

**APPENDIX B – MIX PROPORTIONS**

**MIXTURE DESIGNATION:**

**MAIN MIX (COLOR VARIES, RED PIGMENT SHOWN):**

CEMENTITIOUS MATERIALS							
Component	Specific Gravity	Volume (ft <sup>3</sup> )	Amount of CM (mass/volume) (lb/yd <sup>3</sup> )				
Type 1 White Portland Cement	3.15	3.184	625.856	Total Amount of cementitious materials <u>835.894</u> lb/yd <sup>3</sup> c/cm ratio <u>0.75</u>			
White Silica Fume	2.20	0.455	62.444				
Metakaolin	2.60	0.910	147.594				
FIBERS							
Component	Specific Gravity	Volume (ft <sup>3</sup> )	Amount of Fibers (mass/volume) (lb/yd <sup>3</sup> )				
Nycon 0.315" PVA Fibers	1.3	0.403	32.674	Total Amount of Fibers <u>32.674</u> lb/yd <sup>3</sup>			
AGGREGATES							
Aggregates	ASTM C330 *	Abs (%)	SG <sub>OD</sub>	SG <sub>SSD</sub>	Base Quantity (lb/yd <sup>3</sup> )		Volume (ft <sup>3</sup> )
					OD	SSD	
K15 > 0.75µm	No	0	0.15	0.15	35.392	35.392	3.781
Poraver 0.25-0.5mm	No	55%	0.65	0.99	54.658	84.720	1.348
Norlite Shale	Yes	8%	1.87	2.02	200.553	216.597	1.719
ADMIXTURES							
Admixture	lb/gal	Dosage (fl. oz / cwt)	% Solids	Amount of Water in Admixture (lb/yd <sup>3</sup> )			
Mallard Creek Tylac 4190	8.59	335.27	50.0	Total Water from Admixtures, $\sum w_{adm}$ <u>120.755</u> lb/yd <sup>3</sup>			
ADVA Cast 555	8.90	38.18	17.1				
Eclipse Floor 200	8.00	16.09	1.0				
SOLIDS (LATEX, DYES, POWDERED ADMIXTURES, AND MINERAL FILLERS)							
Component	Specific Gravity	Volume (ft <sup>3</sup> )	Amount (mass/volume) (lb/yd <sup>3</sup> )				
Mallard Creek Tylac 4190	1.06	1.422	94.037	Total Solids from Admixtures <u>188.361</u> lb/yd <sup>3</sup>			
K15 < 0.75 µm	0.15	7.519	70.376				
Medium Red Iron Oxide Pigment	4.90	0.078	23.948				
WATER							
			Amount (mass/volume) (lb/yd <sup>3</sup> )			Volume (ft <sup>3</sup> )	
Water, lb/yd <sup>3</sup>			w: 376.152			6.028	
Total Free Water from All Aggregates, lb/yd <sup>3</sup>			$\sum w_{free}: 0$				
Total Water from All Admixtures, lb/yd <sup>3</sup>			$\sum w_{adm}: 120.755$				
Batch Water, lb/yd <sup>3</sup>			w <sub>batch</sub> : 255.397				
DENSITIES, AIR CONTENT, RATIOS AND SLUMP							
	cm	fibers	aggregates	solids	water	Total	
Mass of Concrete, M, (lb)	835.894	32.674	336.709	188.361	376.152	$\sum M: 1769.79$	
Absolute Volume of Concrete, V, (ft <sup>3</sup> )	4.549	0.403	6.848	9.019	6.028	$\sum V: 26.847$	
Theoretical Density, T, ( $=\sum M / \sum V$ )	65.92 lb/ft <sup>3</sup>		Air Content [= (T - D)/T x 100%]			0.6 %	
Measured Density, D	65.55 lb/ft <sup>3</sup>		Slump, Slump flow			¼ in.	
water/cement ratio, w/c:	0.60		water/cementitious material ratio, w/cm:			0.45	

\* Indicate if aggregate, other than manufactured glass microspheres and/or cenospheres, is compliant with ASTM C330