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## State Fire Marshal

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### MEMORANDUM

**DATE:** July 8, 2020  
**TO:** NFSA – Minnesota Chapter  
**FROM:** Jon Nisja, State Fire Marshal  
**SUBJECT:** State Fire Marshal Report – July, 2020

The following is a summary of the State Fire Marshal Division issues relating to sprinkler installation and fire protection systems:

#### 1. Workload / Activity:

The following is a year-end workload summary for the past four fiscal years (2017, 2018, 2019, and 2020):

Measurement:	FY 2017:	FY 2018:	FY 2019:	FY 2020:
Permit & Plan Applications Rcv'd.	455	475	447	420
Notices to Proceed Issued	449	470	444	419
Plans Cancelled	11 (2%)	11 (2%)	9 (2%)	4 (1%)
Plans Passed – Initial Review	391 (87%)	415 (88%)	408 (92%)	360 (86%)
Plans Passed – 2 <sup>nd</sup> Review	49 (11%)	38 (8%)	21 (5%)	24 (6%)
Plans Passed – 3 <sup>rd</sup> Review	2 (0%)	1 (0%)	1 (0%)	2 (0%)
Plans Passed – 4 <sup>th</sup> Review	0 (0%)	0 (0%)	0 (0%)	0
Remaining plans (in process)	0 (0%)	5 (1%)	5 (1%)	29 (7%)

21, 24, and 33 plans were received in April, May, and June, respectively. In recent years we have averaged about 37 plans a month.

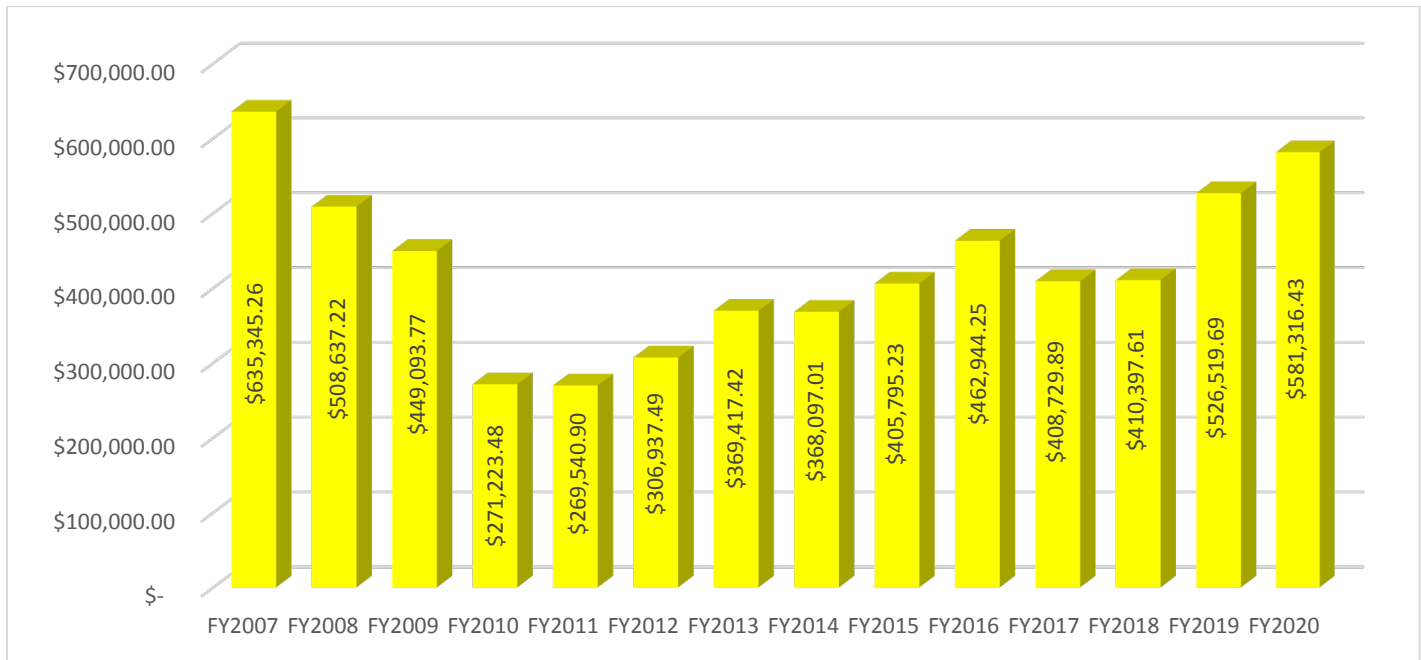
#### 2. Revenue:

Total revenue received for the past four fiscal years (2017, 2018, 2019, and 2020):

Source of Revenue:	FY 2017:	FY 2018:	FY 2019:	FY 2020:
All sources (permits, surcharges, certifications, licenses, exams, etc.)	\$516,552.89	\$487,032.43	\$511,877.61	\$581,316.43
Permits only	\$227,748.89	\$229,109.69	\$259,691.27	\$221,566.83

It appears that the revenue from permits for FY 2017 and FY 2018 was basically the same. FY 2019 was higher (\$30,581 more or about 13%) but FY 2020 was lower than FY 2017/2018 (about 2.5%).

The following chart shows the permit and surcharge revenue for the past 14 fiscal years (FY 2007-2020):

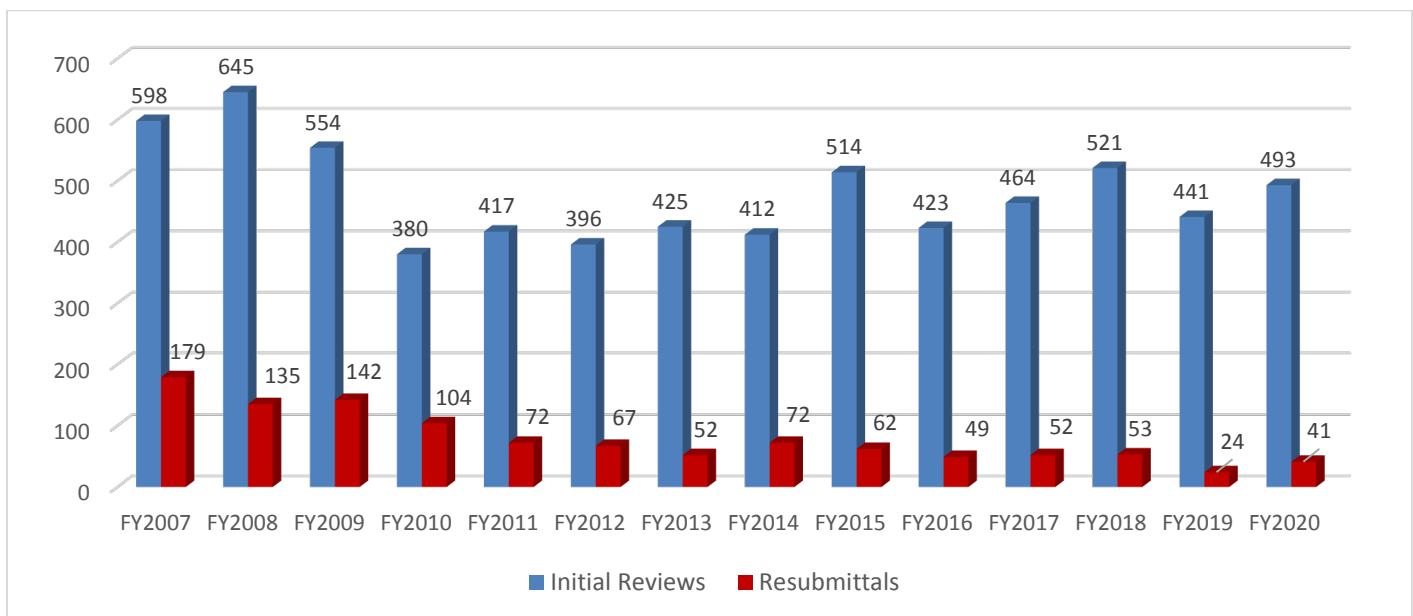


**3. Plan Review Status:** The current backlog varies by territory. Here are the dates of the plan reviews currently being worked on:

- Territory 1 – June 15, 2020
- Territory 2 – June 4, 2020
- Territory 3 – June 25, 2020

**4. Plan Review Comparisons:**

Below is a graph showing the number of plan reviews conducted for fiscal years 2007 through 2020:



**5. Contractor Licenses:**

As of Monday, July 6, 2020 there were 66 licensed contractors in Minnesota (down from 69 in July, 2019). Contractor renewals were due last week (6/30/2020). Here is a breakdown of the current contractor licenses:

License / Certificate Type:	Licensed July, 2019:	Licensed July, 2020:	Variance:
Contractors	59	57	-2
Design Contractors	8	6	-2
Limited Contractors	2	3	+1
<b>TOTAL CONTRACTORS</b>	<b>69</b>	<b>66</b>	<b>-3</b>
Out-of-State Contractors	22	21	-1
Minnesota-based Contractors	38	36	-2
Metro-based Contractors	27	26	-1
Non-Metro-based Contractors	11	10	-1

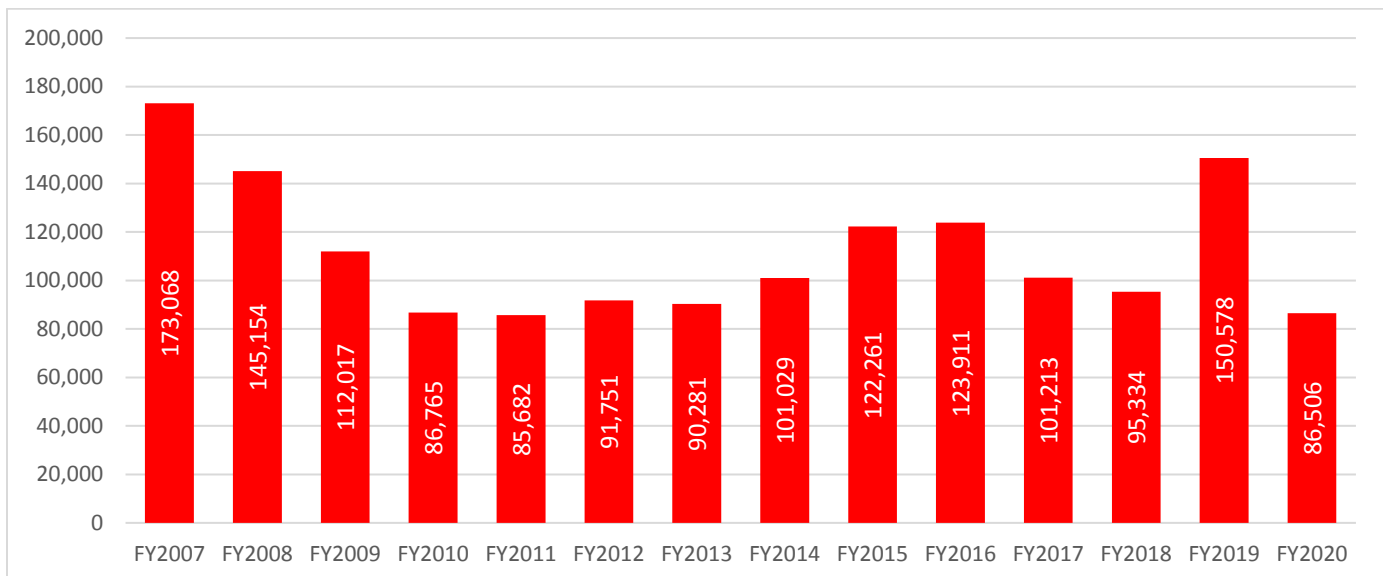
**6. Fitters & Managing Employees:**

Below is the breakdown of certified journeyman sprinkler fitters and managing employees; renewals were also due last week:

Certificate Type:	July, 2019:	July, 2020:	Variance:
Journeyman Fitters	581	563	-18
Limited Journeyman Fitters (3M)	9	7	-2
Managing Employees (ME)	76	68	-8
<b>TOTAL FITTERS &amp; M.E.s</b>	<b>666</b>	<b>638</b>	<b>-28</b>

**7. Sprinklers Installed per Year:**

The following chart shows the number of sprinklers installed per fiscal year (2007-2020). This represents permits issued by the State Fire Marshal Division only; it does not include projects permitted by local AHJs.



**8. Sprinkler Saves:**

From January 1, 2004 through June 30, 2020, there have been 1,241 sprinkler saves in Minnesota. Here is a break-down by year:

- 2004: 68
- 2005: 50
- 2006: 52
- 2007: 63
- 2008: 74
- 2009: 81
- 2010: 80
- 2011: 70
- 2012: 71
- 2013: 78
- 2014: 80
- 2015: 78
- 2016: 73
- 2017: 101
- 2018: 97
- 2019: 95
- 2020: 30 (partial)

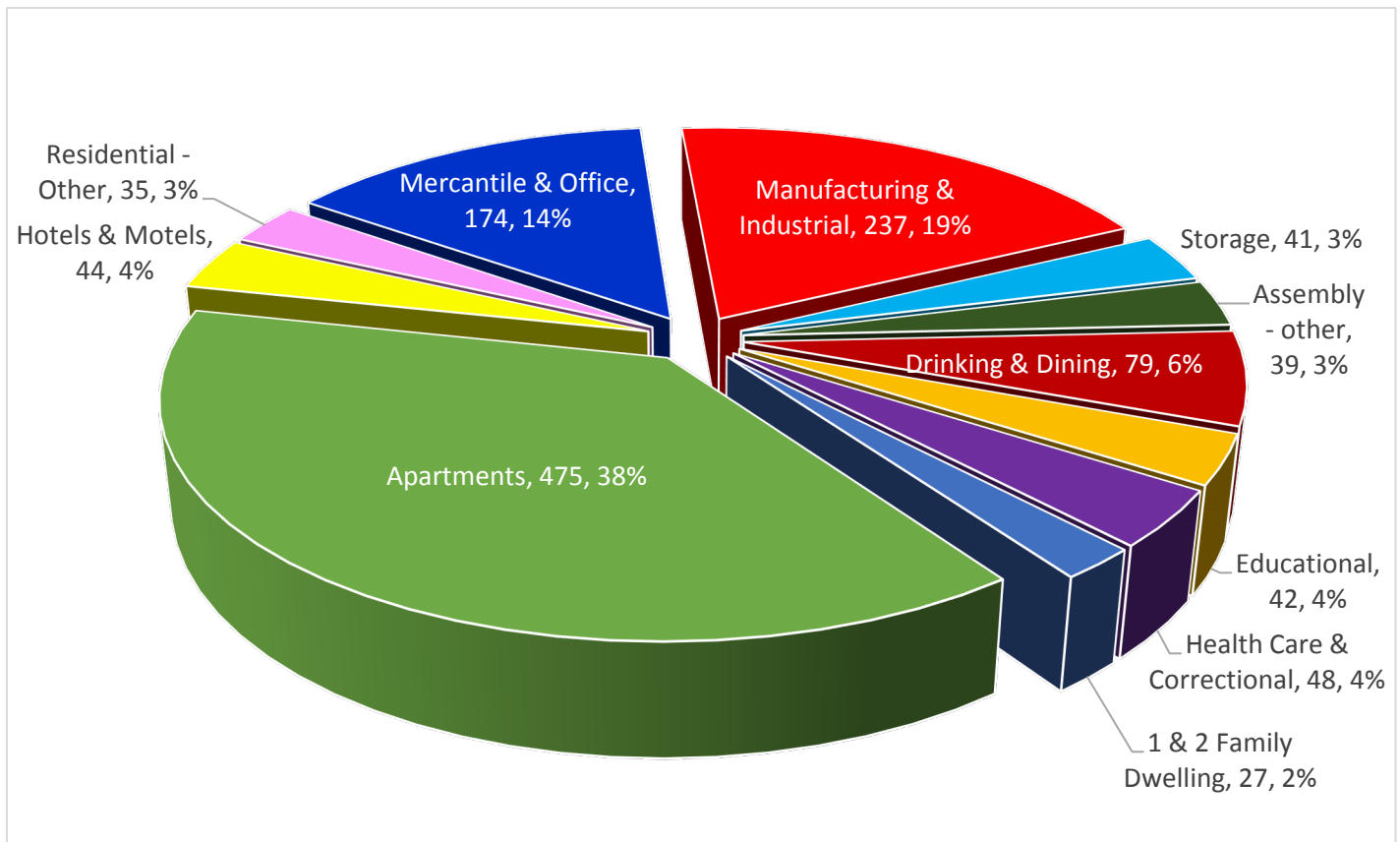
Of the sprinkler saves, here is a breakdown by type of system:

- Wet-pipe systems: 1,132 (91%)
- Dry-pipe: 89 (7%)
- Other: 20 (2%)

Here is a breakdown of the number of sprinklers activated in each fire by type of system:

- Wet-pipe systems: 2,394 (average 2 per fire)
- Dry-pipe: 306 (average 3.5 per fire)
- Other: 39 (average 2 per fire)

Here are the sprinkler saves by type of occupancy from 1/1/2004 through 6/30/2020:



**9. Exam Update:**

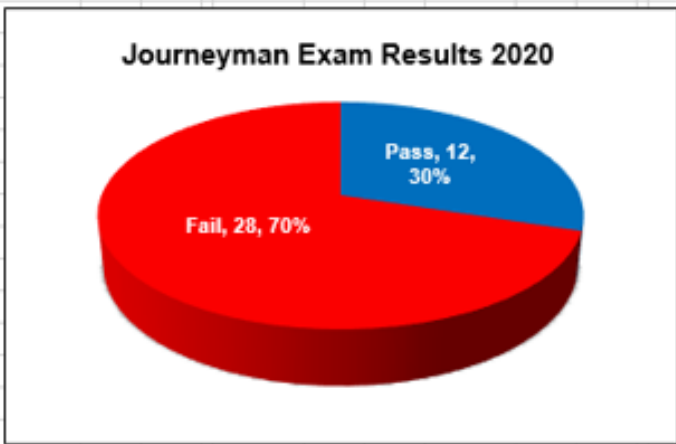
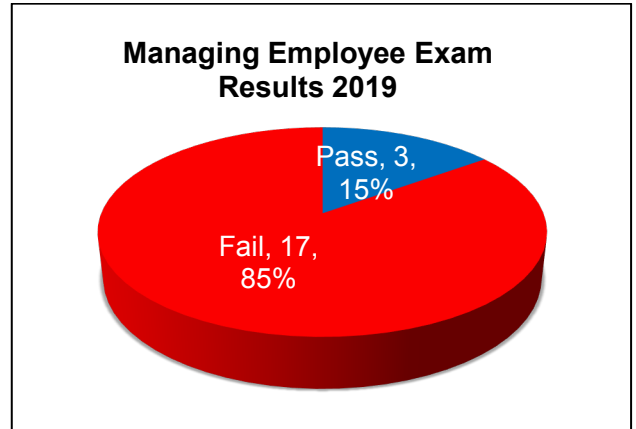
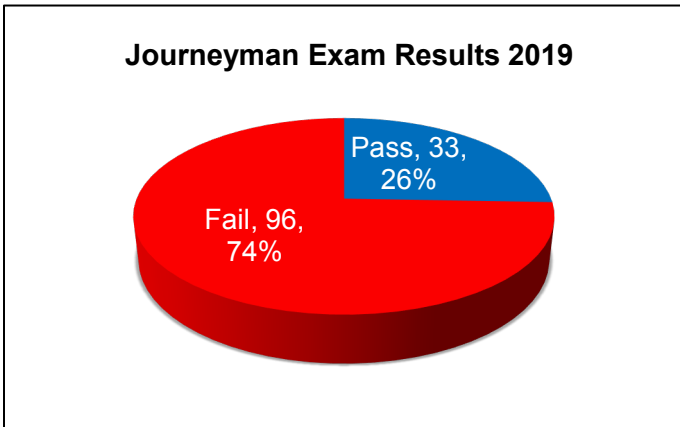
2019 was the first full year of administering the fire protection exam in the new format. In 2020 we are planning to complete the transition to “electronic” exam administration (hoping to pilot-test administration of the exam on iPads in August or October).

The conversion to an electronic process has allowed us to produce some analytics; here are the journeyman fitter candidate scores by category:

Topic Number	Topic Subject	Combined 2019 & 2020			
		Number Answering Correct	Number Answering Incorrect	Pass Rate	Fail Rate
Topic 01	Contract Documents	89	61	59.3%	40.7%
Topic 02	Codes and Standards	34	116	22.7%	77.3%
Topic 03	Construction Drawings	88	62	58.7%	41.3%
Topic 04	Construction Math	50	100	33.3%	66.7%
Topic 05	Materials Handling	128	22	85.3%	14.7%
Topic 06	Pipe / Tube - Above ground	68	82	45.3%	54.7%
Topic 07	Pipe / Tube - Underground	92	58	61.3%	38.7%
Topic 08	Hangers, Restraints, and Anchors	67	83	44.7%	55.3%
Topic 09	Fittings	114	36	76.0%	24.0%
Topic 10	General Purpose Valves	101	49	67.3%	32.7%
Topic 11	Ancillary Devices	97	53	64.7%	35.3%
Topic 12	Specialty Valves and Devices	41	109	27.3%	72.7%
Topic 13	Sprinklers	48	102	32.0%	68.0%
Topic 14	Layout - Shop Drawings (Managing Employee only)	0	0	0.0%	0.0%
Topic 15	Hydraulic Calculations (Managing Employee only)	0	0	0.0%	0.0%
Topic 16	Water Supply	81	69	54.0%	46.0%
Topic 17	Fire Pump	38	112	25.3%	74.7%
Topic 18	Standpipe Systems	24	126	16.0%	84.0%
Topic 19	Commissioning of System	52	98	34.7%	65.3%
Topic 20	Inspection, Testing, and Maintenance	16	134	10.7%	89.3%
Topic 21	Statutes and Rules	133	17	88.7%	11.3%
Topic 22	Definitions	57	93	38.0%	62.0%

The yellow highlighted areas are topics where the journeyman fitter candidates scored below 30%. These are likely areas where additional training is needed. The green highlighted areas are topics where journeyman fitter candidates scored above 70%.

The following is a breakdown of journeyman fitter and managing employee scores for 2019 and 2020.



The following are graphs showing the number of candidates taking the journeyman fitter and managing employee exams from 2008-2019.



#### 10. Permit Software Request;

The State Fire Marshal Division has requested funding for the purchase of software for permits and licensing. Our current software is 15-plus years old and was developed internally. The new system is intended to incorporate electronic payments for permits, licenses, and certificates.

**11. Recent Sprinkler Saves of Note:**

Date:	City:	Occupancy:	Comments:
2/13/2020	Savage	Apartment	\$30,000 damage to building valued at \$260 Million (1 sprinkler).
3/18/2020	Albert Lea	Adult Education (college)	\$11,000 damage to building valued at \$10.1 Million (1 sprinkler).
5/20/2020	Eden Prairie	Manufacturing (specialty printer)	Fire inside large printing press valued at \$3 Million. Business back in operation (except for the single press); no business interruption (2 sprinklers).
5/28/2020	St. Cloud	Apartment	Cooking fire – single sprinkler controlled; \$32,000 loss in \$ Million-plus valued property (1 sprinkler).
5/28/2020	St. Paul	Multiple locations	Civil disorder fires – 6 sprinkler controlled fires. \$1.7 Million is damage; building valued at \$10.8 Million (3 fires – 1 sprinkler each; 2 fires – 2 sprinklers). Waiting for details on remaining building.
5/29/2020	Lino Lakes	Elementary school	\$8,500 loss at school valued at \$13 Million (1 sprinkler).

So far in 2020, the total loss for sprinkler-controlled fires was \$8,368,550; the value of the property protected (building and contents) was \$378,413,850. This equates to 2.2% loss (or 97.8% save).

**11. Recent Disciplinary Actions:**

A fire protection contractor was fined \$1,500 for having three (3) non-certified personnel performing fire protection-related work (\$500 each).

A fire protection contractor voluntarily surrendered their Minnesota license for failing to employ a managing employee and for improper installations.

A notice of claim has been submitted against the bond of a fire protection contractor for an improper installation.

An investigation is in process against a managing employee and multiple journeyman fitters for an improper installation. The managing employee voluntarily surrendered his certificate and two of the fitters did not renew.

An investigation is in process for a non-licensed contractor performing design work in Minnesota.

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On behalf of the State Fire Marshal Division, I wish to again thank the Minnesota Chapter of NFSA for their ongoing support and commitment to fire and life safety.