

Survey of Fire Service Professionals

Where Do They Look for Sources of Professional Development?



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Executive Summary

The main purpose of this study is to identify some of the areas where fire service professionals feel they need further training and where they seek information relating to their field. Two overall patterns emerged from this study.

First, there was a clear desire on the part of fire service professionals to advance their skills and keep up-to-date on developments in their field. This desire to stay current and to advance one's knowledge base extended across the range of activities with which the respondents were engaged.

Second, the respondents made it clear that they turn to a variety of sources for information. Traditional in-person training offered through in-service offerings, in addition to conferences and workshops, remain an important source for most people. Similarly, traditional print media, such as magazines and journals, are still read. While in some areas the rise of internet sources has displaced traditional media, this does not appear to be the case with fire services. Rather, internet sources provide yet another option, although one where the respondents are more wary of the credibility of the sources.

Background

Through advances in building code specifications, improvements in building technologies, greater public awareness and more extensive use of smoke, sprinklers and fire alarms, the rate and severity of fire incidents has generally decreased throughout North America. Where fires do occur, they are often more complex and can pose greater suppression challenges. This is not an unusual situation. The advent of high-rise apartments in the early part of the 20th century, for example, lessened the overall rate of fires per residential unit but created the need for firefighters to develop and implement new techniques.

The main purpose of this study is to identify some of the areas where fire service professionals feel they need further training and where they seek information relating to their field. Many fire officials and firefighters are not familiar with the performance characteristics of emerging construction materials such as composite wood products and their associated construction techniques. This is particularly noteworthy in light of the increasing use of wood products in construction, along with proposed building code changes in Canada that would permit wood-frame buildings of up to six storeys. This lack of knowledge in the fire service can lead to both misconceptions about the level of incendiary risk posed by new structures and potential operational challenges when confronted by an actual incident. However, it could be addressed by making appropriate information and training materials available to the profession.

A significant issue facing potential information providers is: What are the best vehicles or mechanisms for providing that information? The best-written brochures or training manuals and the best-produced multimedia presentations have little impact if they are not accessed by the profession.

This survey was constructed to help educators target their efforts to engage fire service professionals. The survey was designed to identify how, where and when members of the fire service access professional development materials. It is hoped that by getting the answers to those questions, it will be possible to direct the most appropriate material to the profession in the most effective and appropriate manner.

Approach

The purpose of this study is twofold. First, we sought to identify the primary sources that fire service professionals go to for educational material relating to the profession. Not long ago, venues were limited. Training and upgrading was led by an instructor in a classroom or field setting. Basic material was assembled in a textbook or training manual, and trade journals provided summary articles of the latest trends in both substance and practice. The classroom setting was occasionally livened with a film or DVD.

The advent of the internet, however, has opened up the distribution of information and, in some cases, misinformation. Websites aggregate materials; videos are uploaded onto YouTube channels; the “talking head” panels at conferences have given way to webinars; and, whole courses are offered online. This does not mean, however, that the traditional venues have disappeared. Some have changed in form and some have simply been diminished in terms of their readership and outreach.

With this rapid expansion in information options, it is worthwhile asking: What are the primary vehicles firefighting professionals turn to when they need information or when they want to upgrade their skills? By knowing this, we can more effectively and more efficiently provide and distribute material the profession needs in order to stay current.

A second purpose of this study is to identify some of the areas where firefighters feel they need to enhance their information base. With time, all of us start to see important gaps in our training and background knowledge. New information is constantly appearing on the characteristics of incendiary material, the behaviour of fires, and what are the most efficient techniques to deal with new products and structures. This survey taps into the specifics of where practitioners perceived those gaps to be.

Method

A short, online survey was constructed to answer the questions as to how, where and when fire service professionals turn for information on advances in the field. In all, the survey contained 13 questions and, on average, took less than eight minutes to complete. The survey was distributed with the assistance of the Canadian Association of Fire Chiefs. A link to the survey (in both English and French) was posted on the CAFC website. Members of the association were asked to respond to the questionnaire and were also asked to “push” the survey to the rank and file. In all, we obtained 261 responses to the questionnaire in English and five in French.

The work status/rank of the respondents is outlined in Table 1. As the results indicate, the respondents were heavily weighted toward those in the senior ranks.

Table 1: I am a . . .	
Answer Options	Response Percent
Chief officer	69.8%
Volunteer firefighter	12.4%
Full-time firefighter	9.7%
Non fire service professional*	8.1%

* Professionals in other fields who have an operational interest in the fire service.

Results

Ease of Accessing Appropriate Material

The first substantive question we asked of the respondents was how difficult they thought it was to obtain material on current advances in their field. The provided response options ranged from “very difficult” to “very easy.” The results are provided in Table 2.

Table 2: In general, how easy would you say it is for you to obtain material on current advances in your field?	
Answer Options	Response Percent
Very difficult	0.4%
Difficult	17.6%
About average	46.1%
Easy	27.7%
Very easy	8.2%

The modal response was “about average” and most of the respondents indicated average or above. Less than 19% indicated that it was difficult or very difficult. About a third of the respondents suggested that it was either easy or very easy to obtain relevant material.

Sources of Information

We also asked the respondents about sources of information in the field. In particular, we questioned where they currently turn to for information and what venues they find most convenient. The results are outlined in Table 3. The results in the table represent the proportion or percentage of respondents who selected each of the listed sources.

Table 3: Sources of information: Where do you currently look for professional information on advances in the field? [All that apply]

Answer Options	Response Percent
Professional organizations such as the IAFF/CAFF/NFPA	80.0%
Trade magazines or professional journals	75.6%
Internet general search (websites, YouTube)	73.6%
Conventions	70.0%
Colleagues, fellow firefighters (debriefing)	60.8%
In-service training offered by own department	50.0%
Internet webinars and other structured content	48.0%
Material from equipment suppliers	46.4%
Academic research: journals or publications	37.6%
Newsletters	37.2%
University/community college courses	35.6%
Workshops offered by private trainers	35.6%
Public, university/college or web libraries	11.6%
Other (please specify)	5.6%

The results suggested that there were two primary clusters where practitioners look for information. There was group of five “go to” sources and a cluster of seven secondary sources. Among the “go to” sources were professional organizations such as the IAFF/CAFF/NFPA; trade and professional magazines; internet search engines; conventions; and colleagues and fellow firefighters. The remainder of the areas we suggested were considered secondary sources and those included departmental in-service training; internet webinars; material from equipment suppliers; academic material; newsletters; and, college or university courses. Libraries, either public, academic or online, were rarely accessed.

A few respondents provided write-in comments under the “Other” category. Most of those, however, were elaborations or simply a repetition of the general items specified in the closed-ended questions. One area that was identified was “government agencies” including such places as the National Research Council and non-Canadian agencies such as the U.S. National Institute of Standards and Technology. One respondent cited other department heads within the municipality.

Overall, there was a close correspondence between where fire service professionals turned to for information and those sources they found most convenient. Table 4 outlines those same sources in terms of convenience. The only significant difference between these results and those provided in Table 3 was that the respondents tended to find general internet searches highly convenient and turning to colleagues was somewhat less convenient than their actual use as sources of information.

Table 4: Which of the following sources of upgrading information or training do you find most convenient? [All that apply]

Answer Options	Response Percent
Professional organizations such as the IAFF/CAFF/NFPA	58.6%
Conventions	55.3%
Trade magazines or professional journals	54.1%
Internet general search (websites, YouTube)	50.8%
In-service training offered by own department	41.4%
Colleagues, fellow firefighters (debriefing)	36.1%
Internet webinars and other structured content	34.4%
Workshops offered by private trainers	26.6%
University/community college courses	23.4%
Material from equipment suppliers	20.5%
Academic research: journals or publications	19.3%
Newsletters	15.6%
Public, university/college or web libraries	10.2%
Other (please specify)	2.0%

The main lesson to be drawn seems to be that our respondents tended to draw on those sources of information that were more accessible or convenient. This is not inconsistent with what we know about the general population. The more impediments there are to gaining access to information, the less likely people are to access it.

To complement the questions regarding preferred sources of information, we asked the respondents to indicate their preferred vehicles of dissemination. Those responses are presented in Table 5. By far, the preferred mechanism for keeping up-to-date on developments in the field was conferences and workshops. This was followed by formal, in-person classroom training; online courses; and, trade magazines and newsletters. Online videos, DVDs and CDs, and instructional manuals and books formed a much less popular, secondary category.

Table 5: Which are your preferred delivery mechanisms for keeping on top of developments in your field? [All that apply]

Answer Options	Response Percent
Conferences and workshops	75.6%
Formal in-person classroom training	57.0%
Online courses	54.1%
Trade magazines and newsletters	41.3%
Instruction manuals/books	37.2%
Online video such as YouTube	27.7%
Recorded videos on a DVD or CD	17.8%
Other (please specify)	1.7%

To round out our questions regarding access, we asked the respondents what they considered to be the main impediments they faced in upgrading their skills. The responses are presented in Table 6. A lack of time was considered primary (both job and family commitments). Beyond that, cost and a lack of financial resources and distance to a training facility were indicated next. Perhaps somewhat surprisingly, about 27% of the respondents also indicated a lack of opportunity. Few respondents indicated there were no impediments and few also indicated that other matters, such as a lack of interest/motivation or the stage of their career, were issues.

Table 6: What, if any, are the main impediments you find in being able to upgrade your professional skills? [All that apply]

Answer Options	Response Percent
Lack of time – other job commitments	67.1%
Cost/lack of financial resources	46.1%
Distance to training facility	38.7%
Lack of time – family commitments	38.3%
Lack of opportunity (training is not available)	27.2%
Unavailability of material that meets my needs	8.2%
Not worthwhile: I am too far along in my career	5.3%
I would need some equipment that I do not have (e.g., computer, internet connection)	1.6%
Lack of interest or motivation	1.2%
None	7.8%
Other (please specify)	4.5%

Those who filled in the “Other” response tended to reinforce the time/distance issue. Time appeared to be especially problematic for volunteers. As one person noted, “Being a volunteer, the time commitment for training and still holding a full-time job is very taxing.”

Areas Identified for Further Training

We were also interested in knowing where the respondents considered themselves most knowledgeable and where they thought they needed further training or upgrading. Overall, as Table 7 suggests, the respondents felt that they were relatively knowledgeable about all of the dimensions listed. There was also not a lot of variation across items, although the areas that scored the lowest were the impact of the age and maintenance of a building, and the incendiary characteristics of the contents of commercial and industrial buildings.

Table 7: On a scale of 1 to 5 where 5 is Very Knowledgeable and 1 is No Knowledge, how knowledgeable would you say you are in the following areas?

Answer Options	Rating Average
Building fire protection	3.81
Flammability of materials used in residential construction	3.68
Incendiary characteristics of residential contents	3.61
Safety systems performance	3.60
Strength/support characteristics of building materials	3.51
Integrity of building systems	3.50
Flammability of materials used in commercial/industrial construction	3.49
Incendiary characteristics of contents in typical commercial office buildings	3.43
Impact of maintenance on building structures/systems	3.43
Impact of age on building structures/systems	3.42
Incendiary characteristics of contents in industrial buildings	3.32

These results are probably not to be unexpected since issues relating to the age and maintenance of a building are often some of the more difficult items to assess. Furthermore, the contents of commercial and industrial buildings tend to be more variable than what is found in a typical residential structure.

The respondents were also asked to identify those areas where they thought they needed further training or upgrading. As Table 8 indicates, most respondents indicated that they believe their greatest need is relating to management issues such as managing fire services or planning. About 28%, however, flagged building fire safety systems performance as a key area.

Table 8: In which areas do you think you need further training or upgrading? [All that apply]

Answer Options	Response Percent
Managing fire services	61.8%
Professional development	58.1%
Community fire master planning – evaluating / managing local risks	57.7%
Evidence-based decision making	35.3%
Fire prevention/inspection	34.0%
Building fire safety systems performance	27.8%
Incident command	21.2%
Interior firefighting	14.1%
Road rescue/extraction	11.2%
Exterior firefighting	8.3%
Emergency medical first responder	5.4%
Other (please specify)	5.0%

We also asked specific questions relating to knowledge about the relationship between fire and building/content characteristics. On average, slightly more than half of the respondents indicated that they were either knowledgeable or very knowledgeable in the areas identified. About a third indicated that they were somewhat knowledgeable and the remainder suggested they had little or no knowledge in the area. Those indicating little or no knowledge were typically non-fire professionals. Among professional firefighters, there was some variability between those who were somewhat and more than somewhat knowledgeable, although the differences on topic areas were not significant. Understanding the impact of age and maintenance on building structures/systems and understanding the incendiary characteristics of contents in industrial and commercial buildings were two general areas where the respondents suggested they had marginally less knowledge than in other areas.

Attendance at Training Course and Conferences

While significant amounts of information are available both online and through traditional print media, in-person venues are still an important mechanism for disseminating information regarding advances in the field. Beyond basic and pre-employment training, in-service training and conference/workshop attendance are the primary ways people receive in-person training.

Table 9 indicates when the respondent last attended an in-service training course and Table 10 provides the same data for workshop or conference attendance.

Table 9: When was the last time you attended an in-service training course?	
Answer Options	Response Percent
Within the past 6 months	66.0%
Within the past 6-12 months	19.6%
Within the past 1-2 years	7.7%
More than 2 years ago	4.7%
I haven't attended an in-service training course since joining my current department	2.1%

Table 10: When was the last time you attended conference or workshop?	
Answer Options	Response Percent
Within the past 6 months	45.3%
Within the past 6-12 months	38.5%
Within the past 1-2 years	9.0%
More than 2 years ago	5.6%
I haven't attended a conference or workshop	1.7%

Among our respondents, 66% indicated that they had attended an in-service training course within the past six months and slightly less than 20% within the past 6-12 months. Overall then, 85% had done some in-service training within the past year. Conference or workshop attendance was also somewhat lower than in-service training but was still quite high. Forty-five percent of respondents indicated that they had attended a conference/workshop within the past six months and about 39% within the past 6-12 months. Overall then, 84% had attended a conference or workshop within the past year.

Thus, while many turn to the internet for information, it is evident that traditional venues are still important for keeping up-to-date with the field.

Perceived Reliability of Sources

Providing access to material is one issue: another is the matter of credibility. How reliable the respondents perceived material to be varied by source. As Table 11 illustrates, the internet was considered to be the least reliable source followed by equipment suppliers. Material provided by professional organizations such as the IAFF/CAFF/NFPA was considered the most reliable.

Table 11: On a scale of 1 to 5 (Very Unreliable to Highly Reliable), how reliable would you generally consider the information provided by the following sources?

Answer Options	Rating Average
Material provided by professional organizations such as the IAFF/CAFF/NFPA	4.24
Material available in journals or publications	3.65
Material presented at workshops offered by private trainers	3.45
Material in trade magazines or professional journals	3.44
Information provided by colleagues	3.43
Material from equipment suppliers	3.26
Material generally available on the internet	3.19

Traditional Media: Journals, Magazines and Newsletters

Although online sources and in-person training sessions were identified as valued and valuable sources of information, many respondents still use traditional media. To determine which venues were most commonly accessed, we asked the respondents to name the specific journals, magazines and newsletters they read. These data were collected through a write-in box where respondents were allowed to enter as much material as they considered relevant.

Although there was considerable variability, several sources were mentioned repeatedly. The top five journals/magazines that were read were: *Fire Engineering*, *Fire Fighting in Canada*, *NFPA*, *Fire House*, and *Canadian Firefighter*. Of those who responded to this question, about 20% indicated that they read more than one magazine as a resource. From the data it would seem that most who read *Fire Engineering* also read *Fire Fighting in Canada*. These two seem to go hand in hand. Almost all respondents referred to local/national based magazines and journals. Less than 3% relied on international sources and only a couple respondents refer to non-fire journals such as the *Canadian Occupational Safety Magazine*.

Ancillary Comments

At the end of the survey, the respondents were asked if they had any general comments about the availability of information or training. About 30% of the respondents left remarks, but those who did provided some insightful commentary. We conducted a content analysis of the comments and they clustered around several themes.¹

“There is a lot of information out there and easy to find. Understanding it and applying it is another story.”

This type of comment was supported by several people who indicated that there was considerable material available but the amount could be overwhelming at times. As one person said, “There can be a lot of information, too much.” Furthermore, some of it was not always the most current. As another respondent indicated, “It can be tough to keep up with the changes nowadays as things change so fast.”

“The Fire Service needs a one-stop shopping for information depository.”

Several respondents suggested that there was a need for information to be vetted and aggregated. The underlying themes here were that much material varied in quality and reliability, and that while it was often readily available, considerable time and effort were required to sift through it. As one person noted: “The issue we have is filtering what information is useful and what is just 'fluff.’” Linked to this were a few comments relating to the need for consistent and national standards in training material or a national accrediting body to provide oversight.

“Cost and time commitments are the major factors for most people.”

The issues of cost and time were a common theme for many. Several respondents commented on the cost of material, particularly print material. Often, time commitments were linked to issues of remoteness. That is, some respondents in what appeared to be more remote locations indicated that travelling to major centres where in-class training was offered was an issue.

“Very little available in French.”

Although this comment was raised only once, it is evident from most respondents that their primary sources of information are provided within the English language. The reality is, unilingual French-speaking officers are at a disadvantage in comparison with their English-speaking and bilingual counterparts. This is particularly the case when international sources, such as journals, websites and government and other professionally oriented documents, are considered.

“I believe there is no substitute for classroom training when delivering topics for the first time. When it comes to recertification/review I believe the internet/online content is a good way to go.”

In many ways, this comment summarized several concerns relating to delivery. A few comments were made relating to the difficulty of attending training in traditional school-type venues. With regard to online delivery, several individuals noted that there was some very good material available while others noted that much was inconsistent in production quality.

¹ Although we have reproduced several quotes verbatim, only the essence of others has been included where it was clear that the response could breach the confidentiality of the respondent.

Conclusion

The majority of respondents suggested that they were reasonably well informed about the material of their trade. The responses made it evident, however, that most saw their field as relatively fast moving and that they needed to keep pace with those changes. While most respondents indicated they were receptive to keeping up with the field in general, a few areas stood out. First, an emphasis was placed on on-site issues relating to what happens as buildings (particularly commercial and industrial ones) age or are differentially maintained. Second, respondents felt they needed more information on issues relating to the incendiary characteristics of contents in commercial and industrial buildings. Third, many respondents indicated that there was a need for more managerial and organizational training.

Access to professional information, training and upgrading appeared to vary considerably depending on the location, resources and status of the respondent. People in remote areas and volunteer firefighters appeared to be at a disadvantage in comparison with their professional counterparts in larger centres. That being the case, however, we were reminded through both the pattern of closed-form responses and the write-in comments that the simple availability of information is not always sufficient. Several respondents made it clear that to be useful, information has to be presented in a coherent format and needs to be vetted for accuracy and relevance.

It is also clear that formal, in-person presentations, either in a classroom setting or at a conference or workshop, are appreciated. Some officers, however, have a difficult time attending such venues because of location, time or cost constraints. Many respondents indicated that they used and appreciated the availability of online material, particularly from credible sources. Many respondents also noted that online material could be of questionable veracity. Consequently, there were suggestions for national standards and the existence of formal accreditation mechanisms in order to assure the quality of the material provided.

While many individuals clearly turned to the internet for material, most of our respondents also indicated that they subscribed to and read magazines, journals and newsletters directed toward the profession.

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