



## *SCHEMATIC DESIGN APPROVAL*

**Name of Project:** UAF Energy Technology Facility  
Phase 1A (High Bay Test Module and Site Preparation)

**Location of Project:** UAF Fairbanks Campus

**Project Number:** 2009093 ETWP (Phase 1A)

**Date:** February 18, 2010

**Project Manager:** Cameron Wohlford, Sr. Project Manager

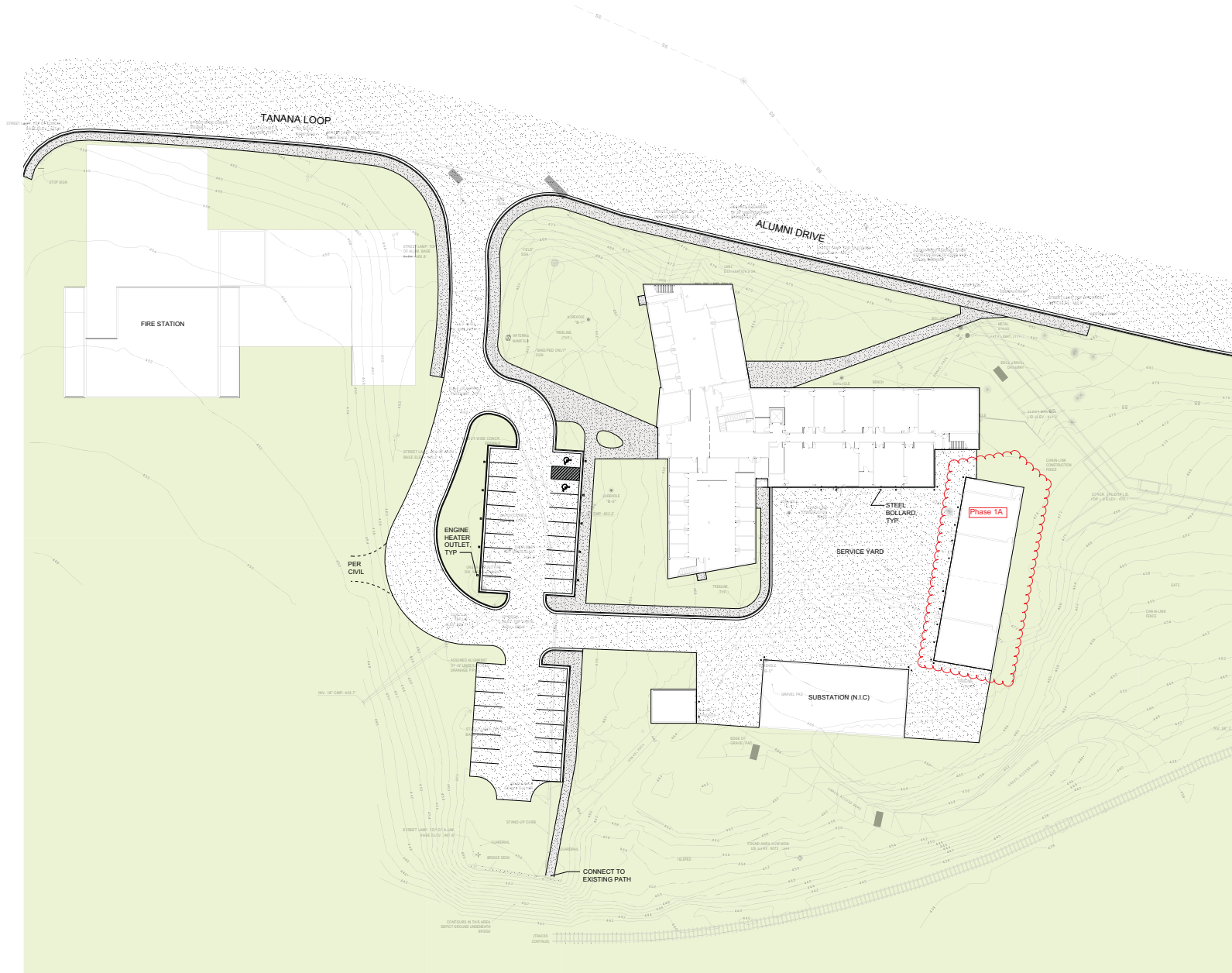
<b>Estimated Total Project Cost:</b>	<b>\$3,000,000</b>
Total Project Cost, all phases:	\$29,600,000
<b>Approval Required:</b>	<b>Chair of F&amp;LMC</b>
<b>Prior Approvals/Actions:</b>	<b>Formal Project Agreement: 03/12/09</b> <b>Formal Project Approval: 09/25/09</b>

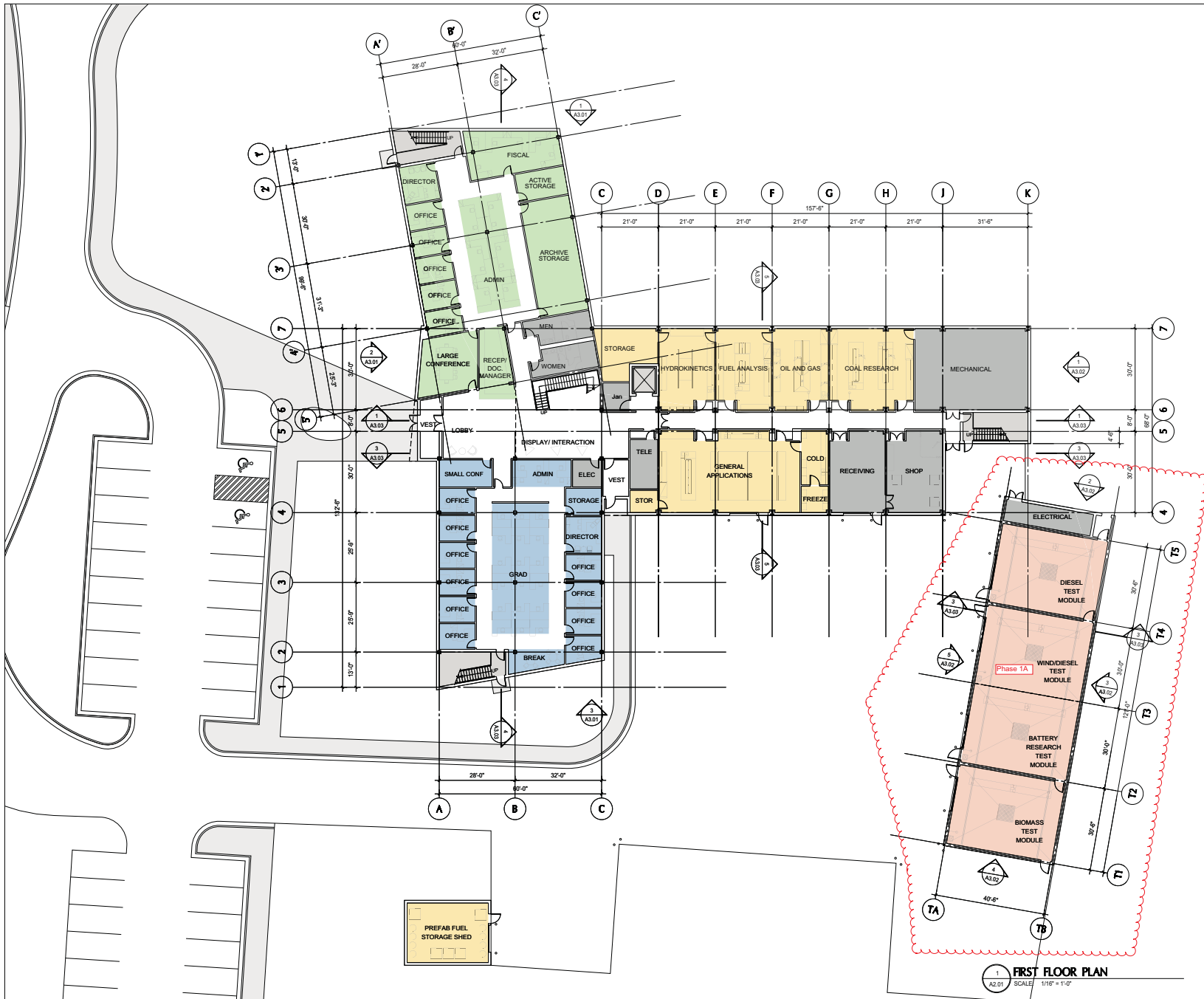
### **SUPPORTING DOCUMENTS**

1. One Page Budget
2. Facility Floor Plan and Elevations
3. Facility Site Plan
4. Facility Finance Plan

UAF FACILITIES SERVICES DESIGN AND CONSTRUCTION

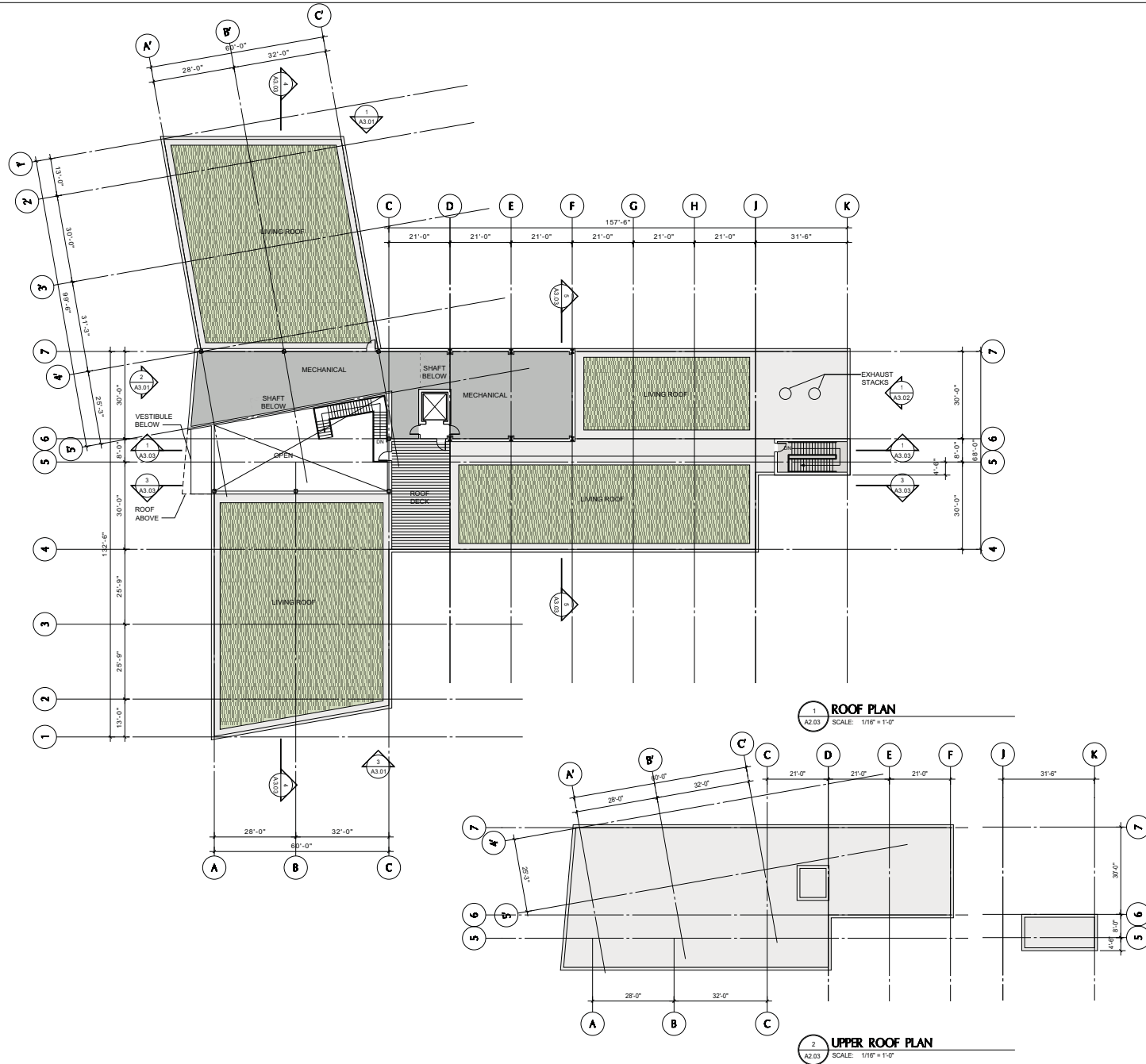
<b>UNIVERSITY OF ALASKA</b>	
Project Name: UAF Energy Technology Facility Phase 1A	
MAU: UAF	
Building: New-Energy Technology	Date: January 25, 2010
Campus: Fairbanks	Prepared By: Wohlford
Project #: 2009093 ETWP	Account No.: TBD
Total GSF Affected by Project: 5,300 (Phase 1A Only)	
<b>PROJECT BUDGET</b>	<b>SDA Budget</b>
<b>A. Professional Services</b>	
Advance Planning, Program Development	\$0
Consultant: Design Services	\$200,000
Consultant: Construction Phase Services	\$0
Consul: Extra Services (List:)	\$0
Site Survey	\$0
Soils Testing & Engineering	\$0
Special Inspections	\$0
Plan Review Fees / Permits	\$0
Other	\$0
<i>Professional Services Subtotal</i>	<b>\$200,000</b>
<b>B. Construction</b>	
General Construction Contract (s)	\$2,395,015
Other Contractors (List: Parking Lot, Balancing)	\$0
Construction Contingency	\$143,701
<i>Construction Subtotal</i>	<b>\$2,538,716</b>
<i>Construction Cost per GSF</i>	<b>\$479.00</b>
<b>C. Building Completion Activity</b>	
Equipment	\$0
Fixtures	\$0
Furnishings	\$0
Signage not in construction contract	\$0
Move-Out Cost/Temp. Reloc. Costs	\$0
Move-In Costs	\$0
Art	\$0
Other (List:_____)	\$0
OIT Support	\$0
Maintenance/Operation Support	\$0
<i>Building Completion Activity Subtotal</i>	<b>\$0</b>
<b>D. Owner Activities &amp; Administrative Cost</b>	
Project Planning and Staff Support	\$123,242
Project Management	\$123,242
Misc Expenses: Advertising, Printing, Supplies	\$14,800
<i>Owner Activities &amp; Administrative Cost Subtotal</i>	<b>\$261,284</b>
<b>E. Total Project Cost</b>	<b>\$3,000,000</b>
<i>Total Project Cost per GSF</i>	<b>\$566.04</b>
<b>F. Total Appropriation(s)</b>	<b>\$3,000,000</b>







1. Z:\Projects\2009\A2.03\A2.03.dwg  
2. Z:\Projects\2009\A2.03\A2.03.dwg  
3. Z:\Projects\2009\A2.03\A2.03.dwg  
4. Z:\Projects\2009\A2.03\A2.03.dwg  
5. Z:\Projects\2009\A2.03\A2.03.dwg  
6. Z:\Projects\2009\A2.03\A2.03.dwg  
7. Z:\Projects\2009\A2.03\A2.03.dwg  
8. Z:\Projects\2009\A2.03\A2.03.dwg  
9. Z:\Projects\2009\A2.03\A2.03.dwg  
10. Z:\Projects\2009\A2.03\A2.03.dwg  
11. Z:\Projects\2009\A2.03\A2.03.dwg  
12. Z:\Projects\2009\A2.03\A2.03.dwg  
13. Z:\Projects\2009\A2.03\A2.03.dwg  
14. Z:\Projects\2009\A2.03\A2.03.dwg  
15. Z:\Projects\2009\A2.03\A2.03.dwg  
16. Z:\Projects\2009\A2.03\A2.03.dwg  
17. Z:\Projects\2009\A2.03\A2.03.dwg  
18. Z:\Projects\2009\A2.03\A2.03.dwg  
19. Z:\Projects\2009\A2.03\A2.03.dwg  
20. Z:\Projects\2009\A2.03\A2.03.dwg  
21. Z:\Projects\2009\A2.03\A2.03.dwg  
22. Z:\Projects\2009\A2.03\A2.03.dwg  
23. Z:\Projects\2009\A2.03\A2.03.dwg  
24. Z:\Projects\2009\A2.03\A2.03.dwg  
25. Z:\Projects\2009\A2.03\A2.03.dwg  
26. Z:\Projects\2009\A2.03\A2.03.dwg  
27. Z:\Projects\2009\A2.03\A2.03.dwg  
28. Z:\Projects\2009\A2.03\A2.03.dwg  
29. Z:\Projects\2009\A2.03\A2.03.dwg  
30. Z:\Projects\2009\A2.03\A2.03.dwg  
31. Z:\Projects\2009\A2.03\A2.03.dwg  
32. Z:\Projects\2009\A2.03\A2.03.dwg  
33. Z:\Projects\2009\A2.03\A2.03.dwg  
34. Z:\Projects\2009\A2.03\A2.03.dwg  
35. Z:\Projects\2009\A2.03\A2.03.dwg  
36. Z:\Projects\2009\A2.03\A2.03.dwg  
37. Z:\Projects\2009\A2.03\A2.03.dwg  
38. Z:\Projects\2009\A2.03\A2.03.dwg  
39. Z:\Projects\2009\A2.03\A2.03.dwg  
40. Z:\Projects\2009\A2.03\A2.03.dwg  
41. Z:\Projects\2009\A2.03\A2.03.dwg  
42. Z:\Projects\2009\A2.03\A2.03.dwg  
43. Z:\Projects\2009\A2.03\A2.03.dwg  
44. Z:\Projects\2009\A2.03\A2.03.dwg  
45. Z:\Projects\2009\A2.03\A2.03.dwg  
46. Z:\Projects\2009\A2.03\A2.03.dwg  
47. Z:\Projects\2009\A2.03\A2.03.dwg  
48. Z:\Projects\2009\A2.03\A2.03.dwg  
49. Z:\Projects\2009\A2.03\A2.03.dwg  
50. Z:\Projects\2009\A2.03\A2.03.dwg  
51. Z:\Projects\2009\A2.03\A2.03.dwg  
52. Z:\Projects\2009\A2.03\A2.03.dwg  
53. Z:\Projects\2009\A2.03\A2.03.dwg  
54. Z:\Projects\2009\A2.03\A2.03.dwg  
55. Z:\Projects\2009\A2.03\A2.03.dwg  
56. Z:\Projects\2009\A2.03\A2.03.dwg  
57. Z:\Projects\2009\A2.03\A2.03.dwg  
58. Z:\Projects\2009\A2.03\A2.03.dwg  
59. Z:\Projects\2009\A2.03\A2.03.dwg  
60. Z:\Projects\2009\A2.03\A2.03.dwg  
61. Z:\Projects\2009\A2.03\A2.03.dwg  
62. Z:\Projects\2009\A2.03\A2.03.dwg  
63. Z:\Projects\2009\A2.03\A2.03.dwg  
64. Z:\Projects\2009\A2.03\A2.03.dwg  
65. Z:\Projects\2009\A2.03\A2.03.dwg  
66. Z:\Projects\2009\A2.03\A2.03.dwg  
67. Z:\Projects\2009\A2.03\A2.03.dwg  
68. Z:\Projects\2009\A2.03\A2.03.dwg  
69. Z:\Projects\2009\A2.03\A2.03.dwg  
70. Z:\Projects\2009\A2.03\A2.03.dwg  
71. Z:\Projects\2009\A2.03\A2.03.dwg  
72. Z:\Projects\2009\A2.03\A2.03.dwg  
73. Z:\Projects\2009\A2.03\A2.03.dwg  
74. Z:\Projects\2009\A2.03\A2.03.dwg  
75. Z:\Projects\2009\A2.03\A2.03.dwg  
76. Z:\Projects\2009\A2.03\A2.03.dwg  
77. Z:\Projects\2009\A2.03\A2.03.dwg  
78. Z:\Projects\2009\A2.03\A2.03.dwg  
79. Z:\Projects\2009\A2.03\A2.03.dwg  
80. Z:\Projects\2009\A2.03\A2.03.dwg  
81. Z:\Projects\2009\A2.03\A2.03.dwg  
82. Z:\Projects\2009\A2.03\A2.03.dwg  
83. Z:\Projects\2009\A2.03\A2.03.dwg  
84. Z:\Projects\2009\A2.03\A2.03.dwg  
85. Z:\Projects\2009\A2.03\A2.03.dwg  
86. Z:\Projects\2009\A2.03\A2.03.dwg  
87. Z:\Projects\2009\A2.03\A2.03.dwg  
88. Z:\Projects\2009\A2.03\A2.03.dwg  
89. Z:\Projects\2009\A2.03\A2.03.dwg  
90. Z:\Projects\2009\A2.03\A2.03.dwg  
91. Z:\Projects\2009\A2.03\A2.03.dwg  
92. Z:\Projects\2009\A2.03\A2.03.dwg  
93. Z:\Projects\2009\A2.03\A2.03.dwg  
94. Z:\Projects\2009\A2.03\A2.03.dwg  
95. Z:\Projects\2009\A2.03\A2.03.dwg  
96. Z:\Projects\2009\A2.03\A2.03.dwg  
97. Z:\Projects\2009\A2.03\A2.03.dwg  
98. Z:\Projects\2009\A2.03\A2.03.dwg  
99. Z:\Projects\2009\A2.03\A2.03.dwg  
100. Z:\Projects\2009\A2.03\A2.03.dwg



Consultants

ENGINEERING  
STRUCTURAL  
CIVIL  
MECHANICAL  
ELECTRICAL  
PDC Engineers, Inc  
2700 Gambell Street  
Suite 500  
Anchorage, Alaska 99501

LAB CONSULTANT  
Xrith  
5670 Oberlin Drive  
San Diego, California 92121

Revisions

15% Design 12-23-2009

University of Alaska Fairbanks  
Energy Technology  
Facility

Fairbanks, Alaska

Drawing Title

ROOF PLAN  
UPPER ROOF PLAN

Stamp

Date: 12-23-2009

Job No: 540348.01

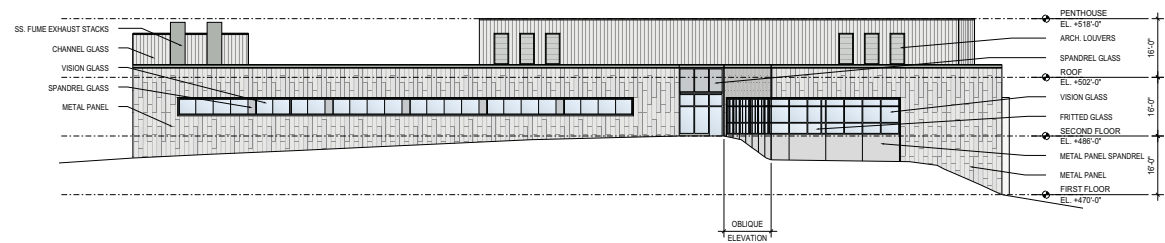
Drawn By:

Checked By:

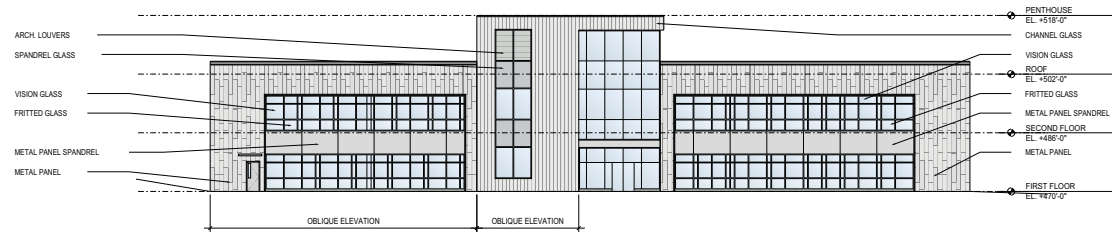
Drawing No:

A2.03

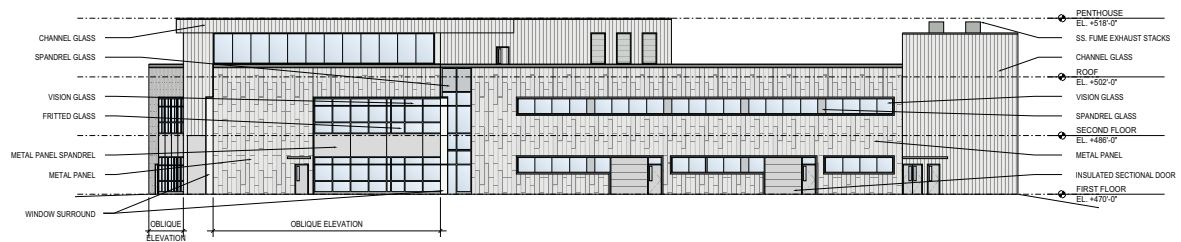
15% Design



1 NORTH ELEVATION  
A3.01 SCALE: 1/16" = 1'-0"



2 WEST ELEVATION  
A3.01 SCALE: 1/16" = 1'-0"



3 SOUTH ELEVATION  
A3.01 SCALE: 1/16" = 1'-0"



Consultants

ENGINEERING  
STRUCTURAL  
CIVIL  
MECHANICAL  
ELECTRICAL  
PDC Engineers, Inc  
2700 Gambell Street  
Suite 500  
Anchorage, Alaska 99501

LAB CONSULTANT  
X-trib  
5670 Oberlin Drive  
San Diego, California 92121

Revisions

15% Design 12-23-2009

University of Alaska Fairbanks  
Energy Technology  
Facility

Fairbanks, Alaska

Drawing Title

EXTERIOR ELEVATIONS

Stamp

Date: 12-23-2009

Job No: 540348.01

Drawn By:

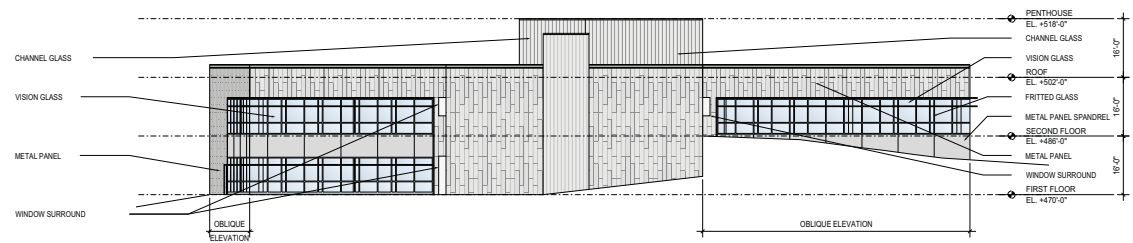
Checked By:

Drawing No.

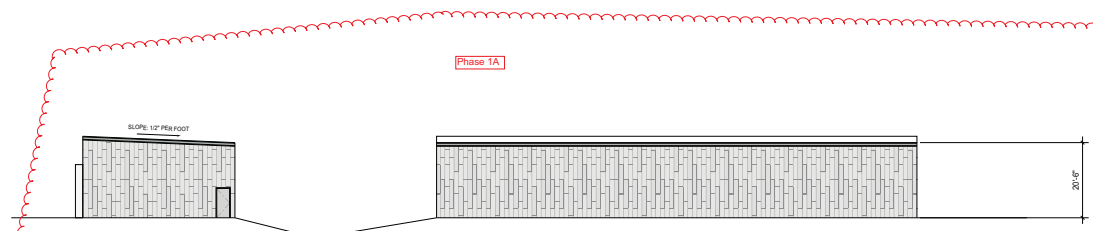
A3.01

15% Design

1. ZGF, 10000 1st Avenue, Suite 200, Anchorage, AK 99507  
2. ZGF, 10000 1st Avenue, Suite 200, Anchorage, AK 99507  
3. ZGF, 10000 1st Avenue, Suite 200, Anchorage, AK 99507  
4. ZGF, 10000 1st Avenue, Suite 200, Anchorage, AK 99507  
5. ZGF, 10000 1st Avenue, Suite 200, Anchorage, AK 99507  
6. ZGF, 10000 1st Avenue, Suite 200, Anchorage, AK 99507  
7. ZGF, 10000 1st Avenue, Suite 200, Anchorage, AK 99507  
8. ZGF, 10000 1st Avenue, Suite 200, Anchorage, AK 99507  
9. ZGF, 10000 1st Avenue, Suite 200, Anchorage, AK 99507  
10. ZGF, 10000 1st Avenue, Suite 200, Anchorage, AK 99507

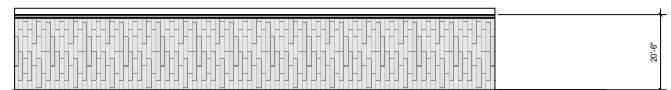


1 EAST ELEVATION  
A3.02 SCALE: 1/16" = 1'-0"

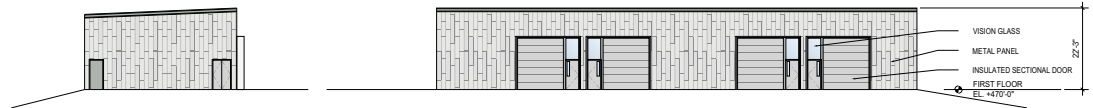


4 SOUTH ELEVATION  
A3.02 SCALE: 1/16" = 1'-0"

Phase 1A



3 WEST ELEVATION  
A3.02 SCALE: 1/16" = 1'-0"



2 NORTH ELEVATION  
A3.02 SCALE: 1/16" = 1'-0"



5 EAST ELEVATION  
A3.02 SCALE: 1/16" = 1'-0"

BETTISWORTH NORTH  
ARCHITECTS AND PLANNERS



ZGF  
ZIMMER GUNSUL FRASCA ARCHITECTS LLP

925 Fourth Avenue, Suite 2400, Seattle, WA 98104  
T 206 623 9414, F 206 623 7828, www.zgf.com

Consultants

ENGINEERING  
STRUCTURAL  
CIVIL  
MECHANICAL  
ELECTRICAL  
PDC Engineers, Inc  
2700 Gambell Street  
Suite 500  
Anchorage, Alaska 99505

LAB CONSULTANT  
X-rib  
5670 Oberlin Drive  
San Diego, California 92121

Revisions

15% Design 12-23-2009

University of Alaska Fairbanks  
Energy Technology  
Facility

Fairbanks, Alaska

Drawing Title

EXTERIOR ELEVATIONS

Stamp

Date: 12-23-2009

Job No: 040348.01

Drawn By:

Checked By:

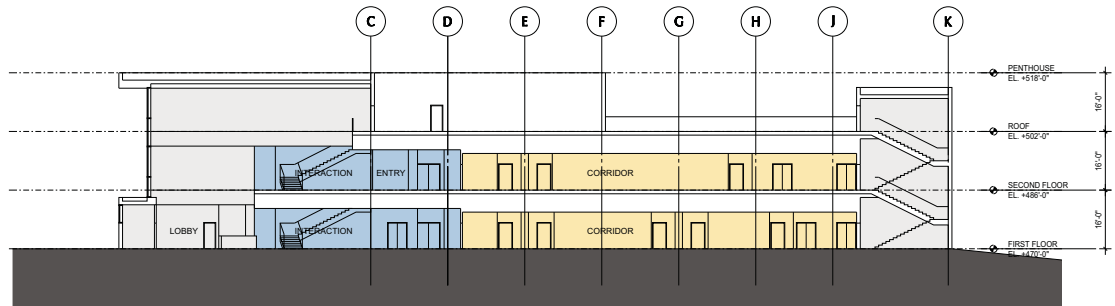
Drawing No:

A3.02

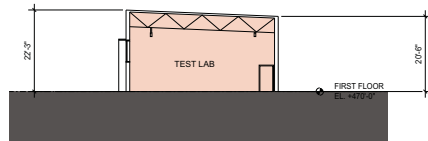
15% Design



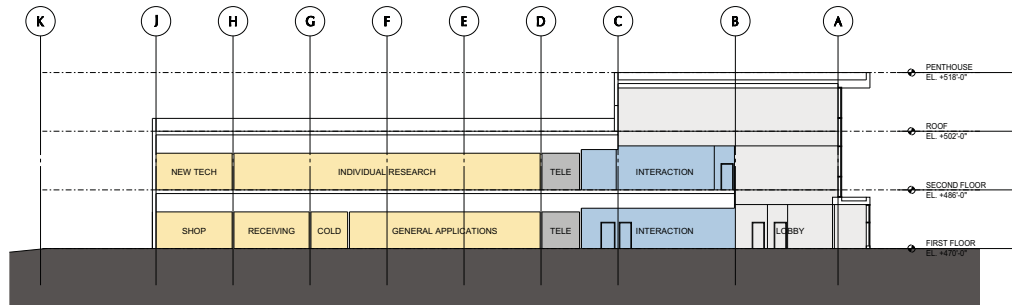
1. ZGF: 1/16" = 1'-0" (1/16" = 1'-0")  
 2. ZGF: 1/16" = 1'-0" (1/16" = 1'-0")  
 3. ZGF: 1/16" = 1'-0" (1/16" = 1'-0")  
 4. ZGF: 1/16" = 1'-0" (1/16" = 1'-0")  
 5. ZGF: 1/16" = 1'-0" (1/16" = 1'-0")



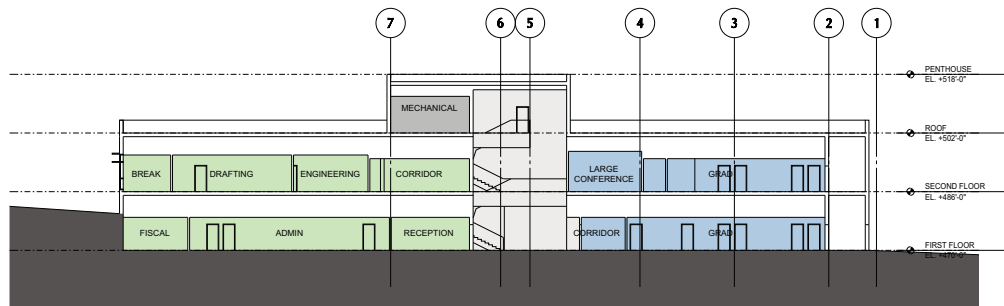
1 BUILDING SECTION  
 A3.03 SCALE: 1/16" = 1'-0"



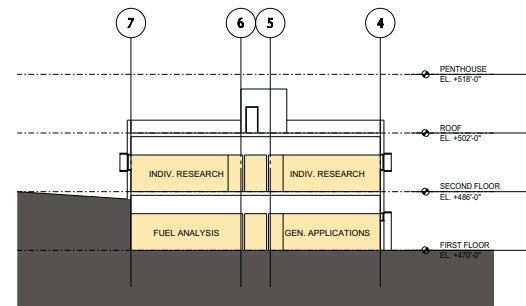
2 BUILDING SECTION  
 A3.03 SCALE: 1/16" = 1'-0"



3 BUILDING SECTION  
 A3.03 SCALE: 1/16" = 1'-0"



4 BUILDING SECTION  
 A3.03 SCALE: 1/16" = 1'-0"



5 BUILDING SECTION  
 A3.03 SCALE: 1/16" = 1'-0"



**Energy Technology Facility  
Draft Finance Plan  
Revised January 2010**

			FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
<b>F&amp;A Trend w/ Additional Facilities</b>												
Grant & Contract Restricted Research Expenditures			\$107,847.0	\$111,082.4	\$114,414.9	\$117,847.3	\$121,382.7	\$125,024.2	\$128,775.0	\$132,638.2	\$136,617.4	\$140,715.9
Total F&A (Account Code 7811)			\$25,870.6	\$26,659.8	\$27,459.6	\$28,047.7	\$28,889.1	\$29,755.8	\$30,648.4	\$31,567.9	\$32,514.9	\$33,490.4
Effective Rate			24.2%	24.0%	24.0%	23.8%	23.8%	23.8%	23.8%	23.8%	23.8%	23.8%
Net Increase from FY09			\$0.0	\$789.1	\$1,588.9	\$2,177.0	\$3,018.5	\$3,885.1	\$4,777.8	\$5,697.3	\$6,644.3	\$7,619.7
<b>Energy Facility - Construction Costs w/ Debt Service</b>	Capital	Debt										
Phase 1A: High Bay Test Modules w/ Working Capital Loan		\$3,000.0			\$106.0	\$150.0	-	-	-	-	-	-
Phase 1B: University w/ Payoff on Working Capital Loan		\$15,300.0				\$0.0	\$612.0	\$1,224.0	\$1,224.0	\$1,224.0	\$1,224.0	\$1,224.0
State	\$15,300,000					-	-	-	-	-	-	-
<b>Sub-Total: Debt Service on New Debt Financing</b>					\$106.0	\$150.0	\$612.0	\$1,224.0	\$1,224.0	\$1,224.0	\$1,224.0	\$1,224.0
<b>Debt Service Financing</b>												
DD&C Current Lease Funds								\$187.4	\$193.0	\$198.8	\$204.8	\$210.9
INE ICR for Phase I, then ICR on Research Growth					\$106.0	\$150.0	\$240.2	\$480.4	\$494.8	\$509.7	\$525.0	\$540.7
Other Research Growth Contribution							\$371.8	\$556.2	\$536.1	\$515.5	\$494.3	\$472.4
Percentage of Overall F&A							1.3%	1.9%	1.7%	1.6%	1.5%	1.4%
<b>Total University Debt Service Funding</b>					\$106.0	\$150.0	\$612.0	\$1,224.0	\$1,224.0	\$1,224.0	\$1,224.0	\$1,224.0
<b>Energy Facility Operations - M&amp;O Costs</b>												
Utilities						\$31.5	\$47.0	\$290.4	\$299.1	\$308.1	\$317.3	\$326.8
Custodial						\$12.9	\$19.2	\$118.6	\$122.1	\$125.8	\$129.6	\$133.5
Trash/Grounds						\$2.8	\$4.1	\$25.4	\$26.1	\$26.9	\$27.7	\$28.6
<b>Total M&amp;O Costs</b>							\$70.3	\$434.3	\$447.4	\$460.8	\$474.6	\$488.8
University @ 50%							\$35.1	\$217.2	\$223.7	\$230.4	\$237.3	\$244.4
State @ 50%							\$35.1	\$217.2	\$223.7	\$230.4	\$237.3	\$244.4
<b>Total M&amp;O Funding</b>							\$70.3	\$434.3	\$447.4	\$460.8	\$474.6	\$488.8
<b>Energy Facility - M&amp;R Costs (1.5% Value Formula)</b>												
University @ 50%							\$44.4	\$88.8	\$133.2	\$177.6	\$222.0	\$222.0
State @ 50%							\$44.4	\$88.8	\$133.2	\$177.6	\$222.0	\$222.0
<b>Total M&amp;R Funding (Annual steps over 5 years)</b>							\$88.8	\$177.6	\$266.4	\$355.2	\$444.0	\$444.0
<b>Total Funding</b>												
University Subtotal					\$106.0	\$150.0	\$691.5	\$1,530.0	\$1,580.9	\$1,632.0	\$1,683.3	\$1,690.4
State Subtotal					\$0.0	\$0.0	\$79.5	\$306.0	\$356.9	\$408.0	\$459.3	\$466.4
<b>Total Operating</b>					\$106.0	\$150.0	\$771.1	\$1,835.9	\$1,937.8	\$2,040.0	\$2,142.6	\$2,156.8
<b>Required Activity Levels</b>												
INE Research Growth (MTDC) for Debt					\$0.0	\$0.0	\$1,700.0	\$3,400.0	\$3,502.0	\$3,607.1	\$3,715.3	\$3,826.7
Overall Campus Research Growth for Debt					\$0.0	\$0.0	\$789.4	\$1,180.8	\$1,138.3	\$1,094.5	\$1,049.4	\$1,002.9
Additional Research Activity to meet UA operating					\$0.0	\$0.0	\$168.9	\$649.6	\$757.7	\$866.2	\$975.2	\$990.3
<b>Additional Funded Research Activity Required</b>					\$0.0	\$0.0	\$2,658.2	\$5,230.5	\$5,398.0	\$5,567.8	\$5,739.8	\$5,819.9

Additional Notes:

Facility Value	\$29,600,000	F&A Rate through FY10	45.1%	Phase I construction May 2010 through April 2011
Annual debt service per \$1 million project cost	\$80,000	F&A Rate beginning FY	47.1%	Phase II construction July 2011 through April 2013
Existing Facilities Research Growth Rate	3.0%	INE Research Growth Rate	3.0%	Occupancy May 2013
Overall Growth Rate	3.0%	DD&C Rent Growth Rate	3.0%	All working capital loan interest paid in FY2011
Working Capital Loan interest rate	5.0%	Bond issue July 1, 2011		Working capital draw @ \$250K per month through construction