



Total Project Cost Calculation

Project: Chemistry Modular
Project Number: no number
Date: 11/26/2013

Statistics

Building Gross Square Feet: 160 sq. ft. 8 x 20
 Site Area, Square Feet: xx
 A/E Fee Class: xx
 A/E Basic Fee Percentage: %
 Tax Rate: %

	Guide	Cost	Total Cost
Acquisition Costs			
Purchase/Lease		\$ -	
Total Acquisition Costs		\$ -	0.00

Consultant Services

Pre-Schematic Design Services

Rough Order of Magnitude 0.00
 PreDesign 0.00

Total Pre-Schematic Costs		\$ -	\$ -
----------------------------------	--	-------------	-------------

Basic Services

A/E Basic Services to Bidding 71% \$ 5,112.00
 A/E Basic Services to Closeout 29% \$ 2,088.00

Total Basic Costs		\$ 7,200.00	\$ 7,200.00
--------------------------	--	--------------------	--------------------

Extra Services

Acoustical Consultant \$ -
 Bid Alternatives allow \$ -
 Civil Design (above Basic) \$ -
 Communications Consultant \$ -
 Constructibility Review Participation \$ -
 Constructibility Review/Plan Check \$ -
 Consultant Selection Cost \$ -
 Design-Code Plan Check \$ -
 Design - Program Changes \$ -
 Document Reproduction \$ 200.00
 Door Hardware Consultant \$ -
 Electronic/Audio Visual Consultant \$ -
 Elevator Consultant \$ -
 Energy Conservation Report/ LEEDS \$ -
 GCCM Support/Selection Review \$ -
 Geotechnical Investigation \$ 3,000.00
 Graphics \$ -
 Regulated Materials Consultant \$ -
 Hospital/Laboratory Consultant \$ -

Indoor Air Quality Consultant	\$	-		
Interior Design/Furnishing Consultant	\$	-		
Kitchen Consultant	\$	-		
Landscape Consultant	\$	-		
Other	\$	-		
Quality Control Consultant	\$	-		
Permit Expediter	\$	-		
Renderings, Presentations & Models	\$	-		
Security Consultant	\$	-		
Site Survey	\$	-		
Wetland Survey	\$	-		
Thermal Scans	\$	-		
Transportation Consultant	\$	-		
Move Coordination				
Travel and Per Diem	\$	-		
Value Engineering Study	\$	-		
VE Participation	\$	-		
Voice and Data Consultant	\$	-		
Electrical/Lighting Consultant	\$	-		
Mechanical Consultant	\$	-		
Structural Consultant	\$	3,500.00		
Construction Phasing/Early Bid Package	\$	-		
Partnering	\$	-		
Equipment Coordination and Design	\$	-		
Total Extra Costs	\$	6,700.00	\$	6,700.00
Other Services				
Reimbursables	\$	-		
As-Builts	\$	-		
Commissioning and Training	\$	-		
Construction Support	\$	-		
Cost/Scheduling Consultant	\$	-		
Environmental Mitigation Services	\$	-		
HVAC Balancing	\$	-		
On-Site Representative	\$	-		
Other	\$	-		
Attorneys/DRB	\$	-		
Testing	\$	-		
Total Other Services	\$	-	\$	-
Design Services Contingency				
Change Order Design Allowance	\$	500.00		
Design Contingency	\$	-		
Total Design Services Contingency				
Construction Contracts				
General Construction (MACC)	\$	30,000.00		
Purchasing Fee	5% \$	40,000.00	\$	2,000.00
Estimating Contingency	5% \$	40,000.00	\$	1,500.00
Power, Data, and Water Utility connections	\$	10,000.00		
City Utilities Relocation	\$	-		
Parking Mitigation	\$	-		
Stormwater Detention	\$	-		
Wetland Mitigation				
Regulated Materials Removal	\$	-		
Total Construction Contracts	\$	43,500.00	\$	43,500.00

Other Construction Contracts

Telecommunications Cable Plant			\$	2,000.00		
Moving Costs			\$	1,000.00		
Other						

Total Other Construction Contracts			\$	3,000.00	\$	3,000.00
---	--	--	----	-----------------	----	-----------------

GCCM or Design Build Costs

Preconstruction Services			\$	-		
Fee			\$	-		
Specified General Conditions			\$	-		
GC/CM Risk Contingency Cost			\$	-		
Negotiated Support			\$	-		
Other			\$	-		

Total GCCM or DB Costs			\$	-	\$	-
-------------------------------	--	--	----	---	----	---

Construction Contingencies

Management Reserve	2%	\$	40,000	\$	800.00	
Allowance for Change Orders	10%	\$	40,000	\$	4,000.00	
Change Order Design Fee	4%	\$	4,000	\$	160.00	
Construction Retainage				\$	-	

Total Construction Contingencies				\$	4,960.00	\$	4,960.00
---	--	--	--	----	-----------------	----	-----------------

Sales Tax

Sales Tax on MACC	9.50%	\$	40,000	\$	3,800.00	
-------------------	-------	----	--------	----	----------	--

Total Sales Tax				\$	3,800.00	\$	3,800.00
------------------------	--	--	--	----	-----------------	----	-----------------

Artwork

Artwork				\$	-	
---------	--	--	--	----	---	--

Total Artwork				\$	-	\$	-
----------------------	--	--	--	----	---	----	---

Other Costs

Advertising				\$	200.00	
Metro Connection Fees				\$	-	
Environmental Mitigation Fees				\$	-	
Financing Costs				\$	-	
In-Plant Services						
Utilities/Temporary Services				\$	-	
Security Services				\$	-	
Master Use Permits (Owner)				\$	-	
Building Permit				\$	3,500.00	
Other Permits						
Performance and Payment Bond						
Claims Review Board				\$	-	
Builders Risk				\$	-	
Connectivity (UW IT)				\$	1,000.00	
Other				\$	500.00	

Total Other Costs				\$	5,200.00	\$	5,200.00
--------------------------	--	--	--	----	-----------------	----	-----------------

Project Management

CPO Project Management	12%	\$	80,000	\$	9,600.00	
------------------------	-----	----	--------	----	----------	--

Total Project Management				\$	9,600.00	\$	9,600.00
---------------------------------	--	--	--	----	-----------------	----	-----------------

TOTAL PROJECT COST						\$	83,960.00
---------------------------	--	--	--	--	--	----	------------------

Quantity	Dimension	Equipment
1		Oil Container
1		HDPE Container
2		Container top
	25 ft	HDPE Pipings
2		Wheel podium
8		Storage Container
6		Banjo junctions
6		Banjo junctions
-	-	Total

Quantity	Dimension	Items
1		Stainless Steel Drum
2	5 gallons	Methanol
1	6 kg	KOH
0		Turner Reactor
-	-	Total

Quantity	Dimension	Items
1		Spray dryers
1		storage drum
0		Sandy Brae equipment
-	-	Total

Quantity	Dimension	Items
4		globe valves
20		plastic tubing
1		Diaphragm pump
2		pressure gauges
2		flow meter
1		stainless steel tube

1			pipe fittings, o-rings, gaskets, etc
2			80 micron mesh filter
1			ArborPure
1			DW-R10 dryer max lite thing
-	-		Total

Quantity	Dimension		Items
1			HPLC Column*
1			Centrifuge
1			Hydrometer
			Capillary tip centrifuge tubes
1			Pipettes
1			Test Tube Rack
1			Conical Centrifuge tubes
1			Glass Test tubes
1			Fine Steel Wool
			Petroleum Ether
1			GPO Trinder Reagent (Triglyceride)
1			various chemicals
-	-		Total

Collection/Filtration E

Specs	Cost/unit	Total Cost (\$)
Stainless Steel	\$210.00	\$210.00
	\$120.00	\$120.00
partial opening w/ locks	\$8.49	\$16.98
flexible	\$2.75	\$68.75
4 wheels for transport	\$31.77	\$63.54
HDPE or stainless	\$98.44	\$787.52
Female	\$10.00	\$60.00
Male	\$5.00	\$30.00
-	-	\$1,356.79

Alcohol Budget

Specification	Cost/unit	Total Cost
10Gal	\$102.69	\$102.69
5 Gallons buckets	\$73.50	\$147.00
KOH pellets	\$39.25	\$39.25
	\$7,659.00	\$0.00
-	-	\$288.94

Pretreatment

Specification	Cost/unit	Total Cost
Premade	\$399.99	\$399.99
55 HDPE gallon	\$104.05	\$104.05
Water Test	\$186.99	\$0.00
-	-	\$504.04

Dry wash

Specification	Cost/unit	Total Cost
	\$17.00	\$68.00
	\$2.04	\$40.80
	\$442.75	\$442.75
up to 100 psi	\$10.00	\$20.00
	\$54.00	\$108.00
6" OD 4' 304 stainless	\$398.83	\$398.83

	\$150.00	\$150.00
	\$20.00	\$40.00
30 lb bag	\$30.00	\$30.00
50lbs	\$412.50	\$412.50
-	-	\$1,710.88

Quality

Specification	Cost/unit	Total Cost
mediterranean™ sea18 - 5µm parti	\$1,200.00	\$1,200.00
C&A Scientific Centrifuge with Timer	\$167.00	\$167.00
Catalog No. NC-10459 (VeeGee Sc	\$27.25	\$27.25
100mL capacity	\$72.10	\$72.10
1ml pipettes	\$15.00	\$15.00
	\$10.00	\$10.00
15 ml, capped for centerfuge	\$25.00	\$25.00
25 tubes	\$20.00	\$20.00
	\$5.00	\$5.00
500ml	\$35.00	\$35.00
40ml	\$85.00	\$85.00
	\$200.00	\$200.00
-	-	\$1,861.35

Budgets

Comments

back up container

Filtration tank

-

reinforced tubing

moveable stand

HDPE storage tank

Junctions

Junctions

-

-

Comment

closed system mixer

-

College of Engineering Funded

-

Comment

Pre-made

-

-

Comment

-

SharkBite 1/2 in. x 5 ft. PEX Tubing

backup pump (reactor package should come with a pump)

-

Flow Meter Acrylic 1-10 GPM without Valve, 1/2 Inch FNPT or 1 Inch MNPT Axeon 200899

backup DIY column

stuff for drywash tax included
-



Comment
HPLC column for impurity quantification in biodiesel samples
water sediment and glycerin tests
tests for specific gravity
water and sediment test
glycerin tests and general use
glycerin tests and general use
glycerin tests and general use
general use
general use
glycerin tests
12
operating cost, may be negotiable to use ChemE budget for time-to-time purchases
-

Sources
http://fryertofuel.com/products/drum-accessories/drum-cover-detail
http://www.dudadiesel.com/pvc.php
http://www.homedepot.com/Storage-Organization-Moving-Supplies-Boxes-Hand-Trucks-Dollies/h_d1/N-5yc1vZarxn/R-
http://www.containerandpackaging.com/item/D004
-

Source
http://www.thecarycompany.com/containers/drums/reconditioned_drums.html
-

Source
Utah Biodiesel Supplier
http://www.containerandpackaging.com/item/D004
http://utahbiodieselsupply.com/biodieselwatertestkit.php
-

Source
PEX: homedepot.com :Model # U860B5, Internet # 202687905, Store SKU # 38451, Store SO SKU # 732649
http://www.thepurchaseadvantage.com/page/TPA/Axeon_Water_Acrylic_Flow_Meters/W2T407919
http://www.onlinemetals.com/merchant.cfm?pid=10459&step=4&showunit=s=inches&id=19&top_cat=1

<http://www.utahbiodieselsupply.com/drywashresin.php>

--

-



Source

<http://www.teknokroma.es/UserFiles/HPLC/MediterraneaSea18English.pdf>

Amazon

<http://secure.sciencecompany.com/Hydrometer-0850-0900-330mm-P16101.aspx>

http://www.labdepotinc.com/Product_Details~id~726~pid~59780.aspx

Amazon

Amazon

Amazon

Amazon

<http://www.sigmaaldrich.com/catalog/search?interface=All&term=Petroleum%20Ether&lang=en®ion=US&focus=product&N=0+220003048+219853269+219853286>

<http://www.sigmaaldrich.com/catalog/Replacement.do?productNumber=33740A&brand=SIGMA&matNo=&fromUrl=http%3A//www.sigmaaldrich.com/catalog/product/sigma/33740a%3Flang%3Den%26region%3DUS&fromUrlLabel=product%20details>

Purchase chemicals from ChemStore in Bagley, if not available, purchase through supplier e.g., Sigma-Aldrich

-

BUDGET SUMMARY

Groups	Total Cost
Coll/Filt	\$1,356.79
Alcohol	\$288.94
Pretreatment	\$504.04
Dry Wash	\$1,710.88
Quality	\$1,861.35
Overall Budget	\$5,722.00