Architectural Testing

CREEP PERFORMANCE
TEST REPORT

Rendered to:

TREX COMPANY LLC

Seclusions Composite Privacy Fence System
TYPE: Composite Fence System

Report No.:	**63565.01-116-20**
Report Date:	**07/06/06**
Expiration Date:	**06/30/10**

Architectural Testing

CREEP PERFORMANCE
<u>TEST REPORT</u>

Rendered to:

TREX COMPANY LLC
245 Capitol Lane
Winchester, Virginia 22602

Report No.:	63565.01-116-20
Test Dates:	3/28/06 - 6/30/06
Report Date:	07/06/06
Expiration Date:	06/30/10

Project Summary: Architectural Testing, Inc. (ATI) was contracted to evaluate the performance of two fence assemblies with a concentrated load and while exposed to a constant high temperature for a period of 90 days. The purpose of testing was to evaluate the amount of creep on both fence system configurations due to the exposure to a constant high temperature condition and an applied load over the designated testing period.

Test Specimen Descriptions:

Series/Model: Seclusions Composite Privacy Fence System

Type: Composite Fence System without panel nails at the top rail
Composite Fence System with panel nails at the top rail

Size: <u>Overall fence dimensions including corner posts:</u>
102-1/2" wide by 93" high

<u>Fence dimensions :</u>
91-3/4" wide by 70-3/4" high

<u>Corner posts:</u>
5-3/8" wide (square) by 93" high

<u>Fence panels:</u>
5-7/8" wide by 66-3/4" high
(19 total panels tested per fence system)

Test Setup:

The two fence systems were constructed, as specified by the manufacturers instructions, and secured with two 1/2" thick steel angles per corner post with two bolts through each of the corner posts and two lag screws per angle into the insulated test chamber base. An insulated box was then constructed around the samples to encapsulate the two fence systems for high temperature conditioning. Viewing ports were installed into the insulated box for visual inspection and reading of the dial indicators. The fence systems were monitored and instrumented with four dial indicators per sample to measure the creep of the upper and lower rails and the lateral deflection of the fence panels. Each of the dial indicators were mounted to 1/4" thick steel angles which were secured to the corner posts. Circulation fans were utilized to ensure uniform temperatures throughout the insulated box. It should be noted that one fence system was nailed, by Trex Company LLC personnel, through the top rail to pin the fence panels to the top rail. A complete set of photographs have been provided in Appendix A illustrating the test setup and installation.

Test Procedure:

With the test setup completed, the fence systems were loaded with 100 pounds at the centers and deflection measurements were recorded along both upper and lower rails and for lateral deflection at ambient conditions to get a baseline reading for each of the dial indicators. The heating was then turned on and deflection measurements were recorded once the insulated chamber was at the $125^{o}F \pm 5^{o}F$ test condition temperature range. The frequency for deflection measurements can be found in Appendix B of this test report inclusive of all deflections recorded at that time.

Test Results:

  Composite Fence System without panel nails at the top rail:

  Actual weight hung from fence system: 103.54 lbs.

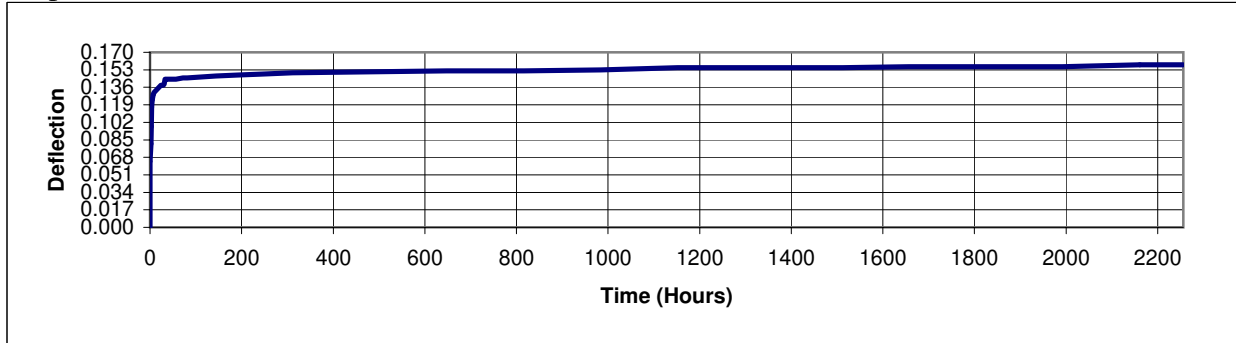 Tested steady state temperature average: $124.4^{o}F$

  Top rail creep from loading and temperature: 0.158 inches
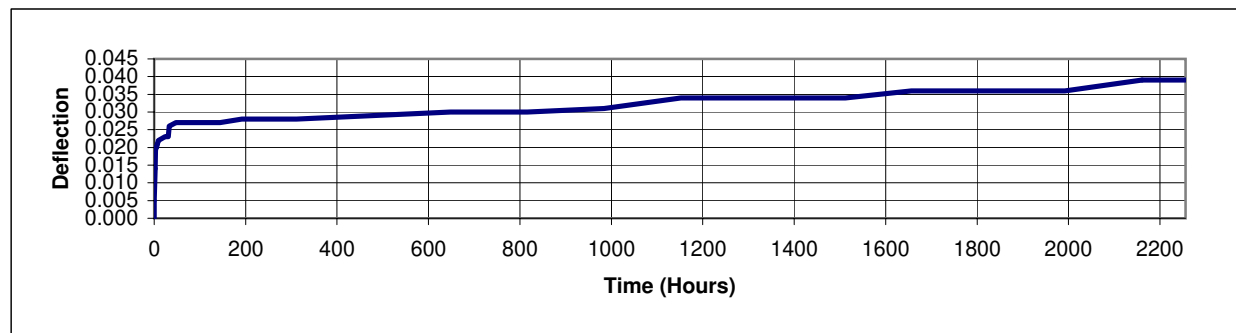 Bottom rail creep from loading and temperature: 0.039 inches
  Lateral panel deflection from loading and temperature: 0.115 inches

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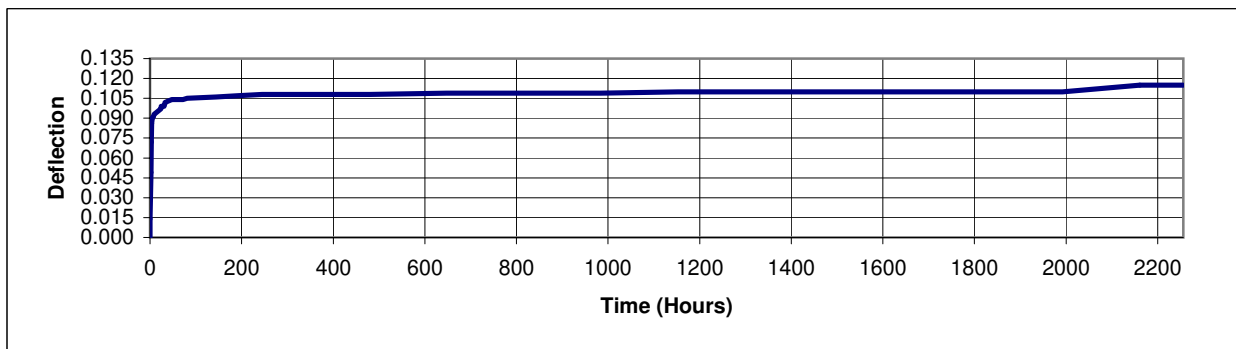**Test Results (continued)**:

Top Rail Deflection:

Bottom Rail Deflection:

Lateral Panel Deflection:

Test Results (continued):

<u>Composite Fence System with panel nails at the top rail:</u>

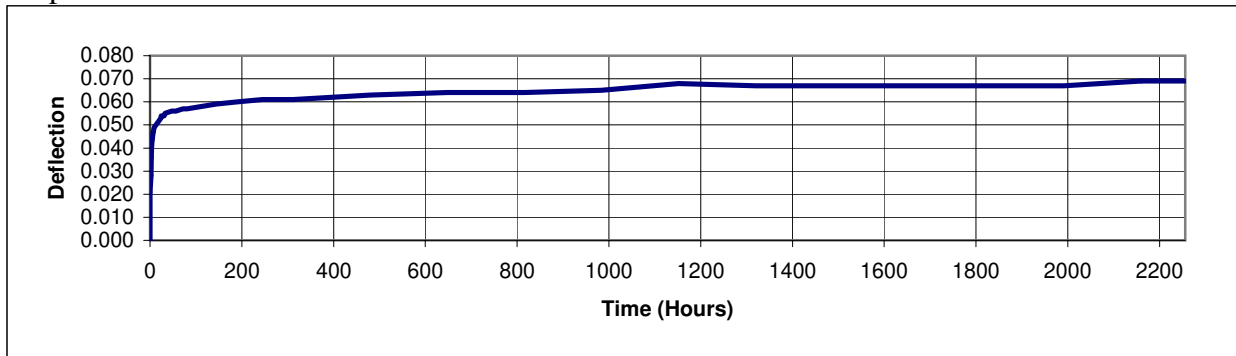Actual weight hung from fence system: 103.62 lbs.

Tested steady state temperature average: 124.4°F

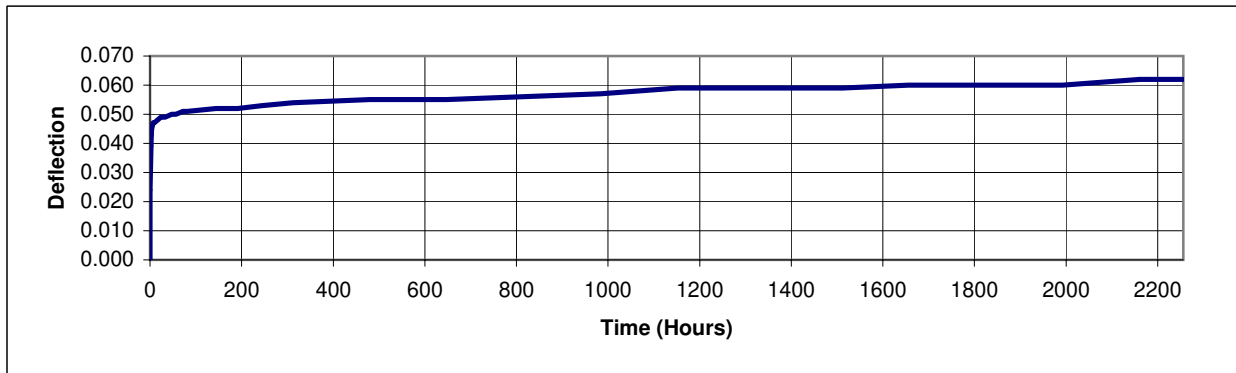Top rail creep from loading and temperature: 0.069 inches
Bottom rail creep from loading and temperature: 0.062 inches
Lateral panel deflection from loading and temperature: 0.019 inches
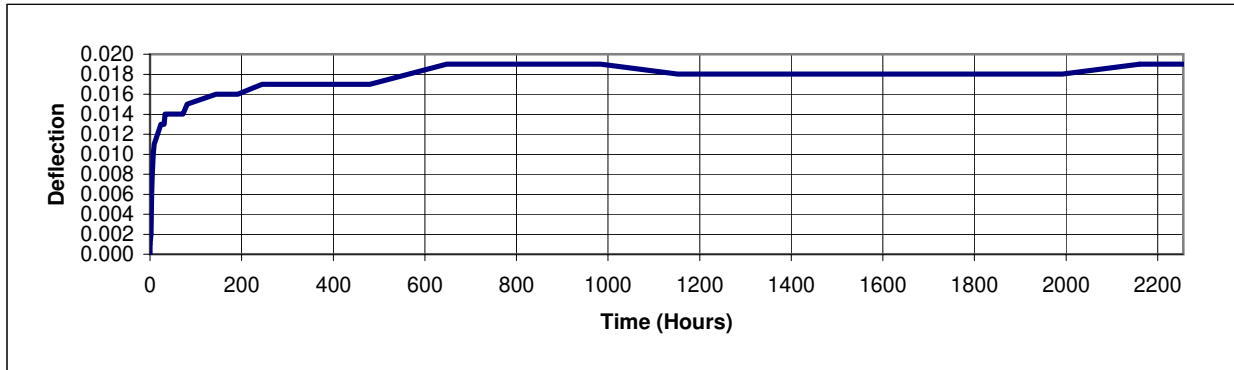
Top Rail Deflection:

Bottom Rail Deflection:

Test Results (continued):

Lateral Panel Deflection:

These test results apply to the tested samples and specified conditions only. Other conditions that may influence creep are beyond the scope of this testing. A copy of this report will be retained by ATI for a period of four years. The above results are the exclusive property of the client so named herein and are applicable to the samples tested. This report does not constitute an opinion or endorsement by this laboratory. This report may not be reproduced except in full without the approval of ATI.

For ARCHITECTURAL TESTING, INC.:

TESTED BY: REVIEWED BY:

Digitally Signed by: Kevin Louder   *Digitally Signed by: Michael J. Thoman*

Kevin S. Louder   Michael J. Thoman
Project Engineer   Director - Simulations & Thermal Testing
                                              Simulator-In-Responsible Charge

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Attachments (pages):
    Appendix A: Test Setup Photographs (5)
    Appendix B: Creep Data (1)
    Appendix C: Product Drawings and Installation Instructions (14)

Revision Log

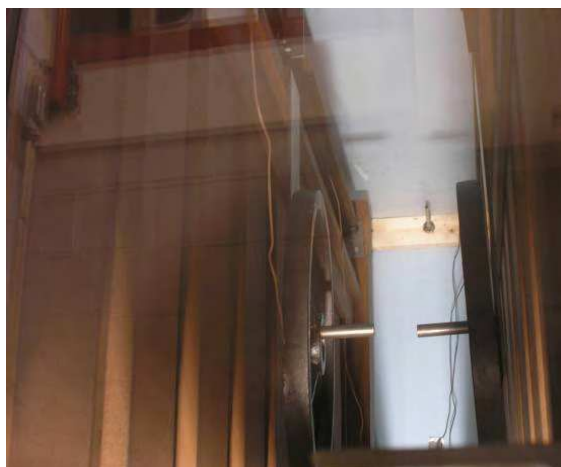| Rev. #	Date	Page(s)	Revision(s)
.01 R0	7/6/2006	All	Original Report Issue

Test Setup Photographs

Appendix A

Creep Data

Appendix B

Trex Company LLC
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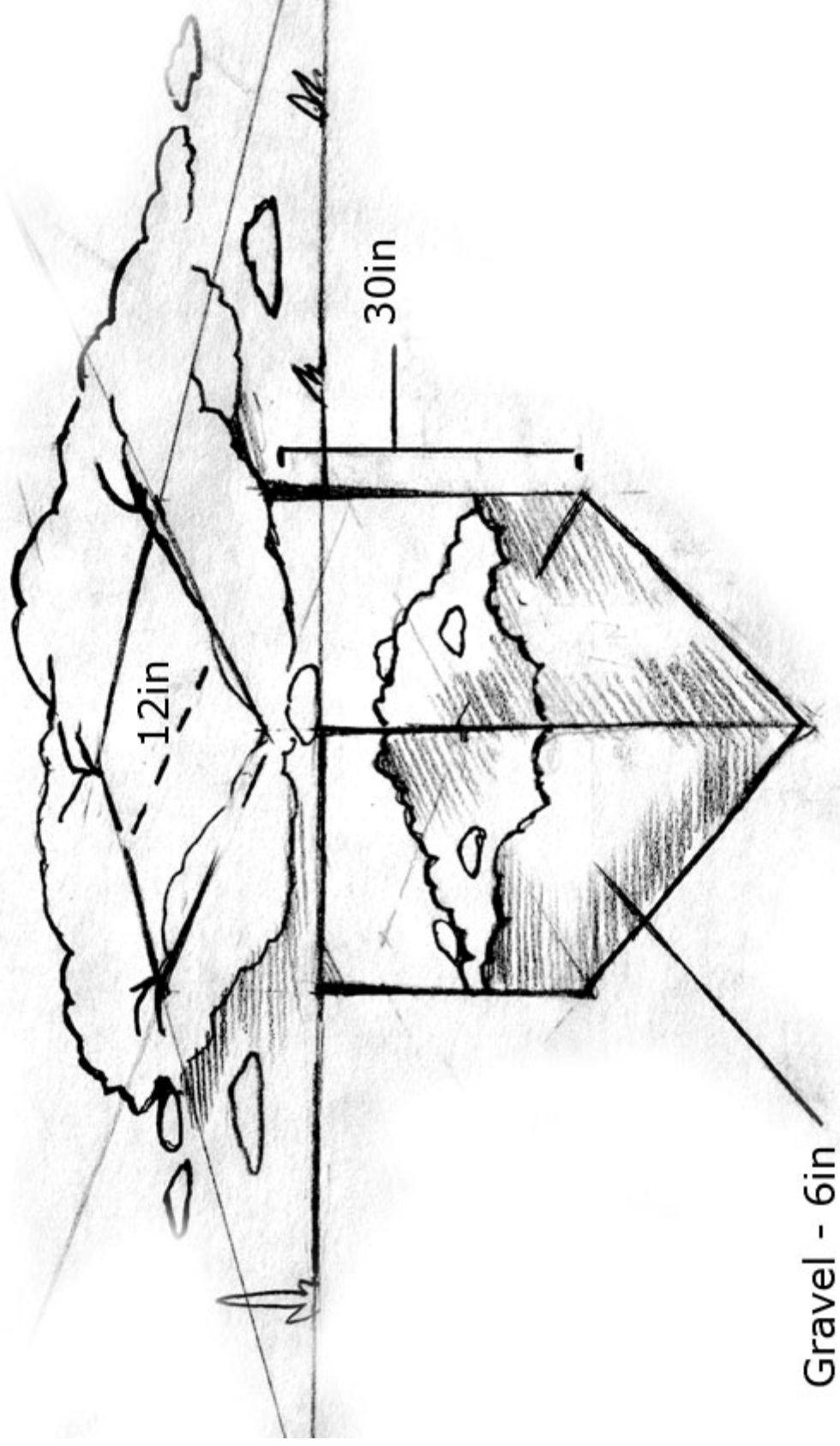| Date and Time	Time (Hours)	Without Nailed Top Rail			With Nailed Top Rail			Temp. °F
		Top	Bottom	Lateral	Top	Bottom	Lateral	
3/28/06 8:15 AM	0.0	0.942	0.124	0.118	0.936	0.103	0.086	62*
3/28/06 8:30 AM	0.2	0.878	0.129	0.132	0.915	0.127	0.087	64**
3/28/06 10:00 AM	1.7	0.861	0.138	0.167	0.908	0.142	0.088	99
3/28/06 11:00 AM	2.8	0.844	0.143	0.190	0.900	0.146	0.090	122
3/28/06 12:00 PM	3.8	0.825	0.144	0.204	0.895	0.148	0.092	124
3/28/06 1:00 PM	4.7	0.818	0.144	0.208	0.892	0.149	0.094	124
3/28/06 3:00 PM	6.8	0.813	0.145	0.209	0.889	0.150	0.096	124
3/28/06 5:00 PM	8.8	0.811	0.146	0.211	0.887	0.150	0.097	124
3/29/06 8:00 AM	23.8	0.804	0.147	0.215	0.883	0.152	0.099	124
3/29/06 9:00 AM	24.8	0.804	0.147	0.217	0.882	0.152	0.099	124
3/29/06 10:00 AM	25.7	0.804	0.147	0.217	0.882	0.152	0.099	124
3/29/06 11:00 AM	26.8	0.804	0.147	0.217	0.882	0.152	0.099	124
3/29/06 1:00 PM	28.7	0.804	0.147	0.217	0.882	0.152	0.099	124
3/29/06 3:00 PM	30.8	0.803	0.147	0.217	0.882	0.152	0.099	124
3/29/06 5:00 PM	32.8	0.798	0.150	0.220	0.881	0.152	0.100	124
3/30/06 8:00 AM	47.8	0.798	0.151	0.222	0.880	0.153	0.100	124
3/30/06 5:00 PM	56.8	0.798	0.151	0.222	0.880	0.153	0.100	124
3/31/06 8:00 AM	71.8	0.797	0.151	0.222	0.879	0.154	0.100	124
3/31/06 5:00 PM	80.8	0.797	0.151	0.223	0.879	0.154	0.101	124
4/3/06 8:30 AM	144.2	0.795	0.151	0.224	0.877	0.155	0.102	124
4/5/06 8:00 AM	191.8	0.794	0.152	0.225	0.876	0.155	0.102	125
4/7/06 1:00 PM	244.7	0.793	0.152	0.226	0.875	0.156	0.103	125
4/10/06 8:05 AM	311.8	0.792	0.152	0.226	0.875	0.157	0.103	125
4/17/06 8:05 AM	479.8	0.791	0.153	0.226	0.873	0.158	0.103	125
4/24/06 8:05 AM	647.8	0.790	0.154	0.227	0.872	0.158	0.105	125
5/1/06 8:05 AM	815.8	0.790	0.154	0.227	0.872	0.159	0.105	125
5/8/06 8:05 AM	983.8	0.789	0.155	0.227	0.871	0.160	0.105	125
5/15/06 8:05 AM	1151.8	0.787	0.158	0.228	0.868	0.162	0.104	125
5/22/06 8:10 AM	1319.9	0.787	0.158	0.228	0.869	0.162	0.104	125
5/30/06 8:15 AM	1512.0	0.787	0.158	0.228	0.869	0.162	0.104	125
6/5/06 8:15 AM	1656.0	0.786	0.160	0.228	0.869	0.163	0.104	125
6/12/06 8:15 AM	1824.0	0.786	0.160	0.228	0.869	0.163	0.104	125
6/19/06 8:15 AM	1992.0	0.786	0.160	0.228	0.869	0.163	0.104	125
6/26/06 9:00 AM	2160.8	0.784	0.163	0.233	0.867	0.165	0.105	125
6/30/06 8:15 AM	2256.0	0.784	0.163	0.233	0.867	0.165	0.105	125

Notes:

* No load at ambient conditions

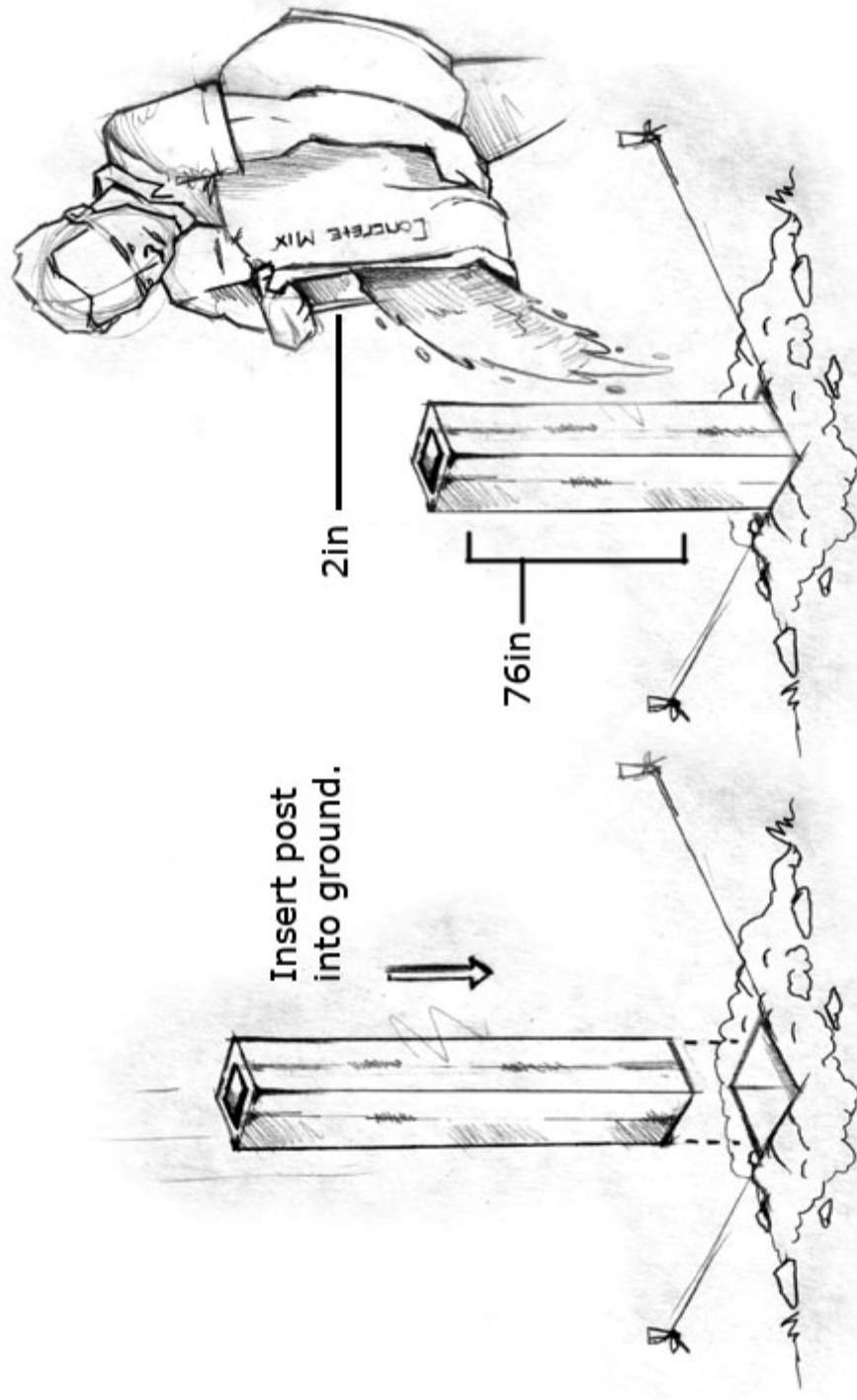** Loaded with 100 lbs., closed chamber, and at ambient conditions with the heating initialized
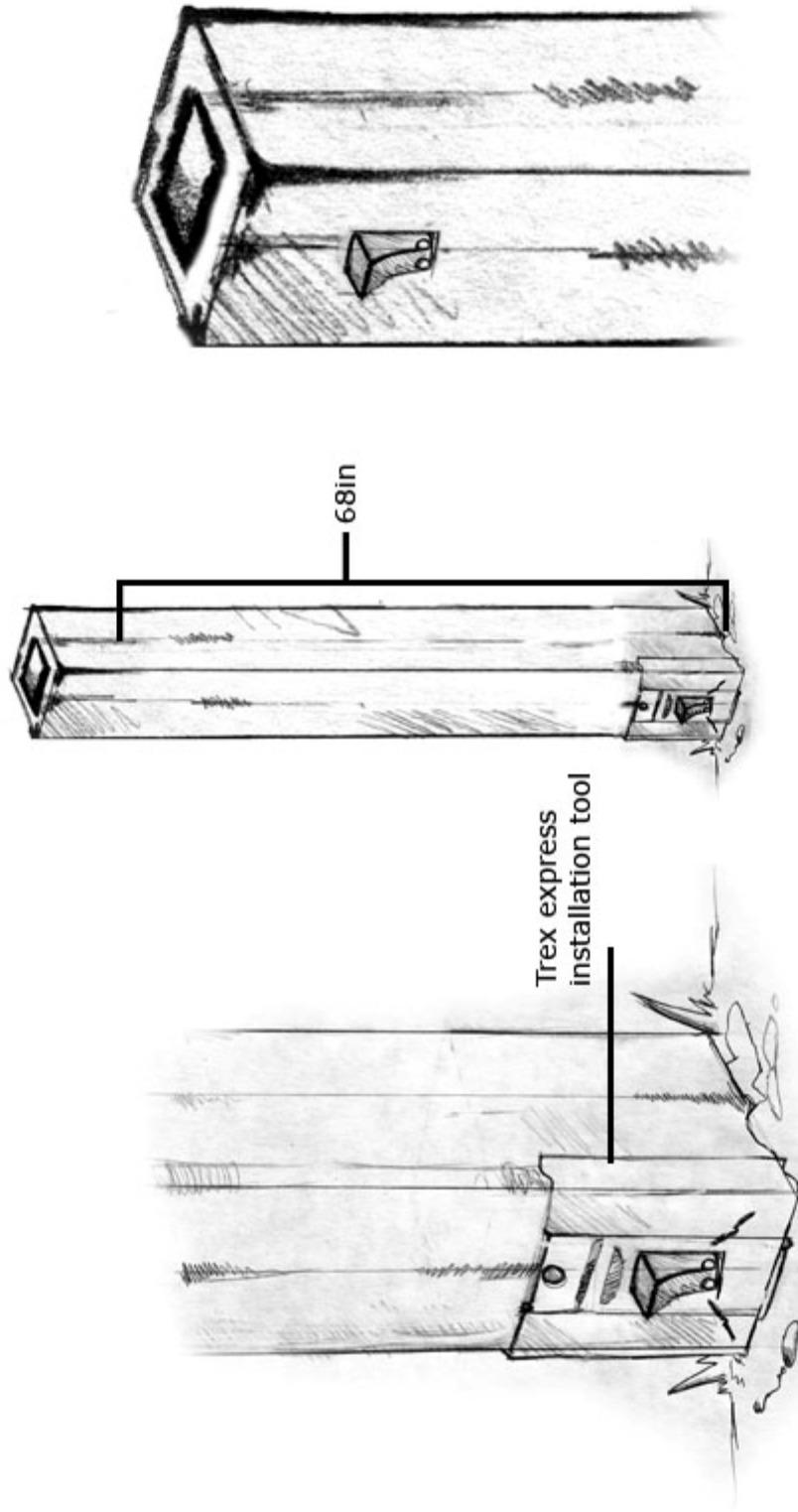
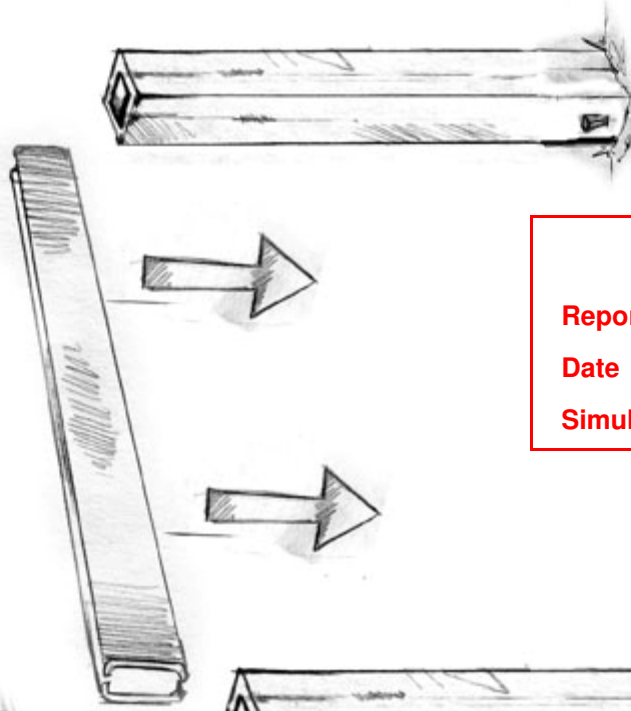Step - 1

Property Line

Stakes

Step-2

30in

12in

Gravel - 6in

Step - 3

Insert post
into ground.

2in

76in

Concrete Mix

Step – 4

68in

Trex express installation tool

Steps - 5&6

Insert bottom rail onto lower brackets.

Slide bottom rails over bottom rail inserts.
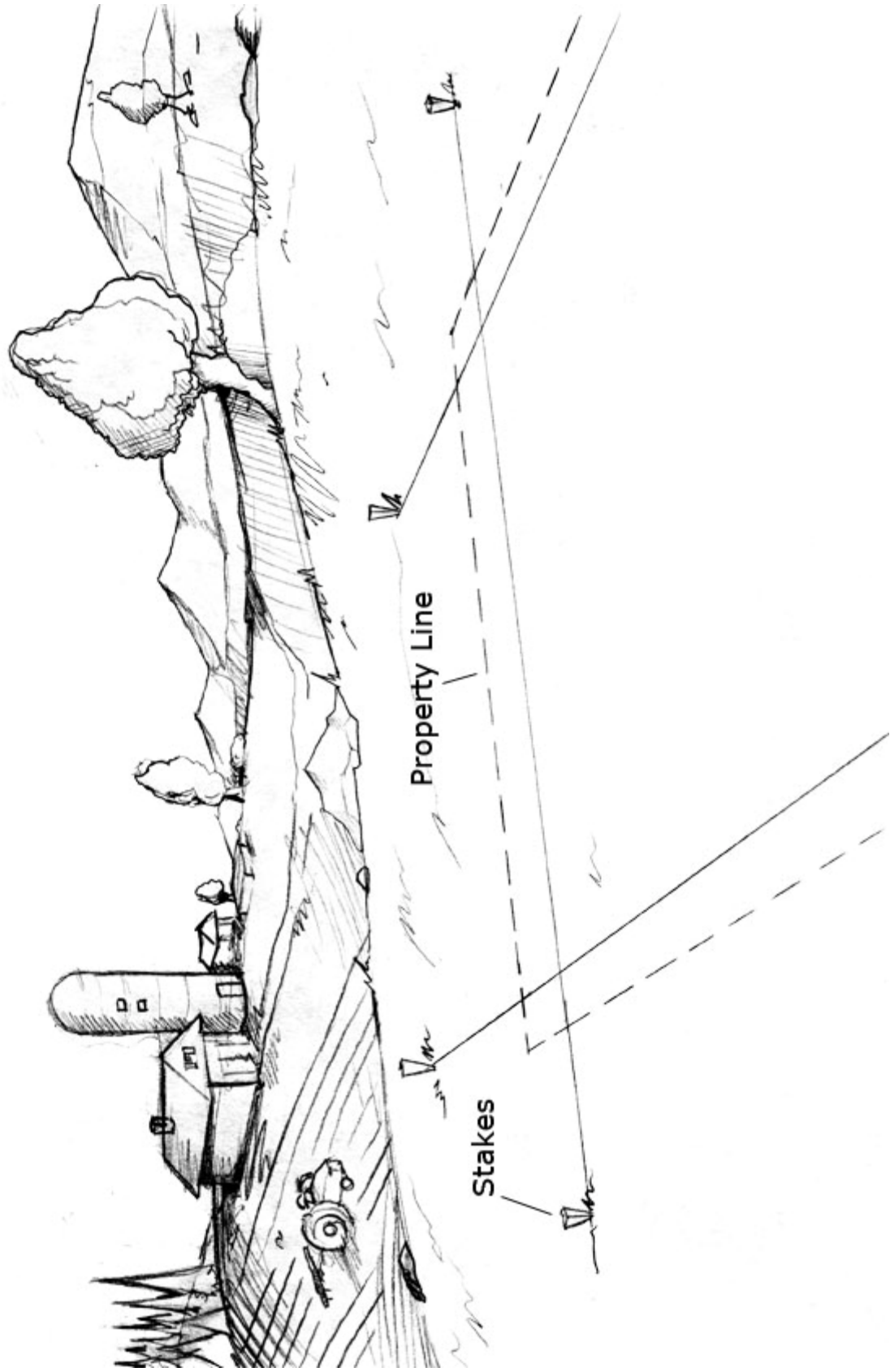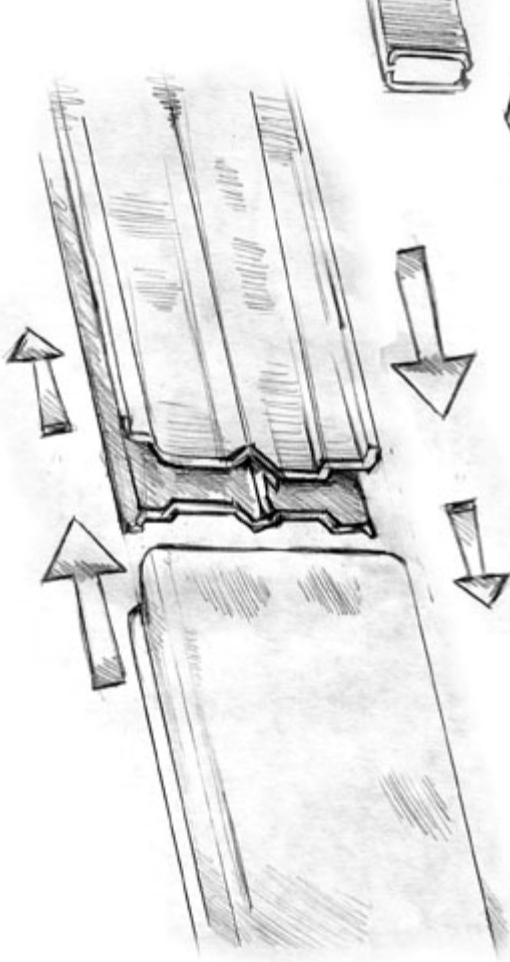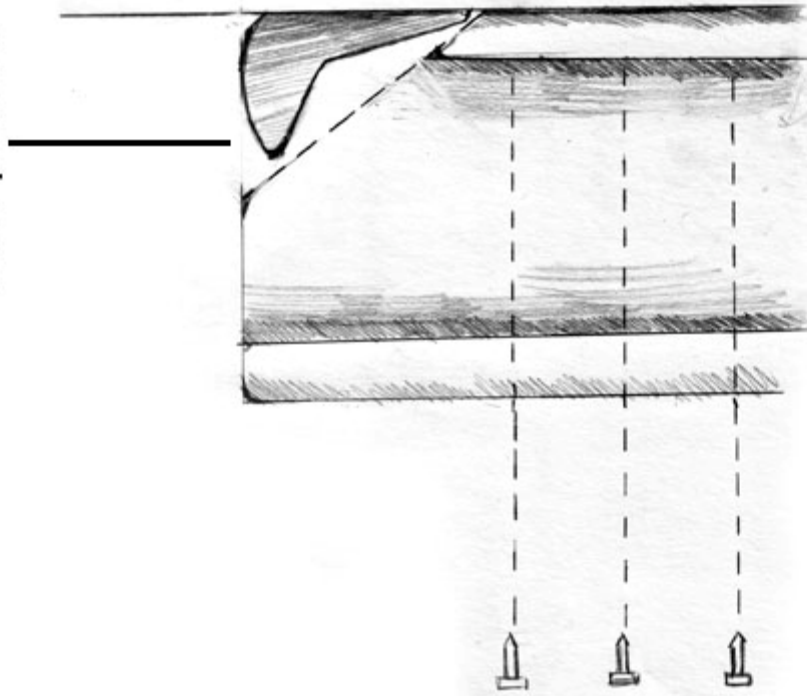
ATI	
Report #	63565
Date	7/6/06
Simulator	*Ken Land*

Step - 7

Notch first and last picket.
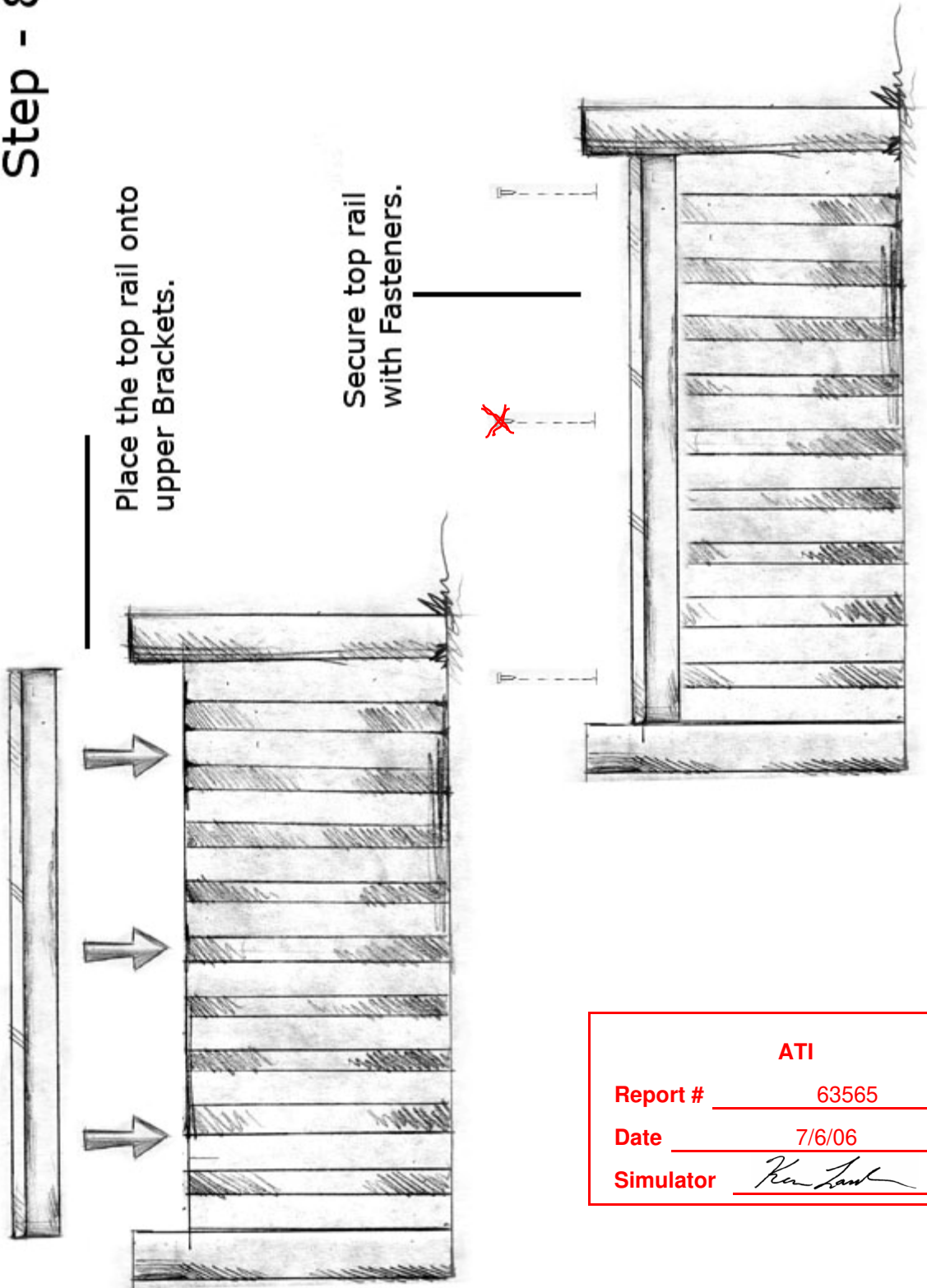
Interlocking Pickets

Alternate their orientation, so that they interlock.

Step - 8

Place the top rail onto upper Brackets.

Secure top rail with Fasteners.

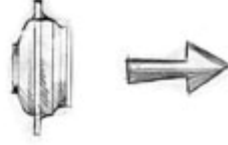# Step - 9

Place post caps
onto post.

Secure with
adhesives.

LIQUID NAILS

WARNING

Finished Trex Fence!