Martin Marietta

Concrete Mix Design : **A4785**
Description: 4,500 PSI, AE, Class D
MMM Lab No.:

CONCRETE MIX PROPORTIONS:

Cement	**ASTM C-150**		**516** [lb]
Fly Ash	**ASTM C-618**		**129** [lb]
Fine Aggregate	**ASTM C-33**		**1170** [lb]
Coarse Aggregate	**ASTM C-33**		**1783** [lb]
AEA	**ASTM C-260**	**As needed**	**4.1** [oz]
MRWR	**ASTM C-494**	**As needed**	**32.25** [oz]
Water	**ASTM C-94**		**285** [lb] (34.2 gal)

The above weights are based upon aggregates being in the saturated, surface dry condition. Batch plant corrections must be made for aggregates that vary from these moisture conditions. *** AEA adjustments at plant and on site may be required to achieve to proper air entrainment. Air adjustments may be made with either liquid or Fritz air entrainment. Mix proportions may be adjusted in accordance with ACI 301 sections 3.8, 3.11, and 17.2.

PHYSICAL PROPERTIES OF MIX:

Slump [in]	3 - 5	in.
Air Content (Entrained) [%]	5 - 8	%
Unit Weight (Wet) [pcf]	142.6	pcf
Yield	27.2	cu.ft.
Water / Cement Ratio	0.44	

COMPRESSIVE STRENGTH [psi]:
(From Field Data)

7 Day	28 Day
4130	5470

Note: Concrete test results are under normal conditions, proper cold and hot weather concreting practices must be followed in the field to achieve strength. Concrete mix adjustments may be necessary based on ambient conditions, consult with dispatch prior to placement.

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STRENGTH PERFORMANCE REPORT

Mix : A4785 - A4785 - 4500 PSI

Period : 07/27/2016 to 11/22/2017

Number of Tests	30	Specified Strength	4500	28 Day	Compressive Test
Average Strength	5470	Corrected CofV	8.59	ACI Running Average of 3 Criteria	Yes
Required Strength	5130	Standard Deviation	470	ACI Standard Deviation Criteria	Yes

	Slump in	Air Content %	7 Str psi	28 Str psi
Count	30	30	30	30
Average	4.14	6.09	4130	5470
STDEV	0.71	0.79	480	470
COV%	17.11	12.96	10	10
Range Min	3.00	5.00	3380	4950
Range Max	5.00	8.00	5190	6370

Date	Sample	Ticket Date	Slump in	Air Content %	7 Str psi	28 Str psi
11/22/2017	49124725	22 Nov 2017	5.00	5.60	4480	5290
06/27/2017	49113132	27 Jun 2017	5.00	5.70	4880	6240
06/12/2017	49111587	12 Jun 2017	4.75	5.40	5190	6060
06/07/2017	49111129	07 Jun 2017	3.00	5.30	3910	5130
05/31/2017	47054048	31 May 2017	3.00	5.00	4890	6170
05/04/2017	47053109	04 May 2017	3.50	5.00	4120	5970
03/27/2017	49105132	27 Mar 2017	4.25	6.50	4200	5600
03/27/2017	47051664	27 Mar 2017	4.50	7.60	3870	5160
03/27/2017	47051671	27 Mar 2017	4.75	7.40	4090	5010
03/24/2017	49105103	24 Mar 2017	5.00	5.40	4540	5860
03/04/2017	49103522	04 Mar 2017	3.75	6.00	3730	5060
03/01/2017	47050655	01 Mar 2017	3.25	6.10	4400	5260
02/20/2017	49102785	20 Feb 2017	3.20	6.00	3800	5180
02/17/2017	49102671	17 Feb 2017	4.00	6.50	4880	6300
02/15/2017	47050269	15 Feb 2017	3.00	6.00	4370	5690
02/13/2017	49102343	13 Feb 2017	3.50	5.00	4110	5220
01/13/2017	49100975	13 Jan 2017	4.75	7.20	4000	5700
12/21/2016	49100364	21 Dec 2016	4.50	7.00	3750	5100
12/13/2016	49100071	13 Dec 2016	4.50	6.00	4940	6370
12/13/2016	49100061	13 Dec 2016	4.50	6.00	4420	6150
12/13/2016	49100078	13 Dec 2016	4.00	6.80	3830	5410
12/05/2016	49099761	05 Dec 2016	5.00	6.00	3580	5580
10/27/2016	49096391	27 Oct 2016	4.00	6.80	4200	5380
10/27/2016	49096481	27 Oct 2016	4.00	5.90	3380	4960
10/26/2016	49096330	26 Oct 2016	3.25	5.00	3790	4960
10/17/2016	49095200	17 Oct 2016	5.00	5.80	3620	4950
09/12/2016	49091477	12 Sep 2016	4.50	5.90	3750	5380
09/12/2016	49091528	12 Sep 2016	3.25	8.00	3410	5020
08/09/2016	49088196	09 Aug 2016	4.50	5.80	3940	5040
07/27/2016	49086921	27 Jul 2016	5.00	6.00	3800	5020