



WEAVER GENERAL CONSTRUCTION COMPANY
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 Phone: (303) 789-4111 FAX: (303) 789-4310

SUBMITTAL TRANSMITTAL

December 28, 2010
WGC Submittal No: 03300-009.A

PROJECT: **Harold Thompson Regional WRF**
 Birdsall Rd.
 Fountain, CO 80817
 Job No. 2908

ENGINEER: **GMS, Inc.**
 611 No. Weber St., #300
 Colorado Springs, CO 80903
 719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan
 Sewage Disposal District**
 901 S. Santa Fe Ave.
 Fountain, CO 80817
 719-382-5303 James Heckman

CONTRACTOR: **Baker Concrete Construction**
 1904 Jasper Street
 Aurora, CO 80011
 937-536-9000 Nick Dewald

SUBJECT: Resubmittal of Concrete Mix Designs

Note: The concrete mix design re-submittal for Harold Thompson WRF is attached. Please note we have included the wall/footing mix per the current specifications (1-3" slump), but would prefer to use the alternate wall/footing mix as shown (5-8" slump).

SPEC SECTION: 03300 - Cast-In-Place Concrete

PREVIOUS SUBMISSION DATES: 10/22/10

DEVIATIONS FROM SPEC: ___ YES X NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver General Construction and approved with respect to the means, methods, techniques, & safety precautions & programs incidental thereto. Weaver General Construction also warrants that this submittal complies with contracted documents and comprises on deviations thereto.

Contractor's Stamp:

Engineer's Stamp:

Date: 12/28/10
 Reviewed by: H.C. Myers
 (X) Reviewed Without Comments
 () Reviewed With Comments

**ENGINEER'S
 COMMENTS:** _____



Rocky Mountain Premix, Inc.
2895 Capital Drive
Colorado Springs, CO 80915
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Concrete Mixture Design # A70F (Walls, Footings, and General Use)

MIX DESIGN MATERIALS

Material	Amount / Cubic Yard			Specific Gravity
Sand	1300	lbs.		2.60
Aggregate Size 57/67	1590	lbs.		2.64
Cement (Type I/II)	559	lbs.		3.15
Fly Ash (Class F)	99	lbs.		2.34
Water	263	lbs.	(31.6 gal.)	1.00
POLYHEED 997 (water reducer)	45.0	oz.	(6.84 oz./cwt)	n/a
MB AE 90 (air entrainment)	8.0	oz.	(1.22 oz./cwt)	n/a

DESIGN PHYSICAL PROPERTIES (As Tested)

Unit Weight	141.1	lbs./cu. Ft.
W/(C+P) Ratio	0.36	
Air Content	5.6	%
Slump	5	in.
Percent Fly Ash	15	%
Cementitious Content	658	lbs.
Percent Coarse Agg.	55	%
Yield	1.00	cy

SPECIFIED PHYSICAL PROPERTIES

Compressive Strength F'c	4500	psi (Min)
W/(C+P) Ratio	0.45	(Max.)
Air Content	5-7	%
Slump	1-3 (5-8)	in. (Range)
Percent Fly Ash (Class F)	15-20	% Range
Cementitious Content	N/A	lb/cy (Min.)
Percent Coarse Agg.	N/A	%
Yield	0.99-1.02	cy (Range)

The above weights are based upon aggregates in a saturated surface dry condition. Batch plant corrections must be made for moisture in aggregates.

COMPRESSIVE STRENGTH RESULTS (From Laboratory Trial)

Cylinder Break Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	Average Strength (psi)
1-Day	1990	2090								2040
7-Day			3790	3780						3790
28-Day					5370	5320	5450			5380
56-Day								5640	5670	5660

Compressive strength results rounded to nearest 10 psi per ASTM C 39

MATERIAL SUPPLIERS AND SOURCES

Material	Company	Source
Fine Aggregate	RMMA	Clevenger Pit
Coarse Aggregate	RMMA	Clevenger Pit
Cement (Type I/II)	GCC	Pueblo
Fly Ash (Class F)	Boral	Denver
Mid Range Water Reducer	BASF	POZZOLITH 997
Air Entrainment Agent	BASF	MB AE 90

BREAK INFORMATION AND AVERAGES RECORD FOR MIX ID # A65FDP

SET #	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
CYLINDER #	ILC108	ILC108	ILC208	ILC208	ILC208	ILC208	ILC208	ILC208	ILC208	ILC208
PSI 7 DAYS (1)	3100	2810	2760	3000	3070	3040	2570	2650	2440	2630
PSI 28 DAYS (2)	4080	4140	4000	4090	4040	4200	4090	3620	3890	3655
AVERAGE TO DATE OF 1	3100	2955	2890	2918	2948	2963	2907	2875	2827	2807
AVERAGE TO DATE OF 2	4080	4110	4073	4078	4070	4092	4091	4033	4017	3981
SET #	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>
CYLINDER #	ILC208	ILC308	ILC308	ILC308	ILC308	ILC308	ILC308	ILC308	ILC408	ILC408
PSI 7 DAYS (1)	2950	3420	3000	2540	2860	3280	3250	3070	2520	3180
PSI 28 DAYS (2)	4130	4190	4090	4080	4020	4120	3970	4040	3790	4010
AVERAGE TO DATE OF 1	2820	2870	2664	2856	2856	2883	2904	2913	2893	2907
AVERAGE TO DATE OF 2	3994	4010	4017	4021	4021	4027	4024	4025	4012	4012
SET #	<u>21</u>	<u>22</u>	<u>23</u>	<u>24</u>	<u>25</u>	<u>26</u>	<u>27</u>	<u>28</u>	<u>29</u>	<u>30</u>
CYLINDER #	ILC408	ILC508	ILC508	ILC508	ILC508	ILC508	ILC508	ILC608	ILC608	ILC708
PSI 7 DAYS (1)	3010	2790	3350	2780	3310	2910	3030	2790	2510	2700
PSI 28 DAYS (2)	4030	3810	4270	3930	4190	3940	4010	4030	3820	3650
AVERAGE TO DATE OF 1	2912	2906	2926	2920	2935	2934	2938	2933	2918	2911
AVERAGE TO DATE OF 2	4013	4004	4015	4012	4019	4016	4016	4016	4009	3998



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Mixture Design Submittal

Date: 10/11/2010
Project: Harold D. Thompson Regional Water Reclamation Facility
Contractor: Baker Concrete Construction, Inc.
Location: Lower Fountain Metropolitan Sewage Disposal District
Design PSI: 4500
Mix Design ID: A70F
Plant: Plant 1 & 2
Use: Walls, Footings, and General Use

W/cm ratio: 0.40
Sand / Total Agg: 0.45
Design Unit Weight: 141.1
Design Slump Range: 1 - 3"
Design Air % Range: 5 - 7%
Placement Method: Various

	(%)	Wt. Lb	Sp.Gr.	Ft ³	Source	Spec.
Cementitious: Cement Type I II	85%	559	3.15	2.84	GCC / Pueblo	ASTM C 150
Fly Ash Class F	15%	99	2.36	0.67	Boral Denver	ASTM C 618
	(%)	Wt. Lb		Ft ³	Source	Spec.
Aggregates: ASTM # 57/67	55%	1590	2.64	9.65	Clevenger	ASTM C 33
ASTM Sand (WCS)	45%	1300	2.60	8.01	Clevenger	ASTM C 33
Air: (%) Design Air	6.0%			1.62		
Water (Gal - lbs - Vol)	31.6	263		4.21		
Fiber / Color						
Totals		3811		27.00		
	Oz/cwt	Oz/yd ³			Source	Spec.
Admixtures: POLYHEED 997	6.84	45.0			BASF	ASTM C 494
MB AE 90	1.22	8.0			BASF	ASTM C 260

We guarantee that the strengths produced by this concrete mix design will meet the acceptance criteria of ACI 318, "Building Code Requirements for Reinforced Concrete" and ACI 301, "Specification for Structural Concrete Buildings" when sampling and specimen preparation are performed by personnel certified as technicians by ACI in full accord with applicable ASTM standards. ASTM C94 requires that the ready-mix producer be given copies of test reports in a timely manner or on request.



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Mixture Design Submittal

Date: 12/17/2010
Project: Harold D. Thompson Regional Water Reclamation Facility
Contractor: Baker Concrete Construction, Inc.
Location: Lower Fountain Metropolitan Sewage Disposal District
Design PSI: 3750
Mix Design ID: A65FDP
Plant: Plant 1 & 2
Use: Drilled Caissons

W/cm ratio: 0.35
Sand / Total Agg: 0.44
Design Unit Weight: 143.7
Design Slump Range: 5 - 7"
Design Air % Range: 5 - 7%
Placement Method: Various

	(%)	Wt. Lb	Sp.Gr.	Ft ³	Source	Spec.
Cementitious: Cement Type I II	85%	519	3.15	2.64	GCC / Pueblo	ASTM C 150
Fly Ash Class F	15%	92	2.36	0.62	Boral Denver	ASTM C 618
	(%)	Wt. Lb		Ft ³	Source	Spec.
Aggregates: ASTM # 57/67	56%	1700	2.64	10.32	Clevenger	ASTM C 33
ASTM Sand (WCS)	44%	1350	2.60	8.32	Clevenger	ASTM C 33
Air: (%) Design Air	6.0%			1.62		
Water (Gal - lbs - Vol)	25.9	216		3.46		
Fiber / Color						
Totals		3877		26.98		
	Oz/cwt	Oz/yd ³		Source	Spec.	
Admixtures: POLYHEED 1020	5.00	30.5		BASF	ASTM C 494	
POZZOLITH 200N	3.00	18.3		BASF	ASTM C 494	
MB AE 90	2.54	15.5		BASF	ASTM C 260	

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Mixture Design Submittal

Date: 12/17/2010
Project: Harold D. Thompson Regional Water Reclamation Facility
Contractor: Baker Concrete Construction, Inc.
Location: Lower Fountain Metropolitan Sewage Disposal District
Design PSI: 4500
Mix Design ID: A70F
Plant: Plant 1 & 2
Use: Walls, Footings, and General Use - Alternate Slump

W/cm ratio: 0.40
Sand / Total Agg: 0.45
Design Unit Weight: 141.1
Design Slump Range: 5 - 8"
Design Air % Range: 5 - 7%
Placement Method: Various

	(%)	Wt. Lb	Sp.Gr.	Ft ³	Source	Spec.
Cementitious: Cement Type I II	85%	559	3.15	2.84	GCC / Pueblo	ASTM C 150
Fly Ash Class F	15%	99	2.36	0.67	Boral Denver	ASTM C 618
	(%)	Wt. Lb		Ft ³	Source	Spec.
Aggregates: ASTM # 57/67	55%	1590	2.64	9.65	Clevenger	ASTM C 33
ASTM Sand (WCS)	45%	1300	2.60	8.01	Clevenger	ASTM C 33
Air: (%) Design Air	6.0%			1.62		
Water (Gal - lbs - Vol)	31.6	263		4.21		
Fiber / Color						
Totals		3811		27.00		
	Oz/cwt	Oz/yd ³			Source	Spec.
Admixtures: POLYHEED 997	7.50	49.4			BASF	ASTM C 494
MB AE 90	1.22	8.0			BASF	ASTM C 260

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