



# Canton Crossing Tower

Baltimore, Maryland

Tyler Swartzwelder  
Construction Management Option

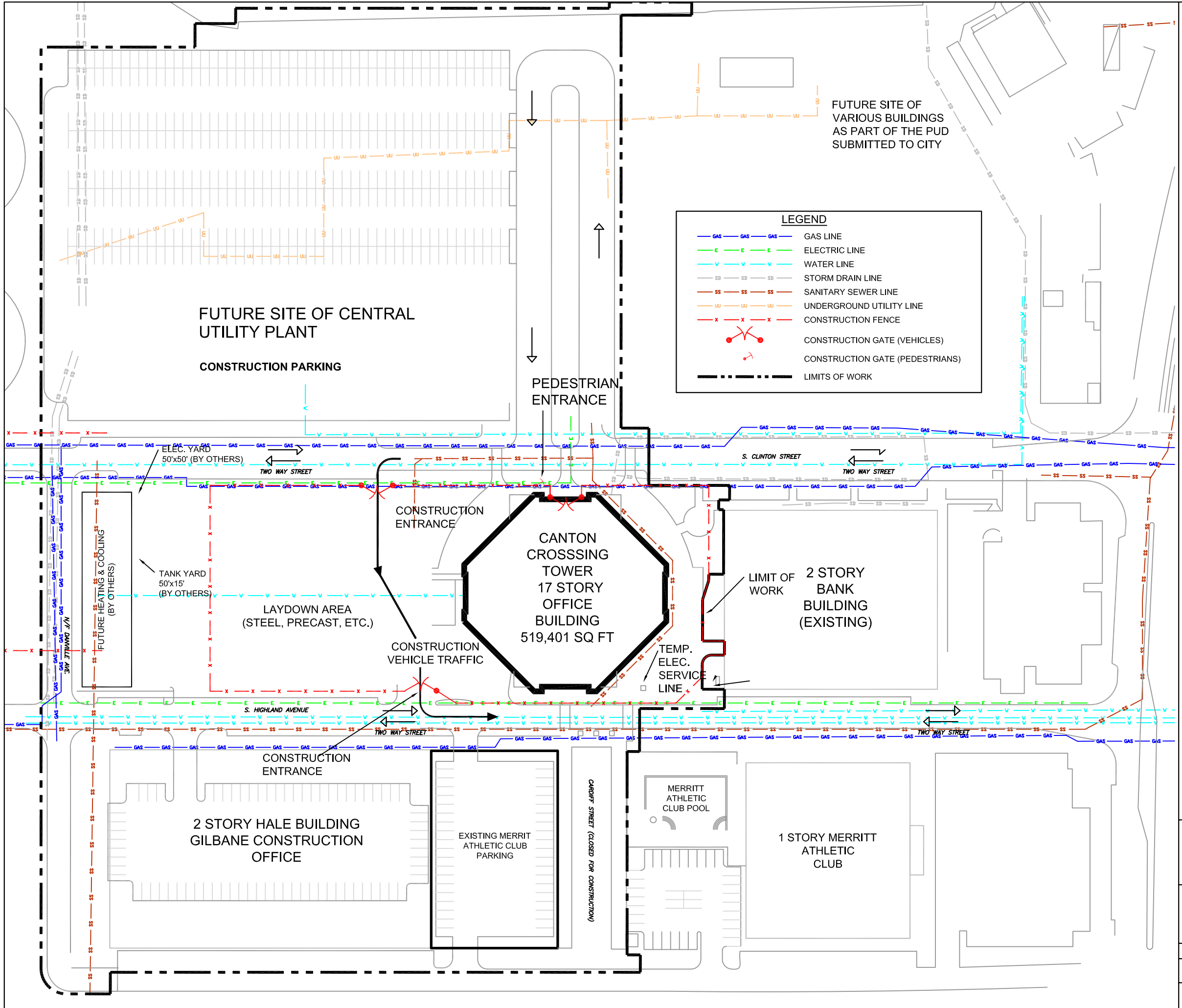
---

---

## APPENDIX ~ PROJECT LOGISTICS

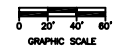
SITE LOGISTICS PLAN

DETAILED PROJECT SCHEDULE



**LEGEND**

	GAS LINE
	ELECTRIC LINE
	WATER LINE
	STORM DRAIN LINE
	SANITARY SEWER LINE
	UNDERGROUND UTILITY LINE
	CONSTRUCTION FENCE
	CONSTRUCTION GATE (VEHICLES)
	CONSTRUCTION GATE (PEDESTRIANS)
	LIMITS OF WORK

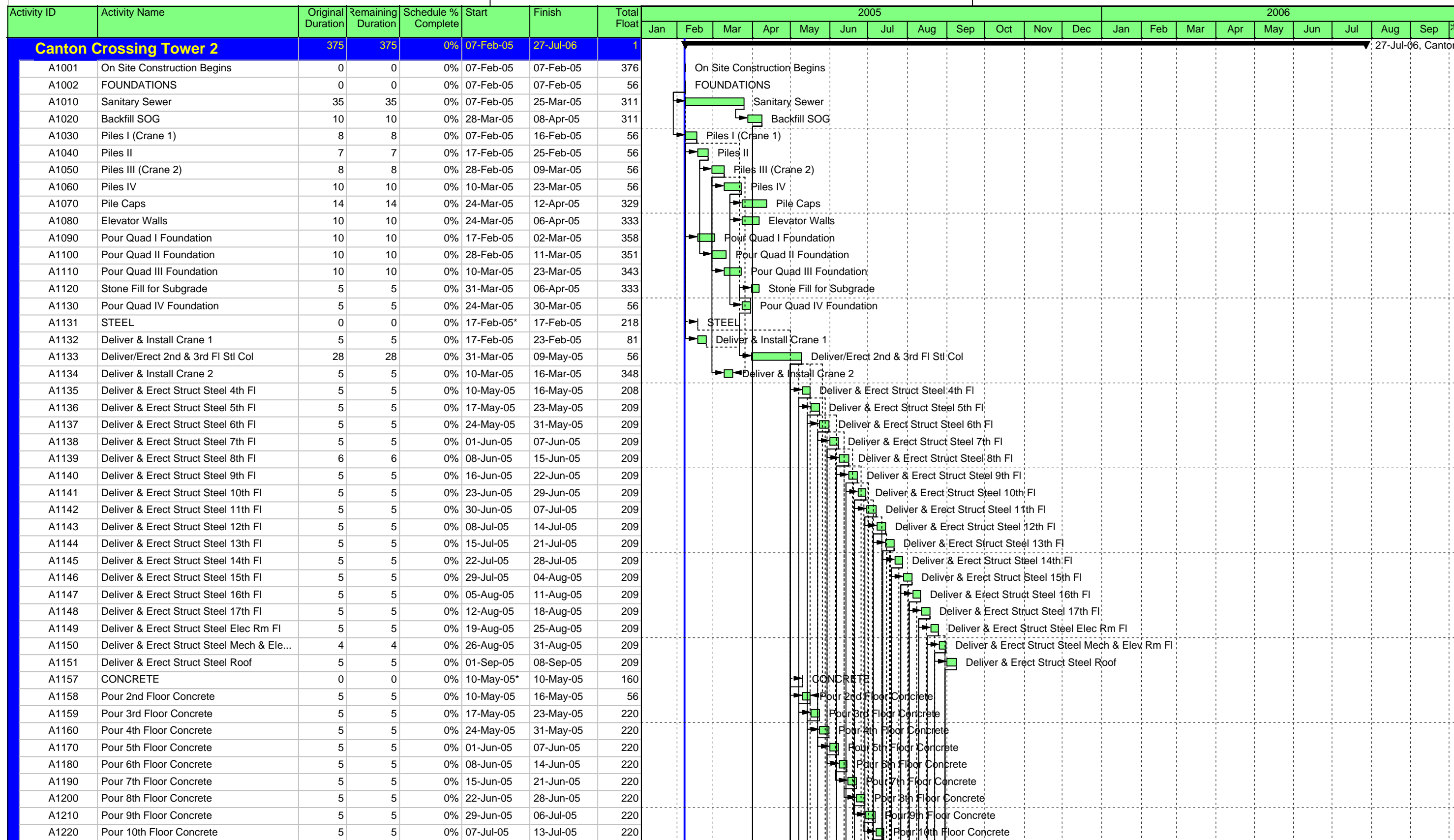


**CANTON CROSSING TOWER**  
 1501 S. CLINTON ST  
 BALTIMORE, MD 21224

**SITE PLAN OF EXISTING CONDITIONS**

TECH ASSG #1 R - 11/6/06  
 TYLER SWARTZWELDER  
 CM OPTION - DR. MESSNER

**DWG - 1.0 R**



█ Actual Work   
 █ Critical Remaining Work   
 ▶ Summary  
█ Remaining Work   
 ◆ Milestone

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float	2005												2006											
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
A1230	Pour 11th Floor Concrete	5	5	0%	14-Jul-05	20-Jul-05	220																								
A1240	Pour 12th Floor Concrete	5	5	0%	21-Jul-05	27-Jul-05	220																								
A1250	Pour 13th Floor Concrete	5	5	0%	28-Jul-05	03-Aug-05	220																								
A1260	Pour 14th Floor Concrete	5	5	0%	04-Aug-05	10-Aug-05	220																								
A1270	Pour 15th Floor Concrete	5	5	0%	11-Aug-05	17-Aug-05	220																								
A1280	Pour 16th Floor Concrete	5	5	0%	18-Aug-05	24-Aug-05	220																								
A1290	Pour 17th Floor Concrete	5	5	0%	25-Aug-05	31-Aug-05	220																								
A1300	Pour Elec Rm Floor Concrete	5	5	0%	01-Sep-05	08-Sep-05	220																								
A1310	Pour Mech Rm Floor Concrete	5	5	0%	09-Sep-05	15-Sep-05	220																								
A1320	Place SOG	7	7	0%	25-Apr-05	03-May-05	314																								
A1321	PRECAST	0	0	0%	10-May-05*	10-May-05	160																								
A1530	Precast 2nd Floor (2nd Shift Mobile)	7	7	0%	17-May-05	25-May-05	194																								
A1540	Precast 3rd Floor (2nd Shift Tower)	7	7	0%	26-May-05	06-Jun-05	194																								
A1545	Precast 4th Floor (2nd Shift Tower)	7	7	0%	07-Jun-05	15-Jun-05	194																								
A1550	Precast 5th Floor (2nd Shift Tower)	4	4	0%	16-Jun-05	21-Jun-05	195																								
A1560	Precast 6th Floor (2nd Shift Tower)	4	4	0%	22-Jun-05	27-Jun-05	196																								
A1570	Precast 7th Floor (2nd Shift Tower)	4	4	0%	28-Jun-05	01-Jul-05	197																								
A1580	Precast 8th Floor (2nd Shift Tower)	4	4	0%	05-Jul-05	08-Jul-05	198																								
A1590	Precast 9th Floor (2nd Shift Tower)	4	4	0%	11-Jul-05	14-Jul-05	199																								
A1600	Precast 10th Floor (2nd Shift Tower)	4	4	0%	15-Jul-05	20-Jul-05	200																								
A1610	Precast 11th Floor (1st & 2nd Shift)	2	2	0%	21-Jul-05	22-Jul-05	203																								
A1620	Precast 12th Floor (1st & 2nd Shift)	2	2	0%	25-Jul-05	26-Jul-05	206																								
A1630	Precast 13th Floor (1st & 2nd Shift)	2	2	0%	27-Jul-05	28-Jul-05	209																								
A1640	Precast 14th Floor (1st & 2nd Shift)	2	2	0%	29-Jul-05	01-Aug-05	212																								
A1650	Precast 15th Floor (1st & 2nd Shift)	2	2	0%	05-Aug-05	08-Aug-05	212																								
A1660	Precast 16th Floor (1st & 2nd Shift)	2	2	0%	12-Aug-05	15-Aug-05	224																								
A1670	Precast 17th Floor (1st & 2nd Shift)	2	2	0%	19-Aug-05	22-Aug-05	221																								
A1680	Precast Gables (1st & 2nd Shift)	16	16	0%	09-Sep-05	30-Sep-05	209																								
A1681	WINDOWS	0	0	0%	19-May-05*	19-May-05	153																								
A1700	Install Windows 2nd Floor	5	5	0%	26-May-05	02-Jun-05	198																								
A1710	Install Windows 3rd Floor	5	5	0%	07-Jun-05	13-Jun-05	196																								
A1720	Install Windows 4th Floor	5	5	0%	16-Jun-05	22-Jun-05	194																								
A1730	Install Windows 5th Floor	5	5	0%	23-Jun-05	29-Jun-05	194																								
A1740	Install Windows 6th Floor	5	5	0%	30-Jun-05	07-Jul-05	194																								
A1750	Install Windows 7th Floor	5	5	0%	08-Jul-05	14-Jul-05	194																								
A1760	Install Windows 8th Floor	5	5	0%	15-Jul-05	21-Jul-05	194																								
A1770	Install Windows 9th Floor	5	5	0%	22-Jul-05	28-Jul-05	194																								
A1780	Install Windows 10th Floor	5	5	0%	29-Jul-05	04-Aug-05	194																								
A1790	Install Windows 11th Floor	5	5	0%	05-Aug-05	11-Aug-05	194																								
A1800	Install Windows 12th Floor	5	5	0%	12-Aug-05	18-Aug-05	194																								
A1810	Install Windows 13th Floor	5	5	0%	19-Aug-05	25-Aug-05	194																								
A1820	Install Windows 14th Floor	5	5	0%	26-Aug-05	01-Sep-05	194																								
A1830	Install Windows 15th Floor	5	5	0%	02-Sep-05	09-Sep-05	194																								
A1840	Install Windows 16th Floor	5	5	0%	12-Sep-05	16-Sep-05	214																								
A1850	Install Windows 17th Floor	5	5	0%	19-Sep-05	23-Sep-05	214																								
A1860	Install Storefront Windows	30	30	0%	12-Sep-05	21-Oct-05	194																								
A1870	Install Curtain Wall	30	30	0%	12-Sep-05	21-Oct-05	194																								

█ Actual Work    
 █ Critical Remaining Work    
 ▬ Summary  
█ Remaining Work    
 ◆ Milestone







Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float	2005												2006								
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
A2750	Paint 2nd Floor	4	4	0%	26-May-05	01-Jun-05	294																					
A2760	Paint 3rd Floor	4	4	0%	07-Jun-05	10-Jun-05	287																					
A2770	Paint 4th Floor	4	4	0%	16-Jun-05	21-Jun-05	280																					
A2780	Paint 5th Floor	4	4	0%	27-Jun-05	30-Jun-05	273																					
A2790	Paint 6th Floor	4	4	0%	07-Jul-05	12-Jul-05	266																					
A2800	Paint 7th Floor	4	4	0%	18-Jul-05	21-Jul-05	259																					
A2810	Paint 8th Floor	4	4	0%	27-Jul-05	01-Aug-05	252																					
A2820	Paint 9th Floor	4	4	0%	05-Aug-05	10-Aug-05	245																					
A2830	Paint 10th Floor	4	4	0%	16-Aug-05	19-Aug-05	238																					
A2840	Paint 11th Floor	4	4	0%	25-Aug-05	30-Aug-05	231																					
A2850	Paint 12th Floor	4	4	0%	06-Sep-05	09-Sep-05	224																					
A2860	Paint 13th Floor	4	4	0%	15-Sep-05	20-Sep-05	217																					
A2870	Paint 14th Floor	4	4	0%	26-Sep-05	29-Sep-05	210																					
A2880	Paint 15th Floor	4	4	0%	05-Oct-05	10-Oct-05	203																					
A2890	Paint 16th Floor	4	4	0%	14-Oct-05	19-Oct-05	196																					
A2900	Paint 17th Floor	4	4	0%	25-Oct-05	28-Oct-05	189																					
A2910	Punchlist	85	85	0%	25-Oct-05	24-Feb-06	56																					
A2911	LANDSCAPING	0	0	0%	15-May-06*	15-May-06	1																					
A2920	Exterior Hardscape	52	52	0%	15-May-06	27-Jul-06	1																					
A2930	Project Complete	0	0	0%		27-Jul-06	1																					

█ Actual Work     
 █ Critical Remaining Work     
 ▼ Summary  
█ Remaining Work     
 ◆ Milestone



# Canton Crossing Tower

Baltimore, Maryland

Tyler Swartzwelder  
Construction Management Option

---

---

## APPENDIX – RESEARCH TOPIC

INDIVIDUAL LEED CHECKLIST SPREADSHEETS

PENN STATE VS. OTHER UNIVERSITIES

DEVELOPER GUIDES



		Core & Shell Projects											
LEED-CS V1.0(Pilot)/2.0 Points		Harbor Side Office Center	Waterfront Technology Center @ Camden	420 Delaware Drive	Abercorn Common	111 South Wacker Drive	Banner Bank Building	1 Crescent Drive	Collaborative Innovation Center	East Hills Center	Main Street @ NorthField Stapleton	Totals	
		Silver	Gold	Silver	Silver	Gold	Platinum	Platinum	Gold	Gold	Silver		
<b>Sustainable Sites</b>												160	
Prereq 1	<b>Construction Activity Pollution Prevention</b>	X	X	X	X	X	X	X	X	X	X	10	
Credit 1	<b>Site Selection</b>	X	X		X	X	X	X	X	X	X	9	90%
Credit 2	<b>Development Density &amp; Community Connectivity</b>		X			X	X	X	X			5	50%
Credit 3	<b>Brownfield Redevelopment</b>	X	X				X	X		X	X	6	60%
Credit 4.1	<b>Alternative Transportation: Public Transportation Access</b>	X	X		X	X	X	X	X	X		8	80%
Credit 4.2	<b>Alternative Transportation: Bicycle Storage &amp; Changing Rooms</b>			X	X	X	X	X	X			6	60%
Credit 4.3	<b>Alternative Transportation: Low-Emitting &amp; Fuel-Efficient Vehicles</b>		X	X	X	X	X	X		X		7	70%
Credit 4.4	<b>Alternative Transportation: Parking Capacity</b>	X	X		X	X	X		X	X		7	70%
Credit 5.1	<b>Site Development: Protect or Restore Habitat</b>					X						1	10%
Credit 5.2	<b>Site Development: Maximize Open Space</b>					X		X				2	20%
Credit 6.1	<b>Stormwater Design: Quantity Control</b>	X			X	X	X	X	X	X	X	8	80%
Credit 6.2	<b>Stormwater Design: Quality Control</b>	X			X		X	X		X	X	6	60%
Credit 7.1	<b>Construction Activity Pollution Prevention</b>	X				X	X	X	X		X	6	60%
Credit 7.2	<b>Heat Island Effect, Roof</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 8	<b>Light Pollution Reduction</b>			X			X	X		X		4	40%
Credit 9	<b>Tenant Design &amp; Construction Guidelines</b>	X	X	X	X		X	X	X	X	X	9	90%
												94	59%
<b>Water Efficiency</b>												50	
Credit 1.1	<b>Water Efficient Landscaping: Reduce by 50%</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 1.2	<b>Water Efficient Landscaping: No Potable Use or No Irrigation</b>		X	X	X	X	X	X	X	X		8	80%
Credit 2	<b>Innovative Wastewater Technologies</b>						X		X			2	20%
Credit 3.1	<b>Water Use Reduction: 20% Reduction</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 3.2	<b>Water Use Reduction: 30% Reduction</b>	X		X	X	X	X	X	X	X	X	9	90%
												39	78%
<b>Energy &amp; Atmosphere</b>												170	
Prereq 1	<b>Fundamental Commissioning of the Building Energy Systems</b>	X	X	X	X	X	X	X	X	X	X	10	
Prereq 2	<b>Minimum Energy Performance</b>	X	X	X	X	X	X	X	X	X	X	10	
Prereq 3	<b>Fundamental Refrigerant Management</b>	X	X	X	X	X	X	X	X	X	X	10	
Credit 1	<b>Optimize Energy Performance</b>	XXX	XX	X	XXXX			XXXXX	XXX	XXXXX		23	230%
	10.5% New Buildings or 3.5% Existing Building Renovations												
	14% New Buildings or 7% Existing Building Renovations												
	17.5% New Buildings or 10.5% Existing Building Renovations												
	21% New Buildings or 14% Existing Building Renovations												
	24.5% New Buildings or 17.5% Existing Building Renovations												
	28% New Buildings or 21% Existing Building Renovations												
	31.5% New Buildings or 24.5% Existing Building Renovations												
	35% New Buildings or 28% Existing Building Renovations												
Credit 2	<b>On-Site Renewable Energy</b>												
Credit 3	<b>Enhanced Commissioning</b>		X	X								2	20%
Credit 4	<b>Enhanced Refrigerant Management</b>	X				X	X			X	X	5	50%
Credit 5.1	<b>Measurement &amp; Verification - Base Building</b>		X					XX	X		XX	6	60%
Credit 5.2	<b>Measurement &amp; Verification - Tenant Sub-metering</b>							X		X	X	3	30%
Credit 6	<b>Green Power</b>												0%
												69	41%

Materials & Resources												120	
Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	X	X	X	X	X	X	X	X	X	X	10	
Credit 1.1	<b>Building Reuse:</b> Maintain 25% of Existing Walls, Floors & Roof					X	X					2	20%
Credit 1.2	<b>Building Reuse:</b> Maintain 50% of Existing Walls, Floors & Roof					X	X					2	20%
Credit 1.3	<b>Building Reuse:</b> Maintain 75% of Interior Non-Structural Elements	X	X	X	X			X	X	X		7	70%
Credit 2.1	<b>Construction Waste Management:</b> Divert 50% from Disposal	X	X	X	X			X	X	X		7	70%
Credit 2.2	<b>Construction Waste Management:</b> Divert 75% from Disposal		X								X	2	20%
Credit 3	<b>Materials Reuse:</b> 1%	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 4.1	<b>Recycled Content:</b> 10% (post-consumer + ½ pre-consumer)	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 4.2	<b>Recycled Content:</b> 20% (post-consumer + ½ pre-consumer)	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 5.1	<b>Regional Materials:</b> 10% Extracted, Processed & Manufactured Reg	X	X	X	X			X	X	X	X	8	80%
Credit 5.2	<b>Regional Materials:</b> 20% Extracted, Processed & Manufactured Reg											0	0%
Credit 6	<b>Certified Wood</b>		X	X								2	20%
												70	58%
Indoor Environmental Quality												160	
Prereq 1	<b>Minimum IAQ Performance</b>	X	X	X	X	X	X	X	X	X	X	10	
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	X	X	X	X	X	X	X	X	X	X	10	
Credit 1	<b>Outdoor Air Delivery Monitoring</b>	X	X	X	X	X	X	X	X			7	70%
Credit 2	<b>Increased Ventilation</b>			X	X	X	X		X			5	50%
Credit 3	<b>Construction IAQ Management Plan:</b> During Construction	X	X		X			X	X	X	X	7	70%
Credit 4.1	<b>Low-Emitting Materials:</b> Adhesives & Sealants	X	X	X	X	0.6	0.6	X	X	X		9	90%
Credit 4.2	<b>Low-Emitting Materials:</b> Paints & Coatings	X	X	X	X	0.6	0.6	X	X		X	9	90%
Credit 4.3	<b>Low-Emitting Materials:</b> Carpet Systems	X	X	X				X	X		X	7	70%
Credit 4.4	<b>Low-Emitting Materials:</b> Composite Wood & Agrifiber Products			X		X	X	X				4	40%
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	X	X	X		X	X	X				6	60%
Credit 6.1	<b>Controllability of Systems:</b> Perimeter					X	X		X			3	30%
Credit 6.2	<b>Controllability of Systems:</b> Non-Perimeter					X	X		X			3	30%
Credit 7.1	<b>Thermal Comfort:</b> Comply with ASHRAE 55-1992	X	X		X	X	X	X	X		X	8	80%
Credit 7.2	<b>Thermal Comfort:</b> Permanent Monitoring System	X	X			X	X	X	X		X	7	70%
Credit 8.1	<b>Daylight &amp; Views:</b> Daylight 75% of Spaces	X	X			X	X	X	X	X	X	8	80%
Credit 8.2	<b>Daylight &amp; Views:</b> Views for 90% of Spaces	X	X	X		X	X	X	X	X	X	9	90%
												112	70%
Innovation & Design Process												50	
Credit 1.1	<b>Innovation in Design:</b> Provide Specific Title		X	X		X	X	X	X	X	X	8	80%
Credit 1.2	<b>Innovation in Design:</b> Provide Specific Title		X		X	X	X	X	X	X	X	8	80%
Credit 1.3	<b>Innovation in Design:</b> Provide Specific Title		X	X	X	X	X	X	X	X	X	9	90%
Credit 1.4	<b>Innovation in Design:</b> Provide Specific Title			X	X	X	X	X	X	X	X	7	70%
Credit 2	<b>LEED® Accredited Professional</b>	X	X	X	X	X	X	X	X	X	X	10	100%
												42	84%
<b>Totals (pre-certification estimates)</b>		<b>32</b>	<b>36</b>	<b>28</b>	<b>31</b>	<b>36</b>	<b>36</b>	<b>46</b>	<b>40</b>	<b>35</b>	<b>30</b>	<b>350</b>	<b>35</b>

		Higher Education Projects											
LEED-NC V2.1 Points (Higher Education)		Center for Inter. Engineering	Orr Admission & College Relations Bldg	Skenandoa House	Inter. Science & Tech. I	Clemson University's Advanced Material	Central College Housing Phase 2	Innovation Center	Redmond Campus Facility	Coffin Street Dormitories	John Mitchell Center at USM	Totals	
		Silver	Gold	Silver	Silver	Silver	Gold	Certified	Silver	Silver	Certified		
<b>Sustainable Sites</b>												150	
Prereq 1	<b>Erosion &amp; Sedimentation Control</b>	X	X	X	X	X	X	X	X	X	X	10	
Credit 1	<b>Site Selection</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 2	<b>Development Density</b>				X							1	10%
Credit 3	<b>Brownfield Redevelopment</b>				X							1	10%
Credit 4.1	<b>Alternative Transportation</b> , Public Transportation Access	X	X	X	X	X		X				6	60%
Credit 4.2	<b>Alternative Transportation</b> , Bicycle Storage & Changing Rooms	X		X	X	X	X		X	X	X	8	80%
Credit 4.3	<b>Alternative Transportation</b> , Alternative Fuel Vehicles		X				X					2	20%
Credit 4.4	<b>Alternative Transportation</b> , Parking Capacity and Carpooling					X			X			2	20%
Credit 5.1	<b>Reduced Site Disturbance</b> , Protect or Restore Open Space	X				X						2	20%
Credit 5.2	<b>Reduced Site Disturbance</b> , Development Footprint		X	X		X	X	X	X	X	X	9	90%
Credit 6.1	<b>Stormwater Management</b> , Rate and Quantity	X	X			X	X		X	X		6	60%
Credit 6.2	<b>Stormwater Management</b> , Treatment		X		X					X		3	30%
Credit 7.1	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Non-Roof	X	X				X		X			4	40%
Credit 7.2	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Roof	X			X			X		X		4	40%
Credit 8	<b>Light Pollution Reduction</b>		X		X			X				3	30%
												71	47%
<b>Water Efficiency</b>												50	
Credit 1.1	<b>Water Efficient Landscaping</b> , Reduce by 50%	X	X	X		X	X	X		X	X	8	80%
Credit 1.2	<b>Water Efficient Landscaping</b> , No Potable Use or No Irrigation	X	X	X		X	X			X	X	7	70%
Credit 2	<b>Innovative Wastewater Technologies</b>									X		1	10%
Credit 3.1	<b>Water Use Reduction</b> , 20% Reduction	X			X	X	X	X			X	6	60%
Credit 3.2	<b>Water Use Reduction</b> , 30% Reduction	X				X	X	X				4	40%
												26	52%
<b>Energy &amp; Atmosphere</b>												200	
Prereq 1	<b>Fundamental Building Systems Commissioning</b>	X	X	X	X	X	X	X	X	X	X	10	
Prereq 2	<b>Minimum Energy Performance</b>	X	X	X	X	X	X	X	X	X	X	10	
Prereq 3	<b>CFC Reduction in HVAC&amp;R Equipment</b>	X	X	X	X	X	X	X	X	X	X	10	
Credit 1	<b>Optimize Energy Performance</b>		XXXXXX	XXXXXX	XXXX	XXXX	XXXX	XXXXXX	XXXX	XXXXXX	XXXX	53	530%
	15% New Buildings or 5% Existing Building Renovations												
	20% New Buildings or 10% Existing Building Renovations												
	25% New Buildings or 15% Existing Building Renovations												
	30% New Buildings or 20% Existing Building Renovations												
	35% New Buildings or 25% Existing Building Renovations												
	40% New Buildings or 30% Existing Building Renovations												
	45% New Buildings or 35% Existing Building Renovations												
	50% New Buildings or 40% Existing Building Renovations												
	55% New Buildings or 45% Existing Building Renovations												
	60% New Buildings or 50% Existing Building Renovations												
Credit 2.1	<b>Renewable Energy</b> , 5%												
Credit 2.2	<b>Renewable Energy</b> , 10%												
Credit 2.3	<b>Renewable Energy</b> , 20%												
Credit 3	<b>Additional Commissioning</b>	X	X		X		X		X			5	50%
Credit 4	<b>Ozone Depletion</b>					X	X		X		X	4	40%
Credit 5	<b>Measurement &amp; Verification</b>		X				X					2	20%
Credit 6	<b>Green Power</b>	X	X	X			X				X	5	50%
												99	50%

	<b>Materials &amp; Resources</b>												140	
Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	X	X	X	X	X	X	X	X	X	X	X	10	
Credit 1.1	<b>Building Reuse</b> , Maintain 75% of Existing Shell			X	X								2	20%
Credit 1.2	<b>Building Reuse</b> , Maintain 100% of Shell			X									1	10%
Credit 1.3	<b>Building Reuse</b> , Maintain 100% Shell & 50% Non-Shell			X									1	10%
Credit 2.1	<b>Construction Waste Management</b> , Divert 50%	X	X	X	X	X		X	X	X	X	X	9	90%
Credit 2.2	<b>Construction Waste Management</b> , Divert 75%	X	X	X	X	X		X	X	X	X	X	8	80%
Credit 3.1	<b>Resource Reuse</b> , Specify 5%			X									2	20%
Credit 3.2	<b>Resource Reuse</b> , Specify 10%				X								1	10%
Credit 4.1	<b>Recycled Content</b> , Specify 5% (post-consumer + ½ post-industrial)	X		X	X	X	X	X	X	X	X	X	9	90%
Credit 4.2	<b>Recycled Content</b> , Specify 10% (post-consumer + ½ post-industrial)	X			X			X	X	X	X	X	6	60%
Credit 5.1	<b>Local/Regional Materials</b> , 20% Manufactured Locally	X	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 5.2	<b>Local/Regional Materials</b> , of 20% Above, 50% Harvested Locally	X	X	X	X			X	X	X			7	70%
Credit 6	<b>Rapidly Renewable Materials</b>													0%
Credit 7	<b>Certified Wood</b>							X	X		X		3	30%
													69	49%
	<b>Indoor Environmental Quality</b>												170	
Prereq 1	<b>Minimum IAQ Performance</b>	X	X	X	X	X	X	X	X	X	X	X	10	100%
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	X	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 1	<b>Carbon Dioxide (CO<sub>2</sub>) Monitoring</b>	X	X		X		X	X	X			X	7	70%
Credit 2	<b>Ventilation Effectiveness</b>				X	X							2	20%
Credit 3.1	<b>Construction IAQ Management Plan</b> , During Construction	X	X		X	X			X	X			7	70%
Credit 3.2	<b>Construction IAQ Management Plan</b> , Before Occupancy	X				X	X	X	X				5	50%
Credit 4.1	<b>Low-Emitting Materials</b> , Adhesives & Sealants	X		X			X	X	X	X	X	X	8	80%
Credit 4.2	<b>Low-Emitting Materials</b> , Paints	X	X	X	X		X	X	X	X	X	X	9	90%
Credit 4.3	<b>Low-Emitting Materials</b> , Carpet	X	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 4.4	<b>Low-Emitting Materials</b> , Composite Wood & Agrifiber						X		X			X	4	40%
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	X	X	X	X	X	X		X	X	X	X	9	90%
Credit 6.1	<b>Controllability of Systems</b> , Perimeter		X	X			X				X		4	40%
Credit 6.2	<b>Controllability of Systems</b> , Non-Perimeter			X		X	X				X		4	40%
Credit 7.1	<b>Thermal Comfort</b> , Comply with ASHRAE 55-1992	X	X	X	X	X	X		X	X	X	X	9	90%
Credit 7.2	<b>Thermal Comfort</b> , Permanent Monitoring System	X	X				X	X				X	6	60%
Credit 8.1	<b>Daylight &amp; Views</b> , Daylight 75% of Spaces		X	X					X	X			4	40%
Credit 8.2	<b>Daylight &amp; Views</b> , Views for 90% of Spaces		X	X		X	X		X	X			6	60%
													114	67%
	<b>Innovation &amp; Design Process</b>												50	
Credit 1.1	<b>Innovation in Design</b> : Provide Specific Title	X	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 1.2	<b>Innovation in Design</b> : Provide Specific Title	X	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 1.3	<b>Innovation in Design</b> : Provide Specific Title	X	X		X		X	X			X		6	60%
Credit 1.4	<b>Innovation in Design</b> : Provide Specific Title	X	X		X		X						4	40%
Credit 2	<b>LEED™ Accredited Professional</b>	X	X	X	X	X	X	X	X	X	X	X	10	100%
													40	80%
	<b>Totals (pre-certification estimates)</b>	<b>33</b>	<b>39</b>	<b>33</b>	<b>35</b>	<b>33</b>	<b>39</b>	<b>31</b>	<b>35</b>	<b>36</b>	<b>29</b>	<b>343</b>	<b>34.3</b>	

		Own/Occupy Projects											
LEED-NC V2.1 Points (Owner Build/Occupy)		Yukon Base Facility	Wind NRG Partners, LLC	BCBS of MA	Pfizer Research Unit	Alberici Corporate Headqtrs	Institute of EcoTourism	Ampere Annex	Stantec Centre	Sprint Bldg 14	Winrock Intl Office	Totals	
		Silver	Gold	Certified	Silver	Platinum	Gold	Silver	Silver	Certified	Gold		
<b>Sustainable Sites</b>												150	
Prereq 1	Erosion & Sedimentation Control	X	X	X	X	X	X	X	X	X	X	10	
Credit 1	Site Selection	X			X	X		X	X			5	
Credit 2	Development Density								X			1	10%
Credit 3	Brownfield Redevelopment				X	X						2	20%
Credit 4.1	Alternative Transportation, Public Transportation Access	X		X	X	X	X	X	X	X	X	9	90%
Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	X	X	X	X	X		X	X	X	X	9	90%
Credit 4.3	Alternative Transportation, Alternative Fuel Vehicles	X					X					2	20%
Credit 4.4	Alternative Transportation, Parking Capacity and Carpooling		X		X	X	X	X	X	X	X	8	80%
Credit 5.1	Reduced Site Disturbance, Protect or Restore Open Space				X	X	X				X	3	30%
Credit 5.2	Reduced Site Disturbance, Development Footprint		X			X	X	X		X		5	50%
Credit 6.1	Stormwater Management, Rate and Quantity					X			X	X		3	30%
Credit 6.2	Stormwater Management, Treatment			X		X		X		X		4	40%
Credit 7.1	Landscape & Exterior Design to Reduce Heat Islands,N-Roof			X	X	X	X	X	X	X	X	8	80%
Credit 7.2	Landscape & Exterior Design to Reduce Heat Islands, Roof	X	X	X	X	X		X	X		X	8	80%
Credit 8	Light Pollution Reduction		X			X	X	X				4	40%
												81	54%
<b>Water Efficiency</b>												50	
Credit 1.1	Water Efficient Landscaping, Reduce by 50%	X	X	X	X	X		X	X		X	8	80%
Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation		X		X	X		X	X		X	6	60%
Credit 2	Innovative Wastewater Technologies					X						1	10%
Credit 3.1	Water Use Reduction, 20% Reduction	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 3.2	Water Use Reduction, 30% Reduction	X	X			X		X	X		X	6	60%
												31	62%
<b>Energy &amp; Atmosphere</b>												200	
Prereq 1	Fundamental Building Systems Commissioning	X	X	X	X	X	X	X	X	X	X	10	
Prereq 2	Minimum Energy Performance	X	X	X	X	X	X	X	X	X	X	10	
Prereq 3	CFC Reduction in HVAC&R Equipment	X	X	X	X	X	X	X	X	X	X	10	
Credit 1	Optimize Energy Performance	XXXXXXXX	XXXXXXXXXX	XXXX	XXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXX	XXXX	XXXX	XXXXXX	62	620%
	15% New Buildings or 5% Existing Building Renovations												
	20% New Buildings or 10% Existing Building Renovations												
	25% New Buildings or 15% Existing Building Renovations												
	30% New Buildings or 20% Existing Building Renovations												
	35% New Buildings or 25% Existing Building Renovations												
	40% New Buildings or 30% Existing Building Renovations												
	45% New Buildings or 35% Existing Building Renovations												
	50% New Buildings or 40% Existing Building Renovations												
	55% New Buildings or 45% Existing Building Renovations												
	60% New Buildings or 50% Existing Building Renovations												
Credit 2.1	Renewable Energy, 5%	X	X			X						3	30%
Credit 2.2	Renewable Energy, 10%	X	X			X						3	30%
Credit 2.3	Renewable Energy, 20%	X	X			X						3	30%
Credit 3	Additional Commissioning			X	X	X			X		X	5	50%
Credit 4	Ozone Depletion					X	X	X	X	X	X	6	60%
Credit 5	Measurement & Verification					X							
Credit 6	Green Power	X					X		X	X	X	5	50%
												117	59%



	<b>Materials &amp; Resources</b>											140	
Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	X	X	X	X	X	X	X	X	X	X	10	
Credit 1.1	<b>Building Reuse, Maintain 75% of Existing Shell</b>						X	X				2	20%
Credit 1.2	<b>Building Reuse, Maintain 100% of Shell</b>						X					1	10%
Credit 1.3	<b>Building Reuse, Maintain 100% Shell &amp; 50% Non-Shell</b>												0%
Credit 2.1	<b>Construction Waste Management, Divert 50%</b>	X	X	X	X	X	X	X	X		X	9	90%
Credit 2.2	<b>Construction Waste Management, Divert 75%</b>	X	X	X	X	X	X	X	X		X	9	90%
Credit 3.1	<b>Resource Reuse, Specify 5%</b>					X	X					2	20%
Credit 3.2	<b>Resource Reuse, Specify 10%</b>						X					1	10%
Credit 4.1	<b>Recycled Content, Specify 5% (post-consumer + ½ post-industrial)</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 4.2	<b>Recycled Content, Specify 10% (post-consumer + ½ post-industrial)</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 5.1	<b>Local/Regional Materials, 20% Manufactured Locally</b>	X	X	X	X	X		X	X	X	X	9	90%
Credit 5.2	<b>Local/Regional Materials, of 20% Above, 50% Harvested Locally</b>	X	X	X		X		X	X	X	X	8	80%
Credit 6	<b>Rapidly Renewable Materials</b>					X						1	10%
Credit 7	<b>Certified Wood</b>		X		X	X						3	30%
												75	54%
	<b>Indoor Environmental Quality</b>											170	
Prereq 1	<b>Minimum IAQ Performance</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 1	<b>Carbon Dioxide (CO<sub>2</sub>) Monitoring</b>	X			X	X	X		X	X	X	7	70%
Credit 2	<b>Ventilation Effectiveness</b>					X				X	X	3	30%
Credit 3.1	<b>Construction IAQ Management Plan, During Construction</b>			X	X	X	X				X	5	50%
Credit 3.2	<b>Construction IAQ Management Plan, Before Occupancy</b>	X		X	X	X					X	5	50%
Credit 4.1	<b>Low-Emitting Materials, Adhesives &amp; Sealants</b>	X	X	X	X	X	X		X	X	X	9	90%
Credit 4.2	<b>Low-Emitting Materials, Paints</b>	X	X	X	X	X	X	X	X	X	X	9	90%
Credit 4.3	<b>Low-Emitting Materials, Carpet</b>	X	X	X		X	X	X	X	X	X	9	90%
Credit 4.4	<b>Low-Emitting Materials, Composite Wood &amp; Agrifiber</b>		X	X	X		X	X				5	50%
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>			X	X	X	X		X		X	6	60%
Credit 6.1	<b>Controllability of Systems, Perimeter</b>		X			X		X				3	30%
Credit 6.2	<b>Controllability of Systems, Non-Perimeter</b>		X	X		X					X	4	40%
Credit 7.1	<b>Thermal Comfort, Comply with ASHRAE 55-1992</b>		X		X	X	X	X	X		X	7	70%
Credit 7.2	<b>Thermal Comfort, Permanent Monitoring System</b>		X		X	X	X		X		X	6	60%
Credit 8.1	<b>Daylight &amp; Views, Daylight 75% of Spaces</b>		X					X			X	3	30%
Credit 8.2	<b>Daylight &amp; Views, Views for 90% of Spaces</b>	X	X			X	X	X	X		X	7	70%
												108	64%
	<b>Innovation &amp; Design Process</b>											50	
Credit 1.1	<b>Innovation in Design: Provide Specific Title</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 1.2	<b>Innovation in Design: Provide Specific Title</b>	X	X	X		X	X	X	X	X	X	9	90%
Credit 1.3	<b>Innovation in Design: Provide Specific Title</b>		X	X		X	X	X	X	X	X	8	80%
Credit 1.4	<b>Innovation in Design: Provide Specific Title</b>		X	X		X			X		X	5	50%
Credit 2	<b>LEED™ Accredited Professional</b>	X	X	X	X	X	X	X	X	X	X	10	100%
												42	84%
	<b>Totals (pre-certification estimates)</b>	35	44	31	33	60	39	36	38	26	43	385	38.5

		Build-Lease/Sell Projects										Totals	
LEED-NC V2.1 Points (Build/Sell/Lease)		Public Health Sciences	Tumwater Office	BCBSM/ Steketees Building	Michigan Renewal Energy	ORNL E. Campus	Town Center E Bldg II	Two Pot. Yard	NAR DC Bldg	Carl T. Curtis MW Reg	One Pot. Yard	Totals	
		Certified	Gold	Certified	Gold	Certified	Certified	Gold	Silver	Gold	Gold		
<b>Sustainable Sites</b>												150	
Prereq 1	<b>Erosion &amp; Sedimentation Control</b>	X	X	X	X	X	X	X	X	X	X	10	
Credit 1	<b>Site Selection</b>	X	X	X			X	X	X	X	X	8	80%
Credit 2	<b>Development Density</b>	X		X				X	X		X	5	50%
Credit 3	<b>Brownfield Redevelopment</b>	X		X	X			X	X	X	X	6	60%
Credit 4.1	<b>Alternative Transportation</b> , Public Transportation Access	X	X	X	X			X	X		X	7	70%
Credit 4.2	<b>Alternative Transportation</b> , Bicycle Storage & Changing Rooms	X	X		X	X	X	X	X	X	X	9	90%
Credit 4.3	<b>Alternative Transportation</b> , Alternative Fuel Vehicles				X			X	X		X	4	40%
Credit 4.4	<b>Alternative Transportation</b> , Parking Capacity and Carpooling		X		X	X	X	X		X	X	7	70%
Credit 5.1	<b>Reduced Site Disturbance</b> , Protect or Restore Open Space		X		X	X		X				4	40%
Credit 5.2	<b>Reduced Site Disturbance</b> , Development Footprint				X					X		2	20%
Credit 6.1	<b>Stormwater Management</b> , Rate and Quantity		X		X		X				X	4	40%
Credit 6.2	<b>Stormwater Management</b> , Treatment	X	X				X	X		X	X	6	60%
Credit 7.1	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , N-Roof	X			X	X	X	X	X	X	X	7	70%
Credit 7.2	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Roof		X		X	X	X	X	X	X		7	70%
Credit 8	<b>Light Pollution Reduction</b>			X	X	X			X			4	40%
												90	60%
<b>Water Efficiency</b>												50	
Credit 1.1	<b>Water Efficient Landscaping</b> , Reduce by 50%	X	X		X	X	X	X	X	X	X	9	90%
Credit 1.2	<b>Water Efficient Landscaping</b> , No Potable Use or No Irrigation	X	X		X	X		X	X	X	X	8	80%
Credit 2	<b>Innovative Wastewater Technologies</b>												0%
Credit 3.1	<b>Water Use Reduction</b> , 20% Reduction		X	X	X		X	X	X	X	X	8	80%
Credit 3.2	<b>Water Use Reduction</b> , 30% Reduction		X		X			X	X	X	X	6	60%
												31	62%
<b>Energy &amp; Atmosphere</b>												200	
Prereq 1	<b>Fundamental Building Systems Commissioning</b>	X	X	X	X	X	X	X	X	X	X	10	
Prereq 2	<b>Minimum Energy Performance</b>	X	X	X	X	X	X	X	X	X	X	10	
Prereq 3	<b>CFC Reduction in HVAC&amp;R Equipment</b>	X	X	X	X	X	X	X	X	X	X	10	
Credit 1	<b>Optimize Energy Performance</b>		XXXXXX	XXXXX	XXXXXXXX	XXX	XXXXXX	XX	XXXX	XXX	XXX	39	390%
	15% New Buildings or 5% Existing Building Renovations												
	20% New Buildings or 10% Existing Building Renovations												
	25% New Buildings or 15% Existing Building Renovations												
	30% New Buildings or 20% Existing Building Renovations												
	35% New Buildings or 25% Existing Building Renovations												
	40% New Buildings or 30% Existing Building Renovations												
	45% New Buildings or 35% Existing Building Renovations												
	50% New Buildings or 40% Existing Building Renovations												
	55% New Buildings or 45% Existing Building Renovations												
	60% New Buildings or 50% Existing Building Renovations												
Credit 2.1	<b>Renewable Energy</b> , 5%				X							1	
Credit 2.2	<b>Renewable Energy</b> , 10%				X							1	
Credit 2.3	<b>Renewable Energy</b> , 20%				X							1	
Credit 3	<b>Additional Commissioning</b>		X			X		X		X	X	5	50%
Credit 4	<b>Ozone Depletion</b>		X		X	X	X	X			X	6	60%
Credit 5	<b>Measurement &amp; Verification</b>					X				X	X	3	30%
Credit 6	<b>Green Power</b>	X			X			X	X	X	X	6	60%
												92	46%

Materials & Resources												140	
Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	X	X	X	X	X	X	X	X	X	X	10	
Credit 1.1	<b>Building Reuse</b> , Maintain 75% of Existing Shell			X								1	10%
Credit 1.2	<b>Building Reuse</b> , Maintain 100% of Shell			X								1	10%
Credit 1.3	<b>Building Reuse</b> , Maintain 100% Shell & 50% Non-Shell												0%
Credit 2.1	<b>Construction Waste Management</b> , Divert 50%	X	X		X	X	X	X		X	X	8	80%
Credit 2.2	<b>Construction Waste Management</b> , Divert 75%	X	X		X		X					4	40%
Credit 3.1	<b>Resource Reuse</b> , Specify 5%												0%
Credit 3.2	<b>Resource Reuse</b> , Specify 10%												0%
Credit 4.1	<b>Recycled Content</b> , Specify 5% (post-consumer + ½ post-industrial)	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 4.2	<b>Recycled Content</b> , Specify 10% (post-consumer + ½ post-industrial)	X	X		X	X	X	X	X	X	X	8	80%
Credit 5.1	<b>Local/Regional Materials</b> , 20% Manufactured Locally	X	X	X	X		X	X	X	X	X	9	90%
Credit 5.2	<b>Local/Regional Materials</b> , of 20% Above, 50% Harvested Locally	X	X				X	X	X	X	X	7	70%
Credit 6	<b>Rapidly Renewable Materials</b>												0%
Credit 7	<b>Certified Wood</b>			X				X		X	X	4	40%
												62	44%
<b>Indoor Environmental Quality</b>												170	
Prereq 1	<b>Minimum IAQ Performance</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 1	<b>Carbon Dioxide (CO<sub>2</sub>) Monitoring</b>		X	X	X	X		X	X	X	X	8	80%
Credit 2	<b>Ventilation Effectiveness</b>				X					X		2	20%
Credit 3.1	<b>Construction IAQ Management Plan</b> , During Construction	X	X		X	X		X		X	X	7	70%
Credit 3.2	<b>Construction IAQ Management Plan</b> , Before Occupancy	X	X		X	X		X			X	6	60%
Credit 4.1	<b>Low-Emitting Materials</b> , Adhesives & Sealants	X	X	X	X	X		X		X	X	8	80%
Credit 4.2	<b>Low-Emitting Materials</b> , Paints		X	X	X	X	X	X	X	X	X	9	90%
Credit 4.3	<b>Low-Emitting Materials</b> , Carpet	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 4.4	<b>Low-Emitting Materials</b> , Composite Wood & Agrifiber			X				X	X		X	4	40%
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	X	X	X	X			X	X	X	X	8	80%
Credit 6.1	<b>Controllability of Systems</b> , Perimeter												0%
Credit 6.2	<b>Controllability of Systems</b> , Non-Perimeter												0%
Credit 7.1	<b>Thermal Comfort</b> , Comply with ASHRAE 55-1992		X	X				X	X	X	X	6	60%
Credit 7.2	<b>Thermal Comfort</b> , Permanent Monitoring System		X	X				X		X	X	5	50%
Credit 8.1	<b>Daylight &amp; Views</b> , Daylight 75% of Spaces							X	X	X	X	2	20%
Credit 8.2	<b>Daylight &amp; Views</b> , Views for 90% of Spaces		X	X	X		X	X	X	X	X	7	70%
												102	60%
<b>Innovation &amp; Design Process</b>												50	
Credit 1.1	<b>Innovation in Design</b> : Provide Specific Title	X	X		X	X		X	X	X	X	8	80%
Credit 1.2	<b>Innovation in Design</b> : Provide Specific Title	X	X	X	X	X	X	X	X	X	X	10	100%
Credit 1.3	<b>Innovation in Design</b> : Provide Specific Title	X	X		X	X		X	X	X	X	8	80%
Credit 1.4	<b>Innovation in Design</b> : Provide Specific Title	X	X		X		X	X	X	X	X	8	80%
Credit 2	<b>LEED™ Accredited Professional</b>	X	X	X	X	X	X	X	X	X	X	10	100%
												44	88%
<b>Totals (pre-certification estimates)</b>		26	41	27	46	27	28	42	33	40	43	353	35.3

PENN STATE UNIVERSITY VS. OTHER RESEARCH UNIVERSITIES LEED POINT ANALYSIS				
LEED-NC V2.1 Points (Higher Education)		PENN STATE UNIVERSITY		OTHER RESEARCH UNIVERSITIES
Sustainable Sites		Total Possible Points = 30		Total Possible Points = 150
Prereq 1	Erosion & Sedimentation Control	2		10
Credit 1	Site Selection	0		100%
Credit 2	Development Density	0		10%
Credit 3	Brownfield Redevelopment	0		10%
Credit 4.1	Alternative Transportation, Public Transportation Access	0		60%
Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1		80%
Credit 4.3	Alternative Transportation, Alternative Fuel Vehicles	0		20%
Credit 4.4	Alternative Transportation, Parking Capacity and Carpooling	0		20%
Credit 5.1	Reduced Site Disturbance, Protect or Restore Open Space	0		20%
Credit 5.2	Reduced Site Disturbance, Development Footprint	1		90%
Credit 6.1	Stormwater Management, Rate and Quantity	2		60%
Credit 6.2	Stormwater Management, Treatment	1		30%
Credit 7.1	Landscape & Exterior Design to Reduce Heat Islands, Non-Roof	0		40%
Credit 7.2	Landscape & Exterior Design to Reduce Heat Islands, Roof	1		40%
Credit 8	Light Pollution Reduction	0		30%
		8	27%	71
				47%
Water Efficiency		Total Possible Points = 10		Total Possible Points = 50
Credit 1.1	Water Efficient Landscaping, Reduce by 50%	0		80%
Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	0		70%
Credit 2	Innovative Wastewater Technologies	0		10%
Credit 3.1	Water Use Reduction, 20% Reduction	2		60%
Credit 3.2	Water Use Reduction, 30% Reduction	1		40%
		3	30%	26
				52%
Energy & Atmosphere		Total Possible Points = 40		Total Possible Points = 200
Prereq 1	Fundamental Building Systems Commissioning	2		10
Prereq 2	Minimum Energy Performance	2		10
Prereq 3	CFC Reduction in HVAC&R Equipment	2		10
Credit 1	Optimize Energy Performance			53
	15% New Buildings or 5% Existing Building Renovations	2		
	20% New Buildings or 10% Existing Building Renovations	2		
	25% New Buildings or 15% Existing Building Renovations	2		
	30% New Buildings or 20% Existing Building Renovations	2		
	35% New Buildings or 25% Existing Building Renovations	2		
	40% New Buildings or 30% Existing Building Renovations	2		
	45% New Buildings or 35% Existing Building Renovations	1		
	50% New Buildings or 40% Existing Building Renovations	1		
	55% New Buildings or 45% Existing Building Renovations	1		
	60% New Buildings or 50% Existing Building Renovations	1		
Credit 2.1	Renewable Energy, 5%	1		
Credit 2.2	Renewable Energy, 10%	0		
Credit 2.3	Renewable Energy, 20%	2		
Credit 3	Additional Commissioning	2		5
				50%
Credit 4	Ozone Depletion	2		4
				40%
Credit 5	Measurement & Verification	0		2
				20%
Credit 6	Green Power	2		5
				50%
		31	78%	99
				50%
Materials & Resources		Total Possible Points = 28		Total Possible Points = 140
Prereq 1	Storage & Collection of Recyclables	2		10
Credit 1.1	Building Reuse, Maintain 75% of Existing Shell	0		2
				20%
Credit 1.2	Building Reuse, Maintain 100% of Shell	0		1
				10%
Credit 1.3	Building Reuse, Maintain 100% Shell & 50% Non-Shell	0		1
				10%
Credit 2.1	Construction Waste Management, Divert 50%	2		9
				90%
Credit 2.2	Construction Waste Management, Divert 75%	2		8
				80%
Credit 3.1	Resource Reuse, Specify 5%	0		2
				20%
Credit 3.2	Resource Reuse, Specify 10%	0		1
				10%

Credit 4.1	<b>Recycled Content</b> , Specify 5% (post-consumer + ½ post-industrial)	2		9	90%
Credit 4.2	<b>Recycled Content</b> , Specify 10% (post-consumer + ½ post-industrial)	1		6	60%
Credit 5.1	<b>Local/Regional Materials</b> , 20% Manufactured Locally	2		10	100%
Credit 5.2	<b>Local/Regional Materials</b> , of 20% Above, 50% Harvested Locally	2		7	70%
Credit 6	<b>Rapidly Renewable Materials</b>	0			0%
Credit 7	<b>Certified Wood</b>	2		3	30%
		15	54%	69	49%
<b>Indoor Environmental Quality</b>		<b>Total Possible Points = 34</b>		<b>Total Possible Points = 170</b>	
Prereq 1	<b>Minimum IAQ Performance</b>	2		10	100%
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	2		10	100%
Credit 1	<b>Carbon Dioxide (CO<sub>2</sub>) Monitoring</b>	2		7	70%
Credit 2	<b>Ventilation Effectiveness</b>	0		2	20%
Credit 3.1	<b>Construction IAQ Management Plan</b> , During Construction	2		7	70%
Credit 3.2	<b>Construction IAQ Management Plan</b> , Before Occupancy	2		5	50%
Credit 4.1	<b>Low-Emitting Materials</b> , Adhesives & Sealants	2		8	80%
Credit 4.2	<b>Low-Emitting Materials</b> , Paints	2		9	90%
Credit 4.3	<b>Low-Emitting Materials</b> , Carpet	2		10	100%
Credit 4.4	<b>Low-Emitting Materials</b> , Composite Wood & Agrifiber	2		4	40%
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	2		9	90%
Credit 6.1	<b>Controllability of Systems</b> , Perimeter	2		4	40%
Credit 6.2	<b>Controllability of Systems</b> , Non-Perimeter	1		4	40%
Credit 7.1	<b>Thermal Comfort</b> , Comply with ASHRAE 55-1992	0		9	90%
Credit 7.2	<b>Thermal Comfort</b> , Permanent Monitoring System	2		6	60%
Credit 8.1	<b>Daylight &amp; Views</b> , Daylight 75% of Spaces	1		4	40%
Credit 8.2	<b>Daylight &amp; Views</b> , Views for 90% of Spaces	0		6	60%
		26	76%	114	67%
<b>Innovation &amp; Design Process</b>		<b>Total Possible Points = 10</b>		<b>Total Possible Points = 50</b>	
Credit 1.1	<b>Innovation in Design</b> : Provide Specific Title	2		10	100%
Credit 1.2	<b>Innovation in Design</b> : Provide Specific Title	2		10	100%
Credit 1.3	<b>Innovation in Design</b> : Provide Specific Title	1		6	60%
Credit 1.4	<b>Innovation in Design</b> : Provide Specific Title	2		4	40%
Credit 2	<b>LEED™ Accredited Professional</b>	2		10	100%
		9	90%	40	80%
		<b>AVG LEED SCORE = 46 - GOLD</b>		<b>AVG LEED SCORE = 42 - GOLD</b>	



<b>LEED Guide for Core and Shell Developers</b>			
	<b>LEED-CS V1.0(Pilot)/2.0 Points</b>	<b>Guide Data</b>	
		<b>% of Research Projects</b>	<b>Compliance Effort</b>
	<b>Sustainable Sites</b>		
Prereq 1	<b>Construction Activity Pollution Prevention</b>	100%	Mandatory Compliance
Credit 1	<b>Site Selection</b>	90%	Mandatory Compliance
Credit 2	<b>Development Density &amp; Community Connectivity</b>	50%	Significant Effort
Credit 3	<b>Brownfield Redevelopment</b>	60%	Significant Effort
Credit 4.1	<b>Alternative Transportation: Public Transportation Access</b>	80%	Mandatory Compliance
Credit 4.2	<b>Alternative Transportation: Bicycle Storage &amp; Changing Rooms</b>	60%	Significant Effort
Credit 4.3	<b>Alternative Transportation: Low-Emitting and Fuel-Efficient Vehicles</b>	70%	Significant Effort
Credit 4.4	<b>Alternative Transportation: Parking Capacity</b>	70%	Significant Effort
Credit 5.1	<b>Site Development: Protect or Restore Habitat</b>	10%	Minimal Effort
Credit 5.2	<b>Site Development: Maximize Open Space</b>	20%	Minimal Effort
Credit 6.1	<b>Stormwater Design: Quantity Control</b>	80%	Mandatory Compliance
Credit 6.2	<b>Stormwater Design: Quality Control</b>	60%	Significant Effort
Credit 7.1	<b>Construction Activity Pollution Prevention</b>	60%	Significant Effort
Credit 7.2	<b>Heat Island Effect, Roof</b>	100%	Mandatory Compliance
Credit 8	<b>Light Pollution Reduction</b>	40%	Adequate Effort
Credit 9	<b>Tenant Design &amp; Construction Guidelines</b>	90%	Mandatory Compliance
	<b>Water Efficiency</b>		
Credit 1.1	<b>Water Efficient Landscaping: Reduce by 50%</b>	100%	Mandatory Compliance
Credit 1.2	<b>Water Efficient Landscaping: No Potable Use or No Irrigation</b>	80%	Mandatory Compliance
Credit 2	<b>Innovative Wastewater Technologies</b>	20%	Minimal Effort
Credit 3.1	<b>Water Use Reduction: 20% Reduction</b>	100%	Mandatory Compliance
Credit 3.2	<b>Water Use Reduction: 30% Reduction</b>	90%	Mandatory Compliance

<b>Energy &amp; Atmosphere</b>			
Prereq 1	<b>Fundamental Commissioning of the Building Energy Systems</b>	100%	Mandatory Compliance
Prereq 2	<b>Minimum Energy Performance</b>	100%	Mandatory Compliance
Prereq 3	<b>Fundamental Refrigerant Management</b>	100%	Mandatory Compliance
Credit 1	<b>Optimize Energy Performance</b>	29% of Credit 1	Adequate Effort
	10.5% New Buildings or 3.5% Existing Building Renovations		
	14% New Buildings or 7% Existing Building Renovations		
	17.5% New Buildings or 10.5% Existing Building Renovations		
	21% New Buildings or 14% Existing Building Renovations		
	24.5% New Buildings or 17.5% Existing Building Renovations		
	28% New Buildings or 21% Existing Building Renovations		
	31.5% New Buildings or 24.5% Existing Building Renovations		
	35% New Buildings or 28% Existing Building Renovations		
Credit 2	<b>On-Site Renewable Energy</b>	0%	Minimal Effort
Credit 3	<b>Enhanced Commissioning</b>	20%	Minimal Effort
Credit 4	<b>Enhanced Refrigerant Management</b>	50%	Significant Effort
Credit 5.1	<b>Measurement &amp; Verification</b> - Base Building	60%	Significant Effort
Credit 5.2	<b>Measurement &amp; Verification</b> - Tenant Sub-metering	30%	Adequate Effort
Credit 6	<b>Green Power</b>	0%	Minimal Effort
<b>Materials &amp; Resources</b>			
Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	100%	Mandatory Compliance
Credit 1.1	<b>Building Reuse:</b> Maintain 25% of Existing Walls, Floors & Roof	20%	Minimal Effort
Credit 1.2	<b>Building Reuse:</b> Maintain 50% of Existing Walls, Floors & Roof	20%	Minimal Effort
Credit 1.3	<b>Building Reuse:</b> Maintain 75% of Interior Non-Structural Elements	70%	Significant Effort
Credit 2.1	<b>Construction Waste Management:</b> Divert 50% from Disposal	70%	Significant Effort
Credit 2.2	<b>Construction Waste Management:</b> Divert 75% from Disposal	20%	Minimal Effort
Credit 3	<b>Materials Reuse:</b> 1%	100%	Mandatory Compliance
Credit 4.1	<b>Recycled Content:</b> 10% (post-consumer + ½ pre-consumer)	100%	Mandatory Compliance
Credit 4.2	<b>Recycled Content:</b> 20% (post-consumer + ½ pre-consumer)	100%	Mandatory Compliance
Credit 5.1	<b>Regional Materials:</b> 10% Extracted, Processed & Manufactured Reg.	80%	Mandatory Compliance
Credit 5.2	<b>Regional Materials:</b> 20% Extracted, Processed & Manufactured Reg.	0%	Minimal Effort
Credit 6	<b>Certified Wood</b>	20%	Minimal Effort

	Indoor Environmental Quality		
Prereq 1	<b>Minimum IAQ Performance</b>	100%	Mandatory Compliance
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	100%	Mandatory Compliance
Credit 1	<b>Outdoor Air Delivery Monitoring</b>	70%	Significant Effort
Credit 2	<b>Increased Ventilation</b>	50%	Significant Effort
Credit 3	<b>Construction IAQ Management Plan: During Construction</b>	70%	Significant Effort
Credit 4.1	<b>Low-Emitting Materials: Adhesives &amp; Sealants</b>	90%	Mandatory Compliance
Credit 4.2	<b>Low-Emitting Materials: Paints &amp; Coatings</b>	90%	Mandatory Compliance
Credit 4.3	<b>Low-Emitting Materials: Carpet Systems</b>	70%	Significant Effort
Credit 4.4	<b>Low-Emitting Materials: Composite Wood &amp; Agrifiber Products</b>	40%	Adequate Effort
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	60%	Significant Effort
Credit 6.1	<b>Controllability of Systems: Perimeter</b>	30%	Adequate Effort
Credit 6.2	<b>Controllability of Systems: Non-Perimeter</b>	30%	Adequate Effort
Credit 7.1	<b>Thermal Comfort: Comply with ASHRAE 55-1992</b>	80%	Mandatory Compliance
Credit 7.2	<b>Thermal Comfort: Permanent Monitoring System</b>	70%	Significant Effort
Credit 8.1	<b>Daylight &amp; Views: Daylight 75% of Spaces</b>	80%	Mandatory Compliance
Credit 8.2	<b>Daylight &amp; Views: Views for 90% of Spaces</b>	90%	Mandatory Compliance
	Innovation & Design Process		
Credit 1.1	<b>Innovation in Design: Provide Specific Title</b>	80%	Mandatory Compliance
Credit 1.2	<b>Innovation in Design: Provide Specific Title</b>	80%	Mandatory Compliance
Credit 1.3	<b>Innovation in Design: Provide Specific Title</b>	90%	Mandatory Compliance
Credit 1.4	<b>Innovation in Design: Provide Specific Title</b>	70%	Significant Effort
Credit 2	<b>LEED® Accredited Professional</b>	100%	Mandatory Compliance

LEED Guide for Higher Education Developers			
	LEED-NC V2.1 Points (Higher Education)	Guide Data	
		% of Research Projects	Compliance Effort
	<b>Sustainable Sites</b>		
Prereq 1	<b>Erosion &amp; Sedimentation Control</b>	100%	Mandatory Compliance
Credit 1	<b>Site Selection</b>	100%	Mandatory Compliance
Credit 2	<b>Development Density</b>	10%	Minimal Effort
Credit 3	<b>Brownfield Redevelopment</b>	10%	Minimal Effort
Credit 4.1	<b>Alternative Transportation</b> , Public Transportation Access	60%	Significant Effort
Credit 4.2	<b>Alternative Transportation</b> , Bicycle Storage & Changing Rooms	80%	Mandatory Compliance
Credit 4.3	<b>Alternative Transportation</b> , Alternative Fuel Vehicles	20%	Minimal Effort
Credit 4.4	<b>Alternative Transportation</b> , Parking Capacity and Carpooling	20%	Minimal Effort
Credit 5.1	<b>Reduced Site Disturbance</b> , Protect or Restore Open Space	20%	Minimal Effort
Credit 5.2	<b>Reduced Site Disturbance</b> , Development Footprint	90%	Mandatory Compliance
Credit 6.1	<b>Stormwater Management</b> , Rate and Quantity	60%	Significant Effort
Credit 6.2	<b>Stormwater Management</b> , Treatment	40%	Adequate Effort
Credit 7.1	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Non-Roof	40%	Adequate Effort
Credit 7.2	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Roof	40%	Adequate Effort
Credit 8	<b>Light Pollution Reduction</b>	30%	Adequate Effort
	<b>Water Efficiency</b>		
Credit 1.1	<b>Water Efficient Landscaping</b> , Reduce by 50%	80%	Mandatory Compliance
Credit 1.2	<b>Water Efficient Landscaping</b> , No Potable Use or No Irrigation	70%	Significant Effort
Credit 2	<b>Innovative Wastewater Technologies</b>	10%	Minimal Effort
Credit 3.1	<b>Water Use Reduction</b> , 20% Reduction	60%	Significant Effort
Credit 3.2	<b>Water Use Reduction</b> , 30% Reduction	40%	Adequate Effort

Energy & Atmosphere			
Prereq 1	<b>Fundamental Building Systems Commissioning</b>	100%	Mandatory Compliance
Prereq 2	<b>Minimum Energy Performance</b>	100%	Mandatory Compliance
Prereq 3	<b>CFC Reduction in HVAC&amp;R Equipment</b>	100%	Mandatory Compliance
Credit 1	<b>Optimize Energy Performance</b>	53% of Credit 1	Significant Effort
	15% New Buildings or 5% Existing Building Renovations		
	20% New Buildings or 10% Existing Building Renovations		
	25% New Buildings or 15% Existing Building Renovations		
	30% New Buildings or 20% Existing Building Renovations		
	35% New Buildings or 25% Existing Building Renovations		
	40% New Buildings or 30% Existing Building Renovations		
	45% New Buildings or 35% Existing Building Renovations		
	50% New Buildings or 40% Existing Building Renovations		
	55% New Buildings or 45% Existing Building Renovations		
	60% New Buildings or 50% Existing Building Renovations		
Credit 2.1	<b>Renewable Energy, 5%</b>	0%	Minimal Effort
Credit 2.2	<b>Renewable Energy, 10%</b>	0%	Minimal Effort
Credit 2.3	<b>Renewable Energy, 20%</b>	0%	Minimal Effort
Credit 3	<b>Additional Commissioning</b>	50%	Significant Effort
Credit 4	<b>Ozone Depletion</b>	40%	Adequate Effort
Credit 5	<b>Measurement &amp; Verification</b>	20%	Minimal Effort
Credit 6	<b>Green Power</b>	50%	Significant Effort
Materials & Resources			
Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	100%	Mandatory Compliance
Credit 1.1	<b>Building Reuse, Maintain 75% of Existing Shell</b>	20%	Minimal Effort
Credit 1.2	<b>Building Reuse, Maintain 100% of Shell</b>	10%	Minimal Effort
Credit 1.3	<b>Building Reuse, Maintain 100% Shell &amp; 50% Non-Shell</b>	10%	Minimal Effort
Credit 2.1	<b>Construction Waste Management, Divert 50%</b>	90%	Mandatory Compliance
Credit 2.2	<b>Construction Waste Management, Divert 75%</b>	80%	Mandatory Compliance
Credit 3.1	<b>Resource Reuse, Specify 5%</b>	20%	Minimal Effort
Credit 3.2	<b>Resource Reuse, Specify 10%</b>	10%	Minimal Effort
Credit 4.1	<b>Recycled Content, Specify 5% (post-consumer + ½ post-industrial)</b>	90%	Mandatory Compliance
Credit 4.2	<b>Recycled Content, Specify 10% (post-consumer + ½ post-industrial)</b>	60%	Significant Effort
Credit 5.1	<b>Local/Regional Materials, 20% Manufactured Locally</b>	100%	Mandatory Compliance
Credit 5.2	<b>Local/Regional Materials, of 20% Above, 50% Harvested Locally</b>	70%	Significant Effort
Credit 6	<b>Rapidly Renewable Materials</b>	0%	Minimal Effort
Credit 7	<b>Certified Wood</b>	30%	Adequate Effort



	Indoor Environmental Quality		
Prereq 1	<b>Minimum IAQ Performance</b>	100%	Mandatory Compliance
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	100%	Mandatory Compliance
Credit 1	<b>Carbon Dioxide (CO<sub>2</sub>) Monitoring</b>	70%	Significant Effort
Credit 2	<b>Ventilation Effectiveness</b>	20%	Minimal Effort
Credit 3.1	<b>Construction IAQ Management Plan, During Construction</b>	70%	Significant Effort
Credit 3.2	<b>Construction IAQ Management Plan, Before Occupancy</b>	50%	Significant Effort
Credit 4.1	<b>Low-Emitting Materials, Adhesives &amp; Sealants</b>	80%	Mandatory Compliance
Credit 4.2	<b>Low-Emitting Materials, Paints</b>	90%	Mandatory Compliance
Credit 4.3	<b>Low-Emitting Materials, Carpet</b>	100%	Mandatory Compliance
Credit 4.4	<b>Low-Emitting Materials, Composite Wood &amp; Agrifiber</b>	40%	Adequate Effort
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	90%	Mandatory Compliance
Credit 6.1	<b>Controllability of Systems, Perimeter</b>	40%	Adequate Effort
Credit 6.2	<b>Controllability of Systems, Non-Perimeter</b>	40%	Adequate Effort
Credit 7.1	<b>Thermal Comfort, Comply with ASHRAE 55-1992</b>	90%	Mandatory Compliance
Credit 7.2	<b>Thermal Comfort, Permanent Monitoring System</b>	60%	Significant Effort
Credit 8.1	<b>Daylight &amp; Views, Daylight 75% of Spaces</b>	40%	Adequate Effort
Credit 8.2	<b>Daylight &amp; Views, Views for 90% of Spaces</b>	60%	Significant Effort
	Innovation & Design Process		
Credit 1.1	<b>Innovation in Design: Provide Specific Title</b>	100%	Mandatory Compliance
Credit 1.2	<b>Innovation in Design: Provide Specific Title</b>	100%	Mandatory Compliance
Credit 1.3	<b>Innovation in Design: Provide Specific Title</b>	60%	Significant Effort
Credit 1.4	<b>Innovation in Design: Provide Specific Title</b>	40%	Adequate Effort
Credit 2	<b>LEED™ Accredited Professional</b>	100%	Mandatory Compliance

LEED Guide for Own/Occupy Developers			
	LEED-NC V2.1 Points (Higher Education)	Guide Data	
		% of Research Projects	Compliance Effort
	<b>Sustainable Sites</b>		
Prereq 1	<b>Erosion &amp; Sedimentation Control</b>	100%	Mandatory Compliance
Credit 1	<b>Site Selection</b>	50%	Significant Effort
Credit 2	<b>Development Density</b>	10%	Minimal Effort
Credit 3	<b>Brownfield Redevelopment</b>	20%	Minimal Effort
Credit 4.1	<b>Alternative Transportation</b> , Public Transportation Access	90%	Mandatory Compliance
Credit 4.2	<b>Alternative Transportation</b> , Bicycle Storage & Changing Rooms	90%	Mandatory Compliance
Credit 4.3	<b>Alternative Transportation</b> , Alternative Fuel Vehicles	20%	Minimal Effort
Credit 4.4	<b>Alternative Transportation</b> , Parking Capacity and Carpooling	80%	Mandatory Compliance
Credit 5.1	<b>Reduced Site Disturbance</b> , Protect or Restore Open Space	30%	Adequate Effort
Credit 5.2	<b>Reduced Site Disturbance</b> , Development Footprint	50%	Significant Effort
Credit 6.1	<b>Stormwater Management</b> , Rate and Quantity	30%	Adequate Effort
Credit 6.2	<b>Stormwater Management</b> , Treatment	40%	Adequate Effort
Credit 7.1	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Non-Roof	80%	Mandatory Compliance
Credit 7.2	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Roof	80%	Mandatory Compliance
Credit 8	<b>Light Pollution Reduction</b>	40%	Adequate Effort
	<b>Water Efficiency</b>		
Credit 1.1	<b>Water Efficient Landscaping</b> , Reduce by 50%	80%	Mandatory Compliance
Credit 1.2	<b>Water Efficient Landscaping</b> , No Potable Use or No Irrigation	60%	Significant Effort
Credit 2	<b>Innovative Wastewater Technologies</b>	10%	Minimal Effort
Credit 3.1	<b>Water Use Reduction</b> , 20% Reduction	100%	Mandatory Compliance
Credit 3.2	<b>Water Use Reduction</b> , 30% Reduction	60%	Significant Effort

Energy & Atmosphere			
Prereq 1	<b>Fundamental Building Systems Commissioning</b>	100%	Mandatory Compliance
Prereq 2	<b>Minimum Energy Performance</b>	100%	Mandatory Compliance
Prereq 3	<b>CFC Reduction in HVAC&amp;R Equipment</b>	100%	Mandatory Compliance
Credit 1	<b>Optimize Energy Performance</b>	62% of Credit 1	Significant Effort
	15% New Buildings or 5% Existing Building Renovations		
	20% New Buildings or 10% Existing Building Renovations		
	25% New Buildings or 15% Existing Building Renovations		
	30% New Buildings or 20% Existing Building Renovations		
	35% New Buildings or 25% Existing Building Renovations		
	40% New Buildings or 30% Existing Building Renovations		
	45% New Buildings or 35% Existing Building Renovations		
	50% New Buildings or 40% Existing Building Renovations		
	55% New Buildings or 45% Existing Building Renovations		
	60% New Buildings or 50% Existing Building Renovations		
Credit 2.1	<b>Renewable Energy, 5%</b>	30%	Adequate Effort
Credit 2.2	<b>Renewable Energy, 10%</b>	30%	Adequate Effort
Credit 2.3	<b>Renewable Energy, 20%</b>	30%	Adequate Effort
Credit 3	<b>Additional Commissioning</b>	50%	Significant Effort
Credit 4	<b>Ozone Depletion</b>	60%	Significant Effort
Credit 5	<b>Measurement &amp; Verification</b>	0%	Minimal Effort
Credit 6	<b>Green Power</b>	5%	Minimal Effort
Materials & Resources			
Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	100%	Mandatory Compliance
Credit 1.1	<b>Building Reuse, Maintain 75% of Existing Shell</b>	20%	Minimal Effort
Credit 1.2	<b>Building Reuse, Maintain 100% of Shell</b>	10%	Minimal Effort
Credit 1.3	<b>Building Reuse, Maintain 100% Shell &amp; 50% Non-Shell</b>	0%	Minimal Effort
Credit 2.1	<b>Construction Waste Management, Divert 50%</b>	90%	Mandatory Compliance
Credit 2.2	<b>Construction Waste Management, Divert 75%</b>	90%	Mandatory Compliance
Credit 3.1	<b>Resource Reuse, Specify 5%</b>	20%	Minimal Effort
Credit 3.2	<b>Resource Reuse, Specify 10%</b>	10%	Minimal Effort
Credit 4.1	<b>Recycled Content, Specify 5% (post-consumer + ½ post-industrial)</b>	10%	Minimal Effort
Credit 4.2	<b>Recycled Content, Specify 10% (post-consumer + ½ post-industrial)</b>	10%	Minimal Effort
Credit 5.1	<b>Local/Regional Materials, 20% Manufactured Locally</b>	90%	Mandatory Compliance
Credit 5.2	<b>Local/Regional Materials, of 20% Above, 50% Harvested Locally</b>	80%	Mandatory Compliance
Credit 6	<b>Rapidly Renewable Materials</b>	10%	Minimal Effort
Credit 7	<b>Certified Wood</b>	30%	Adequate Effort

	Indoor Environmental Quality		
Prereq 1	<b>Minimum IAQ Performance</b>	100%	Mandatory Compliance
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	100%	Mandatory Compliance
Credit 1	<b>Carbon Dioxide (CO<sub>2</sub>) Monitoring</b>	70%	Significant Effort
Credit 2	<b>Ventilation Effectiveness</b>	30%	Adequate Effort
Credit 3.1	<b>Construction IAQ Management Plan, During Construction</b>	50%	Significant Effort
Credit 3.2	<b>Construction IAQ Management Plan, Before Occupancy</b>	50%	Significant Effort
Credit 4.1	<b>Low-Emitting Materials, Adhesives &amp; Sealants</b>	90%	Mandatory Compliance
Credit 4.2	<b>Low-Emitting Materials, Paints</b>	90%	Mandatory Compliance
Credit 4.3	<b>Low-Emitting Materials, Carpet</b>	90%	Mandatory Compliance
Credit 4.4	<b>Low-Emitting Materials, Composite Wood &amp; Agrifiber</b>	50%	Significant Effort
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	60%	Significant Effort
Credit 6.1	<b>Controllability of Systems, Perimeter</b>	30%	Adequate Effort
Credit 6.2	<b>Controllability of Systems, Non-Perimeter</b>	40%	Adequate Effort
Credit 7.1	<b>Thermal Comfort, Comply with ASHRAE 55-1992</b>	70%	Significant Effort
Credit 7.2	<b>Thermal Comfort, Permanent Monitoring System</b>	60%	Significant Effort
Credit 8.1	<b>Daylight &amp; Views, Daylight 75% of Spaces</b>	30%	Adequate Effort
Credit 8.2	<b>Daylight &amp; Views, Views for 90% of Spaces</b>	70%	Significant Effort
	Innovation & Design Process		
Credit 1.1	<b>Innovation in Design: Provide Specific Title</b>	100%	Mandatory Compliance
Credit 1.2	<b>Innovation in Design: Provide Specific Title</b>	90%	Mandatory Compliance
Credit 1.3	<b>Innovation in Design: Provide Specific Title</b>	80%	Mandatory Compliance
Credit 1.4	<b>Innovation in Design: Provide Specific Title</b>	50%	Significant Effort
Credit 2	<b>LEED™ Accredited Professional</b>	100%	Mandatory Compliance

LEED Guide for Build-Lease/Sell Developers			
	LEED-NC V2.1 Points (Higher Education)	Guide Data	
		% of Research Projects	Compliance Effort
	<b>Sustainable Sites</b>		
Prereq 1	<b>Erosion &amp; Sedimentation Control</b>	100%	Mandatory Compliance
Credit 1	<b>Site Selection</b>	80%	Mandatory Compliance
Credit 2	<b>Development Density</b>	50%	Significant Effort
Credit 3	<b>Brownfield Redevelopment</b>	60%	Significant Effort
Credit 4.1	<b>Alternative Transportation</b> , Public Transportation Access	70%	Significant Effort
Credit 4.2	<b>Alternative Transportation</b> , Bicycle Storage & Changing Rooms	90%	Mandatory Compliance
Credit 4.3	<b>Alternative Transportation</b> , Alternative Fuel Vehicles	40%	Adequate Effort
Credit 4.4	<b>Alternative Transportation</b> , Parking Capacity and Carpooling	70%	Significant Effort
Credit 5.1	<b>Reduced Site Disturbance</b> , Protect or Restore Open Space	40%	Adequate Effort
Credit 5.2	<b>Reduced Site Disturbance</b> , Development Footprint	20%	Minimal Effort
Credit 6.1	<b>Stormwater Management</b> , Rate and Quantity	40%	Adequate Effort
Credit 6.2	<b>Stormwater Management</b> , Treatment	60%	Significant Effort
Credit 7.1	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Non-Roof	70%	Significant Effort
Credit 7.2	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Roof	70%	Significant Effort
Credit 8	<b>Light Pollution Reduction</b>	40%	Adequate Effort
	<b>Water Efficiency</b>		
Credit 1.1	<b>Water Efficient Landscaping</b> , Reduce by 50%	90%	Mandatory Compliance
Credit 1.2	<b>Water Efficient Landscaping</b> , No Potable Use or No Irrigation	80%	Mandatory Compliance
Credit 2	<b>Innovative Wastewater Technologies</b>	0%	Minimal Effort
Credit 3.1	<b>Water Use Reduction</b> , 20% Reduction	80%	Mandatory Compliance
Credit 3.2	<b>Water Use Reduction</b> , 30% Reduction	60%	Significant Effort

<b>Energy &amp; Atmosphere</b>			
Prereq 1	<b>Fundamental Building Systems Commissioning</b>	100%	Mandatory Compliance
Prereq 2	<b>Minimum Energy Performance</b>	100%	Mandatory Compliance
Prereq 3	<b>CFC Reduction in HVAC&amp;R Equipment</b>	100%	Mandatory Compliance
Credit 1	<b>Optimize Energy Performance</b>	39% of Credit 1	Adequate Effort
	15% New Buildings or 5% Existing Building Renovations		
	20% New Buildings or 10% Existing Building Renovations		
	25% New Buildings or 15% Existing Building Renovations		
	30% New Buildings or 20% Existing Building Renovations		
	35% New Buildings or 25% Existing Building Renovations		
	40% New Buildings or 30% Existing Building Renovations		
	45% New Buildings or 35% Existing Building Renovations		
	50% New Buildings or 40% Existing Building Renovations		
	55% New Buildings or 45% Existing Building Renovations		
	60% New Buildings or 50% Existing Building Renovations		
Credit 2.1	<b>Renewable Energy, 5%</b>	10%	Minimal Effort
Credit 2.2	<b>Renewable Energy, 10%</b>	10%	Minimal Effort
Credit 2.3	<b>Renewable Energy, 20%</b>	10%	Minimal Effort
Credit 3	<b>Additional Commissioning</b>	50%	Significant Effort
Credit 4	<b>Ozone Depletion</b>	60%	Significant Effort
Credit 5	<b>Measurement &amp; Verification</b>	30%	Adequate Effort
Credit 6	<b>Green Power</b>	60%	Significant Effort
<b>Materials &amp; Resources</b>			
Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	100%	Mandatory Compliance
Credit 1.1	<b>Building Reuse, Maintain 75% of Existing Shell</b>	10%	Minimal Effort
Credit 1.2	<b>Building Reuse, Maintain 100% of Shell</b>	10%	Minimal Effort
Credit 1.3	<b>Building Reuse, Maintain 100% Shell &amp; 50% Non-Shell</b>	0%	Minimal Effort
Credit 2.1	<b>Construction Waste Management, Divert 50%</b>	80%	Mandatory Compliance
Credit 2.2	<b>Construction Waste Management, Divert 75%</b>	40%	Adequate Effort
Credit 3.1	<b>Resource Reuse, Specify 5%</b>	0%	Minimal Effort
Credit 3.2	<b>Resource Reuse, Specify 10%</b>	0%	Minimal Effort
Credit 4.1	<b>Recycled Content, Specify 5% (post-consumer + ½ post-industrial)</b>	100%	Mandatory Compliance
Credit 4.2	<b>Recycled Content, Specify 10% (post-consumer + ½ post-industrial)</b>	80%	Mandatory Compliance
Credit 5.1	<b>Local/Regional Materials, 20% Manufactured Locally</b>	90%	Mandatory Compliance
Credit 5.2	<b>Local/Regional Materials, of 20% Above, 50% Harvested Locally</b>	70%	Significant Effort
Credit 6	<b>Rapidly Renewable Materials</b>	0%	Minimal Effort
Credit 7	<b>Certified Wood</b>	40%	Adequate Effort

<b>Indoor Environmental Quality</b>			
Prereq 1	<b>Minimum IAQ Performance</b>	100%	Mandatory Compliance
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	100%	Mandatory Compliance
Credit 1	<b>Carbon Dioxide (CO<sub>2</sub>) Monitoring</b>	70%	Significant Effort
Credit 2	<b>Ventilation Effectiveness</b>	20%	Minimal Effort
Credit 3.1	<b>Construction IAQ Management Plan, During Construction</b>	70%	Significant Effort
Credit 3.2	<b>Construction IAQ Management Plan, Before Occupancy</b>	60%	Significant Effort
Credit 4.1	<b>Low-Emitting Materials, Adhesives &amp; Sealants</b>	80%	Mandatory Compliance
Credit 4.2	<b>Low-Emitting Materials, Paints</b>	90%	Mandatory Compliance
Credit 4.3	<b>Low-Emitting Materials, Carpet</b>	100%	Mandatory Compliance
Credit 4.4	<b>Low-Emitting Materials, Composite Wood &amp; Agrifiber</b>	40%	Adequate Effort
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	80%	Significant Effort
Credit 6.1	<b>Controllability of Systems, Perimeter</b>	0%	Minimal Effort
Credit 6.2	<b>Controllability of Systems, Non-Perimeter</b>	0%	Minimal Effort
Credit 7.1	<b>Thermal Comfort, Comply with ASHRAE 55-1992</b>	60%	Significant Effort
Credit 7.2	<b>Thermal Comfort, Permanent Monitoring System</b>	50%	Significant Effort
Credit 8.1	<b>Daylight &amp; Views, Daylight 75% of Spaces</b>	20%	Minimal Effort
Credit 8.2	<b>Daylight &amp; Views, Views for 90% of Spaces</b>	70%	Significant Effort
<b>Innovation &amp; Design Process</b>			
Credit 1.1	<b>Innovation in Design: Provide Specific Title</b>	80%	Mandatory Compliance
Credit 1.2	<b>Innovation in Design: Provide Specific Title</b>	100%	Mandatory Compliance
Credit 1.3	<b>Innovation in Design: Provide Specific Title</b>	80%	Mandatory Compliance
Credit 1.4	<b>Innovation in Design: Provide Specific Title</b>	80%	Mandatory Compliance
Credit 2	<b>LEED™ Accredited Professional</b>	100%	Mandatory Compliance





# Canton Crossing Tower

Baltimore, Maryland

Tyler Swartzwelder  
Construction Management Option

---

---

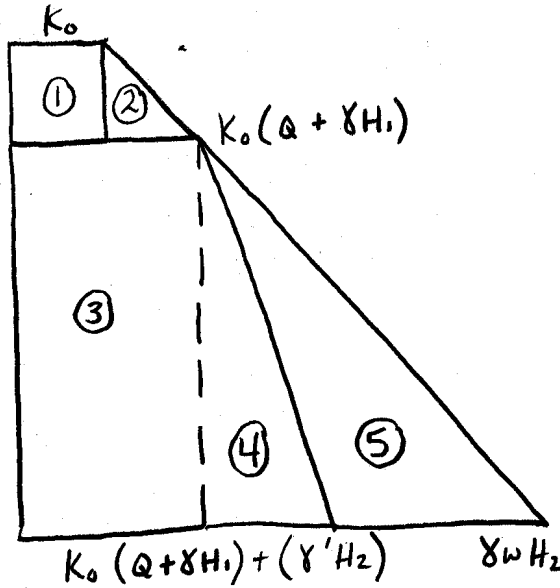
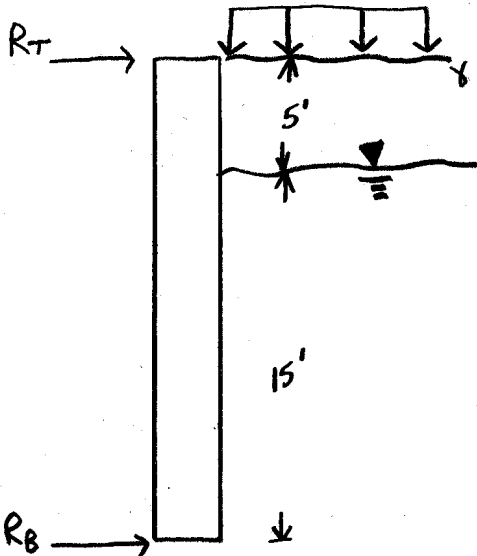
## APPENDIX – TECHNICAL ANALYSIS 1

### TOWER AS AN INDEPENDENT SYSTEM

#### BASEMENT WALL CALCULATIONS, SECTIONS, & ENERCALC PRINTOUTS

BASEMENT WALL ①

WALL LOADS



$K_A = 0.333$   
 $K_P = 3$   
 $K_0 = 0.5$   
 $Q = 50 \text{ PSF}$   
 $\gamma = 120 \text{ PCF}$   
 $\gamma_{SAT} = 150 \text{ PCF}$

$\gamma' = \gamma_{SAT} - \gamma_w$   
 $= 150 \text{ PCF} - 62.4 \text{ PCF}$   
 $= 87.6 \text{ PCF}$

$$\begin{aligned}
 P_0 &= K_0 Q H_1 + \frac{1}{2} K_0 \gamma H_1^2 + K_0 (Q + \gamma H_1) H_2 + \frac{1}{2} K_0 \gamma' H_2^2 + \frac{1}{2} \gamma_w H_2^2 \\
 &= 0.5 (50 \text{ PSF}) 5' + \frac{1}{2} (0.5) 120 \text{ PCF} (5')^2 + 0.5 (50 \text{ PSF} + 120 \text{ PCF} (5')) 15' \\
 &\quad + \frac{1}{2} (0.5) 87.6 \text{ PCF} (15')^2 + \frac{1}{2} (62.4 \text{ PCF}) (15')^2 \\
 &= 125 + 750 + 4875 + 4927.5 + 7020 \\
 &= 17697.5 \text{ LB}
 \end{aligned}$$

$$\sum M_B = P_0 \bar{z} = P_1 (17.5') + P_2 (16.67') + P_3 (7.5') + 5' (P_4 + P_5) = 110990 \text{ ' LB}$$

$$\bar{z} = \frac{M_B}{P_0} = \frac{110990 \text{ FT LB}}{17697.5 \text{ LB}} = 6.27 \text{ FT}$$

$$R_T = 5549.5 \text{ LB}$$

$$R_B = 12148 \text{ LB}$$

WALL DESIGN

\* ACI → WALL > 10"  
MAT REQ'D @  
EACH EDGE

TRY 20" TH WALL:

$$R_u = \frac{M_u}{\phi b d^2} = \frac{110990 \text{ FT-LB}}{0.9(10'')^2(12'')} = 1233.2 \text{ IN-LB}$$

$$\phi = \frac{0.85 f'_c}{F_y} \left( 1 - \sqrt{1 - \frac{2R_u}{0.85 f'_c}} \right)$$

$$= \frac{0.85(4000 \text{ PSI})}{60000 \text{ PSI}} \left( 1 - \sqrt{1 - \frac{2(1233.2 \text{ IN-LB})}{0.85(4000 \text{ PSI})}} \right)$$

$$\phi_{\text{MIN}} = \frac{200}{F_y} = \frac{200}{60000 \text{ PSI}} = 0.0033$$

$$A_s = \phi b d = 0.02697 (12'')(10'') = 3.24 \text{ in}^2$$

\* USE 2 ROWS OF #9 @ 6" O.C. HORIZ

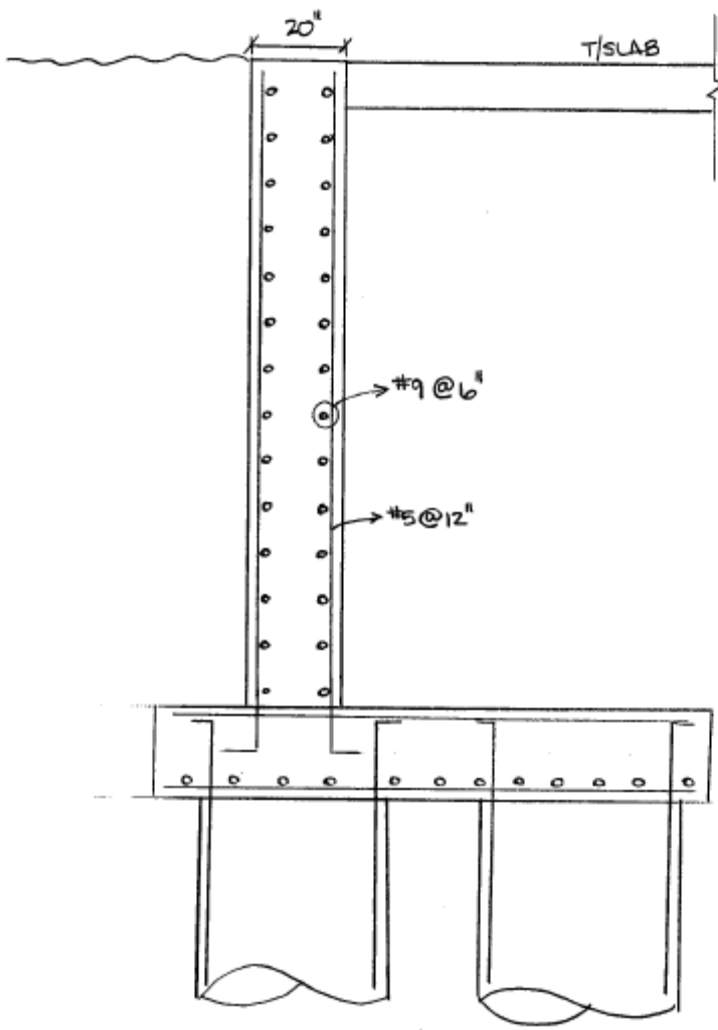
CK CONC  
@ BASE

$$\rightarrow V_c = 2\sqrt{f'_c} b d = 2\sqrt{4000 \text{ PSI}} (12'')(17'') = 21503.5 \text{ LB}$$

$$V_u / \phi = 12148 \text{ LB} / 0.75 = 16197.3 \text{ LB} \leq 21503.5 \text{ LB} \therefore \underline{\text{OK}}$$

$$A_v = \frac{V_u}{\phi F_y} = \frac{16197.3 \text{ LB}}{60000 \text{ PSI} (0.6)} = 0.45 \text{ in}^2$$

USE #5 @ 12" (BOTH EDGES) VERT



Title :  
 Dsgnr :  
 Description :

Job #  
 Date: 8:46AM, 4 APR 07

Scope :

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Rev: 580014  
 User: KW-0605167, Ver 5.8.0, 1-Dec-2003  
 (c)1983-2003 ENERCALC Engineering Software

## Restrained Retaining Wall Design

Page 1  
 thesis.ecw:Calculations

### Description Thesis

Criteria	
Retained Height	= 20.00 ft
Wall height above soil	= 0.00 ft
Total Wall Height	= 20.00 ft
Top Support Height	= 20.00 ft
Slope Behind Wall	= 0.00 : 1
Height of Soil over Toe	= 0.00 in
Soil Density	= 150.00 pcf
Wind on Stem	= 0.0 psf

Soil Data	
Allow Soil Bearing	= 3,000.0 psf
Equivalent Fluid Pressure Method	
Heel Active Pressure	= 25.0
Toe Active Pressure	= 0.0
Passive Pressure	= 225.0
Footing  Soil Friction	= 0.300
Soil height to ignore for passive pressure	= 0.00 in

Footing Strengths & Dimensions	
f <sub>c</sub>	= 4,000 psi
F <sub>y</sub>	= 60,000 psi
Min. As %	= 0.0018
Toe Width	= 2.17 ft
Heel Width	= 3.83
Total Footing Width	= 6.00
Footing Thickness	= 16.00 in
Key Width	= 0.00 in
Key Depth	= 0.00 in
Key Distance from Toe	= 0.00 ft
Cover @ Top	= 3.00 in
@ Btm.	= 3.00 in

Surcharge Loads	
Surcharge Over Heel	= 50.0 psf
>>>NOT Used To Resist Sliding & Overturning	
Surcharge Over Toe	= 0.0 psf
NOT Used for Sliding & Overturning	

Uniform Lateral Load Applied to Stem	
Lateral Load	= 0.0 #/ft
...Height to Top	= 0.00 ft
...Height to Bottom	= 0.00 ft

Adjacent Footing Load	
Adjacent Footing Load	= 0.0 lbs
Footing Width	= 0.00 ft
Eccentricity	= 0.00 in
Wall to Ftg CL Dist	= 0.00 ft
Footing Type	Line
Base Above/Below Soil at Back of Wall	= 0.0 ft

Axial Load Applied to Stem	
Axial Dead Load	= 0.0 lbs
Axial Live Load	= 0.0 lbs
Axial Load Eccentricity	= 0.0 in

Design Summary	
Total Bearing Load	= 12,493 lbs
...resultant ecc.	= 1.24 in
Soil Pressure @ Toe	= 2,298 psf OK
Soil Pressure @ Heel	= 1,867 psf OK
Allowable	= 3,000 psf
Soil Pressure Less Than Allowable	
ACI Factored @ Toe	= 3,217 psf
ACI Factored @ Heel	= 2,614 psf
Footing Shear @ Toe	= 40.8 psi OK
Footing Shear @ Heel	= 65.9 psi OK
Allowable	= 107.5 psi
Reaction at Top	= 1,062.5 lbs
Reaction at Bottom	= 4,804.2 lbs

Concrete Stem Construction	
Thickness	= 20.00 in
F <sub>y</sub>	= 60,000 psi
Wall Weight	= 241.7 pcf
f <sub>c</sub>	= 4,000 psi
Stem is FIXED to top of footing	

Sliding Calcs Slab Resists All Sliding!  
 Lateral Sliding Force = 4,804.2 lbs

	@ Top Support	Mmax Between Top & Base	@ Base of Wall
Design height	= 20.00 ft	11.08 ft	0.00 ft
Rebar Size	= # 5	# 9	# 9
Rebar Spacing	= 12.00 in	6.00 in	6.00 in
Rebar Placed at	= Edge	Edge	Edge
Rebar Depth 'd'	= 16.50 in	16.50 in	16.50 in
Design Data			
fb/FB + fa/Fa	= 0.000	0.078	0.173
Mu.....Actual	= 0.0 ft-#	10,521.0 ft-#	23,375.5 ft-#
Mn * Phi.....Allowable	= 22,698.6 ft-#	135225.0 ft-#	135225.0 ft-#
Shear Force @ this height	= 1,806.2 lbs		6,977.1 lbs
Shear.....Actual	= 9.12 psi		35.24 psi
Shear.....Allowable	= 107.52 psi		107.52 psi
Rebar Lap Required	= 18.50 in	41.62 in	
Rebar embedment into footing	=		9.00 in

Footing Design Results		
	Toe	Heel
Factored Pressure	= 3,217	2,614 psf
Mu' : Upward	= 7,380	0 ft-#
Mu' : Downward	= 657	10,680 ft-#
Mu: Design	= 6,722	10,680 ft-#
Actual 1-Way Shear	= 40.84	65.94 psi
Allow 1-Way Shear	= 107.52	107.52 psi

### Other Acceptable Sizes & Spacings:

Toe: # 5 @ 12.00 in -or- #4@ 9.00 in, #5@ 14.00 in, #6@ 19.75 in, #7@ 26.00 in  
 Heel: # 5 @ 12.00 in -or- #4@ 9.00 in, #5@ 14.00 in, #6@ 19.75 in, #7@ 26.00 in  
 Key: No key defined -or- No key defined

Title :  
 Dsgnr:  
 Description :

Job #  
 Date: 8:46AM, 4 APR 07

Scope :

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Rev: 580014  
 User: KW-0605167, Ver 5.8.0, 1-Dec-2003  
 (c)1983-2003 ENERCALC Engineering Software

## Restrained Retaining Wall Design

Page 2  
 thesis.ecw:Calculations

Description      Thesis

### Summary of Forces on Footing : Slab RESISTS sliding, stem is FIXED at footing

Forces acting on footing for soil pressure

>>> Sliding Forces are restrained by the adjacent slab

#### Load & Moment Summary For Footing : For Soil Pressure Calcs

Moment @ Top of Footing Applied from Stem	=		=	-13,750.3 ft-#
Surcharge Over Heel	=	lbs	ft	ft-#
Axial Dead Load on Stem	=	lbs	ft	ft-#
Soil Over Toe	=	lbs	ft	ft-#
Surcharge Over Toe	=	lbs	ft	ft-#
Stem Weight	=	4,833.3 lbs	3.00 ft	14,500.0 ft-#
Soil Over Heel	=	6,500.0 lbs	4.92 ft	31,958.3 ft-#
Footing Weight	=	1,160.0 lbs	3.00 ft	3,480.0 ft-#
<b>Total Vertical Force</b>	=	<b>12,493.3 lbs</b>	<b>Base Moment =</b>	<b>36,188.1 ft-#</b>

**Soil Pressure Resulting Moment =                      1,291.9ft-#**



# Canton Crossing Tower

Baltimore, Maryland

Tyler Swartzwelder  
Construction Management Option

---

---

## APPENDIX – TECHNICAL ANALYSIS 2

### CAST-IN-PLACE CAISSON VS. PRECAST PILES

#### CAISSON LOAD DETERMINATIONS

#### CAISSON LOAD ANALYSIS



**Caisson Redesign Calculations**

Column	Floor (ft^2)	Roof (ft^2)	DL-bsmt (psf)	DL-floor (psf)	DL-roof (psf)	Total Dead (lbs)	LL-bsmt (psf)	LL-floor (psf)	LL-roof (psf)	Total Live (lbs)	WL (psf)	WL (lbs)	Non-WL (lbs)	Final Load (kips)	Caisson Size (Colors from Depth Charts)
A-2	5,168	160	190	57	25	356,336	100	100	30	552,000			1,310,803	1,311	D = 66"
A-3	11,560	480	190	57	25	800,120	100	100	30	1,238,400			2,941,584	2,942	D = 90"
A-4	11,560	480	190	57	25	800,120	100	100	30	1,238,400			2,941,584	2,942	D = 90"
A-5	6,800	160	190	57	25	467,600	100	100	30	724,800			1,720,800	1,721	D = 84"
A.2-1.8	5,032		190	57	25	343,064	100	100	30	532,800			1,264,157	1,264	D = 66"
A.8-1.2	5,032		190	57	25	343,064	100	100	30	532,800			1,264,157	1,264	D = 66"
E.2-5.8	5,032		190	57	25	343,064	100	100	30	532,800			1,264,157	1,264	D = 66"
E.8-5.2	5,032		190	57	25	343,064	100	100	30	532,800			1,264,157	1,264	D = 66"
A.2-5.2	2,788		190	57	25	190,076	100	100	30	295,200			700,411	700	D = 60"
A.8-5.8	2,176		190	57	25	148,352	100	100	30	230,400			546,662	547	D = 60"
E.2-1.2	2,176		190	57	25	148,352	100	100	30	230,400			546,662	547	D = 60"
E.8-1.8	2,788		190	57	25	190,076	100	100	30	295,200			700,411	700	D = 60"
B-1	5,168	160	190	57	25	356,336	100	100	30	552,000			1,310,803	1,311	D = 66"
B-2	18,476	588	190	57	25	1,274,328	100	100	30	1,973,922			4,687,470	4,687	D = 114"
B-3	16,256	1,256	190	57	25	1,139,677	100	100	30	1,758,904	600	3,127,476		3,127	D = 90"
B-4	18,324	1,256	190	57	25	1,280,666	100	100	30	1,977,868	600	3,515,627		3,516	D = 96"
B-5	18,840	588	190	57	25	1,299,145	100	100	30	2,012,464			4,778,915	4,779	D = 114"
B-6	7,072	160	190	57	25	486,144	100	100	30	753,600			1,789,133	1,789	D = 84"
B.3-3.5	4,644	512	190	57	25	329,412	100	100	30	507,078	3,500	907,971		908	D = 60"
B.3-4.6	2,892		190	57	25	197,166	100	100	30	306,212	3,500	548,411		548	D = 60"
C-1	11,560	432	190	57	25	798,920	100	100	30	1,236,960			2,937,840	2,938	D = 90"
C-2	22,344	1,192	190	57	25	1,553,135	100	100	30	2,401,595	600	4,266,317		4,266	D = 114"
C-3	15,360	832	190	57	25	1,067,991	100	100	30	1,651,313	3,500	2,938,502		2,939	D = 90"
C-3.5	13,356		190	57	25	910,565	100	100	30	1,414,165	3,500	2,512,443		2,512	D = 84"
C-4	11,504	832	190	57	25	805,102	100	100	30	1,243,031	3,500	2,214,753		2,215	D = 84"
C-4.6	7,376		190	57	25	502,870	100	100	30	780,988	3,500	1,390,032		1,390	D = 66"
C-5	15,532	1,192	190	57	25	1,088,717	100	100	30	1,680,325	600	2,987,745		2,988	D = 90"

**Caisson Redesign Calculations (cont'd)**

Column	Floor (ft^2)	Roof (ft^2)	DL-bsmt (psf)	DL-floor (psf)	DL-roof (psf)	Total Dead (lbs)	LL-bsmt (psf)	LL-floor (psf)	LL-roof (psf)	Total Live (lbs)	WL (psf)	WL (lbs)	Non-WL (lbs)	Final Load (kips)	Caisson Size (Colors from Depth Charts)
C-6	11,560	480	190	57	25	800,120	100	100	30	1,238,400			2,941,584	2,942	D = 90"
D-1	11,560	480	190	57	25	800,120	100	100	30	1,238,400			2,941,584	2,942	D = 90"
D-2	15,532	1,192	190	57	25	1,088,717	100	100	30	1,680,325	600	2,987,745		2,988	D = 90"
D-2.3	7,376		190	57	25	502,870	100	100	30	780,988	3,500	1,390,032		1,390	D = 66"
D-3	11,504	832	190	57	25	805,102	100	100	30	1,243,031	3,500	2,214,753		2,215	D = 84"
D-3.5	13,356	512	190	57	25	923,365	100	100	30	1,429,525	3,500	2,543,163		2,543	D = 90"
D-4	15,360	832	190	57	25	1,067,991	100	100	30	1,651,313	3,500	2,938,502		2,939	D = 90"
D-5	22,344	1,192	190	57	25	1,553,135	100	100	30	2,401,595	600	4,266,317		4,266	D = 114"
D-6	11,560	432	190	57	25	798,920	100	100	30	1,236,960			2,937,840	2,938	D = 90"
D.7-2.3	2,892		190	57	25	197,166	100	100	30	306,212	3,500	548,411		548	D = 60"
D.7-3.5	4,644		190	57	25	316,612	100	100	30	491,718	3,500	877,251		877	D = 60"
E-1	7,072	160	190	57	25	486,144	100	100	30	753,600			1,789,133	1,789	D = 84"
E-2	18,840	588	190	57	25	1,299,145	100	100	30	2,012,464			4,778,915	4,779	D = 114"
E-3	18,324	1,256	190	57	25	1,280,666	100	100	30	1,977,868	600	3,515,627		3,516	D = 114"
E-4	16,256	1,256	190	57	25	1,139,677	100	100	30	1,758,904	600	3,127,476		3,127	D = 90"
E-5	18,476	588	190	57	25	1,274,328	100	100	30	1,973,922			4,687,470	4,687	D = 114"
E-6	5,168	160	190	57	25	356,336	100	100	30	552,000			1,310,803	1,311	D = 66"
F-2	6,800	160	190	57	25	467,600	100	100	30	724,800			1,720,800	1,721	D = 84"
F-3	11,560	480	190	57	25	800,120	100	100	30	1,238,400			2,941,584	2,942	D = 90"
F-4	11,560	480	190	57	25	800,120	100	100	30	1,238,400			2,941,584	2,942	D = 90"
F-5	5,168	160	190	57	25	356,336	100	100	30	552,000			1,310,803	1,311	D = 66"

Sizing Index @ 50' Depth								
Diameter (in)	Diameter (ft)	Kips	S A @ 50'	Skin Friction	Added KIPS	Total w/ SF	SW	Capacity (kips)
36	3	212	485	777	-1123	-911	30	-881
42	3.5	289	569	910	-990	-701	41	-660
48	4	377	653	1046	-854	-477	53	-424
54	4.5	477	739	1182	-718	-241	68	-173
60	5	589	825	1319	-581	9	83	92
66	5.5	713	911	1458	-442	271	101	372
72	6	848	999	1598	-302	547	120	667
78	6.5	995	1087	1740	-160	835	141	976
84	7	1155	1177	1882	-18	1137	164	1301
90	7.5	1325	1266	2026	126	1452	188	1639
96	8	1508	1357	2171	271	1779	214	1993
102	8.5	1702	1449	2318	418	2120	241	2361
108	9	1909	1541	2466	566	2474	270	2744
114	9.5	2126	1634	2614	714	2841	301	3142
120	10	2356	1728	2765	865	3221	334	3555
126	10.5	2598	1823	2916	1016	3614	368	3982
132	11	2851	1918	3069	1169	4020	404	4424
138	11.5	3116	2014	3223	1323	4439	441	4880
Sizing Index @ 60' Depth								
Diameter (in)	Diameter (ft)	Kips	S A @ 60'	Skin Friction	Added KIPS	Total w/ SF	SW	Capacity (kips)
36	3	212	580	927	-973	-761	36	-724
42	3.5	289	679	1086	-814	-525	49	-476
48	4	377	779	1247	-653	-276	64	-212
54	4.5	477	880	1408	-492	-15	81	66
60	5	589	982	1571	-329	260	100	360
66	5.5	713	1084	1735	-165	548	121	669
72	6	848	1188	1900	0	848	144	992
78	6.5	995	1292	2067	167	1162	169	1331
84	7	1155	1396	2234	334	1489	196	1685
90	7.5	1325	1502	2403	503	1829	225	2054
96	8	1508	1608	2574	674	2182	256	2438
102	8.5	1702	1716	2745	845	2547	289	2837
108	9	1909	1824	2918	1018	2926	324	3251
114	9.5	2126	1932	3092	1192	3318	361	3680
120	10	2356	2042	3267	1367	3723	401	4124
126	10.5	2598	2152	3444	1544	4142	442	4583
132	11	2851	2264	3622	1722	4573	485	5057
138	11.5	3116	2375	3801	1901	5017	530	5547
Sizing Index @ 70' Depth								
Diameter (in)	Diameter (ft)	Kips	S A @ 70'	Skin Friction	Added KIPS	Total w/ SF	SW	Capacity (kips)
36	3	212	674	1078	-822	-610	42	-568
42	3.5	289	789	1262	-638	-349	57	-292
48	4	377	905	1448	-452	-75	75	-1
54	4.5	477	1021	1634	-266	211	95	306
60	5	589	1139	1822	-78	511	117	628
66	5.5	713	1257	2011	111	824	141	965
72	6	848	1376	2202	302	1150	168	1318
78	6.5	995	1496	2393	493	1489	197	1686
84	7	1155	1616	2586	686	1841	229	2070
90	7.5	1325	1738	2780	880	2206	263	2469
96	8	1508	1860	2976	1076	2584	299	2883
102	8.5	1702	1983	3172	1272	2975	338	3312
108	9	1909	2106	3370	1470	3379	379	3757
114	9.5	2126	2231	3569	1669	3796	422	4218
120	10	2356	2356	3770	1870	4226	467	4693
126	10.5	2598	2482	3972	2072	4669	515	5185
132	11	2851	2609	4175	2275	5126	565	5691
138	11.5	3116	2737	4379	2479	5595	618	6213

Sizing Index @ 80' Depth								
Diameter (in)	Diameter (ft)	Kips	S A @ 80'	Skin Friction	Added KIPS	Total w/ SF	SW	Capacity (kips)
36	3	212	768	1229	-671	-459	48	-411
42	3.5	289	899	1438	-462	-173	65	-108
48	4	377	1030	1649	-251	126	85	211
54	4.5	477	1163	1860	-40	438	108	546
60	5	589	1296	2073	173	763	134	896
66	5.5	713	1430	2288	388	1100	162	1262
72	6	848	1565	2503	603	1451	192	1644
78	6.5	995	1700	2720	820	1815	226	2041
84	7	1155	1836	2938	1038	2193	262	2454
90	7.5	1325	1973	3157	1257	2583	300	2883
96	8	1508	2111	3378	1478	2986	342	3328
102	8.5	1702	2250	3600	1700	3402	386	3788
108	9	1909	2389	3823	1923	3831	433	4264
114	9.5	2126	2529	4047	2147	4273	482	4755
120	10	2356	2670	4273	2373	4729	534	5263
126	10.5	2598	2812	4499	2599	5197	589	5786
132	11	2851	2955	4727	2827	5678	646	6325
138	11.5	3116	3098	4957	3057	6173	706	6879
Sizing Index @ 90' Depth								
Diameter (in)	Diameter (ft)	Kips	S A @ 90'	Skin Friction	Added KIPS	Total w/ SF	SW	Capacity (kips)
36	3	212	862	1380	-520	-308	54	-254
42	3.5	289	1009	1614	-286	3	74	76
48	4	377	1156	1850	-50	327	96	423
54	4.5	477	1304	2087	187	664	122	785
60	5	589	1453	2325	425	1014	150	1164
66	5.5	713	1603	2564	664	1377	182	1559
72	6	848	1753	2805	905	1753	216	1969
78	6.5	995	1904	3047	1147	2142	254	2396
84	7	1155	2056	3290	1390	2544	294	2839
90	7.5	1325	2209	3534	1634	2960	338	3298
96	8	1508	2362	3780	1880	3388	385	3772
102	8.5	1702	2517	4027	2127	3829	434	4263
108	9	1909	2672	4275	2375	4284	487	4770
114	9.5	2126	2828	4525	2625	4751	542	5293
120	10	2356	2985	4775	2875	5231	601	5832
126	10.5	2598	3142	5027	3127	5725	662	6387
132	11	2851	3300	5280	3380	6231	727	6958
138	11.5	3116	3459	5535	3635	6751	795	7546