

**Photo 3**



**Photo 4**



**Photo 5**



**Photo 6**





**Photo 7**



**Photo 8**



## 6.0 ELECTRICAL SYSTEMS ASSESSMENT

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Overall the condition of the Belle Isle Boat Club electrical system is **Poor**.

SmithGroup observed the general condition of the following components:

### 6.0.1 Component

#### Service Equipment

##### System Description

Previous to a fire in the transformer vault, the existing service was rated 120/240-volt, three phase, four wire; 800 amps at 240-volt, three phase, three wire for large equipment loads and 1200 amps, 120/240-volt single phase, three wire for lighting, receptacles, etc.

Subsequent to the fire, two “temporary” overhead service lines were brought to the building, via a pole-mounted transformer. One service is rated 120/240 single phase (for lights and receptacles); the other 240-volt three-phase (mainly for the elevator). Both services are rated for approximately 200 Amps, which is probably well below what is needed for a building as a whole, but sufficient for its current reduced use.

##### Findings

- Incoming overhead service and outdoor meters [Photos 1, 2].
- Sections of abandoned service equipment [Photos 3, 4].

### 6.0.2 Component

#### Power Distribution Equipment and Wiring

##### System Description

The existing main switchboard lineup consists of five separate sections, each with its own voltage and amperage rating as follows:

- Section A: 240-volt, 3-phase, 600 Amp
- Section B: 240-volt, 3-phase, 1,000 Amp
- Section C: 120/240-volt, single-phase, 1,200 Amp
- Section D: 240-volt, single-phase, 800 Amp
- Section E: 240-volt, single-phase, 800 Amp

Only Section E is in operation to serve the lights and receptacle, but in a location that is not Code compliant; the others have been abandoned in place. However, all the main switchboard sections are extremely old, in great disrepair and not fit for continued use. All other panelboards in the building are also in poor condition and need replacement. Most have been de-energized, although some are operational such as on the third floor near the Presidential Room.

Most receptacles, except those in renovated spaces are ungrounded, which could pose a risk to personnel safety, and need of replacement. Similarly, most light switches need replacement.

##### Findings

- Distribution Panelboards [Photos 5, 6].
- Branch Circuit Panelboards [Photos 7, 8].

### **6.0.3 Component** Lighting

#### **System Description**

There are four suspended fixtures and several wall sconces on the first floor which are original fixtures dating back to when the Boat Club was first opened. These should be restored and refurbished to their original condition.

Most lighting fixtures are incandescent or fluorescent, in poor condition and in need of replacement to energy-efficient LED fixtures. However, the fixtures and switches in the second-floor conference room could be re-used.

#### **Findings**

- Historic/Original hanging light fixture **[Photo 9]**.
- Historic/Original wall sconce light fixture **[Photo 10]**.

### **6.0.4 Component** Emergency Lighting

#### **System Description**

Emergency lighting is provided via wall-mounted battery-pack units in a few areas of the building; some are operational, others are not. Regardless, the emergency lighting is inadequate for the spaces that are in use and it does not meet current code requirements.

#### **Findings**

- Wall-mounted emergency lighting battery pack **[Photo 11]**.

### **6.0.5 Component** Fire Alarm

#### **System Description**

There is no fire alarm system in the building, and it appears there never was one.

#### **Findings**

- None.

### **6.0.6 Component** Telephone/Telecommunications

#### **System Description**

There is no incoming telephone service to the building.

#### **Findings**

- None.

### **6.0.7 Conclusion**

The electrical system in the entire building is in poor condition and should be replaced to ensure a reliable and safe installation when the building becomes fully occupied.

## **6.0.8 Recommended Electrical Improvements**

### **General**

- Remove and trash all existing switchboards and panelboards throughout.
- Remove and trash all existing lighting fixtures, except the historic fixtures described above.
- Remove all raceways, wiring and other ancillary electrical work.

### **Service and Distribution**

- Provide a new 2,000 Amp, 208/120 volt, 3-phase, 4-wire switchboard. This would be contingent on DTE replacing the planned 300 KVA 240/120-volt transformer with a new 500 KVA 208/120-volt transformer.
- Provide new feeders and power panels in the Kitchen for food service equipment.
- Provide new feeders and lighting/receptacle panelboards throughout the building. These panels could be located where existing panels are currently located to facilitate running the new feeders, but other design factors and security issues may dictate housing these panels in electrical closets.
- Provide new wiring devices, disconnect switches, etc. throughout.

### **Lighting**

- Provide new LED light fixtures throughout.
- Provide new occupancy sensors for control of offices, conference rooms and similar spaces.
- Provide new lighting control systems for public and entertainment spaces.

### **Emergency Lighting**

- Provide a 10 KVA central battery system for life safety lighting and exit signs throughout.

### **Fire Alarm System**

- Provide a new digital fire alarm system consisting of pull stations, speakers, strobes, smoke detectors, etc. as required by local and national Fire Codes.

### **Telecommunications**

- Provide a new incoming telephone service and subsequent telecom distribution throughout the Boat Club.
- Provide hardwire and wireless connectivity.

## 6.1 ELECTRICAL SYSTEMS PHOTOS

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Photo 1



Photo 2



Photo 3



Photo 4





**Photo 5**



**Photo 6**



**Photo 7**



**Photo 8**





Photo 9

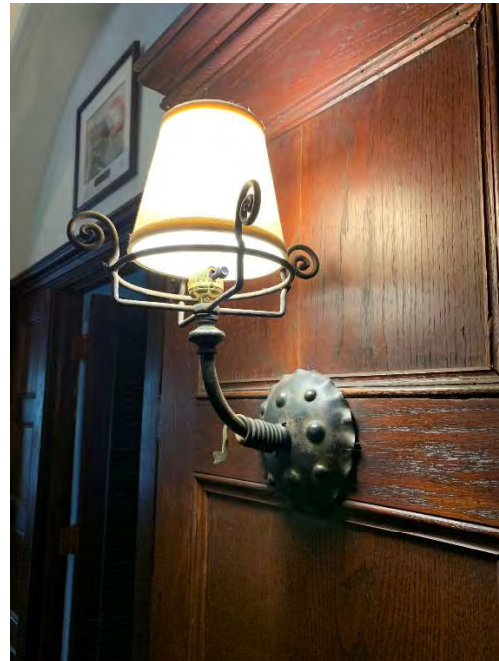


Photo 10



Photo 11

# **Belle Isle Boathouse & Site Work Renonovations/Restorations**

## **Cost Model Estimates**

**Detroit, Michigan**

Revised  
November 29, 2019

***Belle Isle Boat House & Site Work  
Detroit, Michigan***

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**Belle Isle Boathouse & Site Work  
Renovations/Restorations  
Detroit , Michigan  
Cost Model Estimates  
November 29, 2019**

<b>Description</b>	<b>Total Cost</b>	<b>Cost/SF</b>
	44,095	GSF
<b>Master Summary</b>		
<b>Site Stabilization</b>	\$12,053,324	\$273
<b>Building Enclosure Stabilization</b>	\$10,535,338	\$239
<b>Building Systems</b>	\$13,276,074	\$301
<b>Interiors</b>	\$6,853,622	\$155
<b>Final Site work &amp; Landscaping</b>	\$1,182,016	\$27
<b>Total Project Cost</b>	<b>\$43,900,375</b>	<b>\$996</b>

**Belle Isle Boathouse & Site Work  
Renovations/Restorations  
Detroit , Michigan  
Cost Model Estimates  
November 29, 2019**

Description		Total Cost	Cost/SF
<b>Site Stabilization</b>		<b>Area</b>	<b>44,095 GSF</b>
<b>Summary</b>			
G10 Site Preparation		\$545,631	\$12.37
G20 Site Improvements		\$4,964,026	\$112.58
G30 Site Utilities		\$477,800	\$10.84
G40 Site Electrical Utilities		\$253,275	\$5.74
<b>Sub-Total Trades Site Stabilization</b>		<b>\$6,240,732</b>	<b>\$141.53</b>
Design Contingency	10%	\$624,073	\$14.15
Escalation 5% per year to midpoint 6/1/2023			
43 months @ 5% =	19.1%	\$1,311,178	\$29.74
<b>Sub Total Contingencies</b>		<b>\$1,935,251</b>	<b>\$43.89</b>
<b>Sub Total Building + Contingencies</b>		<b>\$8,175,983</b>	<b>\$185.42</b>
General Conditions	3%	\$245,280	\$5.56
GC Personnel 30 months		\$161,250	\$3.66
GC Fee	3%	\$257,475	\$5.84
Bond	1%	\$88,400	\$2.00
<b>Total Construction Cost</b>		<b>\$8,928,388</b>	<b>\$202.48</b>
<b>Owner Project Costs</b>	35%	<b>\$3,124,936</b>	<b>\$70.87</b>
<b>Total Project Costs</b>		<b>\$12,053,324</b>	<b>\$273.35</b>

**Belle Isle Boathouse & Site Work  
Renovations/Restorations  
Detroit , Michigan  
Cost Model Estimates  
November 29, 2019**

Description	Unit	Unit Cost	Total Cost	Cost/SF
44,095 GSF				

**G 19 Site Preparation**

Clear & grub site landscaping	1	ACRE	\$7,500.00	\$7,500	\$0.17
Remove existing concrete paving	26,000	SQFT	\$1.50	\$39,000	\$0.88
Remove existing concrete pool bottom	7,872	SQFT	\$2.00	\$15,744	\$0.36
Remove pool walls	546	LNFT	\$50.00	\$27,300	\$0.62
Backfill pool area	1,604	CUYD	\$35.00	\$56,124	\$1.27
Remove gate house	1	EACH	\$500.00	\$500	\$0.01
Remove life guard tower	1	EACH	\$500.00	\$500	\$0.01
Remove storage building	646	SQFT	\$6.00	\$3,876	\$0.09
Remove planters & lighting	2	EACH	\$1,000.00	\$2,000	\$0.05
Saw cut top of existing seawall	415	LNFT	\$30.00	\$12,450	\$0.28
Asphalt pavement removal	1,871	SQFT	\$1.00	\$1,871	\$0.04
Remove wooden foot bridge	774	SQFT	\$10.00	\$7,740	\$0.18
Remove concrete foot bridge	369	SQFT	\$20.00	\$7,380	\$0.17
Strip and remove topsoil	754	CUYD	\$18.00	\$13,573	\$0.31
Fine grading grass/planting areas	9,279	SQYD	\$0.50	\$4,639	\$0.11
Fine grade paved areas	3,305	SQYD	\$1.00	\$3,305	\$0.07
Remove north dock	11,103	SQFT	\$20.00	\$222,060	\$5.04
Road cleaning/dust control	1	LPSM	\$50,000.00	\$50,000	\$1.13
Truck wash	1	LPSM	\$25,000.00	\$25,000	\$0.57
Construction fence	1,061	LNFT	\$20.00	\$21,220	\$0.48
Construction gates	1	EACH	\$5,000.00	\$5,000	\$0.11
Erosion control	712	LNFT	\$4.00	\$2,848	\$0.06
Dumpsters	20	LOADS	\$800.00	\$16,000	\$0.36

**Sub-Total Site Preparation**

**\$545,631      \$12.37**



**Belle Isle Boathouse & Site Work  
Renovations/Restorations  
Detroit , Michigan  
Cost Model Estimates  
November 29, 2019**

Description		Unit	Unit Cost	Total Cost	Cost/SF
<b>G 20 Site Improvements</b>					
Sheet pile wall w/helical anchors 30'	1,210	LNFT	\$2,100.00	\$2,541,000	\$57.63
2' wide x 1'-4" high concrete seawall cap	1,210	LNFT	\$200.00	\$242,000	\$5.49
Steel waler	1,210	LNFT	\$100.00	\$121,000	\$2.74
Guardrail at waters edge	960	LNFT	\$150.00	\$144,000	\$3.27
6" concrete sidewalk	33,453	SQFT	\$8.00	\$267,624	\$6.07
Integral curb at walks	777	LNFT	\$26.00	\$20,202	\$0.46
36' wide monumental stair 6 risers x 5 treads w/ 4 handrails	2	EACH	\$35,000.00	\$70,000	\$1.59
Dry laid stone wall 18" high	136	LNFT	\$250.00	\$34,000	\$0.77
Imported fill	13,760	CUYD	\$35.00	\$481,600	\$10.92
New rip rap	600	TONS	\$31.00	\$18,600	\$0.42
New north dock allowance	10,240	SQFT	\$100.00	\$1,024,000	\$23.22
<b>Sub-Total Site Improvements</b>				<b>\$4,964,026</b>	<b>\$112.58</b>
<b>G 30 Site Utilities</b>					
4" pipe perforated underdrain	240	LNFT	\$15.00	\$3,600	\$0.08
8" storm pipe	350	LNFT	\$40.00	\$14,000	\$0.32
12" storm pipe	530	LNFT	\$50.00	\$26,500	\$0.60
Adjust rims	3	EACH	\$1,000.00	\$3,000	\$0.07
Storm Catch basins 24"	2	EACH	\$3,000.00	\$6,000	\$0.14
48" yard drains	4	EACH	\$4,000.00	\$16,000	\$0.36
60" RCP equalization culvert	460	LNFT	\$325.00	\$149,500	\$3.39
Headwalls at each end of 60" culvert	2	EACH	\$20,000.00	\$40,000	\$0.91
Utility excavation and backfill	1,580	LNFT	\$40.00	\$63,200	\$1.43
Sump pump - lift station - 4,000 GPM & precast vault/steel	1	EACH	\$125,000.00	\$125,000	\$2.83
Connect to existing fire water	1	EACH	\$2,500.00	\$2,500	\$0.06
Fire hydrant assemblies	1	EACH	\$6,000.00	\$6,000	\$0.14
Fire department connection	1	EACH	\$2,500.00	\$2,500	\$0.06
6" fire water assume	200	LNFT	\$100.00	\$20,000	\$0.45
<b>Sub-Total Site Mechanical Utilities</b>				<b>\$477,800</b>	<b>\$10.84</b>
<b>G 40 Site Electrical</b>					
New electrical duct bank	421	LNFT	\$ 275.00	\$115,775	\$2.63
New electrical manholes	3	EACH	\$ 15,000.00	\$45,000	\$1.02
north dock power	20	each	\$ 4,000.00	\$80,000	\$1.81
CONNECT 400 GPM PUMP/FEEDER	1	LOT	\$12,500.00	\$12,500	\$0.28
<b>Sub-Total Site Electrical</b>				<b>\$253,275</b>	<b>\$5.74</b>

**Belle Isle Boathouse & Site Work  
Renovations/Restorations  
Detroit , Michigan  
Cost Model Estimates  
November 29, 2019**

Description		Total Cost	Cost/SF
<b>Building Enclosure</b>		<b>Area</b>	<b>44,095 GSF</b>
<b>Summary</b>			
B10 Superstructure		\$882,440	\$20.01
B20 Exterior Closure		\$2,806,215	\$63.64
B30 Roofing		\$734,970	\$16.67
D20 Plumbing		\$336,500	\$7.63
D40 Fire Protection		\$31,000	\$0.70
D50 Electrical		\$45,989	\$1.04
<b>Sub-Total Trades Building Enclosure</b>		<b>\$4,837,114</b>	<b>\$109.70</b>
Design Contingency	10%	\$483,711	\$10.97
Escalation 5% per year to midpoint 7/1/2025			
67 months @ 5% =	33.2%	\$1,767,046	\$40.07
<b>Sub Total Contingencies</b>		<b>\$2,250,757</b>	<b>\$51.04</b>
<b>Sub Total Building + Contingencies</b>		<b>\$7,087,871</b>	<b>\$160.74</b>
General Conditions 24 months	3%	\$212,636	\$4.82
GC Personnel		\$129,000	\$2.93
GC Fee	4%	\$297,180	\$6.74
Bond	1%	\$77,267	\$1.75
<b>Total Construction Cost Building Enclosure</b>		<b>\$7,803,954</b>	<b>\$176.98</b>
<b>Owner Project Costs</b>	<b>35%</b>	<b>\$2,731,384</b>	<b>\$61.94</b>
<b>Total Project Costs</b>		<b>\$10,535,338</b>	<b>\$238.93</b>

**Belle Isle Boathouse & Site Work  
Renovations/Restorations  
Detroit , Michigan  
Cost Model Estimates  
November 29, 2019**

Description		Unit	Unit Cost	Total Cost	Cost/SF
<b>Building Enclosure</b>				44,095 GSF	
<b>Superstructure</b>					
<b>B1010 Floor/Terrace Construction</b>					
New third floor terrace at west side	1,366	SQFT	\$150.00	\$204,900	\$4.65
Shore existing roof structure at west side where existing wall is removed/replaced	68	LNFT	\$5,000.00	\$340,000	\$7.71
Remove/replace part of second floor at west side terrace	200	SQFT	\$200.00	\$40,000	\$0.91
Remove/replace structure for terrace 217	564	SQFT	\$200.00	\$112,800	\$2.56
<b>Sub-Total Floor Construction</b>				\$697,700	\$15.82
<b>B1020 Roof Construction</b>					
New green house roof over terrace 217	564	SQFT	\$200.00	\$112,800	\$2.56
Remove/replace wood decking at 10% of the area of low slope roofs 4311 sf x 10% =	341	SQFT	\$25.00	\$8,525	\$0.19
Remove/replace wood decking at 20% of the area of high slope roofs 7683 sf x 20%=	1,537	SQFT	\$25.00	\$38,415	\$0.87
Temporary roof protection	1	LPSM	\$25,000.00	\$25,000	\$0.57
<b>Sub-Total Roof Construction</b>				\$184,740	\$4.19
<b>Sub-Total B10 Superstructure</b>				\$882,440	\$20.01



**Belle Isle Boathouse & Site Work  
Renovations/Restorations  
Detroit , Michigan  
Cost Model Estimates  
November 29, 2019**

Description		Unit	Unit Cost	Total Cost	Cost/SF
<b>Exterior Closure</b>					
<b>B2010 Exterior Walls</b>					
Remove west wall from second floor to underside of roof trusses roughly 68' wide x 28' high	1,904	SQFT	\$20.00	\$38,080	\$0.86
Replace west wall at above work	1,904	SQFT	\$150.00	\$285,600	\$6.48
Temporary weather protection	1,904	SQFT	\$10.00	\$19,040	\$0.43
Remove all existing exterior stucco	18,000	SQFT	\$5.00	\$90,000	\$2.04
Remove other identified exterior wall materials	2,724	SQFT	\$6.00	\$16,344	\$0.37
Replace 50% brick backup in red areas 443 sqft	222	SQFT	\$100.00	\$22,150	\$0.50
Replace 25% brick backup in blue & yellow areas areas 9570 sqft	2,393	SQFT	\$100.00	\$239,250	\$5.43
Replace 5% brick backup in green areas areas 6623 sqft	331	SQFT	\$100.00	\$33,115	\$0.75
Parge coat entire brick surface	20,988	SQFT	\$9.00	\$188,892	\$4.28
New Sto power wall drain screen system	20,988	SQFT	\$30.00	\$629,640	\$14.28
Add for articulation if desired	20,988	SQFT	\$15.00	\$314,820	\$7.14
Replace missing arcade on east elevation	800	SQFT	\$150.00	\$120,000	\$2.72
New decorative guardrail between arches on west elevation	54	LNFT	\$250.00	\$13,500	\$0.31
Remove and replace guardrails at existing second floor terraces	132	LNFT	\$265.00	\$34,980	\$0.79
Extend guardrail height at third floor terraces	306	LNFT	\$150.00	\$45,900	\$1.04
Extend guardrail height at second floor terraces	49	LNFT	\$150.00	\$7,350	\$0.17
Scaffold entire exterior wall	23,446	SQFT	\$5.00	\$117,230	\$2.66
<b>Sub-Total Exterior Walls</b>				<b>\$2,215,891</b>	<b>\$50.25</b>
<b>B2020 Exterior Windows</b>					
Remove existing windows 84 each	2,458	SQFT	\$6.00	\$14,748	\$0.33
Prep existing window openings	84	EACH	\$660.00	\$55,440	\$1.26
Install new windows	2,458	SQFT	\$150.00	\$368,700	\$8.36
Prep existing window openings	14	EACH	\$660.00	\$9,240	\$0.21
Install new windows	179	SQFT	\$150.00	\$26,850	\$0.61
<b>Sub-Total Exterior Windows</b>				<b>\$474,978</b>	<b>\$10.77</b>

**Belle Isle Boathouse & Site Work  
Renovations/Restorations  
Detroit , Michigan  
Cost Model Estimates  
November 29, 2019**

Description		Unit	Unit Cost	Total Cost	Cost/SF
<b>B2030 Exterior Doors</b>					
Remove existing doors 18 each	18	EACH	\$170.00	\$3,060	\$0.07
Prep opening	18	EACH	\$630.00	\$11,340	\$0.26
Install new doors	474	SQFT	\$150.00	\$71,100	\$1.61
Remove existing overhead doors	201	SQFT	\$6.00	\$1,206	\$0.03
Prep opening	4	EACH	\$660.00	\$2,640	\$0.06
New overhead doors	4	EACH	\$6,500.00	\$26,000	\$0.59
<b>Sub-Total Exterior Doors</b>				\$115,346	\$2.62
<b>Sub-Total B20 Exterior Closure</b>				\$2,806,215	\$63.64
<b>B30 Roofing</b>					
<b>B3010 Roofing Coverings</b>					
Remove epdm + tile at existing terraces 2nd floor	2,256	SQFT	\$10.00	\$22,560	\$0.51
Fabric reinforced waterproofing	2,256	SQFT	\$8.00	\$18,048	\$0.41
New exterior grade mud set quarry tile	2,256	SQFT	\$20.00	\$45,120	\$1.02
Remove epdm + tile at existing terraces 3rd floor	2,256	SQFT	\$10.00	\$22,560	\$0.51
Fabric reinforced waterproofing	3,074	SQFT	\$8.00	\$24,592	\$0.56
New exterior grade mud set quarry tile	3,074	SQFT	\$20.00	\$61,480	\$1.39
Remove clay tile roofing	7,683	SQFT	\$4.00	\$30,732	\$0.70
New battens + insulation	7,683	SQFT	\$6.00	\$46,098	\$1.05
New underlayment	7,683	SQFT	\$2.00	\$15,366	\$0.35
New clay tile roofing	7,683	SQFT	\$25.00	\$192,075	\$4.36
New roof corbels at perimeter	25	EACH	\$250.00	\$6,250	\$0.14
Refinish existing corbels	612	EACH	\$100.00	\$61,200	\$1.39
New gutters	627	LNFT	\$20.00	\$12,540	\$0.28
New downspouts	314	LNFT	\$20.00	\$6,270	\$0.14
Remove existing low slope roofing	4,311	SQFT	\$4.00	\$17,244	\$0.39
New underlayment	4,311	SQFT	\$2.00	\$8,622	\$0.20
New 4" insulation	4,311	SQFT	\$3.00	\$12,933	\$0.29
New modified Bitumen roofing	4,311	SQFT	\$20.00	\$86,220	\$1.96
Remove existing south canopy at stair #1	1	LPSM	\$5,000.00	\$5,000	\$0.11
New canvas entry canopy at south stair #1	1	LPSM	\$25,000.00	\$25,000	\$0.57
<b>Sub-Total Roof Covering</b>				\$719,910	\$16.33

**Belle Isle Boathouse & Site Work  
Renovations/Restorations  
Detroit , Michigan  
Cost Model Estimates  
November 29, 2019**

Description	Unit	Unit Cost	Total Cost	Cost/SF
<b>B3020 Roofing Openings</b>				
Miscellaneous openings	1 LPSM	\$5,000.00	\$5,000	\$0.11
Roof vent 2'-6" x 2'-6"	4 EACH	\$1,265.00	\$5,060	\$0.11
Roof hatch 3 x 4'	2 EACH	\$2,500.00	\$5,000	\$0.11
<b>Sub-Total Roof Openings</b>			<b>\$15,060</b>	<b>\$0.34</b>
<b>Sub-Total B30 Roofing</b>			<b>\$734,970</b>	<b>\$16.67</b>
<b>D20 Plumbing</b>				
Deck drains & sanitary below grade	500 ALLOW	\$75.00	\$37,500	\$0.85
Deck drains & sanitary above grade	3480 LNFT	\$55.00	\$191,400	\$4.34
Floor/deck drains & floor chipping	42 EACH	\$650.00	\$27,300	\$0.62
Terrace drains & chipping	20 EACH	\$650.00	\$13,000	\$0.29
GC's, staff, & fee	1 LPSM	\$67,300.00	\$67,300	\$1.53
<b>Plumbing Sub-Total</b>			<b>\$336,500</b>	<b>\$7.63</b>
<b>D40 Fire Protection</b>				
Dry heads	40 EACH	\$400.00	\$16,000	\$0.36
Dry valve assembly	1 LPSM	\$15,000.00	\$15,000	\$0.34
<b>Fire Protection Sub-Total</b>			<b>\$31,000</b>	<b>\$0.70</b>
<b>D50 Electrical</b>				
Power for Signage	1 LPSM	\$ 2,500.00	\$2,500	\$0.06
Deck lighting fixtures	30 EACH	\$ 1,054.63	\$31,639	\$0.72
Conduit & wire for fixtures	400 LNFT	\$ 11.69	\$4,675	\$0.11
Convenience power outlets	12 EACH	\$ 208.31	\$2,500	\$0.06
Conduit & wire for branch outlets	400 LNFT	\$ 11.69	\$4,675	\$0.11
<b>Electrical Sub-Total</b>			<b>\$45,989</b>	<b>\$1.04</b>



**Belle Isle Boathouse & Site Work  
Renovations/Restorations  
Detroit , Michigan  
Cost Model Estimates  
November 29, 2019**

Description		Total Cost	Cost/SF
<b>Building Systems</b>		<b>Area</b>	<b>44,095 GSF</b>
<b>Summary</b>			
D10 Conveying		\$240,000	\$5.44
D20 Plumbing		\$704,430	\$15.98
D30 HVAC		\$2,832,924	\$64.25
D40 Fire Protection		\$240,875	\$5.46
D50 Electrical		\$1,633,421	\$37.04
<b>Sub-Total Trades Building Systems</b>		<b>\$5,651,650</b>	<b>\$128.17</b>
Design Contingency	10%	\$565,165	\$12.82
Escalation 5% per year to midpoint 7/1/2027			
85 months @ 5%/yr =	43.6%	\$2,710,531	\$61.47
<b>Sub Total Contingencies</b>		<b>\$3,275,696</b>	<b>\$74.29</b>
<b>Sub Total Building + Contingencies</b>		<b>\$8,927,346</b>	<b>\$202.46</b>
General Conditions	3%	\$267,820	\$6.07
GC Personnel		\$258,000	\$5.85
GC Fee	3%	\$283,595	\$6.43
Bond	1%	\$97,368	\$2.21
<b>Total Construction Cost</b>		<b>\$9,834,129</b>	<b>\$223.02</b>
<b>Owner Project Costs</b>	<b>35%</b>	<b>\$3,441,945</b>	<b>\$78.06</b>
<b>Total Project Costs</b>		<b>\$13,276,074</b>	<b>\$301.08</b>

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Description		Unit	Unit Cost	Total Cost	Cost/SF
<b>Building Systems</b>				44,095 GSF	
<b>D10 Conveying</b>					
Dumbwaiter between kitchens	1	EACH	\$25,000.00	\$25,000	\$0.57
Three stop 3500 lb passenger elevator holeless hydraulic	1	EACH	\$200,000.00	\$200,000	\$4.54
Elevator cab Allowance	1	EACH	\$15,000.00	\$15,000	\$0.34
<b>Sub-Total Conveying Systems</b>				\$240,000	\$5.44
<b>D20 Plumbing</b>					
Fixtures & carriers	67	EACH	\$1,250.00	\$83,750	\$1.90
Misc connections	20	EACH	\$350.00	\$7,000	\$0.16
Kitchen RI & FC	2536	SQFT	\$25.00	\$63,400	\$1.44
Water meter	1	EACH	\$5,000.00	\$5,000	\$0.11
Backflow preventer - house & fire	2	EACH	\$5,000.00	\$10,000	\$0.23
Backflow preventer - MUW/irrigation	3	EACH	\$2,000.00	\$6,000	\$0.14
Water softener - none	0	NONE	\$0.00	\$0	\$0.00
Booster pump - none	0	NONE	\$0.00	\$0	\$0.00
Water heaters - gas - 3	600	MBHO	\$35.00	\$21,000	\$0.48
DHW expansion tanks	3	EACH	\$500.00	\$1,500	\$0.03
DI IW recirc pumps	3	EACH	\$1,000.00	\$3,000	\$0.07
TMX valves	3	EACH	\$2,500.00	\$7,500	\$0.17
Domestic water	3,350	LNFT	\$38.00	\$127,300	\$2.89
Domestic water insulation	3,350	LNFT	\$8.00	\$26,800	\$0.61
Elev sump pump	1	EACH	\$2,000.00	\$2,000	\$0.05
Oil interceptor	1	EACH	\$2,000.00	\$2,000	\$0.05
Grease trap	1	EACH	\$15,000.00	\$15,000	\$0.34
Rework existing storm - allowance	15000	ALLOW	\$1.50	\$22,500	\$0.51
Foundation drainage - none	0	NONE	\$0.00	\$0	\$0.00
Excavation & backfill - includes saw cut & patc	500	LNFT	\$150.00	\$75,000	\$1.70
Submeters - none	0	NONE	\$0.00	\$0	\$0.00
Coring/fire stopping	1	LPSM	\$7,500.00	\$7,500	\$0.17
Seismic - none	0	NONE	\$0.00	\$0	\$0.00
Gas pipe & regulators	480	LNFT	\$75.00	\$36,000	\$0.82
Demo to dumpster	41,294	SQFT	\$1.00	\$41,294	\$0.94
GC's, staff, & fee	1	LPSM	\$140,886.00	\$140,886	\$3.20
<b>Plumbing Sub-Total</b>				\$704,430	\$15.98

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Description		Unit	Unit Cost	Total Cost	Cost/SF
<b>D30 HVAC</b>					
RTU's - 3 - CHW/HHW	60000	CFM	\$5.50	\$330,000	\$7.48
MUA's - 2 - gas-fired	3000	CFM	\$4.00	\$12,000	\$0.27
Curb lagging	5	EACH	\$3,500.00	\$17,500	\$0.40
Temp filters	1	LPSM	\$15,000.00	\$15,000	\$0.34
Set kitchen CU's - FBO	5	EACH	\$1,440.00	\$7,200	\$0.16
Rigging/crane	1	LPSM	\$35,000.00	\$35,000	\$0.79
Air cooled chiller - 1	150	TONS	\$650.00	\$97,500	\$2.21
Glycol feed skid & glycol charge	1	EACH	\$20,000.00	\$20,000	\$0.45
Condensing boilers - 3	3000	MBHO	\$18.00	\$54,000	\$1.22
IL pumps	6	EACH	\$2,500.00	\$15,000	\$0.34
ES pumps	4	EACH	\$7,500.00	\$30,000	\$0.68
Refrigeration pipe & line charges	700	LNFT	\$30.00	\$21,000	\$0.48
Heating hot water - one loop only - no separate perimeter loop	3480	LNFT	\$65.00	\$226,200	\$5.13
Chilled water	780	LNFT	\$125.00	\$97,500	\$2.21
Pipe boots & rails	25	EACH	\$500.00	\$12,500	\$0.28
Condensate drains	280	LNFT	\$35.00	\$9,800	\$0.22
HVAC pipe insulation	5240	LNFT	\$10.00	\$52,400	\$1.19
Galvanized duct - single wall - ducted return - 1.15 #S/SQFT	47488	#S	\$10.00	\$474,881	\$10.77
VAV boxes with HHW - 750 SQFT/Zone	60	EACH	\$800.00	\$48,000	\$1.09
Registers, grilles, & diffusers	200	EACH	\$150.00	\$30,000	\$0.68
Linear diffuser - allowance	200	ALLOW	\$75.00	\$15,000	\$0.34
Fans - 6	5000	CFM	\$0.75	\$3,750	\$0.09
Kitchen fans - 4	4000	CFM	\$1.50	\$6,000	\$0.14
Fire dampers	20	ALLOW	\$250.00	\$5,000	\$0.11
Actuated dampers	10	ALLOW	\$800.00	\$8,000	\$0.18
UH's/CUH's - HHW	8	EACH	\$2,000.00	\$16,000	\$0.36
ACU's/CU's - 2	7.5	TONS	\$3,000.00	\$22,500	\$0.51
Snowmelt/radiant heat - none	0	NONE	\$0.00	\$0	\$0.00
Fin tube radiation - Runtal	500	ALLOW	\$150.00	\$75,000	\$1.70
Duct insulation - wrap - concealed SA/OA	23900	SQFT	\$2.50	\$59,750	\$1.36
BIM model & integrator - none	0	NONE	\$0.00	\$0	\$0.00
Seismic - none	0	NONE	\$0.00	\$0	\$0.00
Coring/fire stopping	1	LPSM	\$10,000.00	\$10,000	\$0.23
Commissioning assist	1	LPSM	\$22,800.00	\$22,800	\$0.52
Balancing	41,294	SQFT	\$0.75	\$30,971	\$0.70
Controls	1	LPSM	\$303,500.00	\$303,500	\$6.88
Demo to dumpster	41294	SQFT	\$2.00	\$82,588	\$1.87
GC's, staff, & fee	1	LPSM	\$566,584.88	\$566,585	\$12.85
<b>HVAC Sub-Total</b>				<b>\$2,832,924</b>	<b>\$64.25</b>

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Description	Unit	Unit Cost	Total Cost	Cost/SF
<b>D40 Fire Protection</b>				
Wet heads	440 EACH	\$350.00	\$154,000	\$3.49
COT & concealed premiums	352 EACH	\$100.00	\$35,200	\$0.80
FDC	1 EACH	\$3,500.00	\$3,500	\$0.08
Fire pump - none	0 NONE	\$0.00	\$0	\$0.00
Special systems - none	0 NONE	\$0.00	\$0	\$0.00
GC's, staff, & fee	1 LPSM	\$48,175.00	\$48,175	\$1.09
<b>Fire Protection Sub-Total</b>			<b>\$240,875</b>	<b>\$5.46</b>

**D50 Electrical**

**D5010 Electrical Service & Distribution**

Power Sources - Existing DEMO	1 LPSM	\$ 43,240.00	\$43,240	\$0.98
Power Distribution - Panels, Transformers & Feeders	1 LPSM	\$ 125,000.00	\$125,000	\$2.83
Power Distribution - Feeders	1 LPSM	\$ 75,000.00	\$75,000	\$1.70
Power for Mechanical Equipment	1 LPSM	\$ 50,000.00	\$50,000	\$1.13
Power for Kitchen	1 LPSM	\$ 30,000.00	\$30,000	\$0.68
Power for Elevator (N)	1 EACH	\$ 7,500.00	\$7,500	\$0.17
Power for Elevator (S)	1 EACH	\$ 7,500.00	\$7,500	\$0.17
<b>Sub-Total D5010 Electrical Service &amp; Distribution</b>			<b>\$338,240</b>	<b>\$7.67</b>

**D5020 Lighting & Branch Wiring**

Power for Signage	1 LPSM	\$ 2,500.00	\$2,500	\$0.06
LIGHTING FIXTURES	41,294 SQFT	\$ 9.50	\$392,293	\$8.90
LIGHTING CONTROL	41,294 SQFT	\$ 2.50	\$103,235	\$2.34
RETROFLIGHTFIXTURES	1 LOT	\$ 25,000.00	\$25,000	\$0.57
LIGHTING INVERTER	1 LPSM	\$ 35,000.00	\$35,000	\$0.79
Terrace lighting	20 EACH	\$ 500.00	\$10,000	\$0.23
Convenience power outlets	41,294 SQFT	\$ 3.50	\$144,529	\$3.28
Conduit & wire for branch outlets	41,294 LNFT	\$ 2.50	\$103,235	\$2.34
<b>Sub-Total D5020 Lighting &amp; Branch Wiring</b>			<b>\$815,792</b>	<b>\$18.50</b>

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Description		Unit	Unit Cost	Total Cost	Cost/SF
<b>D5030 Communications &amp; Security Systems</b>					
Communications outlet complete	41,294	SQFT	\$ 4.00	\$165,176	\$3.75
Communications Room Prep	1	LPSM	\$ 15,000.00	\$15,000	\$0.34
NFPA F/A System	41,294	SQFT	\$ 3.75	\$154,853	\$3.51
Card readers - none	-	NONE	\$ -	\$0	\$0.00
CCTV - none	-	NONE	\$ -	\$0	\$0.00
<b>Sub-Total D5030 Communications &amp; Security Systems</b>				<b>\$335,029</b>	<b>\$7.60</b>
<b>D5040 Special Electrical Systems</b>					
Building & Systems Grounding	1	LPSM	\$ 25,000.00	\$25,000	\$0.57
Lightning Protection system - none	-	NONE	\$ -	\$0	\$0.00
Short Circuit & Coordination Study	1	LPSM	\$ 25,000.00	\$25,000	\$0.57
Arc Flash Study	1	LPSM	\$ 10,000.00	\$10,000	\$0.23
Temp Light & Power for Construction	1	LPSM	\$ 40,560.00	\$40,560	\$0.92
Trade GC's incl. Management	1	LPSM	\$ 43,800.00	\$43,800	\$0.99
<b>Sub-Total D5040 Special Electrical Systems</b>				<b>\$144,360</b>	<b>\$3.27</b>
<b>Total D50 Electrical</b>				<b>\$1,633,421</b>	<b>\$37.04</b>



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Description		Total Cost	Cost/SF
<b>Interiors</b>		<b>Area</b>	<b>44,095 GSF</b>
<b>Summary</b>			
C10 Interior Construction		\$753,205	\$17.08
C20 Staircases		\$140,288	\$3.18
C30 Interior Finishes		\$695,696	\$15.78
E10 Equipment		\$363,950	\$8.25
E20 Furnishings		\$361,975	\$8.21
F20 Selective Demolition		\$231,773	\$5.26
<b>Sub-Total Trades Building Systems</b>		<b>\$2,546,886</b>	<b>\$57.76</b>
Design Contingency	10%	\$254,689	\$5.78
Escalation 5% per year to midpoint 6/1/2028			
102 months @ 5%/yr	54.1%	\$1,515,091	\$34.36
<b>Sub Total Contingencies</b>		<b>\$1,769,780</b>	<b>\$40.14</b>
<b>Sub Total Building + Contingencies</b>		<b>\$4,316,666</b>	<b>\$97.90</b>
General Conditions	3%	\$129,500	\$2.94
GC Personnel		\$387,000	\$8.78
GC Fee	4%	\$193,327	\$4.38
Bond	1%	\$50,265	\$1.14
<b>Total Construction Cost</b>		<b>\$5,076,757</b>	<b>\$115.13</b>
<b>Owner Project Costs</b>	35%	<b>\$1,776,865</b>	<b>\$40.30</b>
<b>Total Project Costs</b>		<b>\$6,853,622</b>	<b>\$155.43</b>

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Description		Unit	Unit Cost	Total Cost	Cost/SF
Interiors				44,095 GSF	
<b>C10 Interior Construction</b>					
<b>C1010 Partitions</b>					
New interior partitions assume 1lnft/20sf	27,873	SQFT	\$10.00	\$278,735	\$6.32
Repair/restore partitions to remain assume 1 lnft/20 sqft	27,873	SQFT	\$5.00	\$139,367	\$3.16
8" cmu at elevator shaft	1,512	SQFT	\$20.00	\$30,240	\$0.69
<b>Sub Total Partitions</b>				\$448,342	\$10.17
<b>C1020 Interior Doors</b>					
Remove existing interior doors/frames	62	EACH	\$190.00	\$11,780	\$0.27
Replace interior door/frame & hardware average	62	EACH	\$2,400.00	\$148,800	\$3.37
Assisted door operator	4	EACH	\$3,000.00	\$12,000	\$0.27
<b>Sub-Total Interior Doors</b>				\$172,580	\$3.91
<b>C1030 Specialties</b>					
Miscellaneous lockers, toilet accessories, fire extinguishers, etc	44,095	SQFT	\$3.00	\$132,284	\$3.00
<b>Sub-Total Specialties</b>				\$132,284	\$3.00
<b>Sub-Total C10 Interior Construction</b>				\$753,205	\$17.08

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Description	Unit	Unit Cost	Total Cost	Cost/SF
<b>C20 Staircases</b>				
<b>C2010 Stair Construction</b>				
<b>Exit Stairs</b>				
<b>Exterior stair No. 1 south grade to level 1</b>				
Remove/replace wall handrails	62 LNFT	\$90.00	\$5,580	\$0.13
<b>Exterior stair No. 2 level 1 to level 3</b>				
No structural work				
<b>Exterior stair No. 3 north Grade to level 2</b>				
Foundations	4 EACH	\$1,000.00	\$4,000	\$0.09
New 4' wide metal pan stair	40 LFR	\$95.00	\$3,800	\$0.09
New 6' wide metal pan stair	84 LFR	\$95.00	\$7,980	\$0.18
Steel pan concrete filled landing	56 SQFT	\$20.00	\$1,120	\$0.03
Painted steel handrail	62 LNFT	\$40.00	\$2,480	\$0.06
Painted steel guardrail	62 LNFT	\$150.00	\$9,300	\$0.21
<b>Interior stair No. 4 level 1 to level 2</b>				
Remove/replace handrails	52 LNFT	\$70.00	\$3,640	\$0.08
<b>Exterior stair No. 5 north Grade to level 2</b>				
Foundations	4 EACH	\$1,000.00	\$4,000	\$0.09
New 4' wide metal pan stair	88 LFR	\$95.00	\$8,360	\$0.19
Steel pan concrete filled landing	36 SQFT	\$20.00	\$720	\$0.02
Painted steel handrail	52 LNFT	\$40.00	\$2,080	\$0.05
Painted steel guardrail	52 LNFT	\$150.00	\$7,800	\$0.18
<b>Exterior stair No. 6 north level 2 to level 3</b>				
New 4' wide metal pan stair	88 LFR	\$95.00	\$8,360	\$0.19
Steel pan concrete filled landing	SQFT	\$20.00	\$0	\$0.00
Painted steel handrail	52 LNFT	\$40.00	\$2,080	\$0.05
Painted steel guardrail	52 LNFT	\$150.00	\$7,800	\$0.18
<b>Interior stair No. 7 level 3 to tower</b>				
Remove/replace guardrail	52 LNFT	\$170.00	\$8,840	\$0.20
<b>Sub-Total Stair Construction</b>			<b>\$87,940</b>	<b>\$1.99</b>

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Description	Unit	Unit Cost	Total Cost	Cost/SF
<b>C2020 Stair Finishes</b>				
<b>Exit Stairs</b>				
<b>Exterior stair No. 1 south grade to level 1</b>				
New quarry tile treads & risers	224 LFR	\$50.00	\$11,200	\$0.25
New quarry tile landing	64 SQFT	\$30.00	\$1,920	\$0.04
<b>Interior stair No. 2 level 1 to level 3</b>				
New carpet treads and risers	94 LFR	\$15.00	\$1,403	\$0.03
New carpet at landings	32 SQFT	\$15.00	\$480	\$0.01
Refinish guardrails	104 LNFT	\$200.00	\$20,800	\$0.47
<b>Exterior stair No. 3 north grade to level 2</b>				
Stair treads exterior quarry tile	124 LFR	\$30.00	\$3,720	\$0.08
New quarry tile landing	56 SQFT	\$30.00	\$1,680	\$0.04
<b>Interior stair No. 4 level 1 to level 2</b>				
New rubber treads and risers	94 LFR	\$30.00	\$2,805	\$0.06
<b>Exterior stair No. 5 north grade to level 2</b>				
Stair treads exterior quarry tile	88 LFR	\$30.00	\$2,640	\$0.06
New quarry tile landing	36 SQFT	\$30.00	\$1,080	\$0.02
<b>Exterior stair No. 6 north level 2 to level 3</b>				
Stair treads exterior quarry tile	88 LFR	\$30.00	\$2,640	\$0.06
<b>Interior stair No. 7 level 3 to roof</b>				
New rubber treads and risers	66 LFR	\$30.00	\$1,980	\$0.04
<b>Sub-Total Stair Finishes</b>			<b>\$52,348</b>	<b>\$1.19</b>
<b>Sub-Total C20 Staircases</b>			<b>\$140,288</b>	<b>\$3.18</b>

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Description		Unit	Unit Cost	Total Cost	Cost/SF
<b>C30 Interior Finishes</b>					
<b>C3010 Wall Finishes</b>					
Paint drywall	54,493	SQFT	\$1.00	\$54,493	\$1.24
Wood paneling refinish	4,091	SQFT	\$5.00	\$20,455	\$0.46
Wood paneling new	4,091	SQFT	\$35.00	\$143,185	\$3.25
Ceramic tile all new	4,867	SQFT	\$16.00	\$77,872	\$1.77
<b>Sub-Total Wall Finishes</b>				<b>\$296,005</b>	<b>\$6.71</b>
<b>C3020 Floor Finishes</b>					
Preservation good condition	2,224	SQFT	\$4.00	\$8,896	\$0.20
Preservation fair condition	1,373	SQFT	\$6.00	\$8,238	\$0.19
Preservation bad condition	4,621	SQFT	\$0.00	\$36,968	\$0.84
Restoration good condition	0	SQFT	\$6.00	\$0	\$0.00
Restoration fair condition	1,303	SQFT	\$8.00	\$10,424	\$0.24
Restoration bad condition	522	SQFT	\$10.00	\$5,220	\$0.12
Rehabilitation good condition	0	SQFT	\$6.00	\$0	\$0.00
Rehabilitation fair condition	4,595	SQFT	\$8.00	\$36,760	\$0.83
Rehabilitation bad condition	585	SQFT	\$10.00	\$5,850	\$0.13
Service fair condition	2,821	SQFT	\$4.00	\$11,284	\$0.26
Rehabilitation bad condition	14,892	SQFT	\$6.00	\$89,352	\$2.03
<b>Sub-Total Floor Finishes</b>				<b>\$212,992</b>	<b>\$4.83</b>