

STATEMENT OF CONCRETE MIX DESIGN

DATE: 5/8/2024

Concrete Paving

MIX DESIGN #: 7.0 Sack Panel Replacement Volume Concrete LLC

PROJECT: Panel Replacement

MAX SIZE AGG.: 1.00 in. Aggregate
 FLEXURAL STRENGTH 2.24 Mpa (325 psi) at 3 hrs
 COMPRESSIVE STRENGTH 20.70 MPa (3000 psi) at 3 hrs
 SLUMP: 150 mm +/- 50 mm (6 in +/- 2")
 PLACEMENT METHOD: PLACE
 LOC.IN STRUCTURE: STRUCTURAL CONCRETE
 MIX DESIGN METHOD: ACI 211
 MATERIAL SOURCES:
 Cement: CTS CEMENT - RAPID SET
 Fine Aggregate Estacada Rock C-33
 Course Aggregate Windsor AASHTO 467

ARCH/ENGR:
 CONTRACT.:
 SUPPLIER:

PRIMARY AGGREGATE GRADATION

(% Passing US Standard Sieve)

SIZE(Met):	WCS	9.5mm	L.W.	19.05mm	37.5mm	
SIZE (Eng):	WCS	3/8"	L.W.	3/4"	1-1/2"	COMB.
Agg%:	42	0	0	58	0	100
Eng.	Met.					
2"	50.0mm	100	100	100	100	100
1.5"	37.5mm	100	100	100	100	100
1"	25.0mm	100	100	100	66	100
0.75"	19.0mm	100	100	72	4	84
0.5"	12.5mm	100	100	12	0	49
0.375"	9.5mm	100	98	2	0	43
#4	4.75mm	98	29	1	0	42
#8	2.36mm	80	2	1	0	34
#16	1.18mm	66	1	1	0	28
#30	600um	45	0	1	0	19
#50	300um	17	0	1	0	8
#100	150um	5	0	1	0	3
#200	75um	3	0.00	1.00	0.00	2
	F.M.	2.89	5.70	7.20	7.96	5.39

CONCRETE MIX DESIGN (SSD BASIS) FOR 1 CUBIC YARD AND 1 CUBIC METER

MATERIAL	SP GR	ABS VOL CU FT	BATCH WT LBS 1 Cubic Yard	BATCH WT KGS 1 Cubic Meter
Cement: 7.00 Sacks	2.98	0.00	0 lbs	0 kgs
RAPID SET CEMENT:	2.96	3.56	658 lbs	390 kgs
Washed Concrete Sand:	2.58	7.41	1193 lbs	708 kgs
9.5 mm (3/8") Agg.:	2.70	0.00	0 lbs	0 kgs
25.0 mm (1") Agg.:	2.64	10.24	1686 lbs	1000 kgs
37.5mm x 19mm(1-1/2") Agg.:	2.69	0.00	0 lbs	0 kgs
L.W.: N/A	0.00	0.00	0 lbs	0 kgs
0.0 pcf; Loose Volume	[0.0]		[0.0]	
Air (+/- 1) 5.00 %	4.00	1.35	32.00 ozs.	Trace D1000
Water:30 to 32.0 gals.	1.00	4.27	267 lbs	158 liters
ADMIXTURES: 70 degree F dosage indicated directly below for volume calculations				
AE 90, ozs/cwt	6.00	0.04	39.5 ozs	1.5 liters
citric, ozs/cwt	18.00	0.13	118.4 ozs	4.6 liters
		27.00		

** See chart below for dosage/ambient condition at time of actual placement.

- Citric acid to be dosed at the discretion of producer on job site
- At the indicated admixture dosages and ambient temperatures, the concrete is designed for 45 min to 1 hr initial set and a final set of approximately 5 to 20 minutes after initial set.
- Trial batching of the mix to verify water demand and strength is required.
- Use warmed water to heat concrete to 70 to 80 F(21.1 to 26.7 C) for ambient temperatures under 50 degrees F.
- Use chilled water to cool concrete to 70 to 80 F(21.1 to 26.7 C) for

PERTINENT PROPERTIES:

W/(C+P): Unit Weight Cementitious Factor:
 4.57 gal/sack 142.07 pcf 7.00 sk./cu.yd.
 0.41 by wt(lbs) 100.0 % RSC
 18.26 l/45 kg 2257 kg/cum
 0.41 by wt(kgs)

ambient temperatures in excess of 90 degrees F.

Citric solution created mixing 1# food grade citric acid to 1 Gallon water.					

Age	Flexural Strength			Compressive Strength	
	MPa	psi		MPa	psi
3 hrs	2.24	325		20.70	3000
5 hrs	3.80	550		34.50	5000

