

Davis Langdon
An AECOM Company

**SCHEMATIC DESIGN
COST PLAN**

for

**Fort Bragg Industrial Arts Complex
Fort Bragg, California**

September 13, 2012

ATTACHMENT 2

SCHEMATIC DESIGN COST PLAN

for

**Fort Bragg Industrial Arts Complex
Fort Bragg, California**

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September 13, 2012

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BASIS OF COST PLAN

<u>Cost Plan Prepared From</u>	Dated	Received
Drawings issued for Schematic Design		
Electronic Architectural Package: site and architectural drawings	09/01/12	09/08/12
Electronic Structural Drawings Package	N/A	09/07/12
MEP, Structural, Architectural Narratives	Varies	09/07/12

Discussions with the Project Architect

Conditions of Construction

The pricing is based on the following general conditions of construction

Cost escalation beyond the date of this report is excluded but may be calculated as follows, based on 5% escalation per annum compounded annually:

September 2012 through end of December 2012	1.67%
September 2012 through end of December 2013	6.75%
September 2012 through end of December 2014	12.09%
September 2012 through end of December 2015	17.69%

The general contract will be competitively bid with qualified general and main subcontractors

There will not be small business set aside requirements

The contractor will be required to pay prevailing wages

The general contractor will have full access to the site during normal business hours

BIDDING PROCESS - MARKET CONDITIONS

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been obtained from historical records and/or discussion with contractors. The unit rates reflect current bid costs in the area. All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated. The mark-ups cover the costs of field overhead, home office overhead and profit and range from 15% to 25% of the cost for a particular item of work.

Pricing reflects probable construction costs obtainable in the project locality on the date of this statement of probable costs. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors and general contractors, with a minimum of 4 bidders for all items of subcontracted work and 6-7 general contractor bids. Experience indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids.

Since Davis Langdon has no control over the cost of labor, material, equipment, or over the contractor's method of determining prices, or over the competitive bidding or market conditions at the time of bid, the statement of probable construction cost is based on industry practice, professional experience and qualifications, and represents Davis Langdon's best judgment as professional construction consultant familiar with the construction industry. However, Davis Langdon cannot and does not guarantee that the proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

EXCLUSIONS

Scope

Demolition/work to existing shed beyond painting of exterior

Compression of schedule, premium or shift work, and restrictions on the contractor's working hours

Inspection, Fees, etc.

Testing and inspection fees

Architectural, design and construction management fees

Scope change and post contract contingencies

Assessments, taxes, finance, legal and development charges

Environmental impact mitigation

Builder's risk, project wrap-up and other owner provided insurance program

Land and easement acquisition

Cost escalation beyond the date of this report

OVERALL SUMMARY

	Gross Floor Area	\$ / SF	\$x1,000
Phase 1A	16,099 SF	256.74	4,133
Phase 1B	17,510 SF	105.75	1,852
TOTAL Building Construction	33,609 SF	178.08	5,985
Sitework			672
TOTAL Building & Sitework Construction	September 2012		6,657

Allowances - to be verified during design phase

Hazardous materials abatement			
Exterior walls, paint	35,100 SF	3.00	105
Interiors, paint, not including Phase 2	33,609 SF	5.00	168
Furniture, fixtures and equipment	33,609 SF	6.00	202
Telephone head end equipment	33,609 SF	1.50	50
Directional and building/room signage			5
Security system equipment	33,609 SF	3.00	101
Audio visual equipment	33,609 SF	2.00	67

Alternates

Alternate 1: Fire water supply option 2			382
Alternate 2: Building entry			210
Alternate 3a: Phase 1a buildout at tenant spaces			108
Alternate 3b: Phase 1b buildout at tenant spaces			176
Alternate 3c: Phase 1a studio partitions			53
Alternate 3d: Phase 1b studio partitions			127
Alternate 4: Reduce skylights by 50%			(88)
Alternate 5: Ceiling fans			67
Alternate 6: Painted exterior plywood to Phase 1			59
Alternate 7: Corrugated fiber-cement exterior wall panels			757
Alternate 8: Manual operable clerestory windows			(26)
Alternate 9: Radiant baseboard heaters			139
Alternate 10: Automated controls for hopper windows			43
Alternate 11: Ducted ceiling supply fan at each enclosed tenant space			94
Alternate 12: Woodshop exhaust system with outdoor dust collector and exhaust fan			20
Alternate 13: Replace fire sprinkler system in high bay areas			104

Please refer to the Inclusions and Exclusions sections of this report

PHASE 1A COMPONENT SUMMARY

		Gross Area: 16,099 SF	
		\$/SF	\$x1,000
1. Foundations		1.94	31
2. Vertical Structure		8.20	132
3. Floor & Roof Structures		19.02	306
4. Exterior Cladding		33.52	540
5. Roofing, Waterproofing & Skylights		12.45	200
Shell (1-5)		75.12	1,209
6. Interior Partitions, Doors & Glazing		19.90	320
7. Floor, Wall & Ceiling Finishes		21.54	347
Interiors (6-7)		41.44	667
8. Function Equipment & Specialties		3.49	56
9. Stairs & Vertical Transportation		0.00	0
Equipment & Vertical Transportation (8-9)		3.49	56
10 Plumbing Systems		9.18	148
11 Heating, Ventilating & Air Conditioning		31.81	512
12 Electric Lighting, Power & Communications		33.62	541
13 Fire Protection Systems		11.30	182
Mechanical & Electrical (10-13)		85.91	1,383
Total Building Construction (1-13)		205.96	3,316
14 Site Preparation & Demolition		2.09	34
15 Site Paving, Structures & Landscaping		0.00	0
16 Utilities on Site		0.00	0
Total Site Construction (14-16)		2.09	34
TOTAL BUILDING & SITE (1-16)		208.04	3,349
General Conditions	7.00%	14.54	234
Contractor's Overhead & Profit or Fee	3.00%	6.65	107
PLANNED CONSTRUCTION COST		229.22	3,690
Contingency for Development of Design	12.00%	27.52	443
Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET		September 2012	256.74
			4,133

Item Description	Quantity	Unit	Rate	Total
1. Foundations				
Reinforced concrete including excavation				
New concrete foundations, including demolition/replacement of existing slab and epoxy dowels into existing				
5'-6" square x 12" deep	1	EA	800.00	800
3'-6" square x 12" deep	1	EA	400.00	400
2' x 4' x 12" deep	1	EA	250.00	250
24" x 18" deep grade beam	251	LF	90.00	22,590
12" x 12" deep grade beam	179	LF	40.00	7,160
Elevator pit for future elevator				NIC
				31,200

2. Vertical Structure

Columns and pilasters				
Tube steel column, 12' tall typ, including base plates	3	EA	1,200.00	3,600
4x6 post, 36' tall typ, including base plates	6	EA	1,000.00	6,000
Load bearing walls				
Wood framed load bearing walls	1,212	SF	6.00	7,272
Bracing of open ceiling walls, 20' o.c.	462	LF	25.00	11,550
Allowance for reinforcement of structure for future openings	2	LOC	1,000.00	2,000
5/8" diam. threaded rods through <E> 3x8 with 6" min. embed depth, 6 each per 20' bay, Phases 1A/1B only	180	EA	25.00	4,500
Double studs each side of new windows, 8' tall typ	32	LOC	200.00	6,400
Hold-downs at existing exterior and interior columns, allow	42	EA	250.00	10,500
Renail existing plywood to remain	30,588	SF	0.25	7,647
Replace existing 2x8 girts t&b as required at exterior wall (allow 1/3 of total)	400	LF	15.00	6,000
(2) lag bolts into existing columns at existing girts, allow	60	EA	15.00	900
Shear bracing				
W14x68, 36' tall, including new concrete pier and connection to roof structure	2	EA	10,000.00	20,000

Item Description	Quantity	Unit	Rate	Total
W14x43, 36' tall, including new concrete pier and connection to roof structure	2	EA	7,500.00	15,000
W14x43, 30' tall, including new concrete pier and connection to roof structure	2	EA	6,500.00	13,000
Tube steel beams	4,398	LB	4.00	17,593
				131,962

3. Floor and Roof Structure

Floor at lowest level				
New concrete slab on grade, dowelled into existing walls, including 1" rigid insulation	17,341	SF	8.00	138,728
Suspended floors				
TJI framing with sheathing	6,535	SF	15.00	98,025
Sloped roof				
New hangers, lag bolts, and nailing of existing purlins	63	LOC	150.00	9,450
Retrofit truss middle, including new bolts, sistered chords, straps, allow	24	LOC	1,000.00	24,000
Truss interior/exterior heel retrofit, including new bolts and hold downs, straps, allow	48	LOC	750.00	36,000
				306,203

4. Exterior Cladding

Applied exterior finishes				
Patch and paint existing exterior plywood, entire building	35,100	SF	1.75	61,425
Allowance for selective replacement of existing plywood	4,512	SF	6.00	27,072
Interior finish to exterior walls				
Painted gypsum board to interior face of exterior wall, allow at Phase 1A/1B	9,440	SF	3.50	33,040
Windows, glazing and louvers				
Remove existing wall and install new curtain wall	660	SF	85.00	56,100
Operable windows in above, manual	4	EA	500.00	2,000

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Remove existing clerestory glazing and replace, including 1 automated operable window, 12' x 3'	22	EA	2,650.00	58,300
New windows in new openings, including louver, 4' x 6'	32	EA	1,600.00	51,200
Operable windows in above, manual	19	EA	250.00	4,750
Miscellaneous new louvers in new openings	147	SF	65.00	9,555
Exterior doors, frames and hardware				
New storefront doors, double	7	PR	4,500.00	31,500
Exterior doors, double	2	PR	2,800.00	5,600
Roll-up door, including demolition of existing wall as required	1	LS	8,000.00	8,000
Remove existing wall and install new glazed panel door				
11' x 8'	1	LS	18,000.00	18,000
17' x 8'	1	LS	28,000.00	28,000
Fascias, bands, screens and trim				
Painted steel canopies with solar thermal panels (see mechanical)				
Structural tube steel	24,025	LB	4.00	96,101
Flashing around connections to structure at exterior wall	1	LS	5,000.00	5,000
Metal deck	1,690	SF	6.00	10,140
Allowance for finish to underside of canopy	1,690	SF	20.00	33,800
Soffits				<i>none</i>
Balustrades, parapets and roof screens				<i>none</i>
				539,583

5. Roofing, Waterproofing & Skylights

Roofing				
Miscellaneous patch and repair of existing	66,816	SF	0.25	16,704
Repair/replace existing dutch gutter, allow	884	LF	30.00	26,520
Replace existing rainwater leaders	648	LF	20.00	12,960
New rainwater collectors	2	EA	500.00	1,000

Item Description	Quantity	Unit	Rate	Total
Roof lights				
Create opening in existing roofing/structure and install new skylights, including structural blocking, curbs, etc.				
2' x 8'	56	EA	1,800.00	100,800
2' x 6'	16	EA	1,400.00	22,400
2' x 4'	20	EA	1,000.00	20,000
				200,384

6. Interior Partitions, Doors & Glazing

Interior partitions				
Interior structural partitions, including gypsum board surfacing, 12' tall typ	550	LF	150.00	82,500
Gypsum board surfacing to wood framed bearing walls (see section 2 for framing)	2,424	SF	3.50	8,484
Interior structural partitions, including gypsum board surfacing, 16' tall at studios, chain link above	462	LF	250.00	115,500
Infill existing demising wall openings, allow	1,900	SF	10.00	19,000
Create 3hr fire rated separation wall over existing framing, allow	5,170	SF	11.00	56,870
Credit for gypsum board surfacing at studio space	(11,424)	SF	3.50	(39,984)
Window walls and borrowed lights				
Allowance for clerestory glazing	1	LS	10,000.00	10,000
Interior doors and frames and hardware				
Sliding interior doors				
Single, 8 x 8, sheet metal finish	10	EA	2,000.00	20,000
Double, glazed	3	PR	6,000.00	18,000
Interior doors				
Single	5	EA	1,800.00	9,000
Double	7	PR	3,000.00	21,000
				320,370

7. Floor, Wall & Ceiling Finishes

Floors and bases - epoxy at bathrooms and kitchen, sealed concrete topping slab typ	16,099	SF	8.00	128,792
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<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Walls				
Ceramic tile at restrooms, allow	2,370	SF	16.00	37,920
Ceilings				
Structural ceiling - furred drywall finish to underside of structural framing	6,535	SF	8.00	52,280
Restroom and gallery ceilings	2,782	SF	16.00	44,512
Open ceilings at studios - no finish	3,203	SF		
Ceiling above studio space, paint existing, including Phase 1B space	33,609	SF	2.00	67,218
Miscellaneous patch and repair of existing, allow at Phase 1A area only	16,099	GSF	1.00	16,099
				346,821

8. Function Equipment & Specialties

Protective guards, barriers and bumpers	16,099	GSF	0.15	2,415
Prefabricated compartments and accessories				
Toilet partitions				
ADA	2	EA	1,300.00	2,600
Standard	5	EA	1,000.00	5,000
Urinal screens	2	EA	300.00	600
Toilet accessories	7	EA	400.00	2,800
Cabinets and counter tops				
Kitchen cabinetry	22	LF	600.00	13,200
Miscellaneous cabinetry and countertops	1	LS	5,000.00	5,000
Chalkboards, insignia and graphics				
Signage, directories, tackboards, etc.	16,099	GSF	0.50	8,050
Exterior entry signage	1	LS	7,500.00	7,500
Light control and vision equipment				
AV systems				NIC
Amenities and convenience items				
Art lockers	12	EA	500.00	6,000
Kitchen appliances	1	LS	1,500.00	1,500
Fire extinguisher cabinets	1	LS	1,500.00	1,500
				56,164

Item Description	Quantity	Unit	Rate	Total
9. Stairs & Vertical Transportation				
<i>No work anticipated</i>				
				0
10. Plumbing Systems				
Sanitary fixtures	22	FX		
Water closets	7	EA	1,400.00	9,800
Lavatories	6	EA	1,285.00	7,710
Urinals	3	EA	1,350.00	4,050
Utility sinks	2	EA	2,000.00	4,000
Emergency shower/eyewash	1	EA	1,900.00	1,900
Showers (allow)	2	EA	2,900.00	5,800
Drinking fountain (allow)	1	EA	2,800.00	2,800
Sanitary waste, vent and service pipework				
Floor drains	6	EA	3,000.00	18,000
Hose bibbs	6	EA	750.00	4,500
Sanitary waste, vent and service pipework, fittings, valves, specialties and insulation	22	EA	3,100.00	68,200
Backflow preventer, 2-1/2"				<i>See sitework</i>
Water treatment, storage and circulation				
Instantaneous electric water heaters for remote sinks	2	EA	1,575.00	3,150
Circulation pump	1	LS	1,125.00	1,125
Expansion tank	1	LS	675.00	675
Surface water drainage				
Replace all storm drainage gutter and leaders				<i>See section 5</i>
Replace surface runnel piping				<i>See sitework</i>
Natural gas/propane				
Propane tank, 5000 gallon				<i>See sitework</i>
Gas pipework distribution within building, serves water heaters, boilers and kitchen	1	LS	16,000.00	16,000
				147,710

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
11. Heating, Ventilation & Air Conditioning				
Heating generation equipment				
Heating water boiler, propane gas fired, condensing type, 10:1 turndown, direct vent type	300	MBH	45.00	13,500
Stainless steel intake and exhaust ducts	1	LS	3,500.00	3,500
Solar heating array	1,300	SF	50.00	65,000
Solar hot water storage tank, 2100 gallon	2	EA	10,500.00	21,000
Solar hot water circulation pumps	2	EA	1,850.00	3,700
Thermal expansion and circulation				
Air separator	1	EA	985.00	985
Expansion tank	1	EA	1,175.00	1,175
Heating hot water pumps, <= 5hp	2	EA	2,500.00	5,000
Variable speed drives	2	EA	1,250.00	2,500
Vibration Isolation	2	EA	875.00	1,750
Radiant heating				
Radiant floor, includes pex tubing, manifolds	10,612	SF	9.00	95,508
Pipe, fittings, valves, specialties and insulation				
Heating hot water distribution, <= 2"	16,099	SF	5.00	80,495
Air handling equipment			<i>see unit ventilation</i>	
Air distribution	16,099	SF	4.00	64,396
Diffusers, registers and grilles	16,099	SF	1.50	24,149
Temperature controls	16,099	SF	3.00	48,297
Testing and balancing	16,099	SF	1.25	20,124
Unit ventilation				
Rooftop exhaust fans, 4000 cfm	12	EA	4,000.00	48,000
Restroom exhaust fan	1	LS	2,000.00	2,000
Hopper window motorized actuators	22	EA	500.00	11,000
				512,078

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
12. Electrical Lighting, Power & Communication				
Service and distribution				
Main switchgear, including metering, 208/120V/3	1,500	AM	34.00	51,000
Feeder conduit and cables				site
Emergency egress lighting inverter, allow	5	kVA	1,000.00	5,000
Machine and equipment connections				
Equipment connections including switch, conduit and cables				
Fire pump, 20 hp	1	EA	1,500.00	1,500
Jockey pump, 2 hp	1	EA	750.00	750
Heating hot water pumps, <= 5hp	2	EA	775.00	1,550
Circulation pump < 2 hp	1	LS	650.00	650
Solar hot water circulation pumps	2	EA	750.00	1,500
Exhaust fans < 5 hp	13	EA	730.00	9,490
Hopper window motorized actuators, 120V/1	22	EA	475.00	10,450
Drinking fountain (allow)	1	EA	475.00	475
Boiler conn, 120V/1	1	EA	475.00	475
Miscellaneous specialty equipment connections including, fire alarm, IT/security, allow	16,099	SF	1.00	16,099
User convenience power				
Panelboard breaker circuit, 120/208V	126	EA	71.00	8,946
Feeder conduit and cables	300	LF	51.00	15,300
Receptacle, surface raceway including conduit and cables	16,099	SF	4.25	68,421
Lighting				
Panelboard breaker circuit, 120/208V	42	EA	71.00	2,982
Feeder conduit and cables	200	LF	51.00	10,200
Lighting fixture, switches including conduit and cables	16,099	SF	11.00	177,089
Exterior lighting, allow 1/4th bay	6	EA	665.00	3,990
Light and power specialties				
Grounding	1	LS	7,500.00	7,500
Lighting controls, relay panel	1	EA	6,500.00	6,500
Day light dimming controls	16,099	SF	1.00	16,099
Cable tray, wire mesh	350	LF	36.00	12,600
Telephone data and communication system				
MDF/IDF room rough-ins	1	LS	7,000.00	7,000

Item Description	Quantity	Unit	Rate	Total
Teledata outlets, including conduit and cables, allow 1/200sf	80	EA	575.00	46,000
Fire alarm system	16,099	SF	3.25	52,322
Security system conduit only	16,099	SF	1.00	16,099
Credit for buildout of studio spaces - by tenant, teledata and user convenience power	(6,671)	SF	7.11	(47,413)
Disconnect and remove electrical connections to (E) equipment in the way of constructions	16,099	SF	0.90	14,489
Make connection to relocated equipment and new connections to (N) equipment as required	16,099	SF	1.50	24,149
				541,211

13. Fire Protection Systems

Fire sprinkler systems				
Revisions to existing fire sprinkler system, allow Phase 1A/1B areas	33,609	SF	2.00	67,218
Revisions to existing fire sprinkler system, allow Phase 2 area				NIC
New fire sprinklers to enclosed spaces	9,317	SF	4.00	37,268
Fire pump	1	EA	65,000.00	65,000
Jockey pump	1	EA	12,500.00	12,500
Fire water storage tank, 150,000 gallons				See sitework
				181,986

14. Site Preparation & Building Demolition

Selective demolition and removal				
Preparation of existing floors and miscellaneous demolition, allow for Phase 1A/1B (Phase 2 not included)	33,609	SF	1.00	33,609
				33,609

PHASE 1B COMPONENT SUMMARY

Gross Area: 17,510 SF

		\$/SF	\$x1,000
1. Foundations		0.70	12
2. Vertical Structure		1.94	34
3. Floor & Roof Structures		12.06	211
4. Exterior Cladding		0.00	0
5. Roofing, Waterproofing & Skylights		0.00	0
Shell (1-5)		14.70	257
6. Interior Partitions, Doors & Glazing		12.10	212
7. Floor, Wall & Ceiling Finishes		11.47	201
Interiors (6-7)		23.57	413
8. Function Equipment & Specialties		0.74	13
9. Stairs & Vertical Transportation		0.00	0
Equipment & Vertical Transportation (8-9)		0.74	13
10. Plumbing Systems		0.00	0
11. Heating, Ventilating & Air Conditioning		16.97	297
12. Electric Lighting, Power & Communications		28.49	499
13. Fire Protection Systems		1.24	22
Mechanical & Electrical (10-13)		46.69	818
Total Building Construction (1-13)		85.71	1,501
14. Site Preparation & Demolition		0.00	0
15. Site Paving, Structures & Landscaping		0.00	0
16. Utilities on Site		0.00	0
Total Site Construction (14-16)		0.00	0
TOTAL BUILDING & SITE (1-16)		85.71	1,501
General Conditions	7.00%	6.00	105
Contractor's Overhead & Profit or Fee	3.00%	2.74	48
PLANNED CONSTRUCTION COST		94.44	1,654
Contingency for Development of Design	12.00%	11.31	198
Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET		September 2012	105.75
			1,852

Item Description	Quantity	Unit	Rate	Total
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1. Foundations

Reinforced concrete including excavation
New concrete foundations, including
demolition/replacement of existing slab and
epoxy dowels into existing

5'-6" square x 12" deep	3	EA	800.00	2,400
3'-6" square x 12" deep	3	EA	400.00	1,200
2' x 4' x 12" deep	3	EA	250.00	750
24" x 18" deep grade beam				<i>phase 1A</i>
12" x 12" deep grade beam	199	LF	40.00	7,960

12,310

2. Vertical Structure

Columns and pilasters

Tube steel column, 12' tall typ, including
base plates

9	EA	1,200.00	10,800
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Load bearing walls

Wood framed load bearing walls

1,260	SF	6.00	7,560
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Bracing of open ceiling walls, 20' o.c.

622	LF	25.00	15,550
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33,910

3. Floor and Roof Structure

Floor at lowest level

New concrete slab on grade, dowelled into
existing walls

16,268	SF	8.00	130,144
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Suspended floors

TJI framing with sheathing

5,407	SF	15.00	81,105
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211,249

4. Exterior Cladding

see Phase 1A for all work

0

Item Description	Quantity	Unit	Rate	Total
5. Roofing, Waterproofing & Skylights				
<i>see Phase 1A for all work</i>				
				0

6. Interior Partitions, Doors & Glazing

Interior partitions				
Interior structural partitions, including gypsum board surfacing, 12' tall typ	224	LF	150.00	33,600
Gypsum board surfacing to wood framed bearing walls (see section 2 for framing)	2,520	SF	3.50	8,820
Interior structural partitions, including gypsum board surfacing, 16' tall at studios, chain link above	622	LF	250.00	155,500
Credit for gypsum board surfacing at studio space	(18,184)	SF	3.50	(63,644)
Window walls and borrowed lights				
Allowance for clerestory glazing	1	LS	10,000.00	10,000
Interior doors and frames and hardware				
Sliding interior doors				
Single, 8 x 8, sheet metal finish	17	EA	2,000.00	34,000
Interior doors				
Single	2	EA	1,800.00	3,600
Double	10	PR	3,000.00	30,000
				211,876

7. Floor, Wall & Ceiling Finishes

Floors and bases - epoxy at bathrooms and kitchen, sealed concrete topping slab typ	17,510	SF	8.00	140,080
Walls				
Ceramic tile at restrooms, allow				<i>none - see Phase 1A</i>
Ceilings				
Structural ceiling - furred drywall finish to underside of structural framing	5,407	SF	8.00	43,256
Open ceilings at studios - no finish	6,417	SF		
Ceiling above studio space, paint existing				<i>see Phase 1A</i>

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Miscellaneous patch and repair of existing, allow at Phase 1B area only	17,510	GSF	1.00	17,510
				200,846

8. Function Equipment & Specialties

Protective guards, barriers and bumpers	17,510	GSF	0.15	2,627
Prefabricated compartments and accessories			<i>none - see Phase 1A</i>	
Cabinets and counter tops				<i>none</i>
Chalkboards, insignia and graphics Signage, directories, tackboards, etc.	17,510	GSF	0.50	8,755
Light control and vision equipment AV systems				<i>NIC</i>
Amenities and convenience items Fire extinguisher cabinets	1	LS	1,500.00	1,500
				12,882

9. Stairs & Vertical Transportation

No work anticipated

0

10. Plumbing Systems

No work anticipated

see Phase 1A

0

11. Heating, Ventilation & Air Conditioning

Heating generation equipment *see Phase 1A*

Thermal expansion and circulation *see Phase 1A*

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Radiant heating				
Radiant floor, includes pex tubing, manifolds	12,103	SF	9.00	108,927
Pipe, fittings, valves, specialties and insulation				
Heating hot water distribution, <= 2"	17,510	SF	5.00	87,550
Air distribution	17,510	SF	4.00	70,040
Diffusers, registers and grilles	17,510	SF	0.25	4,378
Temperature controls	17,510	SF	1.00	17,510
Testing and balancing	17,510	SF	0.50	8,755
Unit ventilation				<i>see Phase 1A</i>
				297,160

12. Electrical Lighting, Power & Communication

Service and distribution				
Main switchgear, 208/120V/3				<i>phase 1A</i>
Emergency egress lighting inverter, allow	5	kVA	1,000.00	5,000
Machine and equipment connections				
Equipment connections including switch, conduit and cables				<i>phase 1A</i>
Miscellaneous specialty equipment connections including, fire alarm, IT/security, allow	17,510	SF	1.00	17,510
User convenience power				
Panelboard breaker circuit, 120/208V	126	EA	71.00	8,946
Feeder conduit and cables	650	LF	51.00	33,150
Receptacle, surface raceway including conduit and cables	17,510	SF	4.25	74,418
Lighting				
Panelboard breaker circuit, 120/208V	42	EA	71.00	2,982
Feeder conduit and cables	325	LF	51.00	16,575
Lighting fixture, switches including conduit and cables	17,510	SF	11.00	192,610
Exterior lighting, allow 1/4th bay	6	EA	700.00	4,200
Light and power specialties				

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Grounding	1	LS	7,500.00	7,500
Lighting controls, relay panel	1	EA	6,500.00	6,500
day light dimming controls	17,510	SF	1.00	17,510
Cable tray, wire mesh	350	LF	36.00	12,600
Telephone data and communication system				
MDF/IDF room rough-ins	1	LS	7,000.00	7,000
Teledata outlets, including conduit and cables, allow 1/200sf	88	EA	575.00	50,600
Fire alarm system	17,510	SF	3.50	61,285
Security system conduit only	17,510	SF	1.00	17,510
Credit for buildout of studio spaces - by tenant, teledata and user convenience power	(11,127)	SF	7.11	(79,083)
Disconnect and remove electrical connections to (E) equipment in the way of constructions	17,510	SF	0.90	15,759
Make connection to relocated equipment and new connections to (N) equipment as required	17,510	SF	1.50	26,265
				498,836

13. Fire Protection Systems

Fire sprinkler systems				
Revisions to existing fire sprinkler system, allow Phase 1A/1B areas				<i>phase 1A</i>
Revisions to existing fire sprinkler system, allow Phase 2 area				<i>NIC</i>
New fire sprinklers to enclosed spaces	5,407	SF	4.00	21,628
				21,628

14. Site Preparation & Building Demolition

Selective demolition and removal				
Preparation of existing floors and miscellaneous demolition, allow				<i>phase 1A</i>
				0

SITWORK COMPONENT SUMMARY

		Gross Area: 70,000 SF		
			\$/SF	\$x1,000
14	Site Preparation & Demolition		0.36	25
15	Site Paving, Structures & Landscaping		1.02	72
16	Utilities on Site		6.40	448
TOTAL BUILDING & SITE (1-16)			7.78	545
	General Conditions	7.00%	0.54	38
	Contractor's Overhead & Profit or Fee	3.00%	0.24	17
PLANNED CONSTRUCTION COST			8.57	600
	Contingency for Development of Design	12.00%	1.03	72
	Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET		September 2012	9.60	672

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
14. Site Preparation & Building Demolition				
Demolition of buildings and structures Existing shed building				<i>by others</i>
Site protective construction Erosion control	1	LS	15,000.00	15,000
Site clearing and grading Regrade and slope up from driveway to new building openings	1	LS	10,000.00	10,000
				25,000

15. Site Paving, Structures & Landscaping

Vehicular paving and curbs New asphalt at driveway, allow	1	LS	5,000.00	5,000
Patch and restripe existing paving, allow	1	LS	10,000.00	10,000
Pedestrian paving Concrete landings, steps, and painted steel railings at new exit doors	4	LOC	4,500.00	18,000
Site lighting Pedestrian lighting including controls, allow	1	LS	30,000.00	30,000
Drainage Allowance for storm drainage piping under existing stairs to convey RWL runoff to catch basins, 4 locations	1	LS	3,500.00	3,500
Fencing and miscellaneous accessories Chain link utility fence	1	LS	5,000.00	5,000
				71,500

16. Utilities on Site

Civil utilities Sanitary 8" PVC line	359	LF	65.00	23,335
Force main	81	LF	50.00	4,050
Manhole/connection to existing line	1	EA	8,500.00	8,500

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Sewer lift station	1	EA	30,000.00	30,000
Premium to bore under existing railroad tracks	1	LS	10,000.00	10,000
Water main				
8" PVC line	1,879	LF	65.00	122,135
6" lateral	127	LF	55.00	6,985
2" lateral	127	LF	40.00	5,080
Fire hydrants	4	EA	6,500.00	26,000
Double detective check assembly, 6"	1	LS	6,500.00	6,500
Reduced pressure backflow preventor, 2"	1	LS	2,500.00	2,500
New main valve/connection to existing line	1	LS	3,500.00	3,500
Premium to bore under existing railroad tracks	1	LS	10,000.00	10,000
Fire water supply				
Recondition existing fire water pond as necessary, allow	1	LS	75,000.00	75,000
700 gpm pumping system	1	LS	45,000.00	45,000
6" piping				<i>existing</i>
Electrical				
Utility transformer pad and grounding, allow	1	LS	4,000.00	4,000
Utility service conduit u/g (2) 4" allow	700	LF	50.00	35,000
Service feeder to switchboard including conductors, u/g conc encased - 1500A, allow	50	LF	615.00	30,750
				448,335

	Quantity	Unit	Rate	Total
<u>Alternate 1: Fire water supply option 2</u>				
Delete				
Recondition existing fire water pond as necessary, allow 700 gpm pumping system 6" piping	(1)	LS	75,000.00	(75,000) <i>constant existing</i>
Add				
Above Ground fire water storage tank, 150,000 gallon 700 gpm pumping system 6" piping	1	EA	375,000.00	375,000 <i>constant</i>
	100	LF	95.00	9,500
Markups	23.44	%	309,500.00	72,532
				382,032

Alternate 2: Building entry

Delete				
Patch and restripe existing paving, allow	(1)	LS	10,000.00	(10,000)
Add				
Sawcut and remove existing asphalt	5,400	SF	4.00	21,600
Concrete curbs and new landscaping	5,400	SF	10.00	54,000
Patch existing asphalt - allowance	1	LS	7,500.00	7,500
New striping to existing asphalt				<i>included above</i>
New roadway, allow	14,500	SF	6.00	87,000
Stormwater runnel, allow	1	LS	10,000.00	10,000
Markups	23.44	%	170,100.00	39,863
				209,963

	Quantity	Unit	Rate	Total
<u>Alternate 3a: Phase 1a buildout at tenant spaces</u>				
Delete				
Credit for gypsum board surfacing at studio space	11,424	SF	3.50	39,984
Teledata and user convenience power	6,671	SF	7.11	47,413
Markups	23.44	%	87,396.93	20,482
				107,879

<u>Alternate 3b: Phase 1b buildout at tenant spaces</u>				
Delete				
Credit for gypsum board surfacing at studio space	18,184	SF	3.50	63,644
Teledata and user convenience power	11,127	SF	7.11	79,083
Markups	23.44	%	142,727.15	33,448
				176,176

<u>Alternate 3c: Phase 1a studio partitions</u>				
Add				
Interior studio partitions, non-structural	210	LF	205.00	43,050
Markups	23.44	%	43,050.00	10,089
				53,139

<u>Alternate 3d: Phase 1b studio partitions</u>				
Add				
Interior studio partitions, non-structural	500	LF	205.00	102,500
Markups	23.44	%	102,500.00	24,021
				126,521

	Quantity	Unit	Rate	Total
<u>Alternate 4: Reduce skylights by 50%</u>				
Delete				
Create opening in existing roofing/structure and install new skylights, including structural blocking, curbs, etc.				
2' x 8'	(28)	EA	1,800.00	(50,400)
2' x 6'	(8)	EA	1,400.00	(11,200)
2' x 4'	(10)	EA	1,000.00	(10,000)
Markups	23.44	%	(71,600.00)	(16,780)
				(88,380)

Alternate 5: Ceiling fans

Add				
16' diameter ceiling fans hung from trusses				
	4	EA	12,000.00	48,000
Allowance for additional structural supports				
	4	EA	1,500.00	6,000
Markups	23.44	%	54,000.00	12,655
				66,655

Alternate 6: Painted exterior plywood to Phase 1

Delete				
Patch and paint existing exterior plywood, entire building				
	(35,100)	SF	1.75	(61,425)
Allowance for selective replacement of existing plywood				
	(4,512)	SF	6.00	(27,072)
Add				
Patch and paint existing exterior plywood, Phase 1				
	17,600	SF	1.75	30,800
Allowance for selective replacement of existing plywood				
	17,600	SF	6.00	105,600
Markups	23.44	%	47,903.00	11,226
				59,129

	Quantity	Unit	Rate	Total
<u>Alternate 7: Corrugated fiber-cement exterior wall panels</u>				
Delete				
Patch and paint existing exterior plywood, entire building	(35,100)	SF	1.75	(61,425)
Allowance for selective replacement of existing plywood	(4,512)	SF	6.00	(27,072)
Add				
Remove existing exterior plywood panel and replace with corrugated fiber-cement panels, painted, entire building	35,100	SF	20.00	702,000
Markups	23.44	%	613,503.00	143,776
				757,279

Alternate 8: Manual operable clerestory windows

Delete				
Mechanical actuator at clerestory windows	(22)	EA	500.00	(11,000)
Electrical connection	(22)	EA	475.00	(10,450)
Markups	23.44	%	(21,450.00)	(5,027)
				(26,477)

Alternate 9: Radiant baseboard heaters

Add				
Radiant baseboard heaters to enclosed tenant space	16	EA	1,650.00	26,400
Heating hot water distribution serving baseboard heaters, includes valves, specialties and insulation	1,250	LF	50.00	62,500
Coil hookups	16	EA	1,000.00	16,000
Thermostatic control	16	EA	500.00	8,000
Markups	23.44	%	112,900.00	26,458
				139,358

	Quantity	Unit	Rate	Total
<u>Alternate 10: Automated controls for hopper windows</u>				
Add				
Motorized actuator for operable hopper windows			<i>included with base</i>	
Temperature controls, connect to EMS	24	EA	1,125.00	27,000
Add louvers to enclosed tenant spaces, intake and exhaust	16	EA	500.00	8,000
Markups	23.44	%	35,000.00	8,202
				43,202

Alternate 11: Ducted ceiling supply fan at each enclosed tenant space

Add				
Studio ventilation fans, includes heating coil, <1000 cfm	16	EA	1,500.00	24,000
Heating hot water coil hookups	16	EA	1,000.00	16,000
Temperature controls	32	EA	1,125.00	36,000
Markups	23.44	%	76,000.00	17,811
				93,811

Alternate 12: Woodshop exhaust system with outdoor dust collector and exhaust fan

Add				
Woodshop exhaust system, includes outdoor dust collector and exhaust fan	1	LS	16,500.00	16,500
Markups	23.44	%	16,500.00	3,867
				20,367

Alternate 13: Replace fire sprinkler system in high bay areas

Delete				
Revisions to existing fire sprinkler system, allow Phase 1A/1B areas, replace heads, reconfigure as necessary	(33,609)	SF	2.00	(67,218)

	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Add				
Automatic wet sprinkler system	33,609	SF	4.00	134,436
Demo existing	33,609	SF	0.50	16,805
Markups	23.44	%	84,022.50	19,691
				<hr/>
				103,713

FULL BUILD-OUT SUMMARY - BUILDING ONLY

	Schematic Design	
	33,609 SF	
	\$/SF	\$x1,000
1. Foundations	1.29	44
2. Vertical Structure	4.94	166
3. Floor & Roof Structures	15.40	517
4. Exterior Cladding	16.05	540
5. Roofing & Waterproofing	5.96	200
Shell (1-5)	43.64	1,467
6. Interior Partitions, Doors & Glazing	15.84	532
7. Floor, Wall & Ceiling Finishes	16.30	548
Interiors (6-7)	32.13	1,080
8. Function Equipment & Specialties	2.05	69
9. Stairs & Vertical Transportation	0.00	0
Equipment & Vertical Transportation (8-9)	2.05	69
10. Plumbing Systems	4.39	148
11. Heating, Ventilating & Air Conditioning	24.08	809
12. Electric Lighting, Power & Communications	30.95	1,040
13. Fire Protection Systems	6.06	204
Mechanical & Electrical (10-13)	65.48	2,201
Total Building Construction (1-13)	143.31	4,816
14. Site Preparation & Demolition	1.00	34
15. Site Paving, Structures & Landscaping	0.00	0
16. Utilities on Site	0.00	0
Total Site Construction (14-16)	1.00	34
TOTAL BUILDING & SITE (1-16)	144.31	4,850
General Conditions	10.09	339
Contractor's Overhead & Profit or Fee	4.61	155
PLANNED CONSTRUCTION COST	159.00	5,344
Contingency for Design Development	19.07	641
Allowance for Rising Costs	0.00	0
RECOMMENDED BUDGET	178.08	5,985

OUTLINE SPECIFICATION

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01010: Summary of Work

The project scope includes renovation and adaptive reuse of an existing 67,000 square foot wood framed wood drying shed at the Georgia Pacific Mill Site in Fort Bragg, CA,; to be transformed into a new Industrial Arts Center. The facility will be outfitted for leasing to a variety of industrial artists, including woodworkers, sculptors, weavers, metal workers/blacksmiths, welders, ceramicists and glass artists. Administrative space, a gallery, classrooms, and a kitchen, bathrooms, mechanical spaces, and hazardous storage are also provided. Artists' studio demising walls are shown dashed, and exact locations may vary depending on tenant requirements; therefore flexibility in tenant buildouts is desired. The list below highlights the major items included in the building reuse plans. See consultant reports and specifications, and accompanying drawings, for further scope clarifications and items not included in this outline specification document:

1. **Utilities:**
 - New potable water and sewer services, including fire water service are to be provided. See alternates for various fire water service options.
 - Natural gas is not available from PGE; propane tank service is provided to fire hot water boilers, but there is no distribution for tenant private use.
 - There is an existing underground storm system – roof leaders to tie into existing system; no storm water treatment is required. Surface runnel or pipe system at building perimeter is required to capture rain leader roof runoff and connect to existing storm inlet where shown on the civil drawings.
2. **Site Work:** Existing surrounding site has asphalt paving that varies in condition from poor to good condition. See drawings for proposed site work and alternates at building and roadway connection to downtown Fort Bragg.
3. **Structural Upgrades:** The existing shed building requires seismic upgrades and exterior repairs to damaged structure and exterior finishes. See structural report.
4. **Roof:**
 - Only minor roofing surface repairs are required
 - Full replacement of Dutch gutter system and rain leaders and storm runnel at grade are required.
 - New skylights and roof top exhaust ventilation fans will be added.
 - Insulation is NOT included in the roof assembly, or the existing exterior wall assemblies of the shed building, except as noted at the Studio locations indicated below.
5. **Exterior Wall Finish:** Existing exterior walls are 4x8 sheets of plywood, painted. Some repairs and replacement are required (see structural report).
 - Base scope to include repainting of plywood after repairs are completed, including setting and patching all nail locations to stop rusting of existing and new fasteners.
 - See Alternates for fiber cement panel wall finish option (installed over plywood and building paper.)
6. **Exterior Doors & Windows:**
 - New aluminum storefront glazing and doors are included; new windows will be installed at existing clerestory openings and will replace existing corrugated plastic material. Stud removal, addition of doubled up jambs and some plywood infill are required at clerestory to accommodate new windows – see structural drawings. One of the three windows at each clerestory bay will be and operable awning type with a low voltage electric operator and controls for natural ventilation. See alternates for optional manually operated awning windows.

- New glazed overhead panel doors are provided at main building entries.
 - Roll-up doors at one of the large art studios at the eastern side of building is included.
7. **Industrial Arts Studios:**
- **F-1 occupancy studio spaces** at the building perimeter will have fire rated walls and fire rated load bearing ceilings (for future mezzanine use). Walls and ceilings of enclosed spaces will be insulated and heated internally with baseboard radiators (as part of tenant build-out). Wall material is heavy duty gypsum board. Doors will be hollow metal framed fire rated doors.
 - **F-2 occupancy studio spaces** at the building interior will have non-fire rated walls and no ceiling. Walls will not be insulated, and concrete floors will have radiant heating coils. Wall materials includes heavy duty gypsum board at lower levels, chain link at upper levels at some areas, and sliding corrugated metal door assemblies.
 - **The outer perimeter walls of each studio "block"** are included in the base scope and will be wired with a backbone cable tray assembly at the top of perimeter walls for distribution of power and low voltage wiring. Exterior (public) side of these walls will receive wall finish and power/data outlets. The inner walls will be left unfinished for tenant buildout. Hydronic piping backbone will also be included in the base scope, to allow for future tenant baseboard heating.
 - **Studio build out**, including demising walls, interior finish at perimeter walls, power & data, localized overhead lighting, heating and ventilation systems will be carried as an add alternate to the project base scope.
8. **Floors:** The existing building interior is constructed of asphalt, and is sloped slightly (less than 1%) from the north to south. A new structural slab will be installed over the asphalt, with anchorage into the perimeter walls and columns per the structural report. A radiant floor heating system will be incorporated into the new concrete topping only at areas shown on drawings that do NOT have a ceiling.
9. **Mechanical System:**
- The mechanical system proposed is a hydronic hot water system with in-floor radiant heat at areas that open to the uninsulated shed building. Stand alone hydronic heaters will be provided at the enclosed studio spaces. See MEP Report for detailed information.
 - The system is designed to fall below the trigger for State Energy Code compliance, and is therefore highly energy efficient, and comfortable for a majority of the year. During the coldest days of the year, the ambient air temperature may drop into the mid-50 degree range for several working hours at the opened ceiling studios. The enclosed studios will be insulated and will have a more even temperature control. See MEP Report for more information.
10. **Lighting:** Overhead high bay lighting will be provided for general circulation and F-2 occupancy studio lighting in the base bid scope. Secondary overhead task lighting will be provided at each tenant space as an add alternate tenant buildout pricing. Exterior lighting will be provided at the building perimeter as part of Phase 1A scope.
11. **Sustainability:** The project will be designed to be a highly energy and water efficient, and constructed to maximize use of renewable, local and safe materials and finishes to ensure a healthy environment. The project will target LEED Silver under the US Green Building Council's LEED-NC program. Specification items and new construction shall conform with current applicable codes, including the City of Fort Bragg Sustainability Guidelines.

The work outlined in the report and in this Outline Specification shall be carried out so as to minimize disturbances and disruptions to the ongoing functions of the Georgia Pacific Mill Site as it may remain under separate ownership during construction of the project. All work, including access to the site, etc. shall be reviewed and approved by Georgia Pacific and the City of Fort Bragg as part of the design and construction process.

SECTION 01020: Allowances

Provide allowances for the following. Where a dollar allowance is not indicated, Contractor to provide estimated allowance based on information included on drawings and specifications.

1. **Hazardous Materials Remediation:** Scope is Owner's responsibility. Contractor to provide allowance for budgeting purposes. Contact Owner for further information.
2. **Furniture, Fixtures and Equipment:** Provide allowance or as directed by Owner.
3. **Telephone / Data / POC Service:** Provide allowance or as directed by Owner.
4. **Directional and building/room identification signage:** \$ 5,000 allowance. Allowance does not include code required signage. Contractor to include code required signage in bid. See Section 10400.
5. **Security System:** Provide allowance or as directed by Owner. Contractor shall include separate allowance for infrastructure scope affiliated with a new security system, if elected. See Section 11020.

SECTION 01030: Alternates:

Provide alternate pricing for the following:

1. **Construction Phasing:**
 - a) **Phase 1A Base Scope:** Includes Phase 1A scope area (Grid Line A-F) inside and outside building where indicated on Drawings, and some scope items outside the area designated Phase 1A, as indicated below:
 - Improvements to all Phase 1&2 gutter, downspout and runnel systems shall be included in Phase 1A.
 - Seismic improvements to entire building (Phase 1 & 2) shall be included in Phase 1A.
 - New Mechanical & Electrical Rooms located at northeast corner of Phase 1B, including utility distribution to Phase 1A areas within building as required.
 - Interior walls (and overhead load bearing ceilings) where shown on drawings at Phase 1A.
 - All exterior swing type exit doors at Gridlines F&J.
 - All exterior automated clerestory (high level) windows shown at Phase 1A & 1B.
 - All roof skylights and exhaust fans shown at roof locations for Phase 1A & 1B.
 - Upgrade of existing sprinkler system at high-bay ceiling area of Phase 1A and 1B, and interior sprinklers at Phase 1A.
 - New concrete floor slab, including radiant tubing where designated at Phase 1A & 1B locations.
 - 3-hour fire wall at Gridline L.
 - NOT included in Phase 1A Scope: Tenant fit-outs including: interior gypsum board at base scope walls; interior demising walls; mechanical systems at enclosed tenant spaces (see MEP report); electrical, low-voltage and room lighting
 - b) **Phase 1B Add Alternate Scope** to include:
 - Additional interior and exterior scope shown on floor plans where designated Phase 1B on drawings, and which was not included in Phase 1A base scope as described above.
2. **Tenant Build-Outs:**
 - a) **Base Scope** to include:
 - Tenant perimeter walls shown as solid on drawings (i.e. not shown dashed). Gypsum board finish at interior side of walls to be excluded to allow for add alternate tenant power, data and heating distribution. Fire sprinklers to be installed in all enclosed tenant spaces as part of base scope.
 - b) **Alternate Scope** to include:
 - Construction of demising walls (and gypsum board at inside face of tenant perimeter walls), distribution of power, data and lighting, and a self-contained hydronic base board heating system (see MEP narrative) for each tenant space. Provide pricing for tenant build-outs of Phase 1A & 1B separately.

3. **Automated Awning Windows at Clerestory:**
 - a) Base Scope to include:
 - Automated operable storefront windows at clerestory locations where shown on drawings.
 - b) Alternate Scope to include:
 - Manual operable storefront windows in lieu of automated at clerestory locations.
4. **Fixed Skylights:**
 - a) Base Scope to include:
 - Fixed skylights in quantity shown on drawings.
 - b) Alternate Scope to include:
 - 50% of quantity of skylights shown on drawings.
5. **Ceiling Fans:**
 - a) Base Scope to include:
 - No ceiling fans.
 - b) Alternate Scope to include:
 - Four (4 Qty) 16 foot diameter fans where indicated on drawings.
6. **Exterior Building Finish:**
 - a) Base Scope to include:
 - Painted plywood at entire building exterior following required structural repairs.
 - b) Deduct Alternate Scope 4A to include:
 - Painted plywood at Phase 1A & 1B portions of building exterior only, following required structural repairs.
 - c) Add Alternate Scope 4B to include:
 - Painted corrugated fiber cement panels, flashing and trim at entire building exterior, installed over building paper, for a complete installation.
7. **Exterior Building Entry Area and Roadway:**
 - a) Base Scope to include:
 - Asphalt paving, concrete curbs at planting areas, parking striping and accessible signage, storm runoff channel and grating at parking lot at building entry area and along roadway area designated on plans to south and southeast of building.
 - b) Alternate Scope to include:
 - Delete full Parking and Roadway work scope included in base bid.
 - Alternate Scope: Patch and refinish existing asphalt at incoming roadway, parking and entry areas where indicated at south end of building. Provide accessible parking stall striping and signage where shown near main entry.
8. **Fire Pump and Electrical Service Alternate:**
 - a) Base Scope to include new fire service from Pine Street as shown on Civil Drawings.
 - b) Alternate Scope to include deletion of fire service from Pine Street (new domestic water service to remain in scope) and addition of a fire pump and new electrical service to power fire pump located at Fire Pond area located approximately 700 feet to north of Industrial Arts Center location. See drawings.

SECTION 01045: Cutting and Patching

1. Contractor shall be responsible for cutting, fitting and patching required to complete Work.
2. Coordinate unanticipated cutting and demolition with the Architect and NPS representatives prior to execution of the work to ensure that existing historic fabric is not damaged.
3. Provide special care to protect the historic building elements and finishes to be retained.
4. Match surrounding materials and finishes where repair and restoration work is carried out.

SECTION 01060: Special Jurisdiction Requirements

1. Comply with all requirements of the City of Fort Bragg and Georgia Pacific Company, including coordination of all new utilities.
2. Applicable Codes and Guidelines: As noted on drawings.

SECTION 01200: Project Meetings

1. Attend weekly construction progress review meetings with Contractor, Architect and Owner's Representative.

SECTION 01300: Submittals

1. Provide necessary shop drawings, product data, samples, mock-ups and schedules.
2. LEED submittals are in addition to other submittals and should be provided separately, compiled by the General Contractor and given to the LEED program manager.

SECTION 01350: Special Environmental Requirements (LEED™)

1. LEED Rating: This project is seeking certification in the LEED Rating System for New Construction (LEED NC) sponsored by the U.S. Green Building Council. The project goal is to obtain a LEED Silver rating.
2. The LEED scorecard is attached for reference that indicates applicable credit points. Include estimated cost for all strategies and points indicated as "Yes" or "Maybe".
3. Contractor and Subcontractors shall provide LEED certification administration services, including assistance in tracking and documentation in support of construction-related LEED points. Responsibilities include itemization of material costs and weights as required for some LEED points, and preparation and coordination of submittals to comply with requirements of LEED documentation.
4. Provide LEED Accredited staff member to be Environmental Control Coordinator.
5. Contractor to retain a copy of the LEED NC Reference Guide.
6. Provide interior air filtration during construction to meet MERV 8 requirements.
7. Provide building flush-out or air quality testing of building prior to occupancy.
8. Ensure all products used during construction do not emit volatile materials.

SECTION 01400: Quality Control

1. Coordinate any required structural or other testing and inspection provided by and paid for by Owner.
2. Provide mock-ups as required for review and approvals. Mock-ups include, but may not be limited, to the following:
 - a. Exterior finishes.
 - b. Interior concrete floor topping finishes

SECTION 01500: Construction Facilities

1. Construction Staging Plan: Prior to the start of work, submit a Construction Staging Plan to the Architect and Owner for approval. The Plan shall indicate locations of construction fencing, special protections, trailers, staging, construction storage, delivery, traffic control, and all other site elements required to provide for safe, on-going operations of the school during construction.
2. Provide temporary facilities and utilities during construction.
3. Provide advance notice and obtain approval from Georgia Pacific prior to shutting down or tying into any utility.
4. Provide lockable barriers at all exterior openings.
5. Provide secure field office with telephone service, fax, internet, and answering machine.
6. Indoor Air Quality: Conform with LEED requirements for maintaining maximum Indoor Air Quality during construction operations.

SECTION 01630: Substitutions

1. Substitutions to specified products or systems may be submitted to the Architect for review for a period of 30 days after the award of the Contract. After that 30 day period, substitutions will not be accepted unless the specified product or system is unavailable.

SECTION 01700: Contract Close-Out

1. Provide three copies of maintenance data, instructions, warranties, and record construction documents at completion of construction.

SECTION 01740: Warrantees

1. Compile required and incidental warranties required by Specifications.

DIVISION 2 SITEWORK**SECTION 02070: Selective Demolition and Salvaging for Remodeling**

1. Prior to start of demolition, Contractor shall submit a Construction and Demolition Waste Management Plan. Goal for diversion is minimum 75%.
2. Notify Owner of hazardous materials where encountered during new work. Contact Owner for hazardous materials report. Provide adequate protection from hazardous materials as required by law. Remove or encapsulate all hazardous materials as required by law. (Note: Hazardous materials removal is the responsibility of the Owner, but is included here for budget pricing purposes.)
3. Maintain life safety and other fire protection systems as required by local AHJ.
4. Protect all items to remain during construction and incorporated as part of the new work. Items include, but are not limited to:
 - Retain sprinkler system piping where reusable. Design-build fire protection contractor to confirm sprinkler items to be removed.
 - Other items as noted on drawings.
5. Remove elements scheduled for demolition as noted on drawings and in consultant reports and as otherwise required. Items include but are not limited to:
 - Miscellaneous mechanical, plumbing and electrical as required for renovation and replacement work.
 - Portions of exterior wall sheathing and structural members to prepare for installation of new structural and retrofit work.
 - Asphalt or portions of asphalt topping where noted, and as required at building interior to ensure an even surface for placement of new concrete topping slab. Note that existing interior asphalt floor is sloped from north down to south, and is estimated to be less than 1% slope. New concrete topping slab to be poured over existing asphalt per structural drawings.
 - Windows, louvers, doors and glazing where required to be replaced.
 - Light fixtures and/or wiring where required to be replaced, or no longer required.
 - Design-build fire protection engineer to confirm sprinkler items to be removed.
 - Other miscellaneous items as required for new or repair work.
6. Review conditions of the existing building to establish extent of selective demolition required to complete work as indicated.
7. Remove floor and structure as required for new walls, structural retrofit work, equipment and miscellaneous mechanical, seismic and other structural work.
8. Cap and identify active utilities where required for infrastructure replacement.
9. Provide clean cuts. Minimize cuts for openings to allow for new construction with minimal patching.
10. Repair damage to adjacent construction as necessary.

SECTION 02200: Earthwork

1. Minimal earthwork is anticipated. Refer to civil and electrical documents.
2. Refer to Structural, Civil and Electrical Engineers' documents.
3. Backfill and compact soils in trenches as required at new underground utilities.

SECTION 02500: Paving and Surfacing

1. Asphaltic Concrete Paving: Provide new asphaltic concrete paving at south parking and loading areas where noted on drawings.
 - a. Asphalt: Provide 3/8" aggregate asphaltic concrete mix (playground mix.)
 - b. Seal Coat: Provide odorless sanded asphaltic emulsion seal coat with acrylic admixture at interior and exterior locations, typical: Tri-America TA-1000 or equal.
 - c. If Owner elects to forego paving south parking area, provide asphalt patch at building entries and doorways as required to meet accessibility code requirements.
2. Concrete: Provide concrete steps, walkways and platforms where shown at building exterior.
3. Ensure that all paving finishes are level, or as noted, and comply with all accessibility and slip requirements, including smooth transitions to other surfacing materials, and landing requirements at doors and other openings.
4. Provide striping and marking paint at asphalt surfaces where noted on drawings: Acrylotex by Plexipave, or equal.
5. Provide signage for auto and van accessible stalls noted on drawings.

SECTION 02585: Restoration of Surfaces

1. Restore all disturbed or damaged existing building surfaces to finish level equal to existing.

SECTION 02600: Piped Utilities

1. Repair, replace or install new items as outlined in report documents – see Civil, Plumbing and Electrical Engineer's items.
2. Coordinate all connections to existing utilities with the City of Fort Bragg

SECTION 02713: Water Utilites

1. Install new water mains and connect to existing water line.
2. Install fire hydrants as shown on Civil drawings.
3. Install domestic and fire service to building. Ensure code complying reduced pressure backflow preventor for domestic service and double detective check assembly for fire service; refer to City of Fort Bragg standard plans for details.

SECTION 02721: Storm Drainage

1. This report assumes that the existing storm water system design, as currently installed, is acceptable, and that the scope of work is limited to in-kind replacement or repair of piping and fittings that are decayed or not functioning to capacity, as noted on the Plumbing and Civil documents.
2. Connect new rainwater leaders and catch basins to existing storm piping as required and as indicated on drawings.
3. Ensure code complying traps and vents are installed on existing and new connections, as required.

SECTION 02722: Sanitary Sewerage

1. Repair, remove, replace and/or install new items as outlined – see Civil Engineer's and Plumbing documents.
2. Install sewer pump and force main to connect to existing sanitary sewer.
3. Ensure code complying backflow device, cleanouts, traps and vents are installed on new connections; refer to City of Fort Bragg standard plans for details.

SECTION 02800: Power and Communication Utilities

1. Re-use power and communications poles at site for running new services.
2. Provide new pole mounted transformer(s) as required.

3. Telephone and data service connections to the buildings are responsibility of Owner. Provide allowance for connection costs.
4. Scope of work shall include infrastructure and installation of pull box required for future underground fiber optic installation. See Civil and Electrical drawings.

SECTION 02830: Chain Link Fencing

1. Provide new marine grade aluminum fence support frame, 1" x 1" aluminum fencing material and gates, including heavy duty gate hardware and marine resistant finishes for all operating doors. Anchor all gates into concrete footings.
2. Provide 1"x1" aluminum fencing mesh at interior art studio walls above 8 foot datum to top of timber framework. See interior perspective images.

DIVISION 3 CONCRETE**SECTION 03300: Concrete**

1. Refer to Structural Engineer's Structural Specifications (at end of this document) and Drawings for information regarding structural concrete formwork, reinforcing, and placement.
2. In addition to structural concrete shown on structural drawings, provide reinforced concrete items and finishes as follows:
 - a. Mechanical equipment pads.
 - b. Concrete stairs at building exterior with abrasive nosings.
 - c. Curbs at landscaping areas adjoining paved parking surfaces (alternate scope).
 - d. New concrete slab: Provide sealer on slab surface, and visqueen vapor retarder below slab.
 - e. Provide footings for exterior hot water tanks, fire water storage tanks, chain link fence post supports and elsewhere as required.

SECTION 03310: Site Concrete

1. See Section 02500-Paving and Surfacing for concrete patching at pier skirt.

SECTION 03350: Concrete Topping

1. Refer to Structural Engineer's Structural Specifications and Drawings.
2. Provide normal weight, reinforced concrete topping at building interior, thickness as shown on structural drawings.
3. Sawcut expansion joints at approximate 10 foot centers and as indicated on drawings.

DIVISION 4 MASONRY (NOT USED)**DIVISION 5 METALS****SECTION 05100: Structural Steel**

1. Refer to Structural Engineer's specification for information regarding structural steel.
2. Provide steel framing for entry canopy and solar hot water tank supports at south side of building.
3. Use recycled steel with minimum 50% recycled content.

SECTION 05500: Metal Fabrications

Provide the following metal fabrications:

1. Galvanized steel pipe handrails at exterior stairs.
2. Roll-up door support angles.
3. Unistrut framing at the following locations:
 - a. Lighting support spanning top of wall partitions at individual, open topped studios (include in alternate studio build-out scope).
 - b. For supporting cabletray and mechanical pipework distribution per mechanical report.
4. Galvanized sheet metal attached to steel framework for sliding doors at art studios where indication on drawings.
5. Corner Guards at wall corners along main hallways.
6. Aluminum frame support system for solar hot water panels at south entry canopy.
7. Metal decking below solar hot water panels, attached to south entry canopy, to provide weather protection.
8. Execution:
 - a. Shop Drawings: Provide plans, elevations and detail connections for all items
 - b. General: Set all work plumb, rigid, true to line and grade, and accurately fitted with tight joints.
 - c. Attachments: Drill or punch all holes; shear cleanly all cuts. Provide all sleeves, anchors, mortars and sealants for connections to other work.
 - d. Welding: AWS Code D1.0, uniform, ground smooth. Do not weld galvanized metals after fabrication.
 - e. Non-welded Connections: Provide bolts, screws or rivets for field connections as detailed.
 - f. Galvanizing: Galvanize all steel located at exterior of building.
 - g. Surface Treatment: Clean all deleterious coatings from surfaces, grind smooth all welds, burrs, and rough surfaces. Apply primers and finish coats of paint per manufacturer's specifications. Touch up field work as required.
 - h. Finish: All interior metals to be painted except stainless steel. See Section 09900. Exterior steel to be unpainted galvanized.
 - i. Recycled Content: Provide steel with minimum 50% recycled content.

DIVISION 6 WOOD & PLASTICS**SECTION 06100: Rough Carpentry**

1. See Structural Specification at end of this document
2. Provide timber framework at interior open studio spaces as shown.
3. Provide wood framing at all wall partitions. Metal framing may be utilized in lieu of wood.
4. Provide wood sheathing, blocking and backing as required and as detailed.
5. Provide repair and additions to exterior wood walls. See structural drawings.
6. Provide plywood decking at ceilings assemblies above enclosed studios.
7. Provide sustainably harvested or recycled wood materials wherever possible. Plywood substrate materials should be made from by-products from other forestry operations or recycled post-consumer waste. All substrate materials must be manufactured without the use of urea formaldehyde additives.
8. All wood products to be FSC Certified, sustainably harvested or recycled sources.

SECTION 06200: Finish Carpentry

1. Utility Shelving:
 - a. Species: Medite II formaldehyde free MDF.
 - b. Size: 3/4," thick.
 - c. Finish: Opaque wood finish.
 - d. Locations: At storage and janitors closet areas
2. All wood products to be FSC Certified, sustainably harvested or recycled sources.

3. See section 06300 for wood casework.

SECTION 06300: Casework

1. All casework shall be Premium Grade, flush overlay with concealed hinges and all hardware necessary for a complete installation.
2. All wood substrates shall be MDF from certified, sustainably harvested or recycled sources, FSC certified and formaldehyde-free: Medite II or equal.
3. Adhesives shall be low VOC complying with limits of South Coast Air Quality Management District Rule #1168 (for LEED Certification.)
4. Plastic laminate cabinet doors, counters and backsplash:
 - a. Material: Plastic laminate: Wilsonart, Nevamar, or equal.
 - b. Locations:
 - i. Kitchen
 - ii. Utility sink areas.
 - c. Provide steel support legs for open and fold-down counters.

DIVISION 7 THERMAL AND MOISTURE PROTECTION**SECTION 07200: Thermal Insulation**

1. Insulation is NOT required at roof, or at upper walls above enclosed studio spaces.
2. Provide rigid insulation below radiant floor slabs: Minimum 1" thick extruded polystyrene rigid insulation: Owens Corning Formular 250.
3. Formaldehyde free glass fiber faced insulation (Certainteed or equal) to fill wall cavity.
 - a) Provide 3-1/2" batt insulation at walls of enclosed/covered art studios, admin space and kitchen (perimeter walls and demising walls).
 - b) Provide 8" batt insulation at ceiling of enclosed/covered art studios, admin space and kitchen.

SECTION 07270: Firestopping

1. Provide firestopping as required to maintain effective barrier against smoke and flame and to maintain required integrity of time-rated construction at walls and floor slabs as required. Provide caulking to complete finish installation.
2. See code sheets for information regarding fire ratings and construction type.

SECTION 07430: Fiber-Cement Board Panels (Add Alternate)

1. **Corrugated Cement Board Wall Panels:** 1" deep x 3" wave corrugated fiber cement wall panels.
 - a) Product: Profile-3. Contact: Foundry Service & Supplies (562) 945-6511.
 - b) Locations:
 - i. Exterior cladding over 2 layers 60 minute building paper over exterior plywood wall sheathing.
 - c) Fasteners to be galvanized steel hex-head neoprene gasketed screws at spacing as recommended by manufacturer. Pre-drill all holes in cement board panels.
 - d) Trim and configuration: Panels to be installed with corrugations running vertically and lapped. Provide wall blocking behind all fastener locations as required.
 - e) Finish: Elastomeric acrylic paint. Primer and 1 top coat.

SECTION 07510: Built-Up Roofing

1. Existing built-up roll roofing is in fair condition and does not require full replacement at this time, but may in the next 5-10 years. Provide minor roof patch at field areas and crickets as required

2. Replacement of roofing at dutch gutter location is required: Remove roofing at entire dutch gutter along east and west roof edges.
 - a. Repair $\frac{3}{4}$ " plywood roof decking and fascia boards where rotted or otherwise unstable.
 - b. Re-build dutch gutter structure OR provide sheet metal flashing gutter and supports.
 - c. Flash in new built-up roofing and building paper underlayments as required.
5. Cut roofing and roof sheathing where new skylights and new roof fans are scheduled. Reroof up skylight curb, terminate and flash for a watertight installation. Roof at all other new penetrations through roof.
6. Replace all decayed flashing and accessories as required for complete, weathertight installation. All flashing to be copper, painted, except at aluminum windows, which shall be aluminum flashing. Pipe flashing at vent penetrations, etc. shall be stainless steel or copper. Lead flashing is not allowed.

SECTION 07600: Flashing and Sheet Metal

1. Replace all existing miscellaneous roof flashing at vents, pipes and other roof penetrations.
2. Existing flashing systems where damaged or decayed shall be repaired or replaced with copper.
3. Provide miscellaneous aluminum flashing, minimum 22 gauge, at all aluminum window systems. Provide copper flashing at steel door enclosures.
4. Replace exterior rain water leaders with new copper leaders. Terminate at grade runnel system.

SECTION 07800: Roof Accessories

1. Provide aluminum support posts for solar hot water system framing at Entry Canopy at south end of building. See Section 05500–Metal Fabrications and Section 07510–Built-up Roofing.
2. Provide all flashing and curbs as required for roof skylights and fans.

SECTION 07820: Metal Framed Skylights

1. New aluminum frame skylights with standard roof curb attachment:
 - a) O'Keeffe or equal
 - i) Finish: Thermal Setting Acrylic.
 - ii) Glass: See Section 08800.
 - iii) Type: Fixed on curb.
 - iv) Size: 2' x 4'; 2' x 6' and 2' x 8' where indicated on plans. Provide integral 10" curb.
 - v) Cut in new openings between existing roof joints, block between existing joists, and flash for a watertight installation.

SECTION 07900: Joint Sealers

1. Provide joint sealers and backing material for interior and exterior joints.
2. Joint sealers shall be non-toxic and low VOC in compliance with LEED requirements.
3. Provide acoustical sealant: at sound rated construction. Pecora AC-20 FTR or equal.
4. See Section 09260-Gypsum Wallboard for additional information and procedures for joint sealers.

DIVISION 8 DOORS AND WINDOWS

SECTION 08100: Metal Doors and Frames

1. New metal frames at openings not noted as wood nor within storefront systems:
 - a. Frames to be welded at locations exposed to exterior conditions; knock down frames not allowed.
 - b. All frames to be galvanized finish.
 - c. Provide at all interior enclosed (and fire rated) art studios.

SECTION 08210: Wood Doors

1. Provide solid core wood doors at following locations:
 - a. At interior enclosed (and fire rated) art studios.
 - b. Provide fire rated vision lite in door. See Section 08800-Glazing.
2. Provide metal frames at all new openings. See Sec. 08100.

SECTION 08305: Access Doors

1. Provide flush access panels to controls and equipment where necessary.
2. Provide rated access panels where required.

SECTION 08350: Overhead Coiling Doors

1. Provide overhead coiling steel door at building exterior where shown.
 - a. Basis of Design: Cornell M100 with manual chain drive.
 - b. Finish: Galvanized steel with factory painted finish, including sheet metal coil cover.

SECTION 08370: Glazed Overhead Sectional Doors

1. Provide glazed overhead aluminum sectional door at building exterior locations where shown.
 - a. Basis of Design: RS Doors RS18 with manual chain drive.
 - b. Glazing: Dual paned. See Section 08800.
 - c. Finish: Clear anodized aluminum to match window system.

SECTION 08400: Storefronts & Entrances

1. **Storefront System:** Provide thermally-broken aluminum storefront and entrances as manufactured by EFCO, Vistawall, Kawneer, or approved equal.
 - a) Basis of Design: EFCO Series 433-I thermally improved frame
 - i) Frame Size: 2"x4-1/2", front glazed, thermally broken, with internal reinforcing as required to meet wind and dead loads.
 - b) Water intrusion: Zero at 9 psf.
 - c) Air infiltration: <0.06 SCFM per foot perimeter allowable at 6.24 psf
 - d) Material: recycled billet aluminum (provide certification – min. 80% recycled content)
 - e) Glazing: insulating glass, tempered where required. See Section 08800.
 - f) Finish: Hi-Performance Kynar painted aluminum. Alternate: Clear anodized aluminum.
2. **Entrance Doors:**
 - a) Basis of Design: EFCO D302 Thermastyle medium stile glazed aluminum door.
 - b) Door Size: 8'-0" high, 3'-0" wide (in pairs where indicated) typical unless noted otherwise
 - c) Frame Size: 2" deep by 3-1/2" wide door
 - d) Performance: Thermally broken "E-Strut" frame.
 - e) Hardware: See Section 08700.

SECTION 08520: Aluminum Windows

1. Provide operable individual, thermally-broken aluminum windows for installation in exterior walls and within aluminum storefront frames as manufactured by EFCO, Vistawall, Kawneer, or approved equal. See schedule of locations and types at end of Section.
 - a) Material: recycled billet aluminum (provide certification – min. 80% recycled content)
 - b) Finish: Hi-Performance Kynar painted aluminum. Alternate: Clear anodized aluminum.
 - c) Glazing Pocket Size: Maximum 1-1/4".
 - d) Installation:
 - i) Install windows with one-piece pan flashing at sill and head. (See Section 07600)
 - ii) Wrap opening with waterproof membrane
 - iii) Provide windows with compensation channels fastened directly to structure, as needed.
 - iv) Install sealant and backer rod at exterior face.

2. Window Schedule:

- a) Basis of Design: EFCO WW410 Series projected windows 60"wide by 36"high maximum in size.
- b) Type:
 - i) Outswinging Awning.
 - ii) Incorporate sub-frame and louver into windows at exterior art studios.
- c) Operators:
 - i) Typical Standard hand crank or pole operation with security latch.
 - ii) Clerestory Windows: Base scope at clerestory windows to include low voltage motor operated chain actuator with 24-inch stroke capacity: Functional Fenestration, Inc. M Series, or equal. Alternate scope to include manual operators.
- d) Material: recycled billet aluminum (provide certification - min. 50% recycled content)
- e) Glazing: See Sec. 08810

SECTION 08700: Door Hardware

1. Provide new door hardware at all new doors: Assume Schlage heavy duty commercial hardware with lever hardware typical. Schlage L-series w/levers
2. Provide panic hardware and closers at all exit locations with occupant load greater than 50 persons.
3. Provide heavy duty, anti-corrosion, commercial grade hardware at chain link gates and man-doors within gates.
4. Provide water resistant door sweeps and bottoms at all exterior doors.

SECTION 08870: Glazed Sliding Door

1. Interior Sliding Glass Doors: Vistawall MS360 (oxxo type) slider
 - a. Finish: Clear Anodized
 - b. Glazing: See Sec. 08800.
 - c. Size: 8'-0" high x 5'-0" wide stacked panels;
 - d. Sill: Flush ADA compliant sill; weep and drain as required.
 - e. Divider Mullion: Horizontal divider mullion approximately 3 feet above floor.
2. Provide thresholds, hardware, seals for complete assembly.

SECTION 08800: Glazing

1. Provide glazing types at the following locations:
 - a) High performance insulated glass unit (IGU) at all exterior windows as scheduled.
 - b) Interior Glazing: Monolithic glazing at all interior windows, typical.
 - c) Fire Rated Glass at following locations:
 - Fixed windows at glazing in 1-hour fire rated doors.
2. High Performance Low-E Glass: PPG Solarban 70XL, Low E, Argon filled, unless noted otherwise.
3. Fire Rated Glazing: O'Keefe's SAFTI, Aluflam or equal.
4. All glazing to be heat strengthened. Temper where required by code in lieu of heat strengthening.
5. Glass assembly types:
 - a) **GL-1:** 1" Clear IGU (1/4" Low E glass/ 1/2" space / 1/4" glass).
 - b) **GL-2:** 3/8" Clear monolithic glass.
 - c) **GL-3:** 45 minute fire rated clear monolithic glass. (1/2")

DIVISION 9 FINISHES**SECTION 09260: Gypsum Wallboard**

1. All gypsum board to be 5/8" thick unless noted. Provide Type "X" at fire rated partitions. Finish: Smooth.
2. Provide high impact gypsum board at Public Corridor side of walls and at tenant spaces: 5/8" USG Fiberock VHI or equal.

3. Provide wet area rated gypsum board at all bathroom locations.
4. Finish: smooth wall finish (USG Level 4) or as noted on drawings.
5. Provide gypsum board and sheathing materials manufactured regionally (within a 500 mile radius of the site)
6. New partitions shall be wood or metal stud construction at all new construction.
7. Acoustical Insulation: See Section 07200.
8. Install acoustical sealant at perimeter and at all penetrations of gypsum board walls and ceilings to ensure air tight conditions. Seal around all ductwork and penetrations through sound rated partitions.

SECTION 09660: Resilient Flooring / Rubber Base

1. Rubber Base: Provide rubber base at all floor areas except storage, electrical and mechanical rooms. Roppe or equal. 6" high typical.

SECTION 09725: Epoxy Floor Finish

1. Provide non-slip cleanable epoxy floor and cove and integral base finish at Bathrooms and Kitchen.
 - a) Dex-o-Tex Kwickfloor by Crossfield Products, Inc. or Terra-Lite, D by Stonehard Inc. or equal.

SECTION 09900: Painting

1. Paint building exterior, including concrete. Do not paint items with factory finishes or scheduled to remain unpainted.
 - A. Exterior Painting:
 - Metal and sheet metal: 1 coat epoxy primer, 1 coat epoxy enamel, TNEMEC series 75 or equal, custom color, semigloss sheen.
 - Wood and Concrete: 1 coat primer, 2 coats acrylic enamel, satin sheen.
2. Paint all new and existing interior items exposed to view except items with factory finishes or scheduled to remain unpainted.
 - A. Interior Painting:
 - Gypsum board: 1 coat PVA primer, 2 coats acrylic latex, eggshell at corridors and lobbies, satin sheen at kitchens and restrooms.
 - Wood: 1 coat primer, 2 coats acrylic enamel, semi-gloss sheen
 - Metal: 1 coat primer, 2 coats acrylic enamel, semi-gloss sheen

SECTION 09950: Wall Coverings

1. Fiberglass reinforced plastic (FRP) panels at Janitor's closet walls.
 - a) Semi-rigid wall panels ; Kemlite Fire X Glasbord panels with "Surfasea" surface protection, or equal.
 - b) Fire rating: Class A
 - c) Size: 0.09"thick x 4' x 8'.
 - d) Pattern: Smooth
 - e) Color: Standard color to be selected.
 - f) Moulding, Division Bars and Corner Trim: Manufacturer's standard in matching color.
 - g) Corner Guards: Acrovyn Vinyl, SSM-20P by CS Group; height indicated, color to match wall covering.
 - h) Adhesive: Water based, VOC complaint, as recommended by manufacturer of specified and selected wall paneling.

DIVISION 10 SPECIALTIES**SECTION 10160: Toilet Partitions**

1. Restroom partitions: Floor mounted stainless steel support system with recycled fiber and polycarbonate panel finish.
2. Manufacturer: Bobrick Sierra Series.

3. Color: As chosen from manufacturer's standard colors.

SECTION 10210: Metal Wall Louvers

1. Provide factory painted fixed formed metal louvers and frames, with screens, attachment hardware, and accessories as required for complete finished installation.
2. Material: Aluminum.
3. Finish: Kynar. Color to be selected.

SECTION 10410: Signage

1. Provide stair signage, exiting and disabled access signage as required by code and ADA.
2. Provide allowance for the following signage items (see Section 01020-Allowances):
 - a. Directional signage.

SECTION 10522: Fire Extinguisher Cabinets

1. Provide recessed fire extinguisher cabinets, rated where required. Larsen or equal. Painted finish.
2. Provide fire extinguishers – one for each cabinet; size and type as required by the Presidio Fire Department.
3. Re-use or remove and replace existing cabinets and extinguishers where possible.

SECTION 10800: Bath Accessories

1. Provide at new public and dressing room restroom:
 - Metal framed mirror at lavatories.
 - Soap dispenser at each lavatory.
 - Toilet paper holder at each toilet stall.
 - Grab bars at each accessible toilet stall.
 - Towel dispenser / trash receptacle: one at each bathroom. (See electrical drawings for electric hand dryers.)
 - One sanitary napkin dispenser at each Women's bathroom.
 - Baby changing table.
 - Toilet seat cover dispensers at each toilet stall.
 - Sanitary napkin disposal at each Women's toilet stall.
 - Hook at every toilet stall door.

DIVISION 11 EQUIPMENT**SECTION 11020: Security System**

1. Provide allowance. See Section 01020.

SECTION 11400: Food Service Equipment.

1. Refrigerator/BottomFreezer at Kitchen: Whirlpool GX5FHTXVY
 - a. Energy Star unit.
 - b. CFC free refrigerant.
 - c. Capacity: 25 cu. ft (8 cu ft. bottom freezer / 17 cu ft. top refrigerator).
 - d. Size: 36" deep x 10" high x 36" wide
 - e. 16 amps at 120 volts.

DIVISION 12 FURNISHINGS**SECTION 12481: Floor Grids**

Provide recessed aluminum floor mats at building entries where shown on drawings.

1. Mats Inc.; Design Track; 1/8" x 1" deep grid with 3/16" spacing; include recessed frame.
2. Finish: Clear anodized aluminum.

DIVISION 13 SPECIAL CONSTRUCTION**SECTION 13080: Sound and Vibration Control**

2. Wall assemblies at enclosed art studios to meet STC-50 acoustical rating.
3. Provide pipe lagging where plumbing lines run through ceiling in another room.
4. Provide sheet caulking "Lowry Pads" at all recessed electrical boxes in sound rated partitions: Firestop Putty Pads by Hevi-duty/Nelson or equal.
5. Mechanical equipment shall be vibration isolated per ASHRAE guidelines. See mechanical report.
6. Plumbing pipes at bathroom shall be resiliently attached to the structure using resilient mounts.

DIVISION 14 CONVEYING SYSTEMS**SECTION 14200: Elevator**

NIC. Information provided for future installation information. Provide electrical service to accommodate one (1) future elevator installation.

1. Type: Hole-less Service elevator with two door openings on opposite sides of cab.
2. Stops: 2-stop
3. Capacity 4,500 pound
4. Cab Size: 5'-8" x 7'-11" with 8'-0" ceiling; stretcher accessible
5. Speed: 100 feet per minute.
6. Basis of Design: Otis Elevator.
7. Cab Finishes: Textured stainless steel wall panels, stainless steel ceiling panels with eight halogen downlights, and stainless steel control panel and doors.
8. Provide system with bio-degradable hydraulic fluid.

DIVISION 15 - MECHANICAL**Section 15000: Mechanical and Fire Protection**

1. See Mechanical Report.

DIVISION 16 - ELECTRICAL**Section 16000: Electrical**

1. See Electrical Report.

SECTION 16500: Lighting

1. See Lighting Report.

SECTION 16700: Communications

1. See Electrical Report

STRUCTURAL SPECIFICATIONS

Fort Bragg Industrial Arts Center

Michael Butler, Engineer

General:

All construction shall meet the minimum requirements of the 2010 CRC, and of the 2010 CBC for aspects of this construction that are not addressed in the CRC.

All methods and trenching practices shall meet CAL OSHA requirements for safety.

Include any hardware or structural members shown anywhere, even if they are not shown in another detail or plan. Contact the engineer if required to resolve a conflict or an uncertainty.

All guards and railings shall be constructed to 2010 CRC requirements for safety and strength.

Foundation / Concrete:

All rebar shall be ASTM A 615 Grade 60.

Rebar clearance to excavations shall be 3" min; to formed exterior surfaces, 2" min; and to interior surfaces 1" min. Clearance at the bottom of slabs shall be 1 ½" min.

All rebar, anchor bolts, and anchor hardware shall be positioned securely prior to concrete placement. See Hold Down Schedule for footing requirements at hold down installations.

All concrete batching and construction shall be according to ACI-318 practices. All concrete and grout shall be 3000 psi minimum mix design – minimum 5 ½ sacks of cement per yard of concrete with ¾" rock, and 6 ½ sacks with ½" rock or pea gravel. Maximum 7 gallons of water per sack of cement - 5" slump maximum unless chemically plasticized.

Concrete mixture and water shall be free of sulfides. Calcium chloride shall not be used. All concrete in forms shall be placed with assistance from a vibrator.

Wood Framing:

All sawn lumber shall meet the grades specified on plans. Lumber not noted shall be DF-L #2 min. Architecturally exposed beams shall be "free of box heart". Glulam beams shall be 24F-V4 DF/DF, straight or 3000' radius camber, unless they have any cantilever ends or mid-supports, where they must be 24F-V8 DF/DF and straight, unless noted otherwise on plans. All LVL, PSL type (manufactured) beams must meet Fb of 2900 psi min and E of 2.0 million psi min. LP and Roseburg brands do not meet these requirements and may have to be sized larger for use at a given beam location.

I-joists shall be TJI brand by Weyerhaeuser.

Sheathing shall be nailed 3/8" min from panel edges; nail heads flush with panel surface. OSB panels of the same shear rating as the CDX plywood specified may be substituted. Framing members split by or at required fastening shall be replaced. Always place shear wall boundary nailing in the framing members fastened to hold downs, even if this is not at the edge of a panel. Where that boundary member is built up from multiple 2xs, then the boundary nailing must be in the member closest to the hold down. See shear wall schedule notes.

All diaphragm (floor, roof) nailing shall be minimum 8d common or equal, at 6" o.c. max at panel edges (on framing members) and over walls (into a rim or blocking), and at all diaphragm edges, unless noted otherwise. Field nailing is 12" o.c. max unless noted otherwise. Floor panels are to be installed with excessive amounts of exterior-grade construction adhesive, always. No squeaks.

Shear panel installation, and framing/blocking for shear panel nailing, is as follows, per the 2010 Shear Wall Schedule (attached?):

Longitudinal Walls

Shear panels at lower course of all walls, and for areas between clerestory windows shall be installed per symbol 7. All other portions of these walls shall be nailed or renailed per symbol 4. Existing mudsill increased anchorage is per the plan notes and retrofit detail #1.

Transverse Walls

Shear panels at the south exterior wall between openings, and mudsill anchorage, shall be installed per symbol 7. Above the openings may be nailed per symbol 5. Steel columns serve as holdowns for south openings.

At the interior transverse wall all shear panels, and mudsill anchorage, must be installed per symbol 8. Holdowns per plan notes.

Wood Connection Hardware:

All hardware, fasteners, and building materials shall be provided protection from corrosion and decay appropriate to the environment that they will be in. In addition to CBC requirements, the effects of coastal salt on metal hardware, and/or high humidity on wood shall be especially considered. Projects on coastal sites shall provide protection for all hardware and fasteners exposed to salt air according to the degree of exposure; this includes protecting truss connector plates in an attic space (per the options listed below). Specifically:

Anchor bolts and anchor hardware in a crawl-space, exterior or exposed environment shall be hot-dip galvanized per ASTM A-153. All anchor hardware, whether galvanized or not, shall not be left in unprotected contact with pressure-treated or redwood lumber. All metal hardware shall be isolated from contact with such lumber, with an applied barrier layer or coating such as urethane, polymer, epoxy, caulking, construction adhesive, or emulsified tar. This applies to washers, anchor bolts passing through mudsills, hangers, and all other steel hardware. Also, nail or screw fasteners, of required fastening, into such lumber shall be hot-dip galvanized, stainless steel, or of equivalent treatment. All exterior fasteners shall be stainless steel, unless other materials are approved by the designer. All stainless steel hardware requires like-material fasteners of the size specified by the hardware manufacturer.

All required anchor bolts shall be installed per the shear wall schedule and per notes and details specific to the project. In general, anchor bolts shall be 5/8" diameter and shall have 0.229" x 3" x 3" square-plate washers at the top of the mudsill. Anchor bolt spacing shall be per the minimum of the shear wall schedule, or relevant specific detail or note; otherwise 64" o.c. max for single story, and 48" o.c. max for two story construction. All sill plates require a bolt within a foot of each end, and a minimum of 2 bolts.

Hold down anchors shall be of ASTM A36 steel rod, or ASTM F1554 grade 36 min threaded rod (formerly A307), or Simpson Strong-Tie anchors. Utility "allthread" is not acceptable. All hardware specified is to be installed according to manufacturer's instructions, unless specifically indicated otherwise on plans/details.

Bolts and lag screws shall be full-body diameter per ANSI/ASME B18.2.1. Installations shall be pre-drilled appropriately for the relevant material. All heads or nuts bearing against wood shall have U.S. standard washers minimum (except anchor bolts, see above). All such fasteners exposed to the exterior in coastal zones shall be 18-8 stainless steel.

CS16 (continuous strap product) where noted, shall have standard tails that each reach the members requiring connection. Each tail must be 15" long minimum with 28- 8d common nails, or 13" long minimum with 22- 10d common or 16d sinker nails, unless a longer tail is noted. "HALF-CS16" is a length of CS16 with each tail of half the lengths and nails specified previously.

Structural Steel:

Steel Tubing shall be A500 Grade B.. Plates, bars, angles, anchor bolts and misc. steel shall be ASTM A 992, Grade 50, or may alternately comply with ASTM A 36. Pipe members shall be A53 Type E.

Bolts: Components of high-strength steel fastener assemblies for use in structural steel joints: Bolts: ASTM A 325, Type 1; Nuts: ASTM A 563; Washers: ASTM F 436, Type 1. All such fasteners shall be zinc coated per ASTM A 563, unless a higher corrosion protection is warranted by exposure to non-interior conditions.

Fabrication Methods:

Steel fabrication shall be done according to AISC Code of Standard Practice, except that shop drawings are not required providing that fabricator clarifies all understanding of construction drawings before commencing that work. All welding practices shall meet AWS D1.1 code. All welding electrodes and electrode-flux combinations must be 70 ksi.

All welds on this project are single-pass welds that can be inspected after completion.

All Demand Critical connections must meet the requirements of AWS D1.8. They must be welded with filler material having a CVN > 20 ft-lb @ -20°F, or AISC Seismic App. X. All backer bars must be removed with air-arcing, and any gouging shall be reinforced with weld, and a 5/16" fillet weld shall reinforce at backer location, if applicable. All seismic welding electrodes and electrode-flux combinations must meet the requirements for H16 (16 mL maximum diffusible hydrogen per 100 grams deposited weld metal) as required in Section 6.3.2 of AWS D1.8. Specifying a maximum hydrogen content helps to prevent hydrogen-induced cracking.

Portions of the work exposed to view shall be finished neatly. Shearing, flame cutting and chipping shall be done carefully and accurately. All sharp corners and edges shall be slightly rounded by grinding or other suitable means.

Continuous members shown on plans may not be substituted with welded-joint members unless approved by engineer.

All tube and pipe members must have the interior portion sealed for corrosion protection, if exposed to the environment.

Finishes:

Existing steel connectors, straps, bolts, etc, shall be sandblasted clean to accept primer per the paint manufacturer's requirements. Shield the adjacent wood etc with sheet metal. New steel must be prepared for paint adhesion per the manufacturer's requirements.

All ungalvanized structural steel shall be painted with *PPG Dimetcore 320H* inorganic zinc primer, applied according to the paint manufacturer's specifications. Steel exposed to weather shall be finish painted with a UV-resistant urethane paint compatible with the primer. Steel exposed only to the interior may be finish painted with an enamel paint, or other equivalent product, that is compatible with the primer, according to the paint manufacturers.

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SHEAR WALL SCHEDULE

SYMBOL	SHEAR VALUE ①	PANEL MATERIAL ①	BOUNDARY NAILING ② ③			MUDSILL & BOLTS ④		SHEAR TRANSFER THRU PLATE/RIMS ⑤				NOTES
			B.N.	COM	BOX	2x4/ 1/2"	2x6/ 5/8"	16d BOX	A35/ LTP4	1/4" LAG	1/4" SDS	
①	180	3/8" CDX/ 5/8" T1-11	6"	6d	8d	48"	64"	12"	N/A	N/A	N/A	
②	270	3/8" CDX/ 5/8" T1-11	4"	6d	8d	32"	48"	6"	40"	16"	20"	
③	350	3/8" CDX/ 5/8" T1-11	3"	6d	8d	24"	36"	5"	32"	12"	16"	⑥
④	250	15/32" STRUC I	6"	8d	10d	32"	48"	8"	48"	16"	24"	
⑤	350	15/32" STRUC I	5"	8d	10d	24"	32"	5"	32"	10"	16"	⑥
⑥	430	15/32" STRUC I	4"	8d	10d	--	24"	4"	24"	8"	12"	⑦
⑦	550	15/32" STRUC I	3"	8d	10d	--	20"	3"	20"	6"	9"	⑦
⑧	730	15/32" STRUC I	2"	8d	10d	--	16"	--	14"	5"	7"	⑧
⑨	340	15/32" STRUC I	6"	10d	16d	24"	36"	6"	32"	12"	16"	⑥
⑩	510	15/32" STRUC I	4"	10d	16d	--	24"	4"	20"	8"	10"	⑦
⑪	665	15/32" STRUC I	3"	10d	16d	--	18"	--	16"	6"	8"	⑧
⑫	870	15/32" STRUC I	2"	10d	16d	--	12"	--	12"	4"	6"	⑧

B+S Shown at any shear wall symbol indicates "Block and CS16 Strap" the header and sill at each opening can be either side of shear wall. 24" min strap, 8" min tail at header or sill, and 16" min tail at blocking.

NOTES

-- Indicates that this shear transfer fastening won't work for the shear loading.

READ THESE NOTES

- ① These allowable values are for unfactored seismic loads. For wind loads these may be increased 30%
- ① For 3/8" STRUC I panels shown the framing must be at 16" max o.c., otherwise use 15/32" panels. In any case, 15/32" min plywood is recommended. For stud spacing over 16", field nailing must be at 6" o.c. "STRUC I" panels may not be substituted with CDX or other non-Struc I panels. This is a requirement of the 2010 CBC.
- ② Spacings indicated are for all panel edges, 3/8" min from any edge. Nail heads must be flush with the panel surface. Field nailing is 12" o.c. max spacing. All values of this table are for Douglas Fir framing. Mudsill must be PTFD. Nails into PTFD must be galvanized. Electro galvanizing does not subst for COM nail.
- ③ BN must always be in the same member, or built-up member, attached to the hold down, even if this member is not at a shear panel edge. HOLD DOWNS ARE USELESS WITHOUT BOUNDARY NAILING.
- ④ Anchor bolts must have at least 7" embedment into concrete, and each must have 0.229" x 3" x 3" min plate washer over sill. 1/2" min dia bolts with 2x4 sills, 5/8" dia with 2x6 sills. PTFD mudsill only. Anchor bolts must be centered along the mudsill typical, unless shown otherwise on project-specific details. These anchor bolt spacings are for sills the same length as shear walls above, such as for slab-on-grade. Continuous, longer foundation ponywalls can have lower shear values and larger spacings between bolts, where shear wall plans show a symbol for that ponywall. All hardware must be protected from corrosion by isolating steel from treated lumber - see general notes. 4x4 mudsill may subst for 2x6.
- ⑤ For shear transfer through framing where not taken care of by shear panels, such as where interior shear walls connect through floor framing or where shear wall connects to roof. All fastening methods are via 2x min members of DF. Nailing must penetrate 1.5"; LAG, SDS threads penetrate 2" min. Lags be predrilled properly to thread without splitting. A35 and LTP4 to be installed per Simpson Strong-Tie. "Full body diameter" lag screws per ANSI/ASME B18.2.1-1981, rolled thread screws have reduced values. A35, LTP4, LAG & SDS spacings require 16d box in addition: 12" o.c. face nailing or 8" o.c. toe-nailing. 16d spacings shown are for face nailing only. Only ① may use only toe-nailing: 16d @ 8" o.c.
- ⑥ 4x min blocking required at shear panel horizontal joints, for lower shear walls of 2-story buildings.
- ⑦ 4x framing required at all shear panel joints, with nailing staggered. 2x6 mudsill is OK. Double 2x6 stud may substitute for 4x, if 2x6 studs are nailed together with 2 rows of 16d box @ 8" o.c. each row. Blocking at panel joints may not be double 2x, it must be 4x.
- ⑧ 4x framing required at all shear panel joints, with nailing staggered. No Substitutions. 2x6 mudsill is OK.

**Fort Bragg Industrial Art
Complex**

**Leddy Maytum Stacy
Architects**

**MEP Schematic Design
Narrative**

engineering **350**

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1 Project Description

The project consists of the adaptive reuse of a 1960s era wood drying shed building. It will be transformed into an industrial and fine artists work space. Partial height interior partitions will be used to create interior spaces. The perimeter spaces will be enclosed with a hard lid while the interior spaces will be open to the high bay space. The scope includes the fit out of approximately 30,000 sf of the 60,000 sf existing dry shed. LEED certification is desired.

1.1 *Applicable Codes and standards*

The design and construction shall be in accordance with the latest revision/edition of the following referenced codes and standards. The term "Latest Revision/Edition" is defined as the version as of the project award date.

Californian Building Code, 2010.
Californian Mechanical Code, 2010.
Californian Plumbing Code, 2010.
SMACNA, Duct Construction Standards.
City of Fort Bragg Municipal Building Code

2 Mechanical

2.1 *Introduction*

The mechanical systems shall be designed to provide a cost effect fully functional heating and ventilation system, enabling optimized performance, minimized maintenance and energy costs.

2.2 *Design Basis*

Hot water will be generated by a high efficiency 300 MBH propane gas fired condensing water boiler located in a new mechanical room inside the building. The boiler shall have a minimum of a 10:1 turndown ratio and will be direct vent type via stainless steel exhaust and air intake pipes per manufacturer's UL listed recommendation. Two (2) heating water pumps, operating in a lead lag arrangement, will distribute hot water to the radiant floor manifolds and the tenant heating hot water loop. Heating piping will be Schedule 40 steel, or Type L copper piping, fully insulated.

The boiler heating hot water system will also be supplemented by 1,300 SF array of solar hot water panels tied to two (2) 2,100 gallon solar hot water storage tanks. The panels shall be mounted on the canopy located over the southern entrance doors and the tanks will be located outdoors near the south entrance as well. The tanks are to be fully insulated. The solar hot water is to be pumped to the mechanical room shall be pumped to the mechanical room from the tanks.

The public space and interior studios without ceilings will be heated via a radiant floor system in a new slab. The enclosed perimeter tenant spaces will be provided with HHW lines via a separate piping loop with an elevated heating hot water temperatures at 140F. The public area radiant floor to be controlled as one zone with multiple temp sensors throughout the space and in the slab. Each tenant space shall be controlled by its own actuator to provide individual thermal zones.

Based on this heating arrangement and a building usage of 7am to 6 pm, it has been approximated that the annual space heating energy use will equate to 10,700 therms.

ADD ALT: An add/alt shall be priced for the option of providing the space heating systems for each enclosed perimeter tenant space. Each enclosed tenant space to be heated with a baseboard radiator system. It should be assumed that each room in the tenant space shall have its own baseboard radiator and temperature controls.

2.3 Design Criteria

2.3.1 Site Information

Location: Fort Bragg, CA.
Latitude: 39.5°N
Longitude: 122.8°N
Elevation: 80ft

2.3.2 External Design Criteria

- Summer: 67°F DB/59°F WB
- Winter: 29°F DB

The external design temperatures are based on 0.5% design cooling day and Winter Median of Extremes data as published in ASHRAE SPCDX, Climate Data for Fort Bragg, California:

2.3.3 Ventilation Design Criteria

Public Spaces and studios without ceilings to be ventilated via (12) 4,000 CFM rooftop exhaust fans removing warm stratified air from the space at high level. These fans are to be sized and selected for acoustical sensitivity. Fresh air will be provided to the public space via (1) 2.5'x4' operable hopper windows per bay – a total of 24. These shall be occupant controlled via a switch at low level.

ADD ALT: An alternate shall be priced providing automated controls for the opening of the hopper windows based on temperature within the space.

The enclosed tenant spaces will be provided with (2) louvers on the façade at each bay – (1) for intake air and (1) for exhaust air.

ADD ALT: An alternate shall be priced in which a ducted ceiling supply fan in each enclosed tenant space will provide the required ventilation air to the space via duct mounted diffusers.

All Restrooms shall be exhausted at a minimum rate of 10 Air Changes per Hour via dedicated exhaust fans ducted up to the roof.

ADD ALT: A Woodshop exhaust system comprised of an outdoor dust collector and exhaust fan will be required on the exterior of the west side of the building. The requirements for this system shall be determined as more information for the tenant needs is understood.

2.4 T24 Compliance Approach:

The heating system shall be designed to provide a maximum of 10 Btuh/sf of active heating to the space. The space is thus classified as unconditioned per Title 24 Section 100/c/(2) and 101 thus the prescriptive Title 24 envelope requirements are not applicable. A thermal comfort study (Appendix 1) predicts the internal temperatures within the space. The boiler output of 10 Btuh/sf will be increased by the solar hot water system to increase space temperatures.

Title 24 Section 100/c/2 and Section 101:

All conditioned space in a floor shall comply with Title 24, Part 6, whether or not the floor is above grade and whether or not it is habitable. All unconditioned space in a floor shall comply with the lighting requirements of Title 24, Part 6, whether or not the floor is above grade and whether or not it is habitable.

CONDITIONED SPACE, DIRECTLY is an enclosed space that is provided with mechanical heating that has a capacity exceeding 10 Btu/hr-ft², or is provided with mechanical cooling that has a capacity exceeding 5 Btu/hr-ft², unless the space-conditioning system is designed for a process space. (See "process space")

2.5 HVAC Noise Criteria

Common Spaces/Lobby	TBD
Classrooms	TBD
Tenant Spaces	TBD

An acoustical consultant should confirm the above levels as well as the criteria type.

3 Electrical

3.1 Codes & Regulations

The electrical installation will comply with the following codes and standard codes, latest edition:

2010 California Building Code

2010 California Electrical Code

2010 California Fire Code

Fort Bragg Fire Department Requirements

California Code of Regulations (CCR), Title 24 Building Standards

American National Standards Institute (ANSI)

Institute of Electrical and Electronics Engineers (IEEE)

Illuminating Engineering Society of North America (IESNA)

National Fire Protection Association (NFPA)

National Electrical Manufacturers Association (NEMA)

Underwriters Laboratories (UL)

American with Disabilities Act (ADA)

Pacific Gas & Electric (PG&E) Utility Construction Standards

City of Fort Bragg Municipal Code

3.2 General

The electrical system will include:

Lighting (interior and exterior)

Power (120/208V 3 phase, 4-wire)

Fire Alarm

Telecommunication (cable tray only)

3.3 Design Loads

The following is a summary of the preliminary load estimation of the building. Note the calculation shows the total building area. Any negotiation with PGE will be based on full building fit out load. At their discretion PGE may provide a transformer limited to the initial phase but they will require a load estimate for the complete building. The loads below can be halved for the initial phase.

SPACE	AREA(SF.)	Type of Loads	VA/SF	TOTAL VA
Tenant Space	60,000	HVAC	4	240,000
"	60,000	Lighting	1	60,000
"	60,000	Plug Loads	2	120,000
	TOTAL VA			420,000
			1.25 SPARE	525,000
			@208/120V, 3-phase, 4 wire	1,450A
			Service	1500A

3.4 Main Distribution

The existing service enters the building overhead at on the east side of the building. The size and voltage is to be verified in a future phase of the project. It is currently assumed that the service available is 208/120, 3-phase. It is also assumed that a new service will be required at the site due to increased load requirements in the building.

The main electrical room shall contain the main switchgear with 100% rated draw-out type low voltage power circuit breakers with adjustable trip function and ground fault protection. The new switchgear will be front accessible. The main switchgear will be rated at 1500, 208/120V, 3-phase, 4-wire and will be located inside the building in a ventilated electrical room. The main electrical room will have an approximate dimensions of 20'x24' located on the north-east side of the south wing and will house the main house panel and Phase 2 panels and sub meters. The sub electrical room located on the west side of the building shall house the Phase 1 sub panels and sub meters. Panelboards will have hinged doors for ease of maintenance.

A cable tray will be provided running down the two public circulation aisles at high level. These will be used for each tenant to run power to their tenant space. A shielded section shall be provided on the cable tray for tenant pull data/telecom.

House metered receptacles to be provided on circulation of walls of common areas.

BASE BID: In tenant spaces the internal sheet rock on the tenant side of walls will not be installed until after tenant move-in to allow tenant to pull wire and provide their power and data receptacles.

ADD ALT: An alternate shall be priced in which all tenant power and data/telecom conduit and cable is provided and installed for both Phases 1A and 1B. This alternate shall also include the finishing of tenant spaces (receptacle/data outlet installations and interior walls furred and painted)

as well as installation of tenant lighting. Base bid to include power, telecom, and finishes at all public spaces, administrative, and support areas.

3.5 Grounding System

A central grounding system will be provided for all the switchgear. All grounded busses from switchgear, transformers, busways, panelboards will be connected at a central ground bus in the electrical room.

3.6 Lighting

The lighting levels will be designed to take advantage of day lighting and in accordance with illuminating Engineering Society (IES) recommendations. Prismatic skylights (Sunoptics or equal) will be used to optimize daylight in the space. Skylight are to be equal to 4% of the overall roof area.

The lighting design scheme consists of general lighting providing a minimum of 10 foot candles throughout the building. These fixtures will be located at high bay level and will have a mechanism to lower fixture for lamp replacement. Battery packs shall be provided on the fixtures required to provide the required egress lighting levels. Exit signs will be LED type.

ADD ALT: An alternate shall be priced in which a secondary low level grid support system will be provided over the open ceiling tenant spaces for the tenant to hang linear fluorescent lights for increased illumination levels when required. The lighting for the enclosed studios shall also be provided by the tenant and be ceiling mounted. All tenant lighting shall wired from each tenant meter.

The lighting power density will be less than that mandated by California Code of Regulations (CCR), Title 24-Energy Conservation Regulations. The following lighting levels will be provided:

Maintained Lighting Levels At The Work Plane

Room	(Foot Candles)	Type/Hanging Type
Enclosed Studios	20-30	T5 Linear Fluorescent/ Ceiling Mounted
Open Top Studios	20-30	T5 Linear Fluorescent/Support Grid
Lobby	20-30	T5 Linear fluorescent/Pendant Mounted
Corridors	15-20	T5 Linear Fluorescent/Wall Mounted
Storage/Janitor's Rooms	20-30	T5 Linear Fluorescent/Ceiling Mounted
Toilets	15-25	T5 Linear Fluorescent/ Ceiling Mounted
Elec/Mech. Rooms	20-30	T5 Linear Fluorescent/ Ceiling Mounted

3.6.1 Lighting Controls

A programmable lighting control system will be provided to allow on/off control of all non emergency lighting circuits. Day-lit areas will have dimming ballasts on light fixtures to allow daylight controls. Lighting control will allow voluntary load shedding at times of peak demand. All administrative spaces, kitchen, and bathrooms will be equipped with occupancy sensors.

3.6.2 Outdoor Lighting

Outdoor lighting shall be mounted on the exterior of the building and located at every fourth bay around the full length of the building. Fixtures shall be high intensity discharge and will be

controlled by photocells and time switch. Building entries and pedestrian ways shall be lighted for appropriate image, safety and security.

3.7 Fire Alarm System

An addressable fire alarm system will be consist of the following:

A main fire alarm control panel located in the main electrical room.

The entire building will have area smoke detection. Smoke dampers will be controlled by area smoke detectors.

Audio alarms will be located to be heard throughout the building and visual alarm stations will be provided along all egress routes, toilet areas, lobbies and other areas of assembly.

Pull stations will be provided along egress routes

All wiring used for life safety and fire alarm system will be installed in metal raceways. The system will also be linked to the sprinkler flow switches and valve monitors.

4 Plumbing

4.1 General

The plumbing system will be designed in accordance with the recommendations of the Californian Plumbing Code, 2010 and CAL Green 2010. Where more stringent requirements are called for, these requirements will be followed.

Plumbing systems for the addition include sanitary sewer and vent, roof drains and rainwater piping, domestic cold water and hot water, and propane gas supply piping inside the building.

Plumbing utility piping beyond 5 feet outside the building will be designed by the project Civil Engineering Consultant.

4.2 Plumbing Fixtures

Fixtures will be provided as required by the architectural layouts and will be selected to comply with Owner requirements.

Plumbing fixtures will be commercial quality with water conserving technologies to meet the CALGreen 2010 requirements.

Water closets shall be dual flush 1.28 gallon per flush. Urinals shall be 1/8 gallons per flush. All fixtures will be wall hung. Metering faucets with 0.2 gpm flow control aerators, fully complying with ADA and other relevant regulations will be used at lavatories. Kitchen and utility faucets shall be 1.8 gpm max. Utility sinks to include filtering system for silt and debris.

4.3 Water Supply

Based on the preliminary fixture count, a new 2.5" cold water main shall be provided. A new water meter for domestic cold water and backflow preventer (to protect the domestic water system) complete with necessary accessories is required. The new service location is to be taken from a

new water main located along the future roadway east of the building. The service is to enter the building from the east side at the NE corner of phase 1. See civil drawings for exact location.

All new plumbing fixtures will be connected to the domestic water system. Vacuum breakers will be installed on hose bibs and backflow devices to makeup water to mechanical equipment.

Common area (2) oversized utility sinks shall be located near perimeter walls where shown on plans for ease of water and sanitary connections. It is assumed that tenant spaces will not require dedicated water supply. Hose bibs to be located next to entrance and exit doors (6 locations total).

All cold water lines exposed to ambient outdoor temperatures shall be insulated with the required insulation prescribed by the California Energy Commission Title 24. Water shock absorbers shall be provided and located in all water lines serving quick closing valves and at restroom water fixtures. Access panels shall be provided for periodic inspections, which shall be shown on the working plans.

Domestic water piping shall be copper, Type L with solder fitting for pipe 2" and smaller and brazed joints 2-1/2" and larger.

4.4 Domestic Hot Water System

Instantaneous electric hot water heaters will generate the domestic hot water for all lavs and sinks. All counter lavatories and sinks shall be serviced by tempered 105°F hot water. The solar hot water shall be piped from the canopy to the instantaneous heaters.

Domestic hot water piping shall be insulated in accordance with California Title 24 Energy Code. Where more stringent insulation requirements are called for, these requirements will be followed. Hot water supply and drainpipe of ADA accessible lavatories shall be insulated.

4.5 Propane Gas

A 5,000 gallon propane tank shall be located at 25 feet from the building or at 10 feet from the building if located below grade per NFPA 58.

The new heating hot water boiler shall be served by the propane gas system. Propane gas shall also be provided to the common kitchen area.

4.6 Sanitary Waste and Vent

See civil drawing for location of new sanitary main serving the building. It is planned to enter the building on the east side at the NE corner of Phase 1. Based on the preliminary fixture units a 4" sanitary line will be required.

All fixtures shall be trapped and vented to the atmosphere. Plumbing fixtures below grade shall be drained by a gravity drainage line.

Floor drains shall be provided in toilet rooms. Trap primer connections shall be in place and provided above the floor and at infrequently utilized floor drains. Proper spacing and accessibility for all cleanouts shall be installed.

Sanitary waste and vent piping shall be cast iron with stainless steel couplings or DWV copper with solder joints.

4.7 Storm Drainage

All storm drainage gutters and leaders shall be replaced. Repair or replace surface runnel piping that runs along the east and west side of the building and connect to existing storm drain shown on Civil drawings.

5 Fire Protection

5.1 General

5.1.1 Sprinkler Flow Requirement

The building will be protected by a Class 1 standpipe system and a hydraulically calculated automatic wet sprinkler system based on extra hazard group 1 level. The F-1 occupancy determines the sprinkler flow. An area of 2,500 sf has been used as the fire flow area. With an estimated fire flow of 1,250 GPM. The hydrant flow test indicates a flow rate of 888 GPM and residual pressure of 28psi. The fire main line cannot reach below 20 psi, therefore a fire pump will be required.

5.1.2 Building Fire Flow Requirement

Per Table B105.1 of the California Fire Code a 60,000 sq.ft. Type V-B building requires a fire flow of 6,500 GPM for 4 hours. A reduction of 75% can be taken for sprinklered buildings resulting in a fire flow of 1625 GPM. The city system can provide about 1,000 GPM hence the resulting fire water storage required is $((1,625 \text{ GPM} - 1,000 \text{ GPM}) * 4\text{hrs} * (60\text{min/hr}))$ 150,000 Gallons.

5.1.3 Fire Water Storage Options

Option 1: A pond located 860' northwest of the proposed building will act as the required storage. The condition and size of the fire pond is to be verified. This option would require a pumping system rated at 700 gpm. 900' of underground 6" piping from the pond to the building will be required. This pipework shall be connected to the city fire lateral shown in the civil plan and shall be equipped with a backflow preventer and check valve. Filtering of the pond water required is to be verified.

Option 2: A new above ground 30'x30'x25' storage tank located east of the building shall provide the required 150,000 Gallons of storage. This option would also require a pumping system rated at 700 gpm. Depending on where the tank is located, approximately 100' of underground 6" piping from the new tank to the building fire lateral will be required. This pipework shall be connected to the city fire lateral shown in the civil plan and shall be equipped with a backflow preventer and check valve.

5.1.4 Sprinkler System

The project will include a complete building automatic sprinkler system subject to the approval of the Fire Marshal.

BASE BID: The existing sprinkler piping at the ceiling of the shed building is to be re-used with new heads located as determined by the sprinkler design/build contractor. The enclosed

studios will require a new sprinkler line at the lower level ceiling height to serve each enclosed space. The open studios shall be sprinklered by the high level piping.

A pressure test of the existing sprinkler piping system to be provided in order to determine piping that requires replacement.

ADD ALT: An add alt shall be provided assuming that all of the existing sprinkler piping will need to be replaced.

Appropriate drainage for the system will be provided to allow for flushing of piping and the periodic testing of the system.

The final incoming fire protection line sizes will be subject to the fire protection system design-build contractor hydraulic calculations. All fire protection requirements including fire hose, automatic sprinklers, fire hydrants, flow demands, approval of detector check valve, fire main, and fire department connections will need to be determined with the Fort Bragg Fire Department and be checked/approved by the Fire Marshal.

5.2 Utility Connection

A new 6-inch fire protection water service line for the building fire protection systems will enter via a double detector check valve assembly located outside of the building near mechanical room at the NE corner of Phase1 (See C.1 for exact location). Fire mains will be connected to the site main. A post indicating valve and fire department pump connection will be installed within a dedicated room at the point of connection at the NE corner of Phase1.

5.3 Codes and Standards

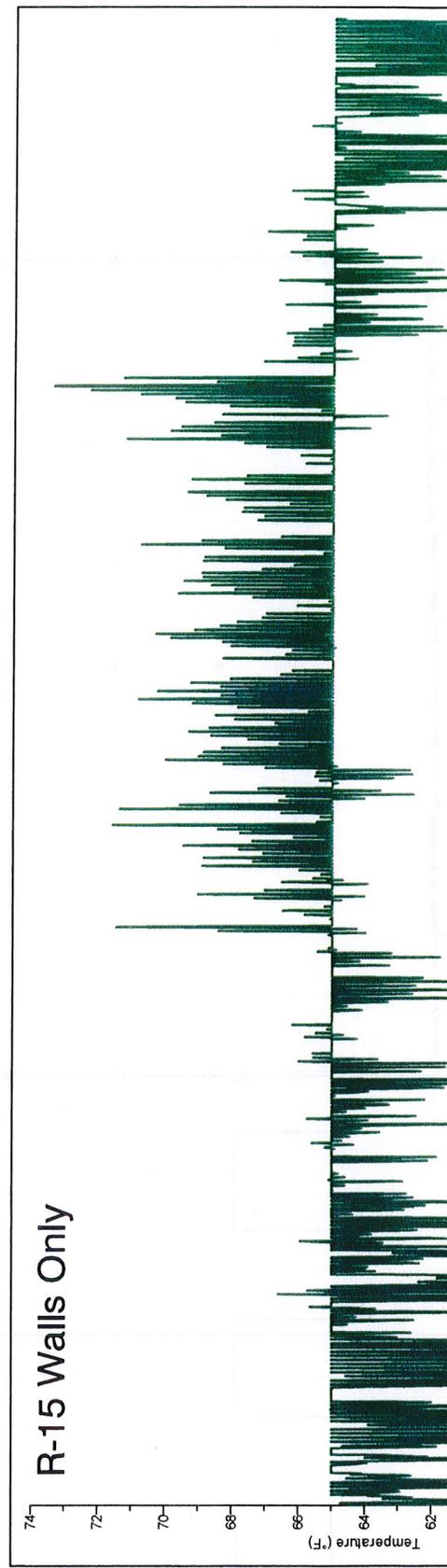
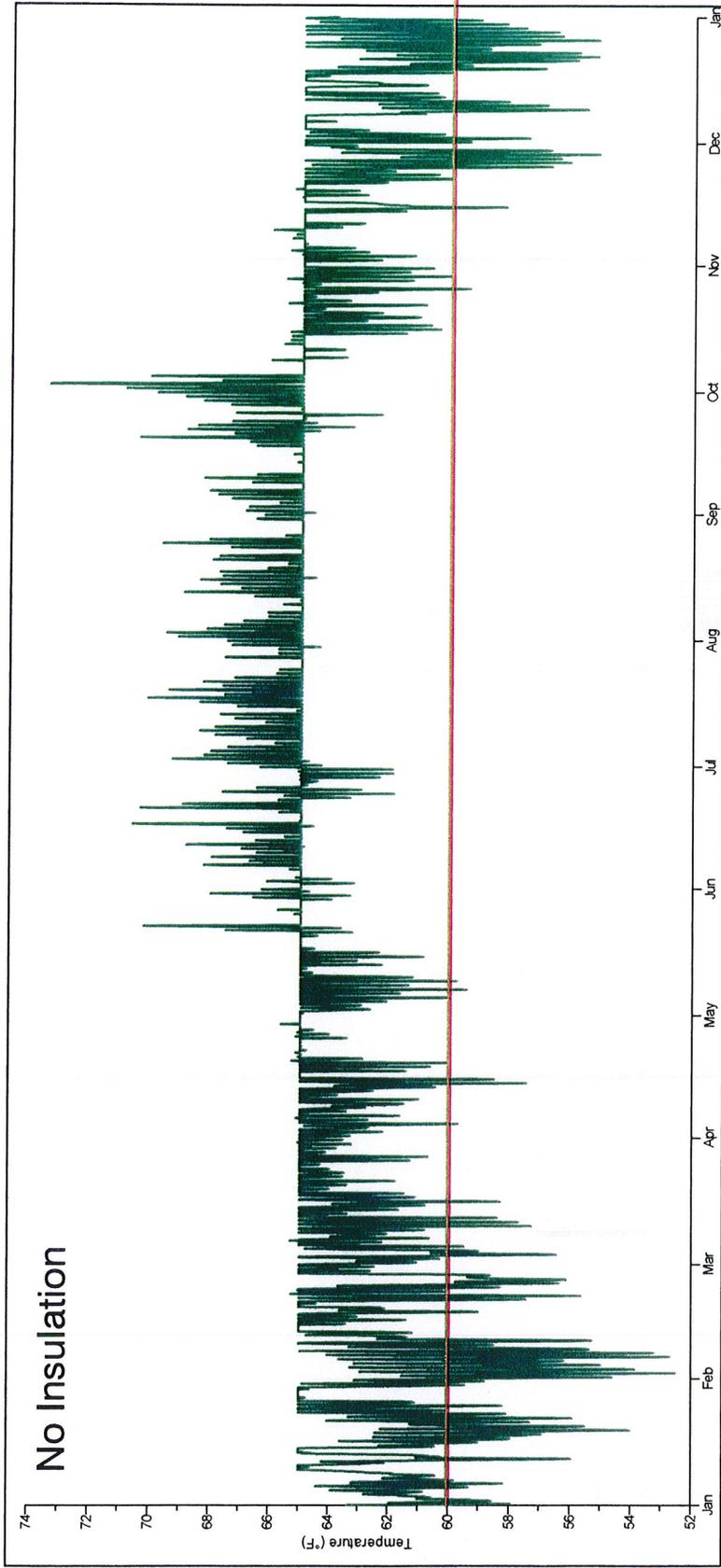
The fire protection systems will be designed in accordance with the following:
Californian Plumbing Code, 2010.
National Fire Protection Association (NFPA), latest edition.
City of Fort Bragg Municipal Code.

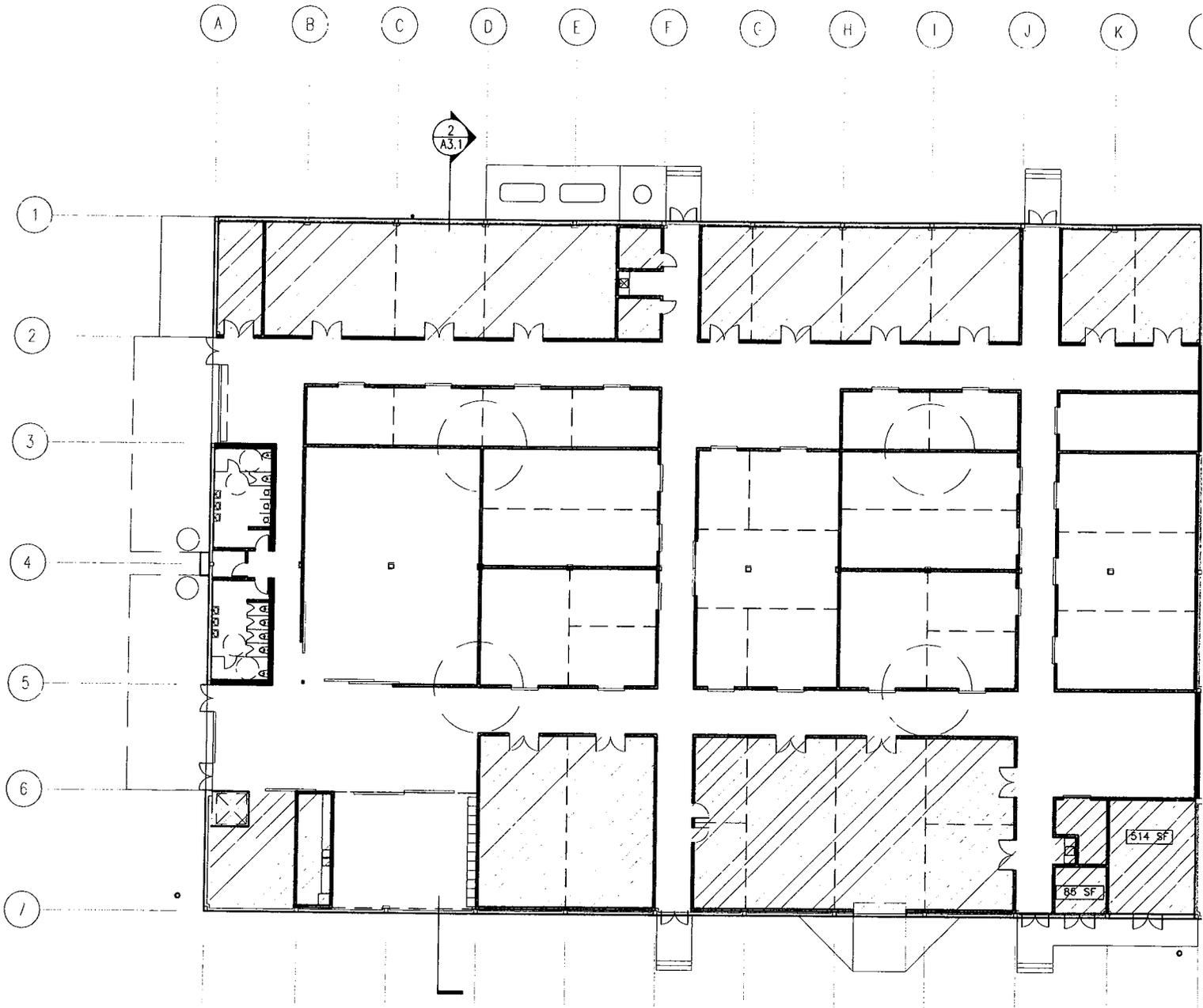
6 Appendix

6.1 Preliminary Thermal Comfort Study

6.2 Schematic MEP Diagram

Appendix 1: Fort Bragg Industrial Arts Thermal Study Annual Internal Space Temperature with 10 Btuh/SF Heating System





1 FLOOR PLAN
A2.1