sincerely,



Bruce E. Johnson

BEJ:cj

cc: Tom Kyle, U/M  
J. M. Rivkin, Arkay Construction



+2'  
FUTURE MECHANICAL ROOM

CREMATORY  
+0

+2'  
Bathroom

UP 2 R.

UP 7 R.

+0

AT BREAKOUT  
FUTURE SHIPLIFTER  
WILL CONNECT TO  
TOWER ABOVE AND  
ACCESS WILL BE  
FROM ANOTHER FLOOR  
THRU LAB SPACE, ETC.

EMERGENCY  
3' X 3' ACCESS  
PANEL ONLY

3'-6"  
UNDER BEAM



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

*file  
Crematory*

September 13, 1979

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

Dear Bruce:

We are concerned about the appearance of the pre-fabricated chimney rising from the new crematory at the north side of Jackson Hall. This is an appropriate time to consider solutions for the problem of aesthetics. Please give us your advice and recommendations for an inexpensive enclosure for the stack that will not detract from the general architectural tone of the area or draw attention to the chimney and its function. Paul and I will appreciate your comments within the next 5 to 7 working days.

Very truly yours,

Tom Kyle  
Asst. Health Sciences Planning Coordinator

cc: Paul Maupin

TK:jm



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 13, 1980

Mr. John Patterson  
The Architects Collaborative, Inc.  
46 Brattle Street  
Cambridge, Mass. 02138

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

Subject: JOML Contract B and Crematory Replacement  
Project, Errors and Omissions

Gentlemen:

From time to time I have discussed with the staff the problems we have had with the above referenced project. I asked the staff to prepare a listing of modifications for this project. Attached is a listing of 57 modifications from the 130 modifications written to the Basic Sciences Renovation Project (JOML-B) contract which total \$123,666.00. Also listed are two modifications of eight written to the Crematory Replacement contract totaling \$31,573.00.

I would appreciate a clarification and/or an explanation of the large percentage of modifications to these contracts which essentially represents architectural errors and omissions due to the lack of verification of existing conditions during design, a lack of comprehension of program intent or general oversight during document preparation.

As you know, the contract documents for the Basic Sciences Renovation (JOML-B) have been unilaterally criticized by the contractors, sub-contractors and University inspectors for their contradictions, vagueness and incompleteness.

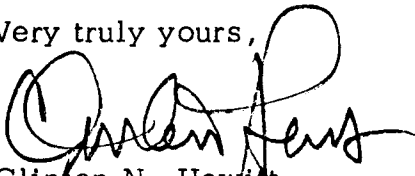
MAY 13 1980  
UNIV. OF MINN.  
HEALTH SCIENCES  
PLANNING OFFICE

Mr. John Patterson  
and  
Mr. Duane Blanchard  
May 13, 1980  
Page Two

I would also like a written explanation of the plastic laminate delamination in the laboratories. The staff has characterized this product as exceptionally unsatisfactory.

Please submit a written explanation for each modification listed. The modifications to the projects which are not listed are considered by the staff to be justifiable contingency items or program changes.

Very truly yours,



Clinton N. Hewitt  
Assistant Vice President  
Physical Planning

CNH:jr

cc: ✓ Paul Maupin  
Gary Summerville  
Dave Kerkow  
Jack Geretz

JOML-B CONTRACT

The following is a listing of modifications to the above mentioned contract due to Architectural oversight, design error and lack of site verification:

<u>Mod.</u>	<u>Initiator</u>	<u>Explanation</u>	<u>Cost</u>
4-A	HSAE	Corridor ceiling has been omitted 1st floor Jackson	\$ 8,967.00
6-A	HSAE	Lower Ceiling heights to allow mech. spaces (affected program heights)	none
7-P	HSPO	Code violation - exit door blocks elec. cabinet - HEW requested correction	1,896.00
9-A	HSAE	Add new walls at elevator # 8 Stair removal not reviewed	4,443.00
10-A	HSAE	Reroute fume hood duct to avoid structural beam	1,934.00
14-E	Eng. & Const.	Reroute exposed steam piping in mech. room # 9 (conflict)	9,234.00
15-E	Eng. & Const.	Rehang aircond. Owre Hall - Deduct # 1 not complete	3,577.00
17-A	HSAE	Access panel for heat recovery unit	603.00
19-A	HSAE	Reroute fume duct - Deduct # 1 not complete	742.00
20-E	Eng. & Const.	Remove E-2 fan & ductwork not on mech plan	1,522.00
22-A	HSAE	Extend rated walls to structure and reroute exposed piping	2,152.00
24-A	HSAE	Delete work on radiation - it did not exist	(180.00) credit
25-A	HSAE	Delete vanes in duct to provide access	none
26-E	Eng. & Const.	New motor for S-2 fan design omission	2,349.00
27-E	Eng. & Const.	Reroute elec. - exposed conduit	546.00
28-A	HSAE	Change balasts in 40% of corridor lites	963.00
29-A	HSAE	Lower ceilings - affected program	none
30-A	HSAE	Motor started change design error	1,645.00
31-E	Eng. & Const.	Telephone panel conflicts with door at corridor	453.00
33-E	Eng. & Const.	Relocated exposed rain leader in shell space	484.00



<u>Mod.</u>	<u>Initiator</u>	<u>Explanation</u>	<u>Cost</u>
35-E	Eng. & Const.	Exposed steamlines conflict with Stair D	\$ 5,583.00
38-A	HSAE	Delete pressure stations	(510.00) credit
41-A	HSAE	Mech. correction to S-107 fan to meet specifications	996.00
42-A	HSAE	Mech. towers - lower pipe velocities to reduce noise	10,265.00
43-A	HSAE	Change coil from right to left handed conflict	765.00
46-A	HSAE	Increase handrail size	286.00
47-E	Eng. & Const.	Access panels in plaster ceilings to new work	839.00
48-A	HSAE	Change access panels to fire rated corridor type	314.00
55-A	HSAE	Provide cup sink on elevation plans but not on mechanical plan	2,292.00
56-A	HSAE	Access panels for new fire dampers	733.00
57-E	Eng. & Const.	Relocate gas valve box - won't fit into new 4" wall	347.00
59-E	Eng. & Const.	Access panels in new plaster ceilings	130.00
61-E	Eng. & Const.	Reroute chilled water line in B/C Conflict	5,320.00
66-A	HSAE	New wall to cover existing pipes - poor site verification	619.00
68-A	Eng. & Const.	New fume hood fan not shown on mechanical	3,318.00
69-A	Eng. & Const.	Add duct for recirculation - design error	1,308.00
75-A	HSAE	Mechanical plans omit work shown on architectural set; sinks, etc.	5,179.00
77-E	Eng. & Const.	Chilled water piping conflict at crawl space	2,875.00
79-E	Eng. & Const.	Plastering conflict with radiation	1,063.00
80-P	HSPO	Design error- reagent shelves had to be raised	9,284.00

<u>Mod.</u>	<u>Initiator</u>	<u>Explanation</u>	<u>Cost</u>
82-A	HSAE	Add balancing & gate valves to unit S100 and S107	\$ 1,985.00
87-E	Eng. & Const.	Door on plans not on door schedule	483.00
88-A	HSAE	Door not on schedule	583.00
89-A	HSAE	Glasswasher renovations, equip. didn't fit room - Architect error in layout	3,438.00
91-E	Eng. & Const.	Various changes - 25% design error \$2,737.00 @ 25% =	684.00
94-E	Eng. & Const.	Blank off panels on equip - omission	525.00
95-A	HSAE	Correct pipe anchoring	1,932.00
96-A	HSAE	Existing mains not as shown	2,972.00
98-E	Eng. & Const.	Various changes - 90% Elec. design error \$3,386.00 @ 90% =	3,047.00
99-E	Eng. & Const.	Relocated hood needed modification to fit ceiling height	756.00
100-E	Eng. & Const.	Elec. omission in offices & stairwells	4,647.00
101-E	Eng. & Const.	Relocate doors due to electrical panel 50 % design error - \$1,121.00 @ 50% =	560.00
105-E	Eng. & Const.	Various field corrections - 90% design error or omission - \$6,465.00 @ 90% =	5,819.00
109-E	Eng. & Const.	Various field corrections - 75% design error or omission - \$4,567.00 @ 75% =	3,425.00
119-P	HSPO	Ducting ofr biohazard hood omitted	474.00
TOTAL			\$123,666.00

The Architect/Engineers fee for modifications on this project is 10%

CREMATORY PROJECT

<u>MOD.</u>	<u>INITIATOR</u>	<u>EXPLANATION</u>	<u>COST</u>
#3	HSAE	See below	\$ 17,250.00
#8	HSAE	See below	\$ 14,323.00

Both modifications number three and eight were written to compensate for design errors in the footing and foundations for this project. The architects disregarded certain information on documents transmitted to them from University Records. These documents indicated a stepped up footing at the north/west corner of Jackson Hall; and the Architects proceeded with designing the Crematory below the level of Jackson's footings omitting underpinning, etc.



UNIVERSITY OF MINNESOTA  
TWIN CITIES

Boynton Health Service  
410 Church Street S.E.  
Minneapolis, Minnesota 55455

JUN 2 1980

UNIV. OF MINN.  
HEALTH SERVICES  
PLANNING OFFICE

May 30, 1980

MEMORANDUM

To: Gordon Dahlen, Construction Superintendent, Engineering and  
Construction, 26 Folwell Hall

From: Craig Moody, Occupational Safety and Health Specialist, *CM*  
Department of Environmental Health and Safety

Subject: New Crematorium in Jackson Hall

The testing, monitoring and successful operation of the new crematorium is necessary for the following reasons. Human pathological wastes from several hospital departments are incinerated on a weekly basis in the existing crematorium. Health considerations dictate that they be incinerated close to the source to avoid contamination problems to personnel. The existing crematorium may not be suitable for use in the near future. Thus the new crematorium would be needed to handle those pathological wastes.

If you have any questions concerning this memo, please contact me at 3-9925.

CM:mw

cc: Tom Kyle



UNIVERSITY OF MINNESOTA  
TWIN CITIES

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

May 30, 1980

TO: Paul Maupin  
FROM:   
Gary Summerville

Please send me a copy of Health Sciences Architects and Engineers, Inc. letter dated March 3, 1980 regarding the Crematory Facility Second Exit design services.

GJS/hd

cc: 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 June 1980

Mr. J. M. Rivkin  
Arkay Construction Company  
8401 Wayzata Boulevard  
Minneapolis, Minnesota 55426

JUN 9 1980  
UNIV. OF MINN.  
HEALTH SCIENCE  
PLANNING OFFICE

RE: JOML Crematory  
Modification 9-E and 7-P

Dear Bud:

Enclosed find the originals of the above modifications. The \$1263.00 for Modification # 9 and \$37,700.00 for Modification # 7 have been approved by the U/M. Please sign the form and return to our office for further processing into a change order to the Contract.

Sincerely,

HEALTH SCIENCES ARCHITECTS AND ENGINEERS, INC.



Bruce E. Johnson

BEJ:cac  
Enclosure

cc: Jack Geretz

**MODIFICATION TO CONSTRUCTION DOCUMENTS**

3 June 1980 - Date Issued

UNIVERSITY OF MINNESOTA

MOD. NO. 9-E

MOD. REJECTED \_\_\_\_\_

CHANGE ORDER NO. \_\_\_\_\_

CONTRACTS TO BE MODIFIED

General Construction

Mechanical Work

Electrical Work

Vertical Transportation

Casework

Single Prime Contract

\_\_\_\_\_

PROJECT JOML Crematory Addition

CONTRACTOR Arkay Construction Company

When this Modification is signed, it shall become an order to proceed in accordance with the requirements of the Modification and the Contract Documents.

Cost change (Add) ~~(Decrease)~~ \$ 1263.00

No change in cost or time

A Change Order (will) ~~(will not)~~ be issued

Approved: \_\_\_\_\_ University Date \_\_\_\_\_  
Planning Coordinator

Approved: \_\_\_\_\_ University Date \_\_\_\_\_  
Engineering & Construction

Approved: \_\_\_\_\_ Contractor Date \_\_\_\_\_

Recommended: \_\_\_\_\_ Architect Date \_\_\_\_\_

Person Requesting Change: Gordon Dahlen, U/M Engineering & Construction Dept.

Reason for Change: Various field changes listed below.

Description of Change:

- |  |               |
|--|---------------|
| 1. Elastomeric Membrane Waterproofing. Uniroyal Liquid Membrane 6125 acceptable for use and decision was made to use this material which can be applied during colder weather. . . . . | 240.00        |
| 2. Reverse swing of door #3 . . . . .  | 87.00         |
| 3. Furnish and install concrete support for existing R.W.L. . . . .  | 754.00        |
| 4. Relocate exhaust duct to bone crusher . . . . .   | <u>182.00</u> |
|  | \$1263.00     |

cc: Paul Maupin  
Jack Geretz  
A.W. Johnson  
Gordon Dahlen  
Kraus-Anderson of Minneapolis



# ARKAY CONSTRUCTION COMPANY

GENERAL CONTRACTORS

April 1, 1980

H S A E	
REC'D	4-2-80
ARCH	BJ
MECH	
ELEC	
STR'L	
TAC	
	DB
	DS
FILE	JOML

*Crem.*

Health Sciences Architects  
2829 University Ave. S.E.  
Minneapolis, Mn. 55414

Attention: Doug Gusarson

Subject: JOML Crematory  
Request for Extra

Gentlemen:

Reverse swing of Door #3 as directed by Gordon Dahlen:

4 hrs. Carpenter Foreman @ \$13.73	\$55.00
Plus 30% Insurances on Laobr	17.00
Sub-Total	<u>72.00</u>
Plus 10% Overhead	7.00
Sub-Total	<u>79.00</u>
Plus 10% Profit	8.00
Total	<u>\$87.00</u>

(No material involved)

Very truly yours,

ARKAY CONSTRUCTION COMPANY

*Julius M. Rivkin*  
Julius M. Rivkin  
President

JMR:bcp

cc: Gordon Dahlen





# ARKAY CONSTRUCTION COMPANY

GENERAL CONTRACTORS

May 13, 1980

H S A E	
POD	5-16-80
COH	BS
TECH	
ETC	
APPL	
TAC	
FILE	Joml

*Cum*

Health Sciences Architects  
2829 University Ave. S.E.  
Minneapolis, Mn. 55414

Subject: JOML Crematory

Gentlemen:

To furnish and install concrete pier support for rain water leader as directed by Mr. Roy Anderson:

Cost to Arkay	\$685.00
Plus 10% Contractor's Fee	69.00
Total	<u>\$754.00</u>

Very truly yours,

ARKAY CONSTRUCTION COMPANY

*Julius M. Rivkin*  
Julius M. Rivkin  
President

JMR:bcp

Enc: 1

cc: Gordon Dahlen

# A C G MECHANICAL INC.

MECHANICAL CONTRACTORS  
797 RAYMOND AVENUE - ST. PAUL, MN 55114 - (612) 646-2721

May 9, 1980

Arkay Construction Co  
8401 Wayzata Boulevard  
Minneapolis, Minnesota 55426

Attn: Mr. Bud Rivkin

Re: J.O.M.L. Crematory - U of M  
Extra Concrete

Dear Bud:

The following is a cost breakdown for the concrete pier we were requested to install under the new 4" rainwater pipe where it crossed over the backfill area at the crematory. Mr. Roy Anderson made the request.

Lumber and Nails	\$ 108.00
1½ yds concrete and delivery	79.00
ACG Labor	329.00
Arkay carpenter labor	50.00
	<u>566.00</u>
10 % overhead	56.60
10 % margin	<u>62.26</u>
TOTAL	\$ 684.86

If you have any questions regarding the above, please call me.

Respectfully submitted,

ACG MECHANICAL INC

*Charles Rosenberger V.P.*  
Charles Rosenberger, Vice-President



# ARKAY CONSTRUCTION COMPANY

GENERAL CONTRACTORS

May 28, 1980

H S A E	
	5-30-80
	BS
	OG 1/2
	DB
	Cum.

University of Minnesota  
 c/o Health Sciences Architects  
 2829 University Ave. S.E.  
 Minneapolis, Mn. 55414

Attention: Doug Gusarson

Subject: JOML CREMATORY

Gentlemen:

Extra for moving the exhaust duct over the bone crusher as directed some months ago is as follows:

Mechanical Work	\$165.00
Plus 10% Contractor's Fee	<u>17.00</u>
Total	\$182.00

Very truly yours,

ARKAY CONSTRUCTION COMPANY

*Julius M. Rivkin*  
 Julius M. Rivkin  
 President

JMR:bcp

cc: Gordon Dahlen



# ARKAY CONSTRUCTION COMPANY

GENERAL CONTRACTORS

May 28, 1980

University of Minnesota  
c/o Health Sciences Architects  
2829 University Ave. S.E.  
Minneapolis, Mn. 55414

Attention: Doug Gusarson

Subject: JOML CREMATORY

Gentlemen:

Extra for moving the exhaust duct over the bone crusher as  
directed some months ago is as follows:

Mechanical Work	\$165.00
Plus 10% Contractor's Fee	<u>17.00</u>
Total	\$182.00

Very truly yours,

ARKAY CONSTRUCTION COMPANY

Julius M. Rivkin  
President

JMR:bcp

cc: Gordon Dahlen

**MODIFICATION TO CONSTRUCTION DOCUMENTS**

3 June 1980 - Date Issued

**UNIVERSITY OF MINNESOTA**

MOD. NO. 7-P

PROJECT JOML Crematory

CONTRACTOR Arkay Construction Company

When this Modification is signed, it shall become an order to proceed in accordance with the requirements of the Modification and the Contract Documents.

MOD. REJECTED \_\_\_\_\_

CHANGE ORDER NO. \_\_\_\_\_

CONTRACTS TO BE MODIFIED

General Construction

Mechanical Work

Electrical Work

Vertical Transportation

Casework

Single Prime Contract

\_\_\_\_\_

Cost change (Add) (~~Reduce~~) \$ 37,700.00

No change in cost or time

A Change Order (will) (~~will not~~) be issued

Approved: \_\_\_\_\_ University Date \_\_\_\_\_  
Planning Coordinator

Approved: \_\_\_\_\_ University Date \_\_\_\_\_  
Engineering & Construction

Approved: \_\_\_\_\_ Contractor Date \_\_\_\_\_

Recommended: \_\_\_\_\_ Architect Date \_\_\_\_\_

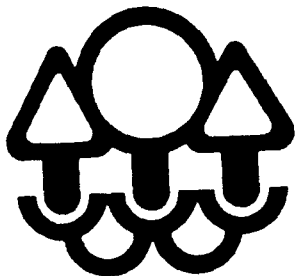
Person Requesting Change: Tom Kyle, Health Sciences Planning Office

Reason for Change: New code officials have decided immediate exit requirements are necessary out of space in lieu of future tower plan.

Description of Change:

1. Provide new stair and enclosure from sub-basement level to basement level in Jackson Hall. See drawing titled AME-2 dated April 1980 for Modification #7 to the JOML Crematory Addition.

cc: Paul Maupin  
 Jack Geretz  
 A.W. Johnson  
 Gordon Dahlen  
 Kraus Anderson of Mpls.  
 Files (2)  
 HSAE  
 Arkay Construction



# Minnesota Pollution Control Agency

June 24, 1980

Mr. Robert A. Silvagni  
Environmental Engineer  
University of Minnesota  
Physical Plant Operations  
200 Shops Building  
319 Fifteenth Avenue S.E.  
Minneapolis, MN 55455

Subject: University of Minnesota Hospitals  
Jackson Hall  
University of Minnesota  
Minneapolis, Minnesota  
Installation Permit No. 86J-80-I-1 for Cremator

Dear Mr. Silvagni:

Attached is the installation permit for the cremator for the captioned facility.

Sincerely,

*Frank L. Blackhall*

Frank L. Blackhall, P.E.  
Engineering Section  
Division of Air Quality

FLB/if

INSTALLATION PERMIT  
FOR AN  
EMISSION FACILITY  
AND  
AIR POLLUTION CONTROL EQUIPMENT

In accordance with Minnesota Statutes Chapters 115 and 116  
and Minnesota Pollution Control Agency Rule APC 3

THE REGENTS OF THE UNIVERSITY OF MINNESOTA  
(A Minnesota State Constitutional Education Corporation)  
University of Minnesota  
Minneapolis, Minnesota 55455

(hereinafter Permittee) is authorized by the Minnesota Pollution  
Control Agency (hereinafter Agency) to install an emission  
facility comprising a cremator and associated air pollution  
control equipment under the conditions set forth herein at the  
University of Minnesota facility known as:

UNIVERSITY OF MINNESOTA HOSPITALS  
Jackson Hall  
University of Minnesota  
Minneapolis, Minnesota

This permit shall become effective on the date of issuance by the  
Director.

This permit shall expire ninety (90) days after installation of  
the emission facility or control equipment is completed or twelve  
(12) months after the day it is issued if installation has not  
begun.

DATED: June 26, 1980

  
\_\_\_\_\_  
J. Michael Valentine, Director  
Division of Air Quality

for Terry Hoffman  
Executive Director  
Minnesota Pollution Control Agency

PART I. DESCRIPTION

A. Emission Facility

The Permittee is authorized to install a cremator and associated air pollution control equipment (gas fired burners) generally described as follows:

1. Cremator

Manufacturer:	G and S Crematory Company
Model:	JO-1-GM
Capacity:	300 lbs/hr Type 0 waste plus 100 lbs/hr Type 4 waste. This equals to three cadavers per day.
Projected Use:	Less than 125 cadavers per year.

2. Burners

Primary Burner:	1,200,000 BTUH operating capacity
Secondary Burner:	1,750,000 BTUH operating capacity, high fire. 600,000 BTUH operating capacity, low fire.

3. Cremation Cycles

a) Preheat - Secondary Chamber

Secondary burner on high fire 1,750,000 BTUH  
Time - varies - is temperature controlled

b) Cremation I - Casket Ignition

Primary Burner:	1,000,000 BTUH
Secondary Burner (low fire):	600,000 BTUH
Time:	Five minutes

c) Cremation II - Casket Burn

Primary Burner:	Air only
Secondary Burner (low fire):	600,000 BTUH
Time:	Ten minutes

d) Cremation III - Casket Burn Down and Cadaver Burn

Primary Burner:	1,000,000 BTUH
Secondary Burner (low fire):	600,000 BTUH



Time: 45 minutes

e) Cremation IV - Cadaver Burn-Down

Primary Burner: 1,000,000 BTUH  
Secondary Burner (low  
fire): 600,000 BTUH  
Time: 30 minutes

f) Cool-Down - Final Burn-Down

Gas Input: 0  
Time: Varies

4. Flue Gas Data

ACFM: 1836  
Temperature: 1400°F

5. Stack Data

Stack Height: 76.0 ft  
Stack Diameter: 1.5 ft

B. Abbreviations

ACFM: actual cubic feet per minute  
BTUH: British Thermal Units per Hour  
CO<sub>2</sub>: carbon dioxide  
ft: foot (feet)  
gr/dscf: grains per dry standard cubic foot  
hr: hour  
lbs: pounds

C. Definitions

1. Types of Waste

Characteristics of Wastes

Type No.	Principal Components	Approx. Comp. % by Weight	Moisture Content %	Incom-bustible Solids %	BTU Value/lb of Refuse as Fired
0	Carboard or wood Casket	100	10	5	8500
4	Cadaver	100	90	0	1000

PART II. CONDITIONS

A. Special Conditions

1. Incinerator Charge. This permit limits the incinerator charge to Types 0 and 4 wastes .
2. Emission Limitations. The Permittee shall not cause emissions into the atmosphere to occur from this incinerator in excess of the limits set forth in the following Air Pollution Control Rule:  
  
APC-7: Standards of Performance for Incinerators  
  
Particulate Emissions. Not greater than 0.15 gr/dscf corrected to 12 percent CO<sub>2</sub>.  
  
Visible Emissions. Not greater than 20 percent opacity.
3. Ambient Standards. The Permittee shall not cause to be discharged into the atmosphere from the incinerator any particulate matter in such an amount or in such a manner as to exceed the ambient air quality standards set forth in Minn. Rule APC 1.
4. Noise Standards. The Permittee shall comply with the noise standards as set forth in Minn. Rule NPC 2 at all times during the operation of the facility or air pollution control equipment.
5. Residual Materials. The Permittee shall carefully gather up the ashes of cremation depositing these in a covered urn or other suitable receptacle.
6. Compliance Testing. The flue gases shall be observed by an Agency Smoke Reader for compliance with the visible emissions limitations. If compliance is not demonstrated, the Permittee shall be required to make modifications to the combustion control systems within two (2) weeks, to bring the visible emissions into compliance. At the end of this period of time, the flue gases will again be observed by an Agency Smoke Reader for compliance with the visible emissions limitations.

B. General Conditions

1. Applicable Laws. This Permit shall not release the Permittee from any liability, penalty or duty imposed by Minnesota or federal statutes or rules or local ordinances except the obligation to obtain this Permit.
2. Future Rules. This Permit shall not prevent the future adoption by the Agency of any pollution control rules, standards or orders more stringent than those now in existence or prevent the enforcement of such rules, standards or orders against the Permittee.
3. Accuracy of Information. The Permittee shall not

knowingly make any false statement, representation or certification in any record, report, plan or other document required to be submitted to the Agency under this Permit. The Permittee shall immediately upon discovery report to the Agency any errors in such records, reports, plans or other documents.

4. Right of Entry. The Permittee shall allow the Agency, or any authorized employee or agent of the Agency, upon the presentation of proper credentials, to examine and copy any books, papers, records or memoranda pertaining to the installation of the emission facility or to the installation of the control equipment covered by this Permit.

The Permittee shall allow the Agency, or any authorized employee or agent of the Agency, upon presentation of proper credentials, to enter upon the property of the Permittee for the purpose of obtaining information or examining records or conducting surveys or investigations pertaining to the installation of the emission facility or to the installation of the control equipment covered by this Permit.

5. Notification of Completion. The Permittee shall advise the Agency immediately upon completion of installation of the emission facility and installation of the control equipment covered by this Permit.
6. Expiration Date. Installation shall be deemed to have begun if a continuous program of construction has been undertaken. Interruptions resulting from matters beyond the control of Permittee shall be considered by the Agency in determining whether installation has begun.
7. Assignment. This Permit may not be assigned or transferred by the Permittee without the approval of the Agency.
8. Permit Modification. After notice and opportunity for public hearing, this Permit may be modified, suspended, or revoked in whole or in part during its term for cause, including, but not limited to:
  - a. Violation of any terms or conditions of this Permit.
  - b. Obtaining this Permit by misrepresentation or failure to disclose fully all relevant facts.
9. Civil and Criminal Liability. Nothing in this Permit shall be construed to relieve the Permittee from civil or criminal penalties, or preclude the institution of any legal or administrative proceedings for noncompliance with the terms and conditions of this Permit or for noncompliance with applicable state or federal pollution control laws.

10. Property Rights. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or rules.
11. Severability. The provisions of this Permit are severable, and if any provisions of this Permit or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this Permit, shall not be affected thereby.
12. Emergency Powers. Nothing in this Permit shall prohibit the Agency or the Director from exercising emergency powers pursuant to Minnesota Statutes Section 116.11.

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