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	Ulu		
		AN	Material Quantity x GWP = EC
	ENVIRONMENTAL IMPACTS Declared Product: Mix BAG05R20 · Centreville RM Plant Description: 3000 AP AE		500m ³ x 311 kgCO2e/m ³ = 155,500 kgCO2e
	Compressive strength: 3000 PSI at 28 days Declared Unit: 1 m ³ of concrete		GWP = Global Warming Potential
	Global Warming Potential (kg CO ₂ -eq)	311	EC= Embodied Carbon
	Acidification Potential (kg CPC-11-eq)	0.93	EC unit of measure - kg(02e
-	Eutrophication Potential (kg N-eq)	0.38	Le unit of measure - Rgeoze
	Photochemical Ozone Creation Potential (kg O3-eq)	20.4	EPD = Environmental Product Declaration
	Abiotic Depletion, non-fossil (kg Sb-eq)	6.04E-5	
	Abiotic Depletion, fossil (MU)	697	IW = Industry Wide
	Total Waste Disposed (kg)	89.3	
	Consumption of Freshwater (m ³)	3.43	PS = Product Specific
	Product Components: crushed aggregate (ASTM aggregate (ASTM C33), Portland cement (ASTM C150), (ASTM C1602), admixture (ASTM C494), admixture (AS	M C33), natural batch water 6TM C260)	
	Additional datail and impacts an important on mana three of t	the EPD	



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Pr	duct Specific E	PDs
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		1					a land	-		34.32	191		a star
the	Benchm	ark repor	t, the GW	/P of 50	00 psi o	concrete	in the P	acific S	Southwe	est Regi	on is 288.	.90 kgCO2	e/CY
Strong	th nei	@28 days	2 500	1ts (per c		1) 4.000	5.000	6.00	0	8.000	30001.W/	4000LW	5000LW/
Core M	landatory li	mpact Indic	ator	3,00		+,000	5,000	0,00		8,000	3000210	4000200	3000200
GWP	k k	g CO2e	196.51	213.4	16 2	47.32	288.90	306.4	44 3	348.96	382.19	417.50	453.93
	-	0								225.00	1 0 0 5 0 5		
odp the		CFC11e D, the G	4.91E-06	5.28E-	-06 6. 5000 p	si mix	6.90E-06	7.30E	-06 8. g is 24	9.19 kg	CO2e/C	1.40E-05	1.49E-05
odp the	IW EPI	OFC11e	4.91E-06	5.28E- 4001-	-06 6. 5000 p	si mix	6.90E-06	7.30E	<u>-06 8</u>	9.19 kg	CO2e/C	1.40E-05	1.49E-05
odp the able 9	IW EPI	, CFC11e D, the G Results (A	4.91E-06 WP of a	5.28E- 4001- 5000 psi (2	-06 6. 5000 p 27.6-34.5	01E-06 Si mix MPa) RMC	6.90E-06 with 40 product mi	7.30E % Slac	-06 8. 9 is 24: per cubic	9.19 kg	CO2e/C	1.40E-05	1.49E-05
ODP Table 9	IW EPI	CFC11e D, the G v Results (At Minimum	4.91E-06 WP of a	5.28E- 5000 psi (2 4001- 5000-00- FA/SL	-06 6. 5000 p 27.6-34.5 4001- 5000-20- FA	01E-06 Si mix MPa) RMC 4001- 5000-30- FA	6.90E-06 with 40 product mi 4001- 5000-40- FA	7.30E % Slac ix design, 4001- 5000-30- SL	-06 8. p-is 24. per cubic 4001- 5000-40- sL	9.19 kg	4001- 5000-50- FA/SL	1.40E-05 Y <u>288.</u> 2	<u>1.49E-05</u> 00-249.1 288.90
odp the rable 9	IW EPI	CFC11e D, the G / Results (A Minimum Indicator	4.91E-06 WP of a 1-A3): 4001- Maximum	5.28E- 4001 5000 psi (2 4001- 5000-00- FA/SL	-06 6. 5000 p 27.6-34.5 4001- 5000-20- FA	01E-06 Si mix MPa) RMC 4001- 5000-30- FA	6.90E-06 with 40 product mi 4001- 5000-40- FA	7.30E % Slac	-06 8. per cubic 4001- 5000-40- SL	9.19 kg	4001- 5000-50- FA/SL	1.40E-05 Y <u>288.9</u> 2 - 1.40/	00-249.1 288.90

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Table E6-I	Pacific Southwes	t LCA Result	ts (per cubic	vard)					1	
trength	psi @28 days	2,500	3,000	4,000	5,000	6,000	8,000	3000LW	4000LW	5000LW
ore Mand	latory Impact Indic	ator		. ,	,					
SWP	kg CO2e	196.51	213.46	247.32	288.90	306.44	348.96	382.19	417.50	453.93
DDP	kg CFC11e	4.91E-06	5.28E-06	6.01E-06	6.90E-06	7.30E-06	8.22E-06	1.32E-05	1.40E-05	1.49E-05
ENVIRO	NMENTAL IMPAC	TS						2	88.90-	185.9
Declared	d Product:							* • • •	288.	90
	- Son Francisco Pla	nt 32 Plant			6	Sugar Starts				
Mix 621X2	· San Francisco Fia				and the second sec				-	

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Element Dimensions	Concrete	Reference (benchmark)	Proposed Design Mixes	Proposed Design Mixes		Concrete Strengths and Volumes
	(yas)	Mixes	(siag)	(fly ash-slag) 6000 psi		Shear Walls: 6,000 psi; 7,630 yd3
9,600 ft ² x 8'	2,844	6000 psi	70% slag	40% slag 30% fly ash		Columns: 8,000 psi; 366 yd ³
400' x 24' x 15"	444	5000 psi	5000 psi 70% slag	5000 psi 40% slag 30% fly ash	(NY	Floors 2-18: 5,000 psi; 4,533 yd ³
9,600 ft² x 3 x 12"	1,067	5000 psi	5000 psi 40% slag	5000 psi 40% fly ash		Floors B2-1: 5,000 psi; 1,067 yd ³
9,600 ft ² 17 x 9"	4,533	5000 psi	5000 psi 30% slag	5000 psi 30% fly ash		Basement Walls: 5,000 psi; 444 yd ³
25' x 40' x 206' x 12"	7,630	6000 psi	6000 psi 50% slag	6000 psi 30% slag 20% fly ash		Mat Foundation: 6,000 psi; 2,844 yd ³
24" x 24" x 206' x 12	366	8000 psi	8000 psi 40% slag	8000 psi 40% fly ash		
	2: SCM	Element Dimensions Concrete Volume 9,600 ft² x 8' 2,844 400' x 24' x 15" 444 9,600 ft² x 3 x 12" 1,067 9,600 ft² x 3 x 12" 1,067 25' x 40' x 206' x 12" 7,630	Element Dimensions Concrete Volume (yd2) Eference (benchmark) Mixes 9,600 ft ² x 8' 2,844 6000 psi 400' x 24' x 15" 444 5000 psi 9,600 ft ² x 3 x 12" 1,067 5000 psi 9,600 ft ² 17 x 9" 4,533 5000 psi 25' x 40' x 206' x 12" 7,630 6000 psi	Element Dimensions Concrete Volume (yd?) Reference benchmark/ Mixes Proposed Design Mixes 9,600 ft² x 8' 2,844 6000 psi 70% slag 6000 psi 70% slag 6000 psi 70% slag 5000 psi 70% slag 9,600 ft² x 3' x 12" 1,067 5000 psi 5000 psi 30% slag 5000 psi 30% slag 5000 psi 30% slag 25' x 40' x 206' x 12" 7,630 6000 psi 6000 psi 30% slag 5000 psi 30% slag 8000 psi 30% slag	Element Dimensions Concrete Volume (yd) Reference (benchmark) Mixes Proposed Design Mixes (slap) Proposed Design Mixes (slap) Proposed Design Mixes (slap) 9,600 ft ² x 8' 2,844 6000 psi 40% slag 6000 psi 70% slag 6000 psi 40% slag 30% fty slap 400' x 24' x 15" 444 5000 psi 5000 psi 40% slag 5000 psi 40% slag 30% fty slap 9,600 ft ² x 3 x 12" 1,067 5000 psi 5000 psi 40% slag 5000 psi 30% slap 9,600 ft ² 17 x 9" 4,533 5000 psi 5000 psi 30% slag 5000 psi 30% slag 5000 psi 30% slag 25' x 40' x 206' x 12" 7,630 6000 psi 6000 psi 30% slag 5000 psi 30% slag	Element Dimensions Concrete Volume (vd ³) Reference (benchmark) Mixes Proposed Design Mixes (slag) Proposed Design Mixes (slag) Proposed Design Mixes (slag) 9,600 ft ² x 8' 2,844 6000 psi 6000 psi 70% slag 6000 psi 40% slag 30% fty ash 400' x 24' x 15" 444 5000 psi 5000 psi 40% slag 5000 psi 40% slag 9,600 ft ² x 3 x 12" 1,067 5000 psi 5000 psi 30% fty ash 5000 psi 40% slag 5000 psi 30% fty ash 9,600 ft ² 17 x 9" 4,533 5000 psi 5000 psi 30% slag 5000 psi 30% fty ash 25' x 40' x 206' x 12" 7,630 6000 psi 6000 psi 50% slag 5000 psi 30% slag

		A State	
Modify Project	1	and the second s	
Athena	Building	GWP (kg)	GWP Reduction
for Buildings	Reference Mixes	6.14 x 10 ⁶	0
Project Name Brample, Boston Reference	Proposed with Slag Mixes	3.94 x 10 ⁶	-36%
roject Location New York: City Aulding Type Commercial	Proposed with Fly Ash and Slag	3.92 × 10 ⁶	-36%
Building Life Spectancy Building Height (f) Si W Imperial Si W Imperial Si Si norhorize Assembly Daplay Units Project Number Project Number Project Decorption (CTRL + Enter for new line) Project Decorption (CTRL + Enter for NRMCA Benchmark Mores Operating Energy Consumption	 36% reduction i cement All other env. in therefore, meet maximizing SCI 	n GWP with npacts were ing LEED cri M content	SCMs replacing also reduced; iteria by



	Maximu for GS (kilograms of carbor	Maximum Global Warming Potential Limits for GSA Low Embodied Carbon Concrete (kilograms of carbon dioxide equivalent per cubic meter - CO ₂ e kg/m ³)						
Specified compressive strength (f'c in PSI)	Standard Mix	High Early Strength	Lightweight					
up to 2499	242	326	462					
2500-3499	306	413	462					
3500-4499	346	466	501					
4500-5499	385	519	540					
5500-6499	404	546	N/A					
6500 and up	414	544	N/A					



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