

**APPENDIX F**

**SPECIMEN NUMBERING SCHEME**  
**IMPEDANCE, MOISTURE CONTENT, SHEAR STRENGTH,**  
**AND FAILURE MODE DATA**

X X X . X  
 | | | |  
 | | | | ---- Replication number (**1, 2, 3**,  
 | | | |  
 | | | | ---- Substrate (**B**M-2 **A**sphalt, **N**on-Treated Southern Pine, **C**reosote treated Southern Pine,  
 | | | | **P**entachlorophenol Treated Southern Pine)  
 | | | |  
 | | | | ---- Membrane (**N**one, **B**ituthene 5000, **P**etrotac, Protecto **W**rap M400A, **R**oyston 10A)  
 | | | |  
 | | | | ---- Conditioning (**C**ontrol, **L**ow Temperature Cycling, **H**igh Temperature Cycling, Creekside Drive **B**ridge)

CNA.1	LNA.1	HNA.1	CNN.1	LNN.1	HNN.1
CNA.2	LNA.2	HNA.2	CNN.2	LNN.2	HNN.2
	LNA.3	HNA.3		LNN.3	HNN.3
	LNA.4	HNA.4		LNN.4	HNN.4
CBA.1	LBA.1	HBA.1	CNC.1	LNC.1	HNC.1
CBA.2	LBA.2	HBA.2	CNC.2	LNC.2	HNC.2
	LBA.3	HBA.3		LNC.3	HNC.3
	LBA.4	HBA.4		LNC.4	HNC.4
CPA.1	LPA.1	HPA.1	CNP.1	LNP.1	HNP.1
CPA.2	LPA.2	HPA.2	CNP.2	LNP.2	HNP.2
	LPA.3	HPA.3		LNP.3	HNP.3
	LPA.4	HPA.4		LNP.4	HNP.4
CWA.1	LWA.1	HWA.1	CBN.1	LBN.1	HBN.1
CWA.2	LWA.2	HWA.2	CBN.2	LBN.2	HBN.2
	LWA.3	HWA.3		LBN.3	HBN.3
	LWA.4	HWA.4		LBN.4	HBN.4
			CBC.1	LBC.1	HBC.1
			CBC.2	LBC.2	HBC.2
				LBC.3	HBC.3
BRA.1				LBC.4	HBC.4
BRA.2			CBP.1	LBP.1	HBP.1
BRA.3			CBP.2	LBP.2	HBP.2
				LBP.3	HBP.3
				LBP.4	HBP.4
			CPN.1	LPN.1	HPN.1
			CPN.2	LPN.2	HPN.2
				LPN.3	HPN.3
				LPN.4	HPN.4
			CPC.1	LPC.1	HPC.1
			CPC.2	LPC.2	HPC.2
				LPC.3	HPC.3
				LPC.4	HPC.4
			CPP.1	LPP.1	HPP.1
			CPP.2	LPP.2	HPP.2
				LPP.3	HPP.3
				LPP.4	HPP.4
			CWN.1	LWN.1	HWN.1
			CWN.2	LWN.2	HWN.2
				LWN.3	HWN.3
				LWN.4	HWN.4
			CWC.1	LWC.1	HWC.1
			CWC.2	LWC.2	HWC.2
				LWC.3	HWC.3
				LWC.4	HWC.4
			CWP.1	LWP.1	HWP.1
			CWP.2	LWP.2	HWP.2
				LWP.3	HWP.3
				LWP.4	HWP.4

**Figure-F.1: Bond and Watertightness Testing Specimen Numbering Scheme**

**Table-F.1: Test Data for Untreated Wood Substrate Specimens**

Sample Number	Wood I.D.	Initial M.C. (%)	7 Days of Ponding				100 Cycles in Exposure Chamber				200 Cycles in Exposure Chamber						
			M.C. (%)	Z (Ohms)	Max Load (Lbs.)	Shear (PSI)	Failure	M.C. (%)	Z (Ohms)	Max Load (Lbs.)	Shear (PSI)	Failure	M.C. (%)	Z (Ohms)	Max Load (Lbs.)	Shear (PSI)	Failure
CNN.1	----	10.8	10.5	>1100000	0.0	0.0	----	----	----	----	----	----	----	----	----	----	----
CNN.2	----	12.6	11.0	>1100000	0.0	0.0	----	----	----	----	----	----	----	----	----	----	----
LNN.1	----	10.0	13.0	>1100000	----	----	>30.0	61000	0.0	0.0	Water	----	----	----	----	----	----
LNN.2	----	10.2	10.5	>1100000	----	----	>30.0	25000	0.0	0.0	Water	----	----	----	----	----	----
LNN.3	----	10.5	11.0	>1100000	----	----	>30.0	34000	----	----	----	>30	9400	0.0	0.0	----	----
LNN.4	----	10.5	12.0	>1100000	----	----	>30.0	12000	----	----	----	>30	5800	0.0	0.0	Water	----
HNN.1	----	10.2	10.7	>1100000	----	----	6.0	>1100000	0.0	0.0	Water	----	----	----	----	----	----
HNN.2	----	9.8	11.5	>1100000	----	----	12.5	150000	0.0	0.0	Water	----	----	----	----	----	----
HNN.3	----	9.8	14.0	14000	----	----	11.0	>1100000	----	----	----	16.0	1100000	0.0	0.0	Water	----
HNN.4	----	10.6	10.6	>1100000	----	----	12.0	103000	----	----	----	21.0	>1100000	0.0	0.0	Water	----
CBN.1	----	11.2	11.3	>1100000	150.3	12.0	III	----	----	----	----	----	----	----	----	----	----
CBN.2	----	11.3	12.0	>1100000	154.7	12.3	V	----	----	----	----	----	----	----	----	----	----
LBN.1	----	10.3	10.1	>1100000	----	----	>30.0	>1100000	152.1	12.1	III	----	----	----	----	----	----
LBN.2	----	9.5	10.3	>1100000	----	----	>30.0	>1100000	204.8	16.3	III	----	----	----	----	----	----
LBN.3	----	10.0	19.0	>1100000	----	----	>30.0	>1100000	----	----	----	>30	210000	205.1	16.3	I, Water	----
LBN.4	----	9.6	10.1	>1100000	----	----	>30.0	>1100000	----	----	----	>30	>1100000	175.5	14.0	I, Water	----
HBN.1	----	10.0	11.5	>1100000	----	----	6.0	>1100000	195.2	15.5	III	----	----	----	----	----	----
HBN.2	----	10.5	10.7	>1100000	----	----	<6.0	>1100000	177.0	14.1	IV	----	----	----	----	----	----
HBN.3	----	10.0	10.0	>1100000	----	----	8.0	>1100000	----	----	----	11.0	>1100000	156.2	12.4	V, Water	----
HBN.4	----	9.3	9.7	>1100000	----	----	<6.0	>1100000	----	----	----	7.0	>1100000	156.8	12.5	V, Water	----
CPN.1	----	12.6	>28	>1100000	200.1	15.9	IV	----	----	----	----	----	----	----	----	----	----
CPN.2	----	10.7	10.4	>1100000	201.0	16.0	IV, Water	----	----	----	----	----	----	----	----	----	----
LPN.1	----	9.6	10.0	>1100000	----	----	>30.0	>1100000	296.8	23.6	I	----	----	----	----	----	----
LPN.2	----	9.7	10.1	>1100000	----	----	>30.0	>1100000	257.3	20.5	I	----	----	----	----	----	----
LPN.3	----	10.0	13.5	>1100000	----	----	>30.0	>1100000	----	----	----	>30	420000	190.8	15.2	IV, Water	----
LPN.4	----	9.8	10.3	>1100000	----	----	>30.0	>1100000	----	----	----	>30	760000	234.1	18.6	IV, Water	----
HPN.1	----	9.5	10.6	>1100000	----	----	<6.0	>1100000	225.6	18.0	I	----	----	----	----	----	----
HPN.2	----	9.8	26.0	>1100000	----	----	<6.0	>1100000	220.6	17.6	IV	----	----	----	----	----	----
HPN.3	----	9.8	10.6	>1100000	----	----	<6.0	>1100000	----	----	----	8.5	>1100000	216.0	17.2	I, Water	----
HPN.4	----	10.0	10.5	>1100000	----	----	<6.0	>1100000	----	----	----	7.5	>1100000	191.6	15.2	I, Water	----
CWN.1	----	11.0	10.5	>1100000	309.1	24.6	III, Water	----	----	----	----	----	----	----	----	----	----
CWN.2	----	12.3	11.2	>1100000	274.0	21.8	III, Water	----	----	----	----	----	----	----	----	----	----
LWN.1	----	10.0	10.3	>1100000	----	----	17.0	>1100000	432.5	34.4	III	----	----	----	----	----	----
LWN.2	----	9.7	10.0	>1100000	----	----	20.0	>1100000	393.8	31.3	III	----	----	----	----	----	----
LWN.3	----	9.9	10.5	>1100000	----	----	14.5	>1100000	----	----	----	>30	550000	399.7	31.8	V, Water	----
LWN.4	----	10.0	10.7	>1100000	----	----	16.0	>1100000	----	----	----	>30	>1100000	407.3	32.4	V, Water	----
HWN.1	----	10.0	11.0	>1100000	----	----	<6.0	>1100000	359.2	28.6	III, Water	----	----	----	----	----	----
HWN.2	----	9.7	10.7	>1100000	----	----	<6.0	>1100000	343.4	27.3	III, Water	----	----	----	----	----	----
HWN.3	----	10.1	10.5	>1100000	----	----	<6.0	>1100000	----	----	----	6.0	>1100000	319.4	25.4	III, Water	----
HWN.4	----	10.4	10.7	>1100000	----	----	<6.0	>1100000	----	----	----	6.0	>1100000	361.6	28.8	III, Water	----

**Table-F.2: Test Data for Creosote Treated Wood Substrate Specimens**

Sample Number	Wood I.D.	Initial M.C. (%)	7 Days of Ponding				100 Cycles in Exposure Chamber				200 Cycles in Exposure Chamber						
			M.C. (%)	Z (Ohms)	Max Load (Lbs.)	Shear (PSI)	Failure	M.C. (%)	Z (Ohms)	Max Load (Lbs.)	Shear (PSI)	Failure	M.C. (%)	Z (Ohms)	Max Load (Lbs.)	Shear (PSI)	Failure
CNC.1	51	9.0	9.2	>1100000	0.0	0.0											
CNC.2	51	9.0	21.0	>1100000	0.0	0.0											
LNC.1	51	8.7	8.7	>1100000			23.0	>1100000	0.0	0.0	Water						
LNC.2	51	9.1	9.5	>1100000			28.0	>1100000	0.0	0.0							
LNC.3	51	8.4	20.6	>1100000			21.0	850000				>30	64000	0.0	0.0	Water	
LNC.4	51	8.3	10.0	>1100000			22.0	870000				>30	180000	0.0	0.0	Water	
HNC.1	41	9.3	13.0	>1100000			7.5	>1100000	0.0	0.0	Water						
HNC.2	51	8.9	18.3	>1100000			7.5	>1100000	0.0	0.0	Water						
HNC.3	51	8.5	8.5	>1100000			8.0	>1100000				9.0	>1100000	0.0	0.0	Water	
HNC.4	51	9.0	9.0	>1100000			11.0	>1100000				14.0	>1100000	0.0	0.0	Water	
CBC.1	41	9.5	9.0	>1100000	140.1	11.1	I										
CBC.2	41	9.5	21.0	>1100000	76.8	6.1	I, Water										
LBC.1	11	10.0	10.1	>1100000			24.0	580000	87.0	6.9	I, Water						
LBC.2	31	9.3	9.3	>1100000			25.0	>1100000	58.3	4.6	I, Water						
LBC.3	31	8.9	21.1	>1100000			16.0	>1100000				>30	1100000	96.4	7.7	I, Water	
LBC.4	31	8.7	9.2	>1100000			18.0	>1100000				>30	>1100000	120.7	9.6	I, Water	
HBC.1	61	8.7	16.6	>1100000			7.0	>1100000	63.3	5.0	I, Water						
HBC.2	31	8.8	8.8	>1100000			7.0	>1100000	51.6	4.1	I, Water						
HBC.3	31	8.7	8.7	>1100000			7.0	>1100000				7.5	>1100000	43.1	3.4	I, Water	
HBC.4	51	8.9	8.3	>1100000			<6.0	>1100000				6.5	>1100000	75.6	6.0	III, Water	
CPC.1	41	9.7	9.5	>1100000	174.9	13.9	I, Water										
CPC.2	61	8.7	8.7	>1100000	114.9	9.1	I										
LPC.1	31	9.7	9.4	>1100000			30.0	170000	50.7	4.0	I, Water						
LPC.2	31	9.1	8.8	>1100000			14.5	>1100000	102.0	8.1	I, Water						
LPC.3	61	8.9	25.3	>1100000			24.0	170000				>30	35000	17.6	1.4	I, Water	
LPC.4	41	9.6	9.2	>1100000			13.0	>1100000				>30	>1100000	157.4	12.5	I, Trace Water	
HPC.1	31	9.3	26.3	>1100000			8.0	>1100000	73.0	5.8	I, Water						
HPC.2	31	9.5	25.0	>1100000			8.0	>1100000	55.7	4.4	I, Water						
HPC.3	41	9.5	9.5	>1100000			7.0	>1100000				7.5	>1100000	87.6	7.0	I, Water	
HPC.4	31	9.5	9.2	>1100000			8.0	>1100000				7.0	>1100000	49.0	3.9	I, Water	
CWC.1	61	9.2	9.7	>1100000	41.9	3.3	I										
CWC.2	61	9.0	9.0	>1100000	45.7	3.6	I										
LWC.1	61	8.6	8.3	>1100000			25.0	>1100000	33.1	2.6	I, Water						
LWC.2	61	9.1	8.5	>1100000			24.0	>1100000	47.8	3.8	I						
LWC.3	61	8.8	8.0	>1100000			11.0	>1100000				>30	>1100000	17.6	1.4	I, Water	
LWC.4	61	8.7	8.7	>1100000			11.0	>1100000				>30	>1100000	47.2	3.8	I, Water	
HWC.1	61	9.1	8.7	>1100000			6.0	>1100000	62.1	4.9	I, Water						
HWC.2	41	9.4	9.1	>1100000			<6.0	>1100000	118.1	9.4	I, Water						
HWC.3	41	9.2	8.9	>1100000			6.0	>1100000				17.0	>1100000	79.7	6.3	I, Water	
HWC.4	41	9.1	9.0	>1100000			10.0	>1100000				9.5	>1100000	61.0	4.9	III, Water	



**Table-F.4: Test Data for Asphalt Substrate Specimens**

Sample Number	Wood I.D.	Initial M.C. (%)	7 Days of Ponding				100 Cycles in Exposure Chamber				200 Cycles in Exposure Chamber							
			M.C. (%)	Z (Ohms)	Max Load (Lbs.)	Shear (PSI)	Failure	M.C. (%)	Z (Ohms)	Max Load (Lbs.)	Shear (PSI)	Failure	M.C. (%)	Z (Ohms)	Max Load (Lbs.)	Shear (PSI)	Failure	
CNA.1	----	----	----	>1100000	1054.8	83.9	----	----	----	----	----	----	----	----	----	----	----	----
CNA.2	----	----	----	>1100000	864.9	68.8	----	----	----	----	----	----	----	----	----	----	----	----
LNA.1	----	----	----	22000	----	----	----	20000	600.4	47.8	----	----	----	----	----	----	----	----
LNA.2	----	----	----	27000	----	----	----	20000	710.5	56.5	----	----	----	----	----	----	----	----
LNA.3	----	----	----	36000	----	----	----	21000	----	----	----	16000	577.2	45.9	----	----	----	----
LNA.4	----	----	----	110000	----	----	----	31000	----	----	----	23000	877.0	69.8	----	----	----	----
HNA.1	----	----	----	53000	----	----	----	>1100000	1393.2	110.9	----	----	----	----	----	----	----	----
HNA.2	----	----	----	140000	----	----	----	>1100000	1280.4	101.9	----	----	----	----	----	----	----	----
HNA.3	----	----	----	>1100000	----	----	----	>1100000	----	----	----	>1100000	1540.0	122.6	----	----	----	----
HNA.4	----	----	----	50000	----	----	----	>1100000	----	----	----	>1100000	1530.0	121.8	----	----	----	----
CBA.1	----	----	----	>1100000	398.5	31.7	I	----	----	----	----	----	----	----	----	----	----	----
CBA.2	----	----	----	>1100000	595.7	47.4	I	----	----	----	----	----	----	----	----	----	----	----
LBA.1	----	----	----	>1100000	----	----	----	>1100000	460.3	36.6	I	----	----	----	----	----	----	----
LBA.2	----	----	----	>1100000	----	----	----	120000	451.5	35.9	I	----	----	----	----	----	----	----
LBA.3	----	----	----	>1100000	250000	----	----	----	----	----	----	92000	654.0	52.0	I	Water	----	----
LBA.4	----	----	----	>1100000	>1100000	----	----	>1100000	----	----	----	620000	565.5	45.0	I	Trace Water	----	----
HBA.1	----	----	----	>1100000	----	----	----	>1100000	450.1	35.8	I	----	----	----	----	----	----	----
HBA.2	----	----	----	>1100000	----	----	----	>1100000	555.5	44.2	I	----	----	----	----	----	----	----
HBA.3	----	----	----	>1100000	----	----	----	>1100000	----	----	----	>1100000	349.0	27.8	I	Water	----	----
HBA.4	----	----	----	>1100000	580000	----	----	580000	----	----	----	>1100000	436.3	34.7	I	Water	----	----
CPA.1	----	----	----	>1100000	558.2	44.4	I	----	----	----	----	----	----	----	----	----	----	----
CPA.2	----	----	----	>1100000	649.0	51.6	I	----	----	----	----	----	----	----	----	----	----	----
LPA.1	----	----	----	950000	----	----	----	100000	341.4	27.2	V	----	----	----	----	----	----	----
LPA.2	----	----	----	>1100000	----	----	----	91000	590.4	47.0	V	----	----	----	----	----	----	----
LPA.3	----	----	----	>1100000	72000	----	----	72000	----	----	----	97000	693.8	55.2	I	Water	----	----
LPA.4	----	----	----	580000	11000	----	----	11000	----	----	----	62000	654.6	52.1	I	----	----	----
HPA.1	----	----	----	>1100000	----	----	----	>1100000	592.8	47.2	I	----	----	----	----	----	----	----
HPA.2	----	----	----	>1100000	380000	884.6	70.4	I	----	----	----	----	----	----	----	----	----	----
HPA.3	----	----	----	>1100000	----	----	----	>1100000	----	----	----	>1100000	601.0	47.8	IV	Water	----	----
HPA.4	----	----	----	>1100000	>1100000	----	----	>1100000	----	----	----	>1100000	820.1	65.3	I	Water	----	----
CWA.1	----	----	----	>1100000	386.2	30.7	III	----	----	----	----	----	----	----	----	----	----	----
CWA.2	----	----	----	>1100000	446.5	35.5	III	----	----	----	----	----	----	----	----	----	----	----
LWA.1	----	----	----	>1100000	250000	546.5	43.5	III	----	----	----	----	----	----	----	----	----	----
LWA.2	----	----	----	>1100000	170000	498.7	39.7	III	----	----	----	----	----	----	----	----	----	----
LWA.3	----	----	----	340000	39000	----	----	39000	----	----	----	24000	488.4	38.9	III	----	----	----
LWA.4	----	----	----	>1100000	94000	478.8	38.1	I	----	----	----	41000	478.8	38.1	I	----	----	----
HWA.1	----	----	----	>1100000	540.6	43.0	III	----	----	----	----	----	----	----	----	----	----	----
HWA.2	----	----	----	>1100000	511.3	40.7	III	----	----	----	----	----	----	----	----	----	----	----
HWA.3	----	----	----	>1100000	----	----	----	>1100000	----	----	----	>1100000	661.6	52.6	IV	----	----	----
HWA.4	----	----	----	>1100000	>1100000	579.6	46.1	I	----	----	----	>1100000	579.6	46.1	I	----	----	----