



Quality Accuracy Assurance

Fenestration Testing Laboratory, Inc.

8148 N.W. 74th Avenue Medley, FL 33166 Phone: (305) 885-3328 Fax: (305) 885-3329 (888) 819-7877

e-mail: ftldade@aol.com www.ftl-inc.com

Report Date: 01/08/2009
Completion Date: 11/24/2008
Expiration Date: 11/24/2012
File Number: 08-634
Page: 1 of 4
Lab. Number: 5823
Report Number: 02

OFFICIAL TEST REPORT

MANUFACTURER: C.R. Laurence Company Inc. **SPECIFICATIONS:** International Building Code
ADDRESS: 2100 E. 38th Street ASTM E330
Vernon, CA 90058 ANSI Z97.1; CPSC 16 CFR 1201

Description Of Sample and Material Characteristics

Sample A-5:

Model Designation: Series: Wet Glazed Concrete Fascia Mount Aluminum Glass Glazed Railing System

Overall Size: 15' 1" (181") by 3' 6" (42") high.

Railing Parts: Railing consists of an aluminum square shoe base, part number **B5S20F. One 2" diameter two piece stainless steel hand rail part number **GR20 at top of system with one plastic glazing cap between glass and hand rail.

Glazing:

Material: 1/2" clear tempered glass.

Method: Sample is pocket glazed with a 3" glazing penetration at shoe base and 1 1/4" at top of hand rail using silicone at shoe base between glass and aluminum and setting blocks 3" from each end and remaining on 18" centers.

Daylight Opening: Each lite is 60" by 36" high (total of three lites).

Railing Installation: The shoe base was fastened to concrete test slab with a single row of No. 1/2 by 3 3/4" Hilti expansion bolt located 6 1/2" from each end and remainder on 6" center.

Product markings: None

Sample A-6:

Model Designation: Series: Wet Glazed Concrete Mount Aluminum Glass Glazed Railing System

Overall Size: 15' 1" (181") by 3' 6" (42") high.

Railing Parts: Railing consists of an aluminum *(alloy 6063-T52) square shoe base, part number **B5T20D. One 2" diameter two piece stainless steel hand rail part number **GR20 at top of system with one plastic glazing cap between glass and hand rail.

Glazing:

Material: 1/2" clear tempered glass.

Method: Sample is pocket glazed with a 3" glazing penetration at shoe base and 1 1/4" at top of hand rail using silicone at shoe base between glass and aluminum and setting blocks 3" from each end and remaining on 18" centers.

Daylight Opening: Each lite is 60" by 36" high (total of three lites).

Railing Installation: The shoe base was fastened to concrete test slab with a single row of No. 1/2 by 3 3/4" Hilti expansion bolt located 6 1/2" from each end and remainder on 6" center.

Product markings: None



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Description Of Sample and Material Characteristics

Sample A-8:

Model Designation: Series: Wet Glazed Fascia Mount To Steel Aluminum Glass Glazed Railing

Overall Size: 15' 1" (181") by 3' 6" (42") high.

Railing Parts: Railing consists of an aluminum square shoe base, part number **B5S20F. One 2" diameter two piece stainless steel hand rail part number **GR20 at top of system with one plastic glazing cap between glass and hand rail.

Glazing:

Material: 1/2" clear tempered glass.

Method: Sample is pocket glazed with a 3" glazing penetration at shoe base and 1 1/4" at top of hand rail using silicone at shoe base between glass and aluminum and setting blocks 3" from each end and remaining on 18" centers.

Daylight Opening: Each lite is 60" by 36" high (total of three lites).

Railing Installation: The shoe base was fastened to the steel tube with a single row of number 1/2-13 by 3/4" long stainless steel socket head cap screws located 6 1/2" from each end and remaining on 12" center, the steel tube was welded to a steel test fixture.

Product markings: None

*Note: **as per manufacturer*

OFFICIAL TEST RESULTS

| Title of Test | Deflection | Measured | Permanent Set | Remarks |
|---|------------|-----------------|---------------|---------|
| Sample A-5: (Temperature: 79.4 F; Barometric Reading: 30.04 inches Hg) | | | | |
| Uniform Design Load Test (ASTM E330) | | | | |
| Positive Load | | 89.6 psf | | Passed |
| Reading at hand rail | 0.925" | | 0.031" | |
| Recovery | | 97 percent | | |
| Uniform Design Load Test (ASTM E330) | | | | |
| Negative Load | | 89.6 psf | | Passed |
| Reading at hand rail | 0.999" | | 0.042" | |
| Recovery | | 96 percent | | |
| Uniform Structural Load Test (ASTM E330) | | | | |
| Positive Load | | 224.0 psf | | Passed |
| Reading at hand rail | 2.128" | | 0.061" | |
| Recovery | | 97 percent | | |
| Uniform Structural Load Test (ASTM E330) | | | | |
| Negative Load | | 224.0 psf | | Passed |
| Reading at hand rail | 2.170" | | 0.080" | |
| Recovery | | 96 percent | | |
| Drop Load Test at left lite | | 400 foot pounds | | Passed |
| Drop Load Test at center lite | | 400 foot pounds | | Passed |
| Drop Load Test at right lite | | 400 foot pounds | | Passed |



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OFFICIAL TEST RESULTS

| Title of Test | Deflection | Measured | Permanent Set | Remarks |
|---|------------|-----------------|---------------|---------|
| Sample A-8: (Temperature: 79.4 F; Barometric Reading: 29.97 inches Hg) | | | | |
| Uniform Design Load Test (ASTM E330) | | | | |
| Positive Load | | 89.6 psf | | Passed |
| Reading at hand rail | 0.991" | | 0.033" | |
| Recovery | | 96 percent | | |
| Uniform Design Load Test (ASTM E330) | | | | |
| Negative Load | | 89.6 psf | | Passed |
| Reading at hand rail | 1.037" | | 0.039" | |
| Recovery | | 96 percent | | |
| Uniform Structural Load Test (ASTM E330) | | | | |
| Positive Load | | 224.0 psf | | Passed |
| Reading at hand rail | 2.140" | | 0.074" | |
| Recovery | | 97 percent | | |
| Uniform Structural Load Test (ASTM E330) | | | | |
| Negative Load | | 224.0 psf | | Passed |
| Reading at hand rail | 2.210" | | 0.053" | |
| Recovery | | 98 percent | | |
| Drop Load Test at left lite | | 400 foot pounds | | Passed |
| Drop Load Test at center lite | | 400 foot pounds | | Passed |
| Drop Load Test at right lite | | 400 foot pounds | | Passed |

Note: At conclusion of above tests, there was no apparent damage to the railing systems. The test specimens were covered with a 4 mil plastic sheeting to seal from air leakage when load tests were conducted, however this had no effect on the above test results.

| REPORT REVISION HISTORY | | | |
|-------------------------|--|------------------|----------------|
| Rev | Description of Change | Author of Report | Effective Date |
| 0 | Initial Release | LBS | 01/08/2009 |
| 1 | Separate systems as per client request | MS | 03/27/2009 |

Remarks: Representative samples of the test specimens, test report and detailed drawings will be retained by Fenestration Testing Laboratory for a period of four years from the original test date.

Drawings referenced in this document are an integral part of this report, therefore, are required when distributing this test report. Test results obtained represent the actual value of the tested specimens and do not constitute opinion, endorsement, or certification by this laboratory.



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Continued:

This test report is considered the exclusive property of the client named herein and is applicable to the sample tested. This report may not be reproduced without the approval of Fenestration Testing Laboratory, Inc.

Testing was conducted as per instructions received from your company representative.

Witnessed by:
Mr. Michael Wenzel, P.E.
Mr. Carlos Rionda, P. E.

FENESTRATION TESTING LABORATORY, INC.

Manny Sanchez
Chief Executive Officer

Laboratory Technicians:
Mr. Roberto Robleto

Author of Report:
Ms. Leigh B. Sanchez

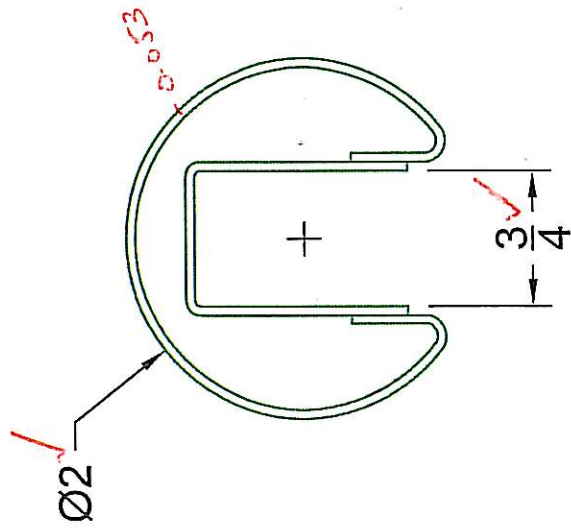
3 - C.R. Laurence Company Inc.

FENESTRATION TESTING LAB, INC

LAB # 5823

DATE: 2/10/09

DRAWING VERIFIED BY: ymf



DESCRIPTION: 2" DIAMETER STAINLESS STEEL CAP RAIL

16 GA S.S. T304 ALLOY

| | |
|-----------------|----------------|
| CAT. NO: GR20xx | DATE: 10/15/08 |
| PART NO: GR20xx | SCALE: N.T.S. |
| DRAWN BY: R.A. | SHT 1 OF 1 |

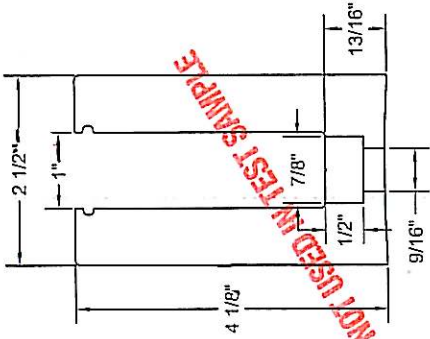
ARCHITECTURAL PRODUCTS
LOS ANGELES, CA 90058
PH: 800-421-6144 FX: 800-262-3289
WWW.CRLAURENCE.COM



CRL
C.R. LAURENCE CO. ©

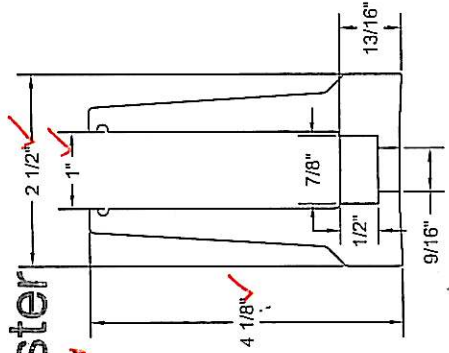
Not able to

Webster



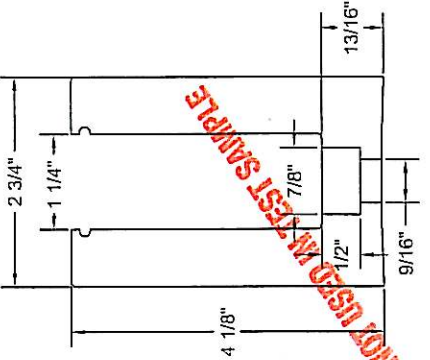
B5S20D

1/2" GLASS SQUARE BASE SHOE
DRILLED AT 12" ON CENTER



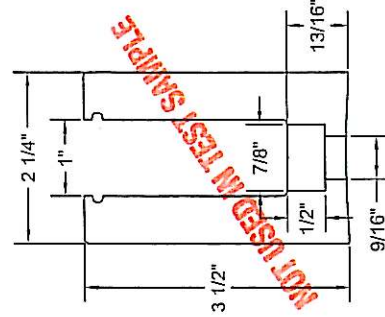
B5T20D

1/2" GLASS TAPERED BASE SHOE
DRILLED AT 12" ON CENTER
Sample A-4



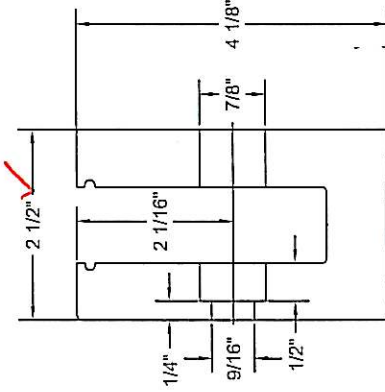
B7S20D

3/4" GLASS SQUARE BASE SHOE
DRILLED AT 12" ON CENTER



B5L20D -1/2" GLASS

LOW PROFILE SQUARE BASE SHOE
DRILLED AT 12" ON CENTER



B5S20F

1/2" GLASS SQUARE FASCIA BASE SHOE
DRILLED AT 12" ON CENTER
Samples A-5, A-8

FENESTRATION TESTING LAB, INC

LAB # 5823

DATE: 2/10/09

DRAWING VERIFIED BY: YMK

← Not able to
Webster

DESCRIPTION:

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WWW.CRLAURENCE.COM



C.R.LAURENCE CO. ©

CAT. NO: GRS

FILE NAME: GRS_1

DRAWN BY: C.O

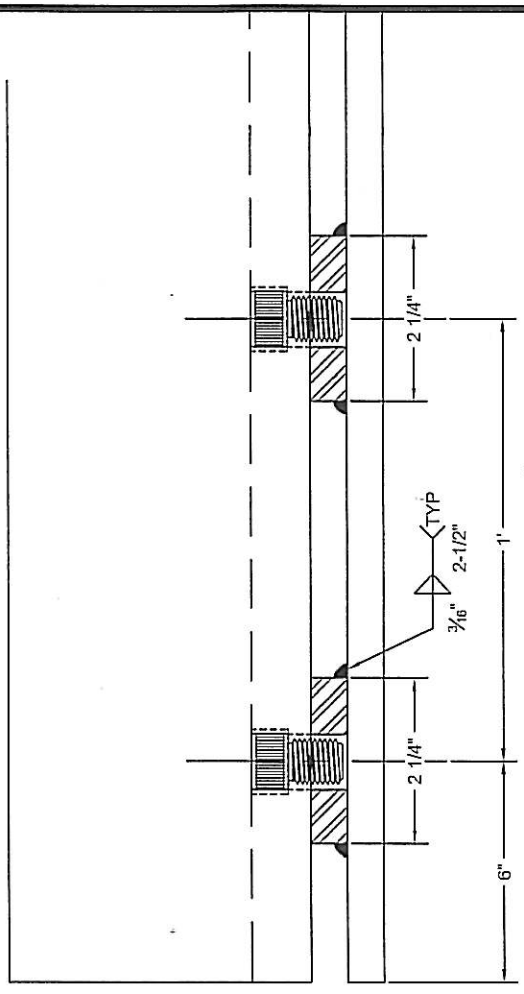
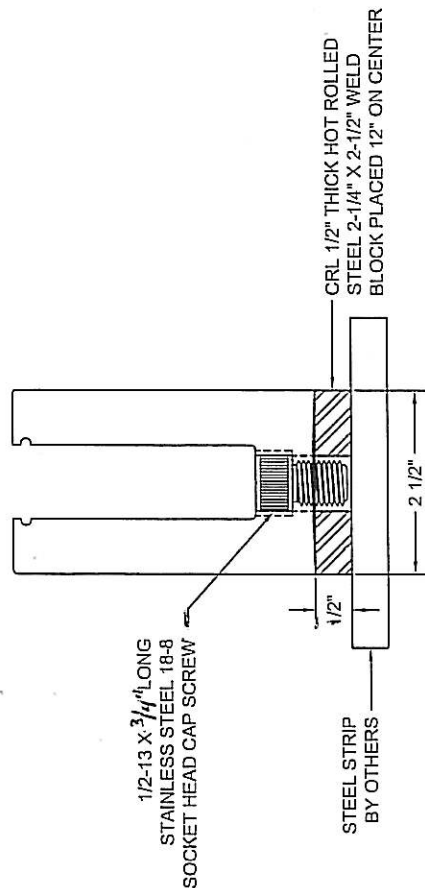
DATE: 4/28/08

SCALE:

SHT 1 OF 5

NOT USED IN TEST SAMPLE

TYPICAL WELD BLOCK DETAILS

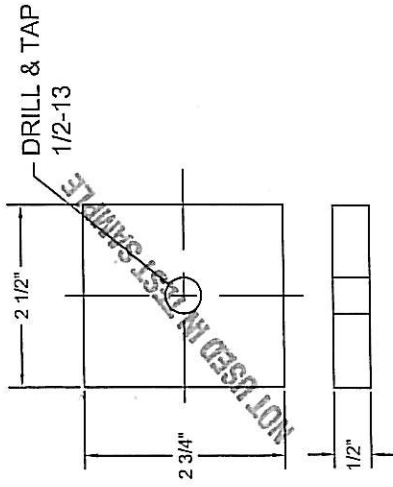


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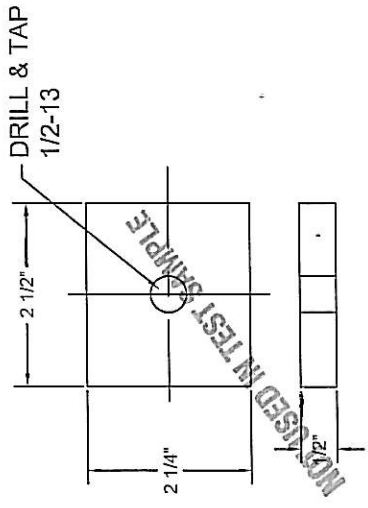
ARCHITECTURAL PRODUCTS
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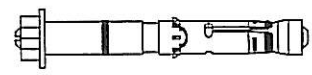
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| FILE NAME: | GRS_1 | SCALE: | |
| DRAWN BY: | C.O | SHT | 4 OF 5 |



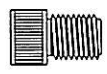
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HOT ROLLED STEEL WELD BLOCK
FOR 3/4" GLASS BASE SHOE



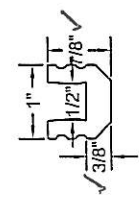
BSWB5
HOT ROLLED STEEL WELD BLOCK
FOR 1/2" GLASS SQUARE, TAPERED AND
LOW PROFILE BASE SHOE



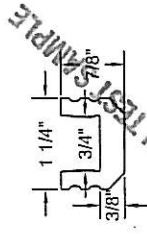
EBA334
HLT EXPANSION BOLT
Samples A-S, A-U



SHCS12X34
SOCKET HEAD CAP SCREW
Sample A-X



GR5UB4
1/2" GLASS RUBBER
SETTING BLOCK



GR7UB4
3/4" GLASS RUBBER
SETTING BLOCK

PENESTRATION TESTING LAB, INC

LAB # 5823

DATE: 2/10/09

DRAWING VERIFIED BY: *unk*

Only items checked in red have been
verified by laboratory

DESCRIPTION:

CAT. NO: GRS DATE: 4/28/08

FILE NAME: GRS_1 SCALE:

DRAWN BY: C.O

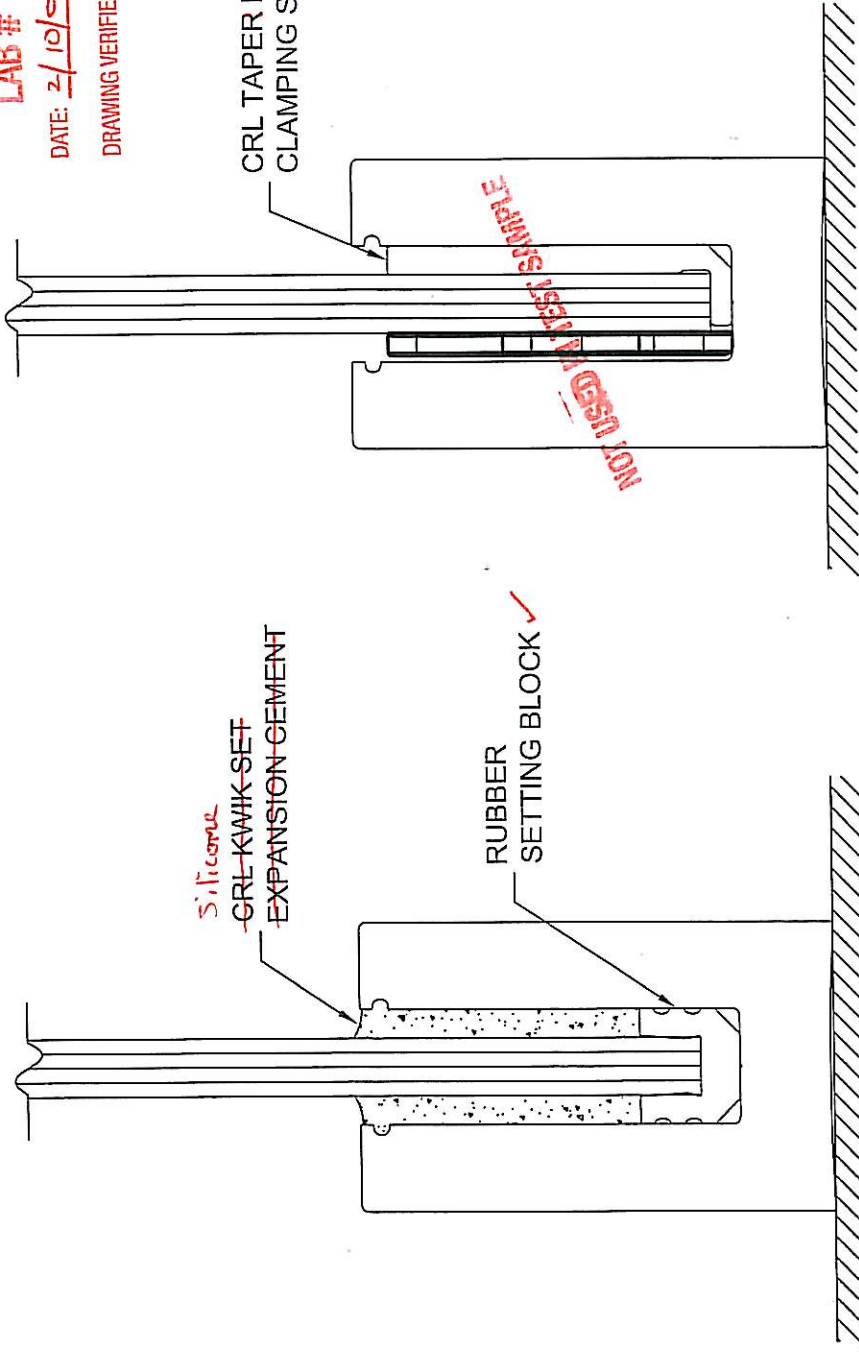
SHT 3 OF 5

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LAB # 5823

DATE: 2/10/09

DRAWING VERIFIED BY: *cmk*



WET SET APPLICATION

DRY GLAZE APPLICATION

DESCRIPTION:

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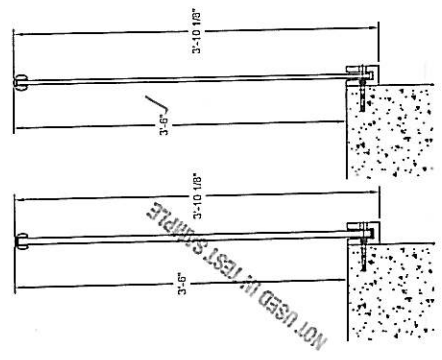
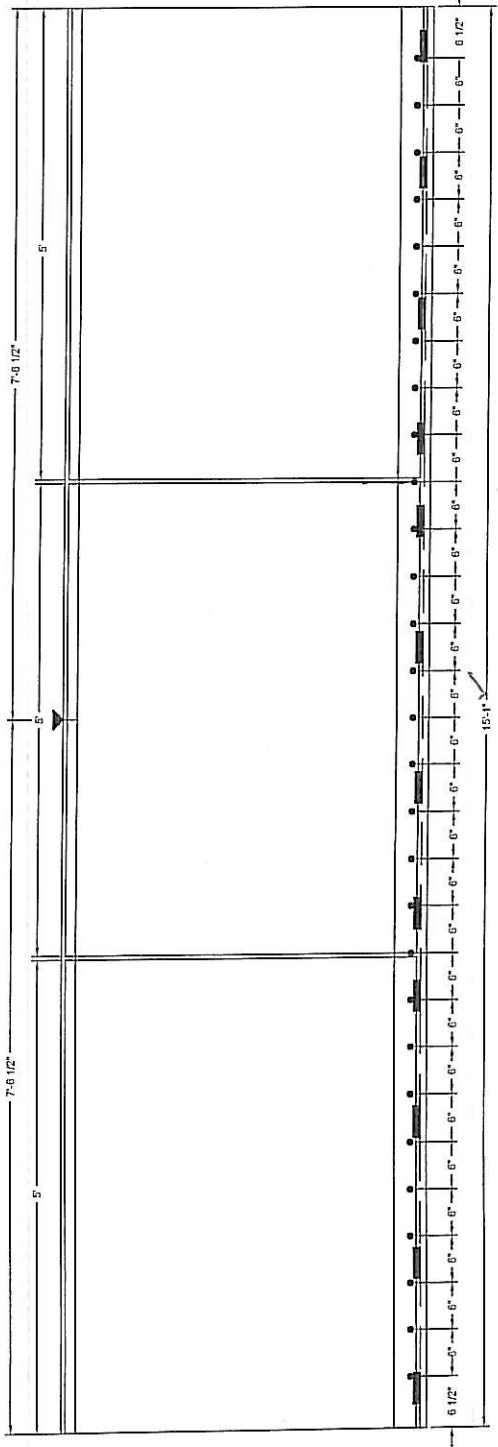
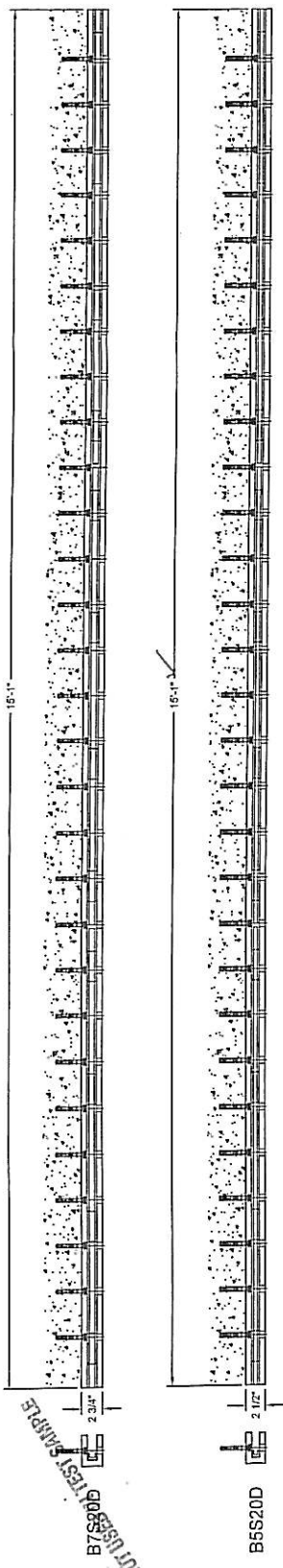
CRLAURENCE CO. ©

CAT. NO: GRS DATE: 4/28/08

FILE NAME: GRS_1 SCALE:

DRAWN BY: C.O

SHT 2 OF 5



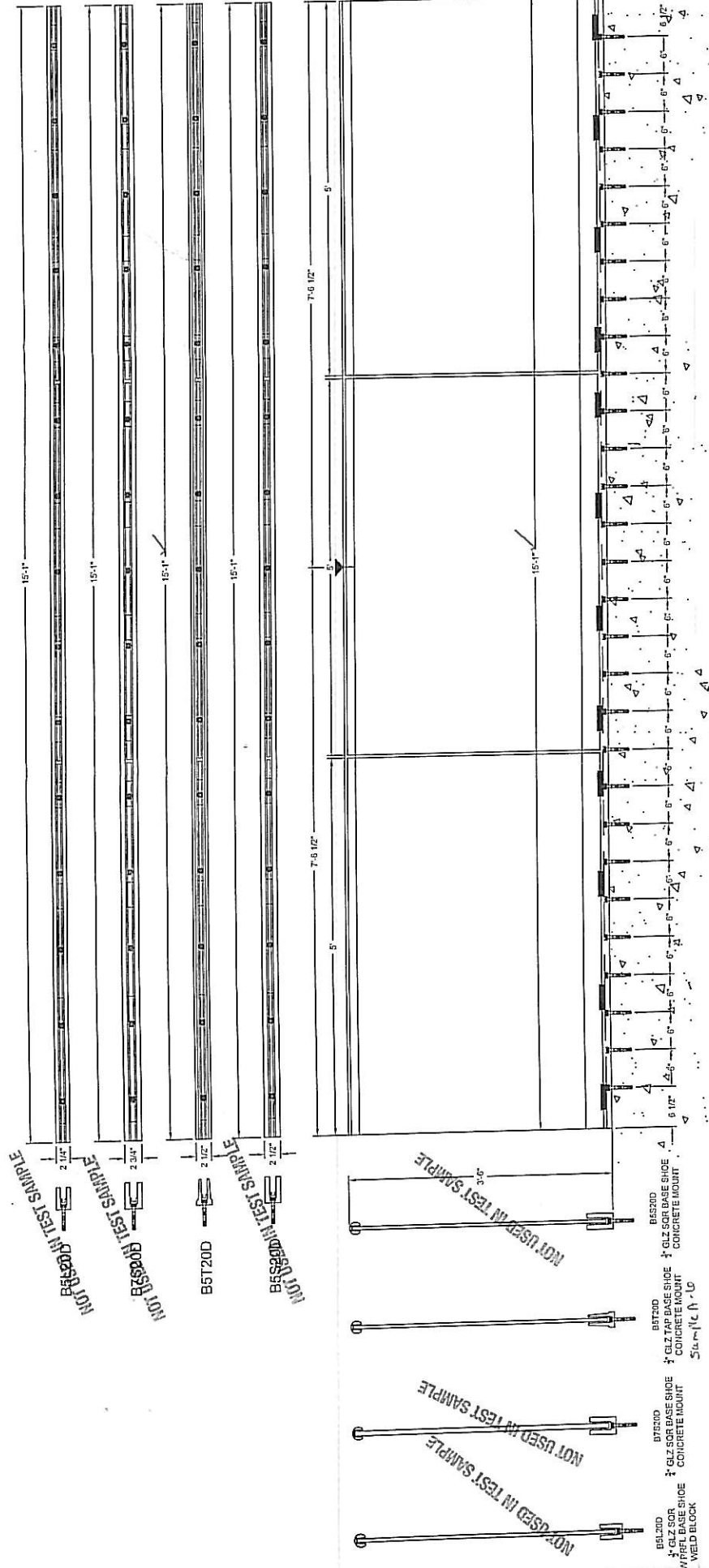
B7S20F
GLZ SUR BASE SHOE
FASCIA MOUNT
Sample A-3

FENESTRATION TESTING LAB, INC

LAB # 5823

DATE: 2/19/09
DRAWING VERIFIED BY: *Staff*

Only items checked in red have been
verified by laboratory



PENETRATION TESTING LAB, INC

LAB # 5823

DATE: 2/10/09

DRAWING VERIFIED BY: *SMR*

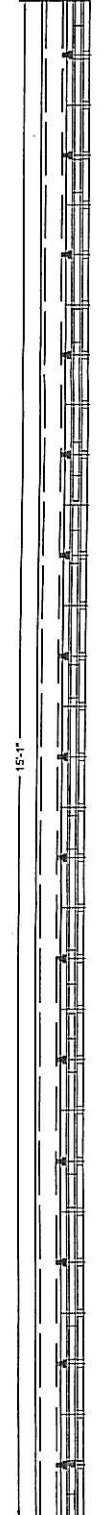
Only items checked in red have been verified by laboratory

| | | |
|--|------------------|----------------|
| DESCRIPTION: TEST 6 - WET GLAZE SYSTEM WINDOW FRAME SYSTEM ATTACHED TO CONCRETE | CAT. NO.: TEST 6 | DATE: 10/15/08 |
| | PART NO.: | SCALE: N.T.S. |

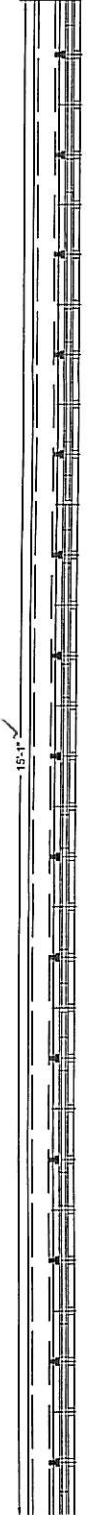
ARCHITECTURAL PRODUCTS
 LOS ANGELES, CA 90058
 PH: 800-421-6144 FX: 800-262-3289



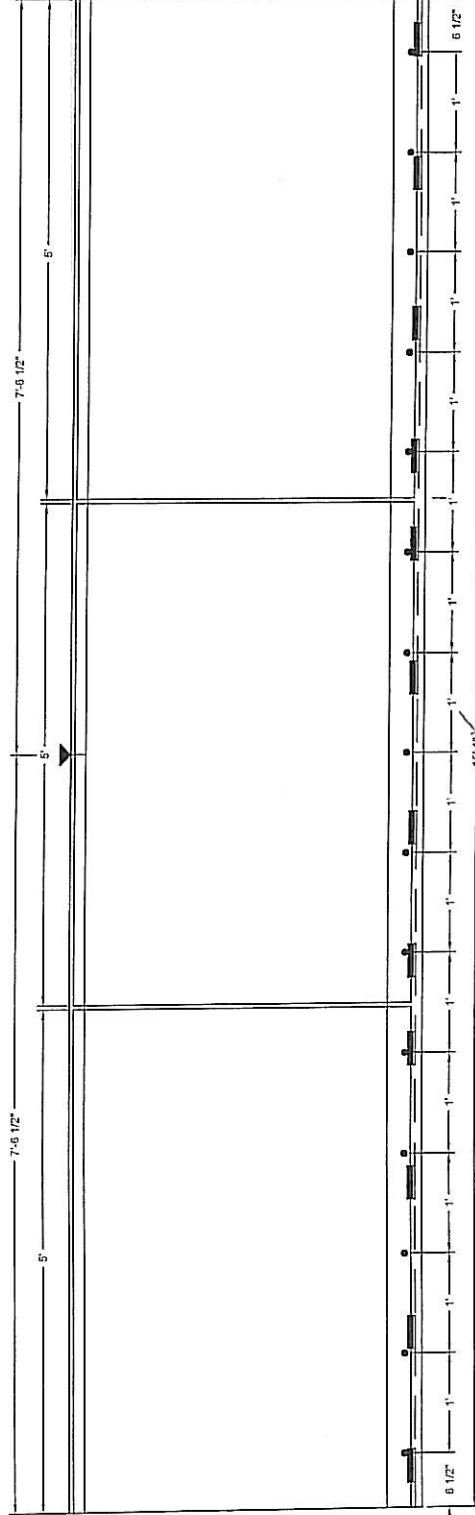
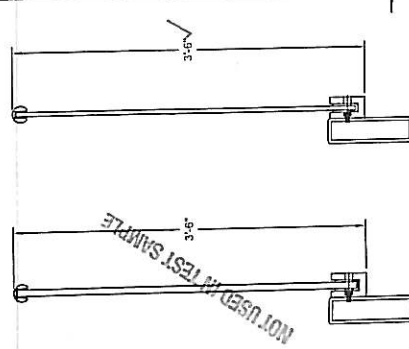
NOT USED IN TEST SAMPLE
B7S20F
GLZ SQR BASE SHOE
FASCIA MOUNT



B5S20D
GLZ SQR BASE SHOE
FASCIA MOUNT



NOT USED IN TEST SAMPLE
B7S20F
GLZ SQR BASE SHOE
FASCIA MOUNT



B5S20F
GLZ SQR BASE SHOE
FASCIA MOUNT
Sample A-8



FENESTRATION TESTING LAB, INC

LAB # 5823

DATE: 2/10/09

DRAWING VERIFIED BY: [Signature]

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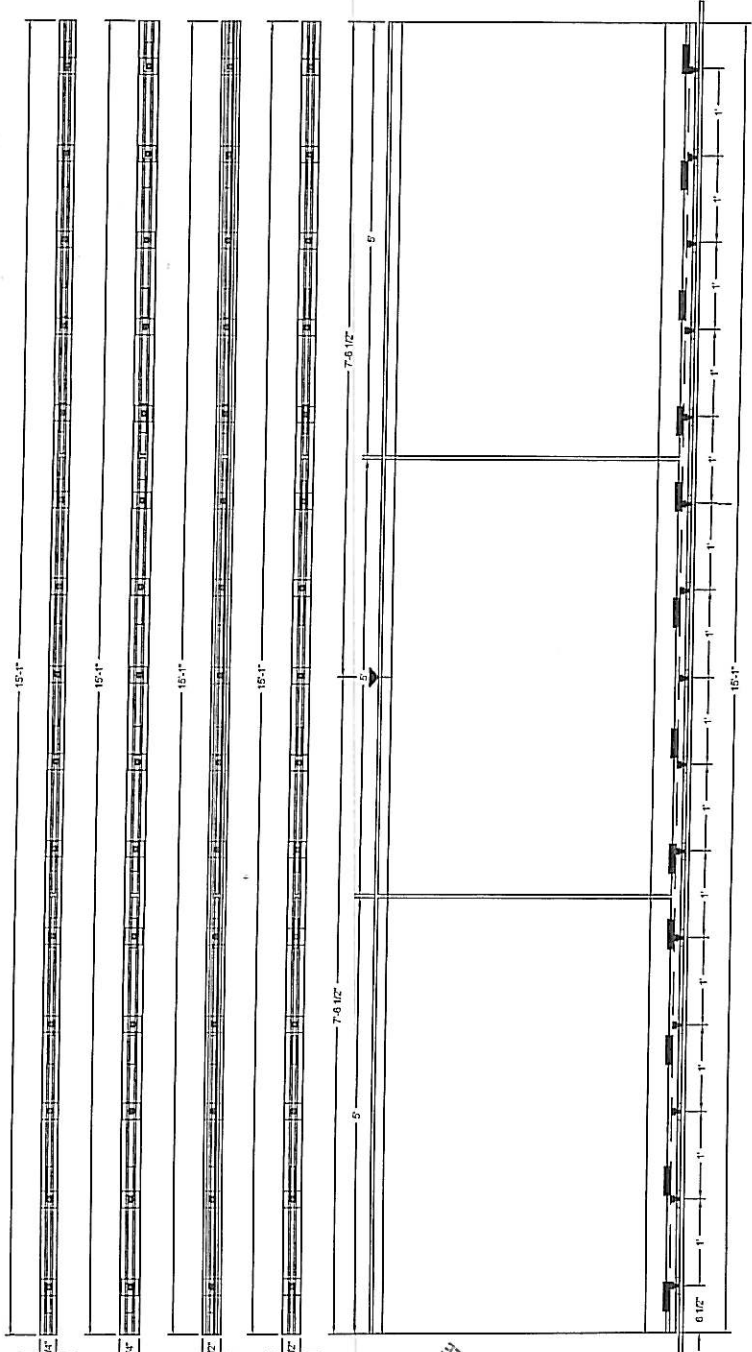


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DESCRIPTION: TEST 7 - WET GLAZE SYSTEM

CAT. NO: TEST 7
PART NO.

DATE: 10/15/08
SCALE: N T S

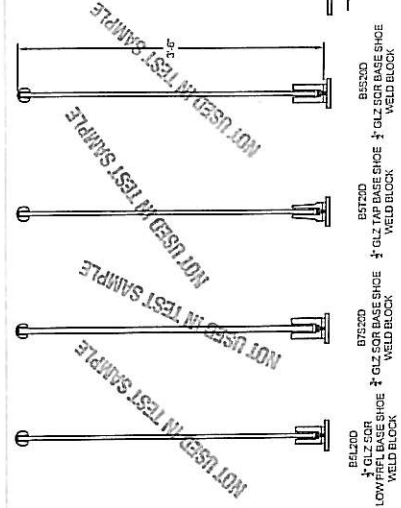


B5L20D

B7S20D

B5T20D

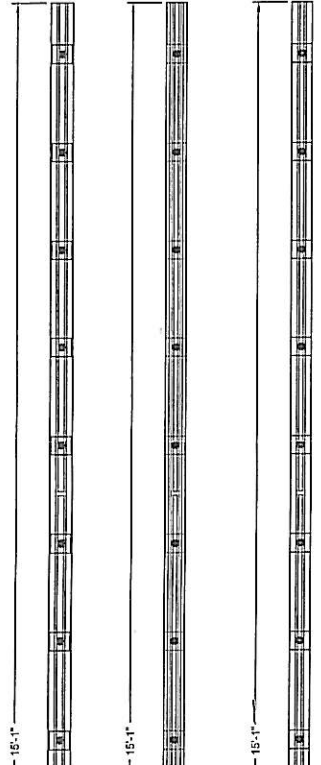
B6S20D



CAT. NO: TEST 5
 DATE: 10/15/08
 PART NO:
 SCALE: N.T.S.

DESCRIPTION: TEST 5 - WET-GLAZE SYSTEM
 CAP SCREWS @ 12" ON CENTER ATTACHED TO WELD BLOCKS ON STEEL SUBSTRATE

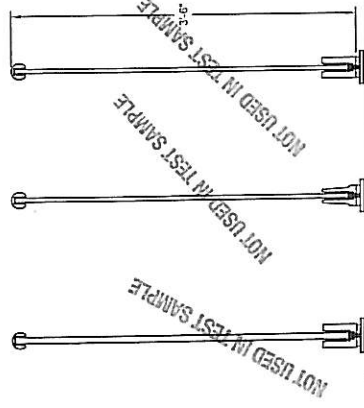
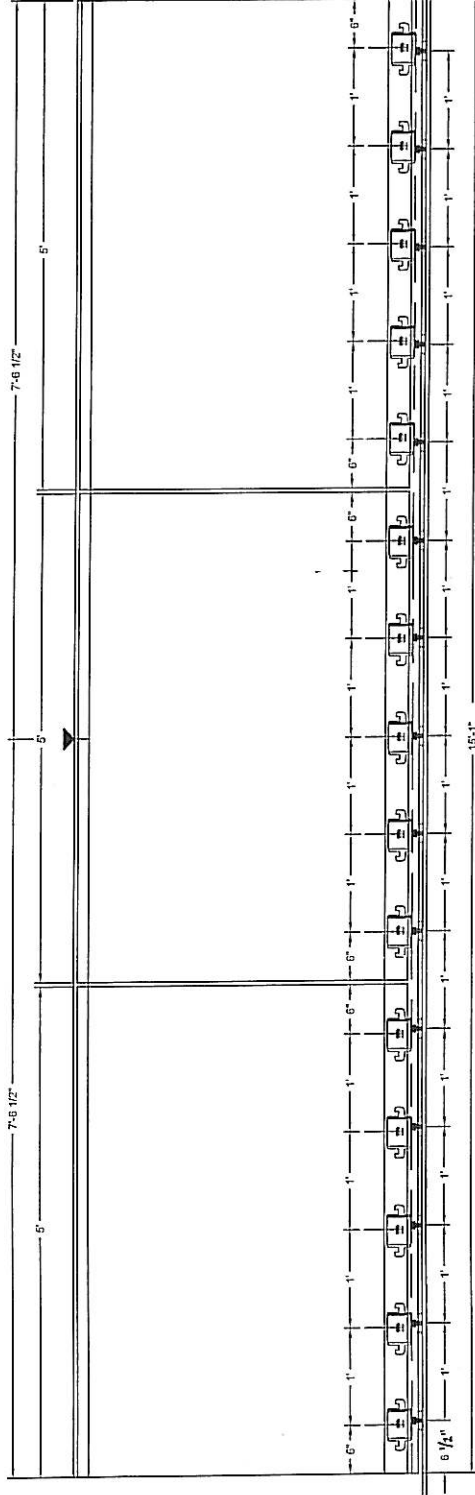
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NOT USED IN TEST SAMPLE

BST20D

BST200D

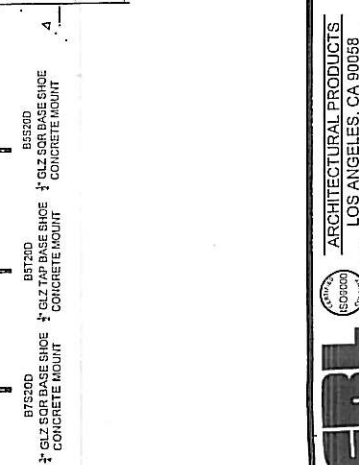
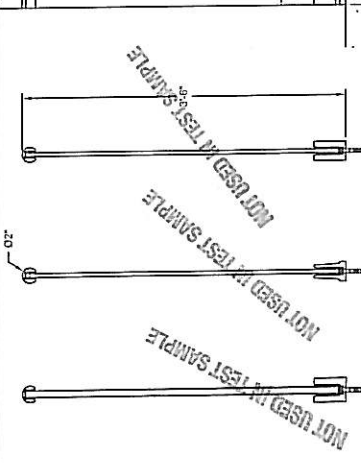
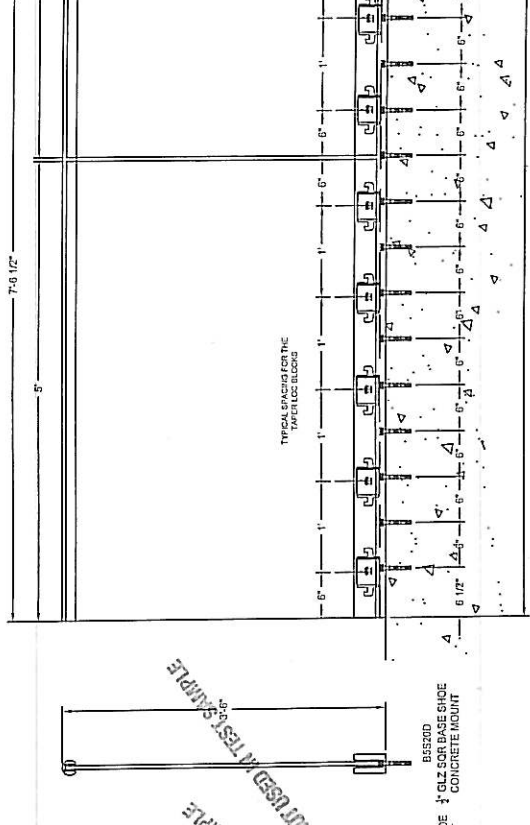
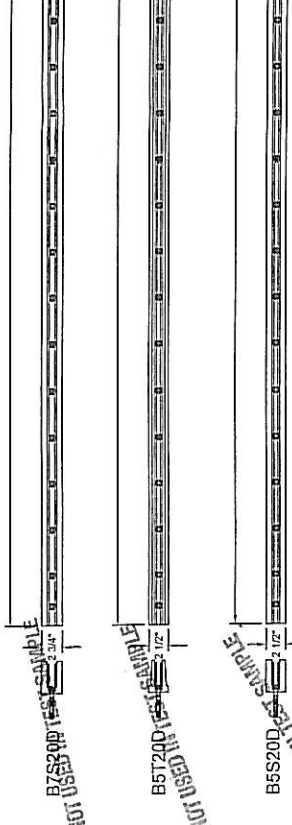
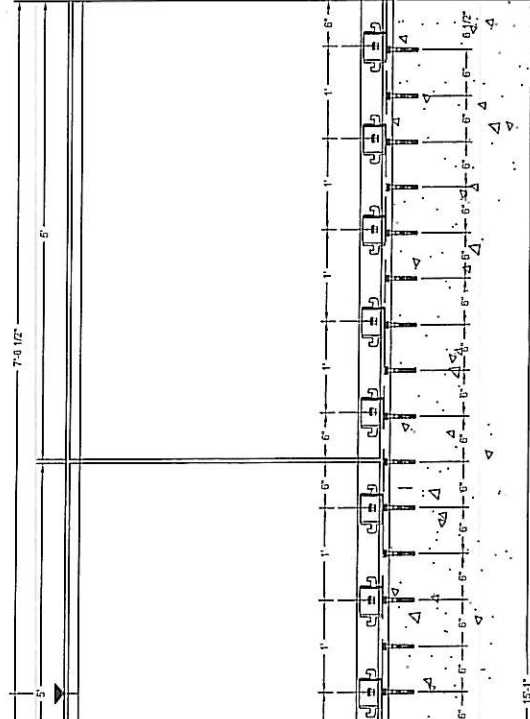
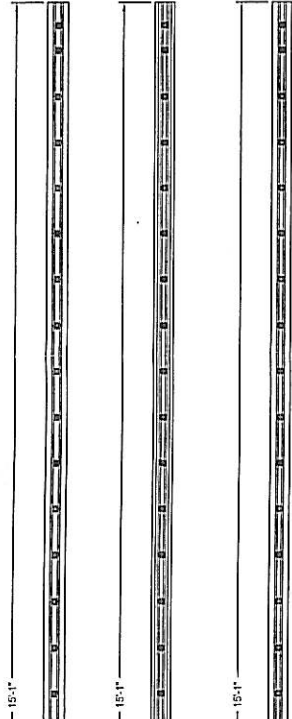


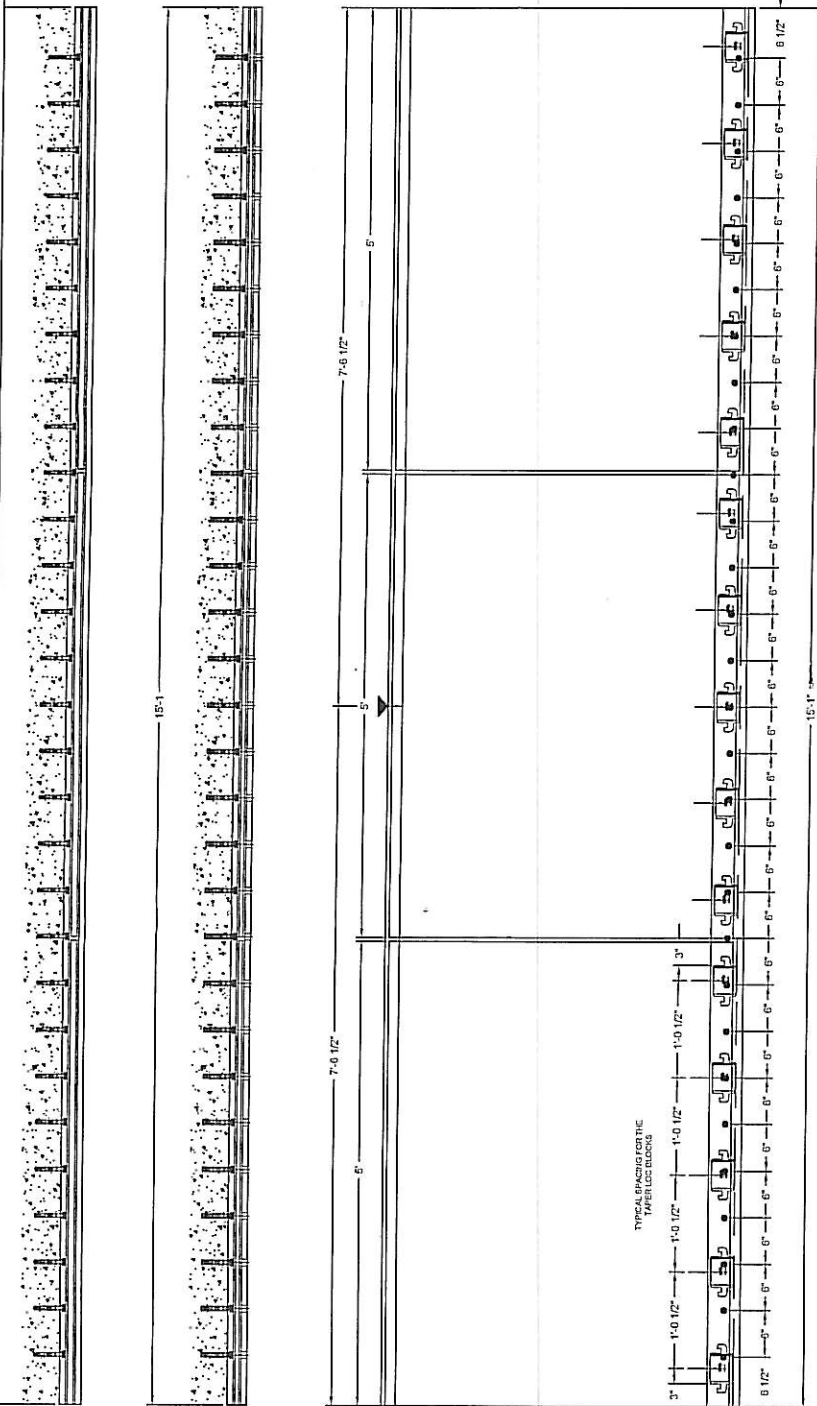
BST20D GLZ SDR BASE SHOE WELD BLOCK
 BST20D GLZ TAP BASE SHOE WELD BLOCK
 BST200D GLZ SDR BASE SHOE WELD BLOCK

CAT. NO: TEST 1
 DATE: 10/15/08
 PART NO:
 SCALE: N.T.S.

DESCRIPTION: TEST 1 - DRY GLAZE TAPER-LOC SYSTEM
 CAD SCHEMATIC ATTACHED TO WPI R.D. COVS ON STEEL SUBSTRATE

CRL ARCHITECTURAL PRODUCTS
 LOS ANGELES, CA 90068
 PH: 800-421-6744 FX: 800-262-3299





NOT USED IN TEST SAMPLE
B7S20F

NOT USED IN TEST SAMPLE
B5S20F

NOT USED IN TEST SAMPLE
3'-10 1/8"

NOT USED IN TEST SAMPLE
3'-10 1/8"

B7S20F
3" GLZ SGR BASE SHOE
FASCIA MOUNT

B5S20F
3" GLZ SGR BASE SHOE
FASCIA MOUNT

| | | | |
|--|--|-----------------|----------------|
| ARCHITECTURAL PRODUCTS LOS ANGELES, CA 90058 PH: 800-421-6144 FX: 800-262-3299 WWW.CRLAURANCE.COM | DESCRIPTION: TEST 4 - DRY GLAZE TAPER-LOC SYSTEM ANCHOR BOLTS @ 6" FASCIA MOUNTFFD TO CONCRETE | CAT. NO: TEST 4 | DATE: 10/15/08 |
| CRL C.R. LAURANCE CO. | | PART NO: | SCALE: N.T.S. |

