



SCHEMATIC DESIGN APPROVAL

Name of Project: Fine Arts Complex Vapor Barrier
Project Type: DM and R&R
Location of Project: UAF, Fairbanks Campus, Fine Arts Building Music Wing FS312, Fairbanks
Project Number: 2012045 FAVB
Date of Request: December 19, 2012

Total Project Cost:	\$ 5,600,000	
Approval Required:	Full BOR	
Prior Approvals:	Preliminary Administrative Approval	August 23, 2012
	Formal Project Approval	October 15, 2012

A Schematic Design Approval (SDA) is required for all Capital Projects with a Total Project Cost in excess of \$250,000.

SDA represents approval of the location of the facility, its relationship to other facilities, the functional relationship of interior areas, the basic design including construction materials, mechanical, electrical, technology infrastructure and telecommunications systems, and any other changes to the project since formal project approval. Unless otherwise designated by the approval authority or a material change in the project is subsequently identified, SDA also represents approval of the proposed cost of the next phases of the project and authorization to complete the design development process, to bid and award a contract within the approved budget, and to proceed to completion of project construction. Provided however, if a material change in the project is subsequently identified, such change will be subject to the approval process.

Action Requested

“The Facilities and Land Management Committee recommends that the Board of Regents approve the Schematic Design Approval request for the University of Alaska Fairbanks Fine Arts Complex Vapor Barrier project as presented in compliance with the campus master plan, and authorizes the University administration to complete construction bid documents to bid and award a contract within the approved budget, and to proceed to completion of project construction not to exceed a Total Project Cost of \$5,600,000. This motion is effective February 21, 2012”

Project Abstract

This project will correct the condensation problem in the Music Wing by retrofitting the exterior walls with spray foam and other treatments thereby increasing the existing R value and simultaneously creating a vapor barrier. The retrofit process will include the removal of all materials up to the inside of the exterior concrete tip-up panels. This process will repair any water damage and eliminate and dispose of mold/mildew containing materials. This project will require a partial renovation of the Eva McGown

Music Room due to the extensive wall removal and repair. Insulation and vapor barrier issues at the west wall of Davis Concert Hall will also be addressed as part of this project.

RATIONALE AND REASONING

Background

The Fine Arts Complex was constructed in 1968 with a humidified Music Wing. The resulting condensation damage to the building prompted the decision to stop humidifying the building within a few years after its opening. Over time, many instruments were damaged by the very dry winter air and had to be replaced due to a lack of humidification. However, records indicating the replacement cost of the instruments are not available at this time. The Music Wing was humidified again in 2002 to protect the valuable inventory of wood and stringed instruments that are housed and played there. Housing the instruments in a humidified storage area and leaving the remainder of the Music Wing and Davis Concert Hall un-humidified would not properly protect the instruments as many should be played and stored in areas of similar relative humidity.

Facilities Services maintenance crews have responded to numerous requests to fix problems with standing water, water damaged sheetrock, ceiling tiles, and carpet which were originally thought to be roof problems. USKH's report dated May 2012 indicated that humidifying the building and the lack of a continuous vapor barrier were the primary causes of the damage. Environmental Health and Safety Division investigated the building air quality and potential growth of mold. Mold spores were found in the walls of the most problematic rooms. However, it was determined that they were a common variety and quantities were not found at hazardous levels. Staff pressure to fix the problem continued partially over concerns of potential loss of the program's accreditation. The condensation damage in the Music Department was specifically cited by the most recent accreditation review team as a condition which could lead to loss of accreditation for the Music Department.

The project will affect approximately 20,000 square feet of wall space and approximately 42,905 square feet of building space at a cost of \$130/square foot.

Programmatic Need

Building improvements will support the Fine Arts Music Department Programs.

Project Scope

By default, an interior retrofit will require removing instruments and furnishings from all spaces with exterior walls; temporary removal and reinstallation of obstructing buildings elements and systems (ceilings, mechanical equipment, ductwork, piping and similar); removal of the existing exterior wall systems and installation of a new retrofit wall assembly. The interior retrofit solution that would be effective in increasing thermal value, controlling condensation, and allowing an opportunity for the wall cavity to ventilate would consist of:

- Existing exterior precast concrete panel to remain.
- Remove existing 2 x 4 studs, kraft faced batt insulation and lathe/plaster finish system, perimeter hydronic baseboard heating elements, and electrical and communications systems.
- Remove a portion of the existing ceiling as necessary to access the above-ceiling space for retrofit.

- Isolate interior concrete masonry unit (CMU) walls that intersect with exterior concrete panel walls.
- Apply polyurethane spray foam to a minimum R-value/thickness that, calculated at R-20, will prevent condensation assuming +68 degree F and 30 percent relative humidity on the interior, and -50 degree F exterior temperatures.
- A recommended option, apply additional R-value/thickness to achieve greater energy savings; R-30 is a more reasonable value in consideration of the potential future cost of energy.
- While the polyurethane spray foam provides a high degree of resistance to vapor transmission, the application of a spray vapor barrier is warranted to assure that no paths are provided for water vapor to move into the condensation or freezing plane.
- Where no gypsum board is present, e.g. above ceiling spaces, an approved thermal/ignition barrier, such as intumescent (fire resistance) paint, must be provided to improve both vapor and fire resistance.
- Install a row of 4-inch metal studs inside of the spray foam, forming a chase for conduits and utilities, which also provides a ventilation cavity.
- Install 5/8-inch gypsum board finish and wall base.
- Repair intersecting walls where disturbed.
- Reinstall portions of the ceiling that were removed.
- Reinstall or replace perimeter hydronic baseboard heating elements.

This basic retrofit concept will have several variations in application to suit various conditions within the building. Generally, the studs will provide a chase for conduits and piping. However, in several locations where floor space and door clearances are critical, e.g. the corner restroom, the studs will be contained within the insulation.

Project Impacts

The Division of Design and Construction is working closely with the Music Department to mitigate the impact to their operations as well as the operations of their many user groups. Advance notice of construction activities was shared as early as the fall of 2011 to allow all impacted user groups to budget for a change of venue between May and September of 2013. All registrar control areas that will be impacted have been notified and adjustments made accordingly. The music wing occupants will be off contract during construction so there will not be an impact to that program area, however, the Music Department will incur moving and storage costs as a result of vacating the construction area. Funds in the amount of \$215,000 have been identified for this purpose and are included in the \$5.6 million Total Project Cost budget.

Variances

N/A

Total Project Cost and Funding Sources

Funding Title	Fund Account	Amount
FY 12 General Funds	571319-50216	\$3,600,000
FY 13 DM and R Funds	571346-50216	\$2,000,000
Total Project Cost		\$5,600,000

Annual Program and Facility Cost Projections

This project will correct issues with the existing facility. The annual maintenance and operating costs changes are expected to be reduced significantly because the building envelope efficiency will increase dramatically. Exact dollar amounts of projected heating and cooling cost savings cannot be calculated because building metering and historical utility data is not collected in way to separate out specific utility costs for just this building.

Project Schedule

DESIGN

Conceptual Design	October 2012
Formal Project Approval	October 2012
Schematic Design	December 2012
Schematic Design Approval	February 2013
Construction Documents	January 2013

BID & AWARD

Advertise and Bid	February 2013
Construction Contract Award	March 2013

CONSTRUCTION

Start of Construction	March 2013
Construction Complete	August 2014
Date of Beneficial Occupancy	TBD
Warranty Period	1 year

Project Delivery Method

The Construction Manager at Risk (CMAR) was selected as the delivery method for this project. Watterson Company has been selected as the Construction Contractor.

Supporting Documents

One-page Project Budget	
Design Narrative	
Drawings	
Site Plan	
Floor Plans	(1 st , 2 nd , 3 rd floors)
Wall Sections	(existing and new)
Elevations	(exterior)

Affirmation

This project complies with Regents Policy and the campus master plan.

Approvals

The level of approval required for SDA shall be based upon the estimated TPC as follows:

- **TPC > \$4.0 million will require approval by the board based on the recommendations of the Facilities and Land Management Committee (FLMC).**
- TPC > \$2.0 million but not more than \$4.0 million will require approval by the FLMC.
- TPC > \$1.0 million but not more than \$2.0 million will require approval by the Chair of the FLMC.
- TPC ≤ \$1.0 million will require approval by the AVP of Facilities and Land Management.

UNIVERSITY OF ALASKA		
Project Name:	Fine Arts Complex Vapor Barrier Design and Installation	
MAU:	UAF	
Building: Fine Arts Music Wing	Date:	11-Dec-12
Campus: UAF	Prepared by: Mary Pagel	
Project #: 2012045 FAVB	Acct #(s): 571319-50216	
Total GSF Affected by Project:	42905	42905
PROJECT BUDGET	FPA Budget	SDA Budget
A. Professional Services		
Advance Planning, Program Development	30,000	30,000
Consultant: Design Services	358,928	358,928
Consultant: Construction Phase Services	20,000	20,000
Consul: Extra Services (List: _____)	0	45,000
Site Survey	0	0
Soils Testing & Engineering	0	0
Special Inspections	0	0
Plan Review Fees / Permits	0	0
Other	0	0
Professional Services Subtotal	408928	453928
B. Construction		
General Construction Contract(s)	3,407,752	3,407,752
Other Contractors (List: _____)	50,000	45,000
Construction Contingency	518,663	517,913
Construction Subtotal	3976415	3970665
<i>Construction Cost per GSF</i>	<i>92.67952453</i>	<i>92.54550752</i>
C. Building Completion Activity		
Equipment	0	0
Fixtures	0	0
Furnishings	0	0
Signage not in construction contract	0	0
Move-Out Costs	260,000	250,000
Move-In Costs	200,000	180,000
Art	0	0
Other (Interim Space Needs or Temp Reloc. Costs)	0	0
OIT Support	20,000	20,000
Maintenance Operation Support	70,000	70,000
Building Completion Activity Subtotal	550000	520000
D. Owner Activities & Administrative Costs		
Project Plng, Staff Support, Contractor Salary (contingency)	349,890	350,184
Project Management	222,090	222,507
Misc. Expenses: Advertising, Printing, Supplies, Etc.	90,000	80,000
Owner Activities & Administrative Costs Subtotal	661980	652691
E. Total Project Cost	5597323	5597284
<i>Total Project Cost per GSF</i>	<i>130.4585246</i>	<i>130.4576157</i>
F. Total Appropriation(s)		5,600,000

**FINE ARTS VAPOR BARRIER
ADVANCED SCHEMATIC DESIGN (45%) REPORT
PROJECT NO. 2012045 FAVB
UNIVERSITY OF ALASKA
FINE ARTS COMPLEX MUSIC WING
Fairbanks, Alaska**

November 29, 2012

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USKH WO# 1372700

FOREWORD

The Fine Arts Music Wing is part of the Fine Arts Complex at the University of Alaska in Fairbanks, which also includes the Regents' Great Hall, the Rasmuson Library, the Salisbury Theater, and the Arts Wing.

The three-story Fine Arts Music Wing has exhibited moisture damage from seasonal condensation since its initial construction in 1968. As part of the Fine Arts Complex Renewal – Phase 1 project in 2002, humidification was added to the building to preserve sensitive musical instruments. Since this time, the moisture damage has become more extensive and mold has been detected within the exterior wall systems. Field work was undertaken in October 2010 through March 2012 and is documented herein to convey current conditions within select locations of the building exterior wall system.

USKH Inc. prepared *Vapor Barrier & Wall Analysis - Phase 2 Report* in May 2012, which continued the analysis began in the *Vapor Barrier & Wall Study* of March 2011, which identified the principal causes of the moisture problems as lack of a continuous vapor and thermal envelope coupled with strong vapor drive from the humidified spaces condensing on the cold inner surfaces of the exterior precast concrete wall panels. The consensus option to mitigate condensation and mold growth would be an interior retrofit, which would mitigate moisture related problems by removing the existing exterior wall components (plaster, studs, insulation) and construct a new wall system with improved vapor and thermal resistance inside of the precast wall panels. This option would by nature be highly disruptive to the occupants of the facility, but would leave the exterior of the building unchanged.

The University subsequently prepared a Request for Proposal for professional design services using a qualification based selection process, and USKH Inc. was selected.

The University also prepared an Invitation for Bids for construction management services employing a Construction Manager at Risk contract method, and Watterson Construction was selected.

SCHEMATIC DESIGN SUMMARY

In review meetings with the Division of Design and Construction (DDC), and Watterson Construction on November 7, 2012, it was confirmed that the interior retrofit remains the consensus as the basis of design for this Schematic Design submittal. This confirmation reviewed the previously considered options of the prior reports, as well as the potential to remove exterior precast wall panels, which was determined to be infeasible from a construction standpoint. A subsequent site walk through by the Division of Design and Construction, USKH Inc., and Watterson Construction on November 13, 2012, provided additional perspective and information that has been incorporated into this submittal.

Presented in this report are drawings depicting the locations and extent of remedial efforts, which would be constructed using a top down systematic work sequence. Typical wall sections and proposed new window infill details are included in the drawings.

Product data for spray-applied polyurethane insulation, vapor barrier, and thermal/ignition barrier materials are also included. A similar installation of these materials is now in process at the CTC Aviation Hangar at the East Ramp of Fairbanks International Airport. Additional product data is provided for a liquid-applied waterproof

membrane system that may be used on a selective basis to minimize removal and disruption of existing building materials and systems, as well as for a proposed new thermal break replacement window system.

Key design issues and options for remedial work that are to be reviewed and direction confirmed include:

- West Wall at Davis Concert Hall: The south upper portion of this wall adjoins the Arts Wing (see Drawing A2.3) along Grid G such that the portions between grids 23 and 27 abut a heated mechanical room (see Design Alaska Exhibit Drawing Sheet A2.2) and were observed as warm, and should not require retrofit. The north upper portions between grids 27 and 33 abut the roof and definitely will require retrofit. However, the University may consider construction of additional heated space on this roof area to serve the Art Department. Determination of whether a retrofit or adjacent construction will occur is required. It must be noted that access to this upper wall area is extremely difficult due to its location atop a three-story-high concealed space, with a catwalk at the top level.
- Mechanical Room 300U1: This room contains air handling equipment and two steam humidifiers. The room functions as a plenum and condensation occurs at the upper areas of the north (exterior) wall. Access to the exterior wall for remedial work would be difficult and costly due to the presence of numerous pieces of equipment, piping, and ductwork. An option that may be feasible would be to provide a waterproof cove at the base of this wall to intercept condensation melt and direct it to floor drains present in the mechanical room. This would avoid a significant amount of the cost of temporary removal and reinstallation of mechanical systems and supports. Some smaller items, such as a steam hot water unit, would need to be temporarily removed, but in general this approach appears to be feasible.
- McGown Choir Room 217: The north and east walls of this two-story volume must be removed to gain access to the exterior wall for remedial work. This presents an opportunity for modernizing and remodeling the space, which could include enhanced and variable acoustics. To what extent the University wishes the space to be remodeled will undoubtedly depend on the overall budget; however, some direction will be needed as the work within this room will require sensitive design to maintain a high quality level of acoustics.
- Insulation Thermal Value: Given that this is a one-time opportunity to upgrade the building envelope, and in consideration of potential escalation in fuel costs, the R-value and corresponding thickness of spray insulation must be carefully considered. While preliminary calculations have set a base line value of R-20 to eliminate condensation at the face on the insulation, once project costs are better known, consideration of total life cycle cost/benefit of increased R value should be undertaken.
- Vapor Barrier: Similarly, while spray-applied polyurethane foam insulation has considerable resistance to vapor drive; this is a one-time chance to provide a spray vapor retarder over the insulation in areas that will be concealed by gypsum board finishes. Given that this is a humidified building (set at approximately 30 percent relative humidity) in subarctic Alaska (design temperature of -50 degrees F), judicious use of a spray-applied vapor retarder must be considered.

A 16-week construction period from May 16, 2013 through September 4, 2013 has been set as the principal period for the renovation work, during which time all user activities will be vacated in the Music Wing. Work will be prioritized to occur in this period, and a phasing plan for remaining work beyond this period will be developed by Watterson Construction.

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- Appendix A Preliminary Project Schedule
- Appendix B Product Data
- Appendix C Schematic Design Drawings
- Appendix D Exhibit Drawings

1 INTRODUCTION

The Fine Arts Music Wing is part of the Fine Arts Complex at the University of Alaska in Fairbanks (UAF) (see aerial photo below). This three-story wing contains the Davis Concert Hall, McGown Choir Room, music classrooms, offices, and practice rooms. The facility has exhibited moisture damage from seasonal condensation since its construction in 1968. As part of the Fine Arts Complex Renewal – Phase 1 project in 2002, humidification was added to the building to preserve sensitive musical instruments. Since then, the moisture damage has become more extensive and mold has been detected within the exterior wall systems. See photos on the project Submittal Exchange site for graphic images of frost buildup in wall cavities and moisture damage at various areas.

This Schematic Design Report is based on the consensus “interior retrofit” option, as further discussed with UAF Division of Design and Construction (DDC) and Watterson Construction in joint sessions on November 7 and 13, 2012. Extensive detail on how the existing problems at the facility were identified and how the proposed interior retrofit concept for remedial work was developed over a two-year period can be found in the *Vapor Barrier & Wall Analysis – Phase 2 Report* by USKH dated May 2012.



2 RETROFIT DESIGN RECOMMENDATIONS

The retrofit is designed to increase the thermal resistance of the exterior wall system as well as control moisture problems by eliminating the possibility of a condensation plane interior to the vapor barrier.

2.1 Basic Interior Retrofit

By default, an interior retrofit will require removing instruments and furnishings from all spaces with exterior walls; temporary removal and reinstallation of obstructing buildings elements and systems (ceilings, mechanical equipment, ductwork, piping and similar); removal of the existing exterior wall systems and installation of a new retrofit wall assembly. As indicated in Figure 1, an interior retrofit solution that would be effective in increasing thermal value, controlling condensation, and allowing an opportunity for the wall cavity to ventilate would consist of:

- Existing exterior precast concrete panel to remain.
- Remove existing 2 x 4 studs, kraft faced batt insulation and lathe/plaster finish system, perimeter hydronic baseboard heating elements, and electrical and communications systems.
- Remove a portion of the existing ceiling as necessary to access the above-ceiling space for retrofit.
- Isolate interior concrete masonry unit (CMU) walls that intersect with exterior concrete panel walls.
- Apply polyurethane spray foam to a minimum R-value/thickness that, as calculated at R-20, will prevent condensation assuming +68 degree (deg) F and 30 percent relative humidity on the interior, and -50 deg F exterior temperatures.
- As a recommended option, apply additional R-value/thickness to achieve greater energy savings; R-30 is a more reasonable value in consideration of the potential future cost of energy.
- While the polyurethane spray foam provides a high degree of resistance to vapor transmission, the application of a spray vapor barrier may be warranted to assure that no paths are provided for water vapor to move into the condensation or freezing plane.
- Where no gypsum board is present, e.g. above ceiling spaces, an approved thermal/ignition barrier, such as intumescent (fire resistant) paint, must also be provided to improve both vapor and fire resistance.
- Install a row of 4-inch metal studs inside of the spray foam, forming a chase for conduits and utilities, which also provides a ventilation cavity.
- Install 5/8-inch gypsum board finish and wall base.
- Repair intersecting walls where disturbed.
- Reinstall the removed portions of the ceiling.
- Reinstall or replace perimeter hydronic baseboard heating elements (see 2.3.1)

The dense 6-inch-thick slabs of precast concrete on the exterior walls are very resistant to moisture passage. Placing a new continuous vapor retarder on the warm side of the insulation will in effect create a double vapor retarder that would sandwich and trap any moisture; therefore, extreme attention to detail during installation will be essential to assure a continuous vapor barrier.

This basic retrofit concept will have several variations in application to suit various conditions within the building. See typical new wall sections on Sheet A4.1 of Appendix A. Generally, the studs will provide a chase for conduits and piping as shown in Figure 1 and Wall Type E/A.1. However, in several locations where floor space and door clearances are critical, e.g. the corner restrooms, the studs will be contained within the insulation as in Wall Type F/A4.1.

2.1.1 Glazing System Replacement

The existing glazing systems are located solely on the east wall of the building, and consist of eight vertical strips of curtain wall at Grids 27, 29, 31 and 33, and a separate section of fixed glazing at Room 301 between Grids 23 and 25 on the third floor. See Sheet A5.1 for locations. These systems are aluminum extrusion framing with bronze anodized finish supporting insulated glazing and spandrel panels. The location of the glazing within the thermal envelope plane is at the concrete panels, and beyond the insulated portion of the assembly.

Consequently, removal of the glazing system and installation of a new thermal break framing system that aligns with the thermal envelope will significantly reduce thermal transmission, and allow the installation of overall higher U values. Moving the glazing system inboard will require elimination of the spandrel panels due to conflict with the perimeter slab edge. Sheet A4.2 in Appendix C indicates proposed details to accommodate the new location for the glazing plane, and employs the use of EIFS at the areas where the spandrel panels are now located.

2.2 Alternate Interior Retrofit

While the Basic Interior Retrofit described in 2.1 above would be recommended at most areas of the building exterior wall system, there are several locations where alternative designs should be considered:

2.2.1 West Wall at Davis Concert Hall

The south upper portion of this wall adjoins the Arts Wing (see Drawing A2.3) along Grid G such that the portion between grids 23 and 27 abuts a heated mechanical room (see Design Alaska Exhibit Drawing Sheet A2.2 in Appendix D), which was observed as warm, and should not require retrofit.

The north upper portion between grids 27 and 33 abuts the roof and definitely will require retrofit. However, the University may consider construction of additional heated space on this roof area to serve the Art Department. Determination of whether a retrofit or adjacent construction will occur is required.

Should the determination be that construction of new space on the roof for the Art Department will not be feasible, retrofit of the wall will be required. It must be noted that access to this upper wall area is extremely difficult due to its location atop a three-story-high concealed space, with a catwalk at the top level. While the catwalk provides access, it also inhibits access to the work. Preliminary recommendations for work at this area would be as follows:

- Existing exterior precast concrete panel to remain.
- Remove existing 2 x 4 studs, kraft faced batt insulation and lathe/plaster finish system, items attached to the furred wall; this system extends down to several feet below the adjacent roof level.
- Remove a portion of the existing gypsum ceiling as necessary to access the above-ceiling space for retrofit; this space has not been observed and is currently not accessible without destructive exploration.
- Apply polyurethane spray foam to a minimum R-value/thickness that, as calculated at R-20, will prevent condensation assuming +68 deg F and 30 percent relative humidity on the interior, and -50 deg F exterior temperatures.
- As a recommended option, apply additional R-value/thickness to achieve greater energy savings; R-30 is a more reasonable value in consideration of the potential future cost of energy.

- While the polyurethane spray foam provides a high degree of resistance to vapor transmission, the application of a spray vapor barrier may be warranted to assure that no paths are provided for water vapor to move into the condensation or freezing plane.
- Installation of metal framing and gypsum board would be highly difficult and unnecessary at this location; however, an approved thermal/ignition barrier, such as intumescent (fire resistant) paint, must also be provided to improve both vapor and fire resistance. The final coating must either be black or be paintable so that the surface becomes “invisible” behind the existing mesh visual screen during performances.

2.2.2 Mechanical Room 300U1

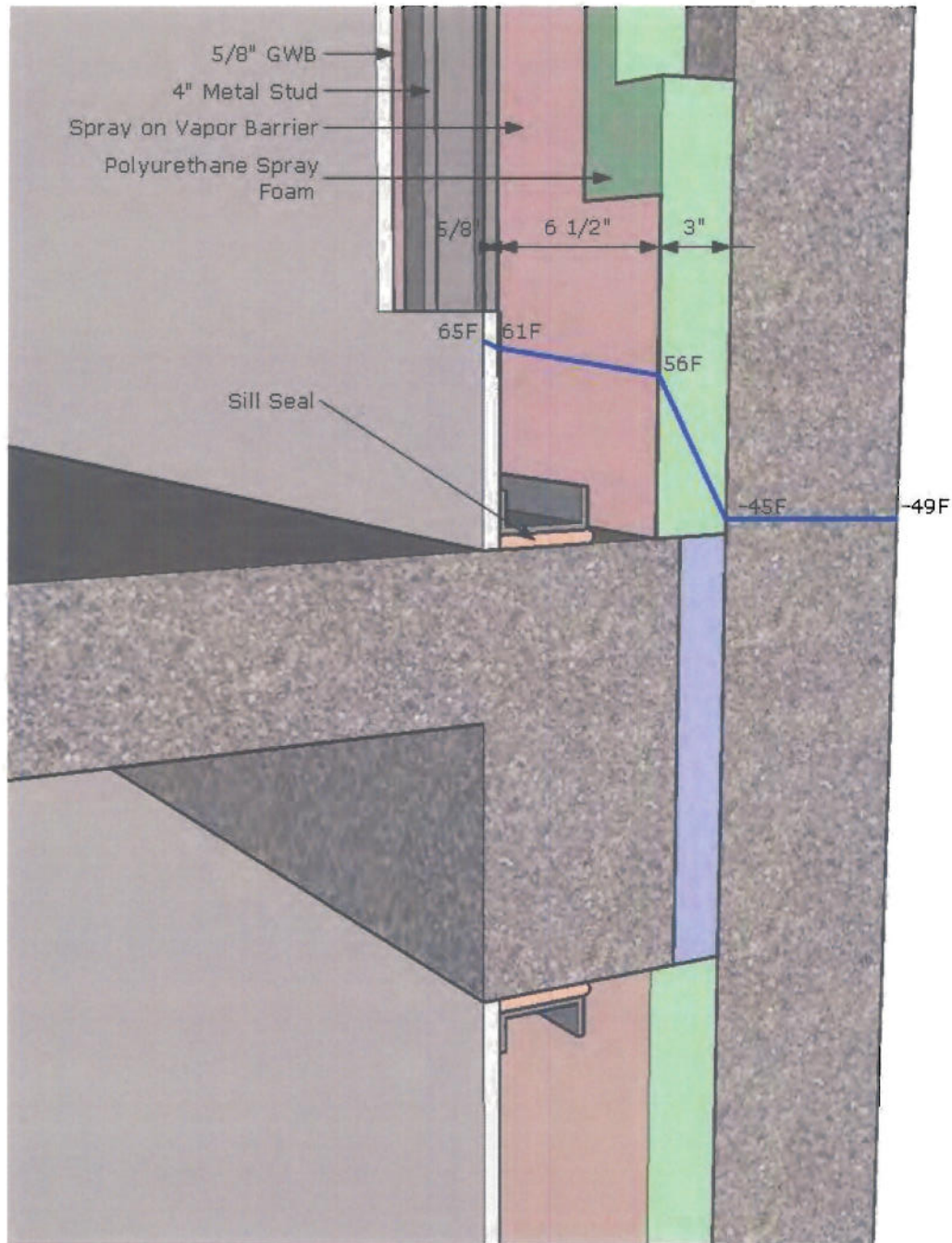
This room contains air handling equipment and two steam humidifiers. The room functions as a plenum, and condensation occurs at the upper areas of the north (exterior) wall. Access to the exterior wall for remedial work would be difficult and costly due to the presence of numerous pieces of equipment, piping, and ductwork. This would consume a significant portion of the cost of temporary removal and reinstallation of mechanical systems and supports. An entire system commissioning and rebalancing would also be required.

An option that may be feasible would be to provide a waterproof cove at the base of this wall to intercept condensation melt and direct it to floor drains present in the mechanical room. Some smaller items, such as a steam hot water unit, would need to be temporarily removed, but in general this approach appears to be feasible. What would be required is as follows:

- Existing exterior precast concrete panel to remain.
- Remove obstructions, including steam hot water heater and associated portions of piping and other miscellaneous items, to the work along the lower wall; existing clearances between the main equipment items and the wall appear to allow sufficient room.
- Remove existing 2 x 4 studs, kraft faced batt insulation and lathe/plaster finish system, sound insulation attached to the furred wall at the lower 18 inches of the wall only.
- Clean and prep existing lower wall and floor area to receive new fleece-backed liquid-applied waterproof membrane to function as an impermeable cove barrier.

A suitable product is the “Kemperol 2K-PUR” system. The system is odorless and uses a polyurethane coating, fleece backing, and a primer. The concrete wall and floor surfaces to receive the system will need to be primed. If there is a sealer on the floor it will need to be removed so the primer can adhere. The fleece is applied and coated with polyurethane. Any piping uptight to the wall, that cannot be removed, can be covered with the fleece and coated. The cost for materials only is \$7.00 per SF, with labor being additional. Product data is included in Appendix B.

Figure 1 - Interior Retrofit Detail



2.2.3 McGown Choir Room 217

The north and east walls of this two-story volume must be removed to gain access to the exterior wall for remedial work. This presents an opportunity for modernizing and remodeling the space, which could include enhanced and variable acoustics.

To what extent the University wishes the space to be remodeled will undoubtedly depend on the overall budget; however, some direction will be needed as the work within this room will require sensitive design to maintain a high quality level of acoustics.

2.3 Other Specific Areas of Difficulty

In addition to the three alternate interior retrofit areas described above, there are several areas within the building where removal and retrofit of the exterior wall systems will present particular difficulties, and by default incur high costs by the presence of conflicting building elements:

1. Electrical Room 300U3: The south wall of this room contains both surface mounted electrical panels and two duct shafts running tight to the wall. At this location, an alternative design may be warranted as opposed to the difficult and costly prospect of relocating these items. Current thought is that the walls could be demolished around the panels and ductwork, which would remain in place and be encapsulated with insulation.
2. Music Storage 301A1: There are tall banks of high density shelving holding lateral files for sheet music storage that will need to be temporarily removed and then replaced. Critical space requirements for accessing the files via rolling steps will need to be reviewed in consideration of increased wall thickness under the proposed retrofit design.
3. Ceiling Spaces at the Third Floor: With the height from the third floor to the bottom of the roof deck being 19 feet, and with the presence of numerous above-ceiling items including ductwork, piping, and conduits, access to the walls will be difficult.
4. Restrooms 200M1 and 300M1: As a result of the exterior wall retrofit, the restrooms will be substantially gutted. This may allow reconfiguring portions of these toilet rooms that are located on the building exterior to improve access and increase door widths to comply with current code requirements.

2.4 Mechanical Systems

The perimeter rooms with exterior walls typically have two mechanical systems that will be impacted by the vapor barrier project. These mechanical systems are the hydronic baseboard heating system and the air-conditioning and ventilation system.

2.3.1 Baseboard Heaters

The hydronic baseboard heaters consist of a painted steel enclosure, a finned-tube heating element, piping, valves, and accessories. The baseboard heaters will be removed to allow for modifications to the wall. If the baseboard heaters are to be reinstalled, they will need to be disassembled and stored in a manner that avoids

damaging the enclosures and finned-tube elements. It may be easier to replace accessories, including element supports and enclosure hangers, than it will be to remove and reinstall them. The finned-tube elements are susceptible to damage to the 0.020-inch thick aluminum fins. The enclosures are painted steel and reasonably durable. Repainting the enclosures will help provide a "like-new" appearance. Upon completion of the wall modifications, the baseboard heaters will be reinstalled. The baseboard heaters will move approximately 4 inches inboard from their existing location due to the increased thickness of the wall. A constructability analysis will be required to determine if reinstalling the existing baseboard heaters is more cost effective than providing new baseboard heaters.

The hydronic piping system for the baseboard heaters is located in the ceiling of the lower level. Pipes extend up through the floor to heaters on the second level and down in the corners of rooms to heaters on the lower level. The floor penetrations are approximately 12 inches inboard from wall to avoid a beam below. At these locations the baseboard enclosure turns a 90 degree corner that extends approximately 16 inches from the face of the wall to the end cap of the enclosure. In most cases, the use of a new floor penetration will avoid modifications to the enclosure and related piping. The old penetrations will be sealed. In some cases, there is a door in the partition wall that is tight to the end of the enclosure. This will require reusing the existing floor penetration. The enclosure will be made approximately 4 inches shorter and the related piping will be modified to fit the new dimensions.

Typically, several adjacent rooms share a circuit of baseboard heaters with floor penetrations at each end of the circuit. Between the rooms, the horizontal pipes penetrate the concrete block partition walls. New wall penetrations will be needed to align with the new location of the baseboard heaters. The old penetrations will be sealed. On the lower level, several adjacent rooms share a circuit of baseboard heaters with vertical pipes at each end of the circuit and horizontal pipe penetrations between the rooms. New wall penetrations will be needed to align with the new location of the baseboard heaters. The old penetrations will be sealed. The new locations for the vertical pipes will be furred into the corners of the rooms.

2.3.2 Air-Conditioning and Ventilation Systems

The air-conditioning and ventilation system typically includes a row of ceiling, slot-type supply diffusers that run parallel to the exterior wall or square ceiling supply diffusers. A section of suspended ceiling along the exterior wall will be removed to allow access to the wall. The slot diffusers and related branch ducts will be removed with the suspended ceiling and remounted into the suspended ceiling when it is reinstalled. The square ceiling diffusers are typical in the middle of the room and will not be disturbed. The ceilings also include return air reveals (slots) at the edge of the ceiling along the exterior wall. The return air reveal is open to the return air ceiling plenum of each room. This feature will be repeated in the reinstalled ceiling.

3 OTHER CONSIDERATIONS

3.1 Construction Schedule and Phasing

By default, an interior retrofit will be disruptive to the building users. The Music Wing will not be in use during the summer 2013 retrofit period and spaces with exterior walls will be vacated. There are approximately 50 rooms or spaces to be retrofitted around the building perimeter

If the retrofit is to be completed in the 16-week construction period, demolition, spray insulation and vapor barrier installation; electrical and mechanical disturbances; and gypsum board installation, taping, and painting must be phased for all three floors, working from the top floor down.

It is most critical that floors 3 and 2 be completed by September 4, 2013. Some extension of construction into October, for the completion of work on floor 1 is possible.

A tentative project schedule is included in Appendix A, with a more detailed schedule to be developed by Watterson Construction during the next phase of design.

3.2 Project Cost Control

The University has set a target for a guaranteed maximum price (GMP) which is based on the previous USKH estimate of probable costs dated May 2012, which had a total project cost of approximately \$5.5 million. The construction budget, or GMP, will be a percentage of this total amount and will include construction, UAF administration, design fees, moving expenses, project expenses, contingencies, and escalation to summer 2013.

Determination of preliminary project cost estimates based on this Schematic Design will commence by Watterson Construction. As cost structure is developed, key decisions will need to be made regarding the full project scope as stated in the Schematic Design Summary.

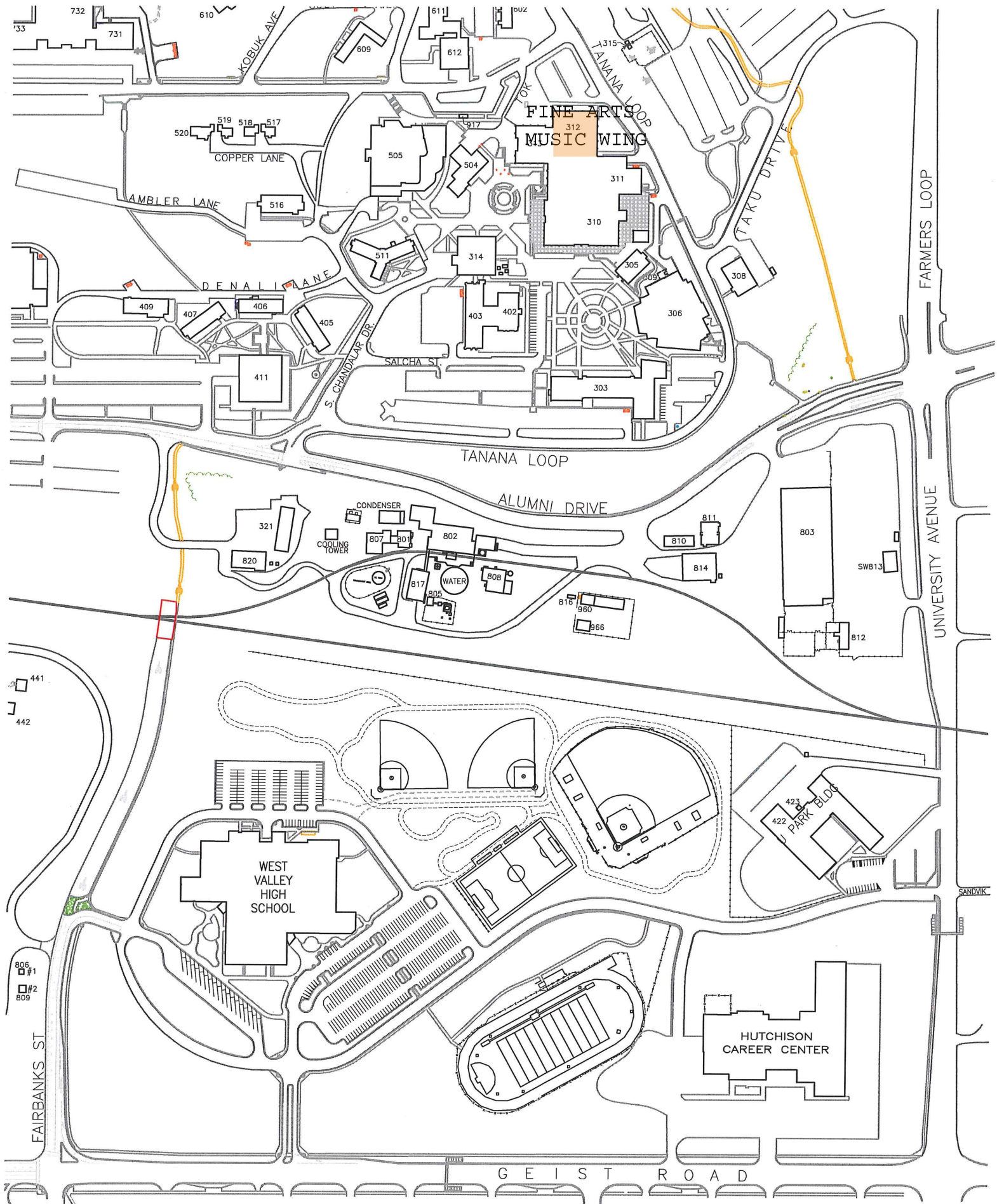
Appendix A
Preliminary Project Schedule

Preliminary Project Schedule: Construction May through August 2013 [Note 1]

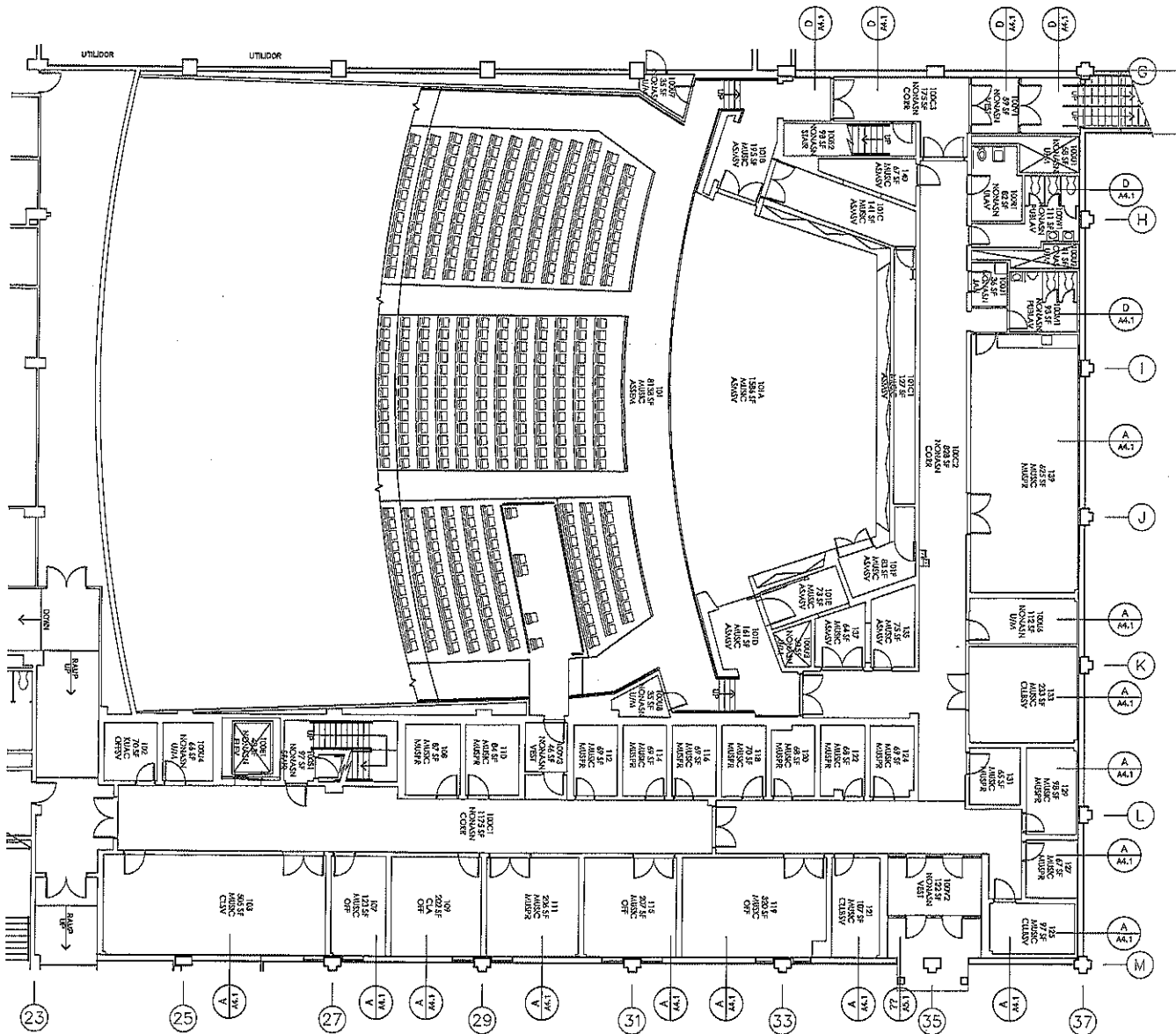
Preliminary Project Schedule: Construction May through August 2013 [Note 1]																			2013	
Item	Description	Responsible Party	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Aug	Sep	Oct	
Investigation and Analysis																				
1	Final Report	USKH																		
Professional Services RFP																				
2	RFP Preparation	UAF																		
	Advertise for Proposals	UAF																		
	Consultant Selecton and Award	UAF																		
CMAR Procurement																				
3	Request for Proposal																			
	RFP Preparation	UAF																		
	Advertise for Proposals	UAF																		
	CMAR Selection and Award	UAF																		
Design																				
4	Schematic Design (45%)																			
	Kick Off Meeting	UAF/USKH/WC																		
	Begin Acoustical Studies [Note 4]	USKH/MCH																		
	Mech, Elect Structural Architectural Site work	USKH																		
	Prepare and Submit Deliverables	USKH																		
	Coordinate with WC	UAF/USKH/WC																		
	Review Conference	UAF/USKH/WC																		
	Stakeholder Work Session	Note 5																		
5	Design Development (65%)																			
	Prepare and Submit Deliverables	USKH																		
	Review Period	UAF																		
	Review Conference	UAF/USKH/WC																		
Board of Regents Formal and SD Approval																				
6	Final Review (95%) Construction Documents																			
	Prepare and Submit Deliverables	USKH																		
	Review Period	UAF																		
	Review Conference	UAF/USKH/WC																		
7	Construction Documents (100%)																			
	Prepare and Submit Final Deliverables	USKH																		
Pricing/Scheduling [Note 3]																				
8	Estimating and Value Engineering	WC																		
	65% Cost Estimate	WC																		
	Commit to Guaranteed Maximum Price	WC																		
	Project Scheduling and Planning	WC																		
Construction [Note 3]																				
9	Construction Period																			
	Submittals and Shop Drawings	WC																		
	Advance Procurement	WC																		
	Users Vacate Key Work Areas	UAF																		
	Construction [Note 2]	WC																		
	Substantial Completion	WC																		
	Users Reoccupy Key Work Areas	UAF																		
	Final Completion [Note 1]	WC																		

Notes

- 1 Construction may have some spillover into October of 2013 on a limited basis, and during the summer of 2014.
- 2 Construction may be organized into phases pending further development of project scope to facilitate reoccupancy of spaces and minimize impact on Users.
- 3 Detailed schedule for Pricing/Scheduling and Construction to be developed by Watterson Construction Company.
- 4 The project scope at the McGown Room is currently under consideration by UAF and a timeframe for initiation of acoustical work has not been established.
- 5 Work session to include stakeholders: Music Department, Facilities Services.



SITE PLAN



DEMOLITION NOTES

1. AT EXTERIOR WALL, REMOVE PLASTER WALL, WOOD STUDS, BATT INSULATION & DISPOSE.
2. REMOVE T-BAR SUSPENDED CEILING AS REQ'D. FOR CONSTRUCTION. SALVAGE GRID FOR REINSTALLATION. VERIFY LOCATIONS OF ROOMS THAT MAY HAVE PLASTER CEILINGS ABOVE THE SUSPENDED CEILING. WHERE THIS OCCURS REMOVE ENTIRE PLASTER CEILING & DISPOSE.
3. REMOVE EXISTING WINDOW FRAMING & GLAZING & DISPOSE.
4. REMOVE EXISTING CERAMIC TILE AT ALL WALLS & FLOOR & DISPOSE. REMOVE ALL PLUMBING FIXTURES AND TOILET PARTITIONS. SALVAGE FOR REINSTALLATION.
5. REMOVE EXISTING CERAMIC TILE AT ALL WALLS & FLOOR & DISPOSE. REMOVE ALL PLUMBING FIXTURES AND TOILET PARTITIONS. SALVAGE FOR REINSTALLATION.
6. REMOVE EXISTING PLASTER FROM THREE WALLS & CEILING & DISPOSE. SUSPENSION SYSTEM AT THE CEILING TO REMAIN FOR NEW FINISH.

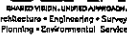
FIRST FLOOR PLAN
1/8" = 1'-0"



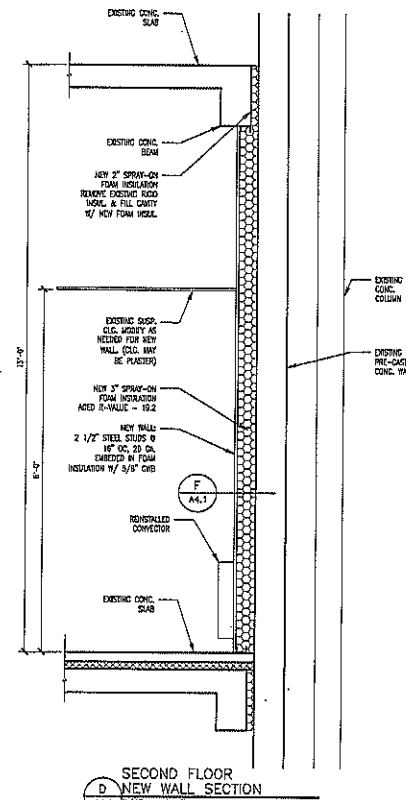
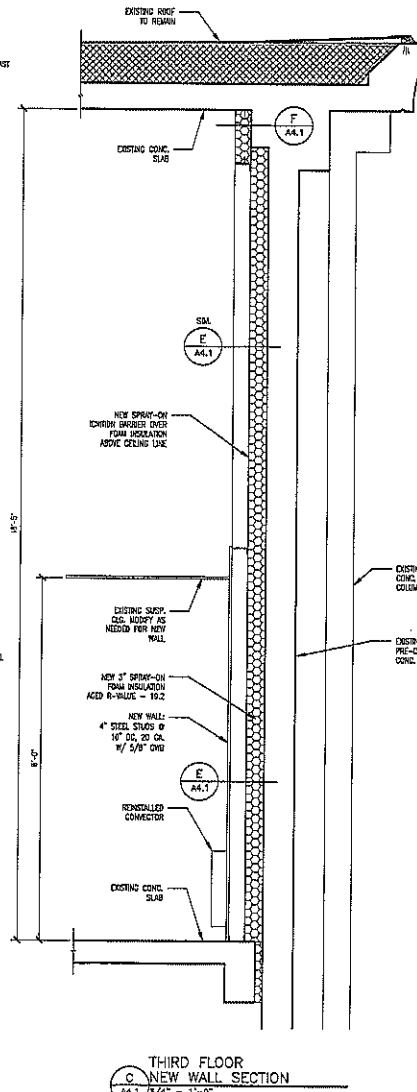
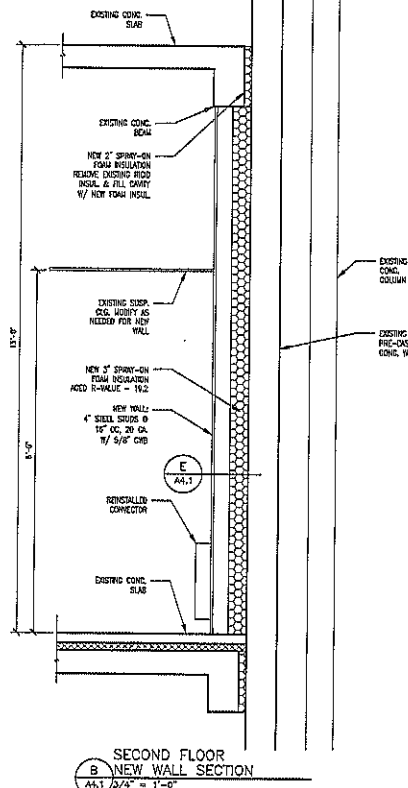
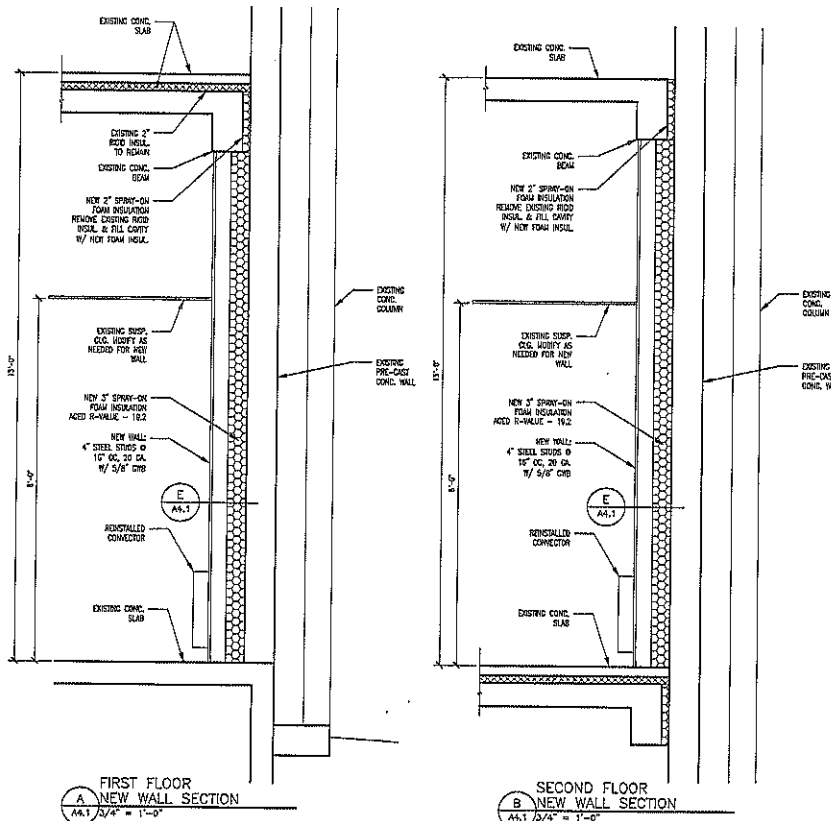
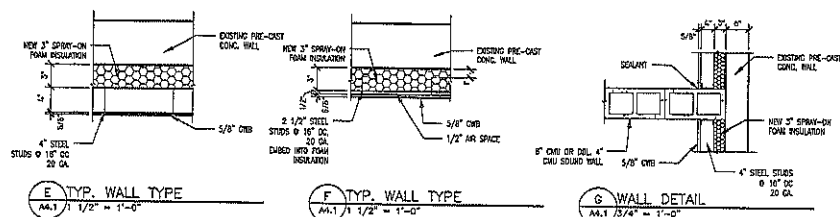
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Project: FINE ARTS COMPLEX VAPOR BARRIER 2012045 FAVB	
MURDO WING University of Alaska Fairbanks, Alaska	
Project Mgr.	G. POHL
Drawn	DEW
Checked	CHP
Date	11, 28, 2012
Sheet Contents: FIRST FLOOR PLAN	
Sheet No.: A2.1	
USKH W.O. 1372700	

1. AT EXTERIOR WALL, REMOVE PLASTER WALL, WOOD STUDS, BATT INSULATION & DISPOSE.
2. REMOVE T-BAR SUSPENDED CEILING AS REQ'D. FOR CONSTRUCTION. SALVAGE GRID FOR REINSTALLATION - VERIFY LOCATIONS OF ROOMS THAT MAY HAVE PLASTER CEILINGS ABOVE THE SUSPENDED CEILING, WHERE THIS OCCURS REMOVE ENTIRE PLASTER CEILING & DISPOSE.
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6. REMOVE EXISTING PLASTER FROM THREE WALLS & CEILING & DISPOSE. SUSPENSION SYSTEM AT THE CEILING TO REMAIN FOR NEW FINISH.

SECOND FLOOR PLAN
1/8" = 1'-0"

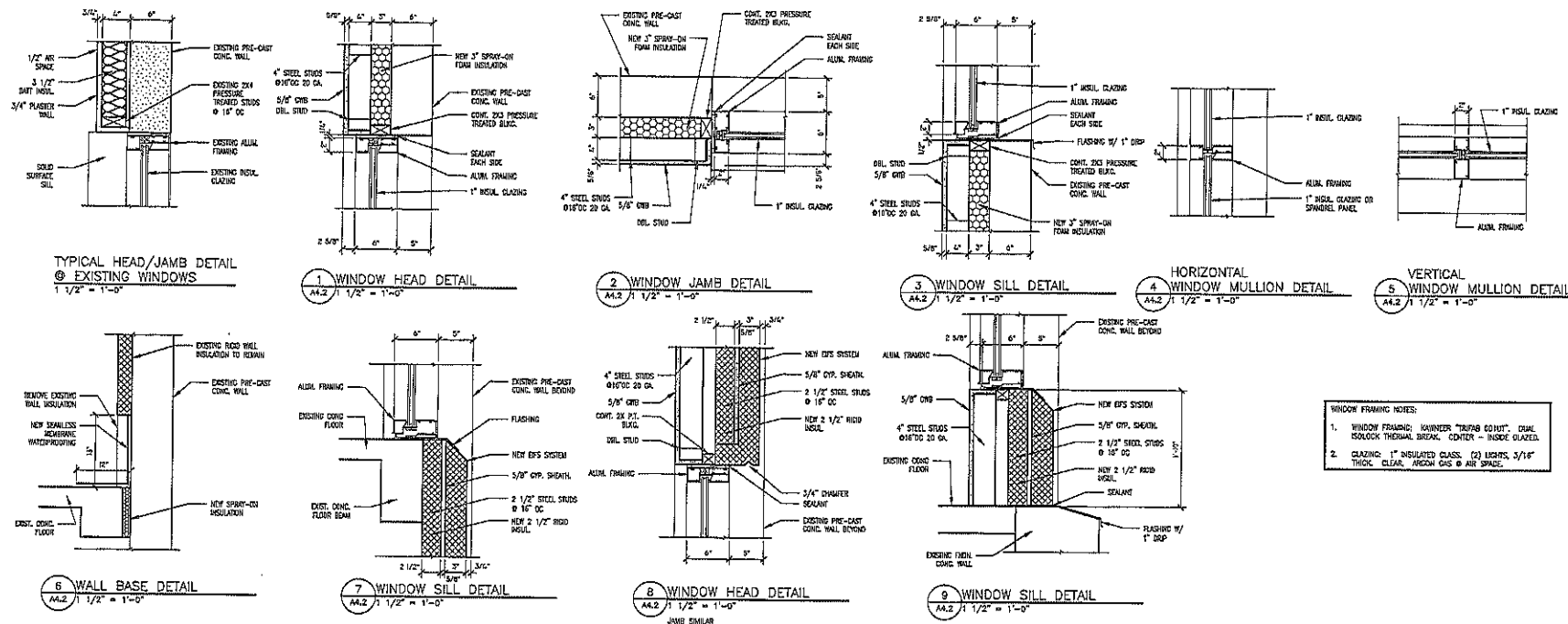
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Prepared By:	G. POHL
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Checked	GFP
Date	11.28.2012
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SECOND FLOOR PLAN	
Sheet No.:	
A2.2	
USKH W.O. 1372700	

[illegible]



- NOTES:
1. THESE ARE TYPICAL WALL SECTIONS. CONDITIONS MAY VARY IN DIFFERENT AREAS OF THE BUILDING.
 2. PROVIDE NEW PRESSURE TREATED 2X WOOD BLOCKING FOR TOILET PARTITIONS, BATHROOM ACCESSORIES, HAND/GUARD RAILS, HEAT CONVECTORS & ANY OTHER ITEMS THAT REQUIRE BACKING. FIELD VERIFY.

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Sheet Contents: NEW WALL SECTIONS	
Sheet No.: A4.1	
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ROOM FINISH SCHEDULE										
ROOM	FLOOR	BASE	WALLS				CEILING		REMARKS	
			NORTH	EAST	SOUTH	WEST	MATL.	HGT.		
TYP. ROOM	CARPET	PAINT	PAINT	PAINT	PAINT	PAINT	AC	8'-0"	???	
TYP. RESTROOM	CER. TILE	CER. TILE	CER. TILE	CER. TILE	CER. TILE	CER. TILE	PAINT	8'-0"	???	

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Date

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University of Alaska
Fairbanks, Alaska

Project Mgr. G. POHL

Drawn DEW

Checked GHP

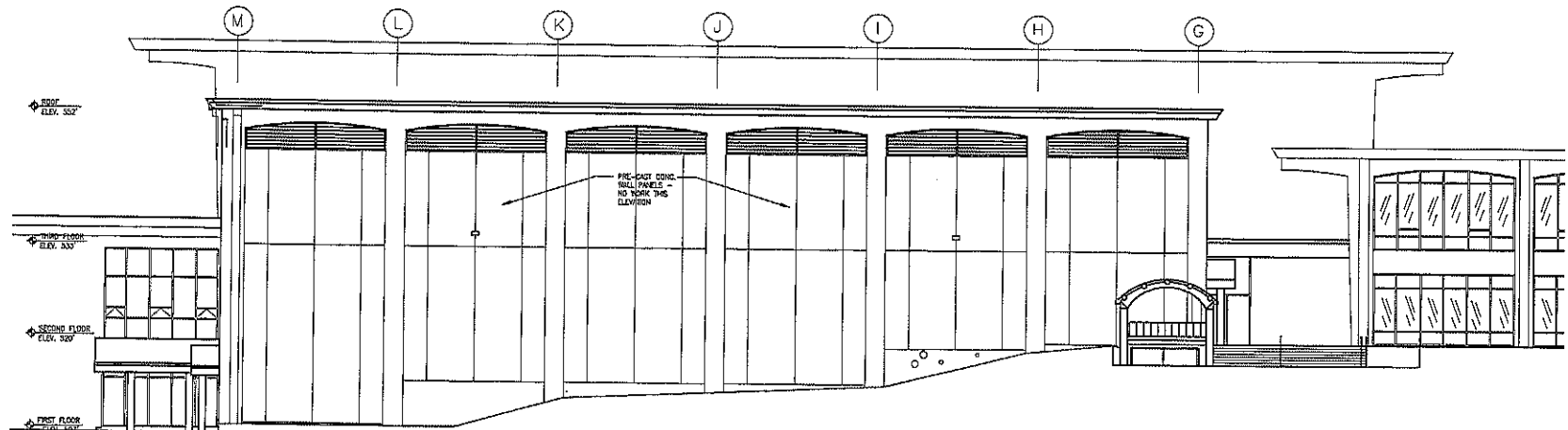
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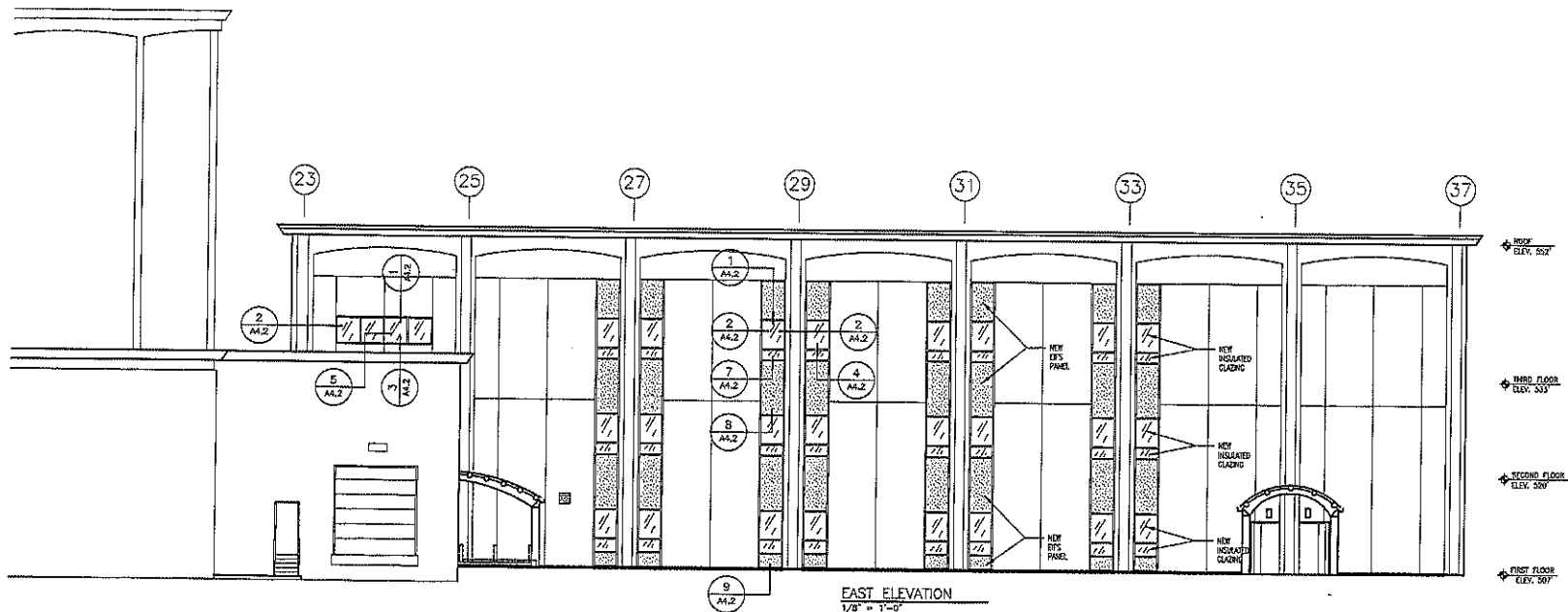
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NORTH ELEVATION
1/8" = 1'-0"



EAST ELEVATION
1/8" = 1'-0"

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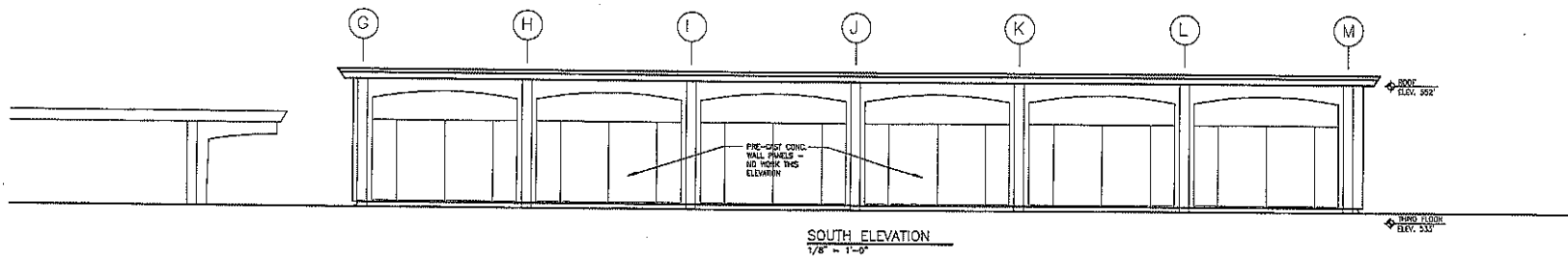
MUSIC WING
University of Alaska
Fairbanks, Alaska

Project Mgr. G. POHL
Drawn DEW
Checked GHP
Date 11.29.2012

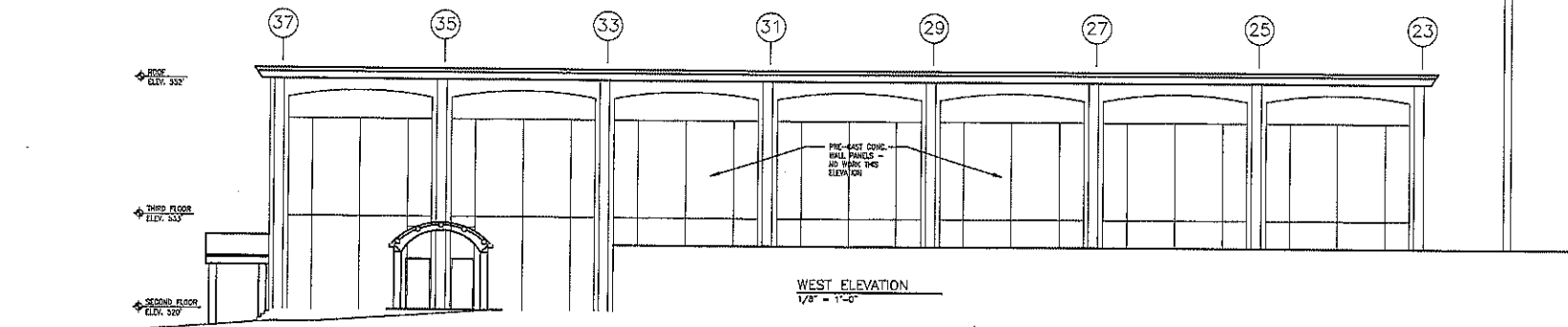
Sheet Contents:
**EXISTING
EXTERIOR
ELEVATIONS**

Sheet No.:
A5.1

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SOUTH ELEVATION
1/8" = 1'-0"



WEST ELEVATION
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MUSIC 101ND University of Alaska Fairbanks, Alaska	
Project Mgr.	G. POHL
Drawn	DEW
Checked	GHP
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