

# **Texas Commission on Fire Protection**

## **Injury Report**

**January 1, 2016 to December 31, 2016**



**TEXAS COMMISSION ON FIRE PROTECTION**



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## **Executive Summary**

This report includes the abstract, mission, reports, information and data collected by the Texas Commission on Fire Protection's injury reporting program. The report includes fire fighter injuries reported to the Texas Commission on Fire Protection in 2016, with charts and graphs depicting the collected information. The report also compares Texas fire fighter injury statistics with statistics gathered by the National Fire Protection Association (NFPA) in 2015.

Under Texas Government Code §419.048, the Texas Commission on Fire Protection is charged with developing and establishing criteria to receive and analyze injury information pertaining to Texas fire fighters. The commission reviews this information to develop recommendations to help reduce fire protection personnel injuries. The commission provides this information to the State Fire Marshal's Office (SFMO) by September 1 of each year for inclusion in the SFMO's annual Firefighter Fatality Investigations Report. The commission has enacted rules about reporting injuries in the Texas Administrative Code (TAC) Title 37, Chapter 435, and has established the criteria and policies for reporting and analyzing the information.

The commission built the data systems necessary to gather this information in 2010. Development is ongoing as we receive feedback from stakeholders on the efficiency of the system. The reporting process is accomplished online. Fire departments regulated by the commission have been notified of the requirement to report. Several volunteer departments, which are not regulated by the commission, are also participating voluntarily.

This report concludes with recommendations from the commission to help reduce the number of fire fighter injuries in Texas and to improve the injury reporting program.

## **Abstract**

Texas fire departments reported 4,097 injuries to the Texas Commission on Fire Protection in calendar year 2016. Of these, 1,051 occurred during fire suppression activities, representing 26 percent of the total reported injuries. This represents a five percent increase in the ratio of fire suppression injuries to the total, which in 2015 accounted for 21 percent of injuries. Of the 1,051 fire suppression injuries, 179, or 17 percent, were serious injuries that resulted in lost time. (Note: The commission defines a serious injury as one which results in the employee missing one or more full duty shifts)

The second-largest number of reported injuries occurred during the performance of emergency medical services (EMS) activities: 1,041 of the 4,097 total reported injuries, or 25 percent of the total injuries. This represents nearly the same ratio of EMS injuries to total injuries in 2015, in which 979 of 3,721 total injuries, or 26.2 percent, occurred during EMS activities. Of the 1,041 EMS injuries, 158, or 15 percent, were serious.

After EMS and fire suppression, the next highest number of injuries reported in 2016 occurred in the performance of station duties, with 610, or 15 percent, of the total injuries. This is nearly the same result as in 2015, when 573, or 15.4 percent, of the total reported injuries occurred in the station.

Skills training and wellness/fitness again rounded out the top five activities resulting in injuries, with 454 skills training injuries (11 percent of the total) and 401 fitness/wellness injuries (10 percent).

The total number of injuries reported in station duties, skills training, and wellness/fitness activities (which are all non-emergency activities) represented just over a third (37 percent) of the total injuries. This represents a slight decrease in the ratio of non-emergency to emergency activities; in 2015, 39 percent of injuries occurred during non-emergency activities.

## **Mission**

*The commission shall gather and evaluate data on fire protection personnel injuries and develop recommendations for reducing injuries.*

### ***Why we are collecting injury data***

Under Texas Government Code §419.048, the Texas Legislature charged the commission with gathering and evaluating data on injuries. The rules requiring regulated entities to report injuries to the commission are in Texas Administrative Code §435.23. The commission encourages volunteer entities to report injuries so that it can gain as accurate a picture as possible concerning injury trends in the Texas fire service. The injury reporting program began in March 2010.

### ***Information the commission collects***

- Minor, serious, critical and fatal injuries
- Activities where fire personnel are injured
- Types of injuries (burns, strain-sprains, wounds, etc.)
- Body parts being injured
- Tasks performed at the time of injury
- Missed time
- Work assignment after injury
- Malfunctions/failures of personal protective equipment (PPE), self-contained breathing apparatus (SCBA), personal alert safety systems (PASS devices) and standard operating procedures (SOPs)

### ***How this will help the fire service***

- Identify common injuries
- Identify trends in injuries
- Identify needed training
- Evaluate and find improvements in procedures
- Track lost time injuries (requested by user community)



## **Reports, Information and Data Collection**

This report contains data submitted by regulated and non-regulated entities. The data collected in 2016 was the sixth full year of reporting.

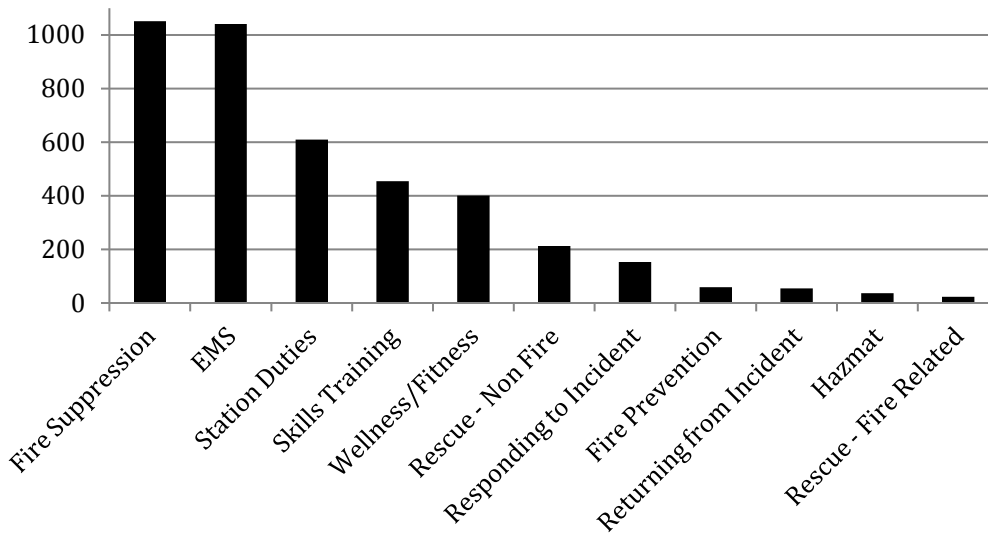
Of the approximately 575 commission-regulated fire departments included in this report, 553, or 96 percent, either submitted an injury report or a “no injury” report for months in which their personnel did not have any injuries. The commission stresses the need for participation and provides reminders to regulated entities of the statutory requirement to report.

# Fire Protection Personnel Injuries

**Table 1: Injuries by Activity and Severity, 2016**

Activity	Minor	Serious	Critical	Fatal	Total
Fire Suppression	866	179	6		1051
EMS	882	158	1		1041
Station Duties	434	172	4		610
Skills Training	311	141	1	1	454
Wellness/Fitness	252	146	3		401
Rescue - Non Fire	161	52			213
Responding to Incident	117	36			153
Fire Prevention	47	12			59
Returning from Incident	37	18			55
Hazmat	35	1	1		37
Rescue - Fire Related	20	3			23
<b>Total</b>	<b>3162</b>	<b>918</b>	<b>16</b>	<b>1</b>	<b>4097</b>

**Figure 1: Total Injuries by Activity, 2016**



## Minor and Serious Injuries by Activity

EMS activities resulted in the highest number of minor injuries. There has been a slight decline in serious fire suppression injuries over the past five years. (See Table 3. The commission defines a serious injury as one which results in the employee missing one or more full duty shifts.)

**Table 2: Minor Injury Activities, 2012 - 2016**

Activity	2012		2013		2014		2015		2016	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
EMS	1042	32.41%	934	30.28%	900	28.03%	792	28.25%	882	28.63%
Fire Suppression	654	20.43%	619	20.06%	808	25.16%	618	22.04%	866	28.11%
Station Duties	508	15.80%	452	14.65%	465	14.48%	396	14.12%	434	14.09%
Skills Training	367	11.42%	317	10.28%	365	11.37%	288	10.27%	311	10.09%
Wellness/Fitness	294	9.14%	285	9.24%	254	7.91%	278	9.88%	252	8.18%
Rescue - Non Fire	147	4.57%	243	7.88%	206	6.42%	204	7.28%	161	5.23%
Responding to Incident	90	2.80%	70	2.27%	105	3.27%	122	4.35%	117	3.80%
Fire Prevention	45	1.40%	66	2.14%	43	1.34%	41	1.46%	47	1.53%
Returning from Incident	30	0.93%	37	1.20%	42	1.31%	33	1.18%	37	1.20%
Hazmat	24	0.75%	44	1.43%	12	0.37%	11	0.39%	35	1.14%
Rescue - Fire Related	14	0.44%	18	0.58%	11	0.34%	22	0.78%	20	0.65%
<b>Total</b>	<b>3215</b>	<b>100%</b>	<b>3085</b>	<b>100%</b>	<b>3211</b>	<b>100%</b>	<b>2805</b>	<b>100%</b>	<b>3162</b>	<b>100%</b>

**Table 3: Serious Injury Activities, 2012 - 2016**

Activity	2012		2013		2014		2015		2016	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Fire Suppression	231	22.36%	206	21.89%	177	21.48%	160	17.82%	179	19.50%
Station Duties	233	22.56%	201	21.36%	160	19.42%	174	19.27%	172	17.21%
EMS	196	18.97%	179	19.02%	164	19.90%	185	20.60%	158	18.74%
Wellness/Fitness	134	12.97%	122	12.96%	127	15.41%	125	14.03%	146	15.36%
Skills Training	113	10.94%	99	10.52%	104	12.62%	126	13.92%	141	15.90%
Rescue - Non Fire	34	3.29%	46	4.89%	38	4.61%	46	5.01%	52	5.66%
Responding to Incident	43	4.16%	42	4.46%	16	1.94%	44	4.90%	36	3.92%
Returning from Incident	24	2.32%	18	1.91%	19	2.31%	13	1.34%	18	1.31%
Fire Prevention	18	1.74%	17	1.81%	11	1.33%	12	1.34%	11	1.96%
Rescue - Fire Related	7	0.68%	11	1.17%	3	0.36%	12	1.34%	3	0.33%
Hazmat	0	0	0	0	5	0.61%	4	0.45%	1	0.11%
<b>Total</b>	<b>1033</b>	<b>100.00%</b>	<b>941</b>	<b>100.00%</b>	<b>824</b>	<b>100.00%</b>	<b>901</b>	<b>100.00%</b>	<b>918</b>	<b>100%</b>

## Emergency vs. Non-Emergency Injuries

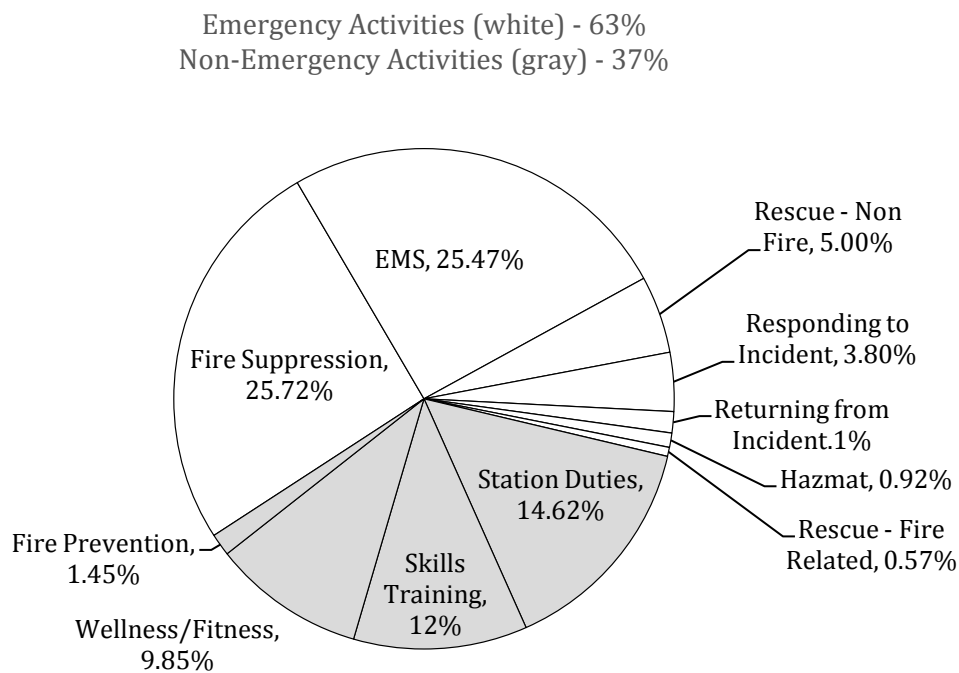
**Table 4: Injuries by Emergency Activity and Severity, 2016**

Activity	Minor	Serious	Critical	Fatal	Total
Fire Suppression	866	179	6		1051
EMS	882	158	1		1041
Rescue - Non Fire	161	52			213
Responding to Incident	117	36			153
Returning from Incident	37	18			55
Hazmat	35	1	1		37
Rescue - Fire Related	20	3			23
<b>Total</b>	<b>2118</b>	<b>447</b>	<b>8</b>	<b>0</b>	<b>2573</b>

**Table 5: Injuries by Non-Emergency Activity and Severity, 2016**

Activity	Minor	Serious	Critical	Fatal	Total
Station Duties	434	172	4		610
Skills Training	311	141	1	1	454
Wellness/Fitness	252	146	3		401
Fire Prevention	47	12			59
<b>Total</b>	<b>1044</b>	<b>471</b>	<b>8</b>	<b>1</b>	<b>1524</b>

**Figure 2: Percent of Injuries in Emergency and Non-Emergency Activities, 2016**

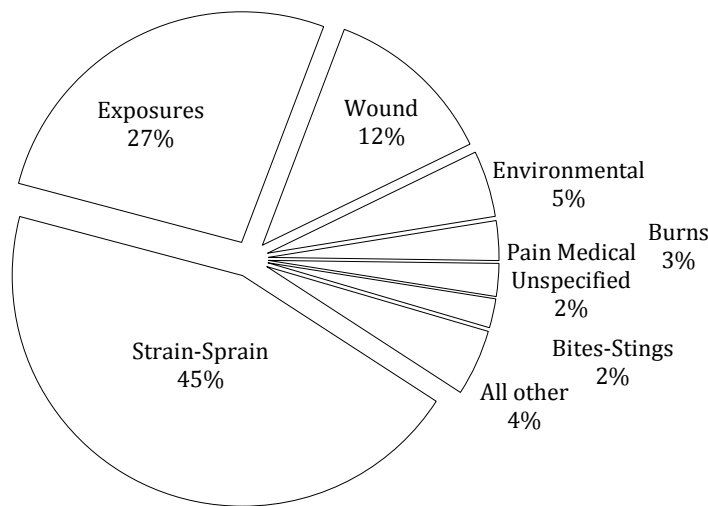


# Injuries by Type

**Table 6: Types of Injury, 2012-2016** (Note: ordered by 2016, descending)

Type of Injury	2012		2013		2014		2015		2016	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Strain-Sprain	2140	50.19%	2118	52.28%	1917	47.27%	1839	49.42%	1842	44.96%
Exposures	862	20.22%	786	19.40%	1117	27.55%	868	23.33%	1092	26.65%
Wound	631	14.80%	548	13.53%	483	11.91%	491	13.20%	492	12.01%
Environmental	133	3.12%	106	2.62%	101	2.49%	142	3.82%	191	4.66%
Burns	176	4.13%	166	4.10%	113	2.79%	95	2.55%	113	2.76%
Pain Medical Unspecified	49	1.15%	62	1.53%	79	1.95%	66	1.77%	94	2.29%
Bites-Stings	93	2.18%	87	2.15%	79	1.95%	69	1.85%	83	2.03%
Chest Pains-Cardiac	40	0.94%	50	1.23%	46	1.13%	37	0.99%	49	1.20%
Fractures	46	1.08%	59	1.46%	39	0.96%	40	1.07%	41	1.00%
Hearing Loss - Chronic	7	0.16%	2	0.05%	4	0.10%	7	0.19%	35	0.85%
Debris/Penetrating	51	1.20%	38	0.94%	38	0.94%	34	0.91%	35	0.85%
Hearing Loss - Acute	18	0.42%	14	0.35%	21	0.52%	19	0.51%	17	0.41%
Electrocution	11	0.26%	12	0.30%	12	0.30%	9	0.24%	9	0.22%
Stroke	1	0.02%	0	0.00%	1	0.02%	0	0.00%	2	0.05%
Broken Spine-Neck	4	0.09%	1	0.02%	4	0.10%	2	0.05%	1	0.02%
Heart Attack	2	0.05%	2	0.05%	1	0.02%	3	0.08%	1	0.02%
<b>Total</b>	<b>4264</b>	<b>100%</b>	<b>4051</b>	<b>100%</b>	<b>4055</b>	<b>100%</b>	<b>3721</b>	<b>100%</b>	<b>4097</b>	<b>100.00%</b>

**Figure 3: Types of Injury, 2016**



# Task at Time of Injury

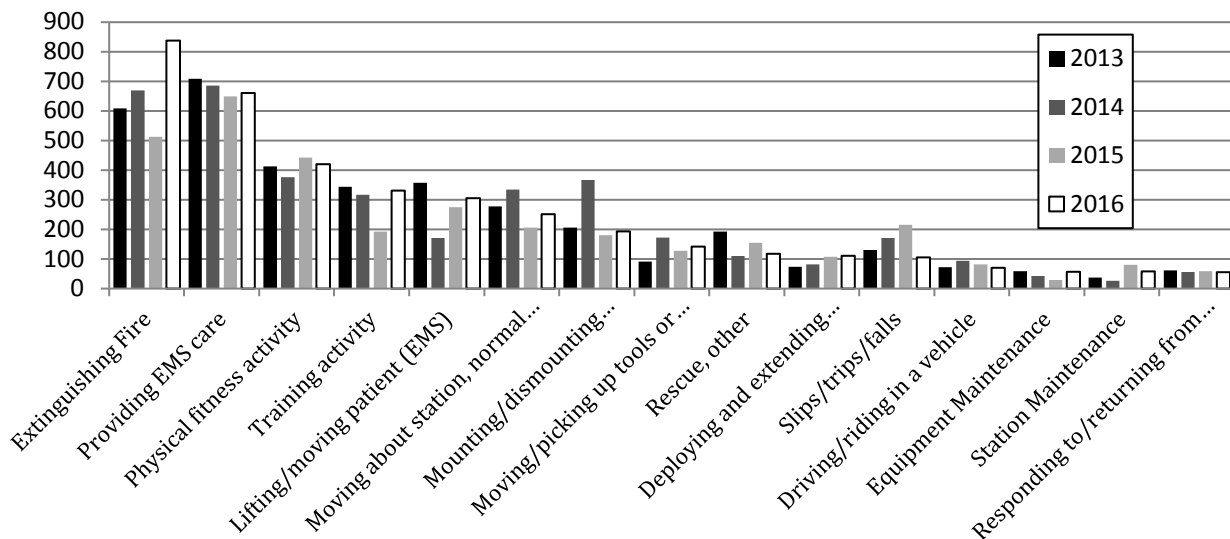
(The commission began gathering task information in mid-2012.)

**Table 7: Top 15 Tasks at Time of Injury, 2013-2016** (ordered by 2016, descending)

Task	2013	2014	2015	2016
Extinguishing fire	609	669	513	837
Providing EMS care	708	686	649	661
Physical fitness activity	413	376	442	420
Training activity	344	317	193	331
Lifting/moving patient (EMS)	357	171	275	306
Moving about station, normal activity	278	335	206	252
Mounting/dismounting apparatus	206	367	180	193
Moving/picking up tools or equipment	92	173	128	142
Rescue, other	193	110	155	118
Deploying and extending hoseline	74	82	108	111
Slips/trips/falls	131	171	215	105
Driving/riding in a vehicle	72	94	82	70
Equipment Maintenance	59	43	29	57
Station Maintenance	37	26	81	59
Responding to/returning from incident	62	56	59	55
All other*	416	379	406	380*
<b>Total</b>	<b>4051</b>	<b>4055</b>	<b>3721</b>	<b>4097</b>

\*All other, 2016: Other: Description: 54; Vehicle Maintenance: 51; Overhaul: 35; Extrication: 30; Operating manual tool: 29; Ascending/descending stairs: 28; Forcible Entry: 19; Ascending/descending ladder: 18; Moving about station, alarm sounding: 17; Inspection Activity: 15; Operating power tool: 14; Non-Fire Incidents: 12; Manually moving item to gain access: 11; Incident Investigation: 9; Operating in low/no visibility: 8; Unidentified: 6; Crawling in a confined or otherwise hazardous area: 6; Raising/lowering ladder: 6; Operating Fire Department Apparatus: 5; Operating nozzle: 4; Salvage: 2; Removing equipment from/returning equipment to apparatus: 1

**Figure 4: Top 15 Tasks at Time of Injury, 2013-2016**



# Injuries by Body Part

**Table 8: Injuries by Body Part, 2012 – 2016** (ordered by 2016, descending)

Body Part	2012	2013	2014	2015	2016
Multiple body parts, whole body	760	595	901	659	1007
Knee	419	407	367	369	376
Hand and fingers	453	403	345	328	359
Hip, lower back, or buttocks	35	91	244	316	283
Back, except spine	686	588	372	207	244
Shoulder	272	293	230	241	238
Ankle	213	207	177	202	192
Leg, lower	105	108	86	117	132
Multiple Parts	5	62	160	180	124
Face	95	128	118	140	116
Arm, lower, not including elbow or wrist	89	84	94	84	109
Foot and toes	132	105	79	71	85
Chest	30	66	64	40	82
Head	96	94	73	69	82
Ear	72	54	52	60	74
Wrist	71	79	68	48	74
Eye	106	100	98	75	70
Multiple body parts, upper body	22	57	27	52	61
Elbow	98	68	66	51	47
Other body parts injured	357	381	265	500*	342*
<b>Total</b>	<b>4264</b>	<b>4051</b>	<b>4055</b>	<b>3721</b>	<b>4097</b>

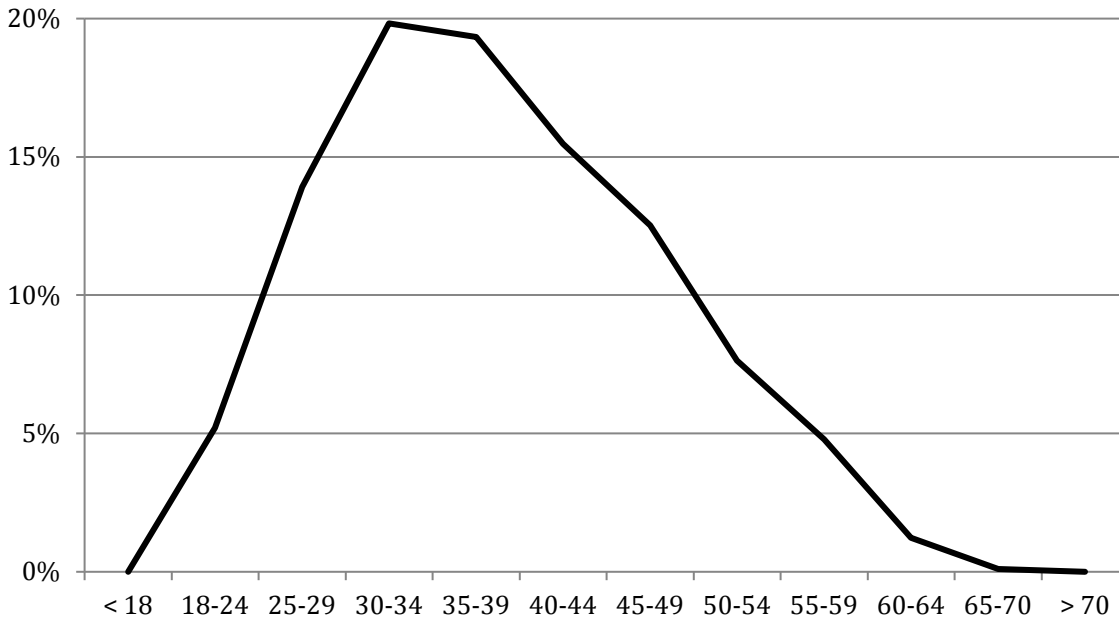
\* **Other body parts injured, 2016, in descending order:** Abdomen: 50; Neck: 45; Trachea and lungs: 43; Upper extremities: 33; Arm, upper, not including elbow or shoulder: 33; Pelvis or groin: 31; Leg, upper: 22; Neck and Shoulders: 21; Lower Extremities: 18; Mouth, included are lips, teeth, and interior: 18; Undetermined: 9; Multiple body parts, lower body: 6; Part of body, other: 4; Throat: 3; Heart: 2; Nose: 2; Internal: 1; Spine: 1

# Injuries by Age Group

**Table 9: Injuries by Age Group, 2012 - 2016**

Age group	2012		2013		2014		2015		2016	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
< 18	0	0.00%	0	0.00%	1	0.02%	0	0.00%	0	0.00%
18-24	254	5.96%	219	5.41%	178	4.39%	187	5.03%	213	5.20%
25-29	594	13.93%	584	14.42%	573	14.13%	543	14.59%	570	13.91%
30-34	925	21.69%	799	19.73%	749	18.47%	791	21.26%	812	19.82%
35-39	821	19.25%	729	18.00%	833	20.54%	682	18.33%	792	19.33%
40-44	621	14.56%	620	15.31%	674	16.62%	582	15.64%	634	15.47%
45-49	435	10.20%	443	10.94%	438	10.80%	405	10.88%	513	12.52%
50-54	373	8.75%	402	9.90%	380	9.37%	323	8.68%	313	7.64%
55-59	193	4.53%	198	4.89%	173	4.27%	181	4.86%	196	4.78%
60-64	41	0.96%	51	1.26%	49	1.21%	20	0.54%	50	1.22%
65-70	7	0.16%	6	0.15%	6	0.15%	5	0.13%	4	0.10%
> 70	0	0.00%	0	0.00%	1	0.02%	2	0.05%	0	0.00%
<b>Totals</b>	<b>4264</b>	<b>100.00%</b>	<b>4051</b>	<b>100.00%</b>	<b>4055</b>	<b>100.00%</b>	<b>3721</b>	<b>100.00%</b>	<b>4097</b>	<b>100.00%</b>

**Figure 5: Injury Percentages by Age Group, 2012 - 2016**





## Injury Activities Resulting in Lost Time

**Table 10: Injury Activities Resulting in Lost Time, Totals, 2016**

Activity	Count	Days Missed	
		Average	Total
Station Duties	149	43	6370
Fire Suppression	154	40	6170
EMS	141	43	6009
Skills Training	116	50	5743
Wellness/Fitness	129	41	5272
Rescue - Non Fire	46	29	1319
Responding to Incident	30	42	1258
Returning from Incident	13	49	631
Fire Prevention	13	39	506
Rescue - Fire Related	3	8	24
Hazmat	2	10	20
<b>Total</b>	<b>796</b>	<b>36</b>	<b>33322</b>

**Table 11: Activities Resulting in Lost Time, 2016, between 1 and 30 Days**

Activity	Count	Days Missed	
		Average	Total
Fire Suppression	100	12	1178
Wellness/Fitness	86	12	1024
Station Duties	86	12	1013
EMS	79	13	1004
Skills Training	68	10	685
Rescue - Non Fire	34	12	397
Responding to Incident	22	12	266
Fire Prevention	11	10	113
Returning from Incident	7	14	100
Rescue - Fire Related	3	8	24
Hazmat	2	10	20
<b>Total, Between 1 and 30 Days</b>	<b>498</b>	<b>11</b>	<b>5824</b>

## Injury Activities Resulting in Lost Time (continued)

**Table 12: Activities Resulting in Lost Time, 2016, between 31 and 90 Days**

Activity	Count	Days Missed	
		Average	Total
EMS	46	56	2563
Station Duties	42	53	2234
Fire Suppression	37	54	2006
Skills Training	28	50	1405
Wellness/Fitness	23	55	1271
Rescue - Non Fire	10	61	608
Returning from Incident	5	58	288
Responding to Incident	2	56	111
<b>Total,</b> <b>Between 31 and 90 Days</b>	<b>193</b>	<b>55</b>	<b>10486</b>

**Table 13: Activities Resulting in Lost Time, 2016, 91+ Days**

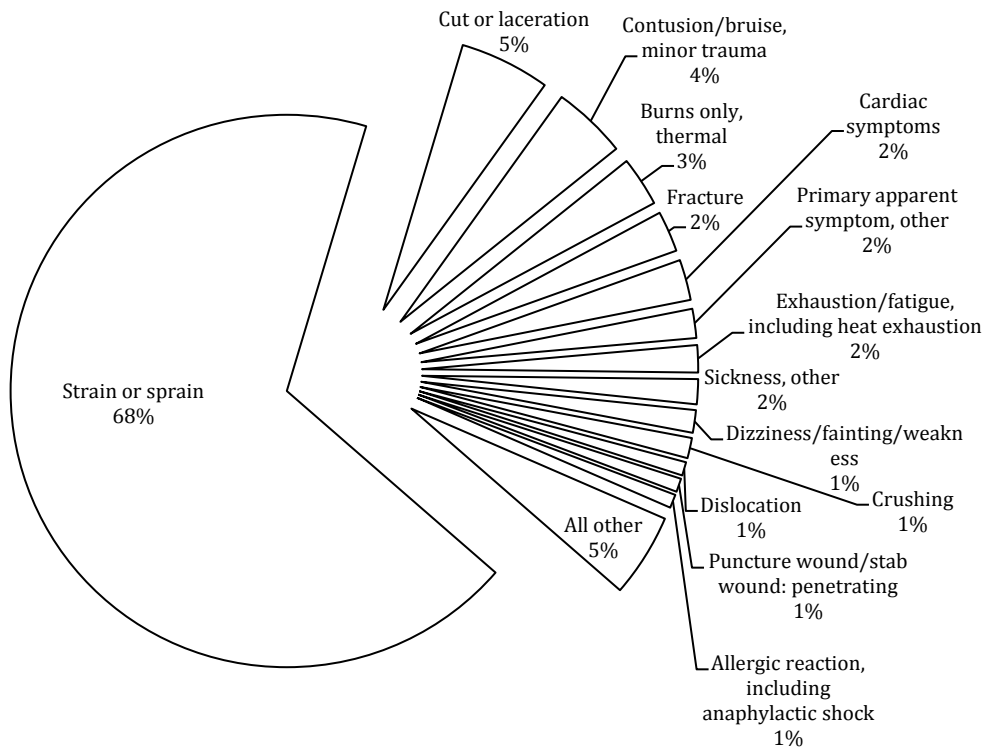
Activity	Count	Days Missed	
		Average	Total
Skills Training	19	172	3273
Wellness/Fitness	19	151	2868
Station Duties	19	146	2765
Fire Suppression	15	180	2703
EMS	14	140	1958
Responding to Incident	6	147	881
Rescue - Non Fire	2	157	314
Fire Prevention	1	188	188
<b>Total,</b> <b>91+ Days Missed</b>	<b>95</b>	<b>160</b>	<b>14950</b>

# Types of Injuries with Lost Time

**Table 14: Types of Injuries Resulting in Lost Time, 2016**

Type of Injury	Count	Average Days Out
Strain or sprain	545	47
Cut or laceration	41	24
Contusion/bruise, minor trauma	35	26
Burns only, thermal	23	18
Fracture	21	82
Cardiac symptoms	19	31
Primary apparent symptom, other	13	61
Exhaustion/fatigue, including heat exhaustion	13	23
Sickness, other	11	24
Dizziness/fainting/weakness	10	21
Crushing	9	28
Dislocation	6	59
Puncture wound/Stab wound: penetrating	6	20
Allergic reaction, including anaphylactic shock	6	10
All other	38	18
<b>Total</b>	<b>796</b>	<b>38</b>

**Figure 6: Types of Injuries Resulting in Lost Time, 2016**



## Burn Injuries

**Table 15: All Burns, 2013 - 2016**

All Burns - Types	2013	2014	2015	2016
Thermal	92	76	85	92
Scald or steam	71	33	10	9
Electric	2	2	0	2
Chemical	0	2	0	3
<b>Total</b>	<b>165</b>	<b>113</b>	<b>95</b>	<b>106</b>

**Table 16: Burns with Lost Time by Burn Type, 2016**

Burns with Lost Time	Count	Average Days Missed	Total Days Missed
Thermal	23	18	404

**Table 17: Burns by Body Part, 2013 - 2016 (ordered by 2016, descending)**

Body Part	2013	2014	2015	2016
Hand and fingers	35	18	14	27
Face	14	13	12	16
Ear	29	13	22	14
Wrist	10	5	4	9
Multiple body parts, upper body	3	4	5	8
Multiple parts	16	16	8	4
Neck	9	9	6	4
Foot and toes	5	2	1	3
Leg, lower	4	1	6	3
Shoulder	13	5	5	3
Unidentified	0	0	0	3
Arm, lower, not including elbow or wrist	12	9	3	2
Head	5	3	4	2
Lower extremities	5	2	1	2
Upper extremities	0	6	2	2
Arm, upper, not including elbow or shoulder	1	2	2	1
Chest	1	0	0	1
Hip, lower back or buttocks	0	1	0	1
Knee	1	0	0	1
Back, except spine	0	2	0	0
Elbow	1	0	0	0
Eye	0	1	0	0
Neck and shoulders	1	1	0	0
Throat	1	0	0	0
<b>Total</b>	<b>166</b>	<b>113</b>	<b>95</b>	<b>106</b>

## Burn Injuries (continued)

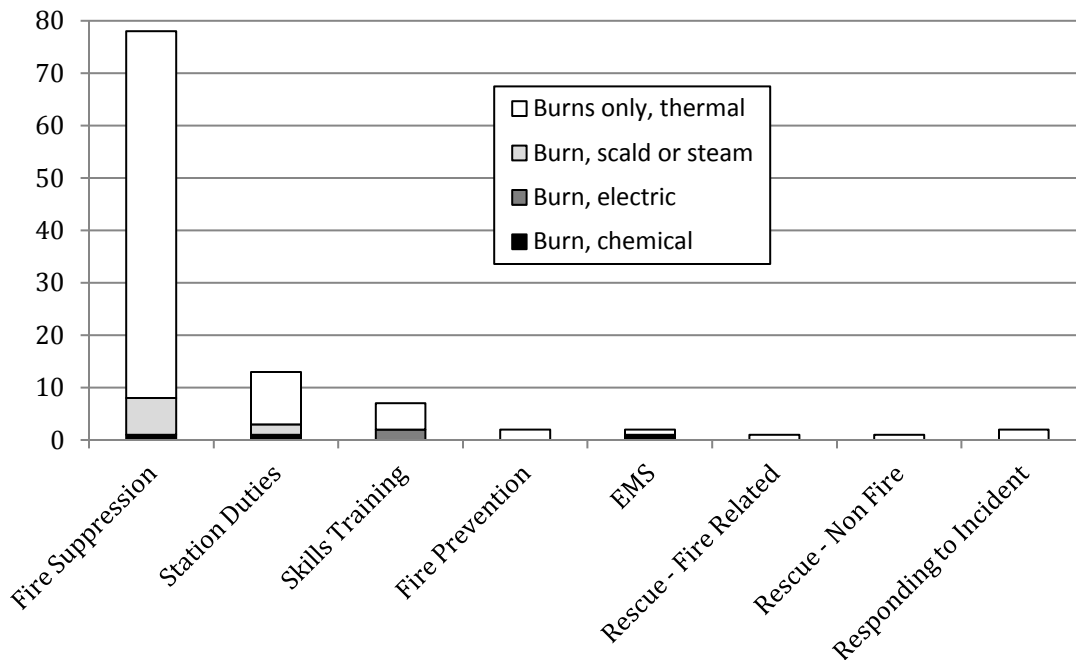
**Table 18: Burns by Emergency Activity, 2016**

Type	Emergency Activities				
	Fire Suppression	EMS	Responding to	Rescue - Fire Related	Rescue - Non Fire
Thermal	70	1	2	1	1
Scald or Steam	7				
Chemical	1	1			
Electric					
<b>Total</b>	<b>78</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>

**Table 19: Burns by Non-Emergency Activity, 2016**

Type	Non-Emergency Activities		
	Station Duties	Skills Training	Fire Prevention
Thermal	10	5	2
Scald or Steam	2		
Chemical	1		
Electric		2	
<b>Total</b>	<b>13</b>	<b>7</b>	<b>2</b>

**Figure 7: Burns by Activity, 2016**

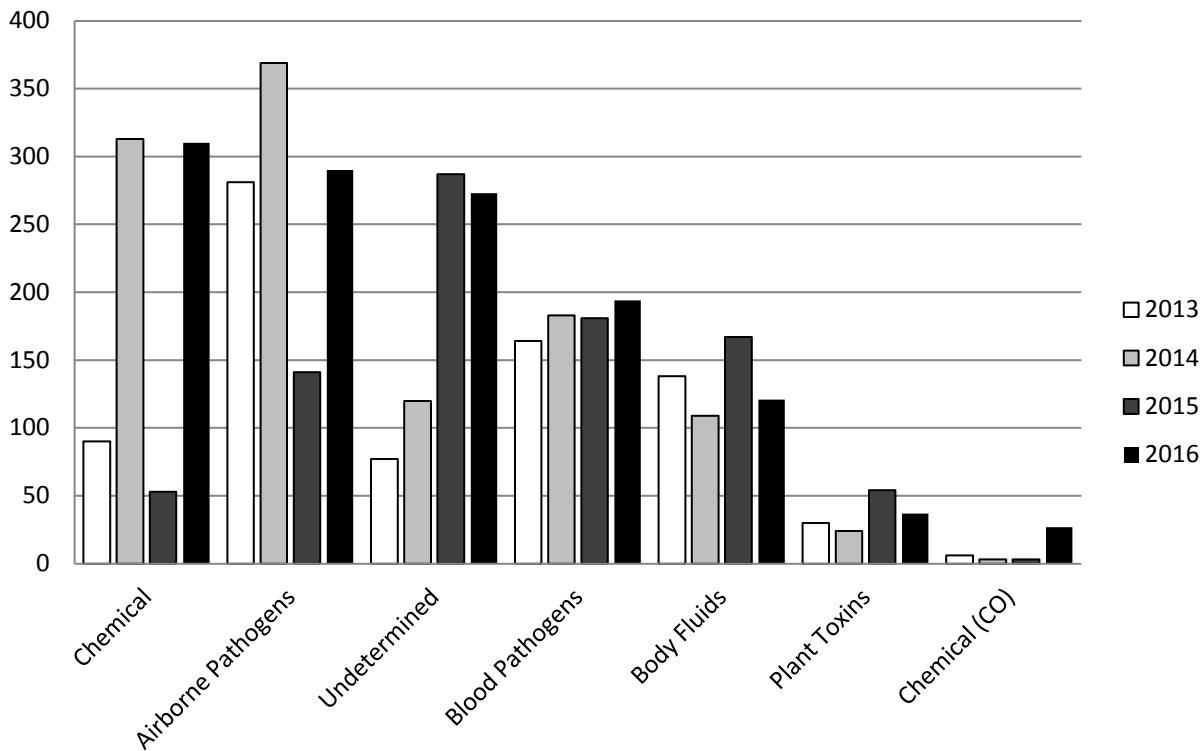


# Exposures

**Table 20: Routes of Exposure, 2013-2016** (ordered by 2016, descending)

Exposure Routes	2013	2014	2015	2016
Chemical (household/industrial)	90	313	53	310
Airborne Pathogens	281	369	141	290
Undetermined	77	120	287	273
Blood Pathogens	164	183	181	194
Body Fluids	138	109	167	121
Plant Toxins	30	24	54	37
Chemical (carbon monoxide)	6	3	3	27
<b>Total</b>	<b>810</b>	<b>1218</b>	<b>1054</b>	<b>1252</b>

**Figure 8: Exposure Routes, 2013 - 2016**



## Exposures (continued)

**Table 21: Chemical/Mineral Exposures, 2016**

<b>Chemical/mineral</b>	<b>Count</b>
Unknown chemicals	211
Smoke	85
Asbestos	40
Marijuana	30
Carbon monoxide	28
Insecticide/pesticide	15
Solvent	10
Lead	8
Lithium ion batteries	8
Oil	8
Water or sewage	8
Methamphetamine	7
Foam	5
Battery acid	4
Suboxone powder	4
Chlorine	3
Formaldehyde	3
Hydrogen peroxide	3
Diesel fuel	2
Gasoline	2
Personal protective equipment	2
Chromium 6	1
Cleaning fluid	1
Detergent	1
Diesel exhaust in bay	1
Exposure medication	1
Hydrogen sulfide	1
Grout removal product	1
Sodium nitrate	1
Valium	1
<b>Total</b>	<b>495</b>

**Table 22: Other Exposures, 2016**

<b>Other</b>	<b>Count</b>
Patient undergoing radiation treatment	5
UV/radiation exposure	3
Traumatic event	1
<b>Total</b>	<b>9</b>

**Table 23: Biological Exposures, 2016**

<b>Biological</b>	<b>Count</b>
Blood	174
TB	128
Body fluids	94
Meningitis	62
Undetermined/unidentified	35
Mold	26
Hepatitis C	15
MRSA	14
Vomit	14
Tetanus	9
C. Diff	6
HIV	5
Measles	1
Staph	1
West Nile	1
<b>Total</b>	<b>585</b>

**Table 24: Poisonous Plants Exposures, 2016**

<b>Poisonous plants</b>	<b>Count</b>
Poisonous plants	37

**Table 25: Animal/Wildlife Exposures, 2016**

<b>Animals/Wildlife</b>	<b>Count</b>
Dog bite	21
Scabies	21
Bees	17
UI insect	17
Cat bite	10
Wasp	7
Rodent feces	5
Spider	5
Lice	4
Ants	2
Bedbugs	1
Fleas	1
Parrot	1
<b>Total</b>	<b>112</b>

## Cancer reports

The commission received 14 reports of cancer diagnoses from fire departments in 2016. The commission encourages departments to report these illnesses to help the Texas fire service gain a better understanding of long-term illnesses from which fire protection personnel are suffering:

Male, 54

*Five pre-cancerous sites on scalp.*

Male, 48

*Multiple myeloma.*

Male, 41

*Cancer diagnosis.*

Male, 57

*Prostate cancer.*

Male, 46

*Cancer diagnosis.*

Male, 59

*Squamous cell carcinoma.*

Male, 51

*Thyroid cancer.*

Male, 31

*Cancer diagnosis.*

Male, 33

*Thyroid cancer, papillary carcinoma.*

Male, 39

*Skin cancer, upper body.*

Male, 43

*Basal cell skin cancer.*

Male, 33

*Testicular cancer.*

Male, 44

*Cancer, internal organs.*

Male, 52

*Skin cancer, upper body.*



## SOP Issues

In 2016 there were 24 injuries attributed to failures of fire protection personnel to follow their departments' standard operating procedures (SOPs). All but a few were instances where the individuals were not wearing their provided PPE/SCBA gear in an environment or situation in which they should have been.

In its compliance inspections, the Texas Commission on Fire Protection verifies that fire departments have written SOPs that cover the appropriate subject matter.

**Table 26: Injuries Attributed to SOP Issues, 2016**

<b>Activity</b>	<b>Minor</b>	<b>Serious</b>	<b>Total</b>
Fire Suppression	8	4	12
Wellness/Fitness	2	2	4
EMS	3		3
Skills Training	1	2	3
Rescue - Non Fire		1	1
Station Duties		1	1
<b>Total</b>	<b>14</b>	<b>10</b>	<b>24</b>

## Fatalities

The commission's 2016 injury report includes one fatality. Fatalities listed in this report include only those reported to the Texas Commission on Fire Protection (TCFP) by the entities it regulates. (The commission has no statutory authority to require reporting by departments it does not regulate.)

The State Fire Marshal's Office investigated four Texas fire fighter LODDs in 2016. (Comprehensive information regarding Texas fire service deaths is included in the State Fire Marshal's Annual Report and on its website at <http://www.tdi.texas.gov/fire/fmloddindividuals.html>.)

## Close-up: wellness/fitness injuries

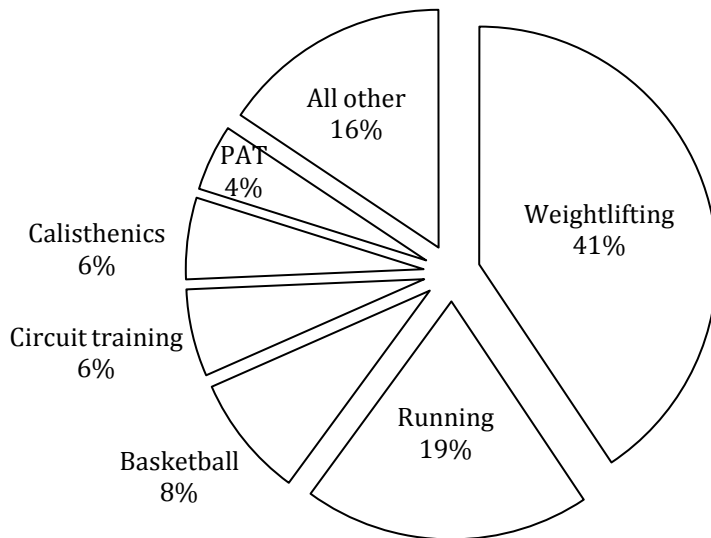
Of the 401 wellness/fitness injuries reported in 2016, 288 included brief descriptive information of the specific activity being performed at the time of injury:

**Table 27: Identified fitness activities resulting in injury, 2016**

Fitness activity	Count	Percent
Weightlifting	117	41%
Running	56	19%
Basketball	24	8%
Circuit training	17	6%
Calisthenics	16	6%
PAT	13	5%
All other*	45	16%
<b>Total</b>	<b>288</b>	<b>100%</b>

\*Other fitness/wellness activities: Box jumps (6); Cardio (5); Volleyball (5); Football (4); Martial arts (3); Rowing (3); Tire flipping (3); Medicine ball (2); Walking/hiking (2); Elliptical machine (1); Flipping tires (1); Jump rope (1); Moving equipment (1); Paddle ball (1); Rescue dummy (1); Rope climb (1); Stair stepper (1); Stress test (1); Stretching (1); Tennis (1); Yoga (1)

**Figure 9: Identified fitness/wellness activities resulting in injuries, 2016**



## Close-up: skills training injuries

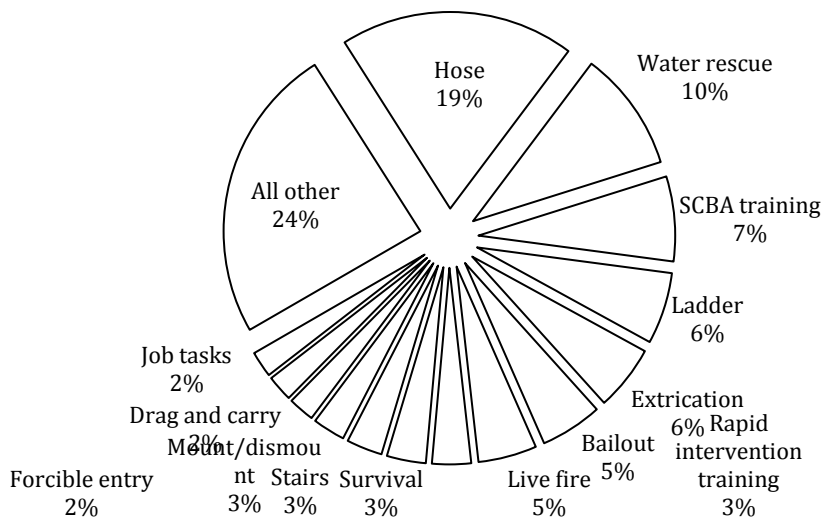
Of the 454 skills training injuries reported in 2016, 374 included brief descriptive information of the specific activity being performed at the time of injury:

**Table 28: Identified skills training activities resulting in injury, 2016**

Skills training activity	Count	Percent
Hose	72	19%
Water rescue	37	10%
SCBA training	26	7%
Ladder	22	6%
Extrication	20	5%
Bailout	19	5%
Live fire	18	5%
Rapid intervention training	12	3%
Survival	12	3%
Stairs	11	3%
Mount/dismount	10	3%
Drag and carry	8	2%
Forcible entry	8	2%
Job tasks	8	2%
All other*	91	24%
<b>Total</b>	<b>374</b>	<b>100%</b>

\*Other skills training activities: Rope training (7); Search and rescue (7); EMT training (6); Moving equipment (6); Obstacle course (6); Running/walking/fitness (8); Martial arts (4); Power tool (4); Technical rescue (4); PAT (3); Active shooter (2); Blackout maze (2); Confidence course (2); Drill tower (2); High angle rescue (2); Rappelling (2); Ventilation (2); Wildland (2); Airbag (1); Apparatus (1); Car fire (1); Classroom (1); Confined space (1); Cycling (1); Denver drill (1); High rise (1); Hiking (1); Mayday training (1); Pittsburg drill (1); Salvage and overhaul (1); Search drill (1); Self evacuation (1); Sled (1); Slips, trips and falls (1); Structural collapse (1); UTV (1); Weapons (1); Weighted dummy (1)

**Figure 10: Identified skills training activities resulting in injuries, 2016**



# Comparison between the State of Texas (2016) and National Fire Protection Association (NFPA), U.S. Firefighter Injuries – 2015

For the purposes of comparison, the commission has mapped its categories to the NFPA categories as follows:

- “Fireground” includes the commission’s Fire Suppression and Rescue – Fire Related.
- “Non-Fire” includes Rescue Non-Fire, EMS and Hazmat.
- “Other On-Duty” includes Fire Prevention, Station Duties and Wellness/Fitness.

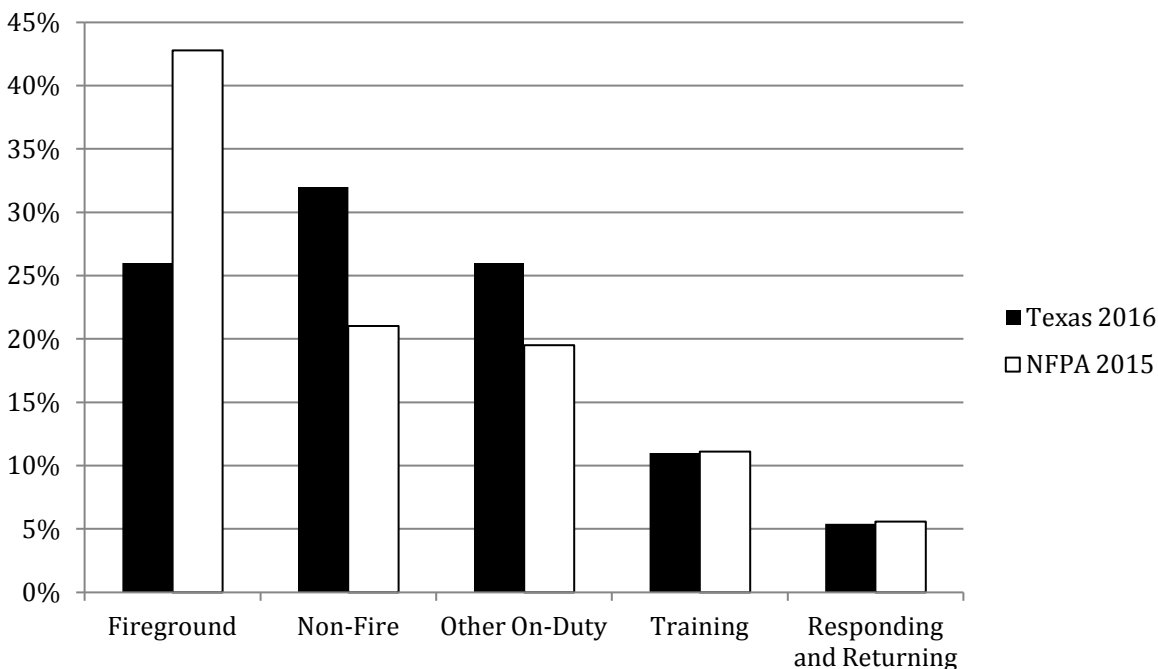
The NFPA’s “Responding and Returning” and “Training” categories appear to correspond closely to the commission’s categories. (The NFPA numbers include Texas statistics, although the reporting populations may not be the same.)

**Table 29: Comparison of Texas 2016 and NFPA 2015**

Category	Texas 2016		NFPA 2015*	
	Count	Percent	Count	Percent
Fireground	1074	26%	29130	43%
Non-Fire	1291	32%	14320	21%
Other On-Duty	1070	26%	13275	19%
Training	454	11%	7560	11%
Responding and Returning	208	5%	3800	6%
<b>Total</b>	<b>4097</b>	<b>100%</b>	<b>68085</b>	<b>100%</b>

\* NFPA data is from [U.S. Firefighter Injuries – 2015](#), copyright© 2016 National Fire Protection Association, Quincy, MA.

**Figure 11: Injuries by Activity Percentages – Comparing Texas 2016 and NFPA 2015**



## 2016 Findings/Recommendations

The commission would like to thank Texas fire departments for their ongoing participation in reporting fire protection personnel injuries. This report would not be possible without their efforts.

The commission strongly encourages fire departments to continue reporting exposures and further encourages departments to report cancer diagnoses; the commission recognizes that the number of job-related cancers reported during this time period represents only a small fraction of the cases that Texas fire departments are currently managing. There is a growing awareness of the impact that cancer is having on fire protection personnel nationwide, and the commission urges departments to use this reporting tool to help contribute to the education and awareness of the issue in Texas.

### ***Commission-adopted standards***

The commission has adopted several NFPA and other nationally recognized standards to help keep Texas fire protection personnel safe. This list summarizes the relationships between some of the Texas laws and national standards and is not intended to be all-inclusive:

#### **Texas Government Code**

[§419.040, Protective Clothing](#)

[§419.041, Self-Contained Breathing Apparatus](#)

[§419.042, Personal Alert Safety Systems](#)

[§419.043, Applicable National Fire Protection Association Standard](#)

[§419.044, Incident Management System](#)

[§419.045, Personnel Accountability System](#)

[§419.046, Fire Protection Personnel Operating at Emergency Incidents](#)

[§419.047, Commission Enforcement](#)

#### **Texas Administrative Code**

[CHAPTER 425 FIRE SERVICE INSTRUCTORS](#)

[§443.9 National Fire Protection Association Standard](#)

[CHAPTER 435 FIRE FIGHTER SAFETY](#)

[§435.21 Fire Service Joint Labor Management Wellness-Fitness Initiative](#)

[§435.23 Fire Fighter Injuries](#)

[§435.25 Courage to be Safe So Everyone Goes Home Program](#)

[§435.27 Live Fire Training Structure Evolutions](#)

[CHAPTER 451 FIRE OFFICER](#)

[CHAPTER 457 INCIDENT SAFETY OFFICER CERTIFICATION](#)

See also the commission's web page: [NEPA Standards adopted by the commission.](#)