

Auburn Islamic Center - Pavilion Slab

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 - Auburn Islamic Center
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Project Description

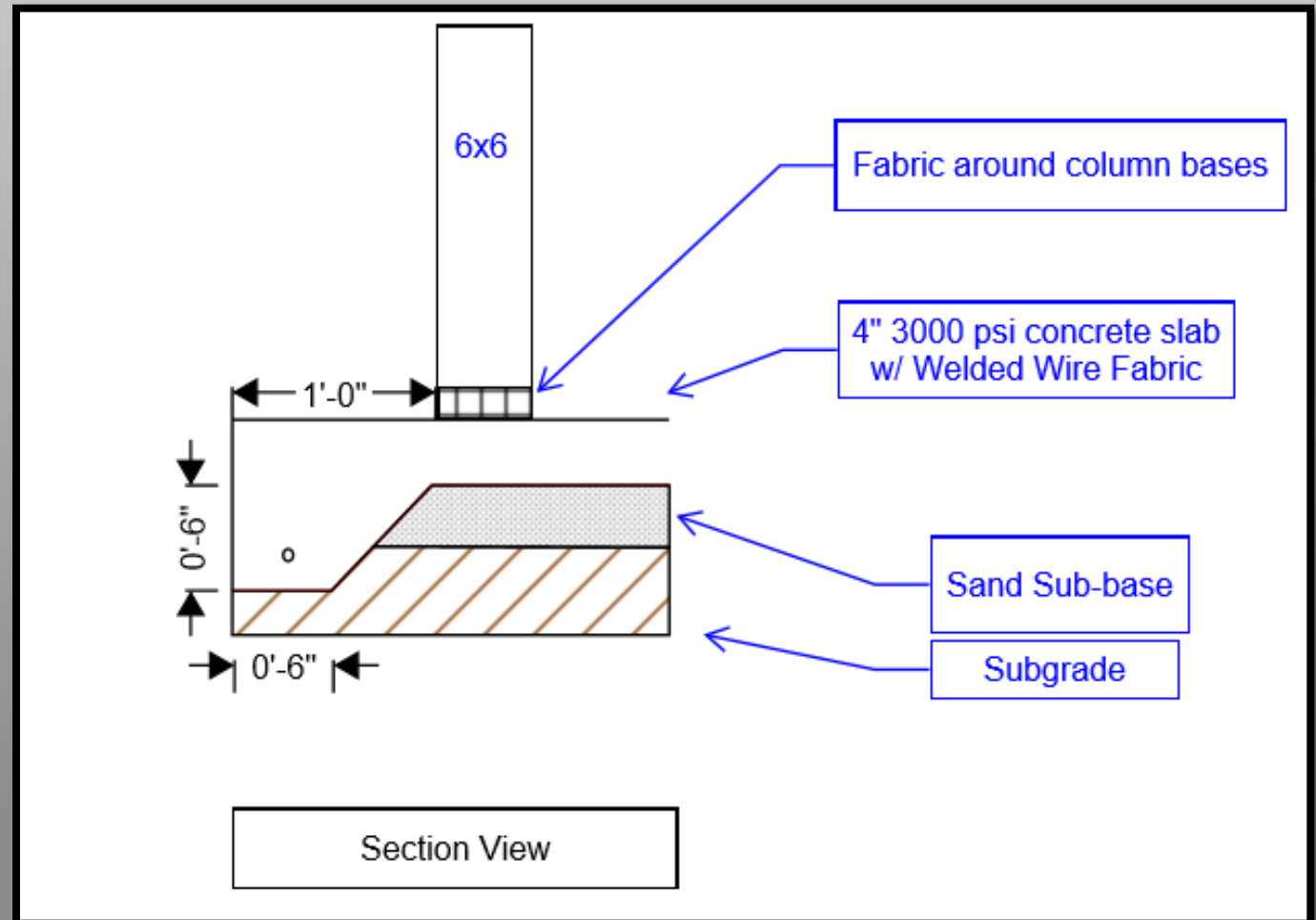
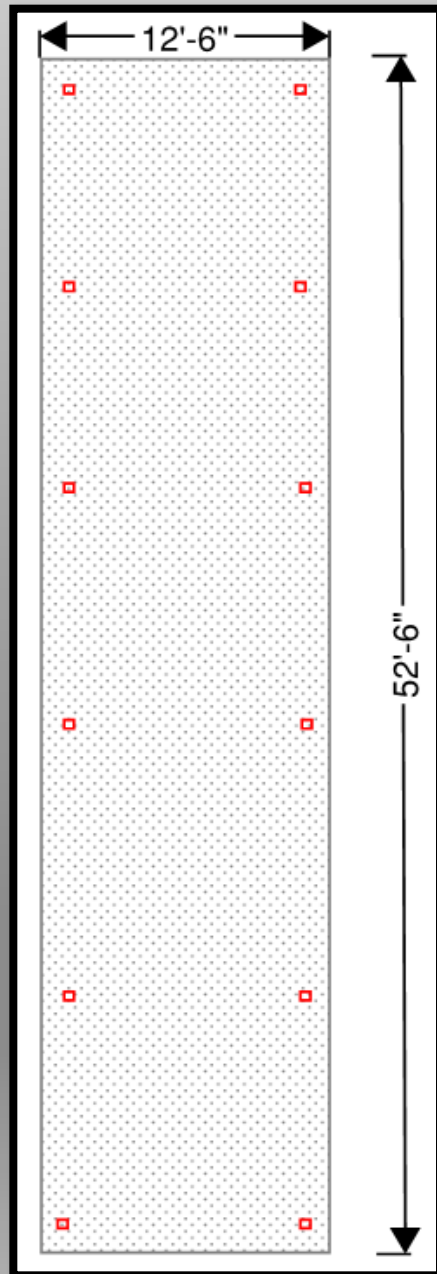
- The Auburn Islamic Center has a wooden pavilion covering an area for recreation. This pavilion provides a spot for children to play or for adults to cookout and enjoy the outdoors.
- This structure is supported by 6"x6" posts and has a metal roof. There was no floor system in place, making the area less desirable to use.

Project Description



Our group was given the opportunity to design a concrete slab for this pavilion. The slab now covers everything underneath the structure. This provides the users with a clean, durable surface to enjoy for years to come.

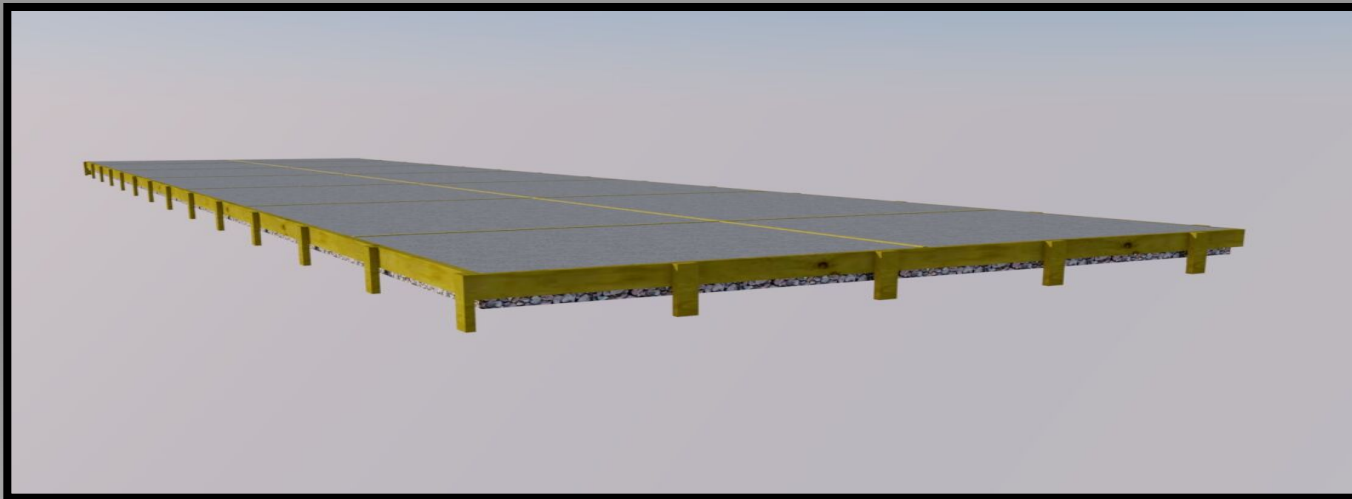
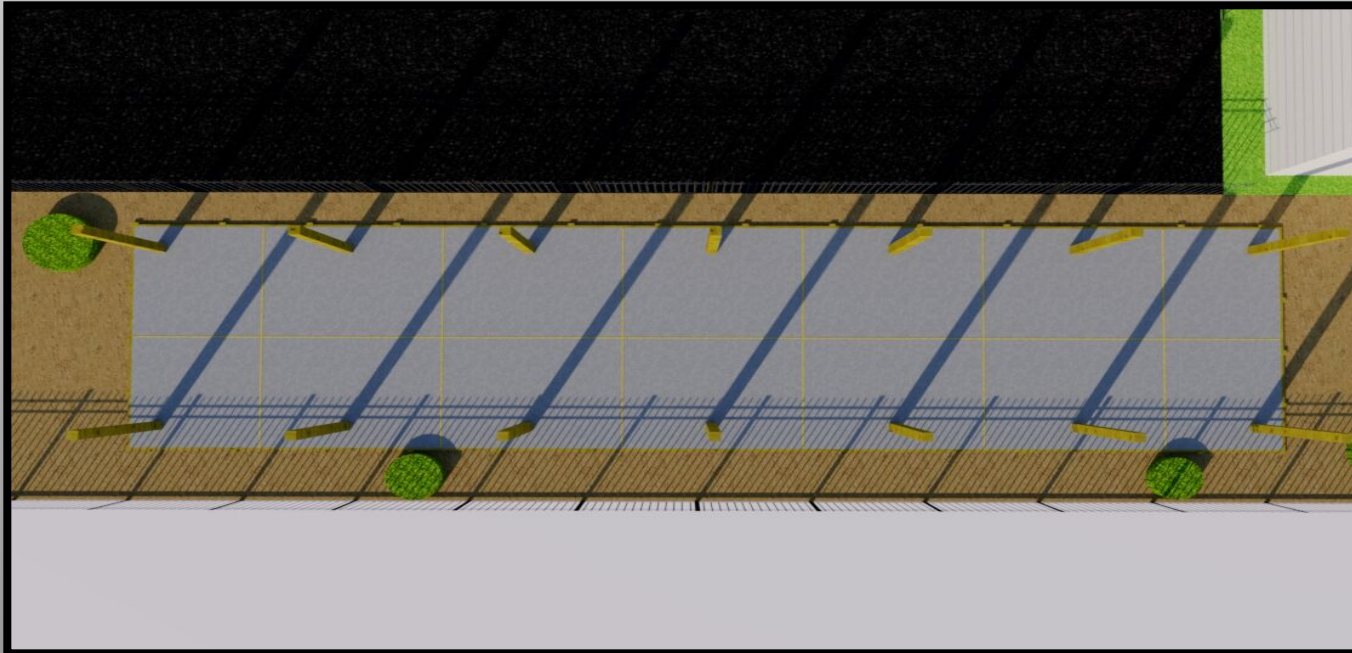
Original Section and Plan Views



Pre-Construction



Original Design cont.



Original Schedule

Auburn Islamic Center Construction Timeline			
Task Name	Start	End	Duration (days)
Surveying and Layout	4/3/2017	4/4/2017	1
Excavation and Compaction	4/5/2017	4/6/2017	1
Surveying and Layout	4/8/2017	4/9/2017	1
Form Framing	4/10/2017	4/11/2017	1
Sand Base Application	4/12/2017	4/13/2017	1
Wire Mesh and Vapor Barrier	4/15/2017	4/16/2017	1
Concrete Placement/ Finishing	4/17/2017	4/18/2017	1
Form Removal	4/19/2017	4/20/2017	1
Backfill and Tamp	4/22/2017	4/23/2017	1

Actual Schedule

Auburn Islamic Center Construction Timeline			
Task Name	Start	End	Duration (days)
Surveying and Layout	4/3/2017	4/4/2017	1
Excavation and Compaction	4/10/2017	4/11/2017	1
Surveying and Layout	4/10/2017	4/11/2017	1
Form Framing	4/10/2017	4/12/2017	2
Sand Base Application			0
Wire Mesh and Vapor Barrier	4/12/2017	4/17/2017	5
Concrete Placement/ Finishing	4/19/2017	4/20/2017	1
Form Removal	4/24/2017	4/25/2017	1
Backfill and Tamp	4/24/2017	4/25/2017	1

Safety

Job Hazard Analysis	JOB: Auburn Islamic Center - Pavilion Slab	DATE: 3/27/2017	New: Yes Revised: No
ORGANIZATION: Auburn Building Science		APPROVED BY:	
RECOMMENDED PROTECTIVE EQUIPMENT: Hard Hats, Rubber Boots, Safety Glasses, Safety Vest, Gloves			
Sequence of Basic Job Steps	Potential Hazards	Mitigation of Hazards	
Layout	Trips/Falls, Environmental hazards	Remove tripping hazards/Site cleanup	
Excavation & Compaction	Crushed by/Caught between by heavy equipment	Have a spotter watching machinery and personnel	
Form Framing	Injury from cutting wood members, connecting members and driving stakes	Proper use of all cutting utensils, Proper handtool safety	
Sub-Base Application	Crushed by/Caught between by heavy equipment	Have a spotter watching machinery and personnel	
Wire Mesh & Vapor Barrier	Trips/Falls, Impalement	Remove tripping hazards, Use of gloves	
Concrete Placement	Concrete poisoning, Struck-By/Caught Between	Proper PPE, Use a spotter during the pour of concrete	
Form Removal	Splintering, Struck By, Caught Between, Fragmentation	Wear gloves and safety glasses, Be aware of surroundings	
Backfill & Tamp	Crushed by/Caught between by heavy equipment	Have a spotter watching machinery and personnel	
Job Completion	Injury from tools and equipment	Keeping the site clean	
Job Duration	Civilian entry into jobsite, Heat	Rope off site, Keep water supplied to personnel, Work breaks when needed	

Changes/Challenges



- The first change to our original design was the application of a sand sub-base.
- After the initial ground breaking, we discovered that the existing soil conditions were suitable.

Changes/Challenges cont.



- Another change to the design was the slab dimensions.
- The slab edge was brought in flush with the columns.
- The pavilion is to be formed up and enclosed in the future.

Changes/Challenges cont.



- An initial challenge that our group encountered was the application of a screen wall.
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Changes/Challenges cont.



- The final challenge encountered was the early installation of electrical conduit.
- Our group had not finished grading and digging the turndown when the subcontractor arrived.

Initial Cost vs. Actual Cost

Cost Review						
GROUP:	Crew 3	Auburn Islamic Center				
Material	Projected Quantity	Actual Quantity	UOM	Projected Cost	Actual Cost	Difference
2 x 6	160	148	LF	\$120.00	\$84.37	-\$35.63
2 x 4	160	52	LF	\$79.70	\$22.85	-\$56.85
1 x 6 x 12' Pressure Treated	12	9	EA	\$102.84	\$67.41	-\$35.43
Nails	1	2	BOX	\$16.00	\$23.98	\$7.98
Vapor Barrier	6	1	Roll	\$101.88	\$24.99	-\$76.89
Sand Base	9.71	0	Tons	\$203.96	\$0.00	-\$203.96
WWF	1	1	Roll	\$115.00	\$89.10	-\$25.90
Finishing Tool Rental	1	0	Days	\$15.00	\$0.00	-\$15.00
Machinery Rental	1	1	Days	\$560.00	\$486.25	-\$73.75
Rebar	8	14	Stick	\$66.00	\$83.86	\$17.86
5 Gallon Buckets	8	3	EA	\$0.00	\$10.47	\$10.47
Concrete	10.9	9	CY	\$1,035.00	\$1,158.13	\$123.13
Concrete Truck Delivery	2	1	EA	\$55.00	Inc. in Concrete	-
Truss Plates	0	8	EA	\$0.00	\$10.32	\$10.32
Angle Connectors	0	8	EA	\$0.00	\$10.32	\$10.32
Staples	0	1	Pack	\$0.00	\$3.99	\$3.99
TOTAL ESTIMATED MATERIAL COST				\$2,470.38	\$2,076.04	-\$394.34

Lessons Learned

- The lessons our group learned mainly revolved around effective and consistent communication.
- Project conditions often change, so constant communication is crucial to success.
- The challenges encountered from the electrical conduit were due to ineffective scheduling with the electrical subcontractor.