SUPPLEMENTAL MATERIALS

Table S.1. Individual polycyclic aromatic hydrocarbon (PAH) compounds collected from the rear instructor location located 0.9m from the floor inside the Fire Behavior Lab and at the outside instructor location in the 6-cycle experiments using the Fire Behavior Lab. Five samples were collected for each fuel and location and reported as mg/m^3. Results shown with the less than symbol (<) are below the reporting limit (RL) and RL is provided.

		Rear		Outside	
		Median	*Range*	*Median*	*Range*
Acenaphthene	Fiberboard	0.08	0.06-0.13	<0.0038	<0.0031-0.0046
	OSB	0.10	0.09-0.16	0.0042	<0.0040-0.0089
	Pallets	0.15	0.06-0.43	0.0033	<0.0023-0.0073
	Particle Board	0.12	0.07-0.16	<0.0036	<0.0029-0.013
	Plywood	0.21	0.07-0.31	<0.0040	<0.0036-0.016
Acenaphthylene	Fiberboard	0.95	0.74-1.40	0.0041	<0.0037-0.0550
	OSB	1.10	0.96-1.50	0.0041	<0.0040-0.0930
	Pallets	1.90	0.60-5.30	0.0038	0.0042-0.0830
	Particle Board	1.40	0.82-2.10	0.0130	0.0045-0.1500
	Plywood	2.70	0.90-3.90	<0.0040	<0.0036-0.1600
Anthracene	Fiberboard	0.19	0.16-0.33	0.0071	<0.0031-0.0095
	OSB	0.24	0.19-0.34	0.0082	<0.0040-0.0160
	Pallets	0.34	0.13-0.96	0.0050	<0.0023-0.0140
	Particle Board	0.27	0.16-0.47	0.0036	<0.0029-0.0260
	Plywood	0.56	0.19-0.81	<0.0040	<0.0036-0.0310
Benzo(a) anthracene	Fiberboard	0.10	0.08-0.18	0.0041	<0.0031-0.0049
	OSB	0.13	0.10-0.18	0.0042	<0.0040-0.0100
	Pallets	0.18	0.08-0.51	<0.0030	<0.0023-0.0079
	Particle Board	0.13	0.08-0.25	<0.0036	<0.0029-0.0130
	Plywood	0.33	0.09-0.48	<0.0040	<0.0036-0.0160
Benzo(a) pyrene	Fiberboard	0.09	0.02-0.17	<0.0037	<0.0031-0.0048
	OSB	0.11	0.09-0.17	<0.0041	<0.0037-0.0091
	Pallets	0.15	0.06-0.44	<0.0029	<0.0023-0.0071
	Particle Board	0.12	0.08-0.22	<0.0036	<0.0029-0.0120
	Plywood	0.28	0.08-0.40	<0.0040	<0.0036-0.0140
Benzo(b) fluoranthene	Fiberboard	0.13	0.10-0.18	0.0042	0.0031-0.0073
	OSB	0.12	0.10-0.19	<0.0042	0.0039-0.0130
	Pallets	0.19	0.08-0.65	<0.003	0.0023-0.0110
	Particle Board	0.12	0.08-0.29	<0.0036	0.0029-0.0180
	Plywood	0.32	0.09-0.64	<0.0040	<0.0036-0.0240
Benzo(g,h,i) perylene	Fiberboard	0.052	0.039-0.097	<0.0035	<0.0030-0.0039
	OSB	0.065	0.045-0.095	<0.0041	<0.0037-0.0048
	Pallets	0.078	0.033-0.190	<0.0029	<0.0023-0.0040
	Particle Board	0.044	<0.004-0.120	<0.0036	<0.0029-0.0074
	Plywood	0.084	0.015-0.160	<0.0040	<0.0036-0.0085
Benzo(k) fluoranthene	Fiberboard	0.039	<0.003-0.080	<0.0035	<0.0029-0.0039
	OSB	0.027	<0.004-0.056	<0.0040	<0.004
	Pallets	0.031	<0.003-0.063	<0.0029	<0.003
	Particle Board	0.022	<0.004-0.056	<0.0035	<0.0029-0.0037
	Plywood	0.025	<0.003-0.091	<0.0038	<0.0036-0.0040

		Rear		Outside	
		Median	*Range*	*Median*	*Range*
Chrysene	**Fiberboard**	0.09	0.06-0.15	<0.0037	<0.0031-0.0043
	OSB	0.11	0.09-0.15	<0.0042	<0.0037-0.0076
	Pallets	0.15	0.07-0.37	<0.0029	<0.0023-0.0062
	Particle Board	0.11	0.06-0.21	<0.0036	<0.0029-0.0100
	Plywood	0.26	0.07-0.31	<0.0040	<0.0036-0.0130
Dibenzo(a,h) anthracene	**Fiberboard**	0.010	<0.003-0.016	<0.0035	<0.004
	OSB	0.009	0.004-0.016	<0.0040	<0.004
	Pallets	0.012	0.007-0.030	<0.0029	<0.003
	Particle Board	0.011	0.005-0.025	<0.0035	<0.004
	Plywood	0.015	0.008-0.032	<0.0038	<0.004
Fluoranthene	**Fiberboard**	0.36	0.28-0.68	0.0150	<0.0037-0.0190
	OSB	0.44	0.35-0.57	0.0140	<0.0040-0.0340
	Pallets	0.57	0.28-1.80	0.0080	<0.0023-0.0280
	Particle Board	0.29	<0.004-0.78	0.0039	<0.0029-0.0370
	Plywood	0.54	0.094-1.30	<0.0040	<0.0036-0.0600
Fluorene	**Fiberboard**	0.22	0.20-0.40	0.0098	<0.0031-0.0130
	OSB	0.27	0.23-0.39	0.0110	<0.0040-0.0220
	Pallets	0.38	0.15-0.98	0.0086	<0.0023-0.0190
	Particle Board	0.33	0.18-0.53	0.0036	<0.0029-0.0340
	Plywood	0.59	0.23-0.82	<0.0040	<0.0036-0.0400
Indeno(1,2,3-cd) pyrene	**Fiberboard**	0.048	0.036-0.090	0.0035	0.0029-0.0039
	OSB	0.045	<0.004-0.080	0.0042	0.0040-0.0150
	Pallets	0.075	0.031-0.220	0.0029	0.0023-0.0037
	Particle Board	0.037	<0.004-0.110	0.0035	0.0029-0.0059
	Plywood	0.074	0.006-0.160	<0.0040	<0.0036-0.0061
Naphthalene	**Fiberboard**	4.4	3.3-6.4	0.180	<0.007-0.220
	OSB	4.8	4.1-7.6	0.200	<0.008-0.400
	Pallets	8.4	3.6-16.0	0.170	0.017-0.360
	Particle Board	8.0	3.8-10.0	0.063	0.031-0.660
	Plywood	13.0	3.8-16.0	0.018	0.011-0.790
Phenanthrene	**Fiberboard**	0.78	0.66-1.20	0.0330	<0.0037-0.0430
	OSB	0.96	0.78-1.30	0.0350	<0.0040-0.0790
	Pallets	1.20	0.54-4.40	0.0250	0.0028-0.0620
	Particle Board	0.96	0.74-1.80	0.0110	0.0040-0.1200
	Plywood	1.10	0.71-3.60	<0.0040	<0.0036-0.1500
Pyrene	**Fiberboard**	0.37	0.25-0.63	0.0150	<0.0037-0.0170
	OSB	0.36	0.33-0.65	0.0150	<0.0040-0.0250
	Pallets	0.59	0.24-1.40	0.0110	<0.0023-0.0250
	Particle Board	0.49	0.22-0.81	0.0045	<0.0034-0.0370
	Plywood	0.83	0.29-0.95	<0.0040	<0.0036-0.0420

For PAH measurements, the front instructor location results were excluded due to high breakthrough caused by excessive heating for the OVS tube.

Median sampling times were: 24:54 for fiberboard, 21:40 for OSB, 31:12 for pallets, 23:46 for particle board and 24:02 for plywood.

The percentage of the ventilation cycles where the fire dynamics training objectives were determined to be met were 55% for fiberboard, 94% for OSB, 73% for pallets, 94% for particle board and 76% for plywood.[48].

Table S.2. Individual polycyclic aromatic hydrocarbon (PAH) compounds collected from the rear instructor location located 0.3, 0.6, and 0.9m from the floor in the 3-cycle experiments using the Fire Behavior Lab. Three samples were collected for each fuel and location and reported as mg/m^3. Results shown with the less than symbol (<) are below the reporting limit (RL) and RL is provided.

		3 ft		2 ft		1 ft	
		Median	*Range*	*Median*	*Range*	*Median*	*Range*
Acenaphthene	Fiberboard	0.12	0.12-0.20	0.048	0.040-0.11	0.087	0.062-0.11
	OSB	0.18	0.05-0.32	0.042	0.041-0.08	0.024	<0.0051-0.062
Acenaphthylene	Fiberboard	1.5	1.4-2.2	0.53	0.44-1.3	1.0	0.65-1.1
	OSB	1.9	0.5-3.6	0.42	0.39-0.80	0.24	0.05-0.66
Anthracene	Fiberboard	0.29	0.25-0.41	0.11	0.11-0.21	0.15	0.11-0.17
	OSB	0.38	0.22-0.73	0.09	0.09-0.15	0.05	0.03-0.11
Benzo(a)anthracene	Fiberboard	0.19	0.18-0.25	0.07	0.07-0.14	0.05	0.05-0.11
	OSB	0.24	0.16-0.43	0.06	0.06-0.09	0.05	0.04-0.07
Benzo(a)pyrene	Fiberboard	0.21	0.17-0.26	0.08	0.07-0.13	0.05	0.05-0.11
	OSB	0.21	0.16-0.39	0.06	0.05-0.08	0.05	0.03-0.05
Benzo(b)fluoranthene	Fiberboard	0.27	0.25-0.37	0.10	0.10-0.19	0.08	0.07-0.15
	OSB	0.31	0.21-0.55	0.07	0.01-0.12	0.07	0.05-0.08
Benzo(g,h,i)perylene	Fiberboard	0.13	0.09-0.14	0.055	0.040-0.068	0.036	0.029-0.055
	OSB	0.10	0.08-0.18	0.034	0.025-0.042	0.026	0.017-0.029
Benzo(k)fluoranthene	Fiberboard	<0.0055	<0.0052-<0.0057	<0.0055	<0.0052-<0.0057	<0.0055	<0.0051-<0.0058
	OSB	<0.0051	<0.0051-<0.0057	<0.0052	<0.0051-<0.0056	<0.0051	<0.0050-<0.0055
Chrysene	Fiberboard	0.14	1.1-2.0	0.06	0.05-0.10	0.04	0.04-0.08
	OSB	0.18	1.2-4.5	0.05	0.04-0.07	0.04	0.03-0.05
Dibenzo(a,h)anthracene	Fiberboard	0.0057	<0.0057-0.0072	<0.0055	<0.0052-<0.0057	<0.0055	<0.0051-<0.0058
	OSB	0.0061	<0.0051-0.0120	<0.0052	<0.0051-<0.0056	<0.0051	<0.0050-<0.0055
Fluoranthene	Fiberboard	0.71	0.61-0.93	0.27	0.25-0.47	0.24	0.17-0.38
	OSB	0.79	0.57-1.40	0.20	0.19-0.32	0.16	0.12-0.22
Fluorene	Fiberboard	0.32	0.29-0.51	0.12	0.11-0.26	0.21	0.15-0.22
	OSB	0.40	0.15-0.80	0.09	0.09-0.17	0.05	0.02-0.14
Indeno(1,2,3-cd)pyrene	Fiberboard	0.10	0.09-0.14	0.043	0.038-0.066	0.028	0.028-0.053
	OSB	0.10	0.08-0.18	0.029	0.025-0.040	0.024	0.017-0.026
Naphthalene	Fiberboard	7.4	6.3-12.0	2.5	0.5-5.2	4.3	3.4-6.1
	OSB	9.9	2.3-14.0	2.2	2.1-3.7	1.1	0.2-3.1
Phenanthrene	Fiberboard	1.3	1.2-1.8	0.50	0.49-0.98	0.66	0.51-0.82
	OSB	1.7	1.0-3.1	0.42	0.39-0.72	0.25	0.13-0.51
Pyrene	Fiberboard	0.49	0.46-0.66	0.20	0.20-0.35	0.19	0.13-0.29
	OSB	0.56	0.37-1.00	0.14	0.24-0.23	0.11	0.10-0.16

Median sampling times were: 14:56 for fiberboard and 16:42 for OSB.

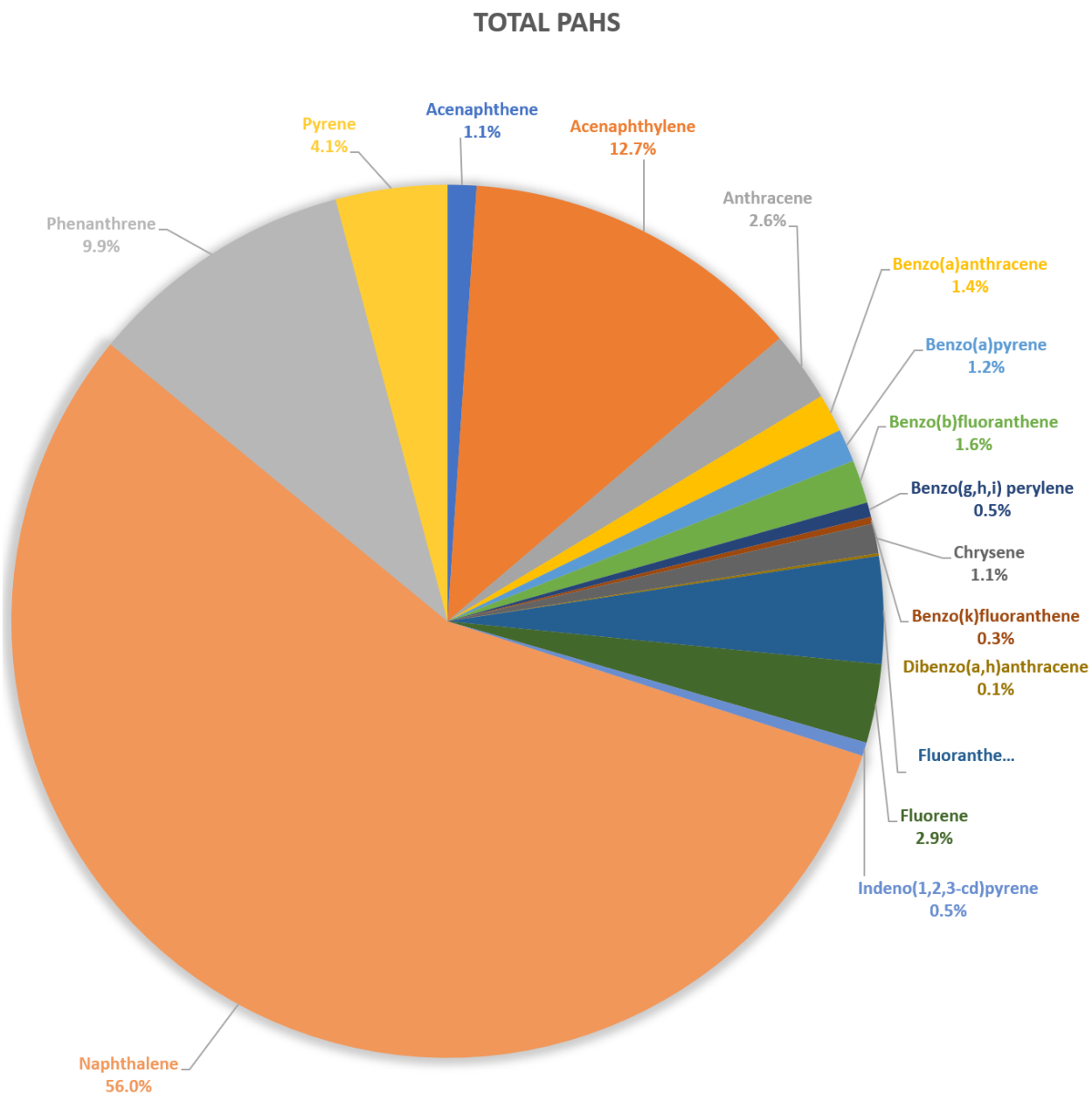

Figure S.1. (a) Breakdown of total polycyclic aromatic hydrocarbon (PAH) compounds based on median concentrations from the 25 6-cycle experiments.

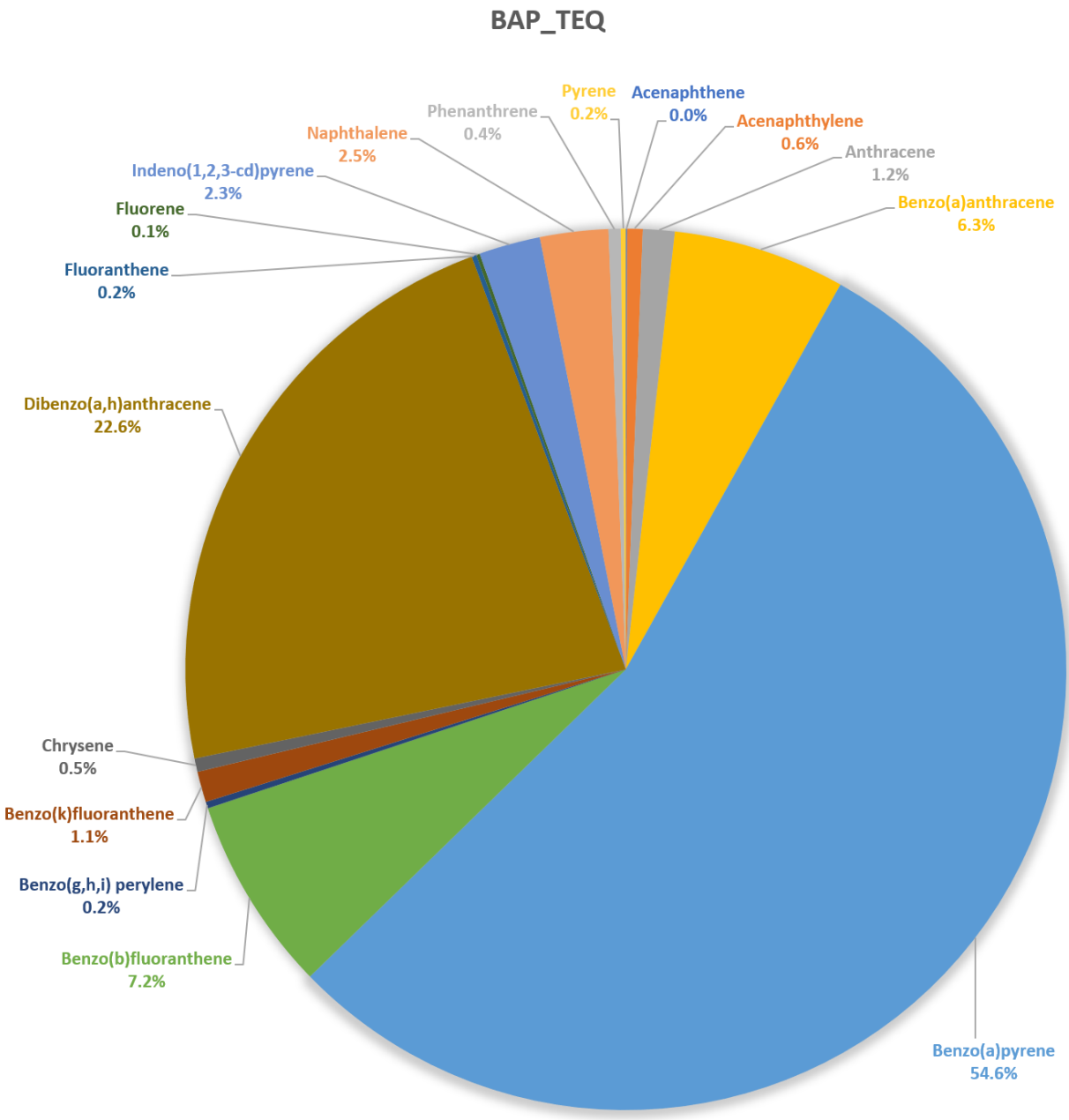

Figure S.1. (b) Breakdown of relative contribution of each PAH compound to the benzo(a)pyrene toxic equivalency (BaP_TEQ) based on median concentrations from the 25 6-cycle experiments.