Technical Assignment 1: Construction Project Management

October 5
2009

The Salamander Resort and Spa

Paul Roberts

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EXECUTIVE SUMMARY

Technical Assignment 1 summarizes the existing conditions and construction management methods utilized on The Salamander Resort and Spa. This report is broken up into eight sections, each of which is briefly described below. This report includes an analysis of the local conditions of the site and some issues that are prevalent to the contractor. The next section gives some background information on the owner of the project. The owner is very involved and focused on the resulting quality of the building. The building systems overview outlines the types of systems present and issues surrounding the construction. Two different project cost estimates were performed, a parametric and a square foot. These two estimates vary significantly with the actual project cost but the differences are justified in the analysis. A summary schedule highlights the major activities and milestones through the life of the project. The existing site conditions plan outlines the building footprint, utilities, and pedestrian/vehicular traffic flow. Finally, a project delivery organizational plan and on-site staffing plan is included. These help to familiarize you with the people and companies involved.

The Salamander Resort and Spa, owned by Salamander Hospitality, is being constructed as a luxury high end resort. Located less than 40 miles from Washington D.C., they hope to bring in guests looking for a weekend vacation. The main building is one story above grade with an attached four story guest house that lodges all the rooms. The joined basement houses all the service rooms and mechanical spaces. The project duration is four years and will cost approximately $93 million. The building exterior is a combination of stone veneer and stucco.

Turner Construction is contracted with the owner through a cost plus fee and GMP. Turner holds lump sum contracts with all subcontractors while the owner hold contracts with all the architects, engineers, and consultants. The Salamander Resort is looking to become the first Resort of its kind to be LEED Certified.

LOCAL CONDITIONS

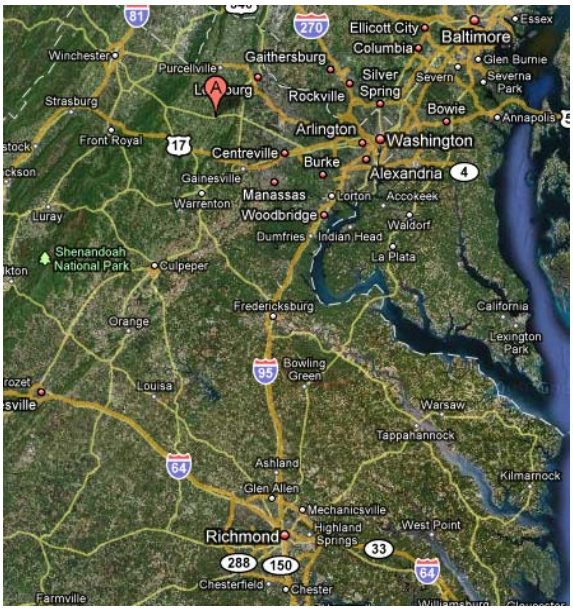


Figure (1)

Figure (2)

The project is located in the town of Middleburg, Virginia on route 50, about 40 miles west of Washington D.C. and 120 miles north of Richmond (Figure 1). Figure (2) shows the site boundary in blue and the resort location in red.

Preferred Methods of Construction: Much of the residential properties in old town Middleburg are masonry and brick construction. To match this look, Salamander Resort uses a stone façade on the main entrance area.

Construction Recycling: All recycling is collected on site and removed by a third party company to a local recycling plant.

Tipping Fee: In 2008, the tipping fee in Loudon County is $60/ton. (Loundon County Solid Waste Management Planning District)

Soil Type: The regional soil consists of a blend of deep, well drained, silty soils and clays. During footing excavation, the subsurface water level was not reached.

CLIENT INFORMATION

Salamander Hospitality is a company formed in 2005 in part by the current CEO Sheila Johnson. Her goal is to grow the company by acquiring one of a kind properties and managing them to provide an unforgettable experience. Salamander Hospitality specializes in the management of luxury resorts and hotels, like the Salamander Resort and Spa. Their focus on owner and customer satisfaction is what drives this company. Salamander Hospitality also owns and manages the Innisbrook Resort and Golf Club in Florida and the Woodlands Inn in South Carolina. Both of these properties reflect the mission that Salamander Hospitality set out to achieve.

Owner Expectations:

Cost: Most of the funding for this project comes directly from Salamander Hospitality. The high-end nature of this project can lead to changes in interior and exterior finishes throughout the project and it is one of the goals of the contractor to minimize the cost impact of these.

Quality: The owner is looking for a very high quality finished product that will serve the needs of her client base. Only the finest fixtures, furniture, and wood details are used. This requires the contractor to provide special attention to the installation process in order to ensure the best looking product.

Schedule: The owner had initially set a Spring 2010 completion date but has since pushed that back to Spring 2011. This has provided the contractor with significant float time, and allows for easier trade coordination.

Safety: It is critical that the contractor provide a safe environment for all the workers on site.

BUILDING SYSTEMS SUMMARY

Building Systems Summary			
Yes	No	Work Scope	Issues
	X	Demolition required?	
X		Structural steel frame	Mobile crane for erection
X		Cast in place concrete	Crane and bucket placement. Wood formwork
	X	Precast concrete	
X		Mechanical system	Mechanical room located in basement of main building, northeast corner. Dry sprinkler system
X		Electrical system	Main 3200A 480/277 - 3 phase 4W and secondary120/208V - 3 phase 4W
X		Masonry	Stone veneer on main building at entrance
	X	Curtain wall	
	X	Support of excavation	

Excavation:

- All foundations should be a minimum of 36” below grade
- Building spread and strip footings shall bear on undisturbed natural soils or compacted fill with a bearing pressure of 3500 psf.
- Utility lines shall not be placed through of below foundations without structural engineer’s approval

Concrete:

- A 3000 psi reinforced concrete was used for 5” interior slab on grade
- The guest house utilized 9” and 10” 3500 psi post tensioned reinforced concrete on metal deck with continuous welded wire fabric.
- Typical 16x28 reinforced concrete columns utilized in guest house.

Structural Steel:

- Rolled shapes and Round HSS Shapes – ASTM A992, ASTM A500
- 2” 18 gage Lok-Floor composite metal decking used in the guest house
- 1 ½” deep, wide rib, 20 gage galvanized roof decking used for both the guest house and main building
- Lightgage steel roof trusses with 8” lightgage purlin at 48” on center

Mechanical System:

- 15 main AHU's, 9 Variable Frequency Drive (VFD) and 6 Constant Volume (CV)
- 6 heat recovery AHU's. 3 located in the main lodge, 2 in the spa, and 1 in the laundry room
- 1950 gpm cooling tower located on the main roof serves chillers 1-3
- Mechanical room located in basement in north east corner

Electrical System:

- From utility, main 3200A 480/277V - 3 phase 4W switchboard with secondary 120/208V 3 phase
- Uninterrupted Power Supply (UPS) for 4th floor guest house and 1st floor main building
- Indoor emergency diesel generator (650kW 480/277V – 3 phase 4W)
- Custom designed light fixtures and chandeliers

LEED Design Features:

- "Green" slate roofing made from recycled rubber and PVC piping
- Minimize irrigation by using native plants and species
- Maximize opportunity to use building materials made from recycled products
- Use low emitting paints, carpets, and window treatments
- Protection procedures in place to conserve 250 of the 340 acres

PROJECT COST EVALUATION

Actual Costs	
Construction Cost	$ 93,802,046.00
Construction Cost/SF	$ 409.24
Total Project Cost Estimate	$ 135,280,000.00
Total Project Cost Estimate/SF	$ 590.19

Building Systems Costs (Cost and Cost/SF)		
Building System	Cost	Cost/SF
Excavation and Fill	$ 277,443	$ 1.21
Building Concrete	$ 7,191,105	$ 31.37
Structural Steel and Metal Deck	$ 2,023,292	$ 8.83
Plumbing	$ 13,766,120	$ 60.06
Electric	$ 10,674,385	$ 46.57
Finish Carpentry & Architectural Millwork	$ 4,120,000	$ 17.98
Windows, Doors, and Glazing	$ 1,285,355	$ 5.61
Gypsum Drywall Work	$ 5,911,608	$ 25.79
General Requirements	$ 1,893,275	$ 8.26

The Total Project Cost Estimate includes land, design/consultant fees, furniture, fixtures, equipment, and development/marketing in addition to construction costs. The Turner Construction Project Manager on site estimated all these additional costs because the owner did not release the official data. As seen in the chart, the most expensive systems in the building are the plumbing and electric.

D4Cost Estimating

See Appendix A for the detailed D4Cost Estimate

The D4Cost estimate was calculated by selecting two similar projects in the database and combining their attributes into one estimate. The closest projects that D4 had in the database were motel/hotels. I chose The Hampton Inn and Suites Hotel because it is a high end hotel located in Chicago. The Inn on Lake Superior is more similar because of the amenities offered but does not come close to the luxury that the Salamander Resort offers.

Projects Used in D4 Cost Estimate				
Use	Project Name	Size (SF)	Floors	Building Cost
Hotel/Motel	Hampton Inn and Suites Hotel	162,000	12	$ 13,797,591
Hotel/Motel	The Inn on Lake Superior	65,345	3	$ 4,073,012

Parametric D4Cost Estimate				
Division	Name	Percent	Sq. Cost	Amount
0	Bidding Requirements	7.22	$ 9.60	$ 2,200,317
1	General Requirements	3.75	$ 4.99	$ 1,144,345
2	Site Work	4.08	$ 5.42	$ 1,242,343
3	Concrete	21.00	$ 27.92	$ 6,400,073
4	Masonry	6.09	$ 8.09	$ 1,855,012
5	Metals	1.56	$ 2.07	$ 475,578
6	Wood & Plastics	4.78	$ 6.36	$ 1,457,405
7	Thermal & Moisture Protection	1.91	$ 2.54	$ 581,897
8	Doors & Windows	6.39	$ 8.50	$ 1,947,182
9	Finishes	11.38	$ 15.13	$ 3,467,559
10	Specialties	0.35	$ 0.47	$ 107,688
11	Equipment	0.09	$ 0.12	$ 26,443
12	Furnishings	0.05	$ 0.06	$ 13,973
13	Special Construction	0.68	$ 0.90	$ 206,514
14	Conveying Systems	2.49	$ 3.31	$ 758,084
15	Mechanical	19.61	$ 26.08	$ 5,978,605
16	Electrical	8.60	$ 11.43	$ 2,620,616
	Total Building Costs	100.00	$ 132.99	$ 30,483,633

The D4Cost estimate reported at $132.99/SF with a total project cost of $30,483,633. This value is approximately one third of the actual project cost. This significant difference is due in part to the use of the building. The D4 projects are mainly hotel oriented while the Salamander project is a full resort with spa, restaurant, guest rooms, and horse stables/pastures. The Hampton Inn utilizes precast concrete, whereas The Salamander Resort does not. If the three projects had more similar structural, mechanical, and electrical systems the estimate would be closer. The amount of custom interior work, lighting fixtures and woodwork, found on this project also contributes to the difference.

R.S. Means Square Foot Estimate:

See Appendix B for the reference pages from R.S. Means 2009

The following R.S. Means square foot estimate is based off M.350: 4-7 Story Hotel with Face Brick and Concrete Back-Up. The costs are calculated using an area of 229,213 square feet and 2,828' perimeter. Basement addition along with height, perimeter, and location adjustments were used. A majority of the structural framing is done with reinforced concrete.

Exterior Wall	S.F. Area	195,000
	L.F. Area	850
Face Brick with Concrete Block Back-up	Steel Frame	$ 159.60
	R/Conc. Frame	$ 157.60

Story Height Adjustment:

12' – 10'3" = 1.75'

-$1.25/ft * (1.75) = -$2.19/sq. ft.

Perimeter Adjustment:

2828' – 850' = 1978'

+$1.75/100 ft * (1978') = +$34.62

Basement Addition:

+$32.20/sq ft

Sub-Total Per Square Foot Estimate:

157.60 + 2.19 + 34.62 + 32.20 = $226.61/sq ft.

Project Location Adjustment

Arlington, Virginia is the closest location listed in RS Means.

$226.61 * 0.93 = $210.75/sq ft.

Sub-Total Construction Cost

$210.75/sq ft. * (229,213 sq ft.) = $48,306,640

Common Additives:

(5) 5000 lb. capacity elevators @ $170,700 each → +$853,500
(1) Security camera and monitor @ $1850 and
(37) additional cameras @ $1000 each → +$38,850
(4) 125 lb. washers @ $32,800 each → +$131,200
(1) 50 lb. washer @ $12,200 each → +$12,200
(2) Laundry folders @ $66,500 each → +$133,000
(1) Laundry ironer @ $35,500 each → +$35,500

Common Additives Total = +$1,204,250

Total Construction Cost:

$48,306,640 + $1,204,250 = **$49,510,890**

$216.00/SF

The R.S. Means square foot estimate is about $45 million less than the actual project cost. Part of this difference can be attributed to using a hotel as the basis for the estimate, as R.S. Means does not have a category for resorts. Another reason for the difference comes in the façade, R.S. Means uses Face Brick with Concrete Clock Back-Up while The Salamander Resort uses a stone veneer and stucco. Other discrepancies were discussed in the analysis of the D4Cost estimate.

The R.S. Means estimate for this project is more accurate than the D4Cost estimate partly because the Means estimate is more tailored to this project, while the D4 Cost is based off other buildings. While neither estimate had a good basis for comparison, the R.S. Means estimate is would be fairly accurate if it included more of the specialty items and finishes found in The Salamander Resort.

PROJECT SCHEDULE SUMMARY

See Appendix C for the Project Schedule Summary

Turner Construction was awarded the construction contract from Salamander Hospitality to construct The Salamander Resort and Spa. The project was originally planned to be completed in March 2010, but was pushed back one year per the owner's request. This allowed Turner to spread out the trades and even put several on hold. For example, all interior framing was completed by January 2009 but drywall and rough-ins were put on hold for 11 months to accommodate the new schedule. It also leads to less congestion on site due to fewer trades having to work simultaneously.

Foundation

The total duration of the foundation work was approximately 6 months. The foundation consisted of reinforced concrete spread footings excavated down to a minimum of 36 inches below the slab on grade. No formwork was needed because the excavation holes were dug to the correct footing size.

Structural

Superstructure for The Salamander Resort and Spa took about 6 months to complete. It consisted of both concrete and steel framing. The basement and guest wing have concrete framing throughout and the main building has steel framing on the first floor. This created challenges in the schedule when both concrete and steel were being installed simultaneously.

Finishes

Turner has allocated a large amount of time to the finishes due to the complexities of the project. A majority of the fixtures are custom designed for this project and are more likely to require additional time to install. Like many of the activities, finishes would be able to finish in less time than the allotted if the schedule was optimized for time.

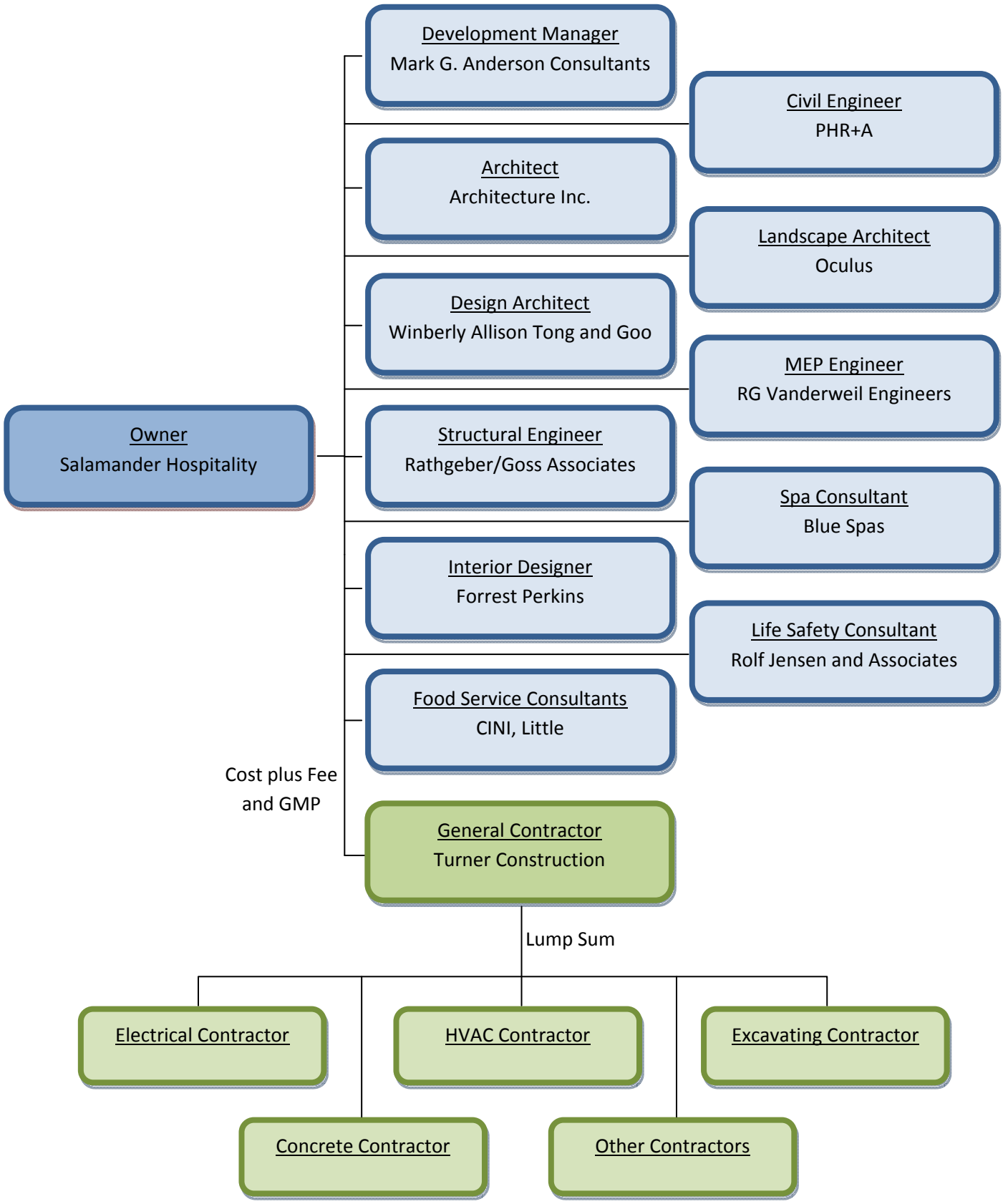
PROJECT DELIVERY SYSTEM

The project delivery method used is a design build. A design build method was chosen because a large portion of the lighting system and custom interior work was not designed at bid time. When Turner took over the project in 2007 it had already undergone three complete redesigns under a different general contractor. The owner initially wanted to fast-track the process to make up for lost ground but this was later altered to fit their needs more accurately.

The Owner, Salamander Hospitality, holds direct contracts with all the design architects, engineers, consultants. The contract between the Owner and Turner Construction is a Cost Plus Fee with a Guaranteed Maximum Price (GMP). Turner Construction holds lump sum contracts with all the subcontractors. The contractor was selected through a competitive process based upon qualification, fee, and a general conditions proposal.

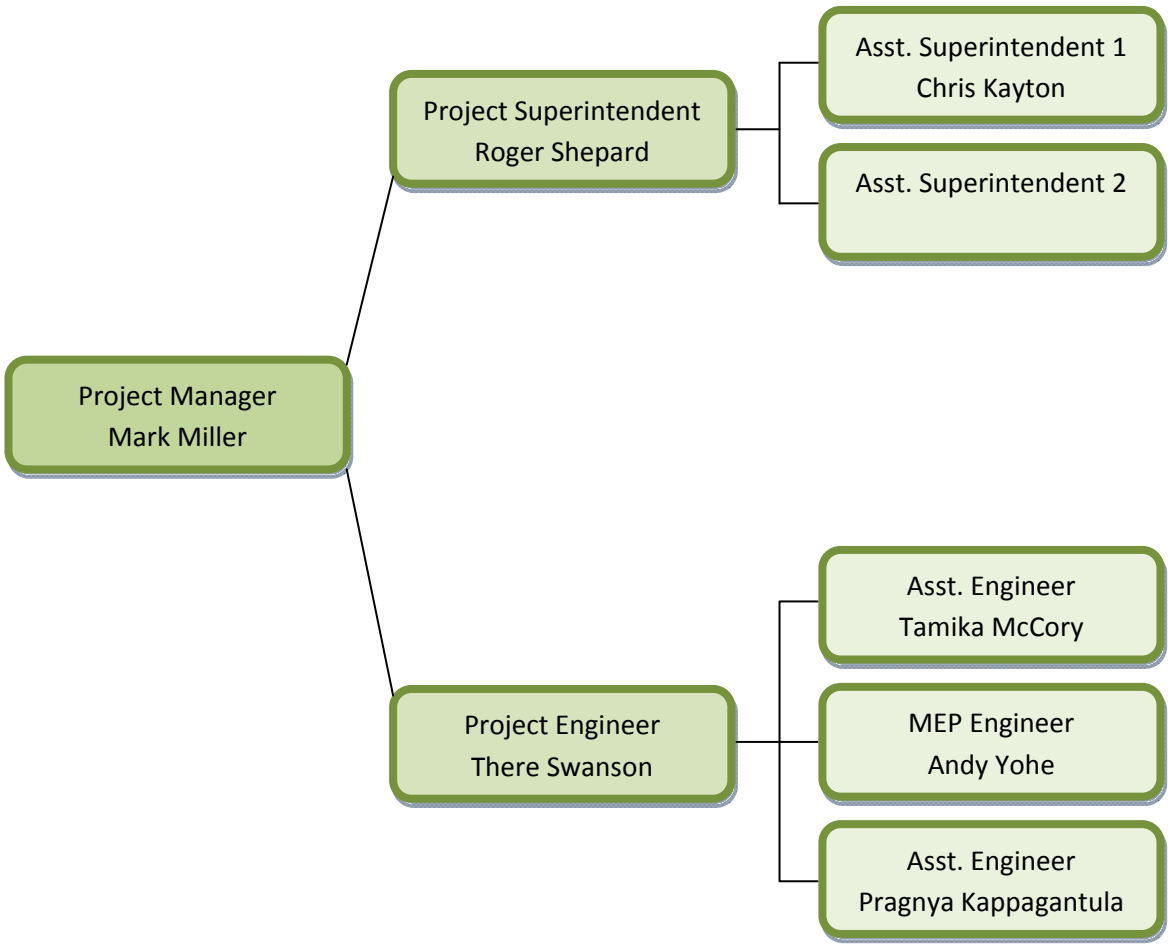
Turner Construction uses a Contractor Controlled Insurance Program (CCIP) which includes workers compensation and general liability. The Owner separately purchased Builders Risk Insurance. There is no Performance Bond on this project.

See the following page for the project delivery system organizational chart.


Development Manager
Mark G. Anderson Consultants
Civil Engineer
PHR+A
Architect
Architecture Inc.
Landscape Architect
Oculus
Design Architect
Winberly Allison Tong and Goo
MEP Engineer
RG Vanderweil Engineers
Owner
Salamander Hospitality
Structural Engineer
Rathgeber/Goss Associates
Spa Consultant
Blue Spas
Interior Designer
Forrest Perkins
Life Safety Consultant
Rolf Jensen and Associates
Food Service Consultants
CINI, Little
Cost plus Fee
and GMP
General Contractor
Turner Construction
Lump Sum
Electrical Contractor
HVAC Contractor
Excavating Contractor
Concrete Contractor
Other Contractors

STAFFING PLAN

Turner Construction has eight people working on site, one project manager, three superintendents, and four engineers. There are more people on this site than usual because of the complexity of the systems and installation. The Project Engineer and Assistant Engineer are responsible for RFI's and submittals on a daily basis. The Superintendents are responsible for work flow, schedule changes, and subcontractors. Below is the Turner Construction on-site staff.



APPENDIX A: D4COST ESTIMATE

Tuesday, September 29, 2009

Statement of Probable Cost

Salamander Resort and Spa - Mar 2009 - VA - Arlington

Prepared By:	**Paul Roberts**	Prepared For:	**Paul Roberts**
, Fax:		, Fax:	
Building Sq. Size:	**229213**	Site Sq. Size:	**66135**
Bid Date:		Building use:	**Hotel/Motel**
No. of floors:	**4**	Foundation:	**CON**
No. of buildings:	**1**	Exterior Walls:	**STU**
Project Height:		Interior Walls:	**GYP**
1st Floor Height:	**10.25**	Roof Type:	**SLA**
1st Floor Size:		Floor Type:	**WOD**
		Project Type:	**NEW**

Division		Percent	Sq. Cost	Amount
00	**Bidding Requirements**	**7.22**	**9.60**	**2,200,317**
	Bidding Requirements	7.22	9.60	2,200,317
01	**General Requirements**	**3.75**	**4.99**	**1,144,345**
	General Requirements	3.75	4.99	1,144,345
02	**Site Work**	**4.08**	**5.42**	**1,242,343**
	Site Work	4.08	5.42	1,242,343
03	**Concrete**	**21.00**	**27.92**	**6,400,073**
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	Masonry	6.09	8.09	1,855,012
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	Metals	1.56	2.07	475,578
06	**Wood & Plastics**	**4.78**	**6.36**	**1,457,405**
	Wood & Plastics	4.78	6.36	1,457,405
07	**Thermal & Moisture Protection**	**1.91**	**2.54**	**581,897**
	Thermal & Moisture Protection	1.91	2.54	581,897
08	**Doors & Windows**	**6.39**	**8.50**	**1,947,182**
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	Finishes	11.38	15.13	3,467,559
10	**Specialties**	**0.35**	**0.47**	**107,688**
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	Equipment	0.09	0.12	26,443
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	Special Construction	0.68	0.90	206,514
14	**Conveying Systems**	**2.49**	**3.31**	**758,084**
	Conveying Systems	2.49	3.31	758,084
15	**Mechanical**	**19.61**	**26.08**	**5,978,605**
	Mechanical	19.61	26.08	5,978,605
16	**Electrical**	**8.60**	**11.43**	**2,620,616**
	Electrical	8.60	11.43	2,620,616
Total Building Costs		**100.00**	**132.99**	**30,483,633**

Total Non-Building Costs	100.00	0.00	0
Total Project Costs	--	--	30.483.633

APPENDIX B: R.S. MEANS 2009 REFERENCE PAGES

COMMERCIAL/INDUSTRIAL/INSTITUTIONAL | **M.350** | **Hotel, 4-7 Story**

Costs per square foot of floor area

Exterior Wall	S.F. Area	35000	55000	75000	95000	115000	135000	155000	175000	195000
	L.F. Perimeter	314	401	497	555	639	722	754	783	850
Face Brick with Concrete Block Back-up	Steel Frame	182.95	173.80	169.95	166.40	164.80	163.70	161.70	160.15	159.60
	R/Conc. Frame	180.95	171.85	167.95	164.40	162.85	161.75	159.75	158.20	157.60
Glass and Metal Curtain Walls	Steel Frame	177.25	168.95	165.40	162.35	160.90	159.90	158.20	156.85	156.35
	R/Conc. Frame	175.50	167.25	163.70	160.60	159.15	158.10	156.50	155.15	154.60
Precast Concrete Panels	Steel Frame	189.05	178.55	174.15	170.00	168.15	166.90	164.55	162.80	162.10
	R/Conc. Frame	188.20	177.55	173.10	168.85	167.00	165.70	163.35	161.50	160.85
Perimeter Adj., Add or Deduct	Per 100 L.F.	9.50	6.05	4.40	3.50	2.85	2.45	2.15	1.95	1.75
Story Hgt. Adj., Add or Deduct	Per 1 Ft.	2.65	2.15	1.95	1.70	1.60	1.60	1.45	1.30	1.25

For Basement, add $32.30 per square foot of basement area

The above costs were calculated using the basic specifications shown on the facing page. These costs should be adjusted where necessary for design alternatives and owner's requirements. Reported completed project costs, for this type of structure, range from $108.75 to $208.75 per S.F.

Common additives

Description	Unit	$ Cost
Bar, Front bar	L.F.	360
Back bar	L.F.	289
Booth, Upholstered, custom, straight	L.F.	202 - 375
"L" or "U" shaped	L.F.	210 - 355
Closed Circuit Surveillance, One station	Each	1850
Camera and monitor	Each	1000
For additional camera stations, add		
Directory Boards, Plastic, glass covered	Each	595
30" x 20"	Each	1450
36" x 48"	Each	600
Aluminum, 24" x 18"	Each	980
48" x 32"	Each	2025
48" x 60"		
Elevators, Electric passenger, 5 stops	Each	167,200
3500# capacity	Each	170,700
5000# capacity	Each	13,600
Additional stop, add		
Emergency Lighting, 25 watt, battery operated	Each	282
Lead battery	Each	805
Nickel cadmium		

Description	Unit	$ Cost
Laundry Equipment		
Folders, blankets & sheets, king size	Each	66,500
Ironers, 110" single roll	Each	35,500
Combination washer extractor 50#	Each	12,200
125#	Each	32,800
Sauna, Prefabricated, complete		
6' x 4'	Each	5850
6' x 6'	Each	6950
6' x 9'	Each	8525
8' x 8'	Each	10,100
10' x 12'	Each	14,000
Smoke Detectors		
Ceiling type	Each	187
Duct type	Each	480
Sound System		
Amplifier, 250 watts	Each	2350
Speaker, ceiling or wall	Each	191
Trumpet	Each	365
TV Antenna, Master system, 12 outlet	Outlet	315
30 outlet	Outlet	203
100 outlet	Outlet	194

Important: See the Reference Section for Location Factors

Location Factors

STATE/ZIP	CITY	Residential	Commercial
UTAH (CONT'd)			
845	Price	.70	.78
846-847	Provo	.80	.87
VERMONT			
050	White River Jct.	.76	.80
051	Bellows Falls	.78	.82
052	Bennington	.80	.83
053	Brattleboro	.80	.84
054	Burlington	.81	.86
056	Montpelier	.82	.84
057	Rutland	.81	.85
058	St. Johnsbury	.78	.80
059	Guildhall	.77	.79
VIRGINIA			
220-221	Fairfax	1.02	.93
222	Arlington	1.03	.93
223	Alexandria	1.07	.95
224-225	Fredericksburg	.94	.88
226	Winchester	.91	.86
227	Culpeper	.99	.88
228	Harrisonburg	.89	.86
229	Charlottesville	.90	.86
230-232	Richmond	.98	.88
233-235	Norfolk	1.00	.89
236	Newport News	.99	.88
237	Portsmouth	.92	.86
238	Petersburg	.96	.87
239	Farmville	.88	.81
240-241	Roanoke	.97	.85
242	Bristol	.85	.81
243	Pulaski	.83	.80
244	Staunton	.90	.84
245	Lynchburg	.95	.86
246	Grundy	.83	.80
WASHINGTON			
980-981,987	Seattle	1.02	1.04
982	Everett	1.04	1.02
983-984	Tacoma	1.02	1.03
985	Olympia	1.01	1.02
986	Vancouver	.97	1.01
988	Wenatchee	.92	.95
989	Yakima	.96	.98
990-992	Spokane	.99	.95
993	Richland	.97	.96
994	Clarkston	.96	.94
WEST VIRGINIA			
247-248	Bluefield	.88	.89
249	Lewisburg	.90	.92
250-253	Charleston	.95	.95
254	Martinsburg	.86	.90
255-257	Huntington	.96	.96
258-259	Beckley	.90	.93
260	Wheeling	.92	.96
261	Parkersburg	.91	.95
262	Buckhannon	.91	.95
263-264	Clarksburg	.91	.95
265	Morgantown	.92	.95
266	Gassaway	.91	.95
267	Romney	.89	.92
268	Petersburg	.91	.93
WISCONSIN			
530,532	Milwaukee	1.07	1.03
531	Kenosha	1.03	1.00
534	Racine	1.02	1.00
535	Beloit	.98	.97
537	Madison	.98	.98
538	Lancaster	.97	.94
539	Portage	.96	.95
540	New Richmond	.99	.95
541-543	Green Bay	1.00	.96
544	Wausau	.94	.92
545	Rhinelander	.94	.94
546	La Crosse	.94	.94
547	Eau Claire	.97	.95
548	Superior	.98	.96
549	Oshkosh	.94	.93
WYOMING			
820	Cheyenne	.82	.86
821	Yellowstone Nat. Pk.	.74	.81
822	Wheatland	.74	.82
823	Rawlins	.75	.83
824	Worland	.74	.81
825	Riverton	.73	.81
826	Casper	.76	.83
827	Newcastle	.74	.81
828	Sheridan	.79	.84
829-831	Rock Springs	.78	.83
CANADIAN FACTORS (reflect Canadian currency)			
ALBERTA			
	Calgary	1.14	1.14
	Edmonton	1.13	1.14
	Fort McMurray	1.14	1.13
	Lethbridge	1.11	1.09
	Lloydminster	1.06	1.05
	Medicine Hat	1.07	1.05
	Red Deer	1.07	1.05
BRITISH COLUMBIA			
	Kamloops	1.05	1.06
	Prince George	1.05	1.07
	Vancouver	1.06	1.11
	Victoria	.99	1.02
MANITOBA			
	Brandon	1.02	1.00
	Portage la Prairie	1.02	.99
	Winnipeg	1.02	1.04
NEW BRUNSWICK			
	Bathurst	.94	.95
	Dalhousie	.94	.95
	Fredericton	1.01	.98
	Moncton	.95	.96
	Newcastle	.94	.95
	St. John	1.01	.98
NEWFOUNDLAND			
	Corner Brook	.96	.98
	St. Johns	.98	.99
NORTHWEST TERRITORIES			
	Yellowknife	1.07	1.06
NOVA SCOTIA			
	Bridgewater	.97	.99
	Dartmouth	.98	1.00
	Halifax	1.00	1.02
	New Glasgow	.97	.99
	Sydney	.96	.97
	Truro	.97	.99
	Yarmouth	.97	.99
ONTARIO			
	Barrie	1.13	1.08
	Brantford	1.14	1.09
	Cornwall	1.14	1.08
	Hamilton	1.16	1.12
	Kingston	1.14	1.09
	Kitchener	1.09	1.05
	London	1.14	1.10
	North Bay	1.11	1.07
	Oshawa	1.13	1.08
	Ottawa	1.16	1.11
	Owen Sound	1.11	1.08
	Peterborough	1.12	1.08
	Sarnia	1.14	1.09
	Sault Ste Marie	1.07	1.04
	St. Catharines	1.10	1.05
	Sudbury	1.07	1.04
	Thunder Bay	1.12	1.05
	Timmins	1.11	1.07
	Toronto	1.17	1.14
	Windsor	1.11	1.05
PRINCE EDWARD ISLAND			
	Charlottetown	.92	.95
	Summerside	.92	.95
QUEBEC			
	Cap-de-la-Madeleine	1.13	1.04
	Charlesbourg	1.13	1.04
	Chicoutimi	1.16	1.05
	Gatineau	1.12	1.03

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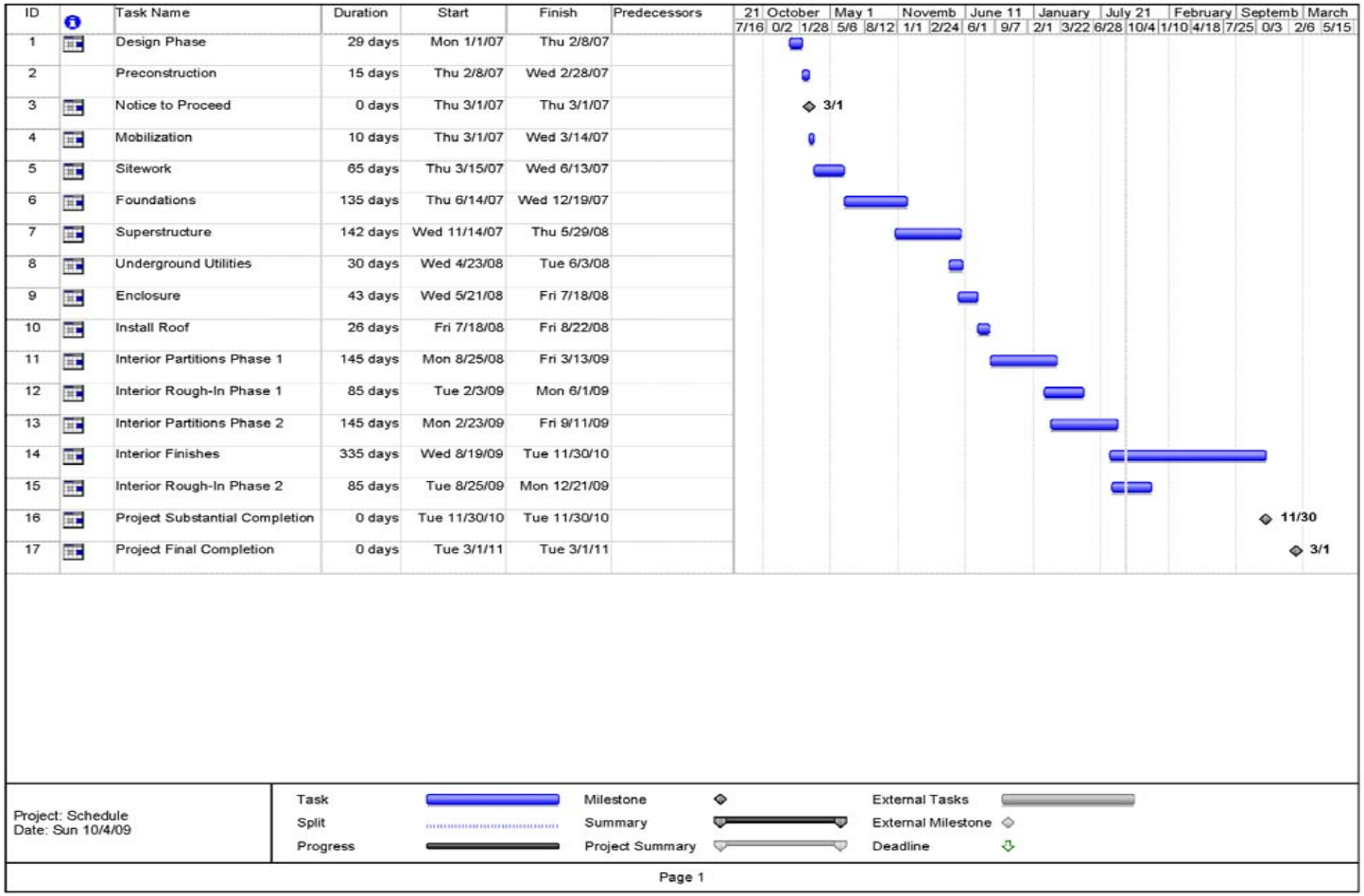
APPENDIX C: PROJECT SCHEDULE SUMMARY

ID	Task Name	Duration	Start	Finish	Predecessors
1	Design Phase	29 days	Mon 1/1/07	Thu 2/8/07	
2	Preconstruction	15 days	Thu 2/8/07	Wed 2/28/07	
3	Notice to Proceed	0 days	Thu 3/1/07	Thu 3/1/07	
4	Mobilization	10 days	Thu 3/1/07	Wed 3/14/07	
5	Sitework	65 days	Thu 3/15/07	Wed 6/13/07	
6	Foundations	135 days	Thu 6/14/07	Wed 12/19/07	
7	Superstructure	142 days	Wed 11/14/07	Thu 5/29/08	
8	Underground Utilities	30 days	Wed 4/23/08	Tue 6/3/08	
9	Enclosure	43 days	Wed 5/21/08	Fri 7/18/08	
10	Install Roof	26 days	Fri 7/18/08	Fri 8/22/08	
11	Interior Partitions Phase 1	145 days	Mon 8/25/08	Fri 3/13/09	
12	Interior Rough-In Phase 1	85 days	Tue 2/3/09	Mon 6/1/09	
13	Interior Partitions Phase 2	145 days	Mon 2/23/09	Fri 9/11/09	
14	Interior Finishes	335 days	Wed 8/19/09	Tue 11/30/10	
15	Interior Rough-In Phase 2	85 days	Tue 8/25/09	Mon 12/21/09	
16	Project Substantial Completion	0 days	Tue 11/30/10	Tue 11/30/10	
17	Project Final Completion	0 days	Tue 3/1/11	Tue 3/1/11	



APPENDIX D: SITE PLAN OF EXISTING CONDITIONS