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TESTING OF *STOVETOP FIRESTOP® LOWPRO®*, IN GENERAL ACCORDANCE WITH UL SUBJECT 300A, *OUTLINE OF INVESTIGATION FOR EXTINGUISHING SYSTEM UNITS FOR RESIDENTIAL RANGE TOP COOKING SURFACES (ISSUE NO. 3, NOVEMBER 21, 2006)*

**FINAL REPORT
Consisting of 17 Pages**

**SwRI® Project No.: 01.28402.01.104
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Report Date: May 3, 2024**

Prepared for:

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1.0 INTRODUCTION

The objective of the test program was to evaluate the functionality of the StoveTop FireStop® LowPro® automatic fire suppression units in typical residential indoor cooktop fire situations. Testing was conducted in general accordance with UL Subject 300A, *Outline of Investigation for Extinguishing System Units for Residential Range Top Cooking Surfaces (Issue No. 3, November 21, 2006)*, at the Client's test facility, located in Fort Worth, Texas. The testing was conducted in general accordance, since not all the tests described in UL 300A were performed. However, the test setup and extinguishment tests were very similar to Test No. 6, described in Table 4.1 of UL 300A.

Jason Huczek, representing Southwest Research Institute, was present to witness testing. This report documents the testing performed and the results obtained.

The test methods described in this report are intended to measure and describe the properties of materials or products in response to heat and flame under controlled laboratory conditions. The results should not be used alone to describe or appraise the fire hazard or the fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a complete fire hazard for fire risk assessment, which takes into account all the factors that are pertinent to an assessment of the fire hazard or risk of a particular end-use.

The results presented in this report apply specifically to the specimens tested, in the manner tested, and not to the entire production of these or similar materials, nor to the performance when used in combination with other materials.

2.0 FIRE SUPPRESSION SYSTEM DESCRIPTION

The Client identified the system under test as, *Automatic Fire Suppression System for Grease Fires on Indoor Residential Cooktops (Class K)*. The specific product tested was the Stovetop Firestop® LowPro®. A product data sheet for this device can be referenced in Appendix A.

Figure 1 shows a photograph of the devices in their boxed and individual packaging. Figure 2 provides a close-up photograph of two angles of the device out of the packaging. Figure 3 shows two angles of the devices installed prior to a fire test.



Figure 1. Stovetop Firestop® LowPro® in Shipping Packaging.



Figure 2. Stovetop Firestop® LowPro® Close-up View.



Figure 3. Stovetop Firestop® LowPro® Installed prior to a Fire Test.

3.0 TEST CONFIGURATION AND PROCEDURE

The testing was conducted in the WilliamsRDM, Inc., fire test facility which was constructed to replicate a typical kitchen environment. The facility is climate controlled and contains a residential electric stove manufactured by GE, model number JB450DF1WW. A residential range hood, manufactured by Broan, is positioned above the stove and the mounting height is adjustable to allow the distance from the stove to the hood to be varied as desired.

Two range hood mounting heights were tested, 15 in. and 32 in., as measured from the burner surface to the unit mounting surface inside the range hood. These mounting heights represent the lower and upper range of typical kitchen arrangements, based on a survey conducted by WilliamsRDM, Inc.

Two skillet sizes were tested, 10-in. and 13-in. diameter, both with cast iron construction. These diameters are at the upper and lower ranges of the majority of skillets used for residential cooking, based on a survey conducted by WilliamsRDM. A single oil depth of 3/8-in. was used for all testing.

Vegetable oil was selected for use during all testing because it is the most common oil used for residential shallow pan cooking, based on a survey conducted by WilliamsRDM, Inc. Figure 4 shows a photograph of the oil used during testing.



Figure 4. Vegetable Oil Used for Fire Tests.

Instrumentation for the testing included a thermocouple (Omega Engineering, Type K, part number – TJ36-CAXL-14G-18-CC-XCIB-SMPW-M) to measure the oil temperature, a temperature display unit (Omron model# E5CSV-R1T-F) to record the oil temperature and a video system to document each test and record observations.



Figure 5. Oil Temperature Measurement (Left: Thermocouple Probe, Right: Temperature Display).

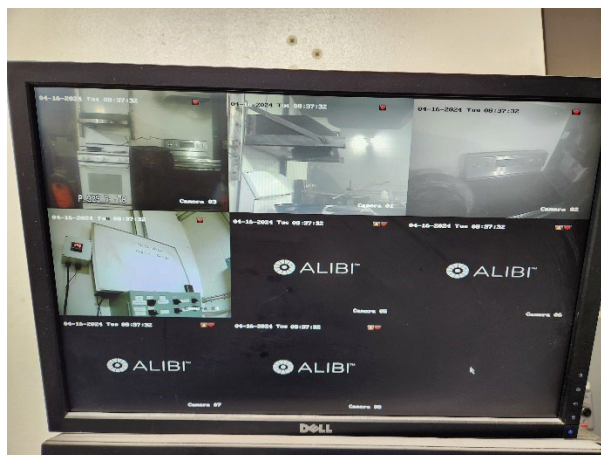


Figure 6. Photograph of Video Test Screen.

4.0 TEST PROCEDURE

For each test, the skillet is to be placed on the largest burner at the front or rear of the stove. The largest burner produces the most heat input to the skillet and this position is also the most difficult to suppress for an automatic fire suppression device, based on a survey conducted by WilliamsRDM, Inc. The burner was set at the highest setting for all tests. The general test procedure used for all testing was as follows:

1. Place fire suppression units under range hood per published mounting instructions
2. Place skillet on largest front/rear burner (cast iron 10"/13")
3. Pour vegetable oil into skillet to the specified depth
4. Position thermocouple in oil (tip to be approx. 1/8" below the surface)
5. Record unit mounting height
6. Record skillet size
7. Record oil type (vegetable)
8. Record oil depth and volume
9. Start video recording
10. Turn on burner to the highest setting
11. Heat oil to auto-ignition point
12. Allow fire to grow
13. Observe actuation of unit and suppression of the fire
14. Turn burner off after unit actuation
15. Observe skillet oil temp until it falls below 650°F (below auto-ignition temp)
16. Observe stove surface for oil splash and record observations
 - a. Splash y/n
 - b. If yes, # drops over dime size
17. Playback video and record data
 - a. Time to fire start
 - b. Oil temp at fire start point
 - c. Time to unit actuation from fire start
 - d. Oil temp at unit actuation
 - e. Time to fire extinguishment from unit actuation
 - f. Time from unit actuation to oil temp drop to 650°F, or to re-ignition.
18. Clean all surfaces and cool the test pan to ambient temperature before next test.

5.0 RESULTS

Testing was conducted in general accordance with UL 300A, and per the procedure outlined above, at the Client's test facility, located in Fort Worth, Texas. Jason Huczek, representing Southwest Research Institute, was present to witness testing. Table 1 provides a summary of the observations and results for each test. The *Stovetop Firestop® LowPro®* successfully extinguished all the test fires without re-ignition. Figures 7-14 provide selected photographs from each test.

Table 1. Summary of Test Results for Stovetop Firestop® LowPro®.

Test Date	Test No.	Skillet* Diameter (in.)	Oil Depth (in.)	Amount of Oil (cups)	Front or Rear Burner Position	Mounting Height (in.)	Time to Oil Auto-Ignition (min:s)	Oil Temp at Ignition (°F)	Time to Actuation from Ignition (s)	Oil Temp at Actuation (°F)	Time to Ext. from Actuation (s)	Time from Actuation to 650°F Oil Temp (min:s)	Oil Splash on Stove (Y/N)	No. Splash Drops over Dime Size
4/16/2024	1	10	3/8	1.2	Front	15	9:05	697	28	811	21	0:14	N	N/A
	2	10	3/8	1.2	Rear	15	10:02	708	14	755	1	ND	N	N/A
	3	13	3/8	2.4	Front	15	18:17	712	36	785	7	4:36	N	N/A
	4	13	3/8	2.4	Rear	15	34:12	642	1	642	2	0:02	N	N/A
	5	10	3/8	1.2	Front	32	8:00	651	43	818	4	3:56	N	N/A
	6	10	3/8	1.2	Rear	32	9:03	731	39	817	3	6:21	N	N/A
	7a	13	3/8	2.4	Front	32	16:02	690	48	783	6	0:59	N	N/A
	8	13	3/8	2.4	Rear	32	17:59	684	36	790	4	2:27	N	N/A

Note: Test 7 did not extinguish the skillet fire, however, after the test was complete and the fire was manually extinguished, the placement of the extinguishing device was re-checked and found to not be exactly centered on the burner, per the mounting instructions. This test was repeated as Test 7a after correcting the installation position of the device and those results are reported in Table 1.

ND: not determined; unfortunately, the video was stopped before the oil temperature was reduced to 650 °F.

*: All skillets tested were of cast iron construction.



Figure 7. Selected Photographs from Test 1.

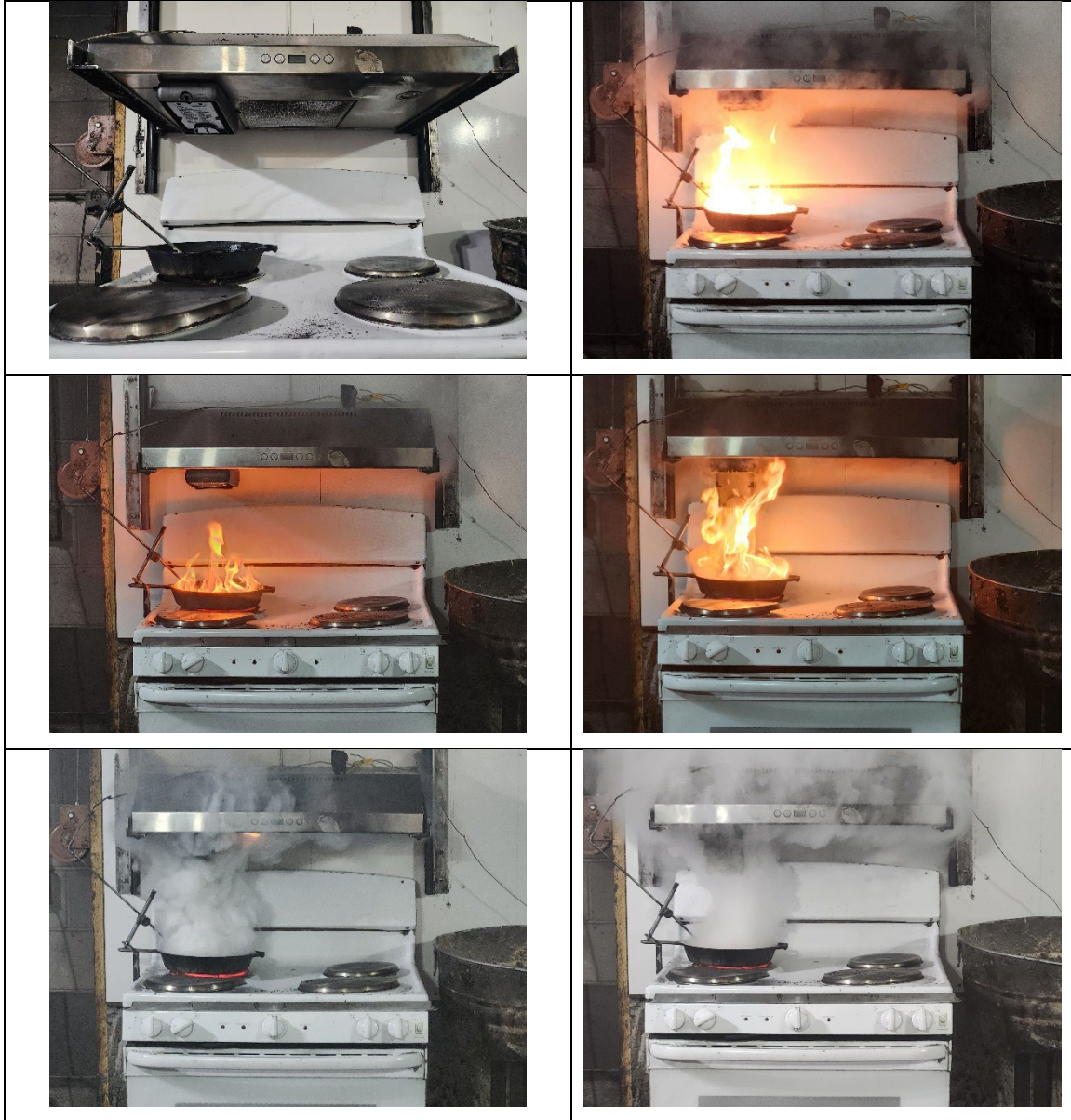


Figure 8. Selected Photographs from Test 2.



Figure 9. Selected Photographs from Test 3.



Figure 10. Selected Photographs from Test 4.

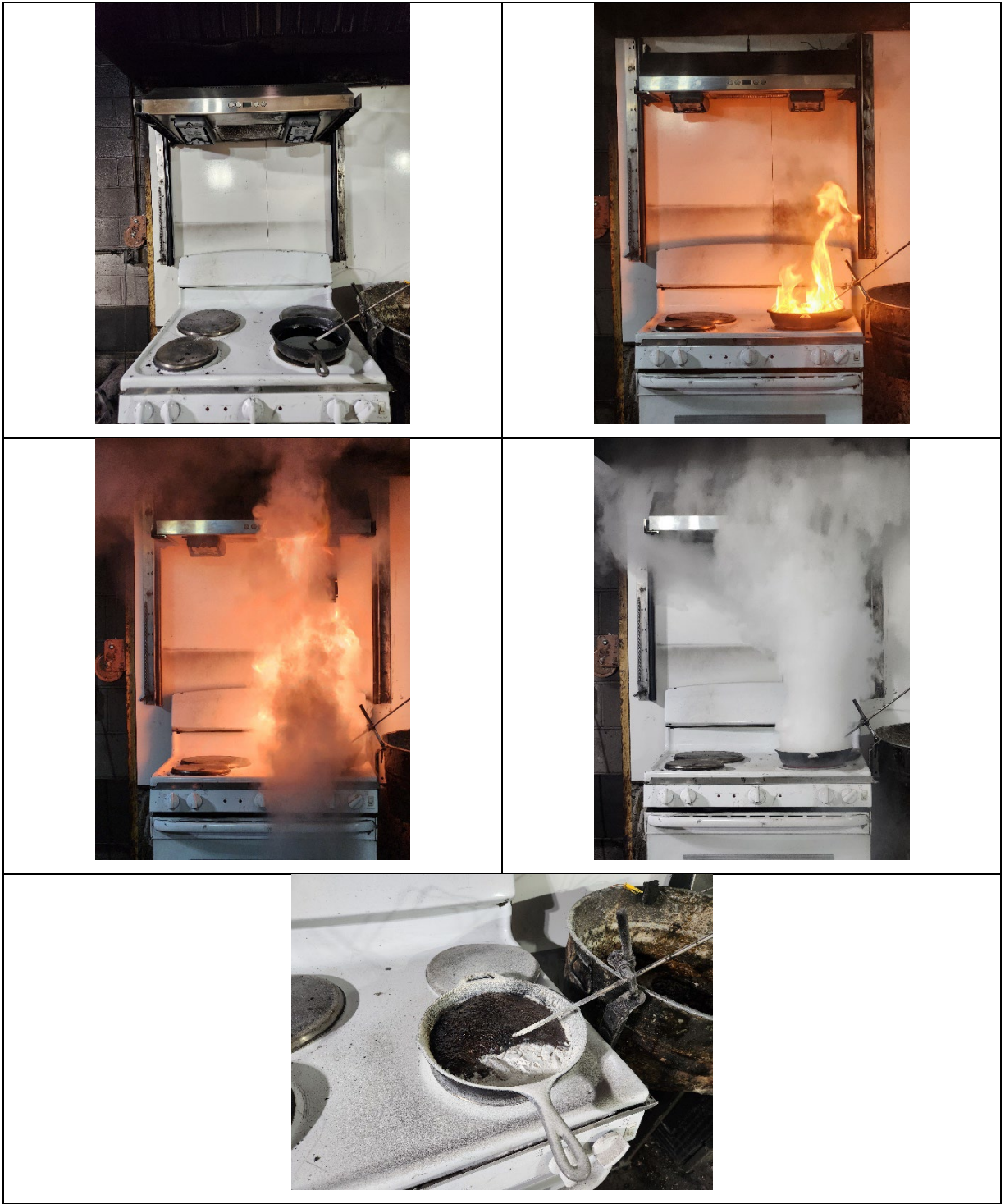


Figure 11. Selected Photographs from Test 5.



Figure 12. Selected Photographs from Test 6.

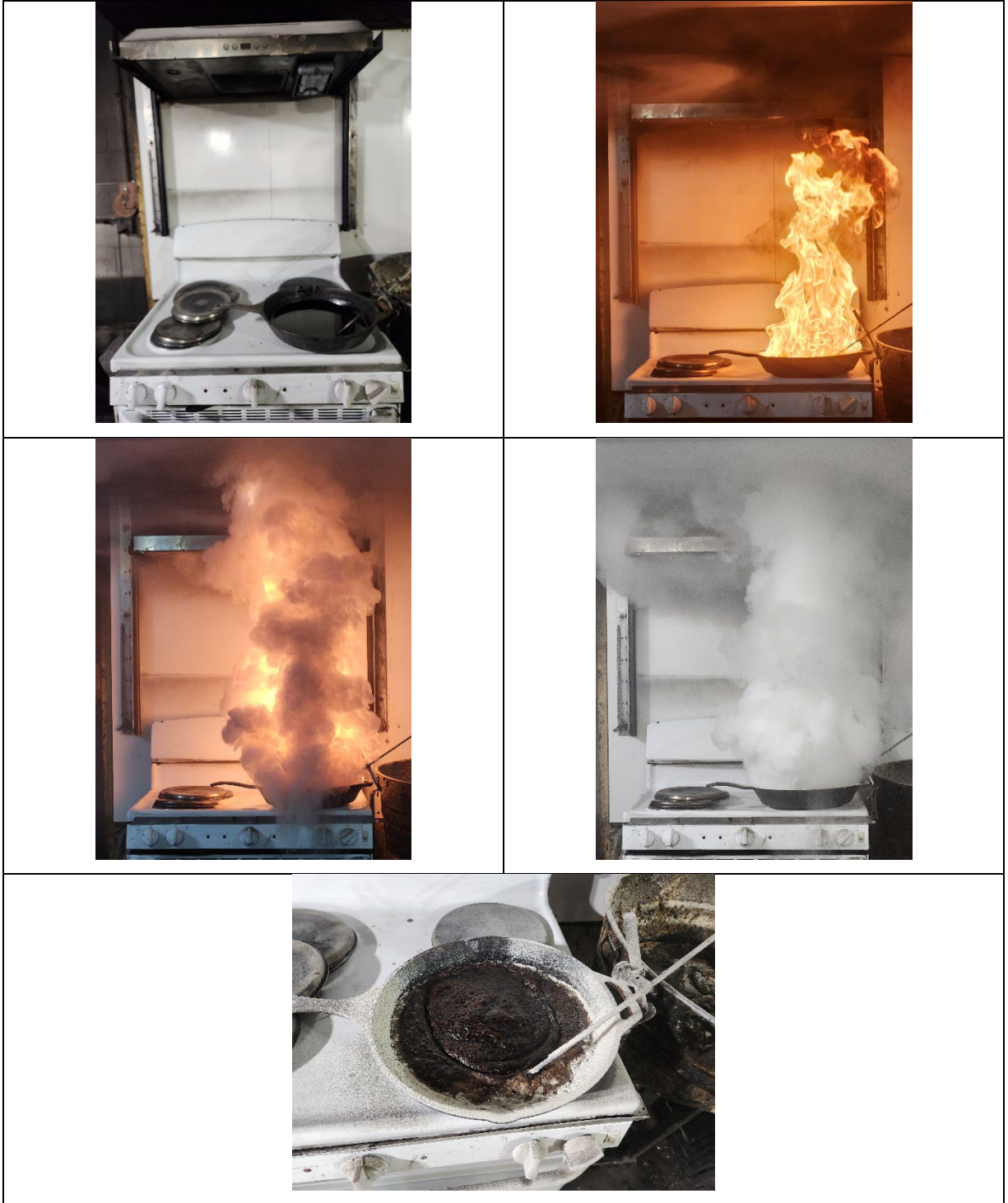


Figure 13. Selected Photographs from Test 7a.

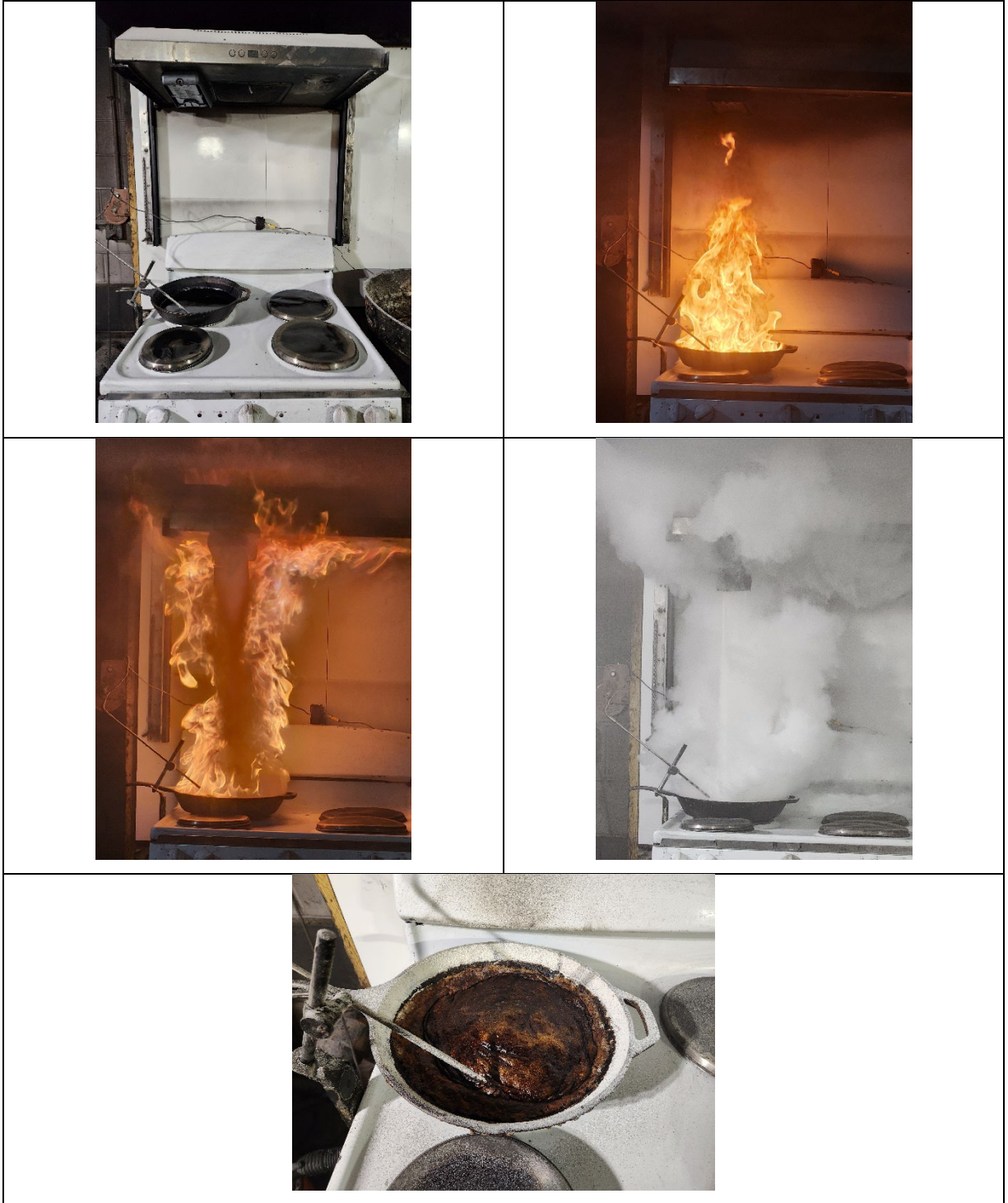


Figure 14. Selected Photographs from Test 8.

APPENDIX A
CLIENT-SUPPLIED PRODUCT DATA SHEET
(CONSISTING OF 2 PAGES)

FOR MICROWAVES & MODERN VENT HOODS

STOVETOP FIRESTOP LOWPRO®

Stovetop Firestop® LowPro® represents the next generation of StoveTop FireStop designed to be concealed under the microwave or a modern flat-bottom ventilation hood.

LowPro is easy to mount under the microwave. Each of four arms can swivel to avoid lights and vents

Our new ramp systems delivers all of the powder to fire or burner.



williamsrdrdm W

The NEWEST PRODUCT FROM STOVETOP FIRESTOP



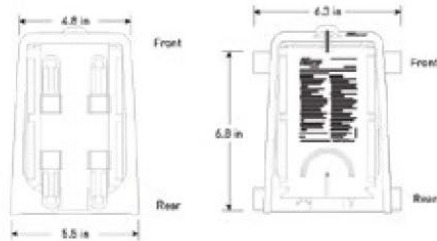
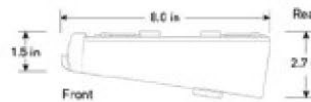
Stovetop FireStop LowPro
P/N: 691-1A

- Stylish design to mount under microwaves, or modern, flat-bottom ventilation hoods
- Magnet arms swivel to make installation easy
- New ramp can pivot forward or backward to deliver powder directly to the fire in the pan on either burner
- Vertical clearance: 15-32" between the mounting point and the cooking surface
- Automatic activation by direct contact with a sustained flame
- Each pair protects a typical residential, 4-burner stove
- No maintenance or inspections needed
- 6-year effective life



VISIT STFS.COM
TO SEE OUR
ENTIRE LINEUP
OF PRODUCTS

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One night back in 1972, our company's founders were attending a neighborhood block party when they overheard someone talking about a recent grease fire. The neighbor stated, "I got distracted and left the stove on. Sure, I had a fire extinguisher and baking soda in the fridge. But since I wasn't in the kitchen to use them, neither did me any good!" Hearing this story became a revelation, and launched the design of the simple, automatic fire suppressor that is today known as StoveTop FireStop.

PROVIDING SIMPLE, AUTOMATIC COOKING FIRE SUPPRESSION IS SOMETHING WE TAKE VERY SERIOUSLY.

StoveTop FireStop has protected individuals and families from the deadly effects of cooking fires since 1972, and we want to do the same for you and your family.

Originally founded in 1963 by Bob and Della Williams, the company now known as WilliamsRDM has a knack for solving complex problems with simple solutions.

For more information or to purchase, contact us below:

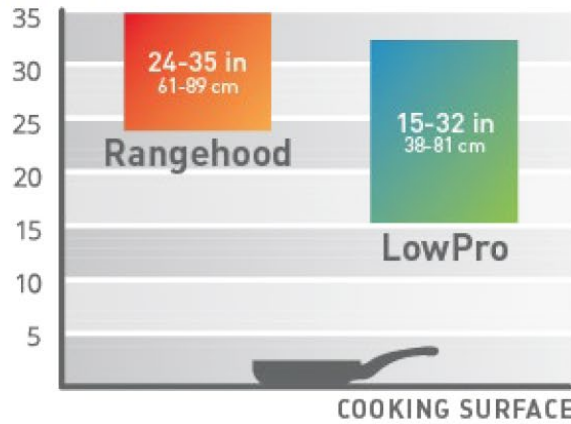
**STOVETOP
FIRESTOP**
a brand of WilliamsRDM
200 Greenleaf Street
Fort Worth, TX 76107
866 616-7976 TOLL FREE
STFS.com



SPECIFICATIONS

	LowPro
PART NUMBER	691-1A
COLOR	Black
HOOD TYPE	Protects kitchens with microwaves or flat-bottom ventilation hoods
CLEARANCE	15-32 inches
POSITIONING	Position one unit directly above front and back burner on each side of cooktop. The rear fuse must be positioned over the center of the rear burner.
MOUNTING	Attaches by four (4) pre-installed magnet arms to underside of ventilation hood
AUTOMATIC	Works automatically. Suppresses fires even when no one is in the kitchen
FUNCTION	Powder is released onto fire only with direct, sustained contact with a flame
ALERT	Makes a "POPI!" sound upon activation
UNIT OF SALE	Sold by the pair to protect a residential, four-burner cooktop
EFFECTIVE LIFE	Cooking fire protection for up to the printed "REPLACE BY" date which is six (6) years from date of manufacture.
NOTES	We invented the technology, and have been the market leader for over 40 years
	Designed to blend in with modern kitchen appliances

HEIGHT REQUIREMENTS



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