

# GJM CONSULTING, INC.

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FIELD REPORT 0806 - 02

JUNE 4, 2008

San Antonio Housing Authority  
457 Precious  
P.O. Box 831529  
San Antonio, Texas 78283 - 1529

**PROJECT** Testing of windows and structural wall area at the perimeter of the window unit for verification of resistance to water penetration. Exterior wall material had been removed and new flashing material installed between the window frame and structural wall material. Some of the existing sliding window units had been removed and new units installed. Exterior finish wall materials reinstalled, sealed and repainted.

Water penetration testing conducted June 2, and 3, 2008 by applying test water to the exterior surface of the construction joint between the installed window unit frames and the adjacent wall construction

**PROCEDURE:** Water penetration test conducted following the AAMA 501. 2 Field Check procedure. In this procedure, The water is applied through a specific nozzle at a nozzle inlet pressure of 30 psi. The nozzle is held one foot away from and perpendicular to the surface to be tested, it is move back and forth allowing the water to be applied to five feet of surface for a period of five minutes. Interior surfaces are under observation during the test water application.

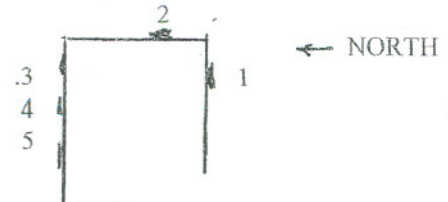
DATE	TEST LOCATIONS
June 2, 2008	No. 1. Residence at 434 Mathews
	No. 2. Residence at 638 Mathews
	No. 3. Residence at 738 Mathews
June 3, 2008	No. 4. Residence at 402 Precious
	No. 5. Residence at 634 Mathews

Five sheets recording the test water locations and time at each residence are attached.

End of report

  
George J. Muiyres  
Vice President, GJM Consulting, Inc.

TEST LOCATION No. 4 SCHMATIC plan of residence with location of windows tested indicated  
402 Precious



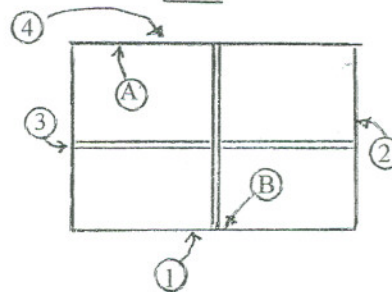
WINDOW NUMBER 1

Water Applied

- 1 9:37 AM - 9:43 AM - 6 minutes
- 2 9:43 AM - 9:48 AM - 5 minutes
- 3 9:48 AM - 9:53 AM - 5 minutes
- 4 9:53 AM - 9:59 AM - 5 minutes

No water penetration to the interior between window frame and wall observed.

- (A) Water entered between glass and seal at top of glass flowed down interior surface of glass.
- (B) Water on wood sill. Appeared to have penetrated corner joint of window frame.



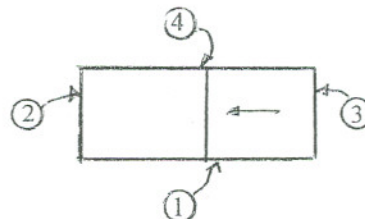
TWO 3'-0" x 5'-0" SINGLE HUNG UNITS

WINDOW NUMBER 2

Water Applied

- 1 10:05 AM - 10:10 AM - 5 minutes
- 2 10:10 AM - 10:15 AM - 5 minutes
- 3 10:15 AM - 10:18 AM - 3 minutes
- 4 10:18 AM - 10:23 AM - 5 minutes

No water penetration to the interior observed.



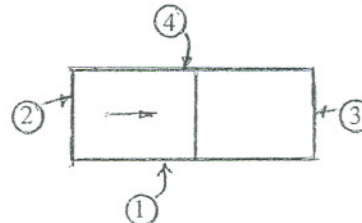
3'-0" x 5'-0" SLIDING WINDOW

WINDOW NUMBER 3

Water Applied

- 1 10:26 AM - 10:31 AM - 5 minutes
- 2 10:31 AM - 10:34 AM - 3 minutes
- 3 10:34 AM - 10:37 AM - 3 minutes
- 4 10:37 AM - 10:42 AM - 5 minutes

No water penetration to the interior observed.



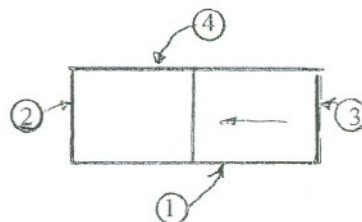
3'-0" x 5'-0" SLIDING WINDOW

WINDOW NUMBER 4

Water Applied

- 1 10:43 AM - 10:48 AM - 5 minutes
- 2 10:48 AM - 10:51 AM - 3 minutes
- 3 10:51 AM - 10:54 AM - 3 minutes
- 4 10:54 AM - 10:59 AM - 5 minutes

No water penetration to the interior observed.



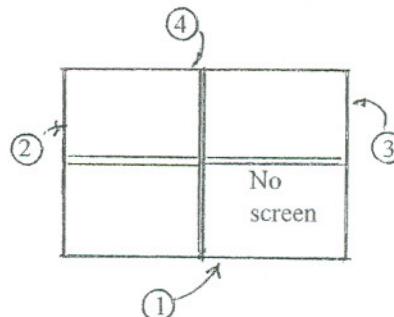
3'-0" x 5'-0" SLIDING WINDOW

WINDOW NUMBER 5

Water Applied

- 1 11:12 AM - 11:18 AM - 6 minutes
- 2 11:18 AM - 11:23 AM - 5 minutes
- 3 11:23 AM - 11:28 AM - 5 minutes
- 4 11:28 AM - 11:34 AM - 6 minutes

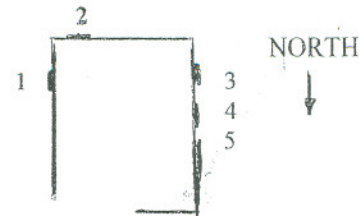
No water penetration to the interior observed.



TWO 3'-0" x 5'-0" SINGLE HUNG UNITS

Test Location No. 1.  
434 Mathews

SCHMATIC plan of residence with  
location of windows tested indicated

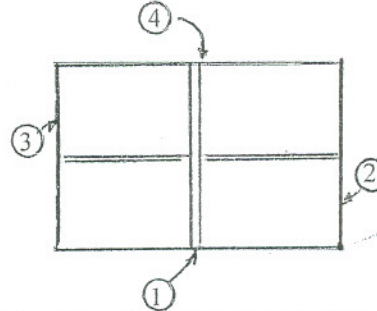


WINDOW NUMBER 1

Water Applied

- 1 9:51 AM - 9:57 AM - 6 minutes
- 2 9:57 AM - 10:02 AM - 5 minutes
3. 10:02 AM - 10:07 AM - 5 minutes
4. 10:07 AM - 10:12 AM - 5 minutes

No water penetration to the interior observed .



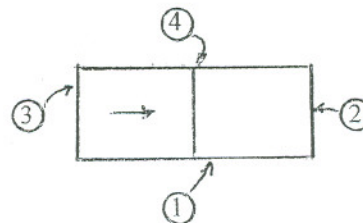
TWO 3'-0" x 5'-0" SINGLE HUNG UNITS

WINDOW NUMBER 2

Water Applied

- 1 10:13 AM - 10:18 AM 5 minutes
- 2 10:18 AM - 10:21 AM - 3 minutes
3. 10:21 AM - 10:24 AM - 3 minutes
4. 10:28 AM - 10:29 AM - 5 minutes

No water penetration to the interior observed .



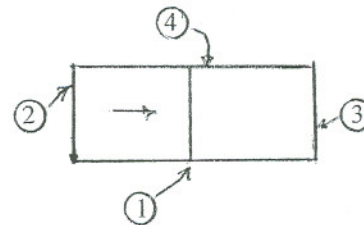
3'-0" x 5'-0" SLIDING WINDOW

WINDOW NUMBER 3

Water Applied

- 1 10:30 AM - 10:35 AM - 5 minutes
- 2 10:35 AM - 10:38 AM - 3 minutes
3. 10:38 AM - 10:41 AM - 3 minutes
4. 10:41 AM - 10:46 AM - 5 minutes

No water penetration to the interior observed .



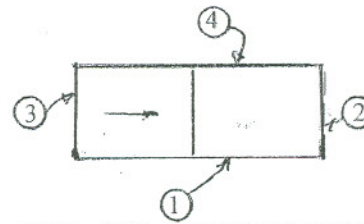
3'-0" x 5'-0" SLIDING WINDOW

WINDOW NUMBER 4

Water Applied

- 1 10:54 AM - 11:00 AM - 6 minutes
- 2 11:00 AM - 11:03 AM - 3 minutes
3. 11:03 AM - 11:06 AM - 3 minutes
4. 11:06 AM - 11:11 AM - 5 minutes

No water penetration to the interior observed .



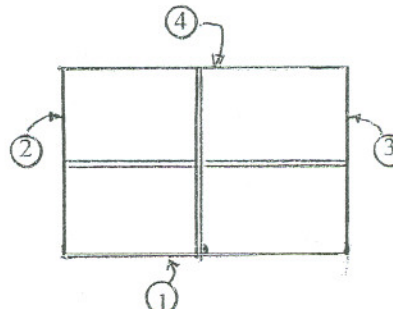
3'-0" x 5'-0" SLIDING WINDOW

WINDOW NUMBER 5

Water Applied

- 1 11:12 AM - 11:18 AM - 6 minutes
- 2 11:18 AM - 11:23 AM - 5 minutes
3. 11:23 AM - 11:28 AM - 5 minutes
- 4 . 11:28 AM - 11:34 AM - 6 minutes

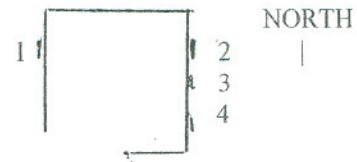
No water penetration to the interior observed .



TWO 3'-0" x 5'-0" SINGLE HUNG UNITS

TEST LOCATION No. 2.  
638 Mathews

SCHEMATIC plan of residence with  
location of windows tested indicated

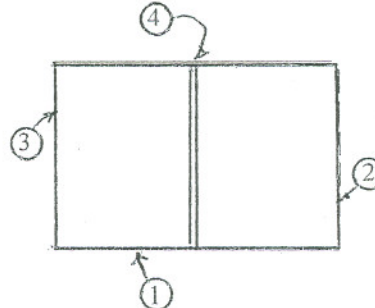


#### WINDOW NUMBER 1

##### Water Applied

- 1 11:54 AM - 12:00 Noon 6 minutes
- 2 12:00 PM - 12:05 PM - 5 minutes
3. 12:05 PM - 12:10 PM - 5 minutes
4. 12:10 PM - 12:16 PM 6 minutes

No water penetration to the interior observed .



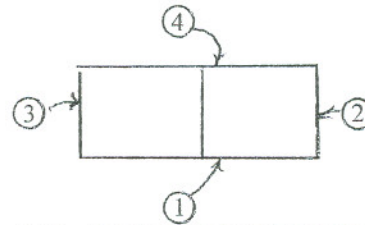
TWO 3'-0" x 5'-0" SINGLE HUNG UNITS

#### WINDOW NUMBER 2

##### Water Applied

- 1 12:20 PM - 12:27 PM 5 minutes
- 2 12:27 PM - 12:30 PM - 3 minutes
3. 12:30 PM - 12:33 PM - 3 minutes
4. 12:33 PM - 12:38 PM - 5 minutes

No water penetration to the interior observed .



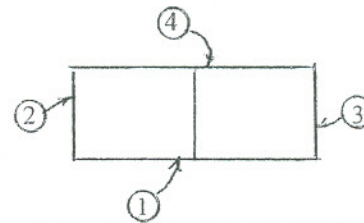
3'-0" x 5'-0" SLIDING WINDOW

#### WINDOW NUMBER 3

##### Water Applied

- 1 12:39 PM - 12:44 PM - 5 minutes
- 2 12:44 PM - 12:47 PM - 3 minutes
3. 12:47 PM - 12:50 PM - 3 minutes
4. 12:50 PM - 12:55 PM - 5 minutes

No water penetration to the interior observed .



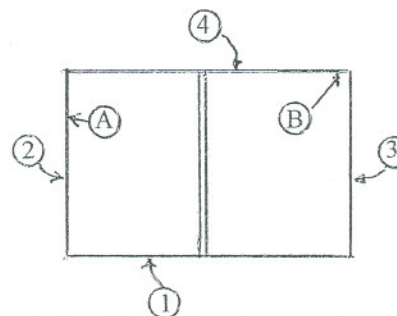
3'-0" x 5'-0" SLIDING WINDOW

#### WINDOW NUMBER 4

##### Water Applied

- 1 12:57 PM - 1:04 PM - 7 minutes
- 2 1:04 PM - 1:09 PM - 5 minutes
3. 1:09 PM - 1:14 PM - 5 minutes
- 4 . 1:14 PM - 1:20 PM - 6 minutes

No water penetration to the interior observed .



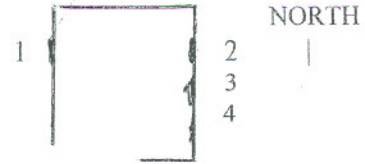
TWO 3'-0" x 5'-0" SINGLE HUNG UNITS

(A) 3 minutes into test water application No. 2. water observed between glass and seal six inches below top of glass panel. This water may enter the glass pocket at the top corner joint.

(B) 2 minutes into test water application No. 3. water observed on the glass surface below the seal 2 inches from the jamb. This water may enter at the corner joint. During test water application No. 4 at the top of the window unit, the water volume on the interior of the glass did not increase.

TEST LOCATION No. 3.  
738 Mathews

SCHMATIC plan of residence with  
location of windows tested indicated



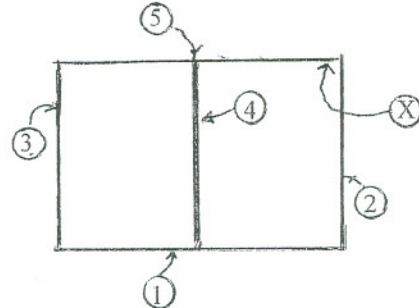
WINDOW NUMBER 1

Water Applied

- 1 2:39 PM - 2:45 PM - 6 minutes
- 2 2:45 PM - 2:50 PM - 5 minutes
3. 2:50 PM - 2:55 PM - 5 minutes
4. 2:55 PM - 3:00 PM - 5 minutes
5. 3:00 PM - 3:06 PM - 6 minutes

No water penetration to the interior  
between window frame and wall observed.

(X) Two minutes into test water application No. 2  
water observed between glass and seal at the top  
of the fixed glass panel 3" from jamb. The water  
flowed down the glass to the top of the vent panel.



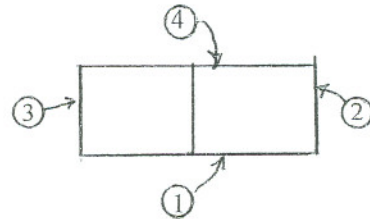
TWO 3'-0" x 5'-0" SINGLE HUNG UNITS

WINDOW NUMBER 2

Water Applied

- 1 3:11 PM - 3:16 PM - 5 minutes
- 2 3:16 PM - 3:19 PM - 3 minutes
3. 3:19 PM - 3:22 PM - 3 minutes
4. 3:22 PM - 3:27 PM - 5 minutes

No water penetration to the interior observed .



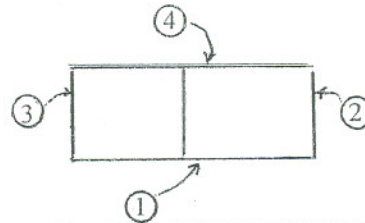
3'-0" x 5'-0" SLIDING WINDOW

WINDOW NUMBER 3

Water Applied

- 1 3:29 PM - 3:34 PM - 5 minutes
- 2 3:34 PM - 3:37 PM - 3 minutes
3. 3:37 PM - 3:40 PM - 3 minutes
4. 3:40 PM - 3:45 PM - 5 minutes

No water penetration to the interior observed .



3'-0" x 5'-0" SLIDING WINDOW

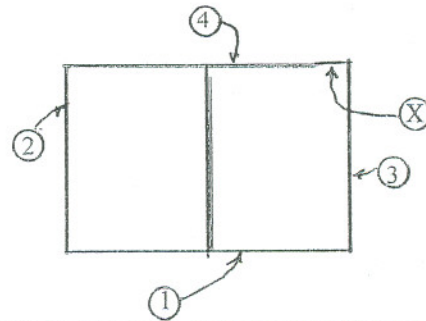
WINDOW NUMBER 4

Water Applied

- 1 3:47 PM - 3:53 PM - 6 minutes
- 2 3:53 PM - 3:58 PM - 5 minutes
3. 3:58 PM - 4:03 PM - 5 minutes
- 4 . 4:03 PM - 4:09 PM - 6 minutes

No water penetration to the interior  
between window frame and wall observed

(X) One minute into test water application No. 3  
water observed between glass and seal at the top  
of the fixed glass panel 3" from jamb. The water  
flowed down the interior surface of the glass.



TWO 3'-0" x 5'-0" SINGLE HUNG UNITS

TEST LOCATION No. 5. SCHMATIC plan of residence with  
634 Mathews location of windows tested indicated



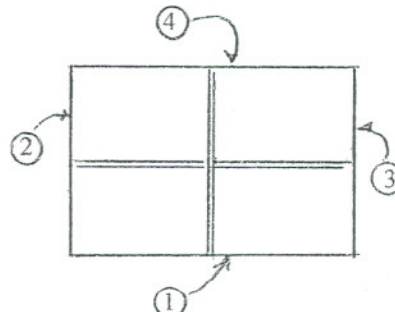
WINDOW NUMBER 1

Water Applied

- 1 12:00 Noon - 12:06 PM - 6 minutes
- 2 12:06 PM - 12:11 PM - 5 minutes
- 3 12:11 PM - 12:16 PM - 5 minutes
- 4 12:16 PM - 12:21 PM - 5 minutes

No water penetration to the interior observed .

Water on floor 8 inches from bottom of wall  
Not from test procedure



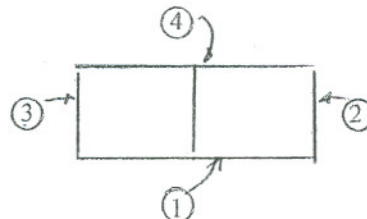
TWO 3'-0" x 5'-0" SINGLE HUNG UNITS

WINDOW NUMBER 2

Water Applied

- 1 12:23 PM - 12:28 PM - 5 minutes
- 2 12:28 PM - 12:31 PM - 3 minutes
- 3 12:31 PM - 12:34 PM - 3 minutes
- 4 12:34 PM - 12:39 PM - 5 minutes

No water penetration to the interior observed .



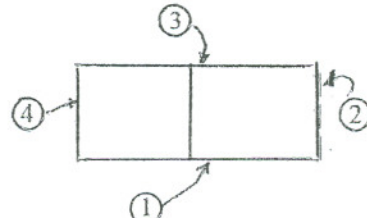
3'-0" x 5'-0" SLIDING WINDOW

WINDOW NUMBER 3

Water Applied

- 1 12:40 PM - 12:45 PM - 5 minutes
- 2 12:45 PM - 12:48 PM - 3 minutes
- 3 14:48 PM - 12:53 PM - 5 minutes
- 4 12:53 PM - 12:56 PM - 3 minutes

No water penetration to the interior observed .



3'-0" x 5'-0" SLIDING WINDOW

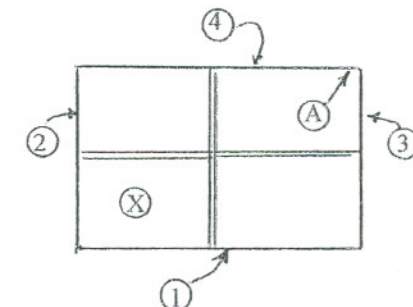
WINDOW NUMBER 4

Water Applied

- 1 12:59 PM - 1:05 PM - 6 minutes
- 2 1:05 PM - 1:10 PM - 5 minutes
- 3 1:10 PM - 1:15 PM - 5 minutes
- 4 1:15 PM - 1:21 PM - 6 minutes

No water penetration to the interior  
between window frame and wall observed.

(X) Interior lite of glass panel broken



TWO 3'-0" x 5'-0" SINGLE HUNG UNITS

(A) During test application (3) water observed on interior of glass between glass and seal. Volume of water on interior increased during test application No. (4).

At conclusion of test, water observed on floor at the bottom of the wall 8 inches from the left jamb of the window . Interior wall surface at the window jamb and sill felt dry. During an inspection of the exterior of the window and wall, a joint in the siding appeared to be open. This joint is in line with the area where water was observed on the interior floor.