

TENSILE TESTING METALLURGICAL LAB

RT Compression Test - Load/Position

150 Ton Testing Machine

Turtle Plastics Company

JA7346-743

November 26, 2007

Anthony Petti

SUPER CRIB - #1

6" x 7" x 24"

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
2 Point Box Crib	0	25 13/16			
Lincoln Log Mating	20,000		25 3/4	1/16	N/C
4 Levels High	40,000		25 9/16	1/4	N/C
1" Thick, Full Contact	60,000		25 3/8	7/16	N/C
Steel Plate	80,000		25 1/8	11/16	N/C
	100,000		24 1/2	1 5/16	Slight buckle/bowing throughout system
	120,000		23 3/4	2 1/16	Slight buckle/bowing throughout system
	140,000		23	2 13/16	Major overall distortion, bottom cavities contacting platen
	160,000		22	3 13/16	Major/severe overall distortion
	180,000		21	4 13/16	* Major/severe overall distortion, various upper Crib fracture

* Cribs lateral expansion contacted testing machines vertical support columns

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SUPER CRIB - #2

6" x 7" x 24"

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
3 Point Box Crib	0	26 1/4			
Pyramid Mating	15,000		26 3/16	1/16	N/C
4 Levels High	30,000		26 1/16	3/16	N/C
1" Thick, Full Contact	45,000		26	1/4	N/C
Steel Plate	60,000		25 7/8	3/8	~25% pyramid compression - top
	75,000		25 13/16	7/16	~33% pyramid compression - top
	90,000		25 3/4	1/2	~33% pyramid compression - top/bot
	105,000		25 11/16	9/16	~33-50% pyramid compression - top/bot
	120,000		25 5/8	5/8	~33-50% pyramid compression - top/bot
	135,000		25 5/8	5/8	~ 65% pyramid compression - top/bot slightly imbedded areas throughout
	150,000		25 9/16	11/16	~ 75% pyramid compression - top/bot slightly imbedded areas at select locations
	175,000		25 1/4	1	Lower back pyramids 90% compressed, minor imbedded areas at select location
	200,000		25 3/16	1 1/16	90 - 95% overall pyramid compression, minor imbedded areas throughout
	225,000		25	1 1/4	90 - 95% overall pyramid compression, minor imbedded areas throughout, middle Crib slight distortion
250,000		24 11/16	1 9/16	95% overall pyramid compression, minor imbedded areas throughout, slight overall distortion	
298,000*		23 3/4	2 1/2	Flatened overall pyramid compression, minor imbedded areas throughout, slight overall distortion	

* Maximum allowable testing machine force

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SUPER CRIB - #3

6" x 7" x 24"

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
2 Point Box Crib	0	26 1/4			
Pyramid Mating	15,000		26	1/4	~25% pyramid compression
4 Levels High	25,000		25 7/8	3/8	~ 33% pyramid compression - Top/Bot
1" Thick, Full Contact	35,000		25 3/4	1/2	~ 50% pyramid compression - Top/Bot
Steel Plate	45,000		25 11/16	9/16	~ 50% pyramid compression - Top/Bot
	60,000		25 1/2	3/4	~ 65% pyramid compression - Top/Bot
	75,000		25 3/8	7/8	~ 75% pyramid compression - Top/Bot
	90,000		25 1/4	1	~ 85% pyramid compression - Top/Bot
	110,000		25	1 1/4	~ 90% pyramid compression - Top/Bot Bowing at ends of select Cribs
	130,000		24 5/8	1 5/8	~ 95% compressed Pyramids - Top/Bot bowing at ends of select Cribs minor imbedding - select areas
	150,000		24 1/16	2 3/16	Fully compressed pyramids - Top/Bot bowing at ends of select Cribs
	170,000		23 3/8	2 7/8	Fully compressed pyramids - Top/Bot major bowing/buckling - select Cribs
	190,000		22 3/8	3 7/8	Fully compressed pyramids - Top/Bot major overall bowing/buckling

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November 23, 2007

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LINCOLN LOG - #4

4" x 4" x 18"

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
2 Point Box Crib		14 1/8			
Lincoln Log Mating	1,000		14 1/16	1/16	N/C
4 Levels High	5,000		14	1/8	N/C
1" Thick, Full Contact	9,000		13 7/8	1/4	N/C
Steel Plate	15,000		13 3/4	3/8	Slight bowing ~ 1/16"
	18,000		13 5/8	1/2	Slight bowing ~ 1/16"
	22,000		13 9/16	9/16	Slight bowing/distortion
	26,000		13 5/16	13/16	Slight bowing/distortion
	30,000		13 3/16	15/16	Slight bowing/distortion & crushing
	35,000		12 3/4	1 3/8	General bowing/distortion & crushing throughout
	40,000		12 5/16	1 13/16	General bowing/distortion & crushing throughout
	50,000		11 5/8	2 1/2	Major bowing/distortion & crushing throughout - tear/fracture at select areas

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November 27, 2007

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PYRAMID CRIB - #5

4" x 4" x 18"

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
3 Point Box Crib		14 5/8			
Pyramid Mating	2,000		14 1/2	1/8	N/C
4 Levels High	4,000		14 1/2	1/8	N/C
1" Thick, Full Contact	9,000		14 7/16	3/16	~25% compressed pyramid - top
Steel Plate	12,000		14 3/8	1/4	~25-50% compressed pyramids-top/back
	15,000		14 3/8	1/4	~25-50% compressed pyramids-top/back
	20,000		14 5/16	5/16	~25-50% compressed pyramids-top/bot
	25,000		14 5/16	5/16	~50% compressed pyramids-top/bot
	30,000		14 1/4	3/8	~50% compressed pyramids-top/bot, slight distortion
	35,000		14 1/4	3/8	~50% compressed pyramids-top/bot, slight distortion
	45,000		14 3/16	7/16	~50% compressed pyramids-top/bot, slight distortion
	60,000		14 1/8	1/2	~50% compressed pyramids-top/bot, slight distortion
	75,000		14	5/8	~60% compressed pyramids-top/bot, minor distortion
	100,000		13 3/4	7/8	~65% compressed pyramids-top/bot, minor distortion
	125,000		13 7/16	1 3/16	~75% compressed pyramids-top/bot, severe distortion
	150,000		13 3/8	1 1/4	~75% compressed pyramids-top/bot, major distortion
	175,000		13	1 5/8	~75% compressed pyramids-top/bot, major distortion - fracture

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PYRAMID CRIB - #6

4" x 4" x 18"

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
2 Point Box Crib		14 1/2			
Pyramid Mating	5,000		14 1/4	1/4	N/C
4 Levels High	7,500		14 3/16	5/16	N/C
1" Thick, Full Contact	10,000		14 3/16	5/16	~25% compressed pyramids - top/bot
Steel Plate	12,500		14 1/8	3/8	~25% compressed pyramids - top/bot
	15,000		14 1/16	7/16	~35% compressed pyramids - top/bot
	20,000		14	1/2	~50% compressed pyramids - top/bot, very slight distortion
	30,000		13 13/16	11/16	~50% compressed pyramids - top/bot, minor distortion throughout system
	40,000		13 9/16	15/16	~75% compressed pyramids - top/bot, minor distortion throughout system, more distortion on opposite columns
	60,000		12 3/4	1 3/4	~100% compressed pyramids - top/bot, heavy distortion/crushing throughout system, more distortion on opposite columns
	85,000		11 1/4	3 1/4	~100% compressed pyramids - top/bot, major distortion/crushing throughout system - fracture

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Anthony Petti

CRIB - #7

2" x 4" x 18"

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
2 Point Box Crib		6 1/8			
Pyramid Mating	2,000		6 1/8	0	N/C
4 Levels High	5,000		6	1/8	~10% compressed pyramids - top
1" Thick, Full Contact	7,500		5 15/16	3/16	~33% compressed pyramids - top
	10,000		5 15/16	3/16	~50% compressed pyramids - top
	15,000		5 7/8	1/4	~50-65% compressed pyramids - top, more compression over opposite corner columns
	20,000		5 3/4	3/8	~65-80% compressed pyramids - top, highest compression over opposite corner columns
	30,000		5 5/8	1/2	~90% compressed pyramids - top, highest compression over opposite corner columns - slight distortion
	40,000		5 9/16	9/16	Pyramids fully compressed on top, minor distortion/imbedding throughout system
	50,000		5 3/8	3/4	Pyramids fully compressed on top, minor distortion/imbedding/bowing throughout system
	65,000		5 3/16	15/16	Pyramids fully compressed on top, minor distortion/imbedding throughout system
	80,000		4 3/4	1 3/8	Pyramids fully compressed on top, severe distortion/imbedding throughout system
	100,000		4 3/8	1 3/4	Pyramids fully compressed on top, major distortion/imbedding throughout system, open cavities nearly mating
	125,000		3 7/8	2 1/4	Pyramids fully compressed on top, major distortion/imbedding throughout system, open cavities fully mating, split/fracture around nylon rope & plug

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Anthony Petti

CRIB - #8

2" x 4" x 18"

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
3 Point Box Crib		6 1/4			
Pyramid Mating	5,000		6 1/8	1/8	N/C
4 Levels High	8,000		6 1/16	3/16	N/C
1" Thick, Full Contact	12,000		6 1/32	7/32	~25% compressed pyramids - back
	20,000		6	1/4	~33% compressed pyramids - back
	30,000		5 7/8	3/8	~33% compressed pyramids - top/bot
	50,000		5 3/4	1/2	~50-75% compressed pyramids - top/bot slight imbedding, more compression over opposite corner columns
	75,000		5 5/8	5/8	~75% compressed pyramids - top/bot slight imbedding, more compression over opposite corner columns, slight overall distortion
	100,000		5 3/8	7/8	~85% compressed pyramids - top/bot minor imbedding, more compression over opposite corner columns, slight overall distortion
	135,000		5 1/8	1 1/8	~85% compressed pyramids - top/bot minor imbedding, more compression over opposite corner columns, slight overall distortion
	175,000		4 11/16	1 9/16	~90% compressed pyramids - top/bot severe imbedding, more compression over opposite corner columns, severe overall distortion
	200,000		4 1/2	1 3/4	~95% compressed pyramids - top/bot major imbedding, more compression over opposite corner columns, major overall distortion
	250,000		4 1/8	2 1/8	Fully compressed pyramids - top/bot major imbedding, distortion throughout system

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2"x 4"x 18" - #9 & #10

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
<u>Single Crib - Yellow</u>		2 3/8			
Pyramid Contact	5,000		2 5/16	1/16	N/C
	7,500		2 1/4	1/8	~20% Compressed pyramids - Top
	10,000		2 1/4	1/8	~20% Compressed pyramids - Top/Bot
	12,500		2 3/16	3/16	~33% Compressed pyramids - Top/Bot
	15,000		2 3/16	3/16	~33% Compressed pyramids - Top/Bot
	20,000		2 5/32	7/32	~33% Compressed pyramids - Top/Bot
	30,000		2 1/8	1/4	~50% Compressed pyramids - Top/Bot
	45,000		2 1/32	11/32	~60% Compressed pyramids - Top/Bot
	65,000		1 15/16	7/16	~85% Compressed pyramids - Top/Bot
	85,000		1 7/8	1/2	Fully compressed pyramids - top/bot
	100,000		1 3/4	5/8	Fully compressed pyramids - top/bot, slight deformation, side bowing
	150,000		1 11/16	11/16	Fully compressed pyramids - top/bot, minor overall deformation - side bowing
<u>Single Crib - Black</u>		2 9/16			
Pyramid Contact	5,000		2 3/8	3/16	N/C
	7,500		2 3/8	3/16	N/C
	10,000		2 5/16	1/4	~10% Compressed pyramids - Top
	12,500		2 1/4	5/16	~10% Compressed pyramids - Top/Bot
	15,000		2 1/4	5/16	~15% Compressed pyramids - Top/Bot
	20,000		2 1/4	5/16	~25% Compressed pyramids - Top/Bot
	30,000		2 3/16	3/8	~33% Compressed pyramids - Top/Bot
	45,000		2 3/16	3/8	~50% Compressed pyramids - Top/Bot
	65,000		2 1/8	7/16	~75% Compressed pyramids - Top/Bot
	85,000		2	9/16	Fully compressed pyramids - top/bot
	100,000		1 7/8	11/16	Fully compressed pyramids - top/bot
	150,000		1 3/4	13/16	Fully compressed pyramids - top/bot, slight deformation - side bowing

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4" x 4" x 18" - #11 & #12

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
<u>Single Crib - Yellow</u>		4 1/2			
<u>Pyramid Contact</u>	5,000		4 3/8	1/8	N/C
	10,000		4 3/8	1/8	~10% Compressed pyramids - Top
	15,000		4 5/16	3/16	~25% Compressed pyramids - Top/Bot
	20,000		4 1/4	1/4	~35% Compressed pyramids - Top/Bot
	40,000		4 1/8	3/8	~60% Compressed pyramids - Top/Bot
	60,000		3 7/8	5/8	~90% Compressed pyramids - Top/Bot
	80,000		3 9/16	15/16	Fully compressed pyramids, Slight bowing & distortion
	100,000		3 5/16	1 3/16	Fully compressed pyramids, Slight bowing & distortion
	130,000		3 1/16	1 7/16	Fully compressed pyramids, Slight bowing & distortion, Partially compressed V's
	150,000		2 7/8	1 5/8	Fully compressed pyramids, Slight bowing & distortion, 90% compressed V's
<u>Single Crib - Black</u>		4 9/16			
<u>Pyramid Contact</u>	5,000		4 5/16	1/4	N/C
	10,000		4 1/4	5/16	~10% Compressed pyramids - Top
	15,000		4 1/4	5/16	~15% Compressed pyramids - Top/Bot
	20,000		4 3/16	3/8	~20% Compressed pyramids - Top/Bot
	40,000		4 1/8	7/16	~50% Compressed pyramids - Top/Bot
	60,000		3 7/8	11/16	~75% Compressed pyramids - Top/Bot
	80,000		3 5/8	15/16	Fully compressed pyramids, slight bowing & distortion
	100,000		3 9/16	1	Fully compressed pyramids, slight bowing & distortion
	130,000		3 1/8	1 7/16	Fully compressed pyramids, slight bowing & distortion, partial compressed V's
	150,000		2 15/16	1 5/8	Fully compressed pyramids, slight bowing & distortion, 90% compressed V's

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6"x 7"x 24"-#13 & #14

<u>System</u>	<u>Loading Force lbs.</u>	<u>Initial Height in.</u>	<u>Loaded Height in.</u>	<u>Delta Change Height - in.</u>	<u>Visual Testing Observations</u>
<u>Single Crib - Yellow</u>		6 5/16			
Pyramid Contact	8,000		6 1/4	1/16	~25% compressed pyramids -top/bot
	12,000		6 3/16	1/8	~35% compressed pyramids -top/bot
	16,000		6 3/16	1/8	~50% compressed pyramids -top/bot
	20,000		6 3/16	1/8	~50% compressed pyramids -top/bot
	27,000		6 1/8	3/16	~50% compressed pyramids -top/bot
	35,000		6 1/8	3/16	~50% compressed pyramids -top/bot
	50,000		6 1/16	1/4	~65% compressed pyramids -top/bot
	70,000		6	5/16	~75% compressed pyramids -top/bot
	90,000		5 15/16	3/8	~75% compressed pyramids -top/bot
	115,000		5 7/8	7/16	~80% compressed pyramids -top/bot
	125,000		5 7/8	7/16	~90% compressed pyramids -top/bot
	140,000		5 3/4	9/16	~97% compressed pyramids -top/bot
	175,000		5 5/8	11/16	Fully compressed pyramids - top/bot, slight side bowing
	200,000		4 7/16	1 7/8	Fully compressed pyramids - top/bot, minor side & end bowing
	240,000		~4 1/4	2 1/16	Major crushing/distortion throughout, fractures select areas
<u>Single Crib - Black</u>		6 1/4			
Pyramid Contact	8,000		6 1/8	1/8	~15% compressed pyramids -top/bot
	12,000		6 1/8	1/8	~20% compressed pyramids -top/bot
	16,000		6 1/8	1/8	~20% compressed pyramids -top/bot
	20,000		6 1/8	1/8	~20% compressed pyramids -top/bot
	27,000		6 1/16	3/16	~30% compressed pyramids -top/bot
	35,000		6 1/16	3/16	~40% compressed pyramids -top/bot
	50,000		6	1/4	~50% compressed pyramids -top/bot
	70,000		5 15/16	5/16	~75% compressed pyramids -top/bot
	90,000		5 13/16	7/16	~90% compressed pyramids -top/bot, slight side bowing
	115,000		5 5/8	5/8	Fully compressed pyramids - top/bot, slight side bowing
	150,000		5 1/4	1	Fully compressed pyramids - top/bot, slight side bowing
	175,000		4 13/16	1 7/16	Fully compressed pyramids - top/bot, severe side bowing
	200,000		4 3/8	1 7/8	Fully compressed pyramids - top/bot, crushing & severe side bowing
	225,000		3 1/2	2 3/4	Fully compressed pyramids - top/bot, crushing & severe side bowing
	240,000		N/A		Major crushing/distortion throughout, fractures at select areas

