Property	Residual Factor
F_b	0.70
E	070
F_v	0.75
$Fc_\perp$	0.85

14. The table below is a summary of the allowable properties of the various visual grades for the 3x4 dimension lumber at the time of the collapse based on our laboratory results. The allowable bending strength provided for the ECON grade was calculated based documented scientific literature cited in ASTM D 245 regarding the effect of slope-of-grain on bending strength. No other allowable stresses could be calculated for the economy grade material.

Visual Grade	**Current Allowable Stresses (psi)**			
	F_b'	E	F_v'	$Fc_\perp'$
SS	1,300	$1.1x10^6$	100	350
No. 1	925	$1.0x10^6$	100	350
No. 2	925	$1.0x10^6$	100	350
No. 3	525	$0.8x10^6$	100	350
CONST	700	$0.9x10^6$	100	350
STAND	375	$0.8x10^6$	100	350
ECON	200	----	----	----

15. A summary of the approximate mean ultimate stresses for each grade of the 3x4 lumber are provided below. For the two strength properties (F_b and F_v), the L5% (lower 5th percentile) value was determined where as only mean ($\bar{x}$) values were reported for E and $F_{c\perp}$ which are considered primarily serviceability properties. Mean values were also reported for F_b and F_v using published coefficients of variation. To

convert allowable design stresses to ultimate stresses, the general adjustment further must be removed from the allowable design stress. This was done to provide the data in the following summary. For stress calculations, we recommend using the L5% for both strength properties (F_b and F_v) since these values represent the samples which would fail first in a collapse.

Visual Grade	Removal of General Adjustment Factor = L5% or $\bar{x}^2$ (psi)				Estimated Allowable Mean Ultimate Stresses = $\bar{x}$ (psi)			
	F_b L5%	E$\bar{x}$	F_vL5%	$Fc_\perp\bar{x}$	$F_b\bar{x}$	E	$F_v\bar{x}$	$Fc_\perp\bar{x}$
SS	2,757	$0.98x10^6$	202	603	4,683	$0.98x10^6$	262	603
No. 1	1,930	$0.92x10^6$	202	603	3,278	$0.92x10^6$	262	603
No. 2	1,930	$0.92x10^6$	202	603	3,278	$0.92x10^6$	262	603
No. 3	1,103	$0.79x10^6$	202	603	1,873	$0.79x10^6$	262	603
CONST	1,470	$0.86x10^6$	202	603	2,496	$0.86x10^6$	262	603
STD	809	$0.79x10^6$	202	603	1,374	$0.79x10^6$	262	603
ECON[2]	405	----	----	----	689	----	----	----

Although the L5% exclusion value is technically the most important and most appropriate value to use for estimates of ultimate strength for the determination of failure, WAS, Inc. was also requested to provide an estimated mean strength value for the lumber used at 246 Spring Street. This was accomplished by computing a mean value weighted by the lumber grades observed during our inspection. The resulting values are 3132 psi for F_b, 262 psi for F_v, and 603 for $Fc_\perp$, and 916,000 psi for E.

16. Two loading conditions were used to examine the ultimate concentrated load levels in four 4"x8" concrete formwork plywood panels. The load conditions were as follows:

    1. Base plate located at center of 16" span, interior edge of plate 11" from panel edge.
    2. Base plate located at center of 16" span, interior edge ~24-26" from panel edge.

The resulting failure patterns at the time of testing were consistent with those punch through failures observed during our inspection. The results of the concentrated load testing for each loading condition are provided in both tables below:

Loading Condition #1 • 2'x4' Test Specimen with Base Plate at Center of 16" Span & Interior Edge of Base Plate 11" from Panel Edge.

Sample	Thickness (in.)	Maximum Load (lbs.) (Punch Through)	Deflection at Maximum Load (in) (Punch Through)
TP8-A #1	0.65	4,988	0.73
TP8-A #2	0.64	5,151	1.70
TP9-A #2	0.65	4,857	1.70
PW4055 #2	0.61	3,586	0.63
Mean	----	4,646	1.19

Loading Condition #2 • 2'x4' Test Specimen with Base Plate at Center of 16" Span & Interior Edge of Base Plate 20"-24" from Panel Edge.

Sample	Thickness (in.)	Maximum Load (lbs.) (Punch Through)	Deflection at Maximum Load (in) (Punch Through)
TP10-A	0.65	8,697	1.00
TP9-A	0.65	6,765	0.90
PW4055 #1	0.61	3,753	0.60
Mean	----	6,393	0.83

In addition to maximum load (punch through), deflections at punch through were also measured. For loading condition #1, the mean deflection at punch through was 1.19". For loading condition #2, it was 0.83" with a combined mean of 1.04".

17. The nailing pattern spacing observed during our inspection ranged from 3" to 20" with an average of 9-1/4". Nailing was primarily observed around the panel edges and not within the field of the panels.

Respectfully Submitted,
Wood Advisory Services, Inc.

M.E. Anderson, M.S.
Wood Scientist
MEA:kr Eschenasy2.DRAFT.R08125.01.wpd

Wood Advisory Services, Inc.

A.L. De Bonis, Ph.D.
President/Principal Wood Scientist

APPENDIX I
Photographs

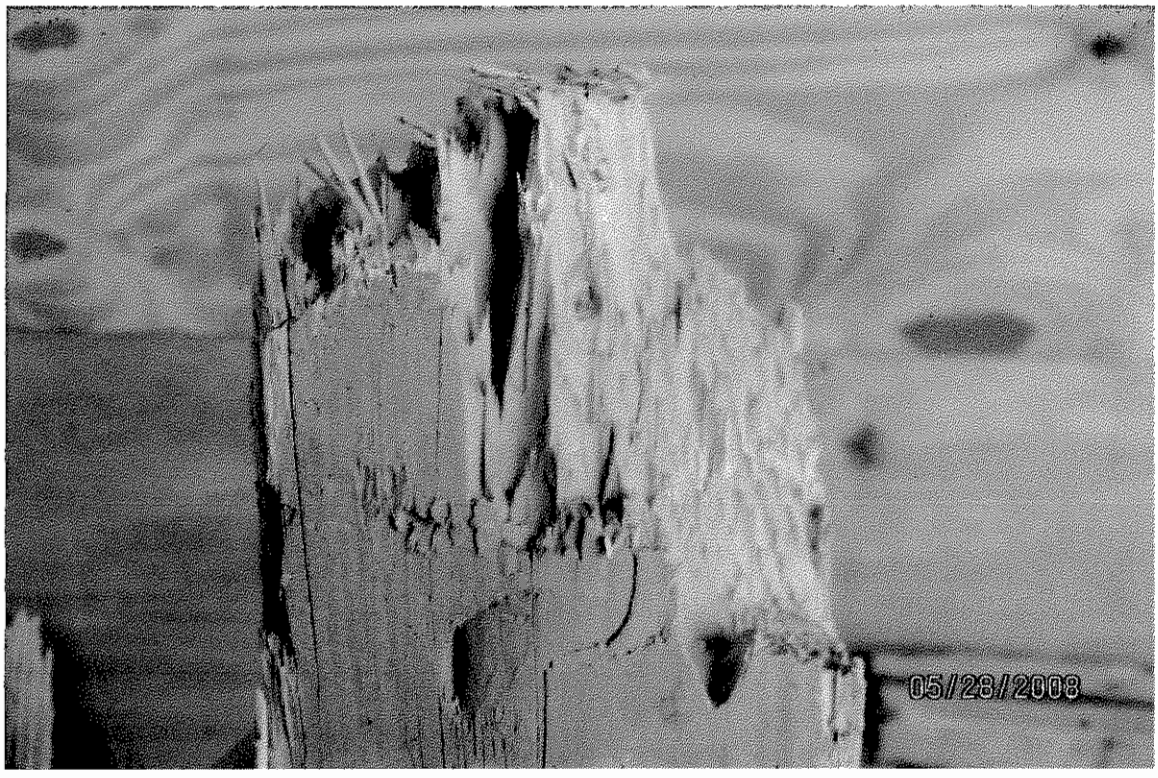


Photo 1 - Brash failure with partial tension finger in 3x4 stored on 40th floor.

Photo 2 - Brash failure along bottom edge of sample with DOB #TB40070.

Photo 3 - Brash failure in sample with DOB #TB40087.

Photo 4 - Slope-of-grain of 1:3 in 3x4 stored on 40th floor.

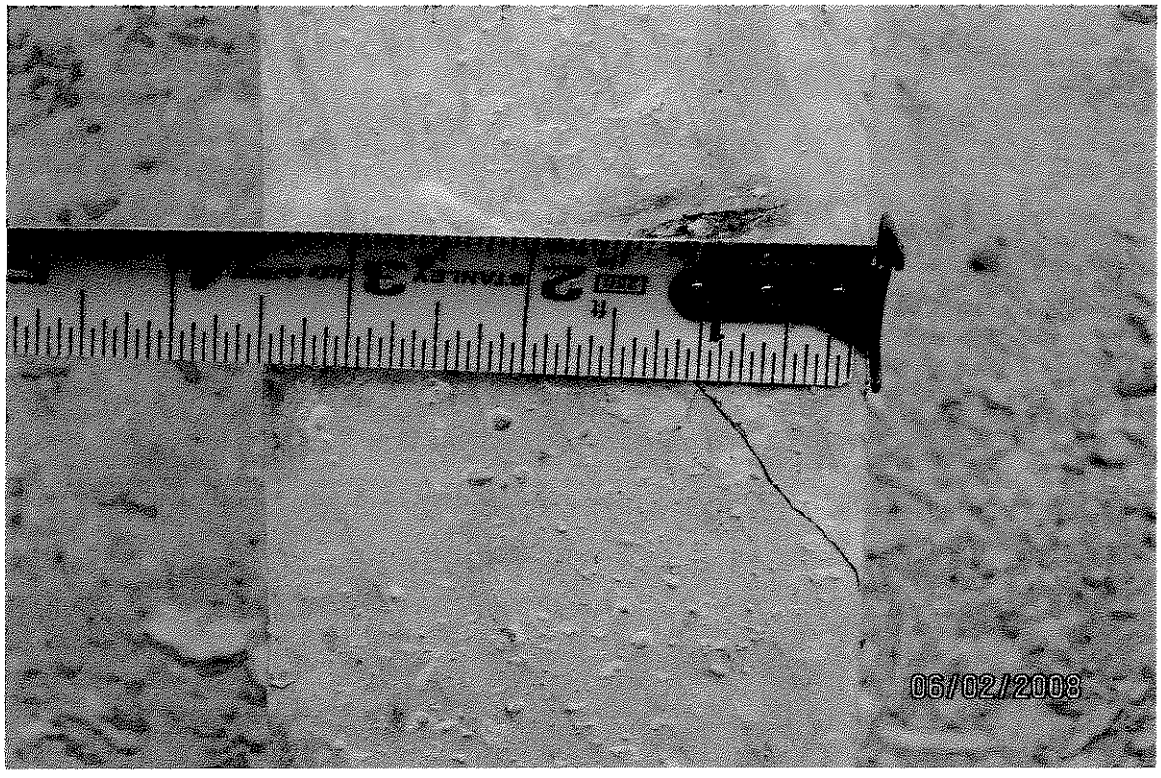


Photo 5 - Slope-of-grain of 1:1 in sample with DOB #TB40316.

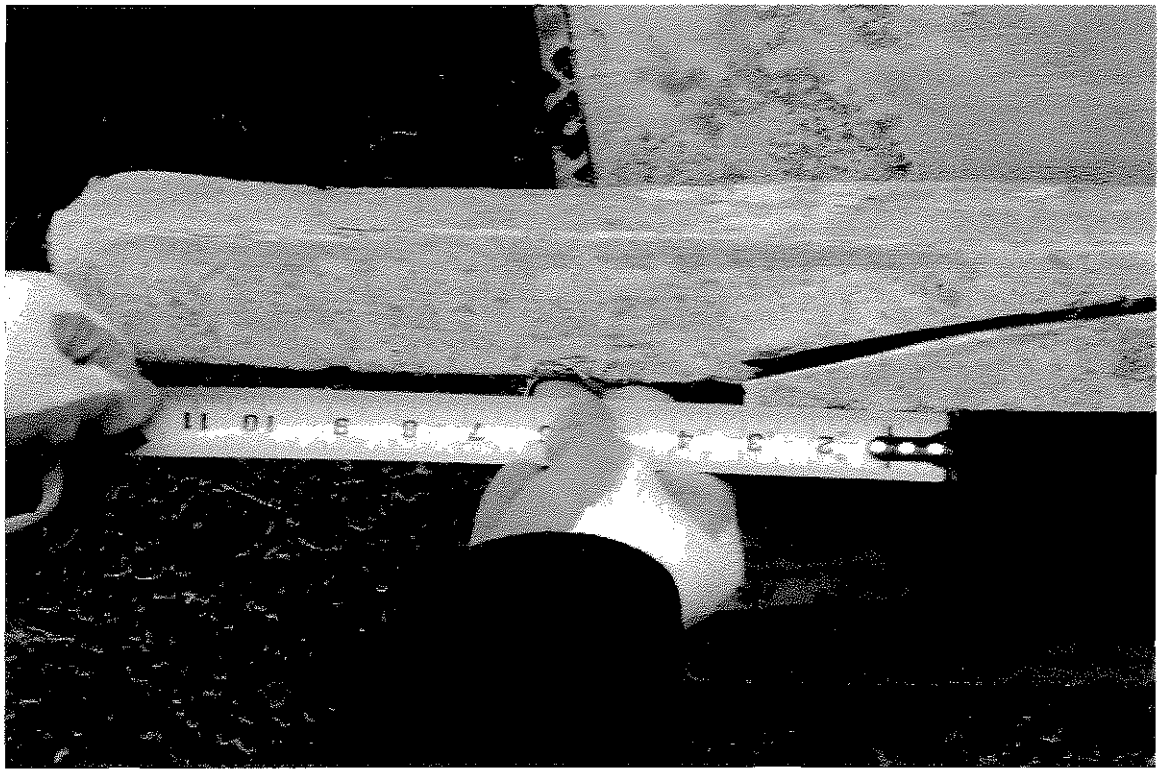


Photo 6 - Slope-of-grain of 1:3 on lumber attached to sample with DOB #PW40007.

Photo 7 - Stamp and 3x4 lumber, "LAUZON."

Photo 8 - Visible wood decay growth on 3x4 lumber specimen marked DOB #TB40291.

Photo 9 - Visible wood decay growth on 3x4 lumber specimen marked DOB #TB40101.

Photo 10 - Standard and Better (STAND&BTR) lumber stamp on 4x4, sample with DOB #41035C.

Photo 11 - No. 2 grade stamp on 4x4, sample with DOB #40021.

Photo 12 - Two 3x4 lumber ribs exhibiting brash failures at the ends.

Photo 13 - A 3x4 lumber rib exhibiting a brash failure being used in formwork during our inspection.

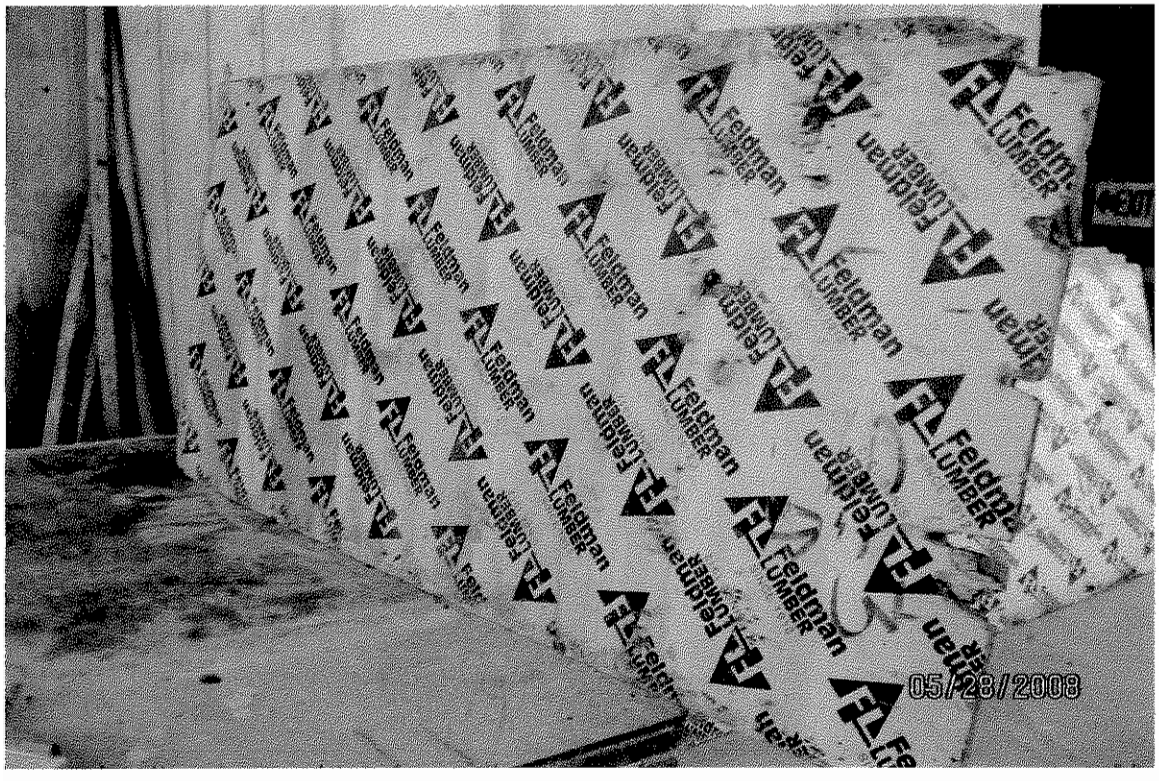


Photo 14 - 4'x8' plywood sheet with "Feldman Lumber" melamine overlay.

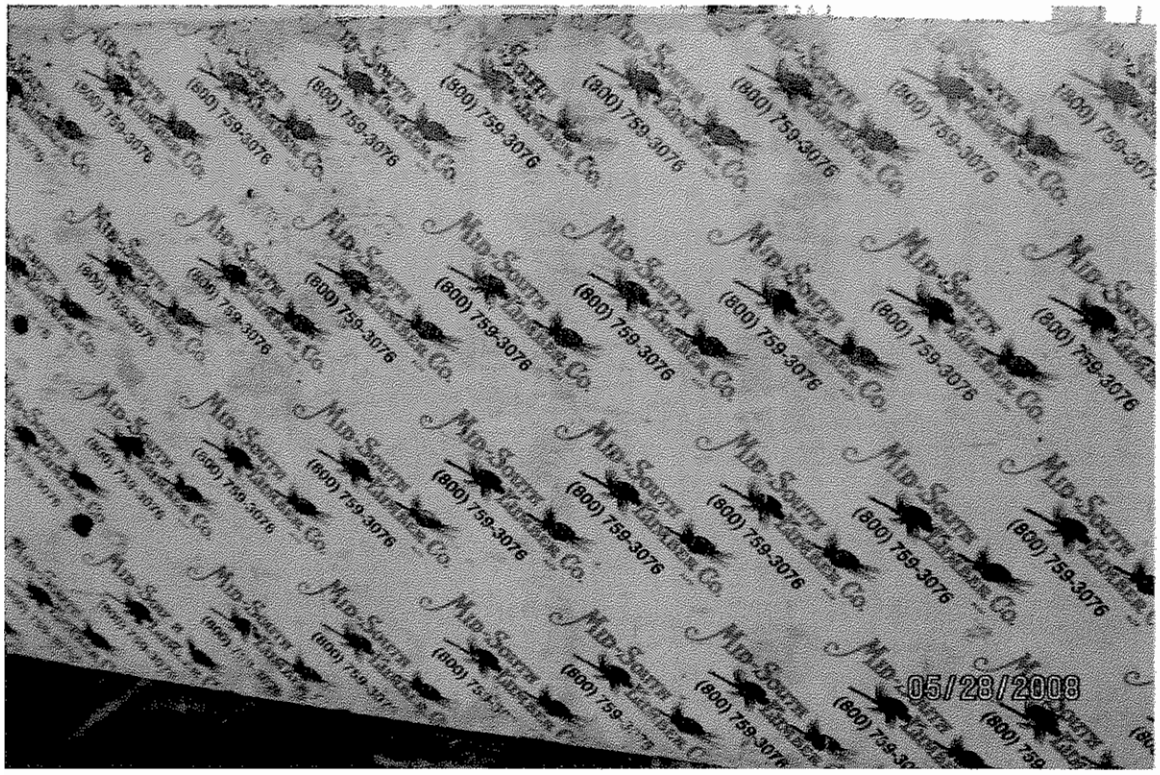


Photo 15 - 4'x8' plywood sheet with "Mid-South Lumber Company" melamine overlay.

Photo 16 - 4'x8' plywood sheet with a Futter Lumber Company grade stamp.

Photo 17 - Failure pattern consistent with a base plate punch through failure in panel DOB #PW41019.

Photo 18 - Failure pattern consistent with a base plate punch through failure in panel DOB #PW41007A.

Photo 19 - Failure pattern consistent with a base plate punch through failure in panel DOB #PW41003.

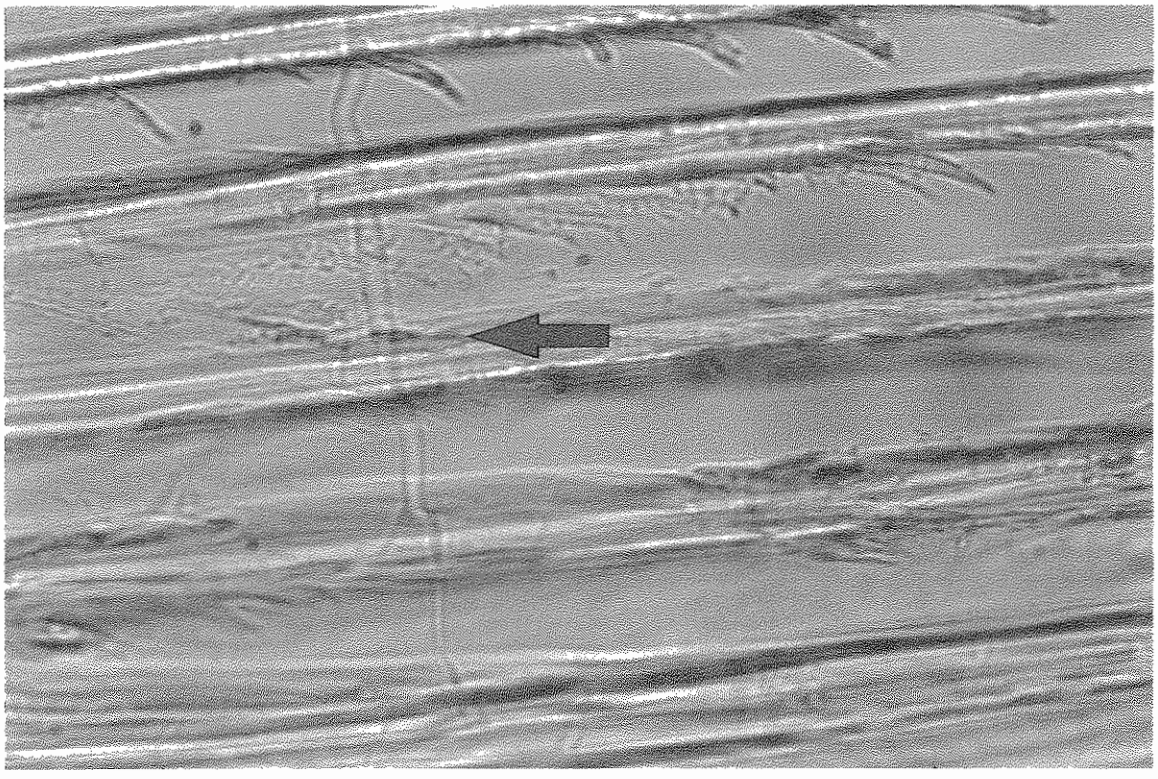


Photo 20 - Occasional wood decay hyphae observed near the surface of TP3-A.

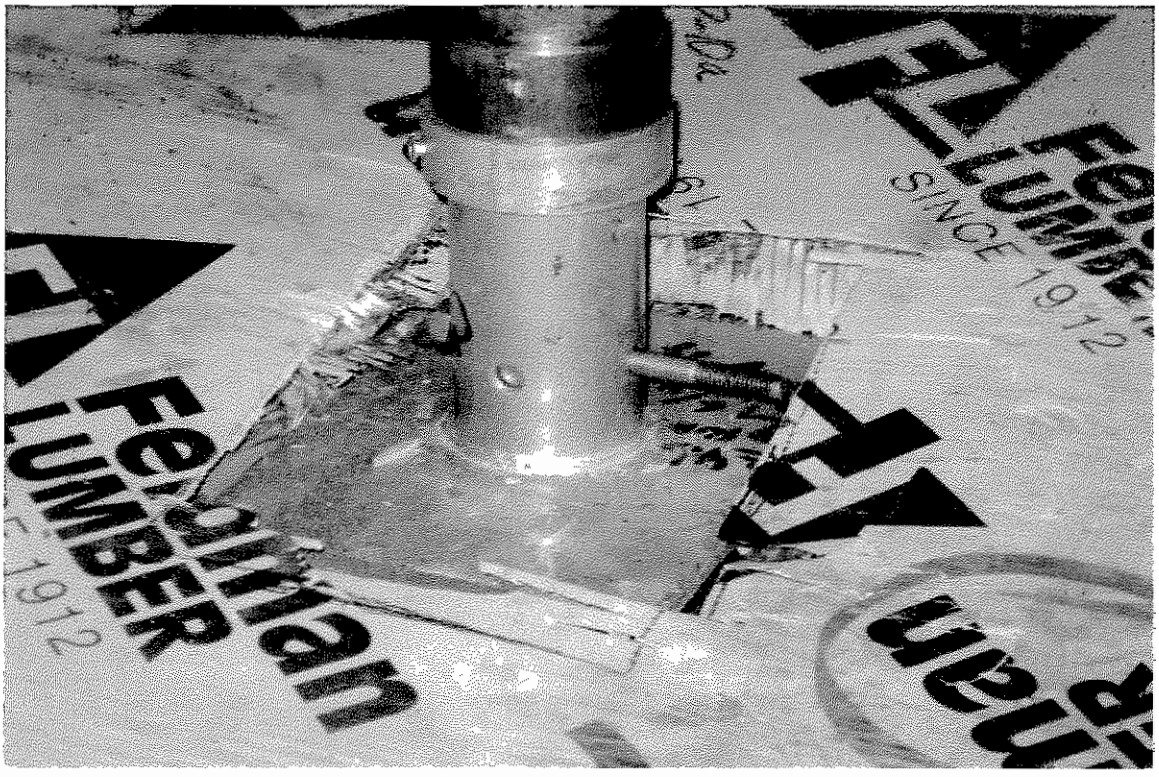


Photo 25 - Punch through failure of test specimen TP10-A.

Photo 26 - Punch through failure of test specimen TP9-A.

APPENDIX II
Summary of the Visual Grade Results & Inspection of Lumber

Client: Dan Eschenasy
Project Spring Street
Job No. 08.125
Test Visual Grading and Inspection of Dimension Lumber

Failure Modes:
T = Typical Bending Failure
B = Brash Bending Failure
BK = Brash bending faliure with saw kerf
BT = Brash/tension combination
F = Factory Cut
FC = Field Cut
HOLE = Hole cut into lumber
C = Compression

Other:
NGCD = No Grade Contrilling Defect
VD = Visible Decay
PC = Pith Center

Results of Field Inspection and Visual Gradinq of Dimension Lumber at Spring Street

White Tag	Black Mark	Failure Modes			MC (%)	Length (in.)	VisGrd (joists)	VisGrd (C,S,U)	Comments
PW40013	3X4	T	B			47	No 3	CONST	SOG 1:7
PW41014 B		F	FC			32			NGCD PHOTO 177
PW41014 C		F	FC			31			NGCD PHOTO 177
TB 40310	757	B	B		15.8	25	No. 3	STAND	SOG 1:6
TB 40322	680 B	B	T			20 1/2			
TB 40325	687	B	T			20 1/2			
TB04232	183	BT	F			87			NGCD
TB40001	ZONE 40K	F	BT			32	No 3	STAND	1-5/8 EDGE
TB40002	113 ZONE 40K	FC	FC			113	No 3	STAND	SOG 1:6 LAUZON STAMPE PHOTOS 144-145
TB40003	ZONE 40K	F	T			76	No 3	STAND	SOG 1:6
TB40004	ZONE 40K	BT	F	4X4		25	SS		3/4" & 1/2" EDGE COMBO
TB40005	ZONE 40J	F	T			74	No 3	CONST	1" TWEENER, SOG 1:6
TB40006	ZONE 40F	FC	FC			145			VISIBLE HYPHAE ON SURFACE 25%
TB40007	ZONE 40F	F	BT			40	SS	CONST	3/4" EDGE
TB40008	ZONE 40F	F	HOLE			75	SS	CONST	4" BREAK + 20% KNOT
TB40009	ZONE 40F	F	F	2X4		96	No 1		30% COMBO
TB40010	40 F/245 A&B	F	T			64,64	SS	CONST	TOGETHER; A-NGCD B-3/4" EDGE
TB40011	240 F	BT	BT			17			NGCD
TB40012	ZONE 40F	F	T			57.5	SS	CONST	25%DISP
TB40014	ZONE 40F	F	T			81			NGCD
TB40015	40F	F	FC			76			NGCD
TB40016	40 F	FC	F			58			NGCD
TB40017	40 F	BT	BT			64			NGCD
TB40018	ZONE 40F	FC	F			48	No 2	CONST	3/4" NARROW FACE HOLE
TB40019	ZONE 40F	F	FC		14.2	24	SS	CONST	7/16" NARROW FACE

White Tag	Black Mark	Failure Modes			MC (%)	Length (in.)	VisGrd (joists)	VisGrd (C,S,U)	Comments
TB40020	ZONE 40F	F	HOLE			49	No 3	STAND	HOLE 1-3/4
TB40021	ZONE 40K	F	BT	4X4		58	No 2		S-GRN, 266, S-GRN NO. 2 40%
TB40021	ZONE 40K	BT	F	4X4		58			STRAPPED TOGETHER PHOTOS 153-154
TB40023	128	FC	T			80			NGCD
TB40024	126	F	BT		15.3	63			NGCD
TB40025	175	FC	BT			70	No 2	STAND	3/4" NARROW FACE, LOCAL GRAIN
TB40026	274	F	T	4X4		65			COVERED CONCRETE
TB40027	239	F	T			55			NGCD
TB40028	307	F	BT			56	No 3	STAND	SOG 1:4
TB40029	309	BT	T			29	No 3	CONST	SOG 1:6
TB40030	306	T				38	No 3	CONST	TENSION FINGER SOG 1:7
TB40031	303	F	B			30			NGCD
TB40032	296	BT	F			60	SS	CONST	5/8 C KNOT
TB40033	308	T	BT			59	No 1	CONST	1" EDGE KNOT
TB40034	295	F	T		17.3	48	SS	CONST	25% DISP
TB40035	304	F	T			22.5	No 3	CONST	SOG 1:6
TB40036	294	F	BT			21			NGCD
TB40037	305	T	T			33	No 3	CONST	5/16 KNOT SOG 1:6
TB40038	226	BT	BT			52			NGCD
TB40039	206	FC	BT			61			NGCD
TB40040	243	F	B			82	SS	CONST	3/4" EDGE KNOT AT FAILURE
TB40041	230	FC	BT			63	SS	CONST	1/2" C KNOT
TB40042 A	294 A	F	T	F		82			NGCD PHOTO 168-172
TB40043	207	FC	BT			42			NGCD
TB40043 B	294B, 28								
TB40044	249 B	F	BT	4X4		113	No 2		KNOT & LOCAL GRAIN 50%
TB40045	204	HOLE	HOLE		14.6	71	No 2	CONST	1-1/4" HOLES
TB40046	208	FC	BT			44			NGCD
TB40047	224	F	T			93	No 3	STAND	SOG 1:5
TB40048	272	T	F			98			NGCD
TB40049	172	F	T		15.2	66			NGCD
TB40050	173	F	BT		15.9	63	SS	CONST	3/4" EDGE KNOT
TB40051	283	F	BT		17.9	108	No 2	CONST	SOG 1:8
TB40052	282	T	F			120			NGCD
TB40053	279	F	T			123	No 2	CONST	SOG 1:8
TB40054	108	BK	T	B		118	No 2	CONST	KERF ON ONE END (1-1/4" AT FAILURE HOLE NARROW FACE)
TB40055	184	F	BT			79			NGCD
TB40056	334	F	T			79			NGCD
TB40057	330	B	BT			37	SS	CONST	1/2" EDGE
TB40058	331	F	T			31	No 3	CONST	SOG 1:6
TB40059	332	T				26			TENSION FINGER

White Tag	Black Mark	Failure Modes			MC (%)	Length (in.)	VisGrd (joists)	VisGrd (C,S,U)	Comments
TB40061	618 B	FC	BT			40	No 1	STAND	5/8, 5/8, 1/2, & 1"
TB40061	287	F	B			54.5			NGCD
TB40061 A	280 A	F	T			51			NGCD
TB40061 B	280 B	BT	T			46	No 2	CONST	SOG 1:9
TB40062	620	BT	BT	BT	18.3	33	SS	CONST	1/4" KNOTS 2
TB40062	292	BT	BT			37.5			NGCD
TB40062 B	291 B	BT	F			26.5	SS	CONST	20% DISP
TB40063	233 C	FC	B			32	No 1	CONST	1" C
TB40063	253 B	F	BT		14	47	No 2	CONST	SOG 1:8
TB40063 A	291 A	BT	T			23	SS	CONST	25% DISP
TB40064	606 C	B	BT			18	No 1	CONST	1-1/8 NARROW FACE
TB40064	293	F	BT			49			NGCD
TB40065	631	F	BT		19.8	18	No 3	STAND	SOG 1:4
TB40065	298	F	T			50	ECON	ECON	1:1.5 LOCAL GRAIN AT FAILURE
TB40066	632	F	B	4x4		36	No 3		SOG 1:7
TB40066	290	FC	BT		21.5	56			NGCD
TB40067	335	FC	F		14.7	47	No 2	CONST	1-1/4" EDGE KNOT
TB40068	508	F	FC			21.5	No 1	STAND	2 KNOTS 5/8, 1-1/8
TB40068	286	F	BK			68			NGCD
TB40069	386	FC	BT			30			NGCD
TB40069	297	F	T			47	No 3	CONST	SOG 1:6
TB40070	616	F	BT	FC		48	SS	CONST	3/4" EDGE KNOT
TB40070	300 & 284	T	T			71	No 3	STAND	SOG 1:4
TB40071	591 B	F	T			75			NGCD
TB40071	591 B	T	F	4x4		77			PLIB STD + BTR (PHOTO 34,35)
TB40071	301	F	T			30	No 1	CONST	T AT 1" EDGE KNOT
TB40072	639	BT	BT			54			NGCD
TB40072	302	F	B		18.1	64			NGCD
TB40073	285	F	BT			91	SS	CONST	1/4" NARROW FACE KNOT
TB40074	278	F	B			76			NGCD
TB40075	101	F	T			101	SS	CONST	LOCAL DEVIATION - 20%
TB40076	289	B	F			105			NGCD
TB40077	303	T	T			50	No 1	CONST	40% COMBO
TB40078	362	F	T			53	No 3	STAND	30% DISTORTED GRAIN
TB40079	407	T	B			45	No 3	STAND	SOG 1:5
TB40080	430	HOLE	T			94	No 2	STAND	1-1/4" HOLE SOME LIMITED SURFACE HYPHAE
TB40081	129	F	BT			90			NGCD
TB40082	434					38			2X10 POSS SCAFFOLD 1"C
TB40083	393	T	FC			97			NGCD
TB40084	479	BT	BT			27	No 1	CONST	1-1/4" C KNOT
TB40085	431 B	BT	F			66	No 3	STAND	1-1/2 HOLE

White Tag	Black Mark	Failure Modes			MC (%)	Length (in.)	VisGrd (joists)	VisGrd (C,S,U)	Comments
TB40086	433	FC	BT			41	SS	CONST	KERF 1/2" DEEP
TB40087	488	FC	B			26			PHOTO 106
TB40087 C	623	F	BT			17			NGCD
TB40088	484					36			3 SECTIONS OF PLYWOOD PHOTOS 101,102
TB40089	503	T	T			72	No 3	STAND	SOG 1:5
TB40090	299	F	B			40	SS	STAND	25% DISP COMBO
TB40091	500	B	B			36	No 2	STAND	1-1/4" HOLE DRILLED
TB40092	466	B	B			26			NGCD
TB40093	389	BT	F			74	No 1	CONST	1" EDGE KNOT
TB40094	544	FC	FC			43			NGCD
TB40095	421	FC	T			30	No 3	STAND	SOG 1:5
TB40096	567	BT				9			NGCD
TB40097	575			1X4		48			1"X4" PHOTO 104,105 (EDGE BENDING)
TB40098	194	BT	F	4X4		62	No 2		7/8" NARROW FACE
TB40098	195	F	BT	4X4		64	No 2		1" NARROW FACE
TB40099	402	B	BT			39			NGCD
TB40100	510	FC	B			67	No 1	CONST	FAILED AT 1" HOLE
TB40101	573	FC	T		18.2	36	No 2	CONST	SOG 1:8 PHOTO 108-109 SURFACE HYPHAE
TB40103	561	B	FC		16.3	27			NGCD
TB40104	435	FC				35	No 3	STAND	1-1/2 HOLE
TB40105	446	FC	T			22	No 1	CONST	3/4 NARROW FACE
TB40106	581	BT	F			19			NGCD
TB40107	449	FC	T			38.5			NGCD
TB40108	461	B	BT			72	No 1	CONST	30% DISP
TB40109	584 B	BT	BT			19			NGCD
TB40109	560	F	BT			39	No 1	CONST	SOG 1:10
TB40110	450	FC	T			41	SS	CONST	3/8" C KNOT
TB40111	471	BT	BT	BT		69			NGCD
TB40113	534	F	B			32			NGCD
TB40114	499	BT	BT			20			NGCD
TB40115	506	FC	T			54	No 3	CONST	SOG 1:6
TB40116	552	FC	BT			42			NGCD
TB40117	469	FC	BT			19.5			NGCD
TB40118	437	FC	T			52			SHEAR FAILURE SHAKE (PHOTO 107) FULL LENGTH
TB40120	541	F	FC	4X4		23			NGCD
TB40121	528	F	FC	4X4		37.5			4X4 NGCD
TB40122	584	F	BT			22.5	No 1	CONST	3/4" SAW KERF FULL 3" WIDTH
TB40122	436	FC	BT			40			NGCD
TB40123	438	F	T			30			NGCD
TB40124	375	B	T			49	No 1	CONST	30% DISP
TB40125	511	BT	BT			24			NGCD

White Tag	Black Mark	Failure Modes			MC (%)	Length (in.)	VisGrd (joists)	VisGrd (C,S,U)	Comments
TB40126	585	FC	BT			28			NGCD
TB40127	562	BT	BT			29			NGCD
TB40128	588	F	BT			29	SS	CONST	1/2" NARROW FACE
TB40129	564	FC	T			40	No 3	CONST	SOG 1:6
TB40130	390	BT	F			84			NGCD
TB40131	394	F	T			90	No 1	CONST	40% DISPLACE
TB40131	218	BT	BT			52	No 3	CONST	SOG 1:6
TB40132	779	T	BT			54	SS	CONST	1/2" C
TB40132	329	F	T			94	SS	CONST	25% DISP
TB40133	257	T	T			37.5	SS	CONST	5/8" EDGE KNOT
TB40134	231 B	B	BT			104			NGCD
TB40135	387	BT	F			85	No 1	CONST	40% DISP
TB40136	607	FC	T			20	No 1	CONST	30% DISP
TB40137	606	FC	T			43	No 2	CONST	SOG 1:8 3/4" NARROW FACE
TB40138	575	FC	T			24			NGCD
TB40139	603	FC	T			18	ECON	ECON	2"C & SEVERE LOCAL GRAIN
TB40140	440	FC	T		14.3	32	No 1	CONST	1/2", 3/4, 7/8"
TB40141	132	F	BT			42.5			NGCD
TB40143	573 B	FC	FC			31			NGCD SURFACE HYPHAE (PHOTO 110-111)
TB40144	392	F	T			90	No 3	CONST	SOG 1:6
TB40145	587	FC	F			25.5	No 2	STAND	45% CROSS SECTION
TB40146	396	FC	B			55			NGCD
TB40147	447	FC	F	4X4		40			NGCD
TB40148	406	FC	B		17.9	34	No 3	CONST	SOG 1:6
TB40149	592			1x4		27.5			3-1X4 ZIPTIED TOGETHER (PHOTO 103)
TB40152	610	B	T			31	No 3	CONST	CONCRETE POSS. 1:6 SOG
TB40153	609	FC	BT			51	No 3	STAND	SOG 1:5
TB40154	374	F				33			NGCD
TB40155	494	FC	F			36	SS	CONST	1/2" NARROW FACE - COVERED IN CONCRETE
TB40156	483	B	BT			24			NGCD
TB40157	428	T				34			COVERED IN CONCRETE
TB40158	426	F	T	1X4		67			1X4
TB40159	400	T	BT			64	No 3	CONST	SOG 1:7
TB40160	324	FC	BT			61	SS	CONST	20% DISP
TB40167	638	F	B			15.5			NGCD
TB40167	521	FC	T			60			NGCD
TB40168	690	BT	T			36	No 3	CONST	SOG 1:6
TB40169	702 B	T				27.5			NGCD
TB40169	702 A					35			
TB40170	795	B	T			36			NGCD
TB40171	866 B	T				19			NGCD

White Tag	Black Mark	Failure Modes			MC (%)	Length (in.)	VisGrd (joists)	VisGrd (C,S,U)	Comments
TB40171 A	806 A					20			1 TENSION FINGER
TB40173	774	FC	BT			45	No 1	STAND	2" (4 KNOTS) PC COMBO
TB40174?	685	B	BT			28	SS	CONST	3/4" TWEENER (PHOTO 47)
TB40175	758	B	BT			26			NGCD
TB40176	439 C	FC	T			50	No 2	STAND	1", 1", 1 1/2"
TB40177	707					36	No 1	CONST	SOG 1:10
TB40178	446	T	FC		17.5	65	SS	CONST	2 KNOTS 2-1/2" EDGE KNOTS
TB40179	182	F	BT			100	No 1	CONST	SOG 1:10
TB40180	791	B	B			39	SS	CONST	3/4" EDGE KNOT
TB40181	366	F	B		15.2	36			NGCD
TB40182	458	B	T			51	No 2	CONST	SOG 1:8
TB40183	131	FC	T			63			NGCD
TB40184	363	T	BT			30	SS	CONST	3/4" NARROW FACE
TB40185	686	T	BT			39			NGCD
TB40186	595	BT	FC			30			NGCD
TB40187	617	BT	B			51			NGCD
TB40187 B	617 B	B	T			27	ECON	ECON	SOG 1"-1" EXTREME LOCAL DEVIATION
TB40188	313	F	BT			118	No 1	CONST	
TB40189	311	F	B			108	SS	CONST	1/4" NARROW FACE KNOTS
TB40190	310	BT	F			117	No 1	CONST	1-1/8 NARROW FACE KNOT
TB40191	318	BT	F			136	No 2	CONST	SOG 1:8
TB40192	314	BT	F			117	No 2	STAND	1 1/8", 1", and 5/8"
TB40193	315	F	B			120	SS	CONST	1/2" C
TB40194	782	T	T			98	SS	CONST	SOG 1:12
TB40195	327	F	T			121	No 1	CONST	5/8" EDGE KNOT
TB40199	439	FC	T		15.1	24	No 1	CONST	5/8 NARROW FACE
TB40200	245	F	BT			53	No 2	CONST	1-1/4" PHOTOS 16,17,18, GENERAL ON CDBOARD
TB40201	201	PIPE	FC			66	No 1	CONST	1" HOLE PIPE
TB40202	624	F	T		21.1	59			NGCD
TB40203	247	F	T			58			NGCD
TB40204	246	F	T			54			NGCD
TB40205	608	F	PIPE			48	No 1	CONST	PIPE 1"
TB40206	258	F	B			51	No 1	CONST	1-3/8 C KNOT
TB40207	238	F	T			54	ECON	ECON	3" WIDE FACE TO 0 WITH 1:2 SOG
TB40208	214	F	BT			73			NGCD
TB40209	176	F	T		21.1	62	No 1	CONST	SOG 1:10
TB40210	244	T	T	T		67.5			NGCD (SOME TRIM/KNOTS) (PHOTOS 13,14)
TB40211	178	F	T			60	No 1	CONST	SOG 1:10
TB40212	360	BT	T			57			
TB40213	373	BT	T	T		59	No 2	CONST	SOG 1:8
TB40214	621	BT	BT			39			NGCD

White Tag	Black Mark	Failure Modes			MC (%)	Length (in.)	VisGrd (joists)	VisGrd (C,S,U)	Comments
TB40215	625	B	B	F		64			NGCD
TB40216	174	T	BT			76	No 2	CONST	1-1/4 - 2 IN.
TB40217	254	T	FC			76	No1	CONST	3 KNOTS 1/2" EACH
TB40218	196	BT	F			89	No 2	CONST	SOG 1:9
TB40219	372	F	BT			30			TOO MUCH CONCRETE
TB40220	659	BT	BT			33			NGCD
TB40222	651 B	T	BT			25			NGCD
TB40223	312	B	F			112.5	No 1	CONST	7/8", 1/2", 5/8"
TB40224	319	T	F			124	No 1	CONST	1" KNOT
TB40225	125	F	BT			69			
TB40226	317	BT	F			123	No 2	CONST	SOG 1:9
TB40227	351	BT	F			101	No 1	CONST	7/8", 1/2", 1"
TB40228	133	F	T			50	ECON	ECON	SOG 1:3 (PHOTO #15)
TB40229	294 A 4X4	F	BT			82	No 3	CONST	SOG 1:7
TB40230	374	BT	B			111	SS	CONST	1/2" KNOT
TB40231	133 B	F	BT			71			NGCD
TB40233	215	F	T			60	No 2	CONST	1-1/4" EDGE KNOT
TB40234	232	F	B			112	No 2	CONST	1", 1", 1 1/2"
TB40236	171	T	T			46	ECON	ECON	SOG 1:3 (PHOTO #14)
TB40237	354	T	T	BT		50	No 3	STAND	SOG 1:4 @ MIDDLE FAILURE
TB40238	378	BT	BT			37	No 1	CONST	SOG 1:10
TB40239	401	B	BT			44			NGCD
TB40240	213	F	T			36			NGCD
TB40241	369	F	BT			28			NGCD
TB40242	130	F	T		17.3		No 2	CONST	1" EDGE OR SOG 1:8
TB40243	654	BT	BT			27			NGCD
TB40244	361	B	B			51	SS	CONST	3/4" EDGE KNOT
TB40245	657	F	BT			40			NGCD
TB40246	494 B	FC	T			12	No 3	STAND	1:4 SOG
TB40246	359			2X10		66			SPIB DI-65 MEETS SCAFFOLD KD 19 OSHA 1910,28 #350 (PHOTOS 20,21,22)
TB40247	418 D	BT	B		24.8	28			NGCD (1/2 WIDTH OF PIECE)
TB40249	235 B	FC	T			61			NGCD
TB40250	376	F	BT			60			NGCD
TB40251	512 B	FC	T			43			NGCD
TB40252	242	F	BT			45.5	SS	CONST	3/4" EDGE KNOT
TB40253	131 B	T	BT			37			NGCD
TB40254	368	F	BT			38.5	SS	CONST	1/2" SPIKE ON 1 SURFACE
TB40255	259	F	T			40			NGCD
TB40256	676	T	T			34	No 1	CONST	2-3/14" (2KNOTS) COMBO PC
TB40257	241	T	BT			34	No 2	CONST	FULL LENGTH FAILURE SOG 1:8
TB40259	367	BT	B			26			NGCD

White Tag	Black Mark	Failure Modes			MC (%)	Length (in.)	VisGrd (joists)	VisGrd (C,S,U)	Comments
TB40260	575	FC	PIPEHOLE			41	No 2	CONST	P-HOLE 1" DIAMETER NARROWFACE
TB40261	365	FC	B			45	SS	CONST	3/4" EDGE KNOT
TB40262	208 B	T	T		15.2	52	SS	CONST	3/4" C ONE FACE LOTS OF CONCRETE ATTACHED
TB40263	673	BT	BT			48	SS	CONST	5/8C
TB40264	658 (598)	F	T			48			NGCD
TB40265	671	BT	BT			28	No 2	CONST	SLOPE 1:7
TB40266	651	T	BT			35	No 1	CONST	2-1/4 TOTAL (3 KNOTS)
TB40267	607 B	FC	T			22.25	No 1	CONST	2-1/4 (2KNOTS) COMBO PC
TB40268	212	F	T	T		120			NGCD (FAILED AT KNOT)
TB40269	481	BT	BT			54			NGCD
TB40270	487	T	BT		14.8	49	No3	STAND	SOG 1:5, 6 TYPEND
TB40271	628	F	BT			52	No 2	STAND	2" TOTAL 4 KNOTS (PHOTO 33)
TB40272	803	F	FC			31.5	No 3	CONST	SOG 1:6
TB40273	840	BT	T	BT		56	ECON	ECON	SOG 1:3 AT CENTER FAILURE
TB40274	737	BT	BT			45	SS	CONST	5/8" C
TB40275	582	F	BT			42	No 1	CONST	7/8, 1-1/2 PITH ON EDGE 2 KNOTS COMBO
TB40276	118	BT	BT			38			NGCD
TB40277	824	B	BT			17			NGCD
TB40278	480	B	T			31	No 3	STAND	T @ 1:4
TB40279	823	F	T			30	No 1	CONST	1-1/2 TOTAL (3 KNOTS COMBO)
TB40280	698	F	C			22			NGCD
TB40281	773	B	T			27			NGCD
TB40282	523 B	FC	BT			31.5	SS	CONST	3/8" EDGE KNOT
TB40283	739	FC	B			25	SS	CONST	1/4" EDGE KNOT
TB40284	787	BT	T			28	No 2	CONST	SOG 1:8
TB40285	502	FC	BT		23.2	17.5			NGCD
TB40286	557	T	BT			28	SS	CONST	1-1/2" NARROW FACE KNOT
TB40287	228	BT	BT			56			BOTH BROKE @ KNOTS 1/2" EDGE KNOT
TB40288	330	T	B	BT		49	No 2	STAND	2-1/2" KNOTS
TB40289	708	BT	B			34	ECON	ECON	TYP @ PIPE HOLE @ B/2"-3C PC COMBO
TB40290	756	F	B			12	SS	CONST	1-1/2" TOTAL COMBO 2 KNOTS
TB40291	706	FC	T			36	SS	CONST	VD (PHOTO #12) 1/4" EDGE
TB40292	228	FC	BT			57	No 1	CONST	2 KNOTS 1" EACH NARROW FACE
TB40293	520	FC	BT			53	ECON	ECON	SOG LOCALIZE DISTORTED GRAIN
TB40294	635	F	T			59	No 1	CONST	5/8" EDGE KNOT
TB40295	517	F	T			83	No 2	CONST	COVERED IN CEMENT - EST. #2
TB40296	518	FC	BT			69	No 3	CONST	SOG 1:6
TB40297	726	F	B		15.7	30.5	No 3	CONST	SOG 1:6
TB40298	736	F	B			39			NGCD
TB40299	777	B	T		18.9	41	ECON	ECON	SOG 1:3 (PHOTO #11)
TB40300	852	B	T			36	ECON	ECON	T @ 1:3 (PHOTO #10)

White Tag	Black Mark	Failure Modes			MC (%)	Length (in.)	VisGrd (joists)	VisGrd (C,S,U)	Comments
TB40301	817	BT	B			33	SS	CONST	1-3/4" TOTAL (3 KNOTS)
TB40302	770	B	F			42	ECON	ECON	SOG 1:3 (PHOTO #9)
TB40303	764	BT	BT			34			NGCD
TB40304	683 C	BT	BT	4x4		26	No 1		2" (2 KNOTS) PC COMBO
TB40306	559	B	T			35	ECON	ECON	SOG 1:3 TYPEND
TB40307	482					32	No 1	CONST	2" (2KNOTS) COMBO
TB40308	177	BT	F		13.6	48	SS	CONST	SOG 1:12
TB40309	683 B	FC	BT	4x4		29	No 2		3" TOTAL PITH CTR COMBO 4 KNOTS
TB40311	735	F	B	4x4		32	No 1		1" EDGE KNOT
TB40312	543 B	FC	BT	F		68			NGCD
TB40313	819	T	F			76			NGCD
TB40314	516	F	BT			86			NGCD
TB40315	261	F	B	2x10	16.8	121	No 2		SOG 1:8 FLATWISE FAILURE AT END
TB40316	136	F	BT		13.6	110			REJECT (PHOTOS 53-56) BUT DID NOT BREAK AT DEFECT
TB40317	515	T	T			36	ECON	ECON	SOG 1:2
TB40318	812	T	B		15.4	31	No 1	CONST	SOG 1:10
TB40319	837	FC	B			11			NGCD
TB40320	843	T	T			29	No 3	STAND	SOG 1:4 (PHOTO #8)
TB40323	314 B	B	B			22	SS	CONST	1/2" C KNOT
TB40324	792	B	BT			22	No 1	CONST	1" NF KNOT
TB40325	260	F	B			33.5			NGCD
TB40326	714	F	B			19.5			NGCD
TB40327	512	FC	BT			21	No 1	CONST	BT @ 1-3/16 NFKNOT
TB40328	680	F	T			23.5			NGCD
TB40329	715	F	BT		17.2	32	SS	CONST	5/8 EDGE
TB40330	587	F	BT			30.5	No 2	CONST	3" TOTAL (4 RINGS) COMBO
TB40825	786	B	B		15.1	24			VG, NGCD
TB41005 A	5 ZONE 41A-B	F	FC			89.5			NGCD
TB41005 B	ZONE 41 A-B	FC	F			102			NGCD
TB41006	413	F	F			120			65 DNS IND, K019 MILL 350 PHOTO 155
TB41007 B	ZONE 41G	F	FC			28.5	SS	CONST	20% COMBO
TB41008	ZONE 41B	F	F			168	No 3	STAND	1-1/2" EDGE KNOT
TB41009	ZONE 41B-C	F	T	F		160	SS	CONST	25% AT FAILURE 5/8 C
TB41010	ZONE 41B-C, 22A, 22B	F	BT			118			NGCD
TB41011 A	ZONE 41B-C	FC	T			120			NGCD
TB41011 B	ZONE 41 BC	F	BT			36			NGCD
TB41012	40 ZONE 41B-C	F	T			140	No 2	STAND	11/16 EDGE KNOT & LOCAL DIST GRAIN
TB41013 A	28 B	F	T			95			NGCD PHOTO 173-176
TB41013 B		T	F			29			NGCD PHOTO 173-176
TB41014	ZONE 41B	BT	F			99			NGCD
TB41015	ZONE 41B	F	T	F	17.7	120			32" TO FAIL FROM END N6CD

White Tag	Black Mark	Failure Modes			MC (%)	Length (in.)	VisGrd (joists)	VisGrd (C,S,U)	Comments
TB41016	ZONE 41B	F	BT			89	No 3	CONST	BT AT 1/2" KERF SOG IN 1:6
TB41017		F	BT	BK		78	No 1	CONST	1-1/8 C KNOT
TB41019	308 ZONE 41B	T	F			104	No 2	CONST	SOG 1:8
TB41020	ZONE 41B	FC	BT			87			NGCD
TB41021	ZONE 41B	F	F	4X4		91	No 2		50% COMBO
TB41022	10 ZONE 41B	F	T			102	No 3	CONST	SOG 1:7
TB41023	ZONE 41F	F	HOLE			75	No 3	STAND	1-3/4" HOLE AT FAILURE
TB41025	66 ZONE 41G	T	F			50	SS	CONST	20% DISP COMBO
TB41026	ZONE 41G	F	T	4X4			No 1		A&B 128-23" 1"C PHOTO 145
TB41027	72 ZONE 41G	F	BT			59	No 1	CONST	SOG 1:11
TB41028	71 ZONE 41G	BT	F			63	SS	CONST	7/8 C KNOT
TB41029	ZONE 41G	F	T			74.5	SS	CONST	25% DISP COMBO
TB41030	ZONE 41G	F	T			142			NGCD
TB41031	ZONE 41G	B	B			65			DISCOLORED POSSIBLE DECAY NGCD
TB41032	79 ZONE 41G	T	FC			82	SS	CONST	5/8 EDGE
TB41033	ZONE 41G	B	T			75	No 3	CONST	SOG 1:6 AT T FAIL
TB41034	ZONE 41G	F	T		19.9	71	No 3	STAND	HOLE 1-1/2 NARROW FACE + LOCAL GRINA DEVIATION/CONCRETE
TB41035	ZONE 41J	T	T	F		132	No 2	CONST	6' + 5' = 11' 40% DIST PHOTOS 150-152
TB41035 C	ZONE 41C	B	F	4X4		52			PLIB STD & BTR GRAIN D-FIR PHOTOS 112, 113
TB41036	ZONE 41J	F	B			81.5	No 2	STAND	LOCAL GRAIN + SPIKE KNOT = 50
TB41037	ZONE 41J	F	T			133.5			NGCD
TB41038	ZONE 41J	F	T			89			T AT KERF - NGCD
TB41039	50 ZONE 41E	F	BT			151	SS	CONST	25% COMBO
TB41040	81 ZONE 41G	F	T	4X4		83	No 2		LOCAL GRAIN 40% CONCRETE
TB41040 B	ZONE 41G	F	T	4X4		120	No 2		SOG 1:9
TB41041	ZONE 41G	F	FC			28.5			NGCD
TB41041	ZONE 41J	F	BT	BT		101	No 2	CONST	SOG 1:8
TB41042	ZONE 41J	F	B		17	141			NGCD
TB41043	ZONE 41J	F	BT			56			BT WITH CONCRETE NGCD
TB41045	ZONE 41G	FC	FC			28.5			NGCD
TB41046	ZONE 41G	F	FC			28.5	SS	CONST	5/8" EDGE KNOT
TB41047	ZONE41G	F	FC			29	SS	CONST	3/4 C
TB41048	ZONE 41G	F	BT		18.7	84	No 2	CONST	SOG 1:8
TB41048 A	ZONE 41G	F	B			111	No 2	CONST	SOG 1:9
TB41049 A	ZONE 41G	FC	T		14.1	99			NGCD
TB41049 B	ZONE 41G	T	BT	T		60			COVERED IN CONCRETE
TB41050 A	ZONE 41G	T	F			134.5			NGCD
TB41050 B	109B ZONE 41G	F	T			109	No 1	CONST	SOG 1:10 AT FAIL
TB41051	113 ZONE 41G	F	HOLE		17.3	161	No 3	STAND	HOLE 1-1/2"
TB41053 B	ZONE 41G	F	T			51			NGCD

APPENDIX III
Small Clear Mechanical Test Results

WOOD ADVISORY SERVICES, INC.
3700 Route 44 Suite 102
P.O. Box 1322
MILLBROOK, NEW YORK 12545
(845) 677-3091
FAX (845) 677-6547

JOB _____

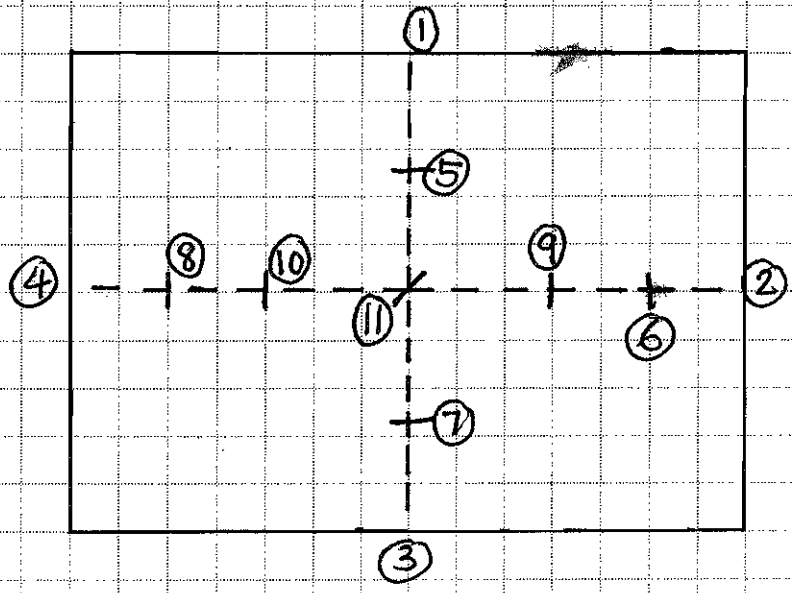
SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____

TYPICAL CROSS SECTION OF 3X4 LUMBER (2½" x 3½")



LOCATIONS ① THROUGH ⑪ EVALUATED FOR EACH MICROBIOLOGICAL ANALYSIS PERFORMED ON EACH 3X4 LUMBER RIB

SCHEMATIC #1

Client: Dan Eschenasy
Project Spring Street
Job No. 08.125
Test ASTM D-143 Static Bending

Spruce (weighted average of red, balck and white):
MOR at 12% = 10,644 psi
MOE at 12% = 1.511 x10^6 psi

Fir (Balsam fir)
MOR at 12% = 8,341 psi
MOE at 12% = 1.432 x10^6 psi

Wood Decay Chart: Occasional, Light, Moderate, Heavy

Eastern Spruce

Sample	Span (in.)	Height (in.)	Width (in.)	Load/Defl. (lb./in.)	Max Load (lb)	Green Wt (g)	OD WT (g)	OD Vol (g)	MOR (psi)	MORadj (psi)	MOE (psi)	MOEadj (psi)	Residual MOR	Residual MOE	MC%	SG
1-1	14	0.97	0.98	1737.1	328.0	6.30	5.56	15.32	7470	7842	1.33E+06	1.36E+06	0.74	0.90	13.3	0.36
1-3	14	0.98	0.98	1831.4	398.2	6.41	5.64	15.74	8885	9447	1.36E+06	1.39E+06	0.89	0.92	13.7	0.36
2-2	14	0.98	0.98	1674.9	336.8	5.60	4.91	15.18	7515	8110	1.25E+06	1.28E+06	0.76	0.85	14.1	0.32
2-3	14	0.98	0.98	1404.0	345.4	5.58	4.93	15.08	7707	8053	1.04E+06	1.06E+06	0.76	0.70	13.2	0.33
3-1	14	0.98	0.97	2013.7	509.9	8.23	7.23	15.10	11494	12303	1.51E+06	1.55E+06	1.00	1.00	13.8	0.48
3-2	14	0.97	0.98	2135.4	473.2	7.80	6.82	15.02	10777	11768	1.64E+06	1.69E+06	1.00	1.00	14.4	0.45
4-1	14	0.97	0.98	1847.4	320.5	6.91	6.12	15.36	7299	7550	1.42E+06	1.43E+06	0.71	0.95	12.9	0.40
4-2	14	0.98	0.98	1523.4	375.9	6.23	5.54	14.99	8387	8530	1.13E+06	1.14E+06	0.80	0.75	12.5	0.37
5-1	14	0.97	0.97	1910.3	436.3	7.04	6.21	15.17	10039	10561	1.48E+06	1.51E+06	0.99	1.00	13.4	0.41
10-1	14	1.00	1.00	2373.7	423.0	7.65	6.69	16.03	8883	9693	1.63E+06	1.68E+06	0.91	1.00	14.3	0.42
11-1	14	1.00	1.00	2536.0	461.4	8.23	7.20	15.47	9689	10555	1.74E+06	1.79E+06	0.99	1.00	14.3	0.47
11-2	14	1.00	1.00	2366.9	482.3	7.39	6.46	15.42	10128	11070	1.62E+06	1.68E+06	1.00	1.00	14.4	0.42
Mean									9023	9623	1429761	1462660	0.88	0.92	13.7	0.40

Eastern Fir

Sample	Span (in.)	Height (in.)	Width (in.)	Load/Defl. (lb./in.)	Max Load (lb)	Green Wt (g)	OD WT (g)	OD Vol (g)	MOR (psi)	MORadj (psi)	MOE (psi)	MOEadj (psi)	Residual MOR	Residual MOE	MC%	SG
6-2	14	0.98	0.97	2077.1	412.8	6.60	5.72	15.15	9305	9800	1.56E+06	1.58E+06	1.00	1.00	13.6	0.38
7-1	14	0.98	0.98	1674.3	335.3	5.92	5.22	15.00	7481	7823	1.25E+06	1.26E+06	0.94	0.88	13.4	0.35
7-2	14	0.97	0.98	2354.9	429.6	6.70	5.94	14.88	9784	10033	1.81E+06	1.82E+06	1.00	1.00	12.8	0.40
7-3	14	1.00	1.00	2416.0	497.0	6.94	6.13	15.74	10437	10846	1.66E+06	1.68E+06	1.00	1.00	13.2	0.39
8-1	14	1.00	0.99	2121.1	397.4	6.50	5.73	15.86	8430	8823	1.47E+06	1.49E+06	1.00	1.00	13.4	0.36
8-2	14	1.01	1.01	1743.4	378.4	6.08	5.34	15.91	7713	8180	1.15E+06	1.17E+06	0.98	0.82	13.9	0.34
9-2	14	0.99	1.00	1984.6	395.8	6.47	5.71	16.13	8481	8840	1.40E+06	1.42E+06	1.00	0.99	13.3	0.35
9-3	14	1.01	1.01	2192.6	367.5	6.95	6.14	15.98	7491	7779	1.45E+06	1.46E+06	0.93	1.00	13.2	0.38
Mean									8640	9016	1467142	1485295	0.98	0.96	13.4	0.37

Client: Dan Eschenasy
Project Spring Street
Job No. 08.125
Test ASTM D-143 Shear Parallel to Grain

Spruce (weighted average of red, balck and white):
Shear$_{//}$ at 12% = 1,182 psi

Fir (Balsam fir)
Shear$_{//}$ at 12% = 938 psi

Wood Decay Chart: Occasional, Light, Moderate, Heavy

Spruce

Sample	Length (in.)	Width (in.)	Max Load (lb)	Green Wt (g)	OD WT (g)	OD Vol (g)	SHEAR (psi)	SHEARadj (psi)	Residual Shear	MC%	SG	SG adj
1-1	2.00	2.00	4259	18.95	16.73	46.71	1065	1109	0.94	13.3	0.36	0.33
2-1	2.01	2.00	3379	16.72	14.69	42.89	841	891	0.75	13.8	0.34	0.31
3-1	2.00	2.01	5689	24.45	21.43	45.67	1415	1513	1.00	14.1	0.47	0.42
3-2	2.01	2.00	5740	25.77	22.52	47.62	1428	1543	1.00	14.4	0.47	0.42
4-1	2.01	2.01	4658	20.01	17.76	45.63	1153	1178	1.00	12.7	0.39	0.35
4-2	2.03	2.00	4587	25.61	22.69	54.89	1130	1162	0.98	12.9	0.41	0.37
5-1	2.03	2.00	4969	17.86	15.73	40.08	1224	1286	1.00	13.5	0.39	0.36
11-1	2.05	2.01	3913	22.53	19.83	47.69	950	1000	0.85	13.6	0.42	0.37
11-2	2.02	2.01	4479	21.57	18.97	44.95	1103	1165	0.99	13.7	0.42	0.38
Mean							**1145**	**1205**	**0.94**	**13.6**	**0.41**	**0.37**

Fir

Sample	Length (in.)	Width (in.)	Max Load (lb)	Green Wt (g)	OD WT (g)	OD Vol (g)	SHEAR (psi)	SHEARadj (psi)	Residual Shear	MC%	SG	SG adj
6-1	2.05	2.00	5128	20.70	18.27	46.38	1251	1303	1.00	13.3	0.39	0.36
6-2	2.01	2.01	5027	20.73	18.33	46.40	1244	1288	1.00	13.1	0.40	0.36
7-1	2.01	2.00	4375	21.14	18.74	46.79	1088	1116	1.00	12.8	0.40	0.36
7-2	2.03	2.00	4694	21.43	18.98	46.41	1156	1190	1.00	12.9	0.41	0.37
8-1	2.01	2.01	3592	18.67	16.54	45.53	889	914	0.97	12.9	0.36	0.33
Mean							**1126**	**1162**	**0.99**	**13.0**	**0.39**	**0.36**

Client: Dan Eschenasy
Project Spring Street
Job No. 08.125
Test ASTM D-143 Compression Perpendicular to Grain

Spruce (weighted average of red, balck and white):
Comp.Perp at 12% = 1,004 psi

Fir (Balsam fir)
Comp.Perp at 12% = 862 psi

Wood Decay Chart:

Occasional	
Light	
Moderate	
Heavy	

Spruce

Sample	Width (in.)	Height (in.)	Max Load (lb)	Green Wt (g)	OD WT (g)	OD Vol (g)	Comp (psi)	Comp adj (psi)	Residual Comp	MC%	SG	SG adj
2-1	2.01	2.00	2545	25.11	22.07	59.65	633	688	0.69	13.8	0.37	0.34
3-1	2.01	2.02	4024	32.85	28.71	61.40	991	1110	1.00	14.4	0.47	0.42
5-1	2.00	2.00	3075	27.76	24.61	56.41	769	798	0.79	12.8	0.44	0.39
11-1	2.01	1.99	2795	32.79	28.80	60.90	699	762	0.76	13.9	0.47	0.42
Mean							**773**	**840**	**0.81**	**13.7**	**0.44**	**0.39**

Fir

Sample	Width (in.)	Height (in.)	Max Load (lb)	Green Wt (g)	OD WT (g)	OD Vol (g)	Comp (psi)	Comp adj (psi)	Residual	MC%	SG	SG adj
6-1	2.00	2.00	1855	27.84	24.64	62.58	464	486	0.56	13.0	0.39	0.36
7-1	2.00	2.01	1919	27.26	24.10	63.99	477	504	0.58	13.1	0.38	0.34
Mean							**471**	**495**	**0.57**	**13.0**	**0.39**	**0.35**

APPENDIX IV
Concentrated Load Test Results

Client: Dan Eschenasy
Project Spring Street
Job No. 08.125
Test Concentrated Load Test Data

Loading Condition #1 - Base plate with interior edge 11" from panel edge
Loading Condition #2 - Base plate with interior edge 20"-24" from panel edge
Defl. - The deflection read on the engineers ruler during the test
Actual Defl. - The actual deflection after adjusting for the initial offset (first reading for Defl.)
Meter Value - The digital output from the meter
Actual Value - The digital meter output value adjusted using calibration between proving ring and digital meter

TP8-A #1: 2'x4', Loading Condition #1 **Thickness = 0.647 in.**

	Defl.	Actual Defl. (in.)	Meter Value (units)	Actual Value (lbs.)
	5.3	0	0	0
	5.4	0.1	500	499
	5.5	0.2	1000	1002
	5.55	0.25	1500	1506
	5.6	0.3	2000	2009
	5.65	0.35	2500	2513
	5.7	0.4	3000	3017
	5.775	0.475	3500	3520
	5.825	0.525	4000	4024
	5.9	0.6	4500	4527
Max.	6.025	0.725	4958	4988

TP8-A #2: 2'x4', Loading Condition #1 **Thickness = 0.642 in.**

	Defl.	Actual Defl. (in.)	Meter Value (units)	Actual Value (lbs.)
	5.2	0	0	0
	5.275	0.075	500	499
	5.3	0.1	1000	1002
	5.375	0.175	1500	1506
	5.425	0.225	2000	2009
	5.475	0.275	2500	2513
	5.525	0.325	3000	3017
	5.6	0.4	3500	3520
	5.7	0.5	4000	4024
	5.8	0.6	4500	4527
	5.95	0.75	5000	5031
Max.	6.9	1.7	5119	5151

TP10A: 4'x4', Loading Condition #2 **Thickness = 0.653 in.**

Defl.	Actual Defl. (in.)	Meter Value (units)	Actual Value (lbs.)
5.3	0	0	0
5.375	0.075	500	499
5.425	0.125	1000	1002
5.475	0.175	1500	1506
5.5	0.2	2000	2009
5.575	0.275	2500	2513
5.625	0.325	3000	3017
5.675	0.375	3500	3520
5.7	0.4	4000	4024
5.775	0.475	4500	4527
5.8	0.5	5000	5031
5.825	0.525	5500	5534
		5900	5937
5.925	0.625	6000	6038
6.025	0.725	6500	6541
6.075	0.775	7000	7045

	6.125	0.825	7500	7549
	6.2	0.9	8000	8052
	6.3	1	8500	8556
Max.	6.3	1	8640	8697

TP9A: 4'x4', Loading Condition #2 **Thickness = 0.653 in.**

Defl.	Actual Defl. (in.)	Meter Value (units)	Actual Value (lbs.)
5.2	0	0	0
5.275	0.075	500	499
5.325	0.125	1000	1002
5.375	0.175	1500	1506
5.425	0.225	2000	2009
5.475	0.275	2500	2513
5.5	0.3	3000	3017
5.55	0.35	3500	3520
5.6	0.4	4000	4024
5.7	0.5	4500	4527
5.775	0.575	5000	5031
5.825	0.625	5500	5534
5.9	0.7	6000	6038
5.95	0.75	6500	6541
6	0.8	6575	6617
Max. 6.1	0.9	6722	6765

TP9A-#2: 2'x4', Loading Condition #1 **Thickness = 0.653 in.**

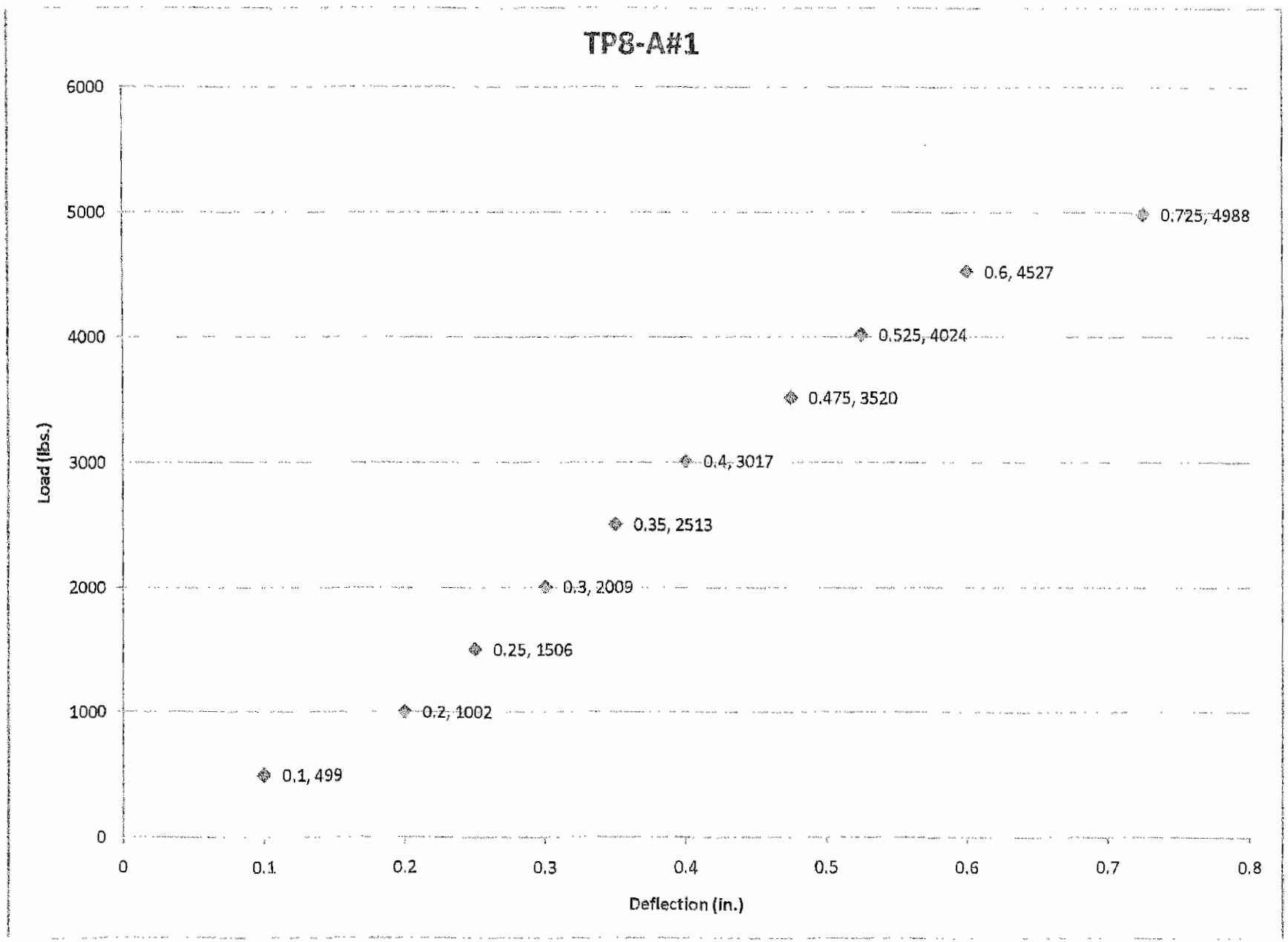
Defl.	Actual Defl. (in.)	Meter Value (units)	Actual Value (lbs.)
5	0	0	0
5.1	0.1	500	499
5.15	0.15	1000	1002
5.2	0.2	1500	1506
5.25	0.25	2000	2009
5.3	0.3	2500	2513
5.35	0.35	3000	3017
5.425	0.425	3500	3520
5.6	0.6	4000	4024
5.625	0.625	4100	4124
5.65	0.65	4200	4225
5.7	0.7	4300	4326
5.75	0.75	4400	4427
5.825	0.825	4500	4527
5.9	0.9	4590	4618
6.2	1.2	4600	4628
6.3	1.3	4700	4729
6.425	1.425	4800	4829
Max. 6.7	1.7	4827	4857

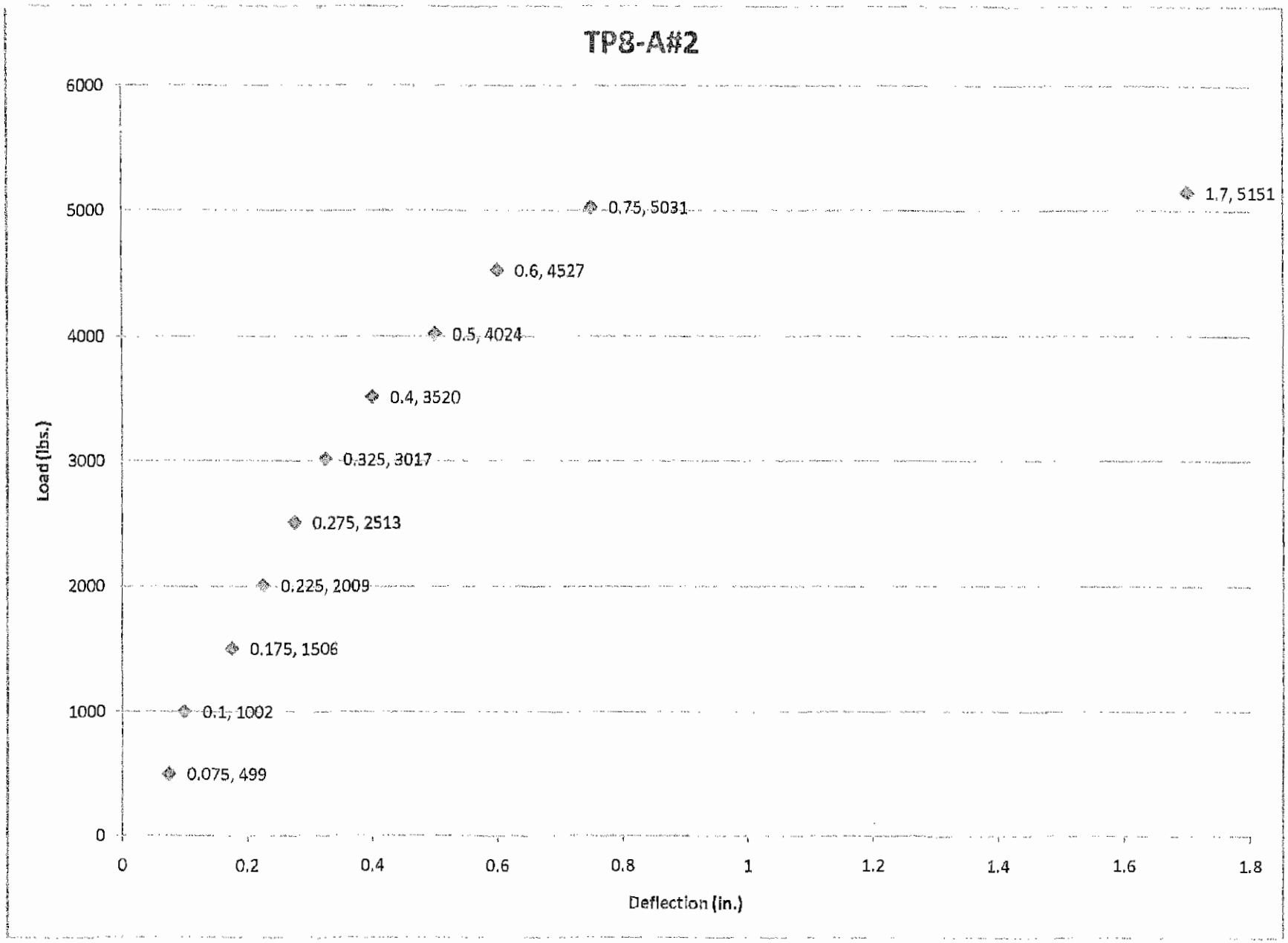
PW4055-#1: 4'x4', Loading Condition #2 **Thickness = 0.606 in.**

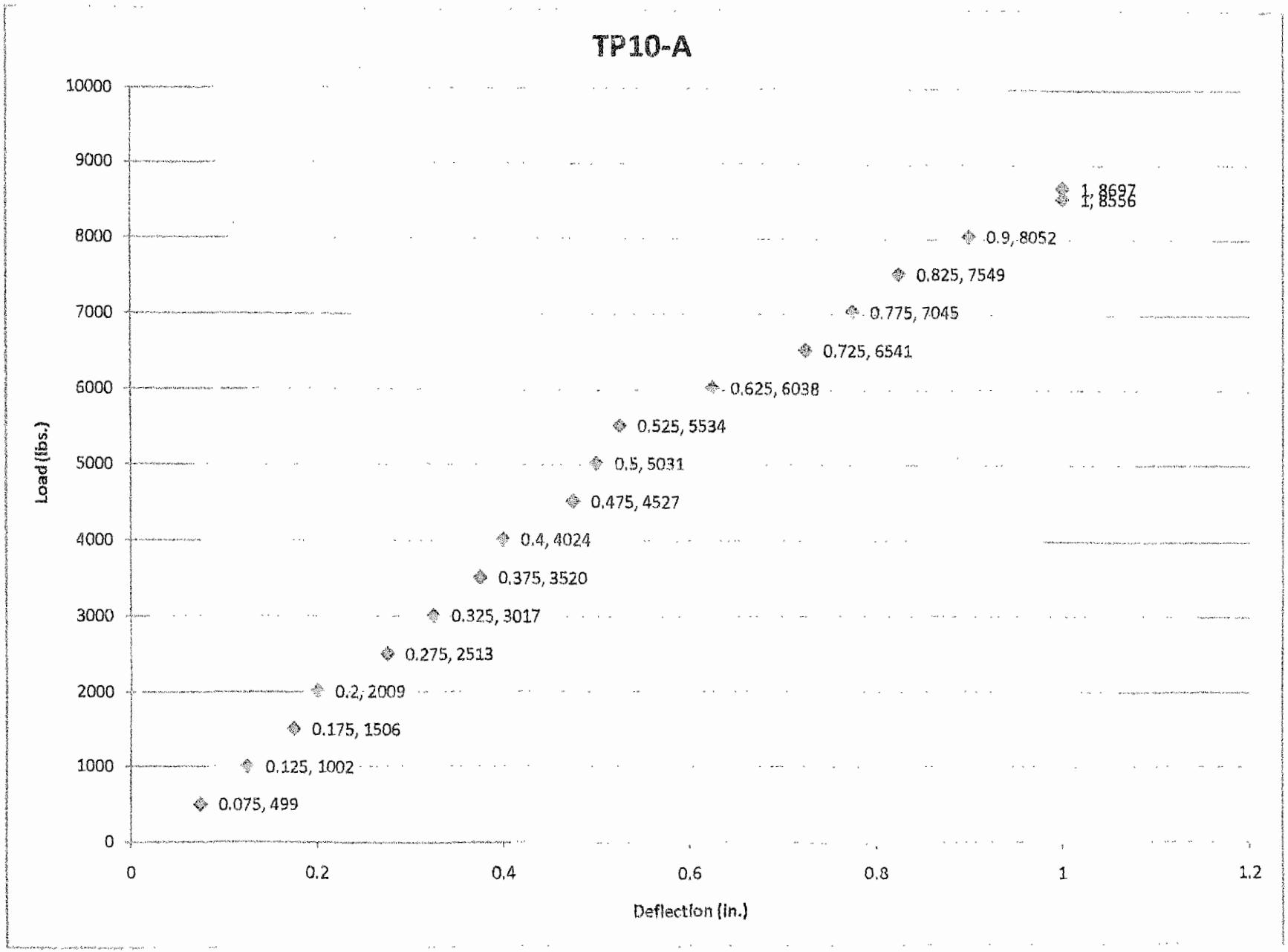
Defl.	Actual Defl. (in.)	Meter Value (units)	Actual Value (lbs.)
5	0	0	0
5.075	0.075	500	499
5.15	0.15	1000	1002
5.2	0.2	1500	1506
5.275	0.275	2000	2009
5.325	0.325	2500	2513
5.4	0.4	2600	2614
5.475	0.475	3000	3017
5.5	0.5	3131	3148
5.525	0.525	3500	3520
Max. 5.6	0.6	3731	3753
6.2	1.2	3695	3716

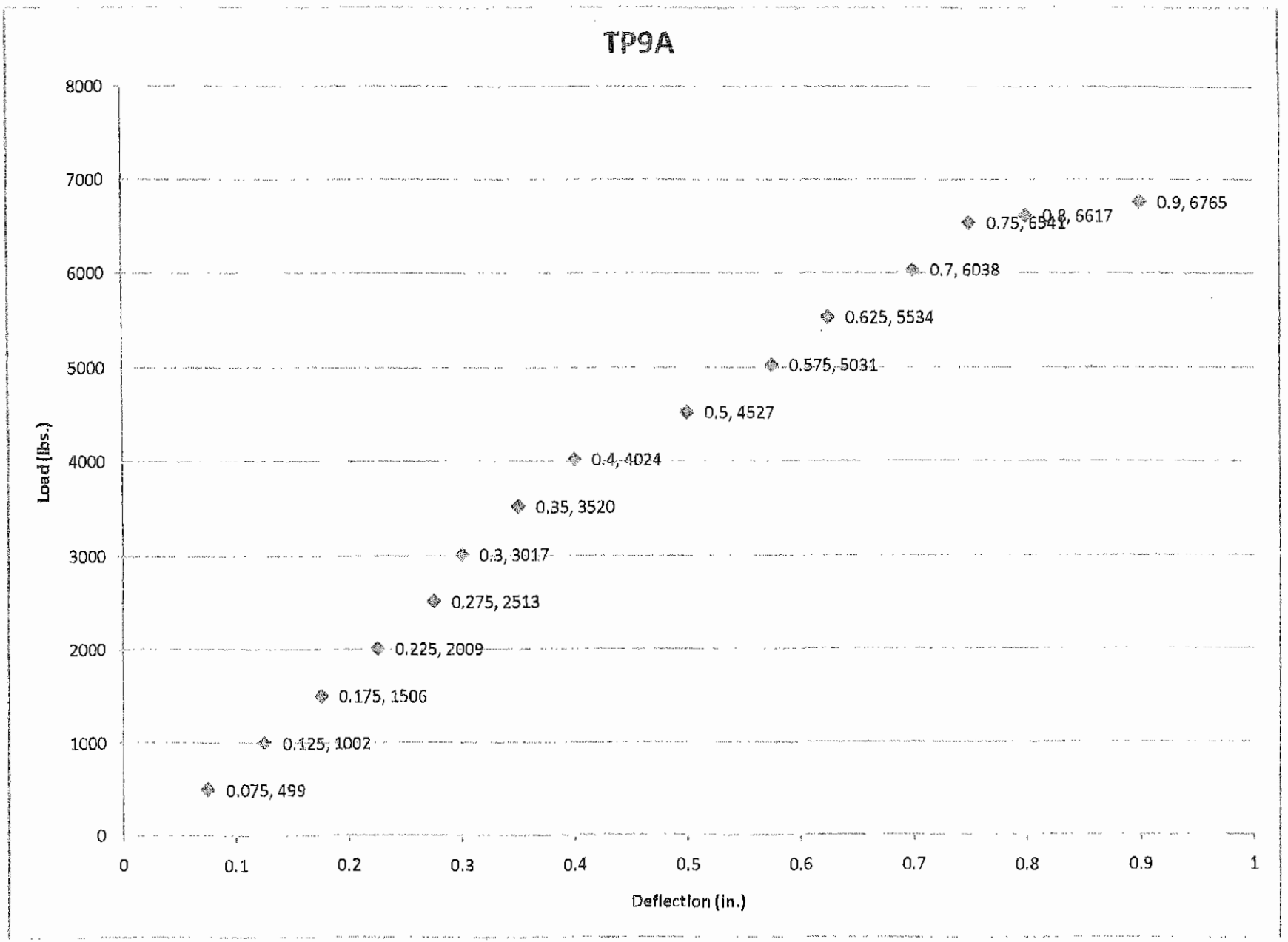
PW4055-#2: 2'x4', Loading Condition #1 **Thickness = 0.606 in.**

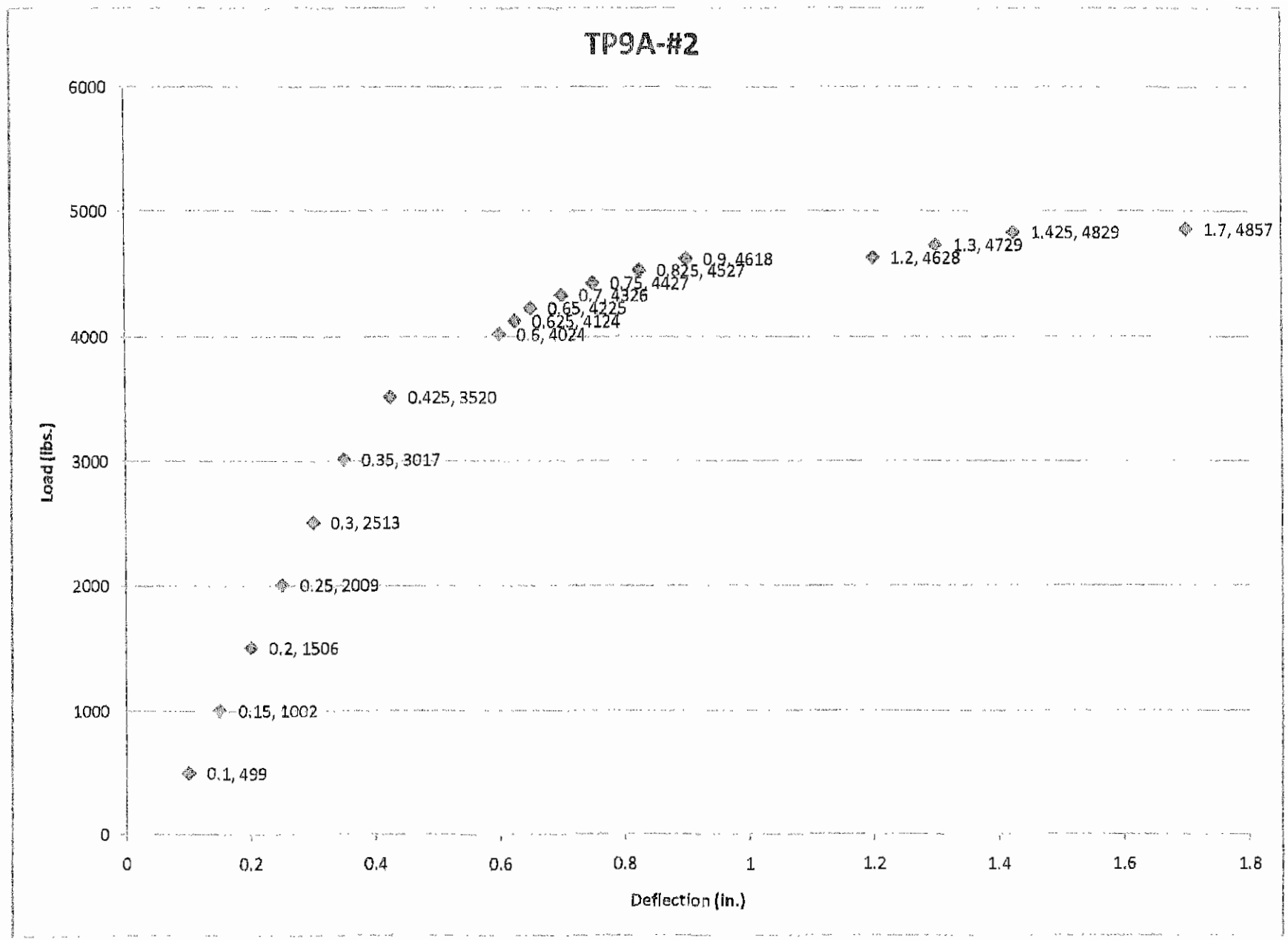
	Defl.	Actual Defl. (in.)	Meter Value (units)	Actual Value (lbs.)
	5	0	0	0
	5.125	0.125	500	499
	5.2	0.2	1000	1002
	5.25	0.25	1500	1506
	5.3	0.3	2000	2009
	5.375	0.375	2500	2513
	5.425	0.425	2600	2614
	5.5	0.5	3000	3017
Max.	5.625	0.625	3566	3586
	5.8	0.8	2923	2939

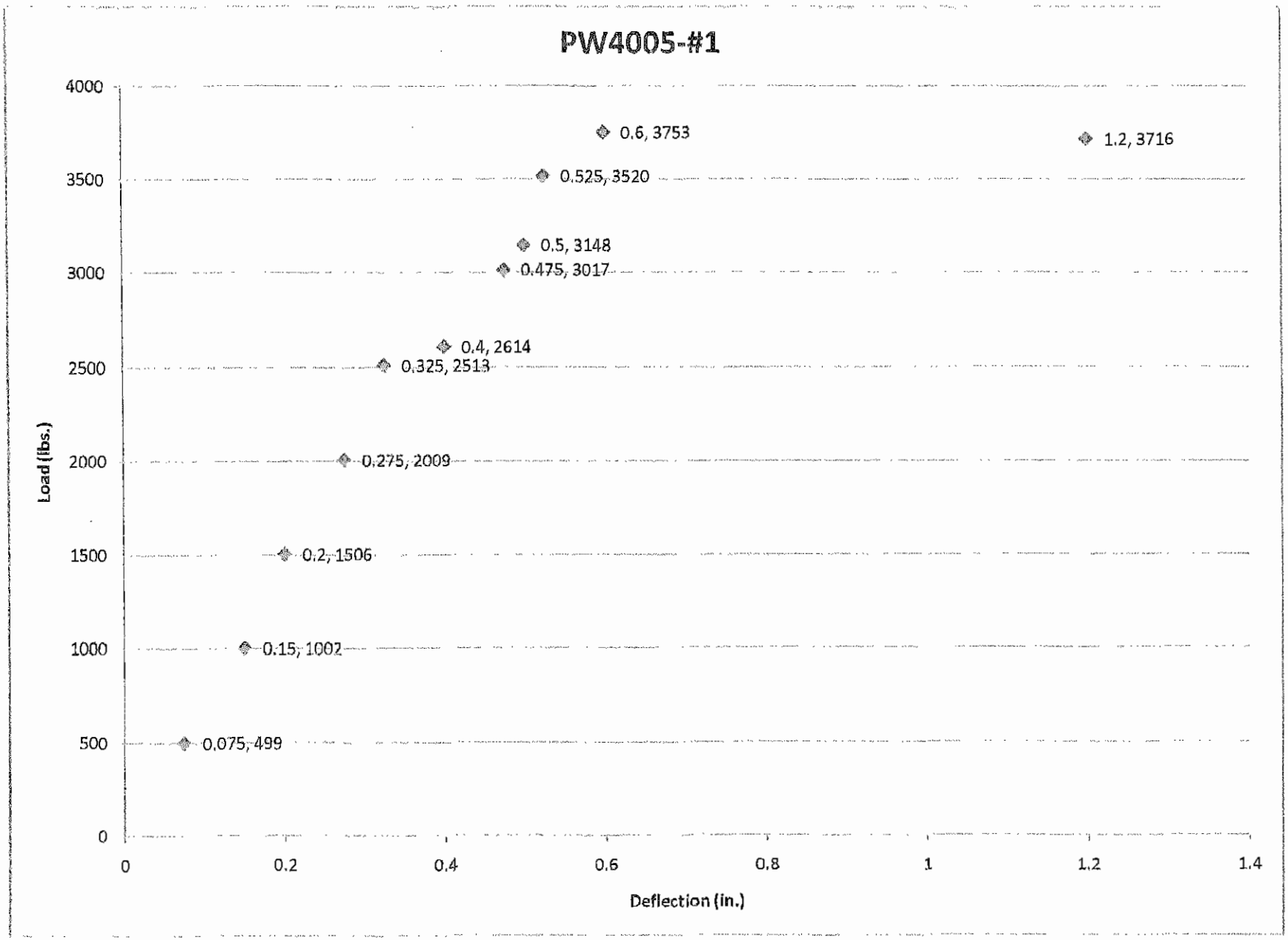

TP8-A#1
6000
5000
4000
3000
2000
1000
0
Load (lbs.)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
Deflection (in.)
0.725, 4988
0.6, 4527
0.525, 4024
0.475, 3520
0.4, 3017
0.35, 2513
0.3, 2009
0.25, 1506
0.2, 1002
0.1, 499

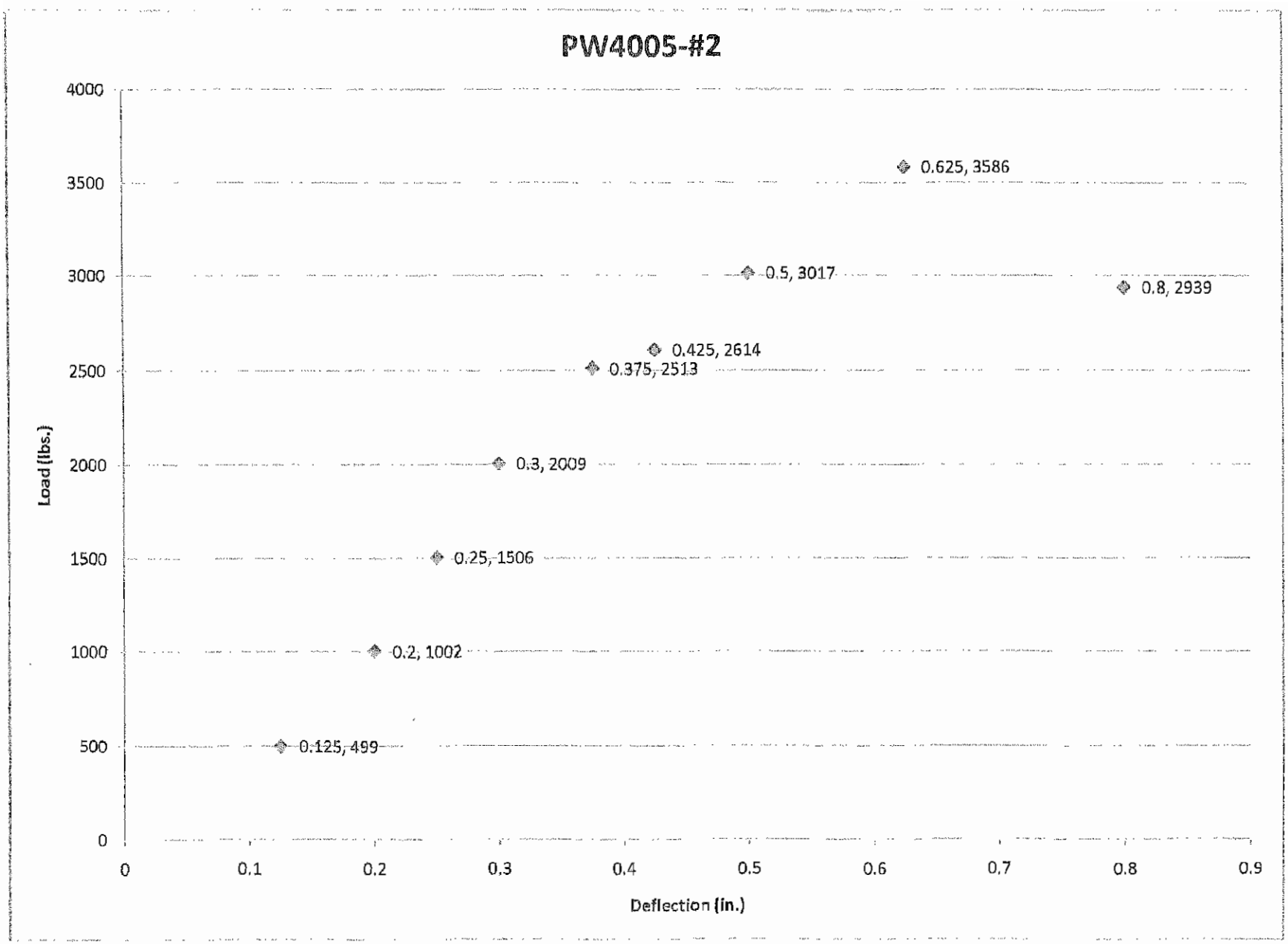

TP8-A#2
Load (lbs.)
Deflection (in.)
6000
5000
4000
3000
2000
1000
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
0.075, 499
0.1, 1002
0.175, 1506
0.225, 2009
0.275, 2513
0.325, 3017
0.4, 3520
0.5, 4024
0.6, 4527
0.75, 5031
1.7, 5151


TP10-A
Load (lbs.)
Deflection (in.)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
0.2
0.4
0.6
0.8
1
1.2
1, 8697
1, 8556
0.9, 8052
0.825, 7549
0.775, 7045
0.725, 6541
0.625, 6038
0.525, 5534
0.5, 5031
0.475, 4527
0.4, 4024
0.375, 3520
0.325, 3017
0.275, 2513
0.2, 2009
0.175, 1506
0.125, 1002
0.075, 499


TP9A
Load (lbs.)
Deflection (in.)
8000
7000
6000
5000
4000
3000
2000
1000
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.9, 6765
0.8, 6617
0.75, 6541
0.7, 6038
0.625, 5534
0.575, 5031
0.5, 4527
0.4, 4024
0.35, 3520
0.3, 3017
0.275, 2513
0.225, 2009
0.175, 1506
0.125, 1002
0.075, 499


TP9A-#2
Load (lbs.)
Deflection (in.)
6000
5000
4000
3000
2000
1000
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
0.1, 499
0.15, 1002
0.2, 1506
0.25, 2009
0.3, 2513
0.35, 3017
0.425, 3520
0.6, 4024
0.625, 4124
0.65, 4225
0.7, 4326
0.75, 4427
0.825, 4527
0.9, 4618
1.2, 4628
1.3, 4729
1.425, 4829
1.7, 4857


PW4005-#1
Load (lbs.)
Deflection (in.)
4000
3500
3000
2500
2000
1500
1000
500
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
0.6, 3753
1.2, 3716
0.525, 3520
0.5, 3148
0.475, 3017
0.4, 2614
0.325, 2513
0.275, 2009
0.2, 1506
0.15, 1002
0.075, 499


PW4005-#2
Load (lbs.)
Deflection (in.)
4000
3500
3000
2500
2000
1500
1000
500
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
0.625, 3586
0.5, 3017
0.8, 2939
0.425, 2614
0.375, 2513
0.3, 2009
0.25, 1506
0.2, 1002
0.125, 499

APPENDIX V

Patent Construction Systems Drawing

No. 4607K070

PATENT CONSTRUCTION SYSTEMS LAYOUT DRAWING NOTES

GENERAL NOTES

[illegible]

FOR SHORING DEFINED AS THE VERTICAL ELEMENTS OF THE FORMWORK USED TO SUPPORT FRESH CONCRETE OR VERTICAL ELEMENTS EXCLUDING DECK MATERIAL TO SUPPORT STRUCTURAL MEMBERS DURING THEIR CONSTRUCTION COMPLY WITH THE FOLLOWING ADDITIONAL NOTES:

[illegible]

FOR VERTICAL SHORING COMPLY WITH THE FOLLOWING ADDITIONAL ITEMS:

[illegible]

12 inches for 18,000

REFER TO SAFETY RULES AND INSTRUCTIONS # 22470

FOR INTERFORM OR ALUMINUM JOISTS ON VERTICAL SHORING COMPLY WITH THE FOLLOWING ADDITIONAL ITEMS:

[illegible]

FOR HORIZONTAL SHORING COMPLY WITH THE FOLLOWING ADDITIONAL ITEMS:

[illegible]

REFER TO SPANALL FIELD ERECTION MANUAL & SAFETY RULES

HORIZONTAL SHORE DESIGN & BEARING EAR DATA					
SPANALL MEMBER ASSEMBLY	MAX. ALLOW. BENDING MOMENT	MAX. ALLOW. END REACTION	MINIMUM LEDGER WIDTH	MINIMUM AREA OF EARS	THICKNESS OF EARS
730 (2 member)	12,200 ft. lb.	3,740 lb.	2 3/8"	6.75 SQ. IN.	1/2" MAX.
730 (3 member)	10,800 ft. lb.	3,740 lb.	2 3/8"	6.75 SQ. IN.	1/2" MAX.
1015	9,100 ft. lb.	3,300 lb.	2 1/4"	6.00 SQ. IN.	1/2" MAX.
814	6,200 ft. lb.	3,300 lb.	2 1/4"	6.00 SQ. IN.	1/2" MAX.
810	4,000 ft. lb.	3,750 lb.	2 1/4"	4.80 SQ. IN.	1/2" MAX.
47	1,450 ft. lb.	2,330 lb.	2"	4.80 SQ. IN.	1/2" MAX.

FOR INTERFORM TRUSS TABLES, COMPLY WITH THE FOLLOWING ADDITIONAL ITEMS:

[illegible]

REFER TO SAFETY RULES AND INSTRUCTIONS # ______

FOR FORMING DEFINED AS THE SUPPORTING MEMBERS IN DIRECT CONTACT WITH THE FRESHLY PLACED CONCRETE, COMPLY WITH THE FOLLOWING ADDITIONAL NOTES:

[illegible]

REFER TO SAFETY RULES AND INSTRUCTIONS # ______

FOR LOGIC PANELS COMPLY WITH THE FOLLOWING ADDITIONAL ITEMS:

[illegible]

REFER TO SAFETY RULES AND INSTRUCTIONS # ______

NOTED DESIGN DATA

Max design pressure ______ PSF with Concrete density of ______ PCF

[illegible]

CONCRETE DESIGN PRESSURES FOR WALL FORMS

[illegible]

MINIMUM SAFETY FACTORS OF FORMWORK ACCESSORIES

[illegible]

FOR ACCESS SCAFFOLDING DEFINED AS A TEMPORARY ELEVATED PLATFORM AND ITS SUPPORTING STRUCTURE OR A SUSPENDED PLATFORM USED TO SUPPORT USERS OR MATERIALS, OR BOTH, COMPLY WITH THE FOLLOWING ADDITIONAL NOTES:

[illegible]

PCS "TROUBLESAVER" SECTIONAL, OSS, DUPLOCK, TUBELOX SCAFFOLDING COMPLY WITH THE FOLLOWING ADDITIONAL ITEMS:

[illegible]

REFER TO SAFETY RULES AND INSTRUCTIONS # ______

FOR SPRINT SCAFFOLDING COMPLY WITH THE FOLLOWING ADDITIONAL ITEMS:

[illegible]

REFER TO SAFETY RULES AND INSTRUCTIONS # ______

FOR SUSPENSION SCAFFOLDING COMPLY WITH THE FOLLOWING ADDITIONAL ITEMS:

[illegible]

REFER TO SAFETY RULES AND INSTRUCTIONS # ______

WARNING

Serious injury may result if you fail to use safe practice in the erection, dismantling or use of PCS equipment. Erectors, dismantlers, and users must be familiar with and follow current laws and regulations, safe practice and the Safety Rules and Instructions. Individuals using this equipment must be instructed in these requirements. Safety Rules and Instructions pertaining to the products shown herein are provided upon sale or rental of equipment. Additional copies or further information will be provided upon your request.

It is important to note that current OSHA regulations require the use of guardrail systems and/or fall protection devices at all working levels, open sides, and at all other openings on platforms and work areas above certain heights, as specified by OSHA. In all cases, where a user is exposed to a fall hazard in the use of this equipment, guardrail systems, where appropriate or other personal fall protective devices, must be utilized. Means of access must be made available to the customer to all locations where people are expected to work. Materials for the provision of such means of access may be job built by the customer, or, at the customer's option, be obtained through Patent Construction Systems or other suppliers. Patent Construction Systems will, at customer's request, consult on alternate means of access.

DURING USE OF EQUIPMENT ALWAYS FOLLOW SERARATE SAFETY RULES & INSTRUCTIONS AS INDICATED IN EACH SPECIFIC SECTION.

LUMBER DESIGN VALUES

[illegible]

Extreme fiber stress in bending	1,440 PSI
Horizontal shear	100 PSI
Compression perp. to grain	625 PSI
Compression parallel to grain	1,350 PSI
Modulus of elasticity	1,600,000 PSI

[illegible]

TITLE: 2OKA SHORING LAYOUT — DATE 12/14/2007

PROJECT: SOHO HOTEL

LOCATION: 246 SPRING STREET NYC

CUSTOMER: DI FAMA CONCRETE

Patent

Patent Construction Systems
Harsco Corporation

DRAWING NUMBER: 4607K070

SHEET NO. 1

12/14/07

DURING USE OF EQUIPMENT ALWAYS FOLLOW SEPARATE SAFETY RULES & INSTRUCTIONS AS INDICATED IN EACH SPECIFIC SECTION.

LUMBER DESIGN VALUES

Suggested lumber details shown are based on the use of lumber with allowable unit stresses increased per ANSI/AF&PA NDS – 1997 for short term loading to the limiting values below:

Extreme fiber stress in bending	**1,640 PSI**
Horizontal shear	**180 PSI**
Compression perp. to grain	**825 PSI**
Compression parallel to grain	**1,350 PSI**
Modulus of elasticity	**1,600,000 PSI**

Face grain of plywood must run at right angles to its support. Plywood suggested in layout assumed to be A.P.A. plyform Class I, B-B exterior type PS 1-95 or equal in "as new" condition. Customer must make suitable allowances for lower grades or condition of plywood used.

TITLE: 20KA SHORING LAYOUT	**DATE:** 12/14/2007
PROJECT: SOHO HOTEL	
LOCATION: 246 SPRING STREET NYC	
CUSTOMER: DI FAMA CONCRETE	

Patent Construction Systems
Harsco Corporation
PATENT CONSTRUCTION SYSTEMS
1500 Lower Road
Linden, New Jersey 07036
(732) 396-1289

DRAWING NUMBER: 4607K070

SHEET NO. 1

APPENDIX “C”
Report on Patent Aluminum Shores Tests
ATLSS Lehigh University

LEHIGH UNIVERSITY

Structural Testing Laboratories
Fritz Engineering Laboratory
13 East Packer Avenue
Bethlehem, PA 18015-4729
(610) 758-5498 Fax (610) 758-5902

June 15, 2009
FL2009.1208.1

Dan Eschenasy
Department Chief Structural Engineer
NYC Buildings
280 Broadway, 7th Floor
New York, NY 10007

Subject: Testing of Shoring Towers for NYC Buildings

Dear Mr. Eschenasy,

On May 4th and 5th, 2009, six shoring towers were tested in the Fritz Lab Baldwin-Lima-Hamilton 5,000K testing machine. The 5,000K machine was calibrated on April 8, 2009. Three towers had concentric axial force applied, and three towers had eccentric axial force applied. Five string pot type displacement transducers were used to measure deflections for the eccentric load tests. The test types and results are summarized in Table 1. Before and after photos of the six test specimens are shown in Figures 1-12.

Load was applied to the towers using an H frame arrangement. A spherical bearing block was affixed to the bottom of the sensitive crosshead which loaded on a spreader beam which in turn loaded on two load beams. The concentric test specimens were loaded directly through the four columns using spacer blocks on top of the screw jack feet. The three eccentric load tests were performed by moving the south load beam so that the center of the load was 2" outboard of the centerline of the screw jack. The North load beam was centered over the screw jacks. Stringer beams were also placed on top of the screw jack feet for the eccentric tests. The bottom screw jack extensions were 12" for all tests except Tests 3 and 5, which had no bottom screw jacks. The top screw jack extensions were either 18" or 21".

Table 1: Summary of Test Results

Test	Test Type	Btm SJ [in]	Top SJ [in]	Total Height [in]	Max Load [lbs]	Failure mode
1	Concentric Load Tower "A"	12	18	136	159,000	Racking
2	Concentric Load Tower "C"	12	18	136	154,500	Racking
3	Concentric Load Tower "B"	None	18	130	152,100	Racking
4	Eccentric Load (Various Components)	12	18	136	61,300	Screw jack buckling
5	Eccentric Load (Various Components)	None	21	133	52,100	Screw jack buckling
6	Eccentric Load (Various Components)	12	21	139	56,400	Top plate fractured

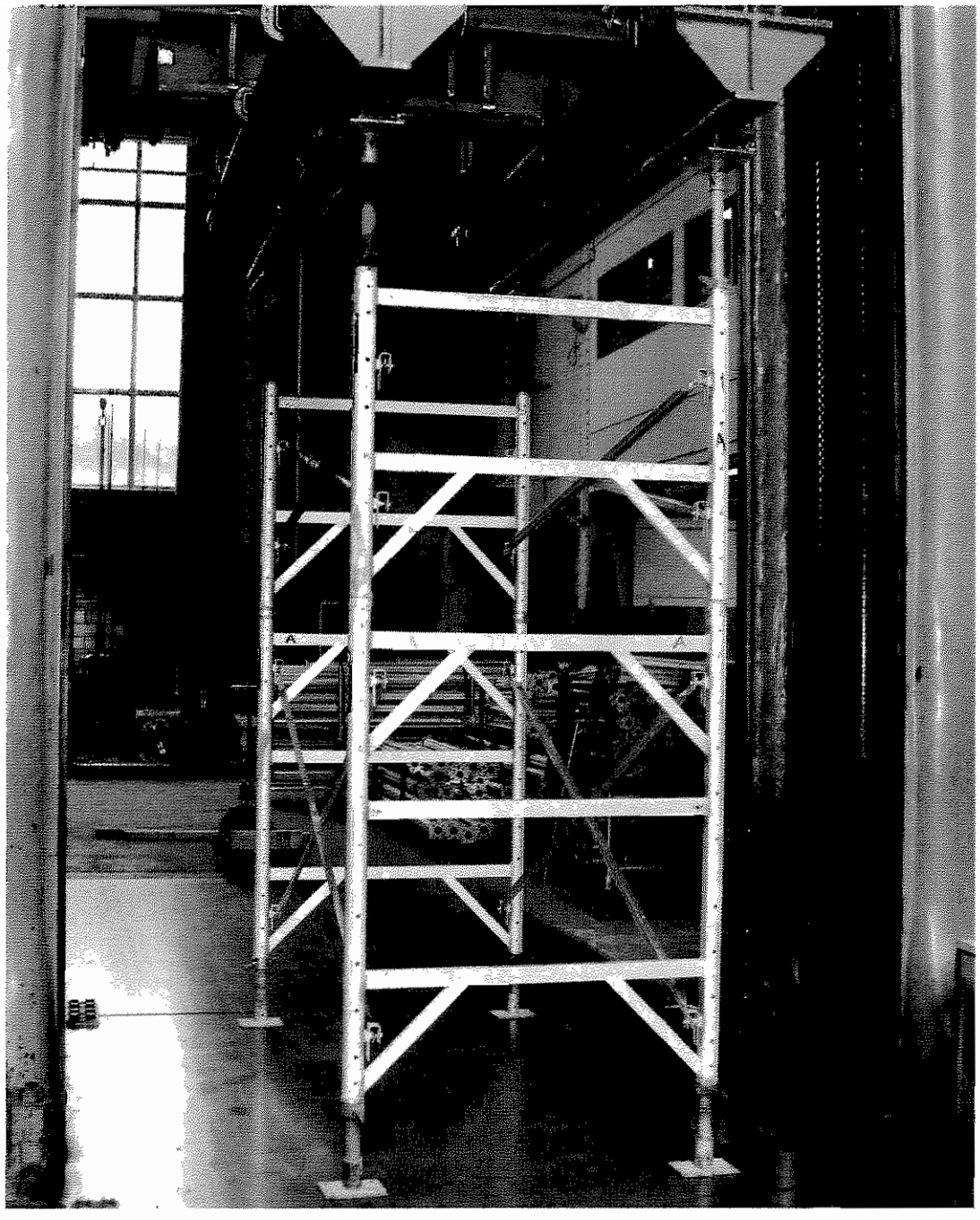


Figure 1: Tower 1 Pretest

The results of the project presented in this report are provided on an "AS IS" basis. University makes no warranties of any kind, express or implied, as to any matter whatsoever, including, without limitation, warranties with respect to the merchantability or fitness for a particular purpose of the project or any deliverables. University makes no warranty of any kind with respect to freedom from patent, trademark, copyright or trade secret infringement arising from the use of the results of the project, deliverables, services, intellectual property or other materials provided hereunder. University shall not be liable for any direct, indirect, consequential, punitive, or other damages suffered by Sponsor or any other person resulting from the project or use of any deliverables. Sponsor agrees that it shall not make any warranty on behalf of University, express or implied, to any person containing the application of the results or any deliverables of this project.

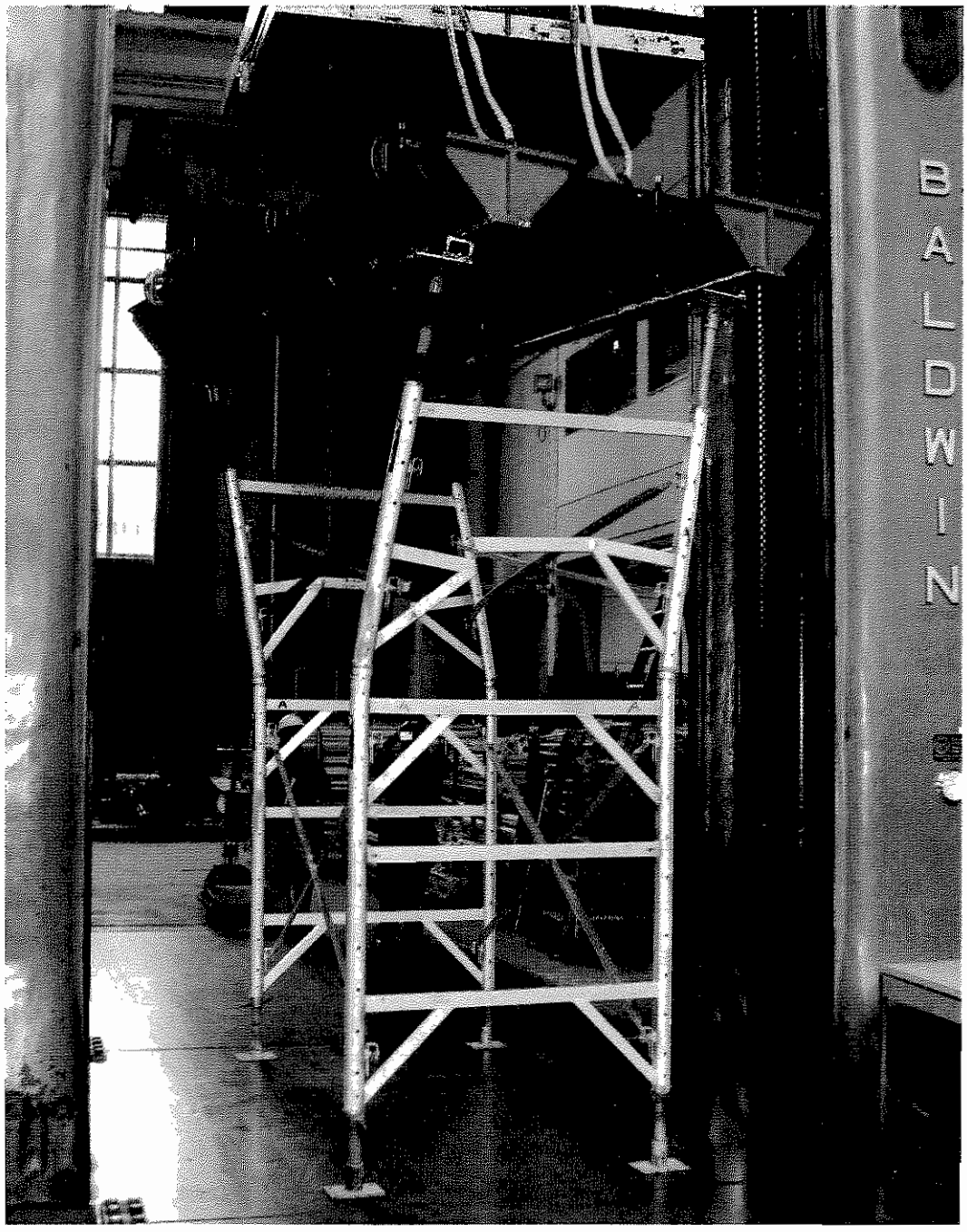


Figure 2: Tower 1 Post Test

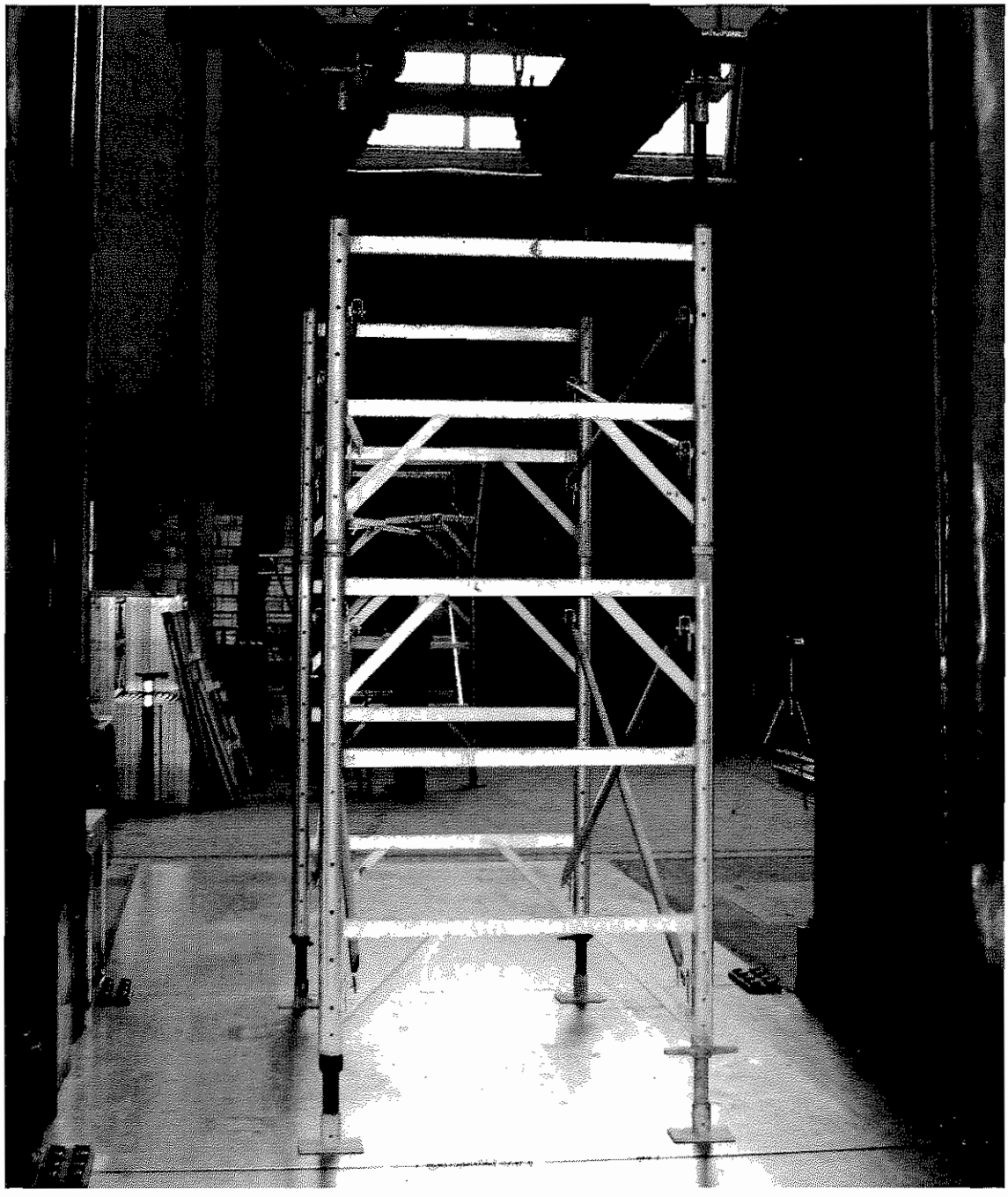


Figure 3: Tower 2 Pretest

Figure 4: Tower 2 Post Test

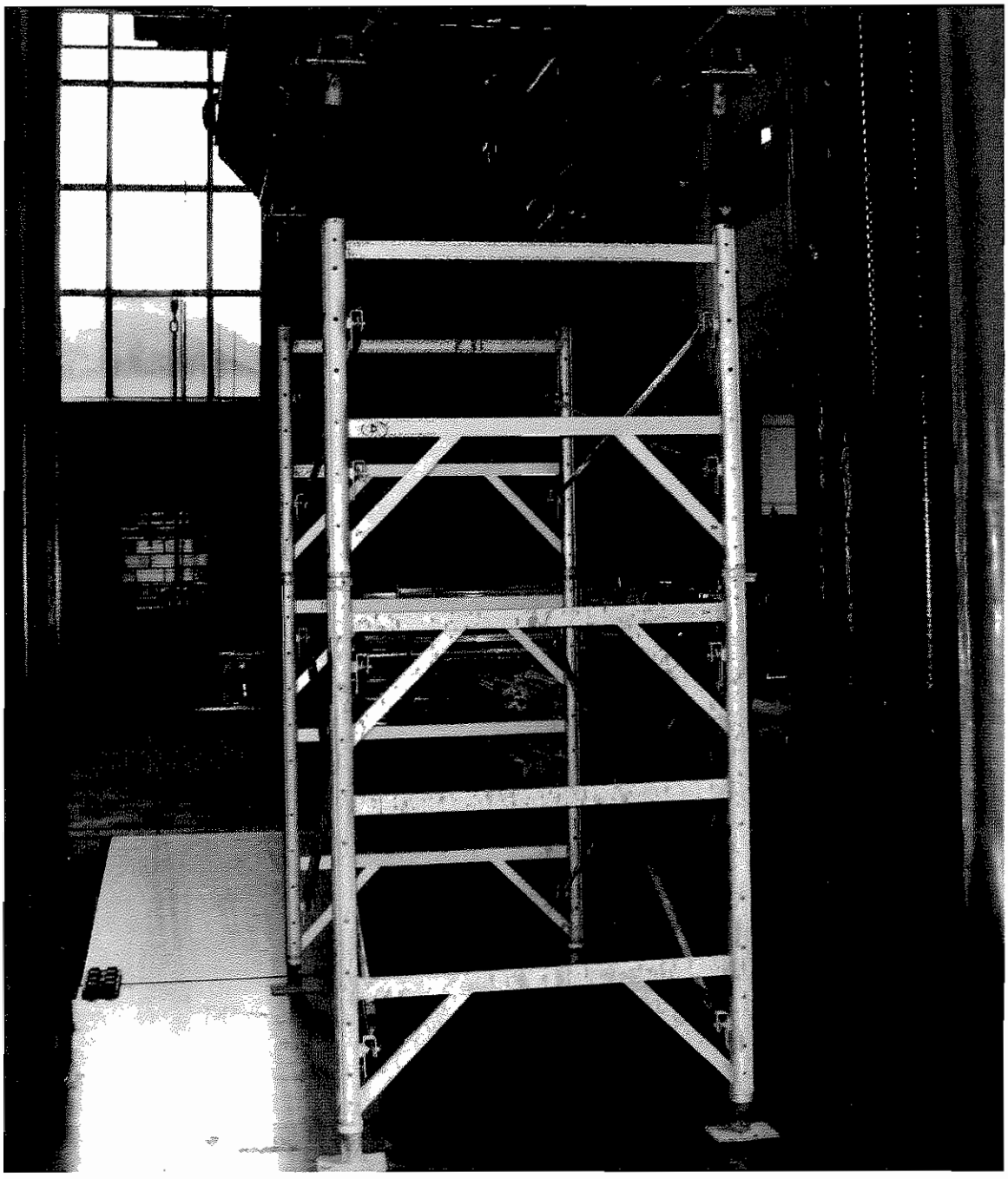


Figure 5: Tower 3 Pretest

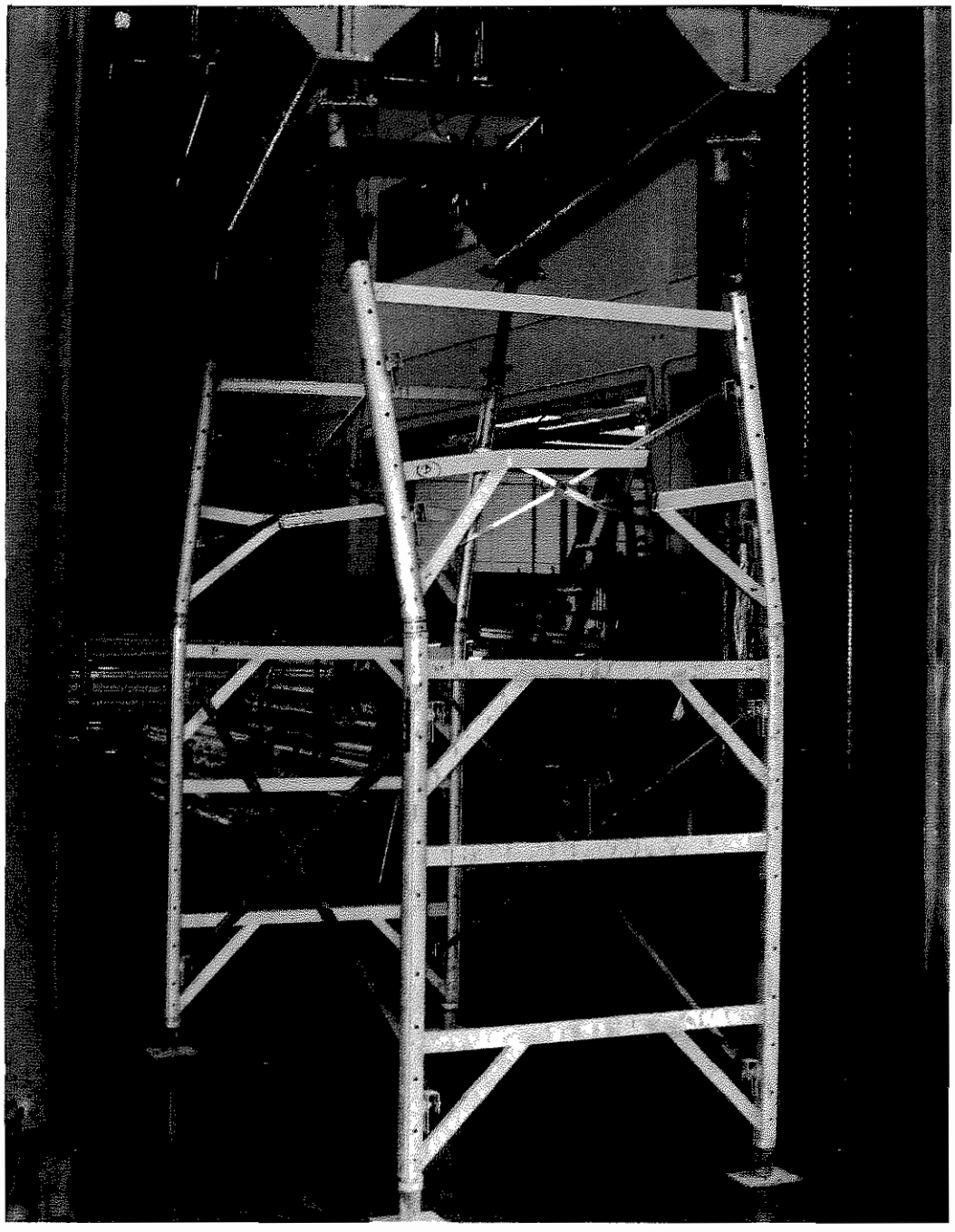


Figure 6: Tower 3 Post Test

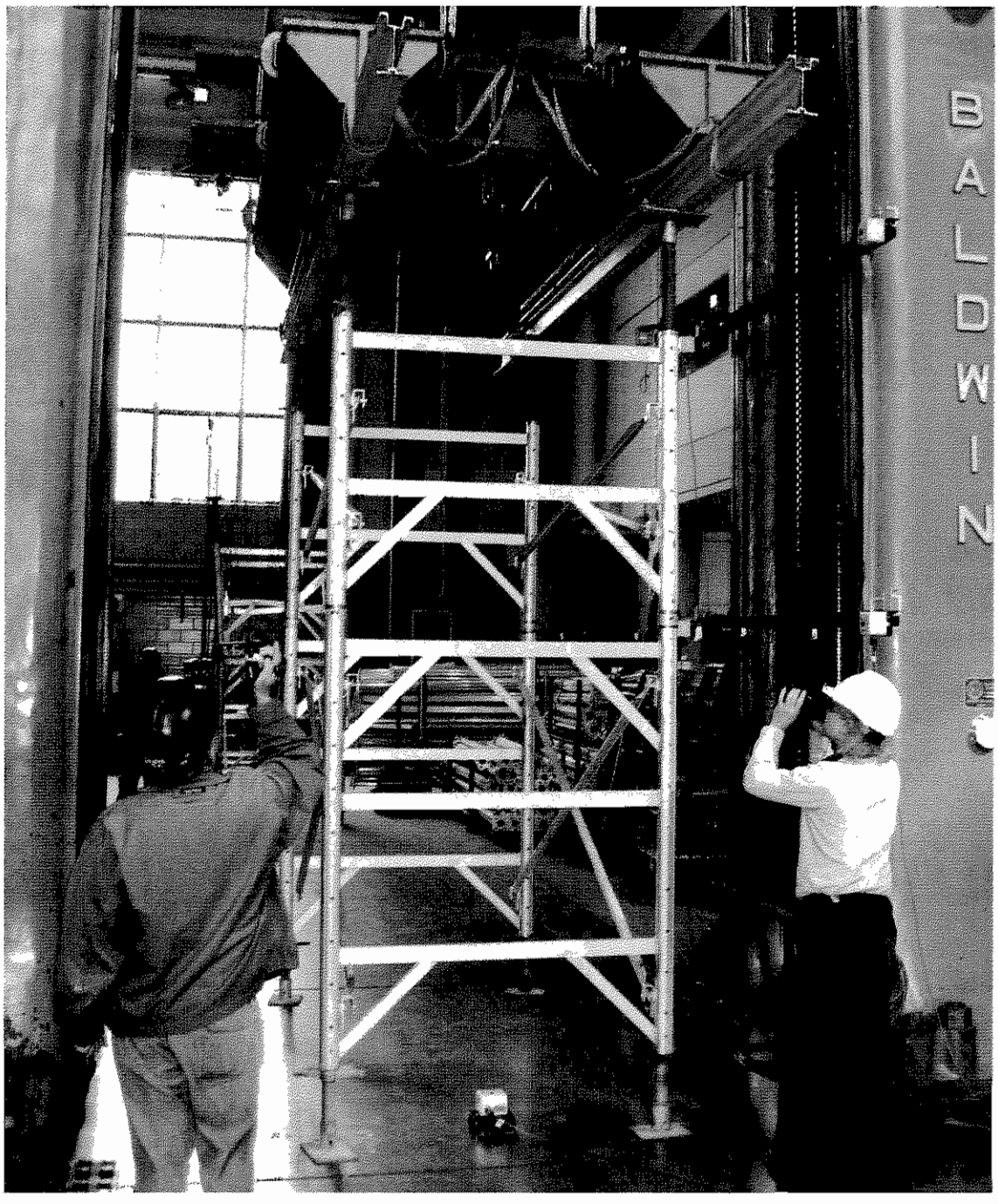


Figure 7: Tower 4 Pretest

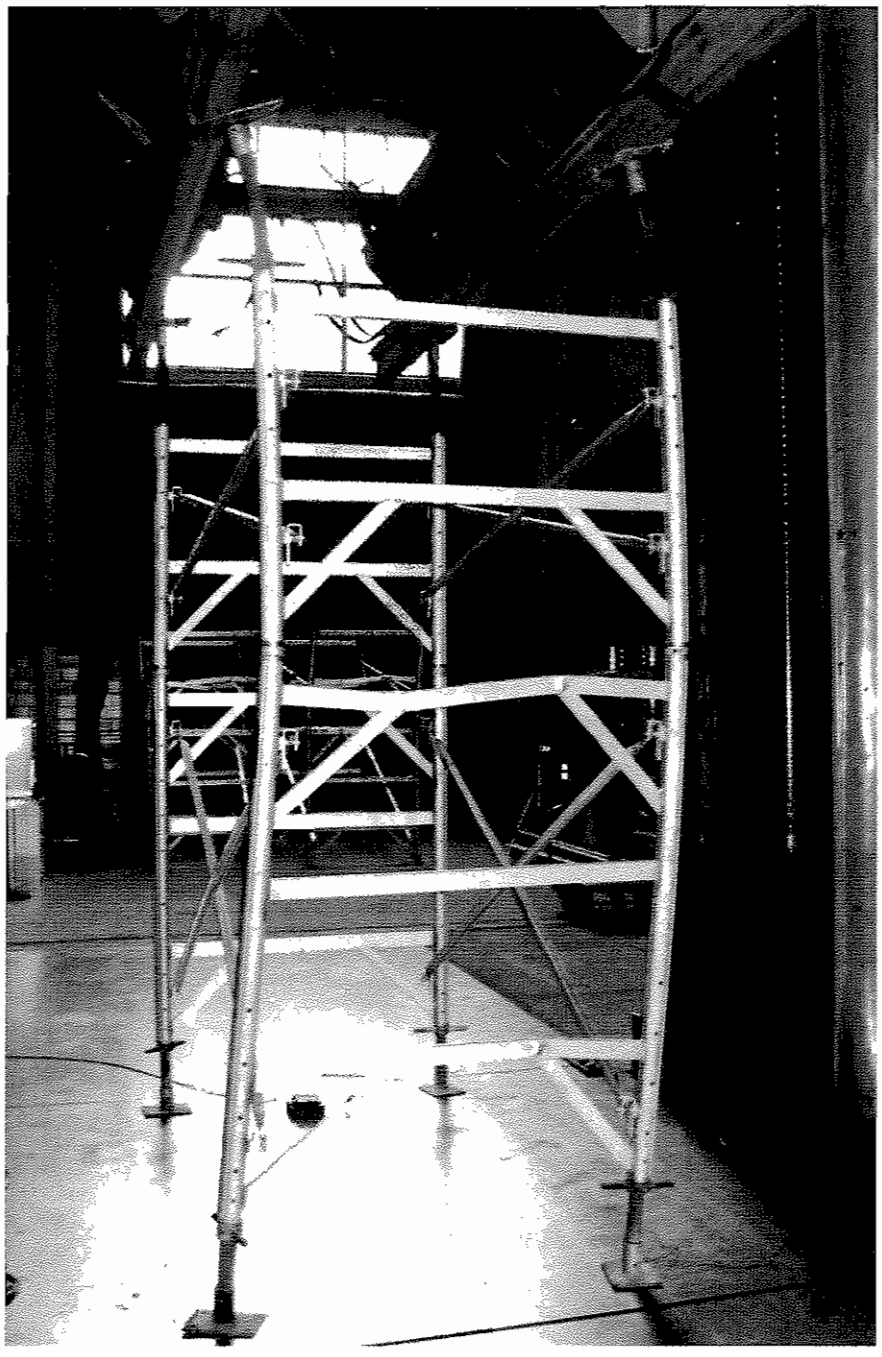


Figure 8: Tower 4 Post Test

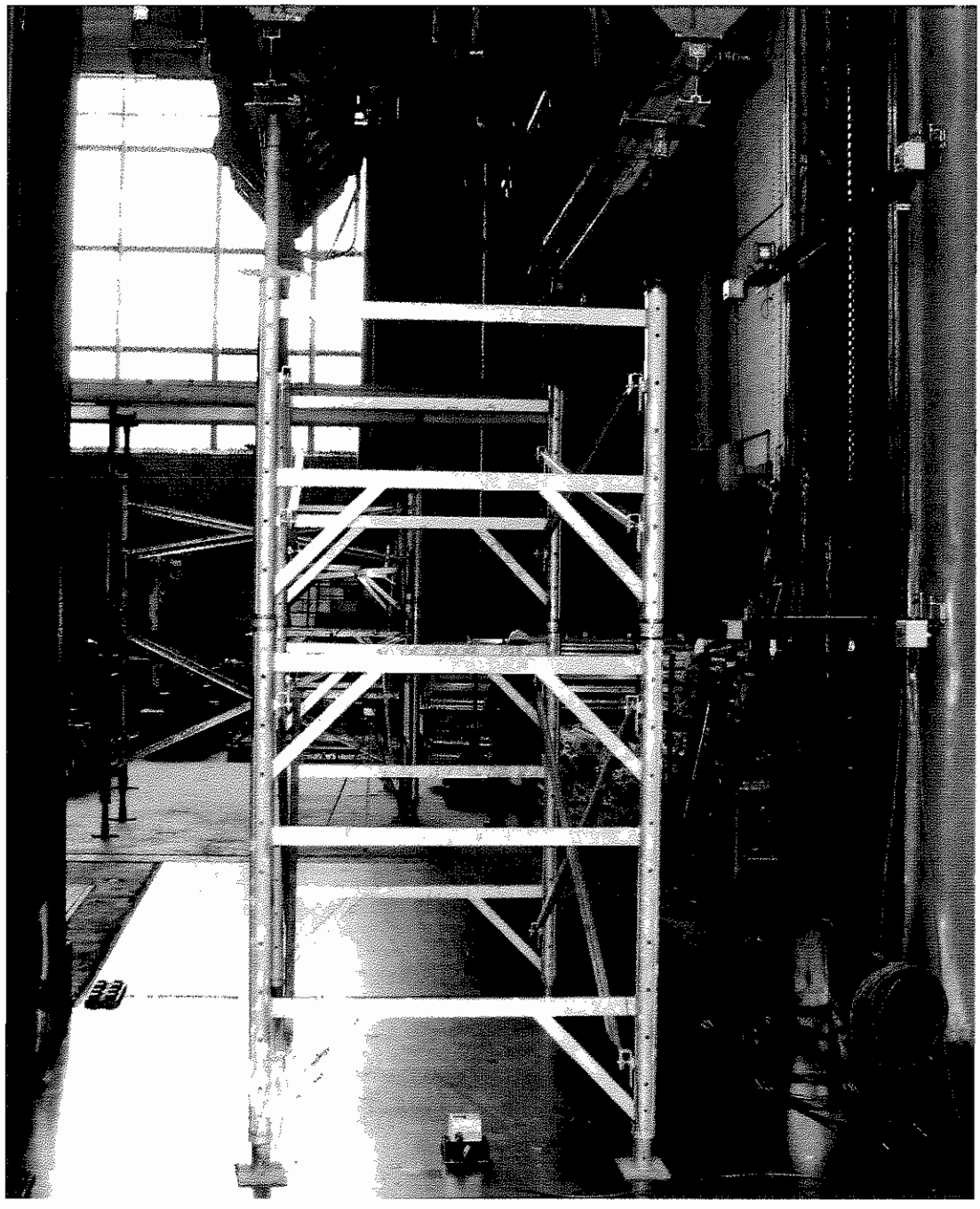


Figure 9: Tower 5 Pretest

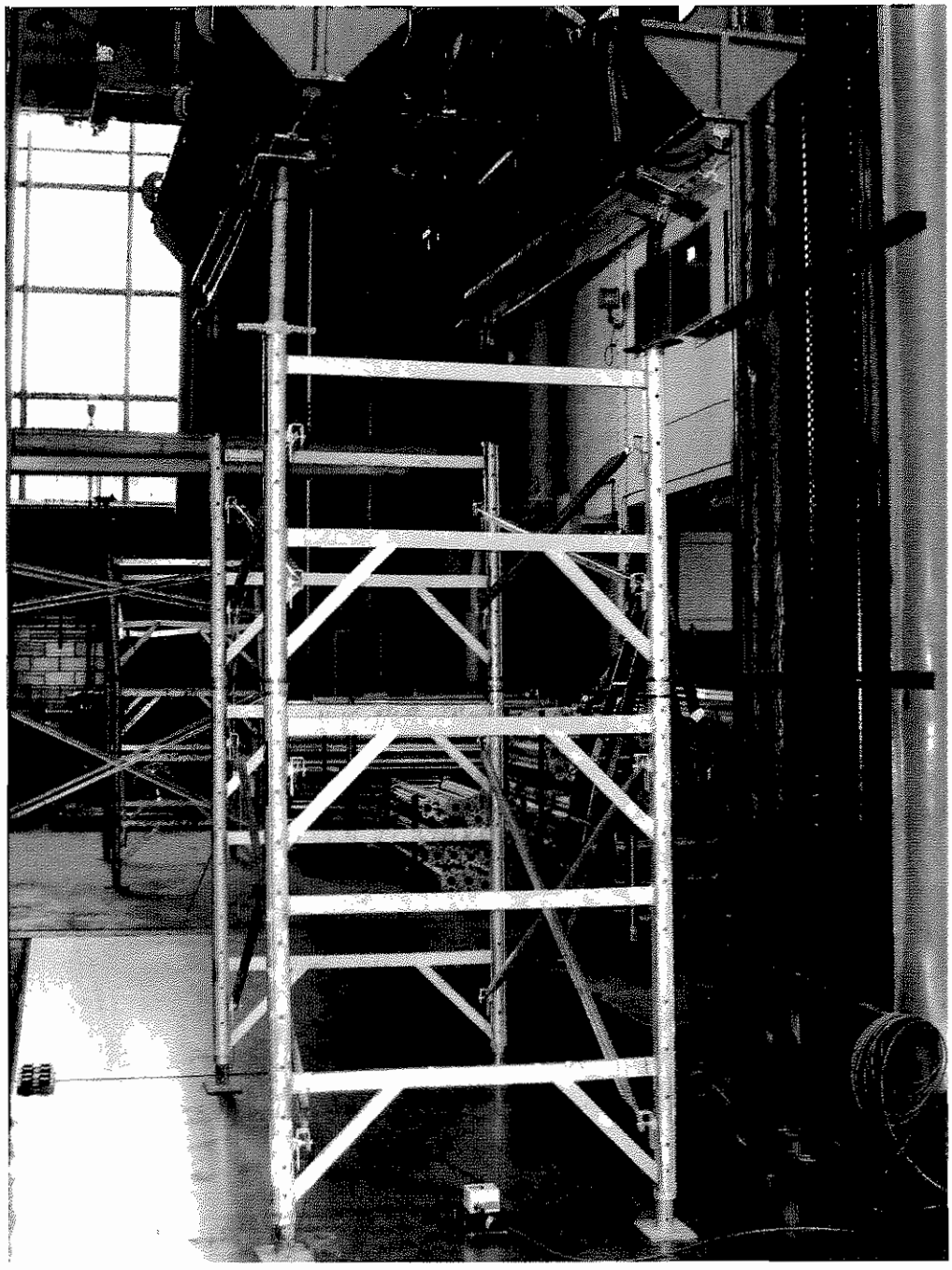


Figure 10: Tower 5 Post Test

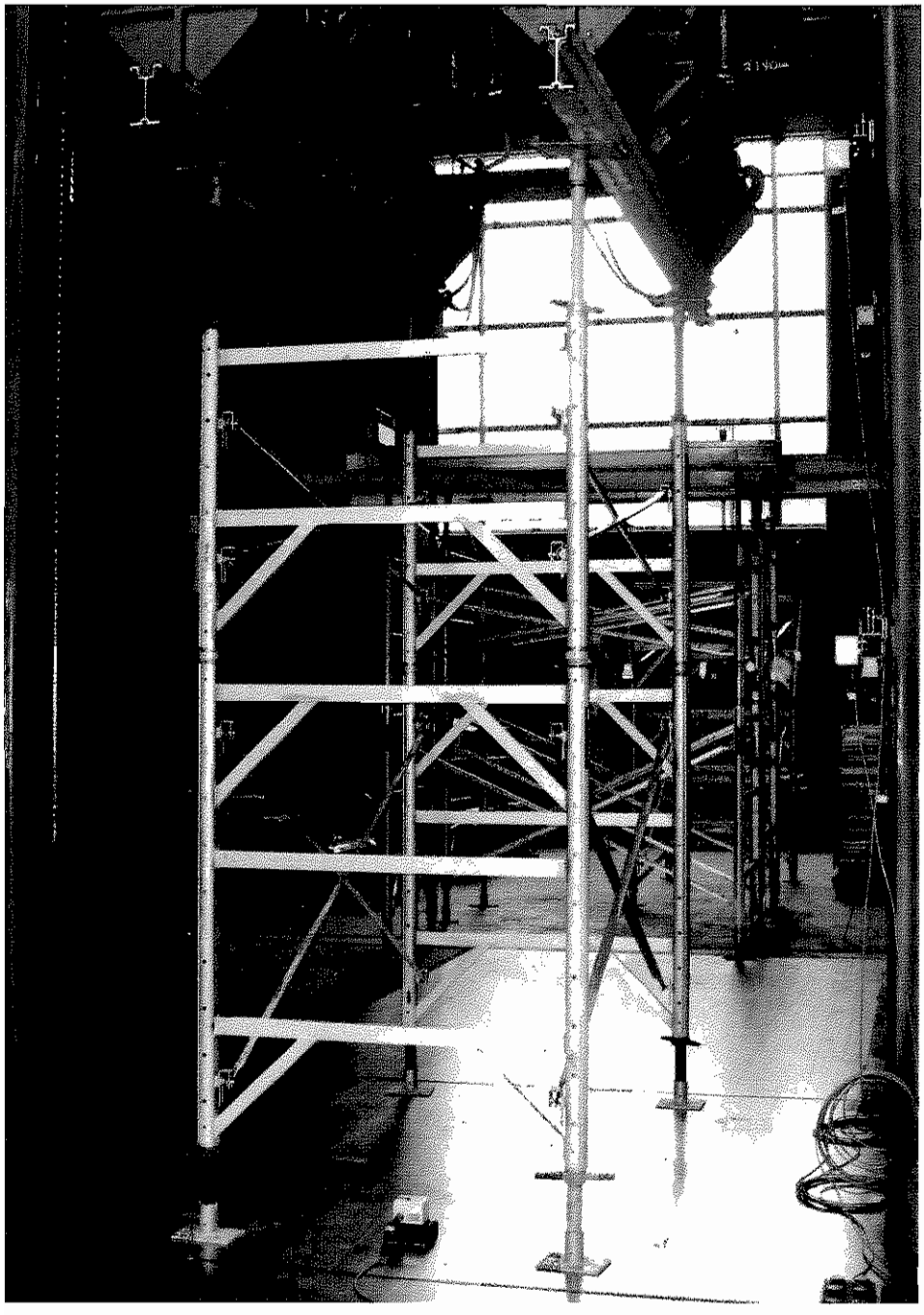


Figure 11: Tower 6 Pretest

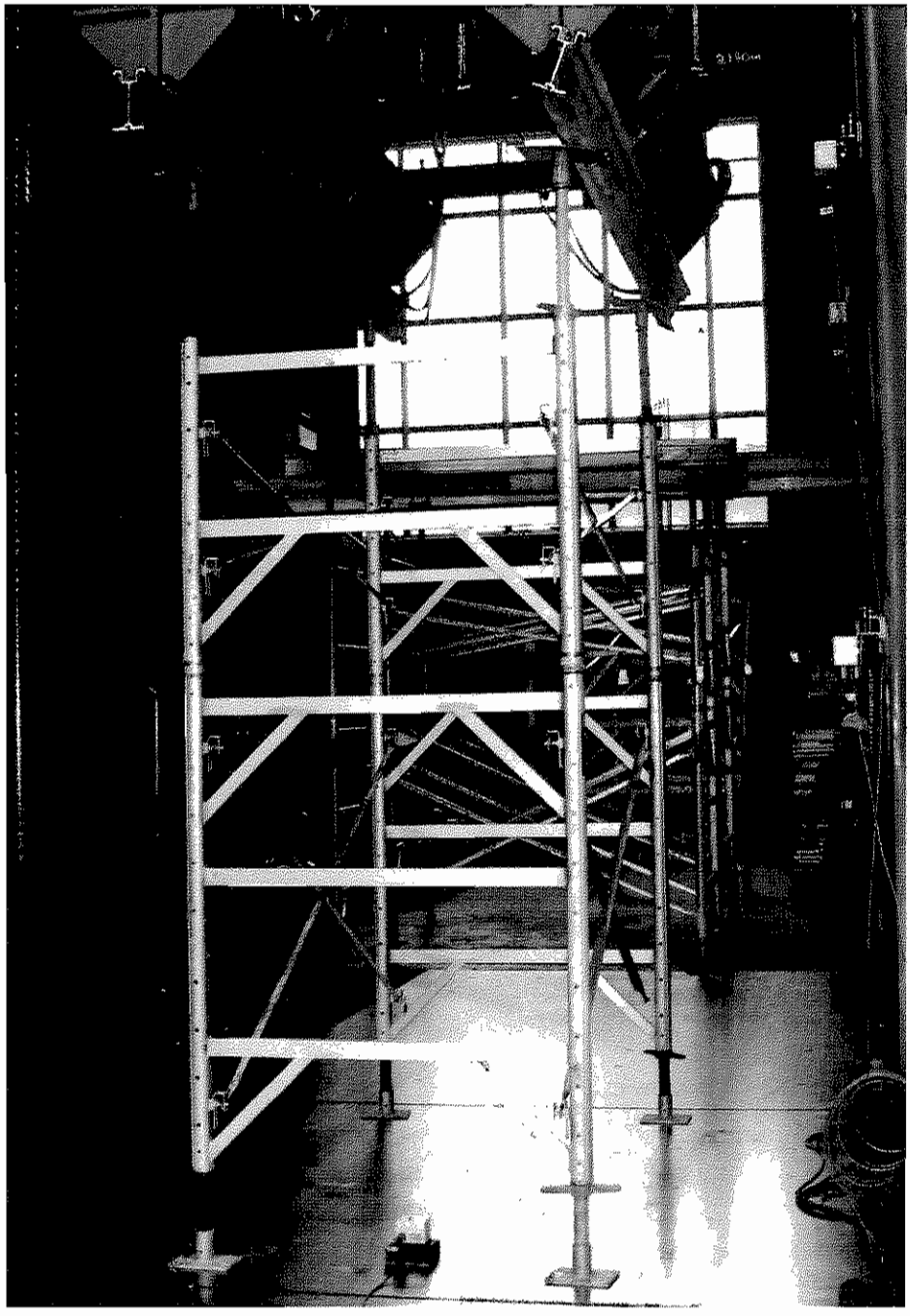


Figure 12: Tower 6 Post Test

The locations of the sensors used for the testing are given using the cardinal directions. Figure 13 Shows the North and South directions relative to the 5,000K testing machine. Figure 14 shows the five string pots and their designations. The vertical string pot measured the total axial compression deflection of the tower. The remaining four string pots measured the lateral deflection of the columns at the top of the screw jacks and at the bottom of the second tower tier.

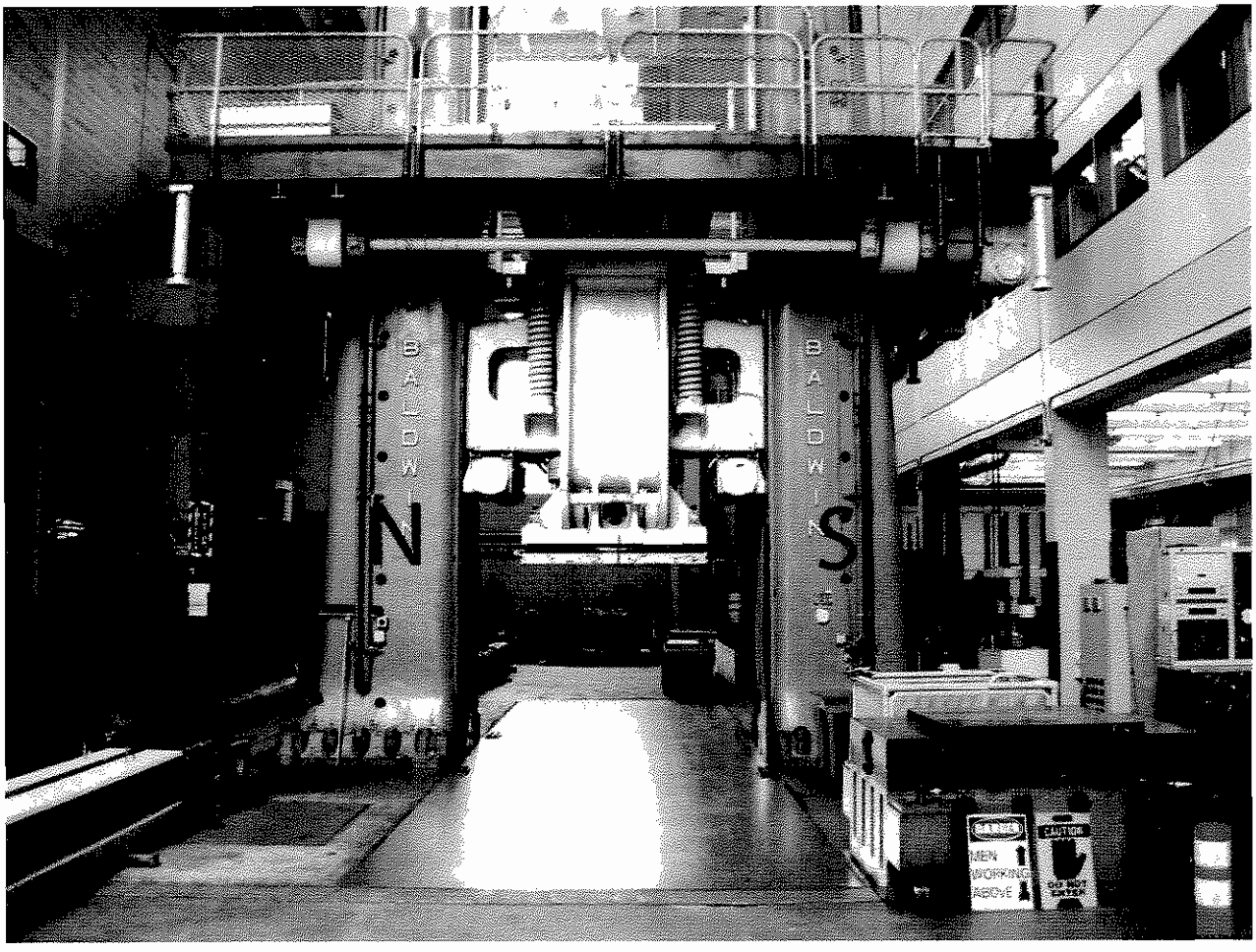


Figure 13: 5,000K Machine with Columns Labeled N for North and S for South West is in front of the machine, and East is in the back

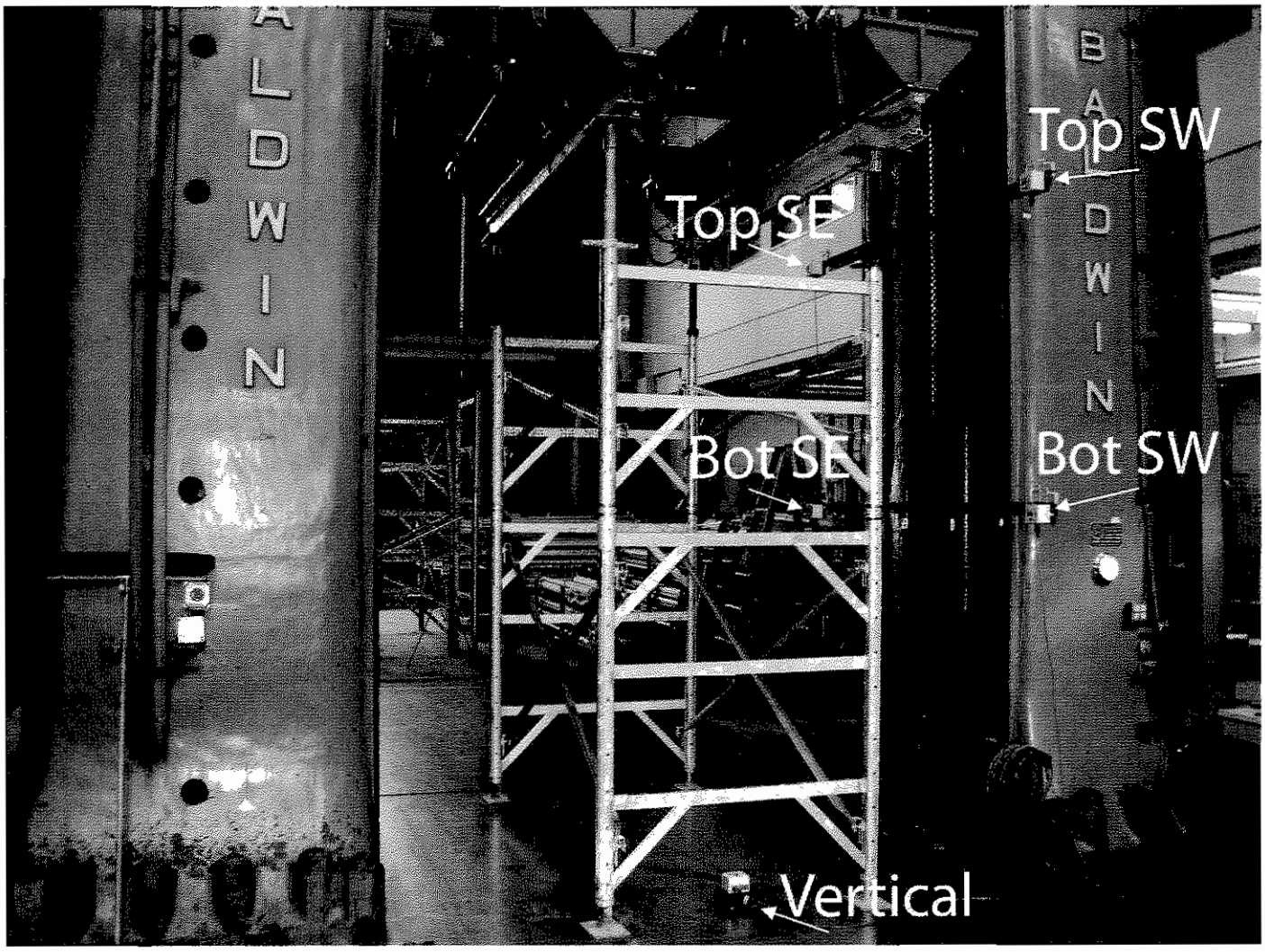


Figure 14: Location of String Pots

Included with this report is a CD containing the 5,000K testing machine calibrations certificate, additional test pictures, load deflection plots for the three eccentric load tests and an electronic copy of this report.

Sincerely,

Robin J. Hendricks

Cc: Frank E. Stokes – ATLSS

APPENDIX “D”
Documentation and Preparatory Documents for Shoring Layout

SH 40113 40G

BOTTOM PL — NOT FULLY IN

SH 40122 40G

FRACTURE

AB 40008 12FT OA 40B

AB 40009 40A 12FT OA

AB 40007 40C 12FT OA

AB 40010 40A 12FT OA

AB 40020 40G 12FT OA

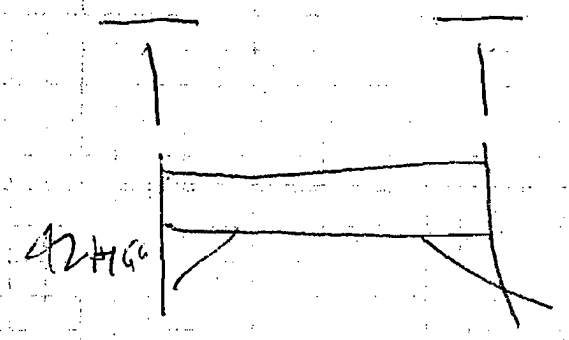
COMPLETE

1 NAIL

AB 40014 40G-F

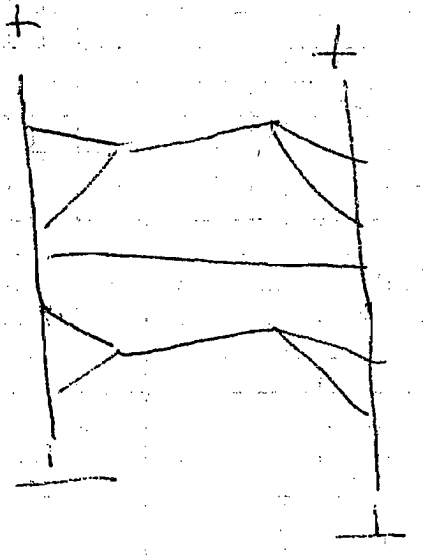
15" BURN

GH 40109 40B



attached with wire-buried white lead OF TOP PIECE

GH 40102 40F



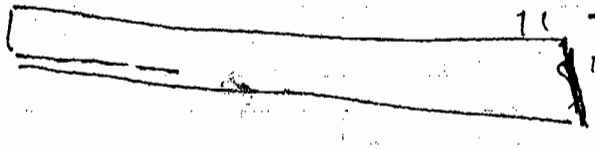
64 HGH

AB 400 11 RETAG NO AREA
NAILS ON TOP 12 FOOT

AB 400 12 40A
NAILS ON TOP 12 FT

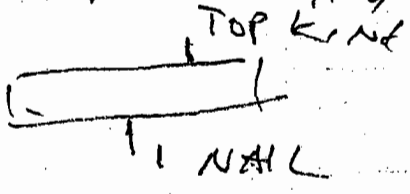
AB 40013 40G-F
12 FT 4 BOT

AB 40042 41G 2 NAILS ENDS



SKIP TAKEOFF LOCATION

AB 40001 41G 12 FT



TB 40010 – 65"
TB 40017 – 64"
TB 40016 – 58¼"

PS 40002 - 137¼"
PS 410047 - 135½
PS 40007 - 86¾
PS 4100 - 3 - 191¼"

SH 40062 (B) - 45¾"
SH 40133 - 45½
SH 40117 - 21"
SH 40128 - 45"
SH 4476 - 48"
SH 41044 - #348 - 16½
349 - 60"
350 - 50"

SH 40066 - 99"
SH 40052 - 107½"
SH 40055 - 107½"
SH 41054 - 86½
SH 40061 - 99"
SH 40064 - 99"
SH 40065 - 99"
SH 40067 - 99"
SH 41142 - 52¾"
SH 40112 - 40J - 19½
SH 40116 - 40F - 19½
SH 40071 - 40B 19½

641 - 32" 3x4

234B - 48½ 4

601 - 31"

636 - 15"

495 - 29"

642 - 32"

448 - 28"

502 - 3x4 - 32"

201A 9"

201B 9" } (4x4(2))

395 3x4 80"

642B 4x4 - 37"

TB 400[illegible] 3x4 - 18¾

TB 400 68 - 20½

TB 400 69 - 24½"

TB 400 70 - 48"

TB 400 71 4x4 77"

TB 400 72 3x4 - 54"

TB 400 61 - 3x4 40"

TB 400 62 - 33"

TB 400 63 (B) - 47"

TB 400 63 (C) - 33"

TB 400 64 - 18"

TB 400 65 - 18½"

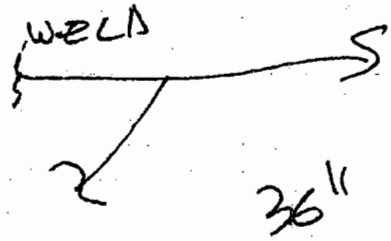
TB 400 66 4x4 - 39"

2¼ x 1"

SH 41170	41G	NO WELD ON PIECE
SH 41189	41F	
SH 41178	41FB	
SH 40044	40B	WELD ON 1 end
SH 41171	41G	
SH 40071	40F	
SH 40074	41F	

SA400 62B ZONE 40B
MEAS BY JAY
HAS WELDS ON BOTH END

SH 40016B 40F
2¼ x 1" 44"



SH 40041 40B

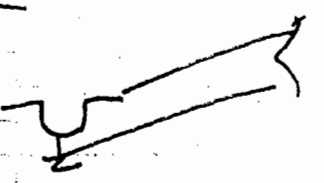
2¼ x 1 SH400886 40F — some wed

SH41184 41F

SF41187 41F — 21'

AB41041 41F

40" LG



276 Plywood 4x8

NO NAIL

SIGNED 2/25

TB 40-61

63 B & C

TB 40072

SH 40134

135

140 ——— No 6, 7, 8, 9

141

MS 40008

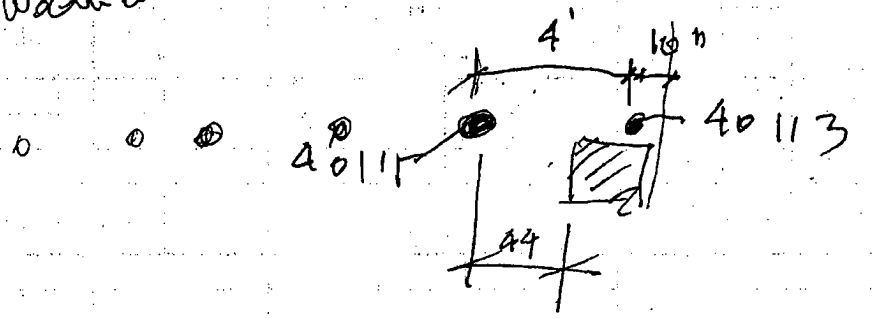
MS ——— 9/5

2/21/08 - JAY RUBINSTEIN BEST SQD.

42RC	3x4	39½"
509B	3x4	31-½"
605	3x4	32"
411		33"
415		33½"
604		18"
600		9½"
410B		15½"
593		16"
464		32½"
529		23½"
607	4x4	22½"
526	3x4	52"
474	3x4	63½"
443	4x4	72"
527	3x4	32"
468		33"
388		84"
391		90½"
386		46½"
573		32"

TB 40131	3x4	92"
TB 40132	3x4	99½"
TB 40133	3x4	43½"
TB 40134	3x4	106"
TB 40135	3x4	87"
TB 40136	3x4	20½"
TB 40137	3x4	43½"
TB 40138	3x4	24"
TB 40139	3x4	17½"
TB 40140	3x4	32"
TB 40141	3x4	43"
TB 40143	3x4	31"
TB 40144	3x4	90"
TB 40145	3x4	25½"
TB 40146	3x4	55"
TB 40147	3x4	40"
TB 40148	3x4	34"
TB 40144		29"
TB 40151	3x4	52"
TB 40152	3x4	31½"
TB 40153	3x4	51½"
TB 40154	3x4	34"
TB 40155	3x4	37"
TB 40156	3x4	24"
TB 40157	3x4	35"
TB 40158	3x4	67½"
TB 40159	3x4	54½"
TB 40160	3x4	60"

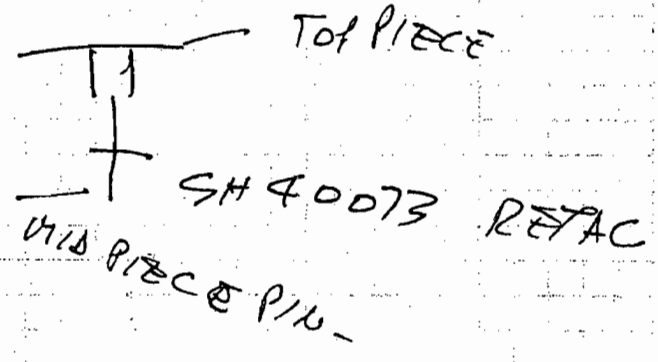
Width 20



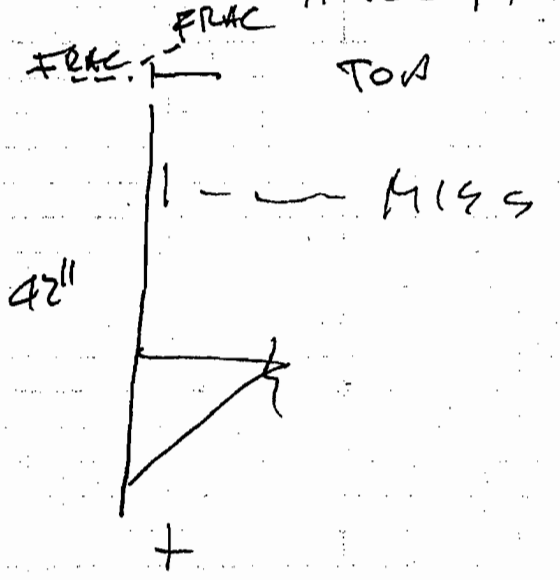
SH 40122
40123
40124
40125
40126
AB 40019
SH 40127 enclosure
SH 40128 frame
GH 40139

TB40131 ⟶ TO 40160

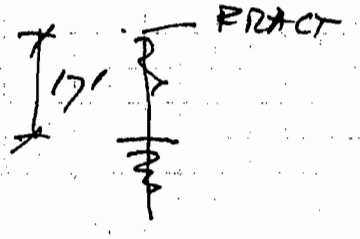
SKIP #50
142



SH 40017 40B



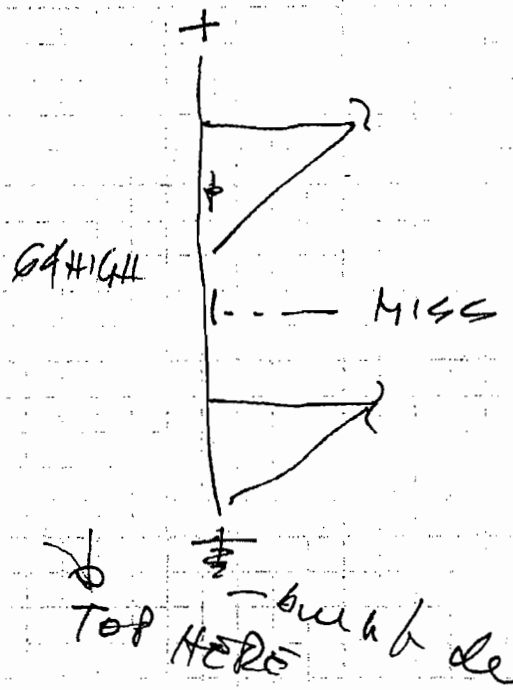
SH 41053 41F



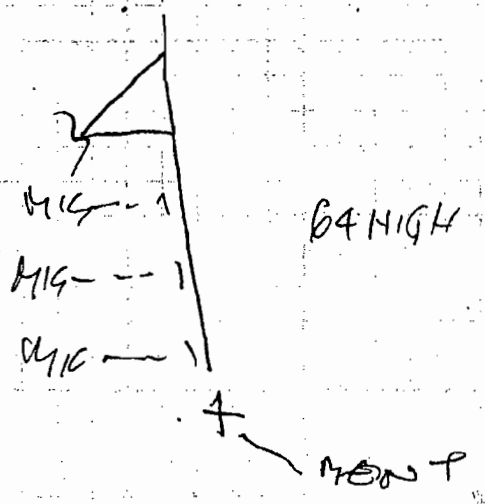
591 = 31½"
473 - 64"
530 = 31"
495 - 32"
438B - 40½"
577 - 31¾"
568 - 14"
576 - 31¾"
432C - 34"
477 - 83"
445 32"
578 - 23"
478 - 31½
515 - 14"
570 - 72"

571	3x4	32"
436B		38"
442		32"
431B		41"
542		42
580		
543		41½
465		48"
524		57"
580		18"
546		13½
509	4x4	41"
467	3x4	36"
225		32"
437B		49"
492		30"
491		58"
540		61½"
404		48"
472		32"
414	1x4	29½"
418B	2 2x4	26½
591	4x4	32"
473	1x4	64"
530	3x4	31"
495	3x4	32"
438B		41"
577		32"
439B	3x4	40½

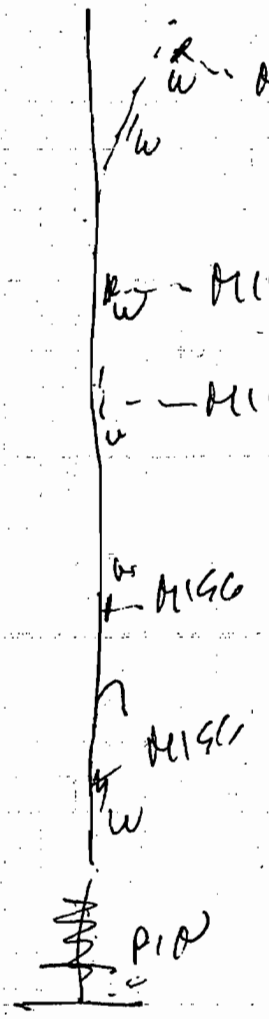
SH 41 16T 41G



SH 400P7 40F



SH 40198 40 L
Sheared



62" H

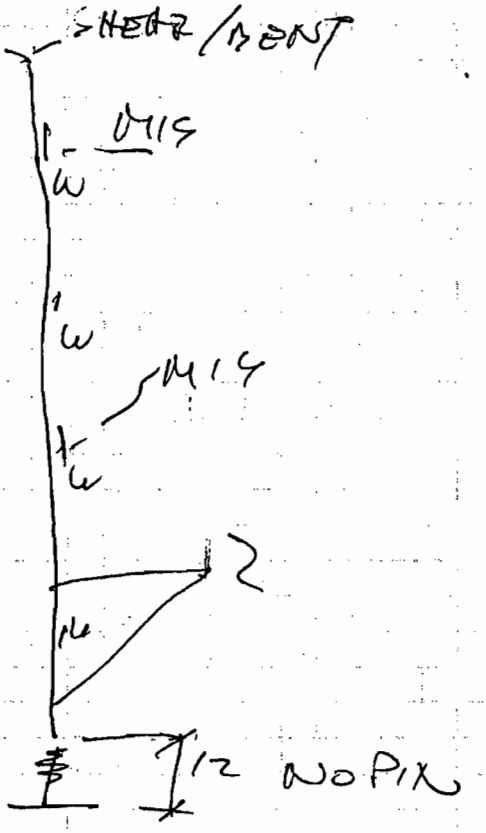
3/3 SIGNED

TB 40200 → TB 40268

SH 40217 → SH 40223
SH 40224
SH

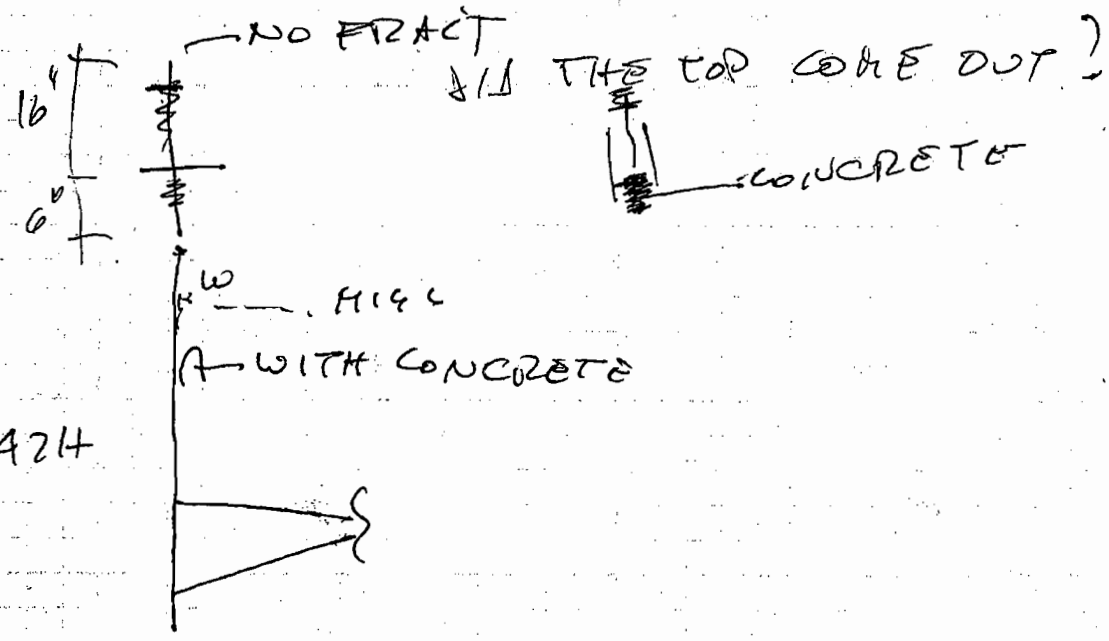
MG 40015

GH40202 40C

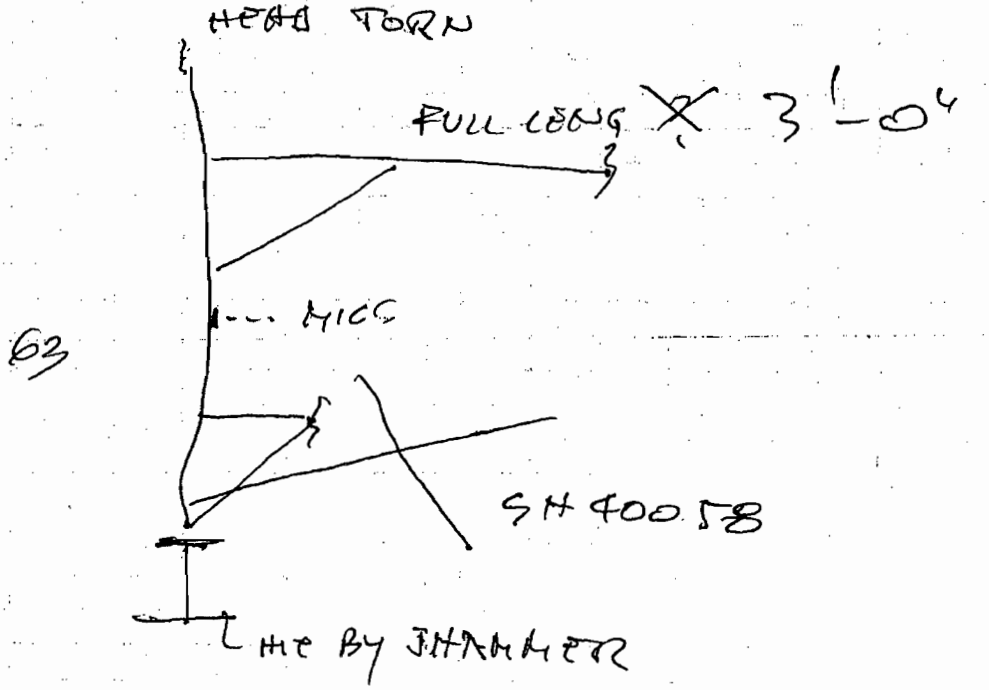


GZH

SH 40204A 40C

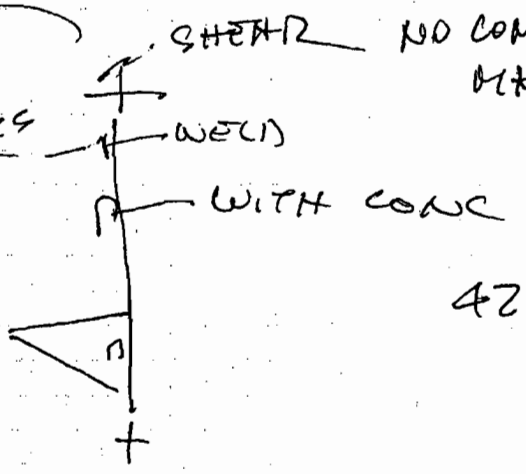


SH 40057 40B

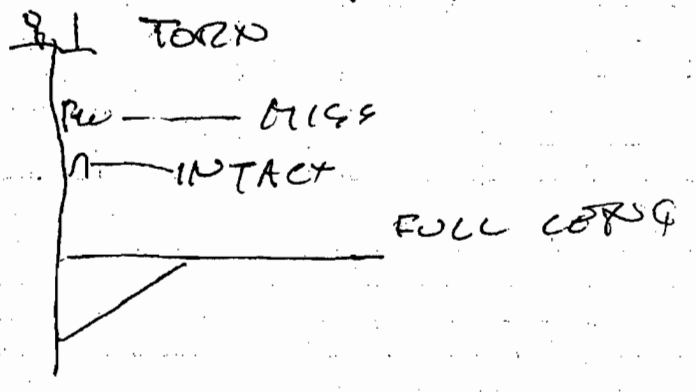


SH40138 CONNECT TO SH 40166

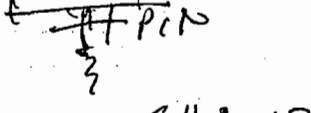
SH40120



SH 40166 4OF



SH40120



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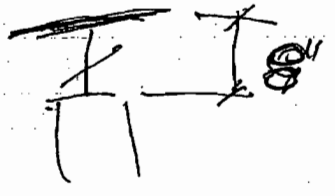
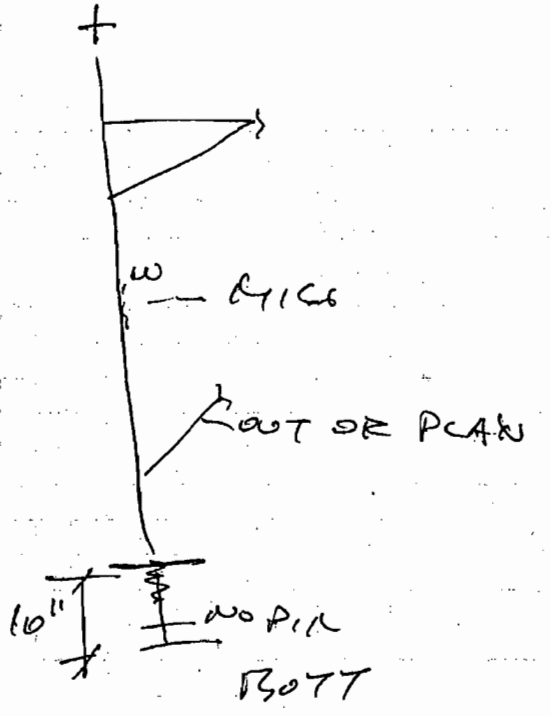


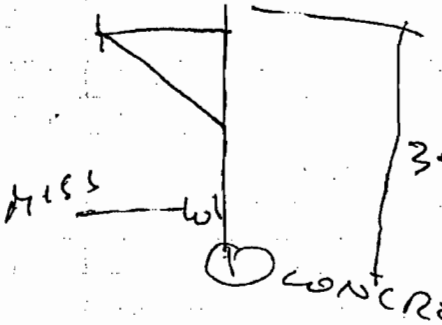
SH 40062 40B



63H

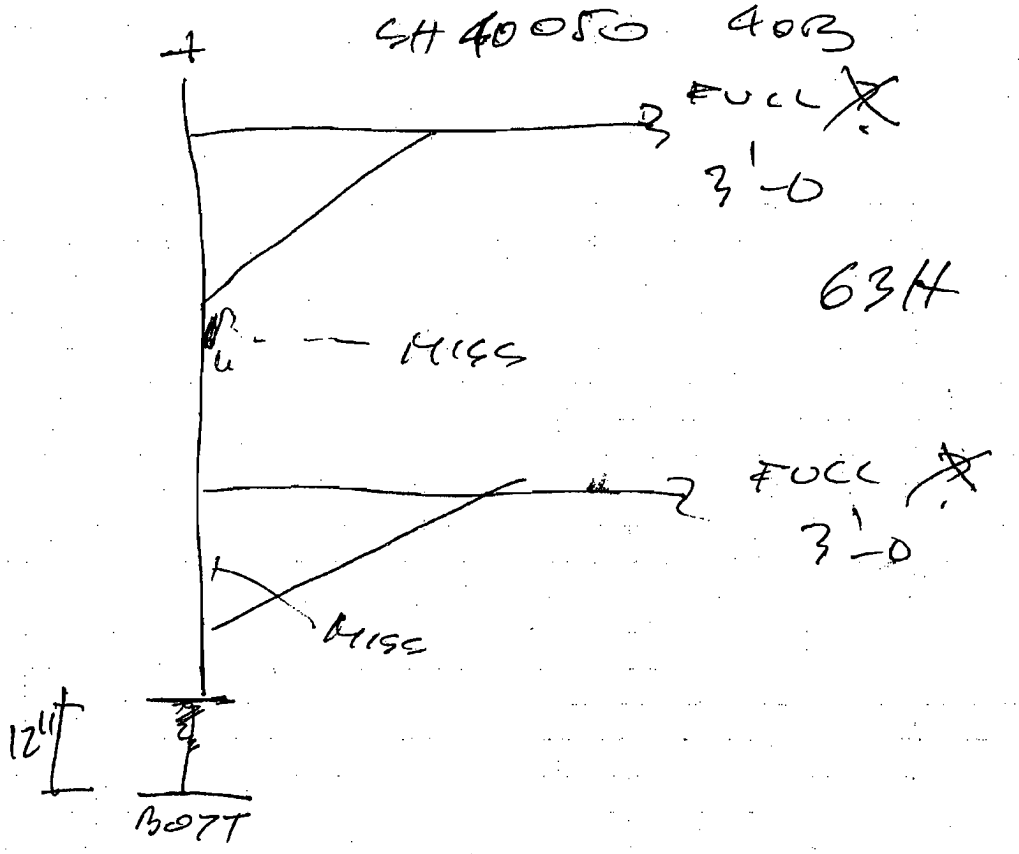
C

SH40072 40B



42H ?

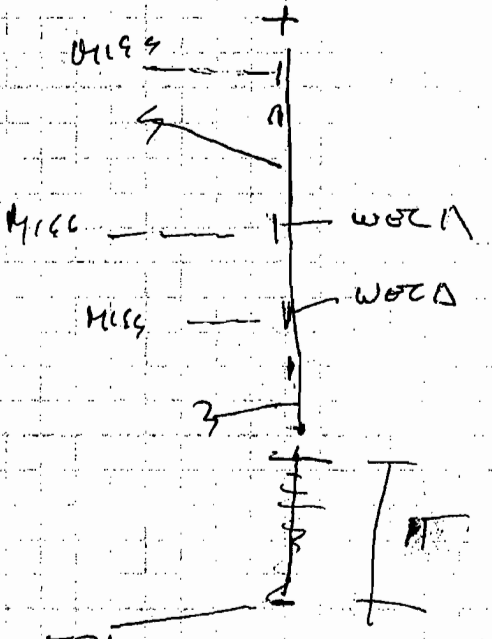
BROKE AND FOUND SHEARED END



SH 40120 40E

1" NO FIT

SH 40143 406



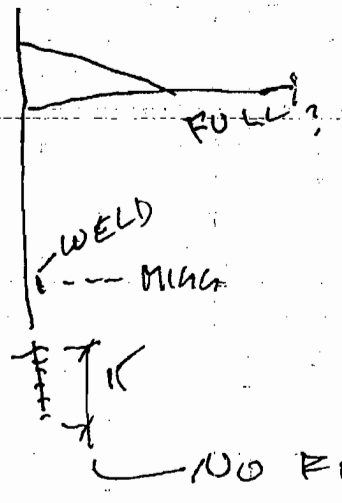
64 HIGH ±

NOT CLEAR TOP OR BOTT

PROBABLY

NO FRACT - NOT CLEAR NO HOLE FOR PIN

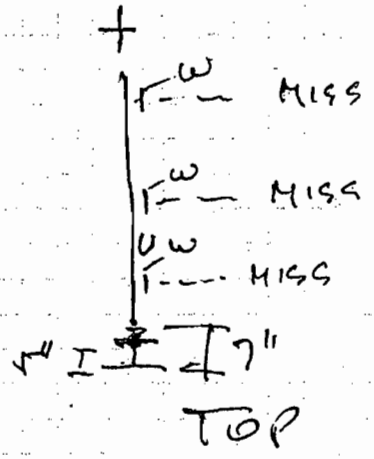
SH 40088 40F



42" HIGH

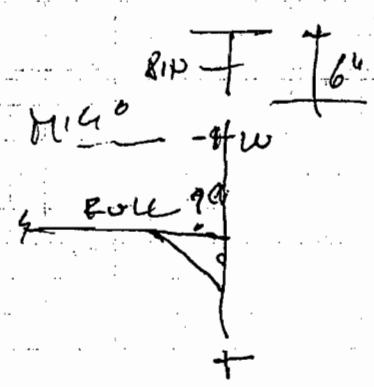
GH40191
406-E

42 H



GH40170 406

GH40103 40'F

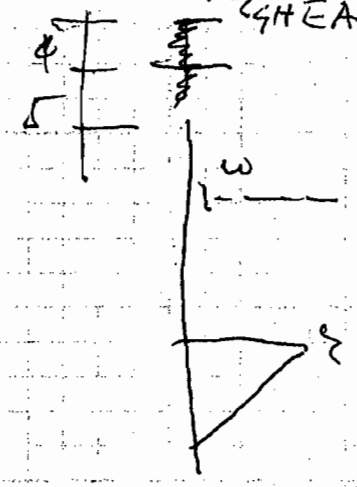


42" H.

GH 40021 40G

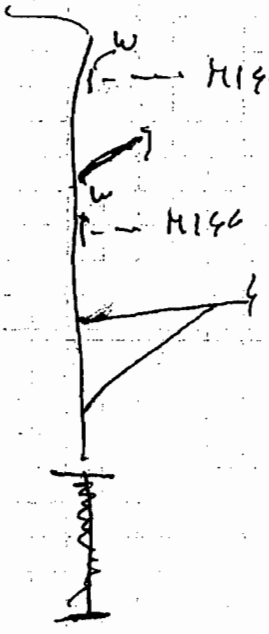
NO SHEAR - HOLE PIN RECESS OUT

PAINT MARK

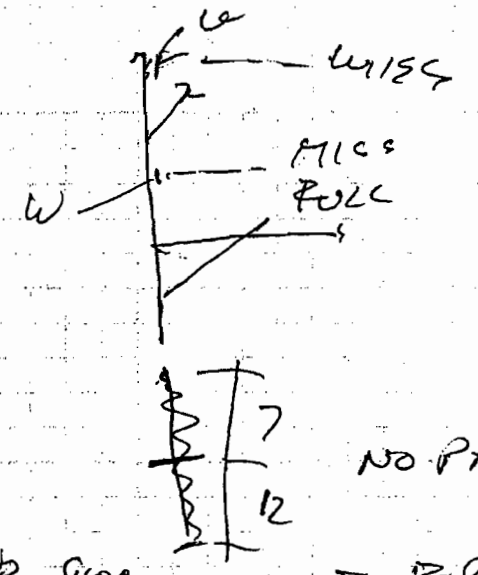


GH 40180 40G

Heated (demo?)



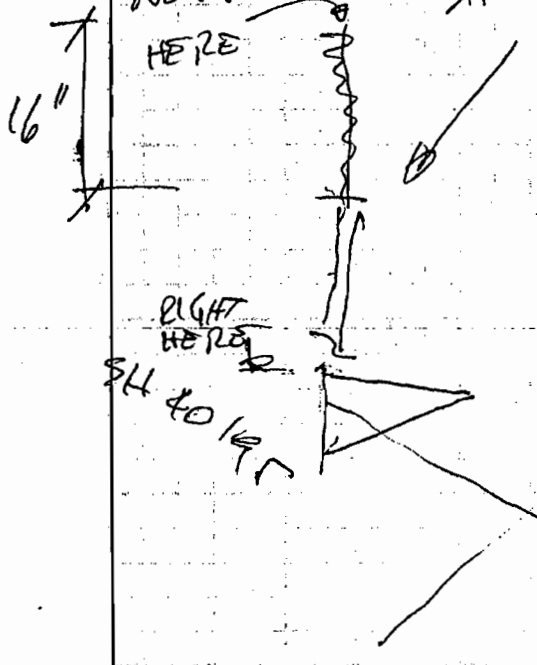
SH40163 40 G



63H

NO PAINT (NOT CONCRETE)

NO SHEAR - HOLE FOR PIN EXISTS



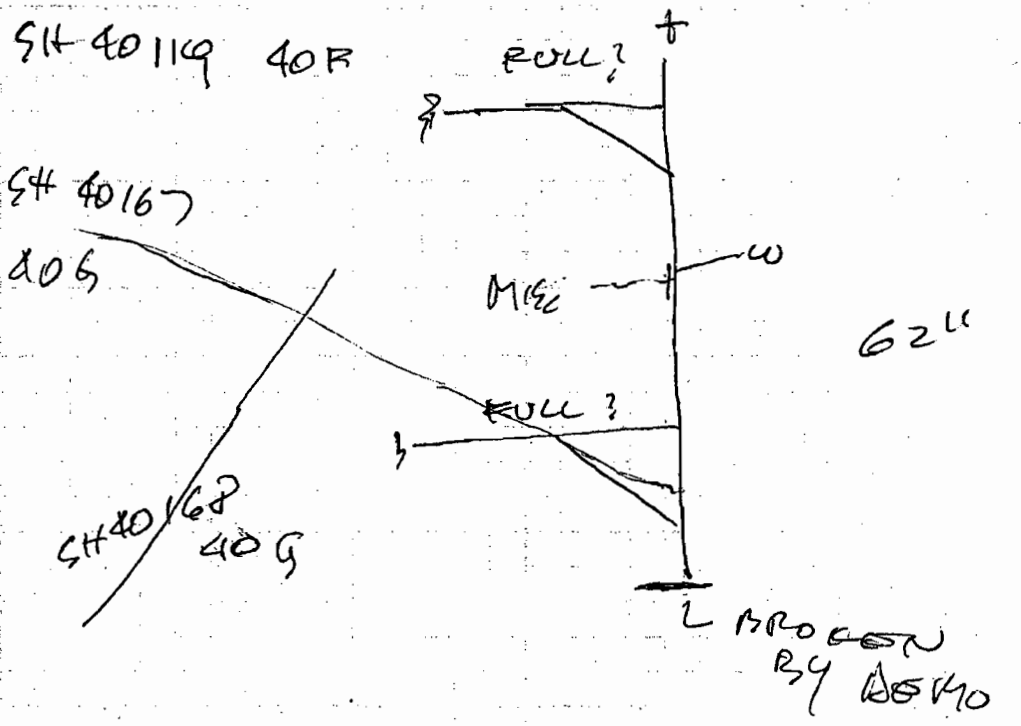
SH 40196 40C

CLEARLY THIS ONE WAS FRACTURED AT ACCIDENT

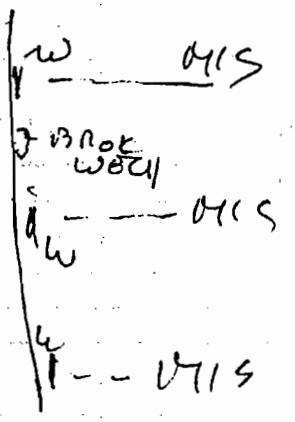
42H163

SH40181 broken by jack hammer

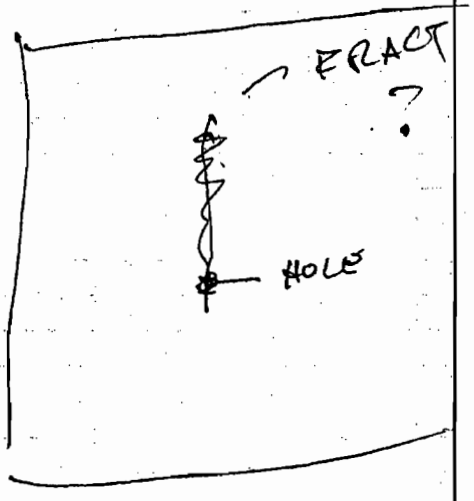
SH40182



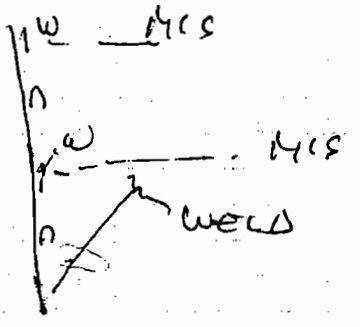
SH 40 13F 40G



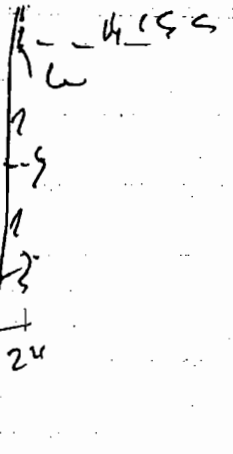
42"



SH 40 12G 40F

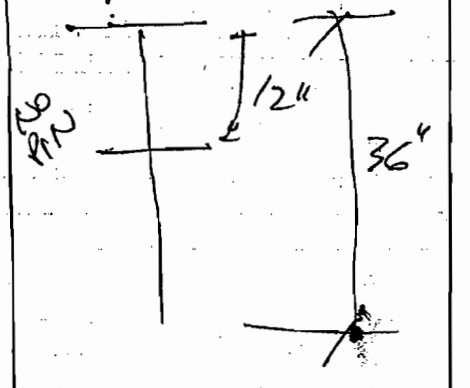


SH 40 16F 40G



42 H

SH 40 13I 40G
A LITTE BENT



TOP INSERT

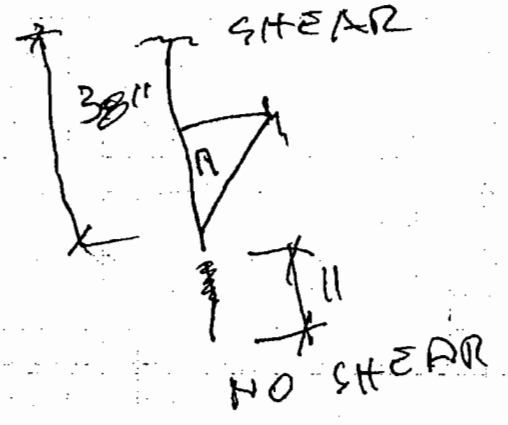
I 6
A

MG 40012
40BC
BFT

MG 40012
40B-C
BFT

AB 40014B 40C-B

SH 40207



BOT ?

2/29 SIGNED

SH 40207 A&B
201

MG 40012
13

TR 40067
95

(71A&B) 87ABC

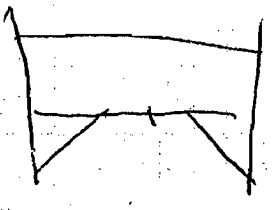
WW
W

ALT { AB 40015 40E
AB 40016 40F
AB 41041 41G

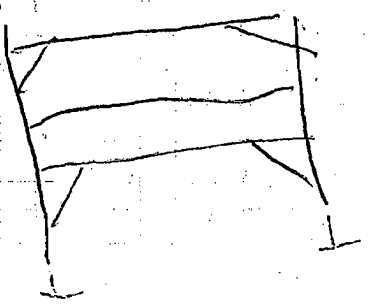
SH 41028 41G

BOLT ? T-SHEAR

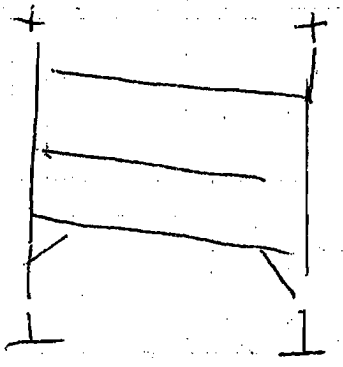
42H



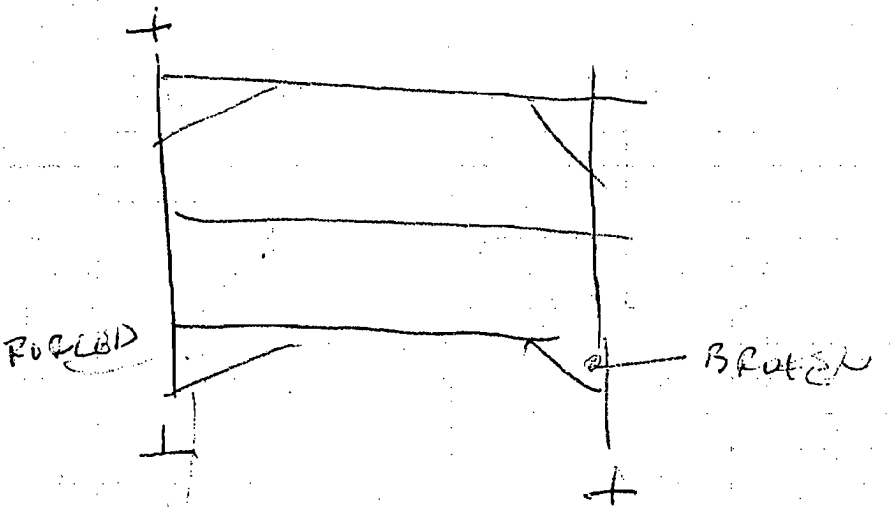
SH40026 40A



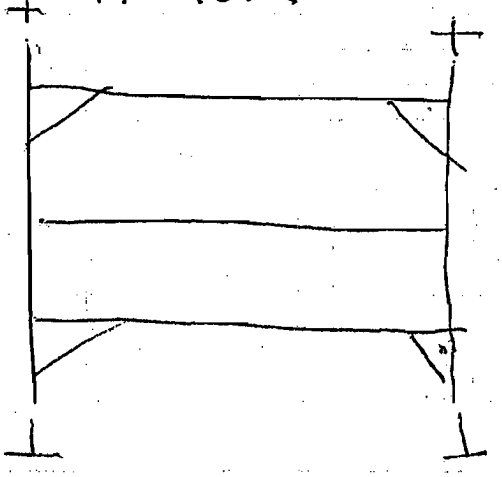
SH40069 40A



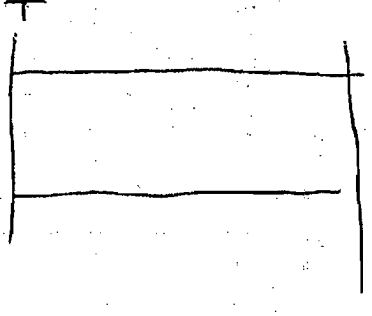
9H 40076 40F

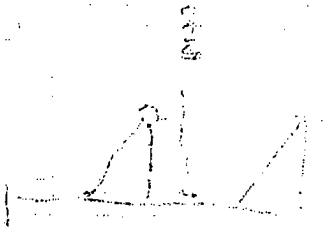


9H40097 40K



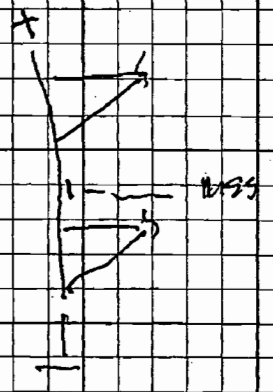
9H41024 41F





SH400879

4 of



2/28 SOW

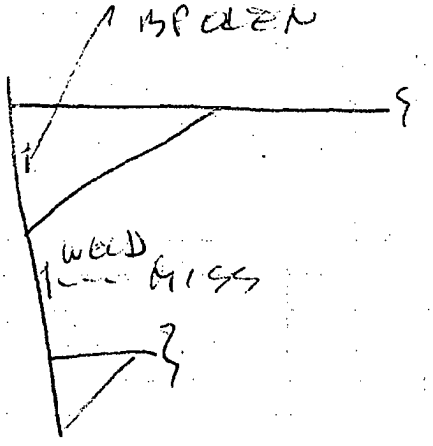
SH 401855

SH 402055

MS 400065

SH 401455

GH 41173 41G



GH

GH 40105 40G.

1 WELD — MISS

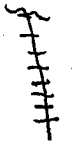
1 WELD BROK PIECE — MISC

1 WELD — MISC

PIN

GH 41193 41F SHOE

MG 40005 40B

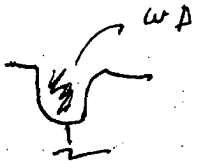


14" LG

MG 40005 40B LAT SUP

MG 40004 40G "

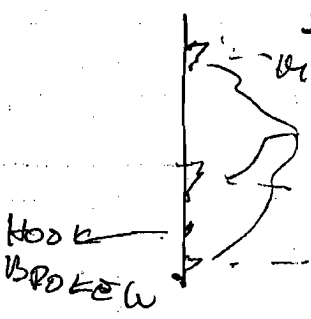
GH 40141 PIECE 2¼x1 15" LG



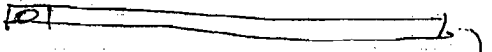
AB 41044 41F

104 LG.

SH 40134 40G



SH 40144 40G



33" LG

FRACTURED WITH CONCRETE ON IT.

SH 40077 40F

SH 41151 41G

SH 40136 40G

BRACE 111" lg

CONOTUBE CWT —

MS 40003 A&B 51-55
40F

MS 40009 A&B
40F
2W - 24

MS 40011 A&B 40F
45-11

2/22

SIGNE

SH 40 149
SH 150
MS 40008

SH 40 151
SH 40 163

DES - 40009
MS 1 10
MS 40 11

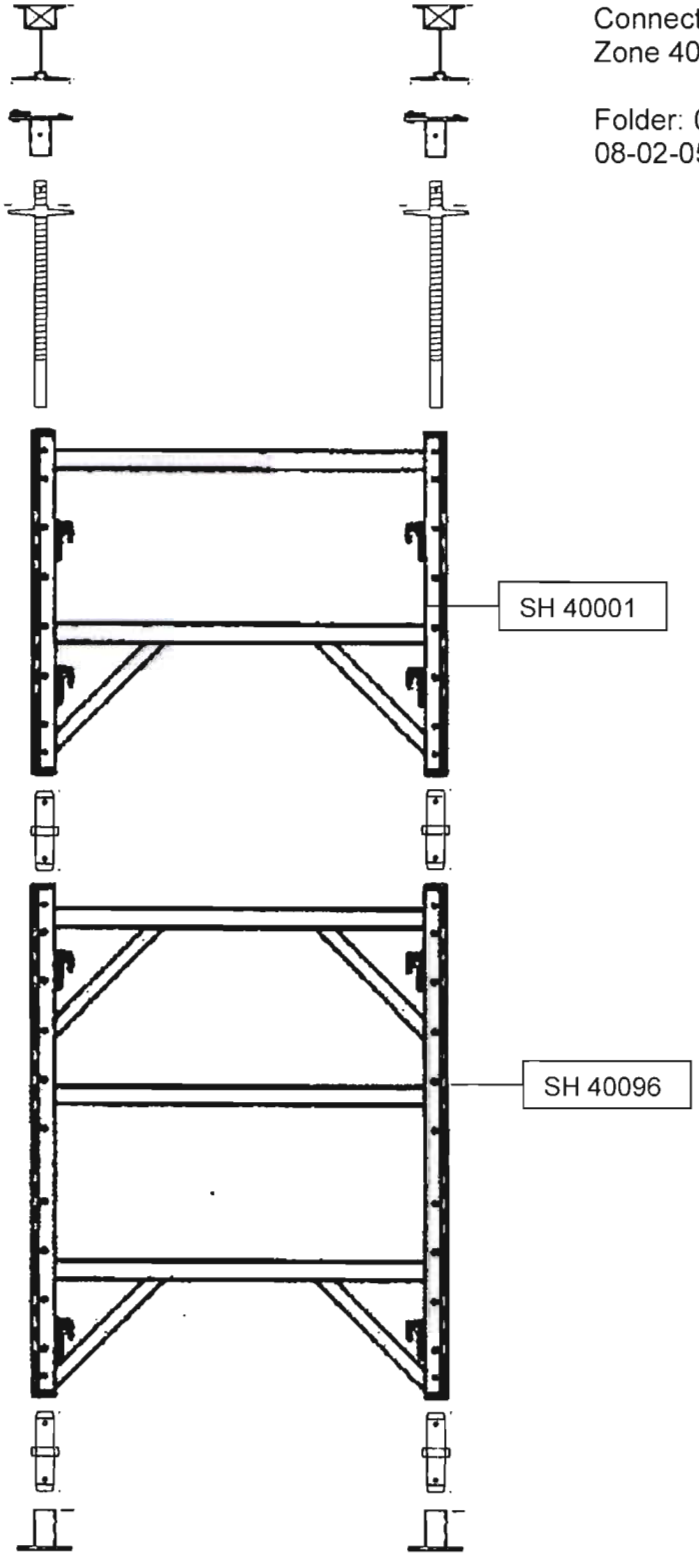
246 Spring Street Investigation

APPENDIX D

Documentation and Preparatory Documents for Shoring Layout

SH 40001
Whole Shore
Connect to SH 40002
Zone 40K

Folder: 08-01-29 (updated 08-02-04 & 08-02-05); 40th floor; SH 40001



SH40001_1

SH40001_2

SH40001_3