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INFORMATION RESOURCE SERVICE FOR FPA AUSTRALIA

An Interactive Qualifying Project Report

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### **Abstract**

FPA Australia introduced its web site in 1998 as a new source of information for its members. The purpose of this project was to enhance the current Technical Publications section of the web site. By establishing a restricted access members section, FPA Australia provides new services to its members. The contents of this new section were established from interviews and questionnaires conducted with members of the association. FPA Australia will use the new service to keep their web site up to date and encourage member involvement in the organization.

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### **Authorship Page**

This project was completed with equal participation from all three project team members. Primarily Frederick Toy and Ryan Metivier wrote the text of the report. Revisions and edits done to this writing were done equally by each member. Keith, having the programming background, wrote the web site enhancements for FPA Australia. Constant feedback from all members of the group kept the enhancements to the web site consistent with the existing site. All members edited the text contained within the web pages and played a vital role in the final appearance of all forms and web pages associated with the web site enhancements. All members performed the final edits and compilation of the report. The division of work was equal among the members and the project is the result of many long hours put in by every member of the project group.

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## **1 - Executive Summary**

This project, sponsored by Fire Protection Association of Australia (FPA Australia), focused on establishing a web based information database for members of the association. FPA Australia established their presence on the Internet in 1998 by releasing an informational web site. The main goal of this project was to establish a technical publications section on the FPA Australia web site. Determining the structure of the section required an investigation into the types of documents and services that members wanted available on the Internet. The results from these investigations led to the addition of a technical publications section of the web site, allowing FPA Australia to provide added service to its members.

There were three sources of data collection: questionnaires, interviews, and research related to Internet technology. Both the questionnaire and interview questions were designed to determine interest in the technical publications section of the web site. The questions dealt with the potential of restricting access to the section to FPA Australia members. They also addressed the types of information that members would like to see on the FPA Australia web site and the potential for a searchable database of the association's library. Interviews were used as the primary source of member feedback, with questionnaires used to supplement the interviews. The same set of questions was used in both the interviews and questionnaires to maintain consistency. Interviews and questionnaires were conducted with a variety of members, whose jobs covered many aspects of the fire industry such as engineering design, building contractors, fire brigade employees, and consultants.

Using interviews as the primary method for gathering information provided the group with substantial interaction with members of the fire industry. Interviews contributed an ample amount of information and feedback. They also offered more

detail regarding the content of the technical publications section of FPA Australia's web site. These interviews were time consuming but remained effective, since they provided more comprehensive information than the questionnaires.

The questionnaires were distributed in a cost-effective manner. The two methods used were fax and electronic mail (e-mail). Before the questionnaires were distributed, an initial contact e-mail was sent to the potential respondent requesting participation in the survey. Upon receipt of a reply, the questionnaire was either faxed or e-mailed to the respondent at their request.

Having combined the input received from the questionnaires and the interviews, the project team was able to determine solutions for FPA Australia's web site. One of the decisions made from the interview and questionnaire results was to keep the technical publications section of the web site restricted to members of FPA Australia. The majority of the respondents felt that offering the members an additional information service on the Internet could encourage new memberships, but more importantly, would give current members an incentive for maintaining their membership. Other potential web site enhancements derived from the data gathering process included providing the ability to search for information available in FPA Australia's library, electronic papers, and fire related publications.

Another idea that was provided by the interviews and questionnaires was to include a document submission form on the web site. The document submission form provides members with a method for contributing materials to FPA Australia. The materials can be either a web link or a reference to traditional media such as books and magazines. The submissions are entered into a Technical Papers database that is accessible by the search engine.



For FPA Australia to keep the web site up to date and easy to maintain, it was determined that an easy to use administration interface must be created. The publications management section of the web site is available only to staff members and allows easy manipulation of all electronic databases. The management section allows staff members to view member submissions, edit submissions, submit documents, and delete unwanted documents. All procedures related to the use of the administration pages are detailed in a User's Manual created to supplement the available online help. The Manual was customized for the needs of the FPA Australia staff.

After analyzing the responses received through the data collection process and establishing a technical publications section of FPA Australia's web site, there were a number of recommendations to be made to the organization. Most of the recommendations dealt with the technical publications section of the web site. It was recommended that FPA Australia publicize the availability of the new web resource. This can be done either through a magazine article or notice to their members. Another suggestion was that the organization regularly updates the databases of the online search. Urging members to submit papers to the web site would also be beneficial to the web based technical publications section. The addition of electronic commerce on the web site would promote sales and membership. The most important recommendation was to conduct a study to determine the level of satisfaction among the members with the web site and its new services.

This project completed all proposed goals by investigating member interests, creating new web resources, and providing recommendations for future web site expansion.

## **2 - Introduction**

One of the most important aspects of research and education is the accessibility of information. Without accessible information, it would be very difficult to promote the development of the human race. All major discoveries in science, technology, health, and engineering rely on the availability of information. In many cases, it is often difficult to access much needed information. Therefore, it is very important to go through all extents to ensure that all types of information are available to people. The accessibility and availability of information are the topics of this project and their impact on the members of Fire Protection Association Australia (FPA Australia).

FPA Australia is Australia's largest organization promoting fire awareness as well as supporting the work of the fire protection industry. Currently FPA Australia has a constituency of 1500 members, ranging from students and corporate sponsors to professionals in the industry. FPA Australia's targeted audience is both its fire protection oriented member base and the public. The association provides these groups with a variety of educational and professional resources. These resources are distributed to the members via paper journals, technical papers, seminars, conferences, meetings, library, and classes. Much of the literature that is distributed by FPA Australia contains information regarding standards within the fire industry, topics relating to fire safety, and other industry issues. Many of these materials are available in FPA Australia's on-site library.

FPA Australia is constantly striving to distribute fire protection related materials in new and improved methods. In order to be able to provide the most recent literature, FPA Australia has been experimenting with the use of computer related technology. FPA Australia now offers its seminar and conference transcripts on CD-ROM, greatly reducing the need to print large paper packets for each member. In

1998, FPA Australia announced its presence on the World Wide Web. Their new web-site is aimed at providing an easy to use information source for documents produced and distributed by FPA Australia. Some of these documents include materials covered at conferences and seminars, as well as an on-line version of Australia's leading journal on fire, *Fire Australia*. The site also provides many fire safety guidelines, as well as a multitude of fire safety codes.

The goal of this project was to determine the level of interest in a member's only section of the FPA Australia web site and identify appropriate contents for the section. Currently, the entire web site is available to members and non-members alike. This raises the problem that the paying members are receiving the same information on the web site as the non-members, which reduces the incentive to become a paying member. The new section creates a marketing tool for the association and provides better service to the paying members. For this reason it was of great importance to find out the information that a paying member would find useful in a section available to members only.

Another component of the member's section includes a search engine. Realizing that many of their members do not have easy access to the member library, FPA Australia seeks to have a searchable library database available on their web site. Alongside the search engine there is a technical publications section. In order to make this section as effective as possible, it is important to determine the types of publications that the members of FPA Australia would find to be useful.

Surveys and interviews were conducted in order to determine the kinds of materials that should be included under the technical publications section on the web site. To eliminate the postage costs associated with survey distribution by postal mail, alternative methods of circulation were pursued. These methods included phone

interviews, face to face interviews, electronic mail (e-mail) questionnaires, and faxed questionnaires. So as not to alienate the many different genres of membership, it was important to target different groups since not all members use the same mode of communication. In some cases, e-mail and web-based surveys will not be viable since not all members have access to these resources. For those cases, fax, phone, and face to face interviews are required.

The interview process provided details regarding the information that members would like to see in the technical publications section of the web site. This stage of the project involved extensive interviews and questionnaires to clearly identify the interests of the member base. From these interviews, a list of technical publication categories was submitted to FPA Australia so that relevant publications can be listed in the web database of resources. This publication listing can be found in the project results section, which discusses the final outcomes of the project.

Also important to FPA Australia is their ability to provide up-to-date information to their members via the web site. Keeping a web site up to date can be a time consuming ordeal. In order to make the task much more manageable to FPA Australia staff; it is necessary to provide easy-to-use forms and detailed instructions of how to keep the web site up to date. The use of forms to enable easy updates to the web site will be discussed in Chapter 4, the Methodology.

The project arose from FPA Australia's desire to have an easy to use web based publication resource. Having such a resource will provide members with remote access to the technical resources they need. Because of FPA Australia's widespread membership, it is important for members to be able to utilize publications remotely. This remote resource is provided exclusively to the members of FPA Australia and not to the public. The project supplied FPA Australia and its members with a searchable

resource accessible through the Internet, customized to the needs of its members. Other accomplishments of the project include easy to use administrative forms for updating the web site with a detailed instructions and member's document submission forms.

### **3 - Background Information**

This project required extensive research in order to attain goals set forth in the introduction. The following pages document the research that was conducted throughout the project. The information gathered includes FPA Australia membership information (*See Appendix B*), FPA Australia resources, survey and interview methods, and web technologies and their uses.

#### **3.1 -FPA Australia Membership Types**

FPA Australia strives to provide all members of the fire community with resources pertinent to their individual needs. Their membership program helps to do this by offering a number of benefits and incentives to members of the organization. Since not all members require the same resources from FPA Australia, the association offers a variety of different membership levels to optimally suit their different needs. There are currently ten different levels of membership offered by the association, which can be divided into three main categories: Individual, Corporate, and International memberships.

##### **3.1.1 - Individual Membership**

Individuals in the fields of fire protection and fire engineering are eligible for membership in FPA Australia under the following four levels of individual membership.

###### **3.1.1.1 - Associate Member**

Associate is FPA Australia's most basic level of membership. They receive one copy of all mailed publications, including the *Fire Australia* journal, *HazMat News*, *FireTalk* and E-News newsletters. This level is not granted discounts on publications or seminars, but they are given access to the FPA Australia Professional Indemnity

Insurance Plan. Associate and all other individual members are provided a Personal Membership Certificate and given access to the FPAA Library.

#### **3.1.1.2 - Associate Plus Member**

Associate Plus is the preferred membership level for individuals active in the fields of fire protection and fire engineering. In addition to all entitlements granted by the Associate level, Associate Plus members are given a 10% discount on materials purchased through the association, as well as discounts on conferences, seminars and training courses. Unlike other individual memberships, this level includes a framed Personal Membership Certificate and maintains the same level of access to the FPA Australia Library.

#### **3.1.1.3 - Student Member**

A special student membership is available to any student enrolled in a Fire Engineering course at an Australian Institution. Student members receive one copy of all mailings. Additionally, students receive a 15% discount on publications purchased through the association, as well as discounts on conferences, seminars, and meetings. Students are given the opportunity to enroll in the FPA Australia Professional Indemnity Insurance Plan. As with all individual memberships, an unframed Personal Membership Certificate and access to the FPAA Library is included.

#### **3.1.1.4 - Retired Member**

The Retired Member level consists of individuals who have retired from the fire industry or are former employees of corporate members. This category derives from the Associate level, with an added 10% discount given to publications purchased through the association. Additionally, retired members are given discounts on conference fees, seminars, and training courses. Since retired members are not actively

involved in the fire industry, the FPA Australia Professional Indemnity Insurance Plan does not apply.

### **3.1.2 - Corporate Membership**

Business entities and organizations find FPA Australia's corporate membership levels more suitable to their needs. Corporate member "heads of family"<sup>1</sup> are entitled to nominate others in their organizations to receive FPA Australia mailings, and hold the voting rights on behalf of the organizations. The number of "family" members allowed depends on the level of corporate membership. Additionally, corporate members are granted the privilege of holding seats on various FPA Australia committees, and all corporate members receive framed Membership Certificates.

#### **3.1.2.1 - Corporate C1**

Corporate C1 is FPA Australia's base level of corporate membership. Benefits included in this category are identical to that of the Associate Plus but allow three issues of each publication. The publications are mailed out to chosen individuals within an organization. The corporate representative chooses these individuals. Additionally, Corporate C1 members may elect to be included in the Fire Protection Directory for an additional fee. The sole stipulation for Corporate C1 membership is that the organization may receive services in only one state.

#### **3.1.2.2 - Corporate C2**

Those organizations requiring service in multiple states can take advantage of all the available resources provided by the Corporate C1 membership by upgrading to Corporate C2. This level of membership is virtually identical to Corporate C1, but

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<sup>1</sup> Corporate memberships may include multiple individuals from the organization wishing to receive FPA Australia publications. These individuals are collectively referred to as the membership "family." Corporate members are entitled to nominate additional members as members of their "family." Each Corporate member may nominate one member of the "family" as "head of the family." This "head of the family" is the holder of voting rights on behalf of the corporate member.



provides double the number of mailed publications and services multiple states. As with all corporate memberships, additional copies of publications may be requested for an added fee.

#### **3.1.2.3 - Corporate B**

Large businesses with an annual turnover of less than \$2 million are eligible for membership at this level. In addition to the services offered under Corporate C membership, Corporate B members receive technical bulletins, are licensed to use the FPA Logo and are offered admission and inclusion in various committees. A discount of 15% on any publication purchased through FPA Australia is available to membership levels at Corporate B or higher. Publication subscriptions are managed on a per-state basis; however, there are no set limits on the number of publication recipients in the organization.

#### **3.1.2.4 - Corporate A & Corporate A1**

For large businesses whose annual turnover is over \$2 million, Corporate A and Corporate A1 memberships are offered. Corporate A members receive all of the benefits depicted under the guidelines of Corporate B. With the upgrade to Corporate A1, members also receive publications specific to the topics of sprinklers and alarms.

#### **3.1.3 - International Membership**

This membership level is comprised of business entities, organizations, and individuals from outside Australia. International members are not eligible for discounts on documents and seminars, and only receive technical newsletters such as *FireTalk* and *HazMat News*, which are published at the same time as *Fire Australia*. As with all member categories, International members receive a Personal Membership Certificate and are given access to FPA Australia's library service.

### **3.1.4 - Non-Members**

This is a category that does not have any services and no cost associated. This category does have the ability to make purchases from FPA Australia.

### **3.2 -FPA Australia Publications**

FPA Australia produces a variety of publications related to the fire protection industry. Some of these publications are distributed solely to the association's member population, whereas some are also available to outside audiences. Having a clear knowledge of what types of materials FPA Australia currently publishes and how these resources are distributed are important steps in creating interview and survey questions that aim to determine how the publications are being used.

#### **3.2.1 - Fire Australia**

*Fire Australia* is a quarterly journal published as a joint venture between FPA Australia and the Institute of Fire Engineers (IFE Aust.), and has been established as Australia's leading journal in the fire protection field. The journal is comprised of current technological advancements and notable articles in the areas of fire protection and emergency management. *Fire Australia* is compiled from a wide range of sources and is distributed to a reader base of approximately 12,000. The journal is the association's primary means of maintaining contact with its member base, but is also available to non-members.

#### **3.2.2 - Newsletters**

In addition to *Fire Australia*, FPA Australia also distributes to its members several informative newsletters. *FireTalk*, the association's member newsletter, focuses on providing fire-related news relevant to the member base. Through *FireTalk*, FPA Australia is able to keep its members up to date on the current state of

the association, its policies, and of openings in various association committees. The newsletter is also a vehicle for highlighting articles appearing in outside sources and those resulting from FPA Australia's involvement in the industry. *HazMat News* is another such publication focusing on hazardous materials and the relevance to the fire protection industry. In addition to these, FPA Australia also publishes general technical and policy bulletins highlighting standards being implemented in the field. Often, these types of bulletins are the result of the works of technical committees and committee projects, and thus are often distributed by the committees themselves.

### **3.2.3 - Conference and Seminar Material**

FPA Australia conducts conferences and seminars throughout the year emphasizing different aspects of the fire protection industry. Publications discussing the topics covered in these seminars are produced and distributed. Due to the bulky nature of printing these publications, FPA Australia has been experimenting with alternate publication methods to better convey the covered material and help reduce the cost of distribution. One such method has been to utilize CD-ROM media for this purpose.

### **3.2.4 - Fire Safety Data Sheets**

FPA Australia offers educational fire safety related material free of charge to the public. The scope of these information packets ranges from general tips on home fire safety, such as the use of smoke detectors, to other areas of interest geared to the public.

### **3.2.5 - Materials for Sale**

FPA Australia handles the sales of many published works related to the industry. The association is the official Austral-Asian distributor for all NFPA, IFSTA,

Media Resources, Emergency Film Group videos, CDs, and publications. In this way, FPA Australia is able to provide additional resources to both its member base and to the private sector without having to restrict the scope of materials covered.

### **3.2.6 - Other Resources**

In addition to providing published works, FPA Australia also hosts a World Wide Web site located at <http://www.fpaa.com.au>. Through this medium, FPA Australia is able to provide many of the above stated materials online. The association also uses this medium to post current events and news, as well as providing direct contact between members of the fire industry and the association. The web site also provides directory listings of other organizations affiliated with FPA Australia.

### **3.3 -Survey Methods**

In order to make the survey useful and fitting to the needs of the project, research was conducted to explore the types of survey designs that are commonly used. These types include interview surveys, form surveys, telephone surveys, and mail surveys (Michigan U., 1976). The uses of all these surveys were explored and some general characteristics of each were found. Factors that will be examined include response, ease of administration, and possibility for biasing the results.

#### **3.3.1 - Mail Surveys**

These surveys are the most impersonal and require the least amount of interaction between the surveyor and those surveyed. This can be beneficial when sensitive material is being discussed, but it does not build a sense of trust with the survey taker. However, these types of surveys have the advantage of being able to cover wide audience. Geographic separation is not an issue and allows the survey administrator to reach people that they cannot reach in person. There is also a

likelihood of lower response since the survey is free response, meaning that the survey is solely based on the subject's willingness to invest the time to respond. One advantage to mail surveys is cost effectiveness. They are inexpensive and require very little administration and personnel. In addition, the subject is able to look at the survey at his or her own pace and can re-read any questions that they may find confusing. Along with the convenience comes a price. The response rate drops considerably and is at best around 30% (Barnes). If a higher response rate is desired, then there is a need to send out a follow up reminding the subjects to fill out the surveys. This increases mailing costs and requires that there be more administrators to keep track of all the responses. Because the response is purely voluntary, there is no way of gauging why people are not responding to the survey. This non-response may be due to the fact that a subject may not have received the survey, or more likely chose not to reply. Lastly, this method requires that the questions be clearly written so the respondent can easily understand what he or she is being asked (Michigan U., 1976).

### **3.3.2 - Form Surveys**

These types of surveys are much more proactive than the typical mail survey. Because of this, there is a greater need for personnel. This type of survey is in paper form like the mail survey, but is forced feedback rather than free response (Barnes, 1995). Forced feedback responses generally offer a limited number of response choices for a given question, while free response questions allow the interviewee to elaborate more on his/her answer. Form surveys are administered and returned shortly after being administered. Due to the fact that the survey is administered and filled out immediately, the response-rate increases. As with the mail survey, the low administrative cost of a form survey makes it desirable (Michigan U., 1976).

### **3.3.3 - World Wide Web Surveys**

The computer based survey is one of the most complex and yet most efficient ways of doing a survey. Initially, it requires some computer knowledge both from the administrators and the target audience. Since the survey must first be designed to work with the World Wide Web (WWW), there is a certain amount of web knowledge that must be assumed of the subject. This can also lead to lower and biased responses. Other difficulties are encountered if the subjects are not aware of how to submit and use WWW based surveys (Brennan, 1996). The one big advantage that these have over other forms is that they are not solely paper form surveys. However, because it is web-based, the subject has the option of printing the survey and answering in that manner. Therefore, this survey type lends itself to being useable by people who use different modes of reading. However, the largest drawback is that the subjects are limited to computer users (Barnes, 1995).

### **3.3.4 - E-mail Surveys**

Electronic mail (e-mail) surveys are very similar to the On-line survey since they require that the respondent have some knowledge of computers. One aspect that makes these surveys so advantageous is that there are methods of confirming that the survey reached the desired audience. The greatest drawback is the reliance on the respondent to check e-mail in a timely manner. Due to the dependence on the recipient, response rates could suffer since there is no guarantee that the recipient will check their e-mail in time for them to read and answer the desired questions. Therefore, e-mail surveys have little or no advantage over an on-line survey because it heavily relies upon the respondent to regularly check his or her e-mail, and it also narrows down the audience to computer users, which may be too restrictive.

### **3.4 -Survey Design**

An important part of the survey process is the actual design. The steps taken can determine the effectiveness and accuracy of information that is gathered. Therefore, it is important the survey design be a process, not merely a step. For this reason, we have outlined the major components that must be considered when designing a survey. All survey methods must incorporate clearly stated directions and questions (Barnes, 1995).

#### **3.4.1 - Audience**

The initial step in beginning the design process is perhaps the most important. Deciding on one's audience is important because it will gauge the type of questions and their complexity. In this choice, the ability of the group to fill out the survey must also be taken into account. However, an even distribution over the entire target audience is essential since biases can be evident if the target audience is too particular. A large audience can also allow one to get a higher number of responses since it is possible to distribute to more people. When you have selected the sample group of your audience it is always a good idea to make sure that the sample group is varied and really represents the people accurately (Brennan, 1996). In the end, it all comes down to the probability of getting a high response rate. It is also the duty of the administrator to take into account the chances of absent responses and to reduce the occurrences. However, when the response rate is high, the amount of absent responses becomes insignificant and does not make a large difference in the analysis of the information (Barnes, 1995).

### **3.4.2 - Question Design**

When designing the question, many intuitive rules are used. The main rule is to gear questions toward your selected sample audience and to make the questions unbiased. When phrasing the question, it is important that the reader is not lead to a particular answer. At the same time, it is also vital that all the participants receive the same questions in the same words. These things only tend to become a problem in phone surveys and personal interviews. Commenting can skew the respondent's answers, and is a common mistake in personal interviews and should be avoided since it tends to bias the interviewee (Barnes, 1995).

Questions should always be clear and concise so that there is no room for misinterpretation by the survey taker. The format of the question should be kept consistent throughout the survey to avoid confusion and unnecessary stress on the recipient. It should be easy to tell how the question should be answered. In addition, long and involved questions should be avoided so that the recipient doesn't spend an excessive amount of time on a particular question, since this tends to lead to an absent response. In the cases when more information is desired, the best method of acquiring the desired information is to break down the larger question into small parts (Barnes, 1995). A good practice is to put the questions into a simple form. Also, making all the questions relevant is a good idea since most recipients will not answer a question that seems to be irrelevant. When questions involve any kind of numbers, it is easier to have a list of options rather than leave an open ended question where the recipient needs to do math in their head. This goes back to "thinking too much" and will result in fewer recipient responses. Using tools such as check boxes and the circling of choices makes it easier on a recipient and hence these tools should be used when possible (Barnes, 1995). Pre-testing the questions on a small group so that feedback



about the survey is good practice. The feedback serves to indicate potential problems with the questions. Questions that are difficult to understand or are irrelevant must then be eliminated or clarified. This practice leads to more effective and concise questions (Michigan U., 1976).

### **3.5 -Interviews**

Interview based surveys are an effective means of establishing qualitative data. Interviews can be conducted in person or over the phone. The personal nature of an interview creates a sense of trust between the interviewer and respondent, often allowing for responses that would not be contributed comfortably in written form. Unlike other survey methods, the interview process allows the respondent to elaborate on specific questions. If the response received is unclear, the interviewer is able to ask for clarification, alleviating the need for a follow-up survey. However, it is important that the interviewer stay consistent with the amount of elaboration that they give with each interviewee. Biases can appear depending on the way that the question is asked and as to which details the interviewer omits or includes in the explanation of a question. Consistency is important and many of these problems can be alleviated by thoroughly pre-testing questions and making sure that they are clear and concise.

### **3.6 -FPA Australia Resource Database**

FPA Australia maintains three separate databases listing fire-related publications available to members. These databases consist of materials found in the FPAA Library, Standards Australia<sup>2</sup>, and fire related Videos from various sources.

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<sup>2</sup> “Standards Australia is a not-for-profit organization which prepares and publishes most of the voluntary technical and commercial Standards used in Australia. Our [Standards Australia’s] primary role is to prepare Standards through an open process of consultation and consensus in which all interested parties are invited to participate.” - Standards Australia Annual Report 1998

When a member wishes to find a published article or video pertaining to a certain topic, they can visit the FPAA Library to conduct their search. The member may also opt to call or fax their inquiry to FPA Australia. Upon receipt of this inquiry, an FPA Australia staff member searches the local databases and faxes or mails the resulting list of abstracts and titles to the member. Once the member receives this list, it is up to him/her to pursue the publication. The association will fulfill specific requests for a small fee, but does not require that individuals obtain the publications through FPA Australia. However, if a specific request is made to FPA Australia, the publication is found and sent out to the member. It is important to note that although many of the publications that result from FPA Australia's search are available through other sources, it is often beneficial for the member to make all requests through FPA Australia to take advantage of any applicable member discounts.

Since many of FPA Australia's members are not within driving distance of the FPA Australia headquarters, conducting queries over the phone or via fax are common. The process of searching for a certain publication may take members several inquiries to attain the desired documents. Without the ability to conduct searches on their own, the member must contact the association every time a new search is made, potentially making this a very time-consuming process for the individual. The process also requires a great deal of time of FPA Australia staff members, since multiple requests to fine-tune a search may take several faxes or mailings.

To help increase productivity and to keep its members from getting discouraged, FPA Australia is interested in making these resources more accessible. The recent widespread acceptance of the Internet, as well as the release of FPA Australia's own web site makes the use of the web an ideal medium for this sort of

accessibility. In this way, all members will have equal access to FPA Australia's resources, regardless of distance.

### **3.6.1 - DB/Textworks**

Currently FPA Australia has their publications list stored in DB/Textworks. DB/Textworks is a database software package that allows users to create custom databases to suit their needs. The useful aspect of the software is that it has the ability to output the entire database into a large text file. The output function is useful because it allows for text based searching through the database. This ability to search through the text database is employed by the search engine and makes the software package easily compatible with our needs.

### **3.7 -Web Publishing**

There are many different aspects related to designing web pages. Some items of consideration are readability, appearance, interactivity, and ease of use. Studies have been conducted regarding how people read web pages (Morkes. 01/04/99). It has been found that web pages are read differently than printed materials. Users searching for specific information normally scan web pages. Since users know exactly what they are looking for, it is very important to keep the sections short and easy to scan. Most users prefer the inverted pyramid style of writing, keeping the main ideas of each piece of writing in the beginning of the document followed by the justification and background information (Morkes. 01/04/99).

Another key aspect of web publishing is the appearance of the document. Making a web document easy to browse is very important to the effectiveness of the document. Web pages that are cluttered with poorly placed text and images make it very difficult for users to find the information they are looking for. Hence, it is good

practice to use images only when necessary, and to organize the document well (Morkes. 01/04/99). As mentioned before, methods of keeping the document organized well entails keeping the main ideas of the writing in the first few sentences of the web page, and following the main idea with the justification and background following (Morkes. 01/04/99).

Keeping the site easy to use and interactive makes the user's experience on the web site simple and productive. Some features used in keeping web sites simple and interactive are search engines, forms, and discussion forums. The features mentioned use the Common Gateway Interface (CGI) to utilize the two-way communication capability of the Internet, and can be created using the Practical Extract and Report Language (PERL).

### **3.7.1 - Common Gateway Interface:**

The Common Gateway Interface (CGI) is a standard way in which external programs can be used on the Internet. Standard HyperText Markup Language (HTML) documents are considered static, in other words they are text documents that do not change. On the other hand, CGI programs are executed at the time of server access and output dynamic information. In order to allow web users to search a database on a server, a CGI program must be executed to allow the user and the server to communicate properly. The CGI program acts as an interpreter between the database on the server and the web user. Two common examples of CGI programs are forms and search engines (NCSA. 26/03/99).

### **3.7.2 - PERL**

The Practical Extract and Report Language (PERL) is a programming language primarily used for searching and processing text files. One positive aspect of

PERL is that it is written in plain text and is interpreted rather than compiled. This means that any operating system (Unix, Macintosh, Windows, etc.) can execute the script. Most other programming languages, such as C and Pascal, need to be compiled prior to processing. The PERL script only needs to reside on the server, eliminating the need to have the remote user download the file to execute it. Other advantages of the language are its ease of use, ability to process large files, and its overall efficiency. (Sams, 30/03/99) One of the many functions that PERL can do is that of pattern matching and replacing. Pattern matching is a function that is used in search engines that allows the program to pick out specified characters in a document. The replacing function allows the output of data from one document to another.

Pattern matching and replacing capability has made PERL a popular choice for web programming. One specific area of PERL usage is in CGI programming. Web administrators can easily query large databases of information using simple PERL scripts. The ability to access such large databases makes PERL a popular choice among web programmers for tasks such as search engines and forms. The results from search engines and forms can be easily formatted into HTML documents and returned to the web server (Sams, 30/03/99).

PERL is an efficient programming language. What makes PERL so efficient is the number of built-in functions and operators for manipulating data. Some languages, such as C and C++, can perform similar tasks, but PERL can perform many of those tasks in far fewer lines of code. (Sams, 30/03/99) The ability to perform those tasks in few lines of code contributes to the general acceptance of PERL programming on the Internet. In order to make the argument for PERL a fair one, it should be mentioned that the syntax is complex and requires good knowledge of the language.

### **3.7.3 - Forms**

Forms are types of CGI programs that provide an easy way for web users to input information into a database that is stored on a web server. Forms are very similar in layout to the paper forms that people regularly fill out. One example of an Internet form would be a discussion group form. This would entail the user entering data into specific fields and then submitting it to the server. Forms send two main items to the web server; the actual data entered into the form and the action that the server must perform on the data. Normally the data received from the form is entered into a database. This database can be accessed through the server either directly by the administrator, or through the Internet utilizing another type of CGI program. One type of CGI program that can access such a database is a search engine (Webcom Forms Guide. 26/03/99).

### **3.7.4 - Search Engine**

A search engine is a CGI program that will sort through a database for specific information entered by a web user. Search engines function by taking input from a web user and then scan a database for matches of the information that the user supplies. Once the database has been queried, the resulting data is sent back to the user via the CGI program. The search engine can be as flexible as the author desires. Many different operators can be implemented in a search engine. Table 3-1 includes a list of common search operators.

<b>Search Operator</b>	<b>Function</b>	<b>Usage</b>
“ ”	Exact wording match	“Melbourne Zoo”
+	Require particular word	+Fire +Truck
-	Exclude particular word	Sprinkler –fire
AND	Search both words	fire AND protection
OR	Search either term	Fire OR water

**Table 3-1: Commonly used search expressions**

Search engines are useful tools for web sites and provide users with access to large databases. Having a search engine for a large database eliminates the need to browse a long list of data entries, and provides the user with relevant materials.

### **3.7.5 - Discussion Forums**

Discussion forums are referred to by many different names; discussion boards, bulletin boards, threaded discussions, and Web conferences. Their purpose is to provide a common place for people to share opinions and ideas. Utilizing the two-way capability of the Internet, discussion forums generate a virtual community around a web site. They also keep the users interested by supplying new materials. A common problem of many web sites on the Internet is the inability to keep the site current. Having such a discussion forum continuously gives the site visitor new material to browse and respond to (Baldazo. 30/03/99).

Chat rooms are another way that web sites can promote two way interactions. Live chats are not always a fair medium for people to voice their opinion. The responses tend to be very short, and not carefully thought out. Often, the users who can type the fastest dominate chat rooms and drown out those who take more time in

responding. Discussion forums are more suited for scientific and engineering issues. Forums are more user friendly by allowing anyone to join a discussion in progress, and still have access to all comments made prior to the user's involvement. In chat rooms, if a user is not involved in the discussion from the beginning, then it is very difficult for them to understand what is being discussed. Having the luxury of composing well thought out responses, and the ability to join a discussion at any point, make discussion forums more useful in conducting detailed discussions (Baldazo. 30/03/99).

### **3.8 -User's Manuals**

These have been rarely used publications. These can be very useful in teaching people on how to perform tasks and use new products. Of course, these therefore need to be geared toward the targeted user of a product. Simple and concise instructions make the reading easy and straightforward for the new user. The employment of diagrams and pictures greatly aids in describing complex and sometimes even simple instructions. Since many people learn in different ways, it is ideal to have both the written instructions and visual aids. Over-use of visual aids can also make a document hard to read and actually detracts from the level of usability. For this reason it is wise to have a balance of images and text. User's manuals need to be structured in a way that is logical and can be easily followed. One way to accomplish this is to go through a step-by-step explanation of any process. Quick indexes are good since the user can easily see the major steps that need to be performed to accomplish a task. Always keeping the user in mind, terminology must be kept to a basic level. This eliminates the need for a glossary of terms, but in some cases this can not be avoided. In these cases, the definitions should be kept as short as possible and avoid using more new terms. (Casabona, 09/04/99)



## **4 - Methodology**

Determining the material that members want to see included in the technical publications of FPA Australia's web site required the development of questions to ascertain the types of publications that are useful to the members. The development of a suggested materials list required interviewing. To determine the potential interviewees, different categories of FPA Australia members were identified in order to ensure a good representation of the different fire industry sectors. The resulting interviews were then used to gather information regarding the contents for the suggested materials list.

### **4.1 -Research**

Initial research played an essential role in helping to determine what types of questions to ask, as well as whom to interview. Deciding what to ask each interviewee was an important task in the interview process. To ask the most useful questions regarding the current publications of FPA Australia, it was necessary to research the material that is distributed by FPA Australia. This research provided a good understanding of the types of technical materials that the members of FPA Australia were already receiving.

In determining which members to interview, initial research was required to categorize the different types of individuals and businesses in Australia who are members of FPA Australia. It was very important to sort the members into different categories to make sure that there is no bias in the types of technical materials suggested.

## **4.2 -Interviews**

Interviews played a very important role in the gathering of data. The use of face to face and telephone interviews was the preferred method of gathering information pertinent to our project. Personal interviews are much more intimate than surveys because they allow the interviewee to elaborate much more on his or her responses. This ability to elaborate resulted in more detailed information about the technical publications of interest to the members. To obtain satisfactory results from the interviews, they must be targeted to many different categories of members. Conducting interviews with different types of members upon arrival in Melbourne established a good base of information to enable the construction of a list of suggested materials for FPA Australia's web site.

### **4.2.1 - Questionnaire/Interview Questions Testing**

The development of the questionnaire/survey for data collection required numerous drafts. Constant feedback from the members of the project group and FPA Australia staff was utilized throughout the drafting and revising process. The entire group, taking into account all suggestions regarding the clarity and conciseness of the questions, reviewed each draft. The final draft of the questions resulted from repeating the group review process, the results of which were then printed and given to the FPA Australia staff members for review and critique. In addition, an e-mail version of the draft was sent to the project advisors for review and critique. The feedback received from the FPA Australia staff and advisors lead to further refining of the questions. Included with the questions was a statement of the project goals, as well as an assurance to the recipients that the results would be kept confidential. In order to receive the responses in a timely and convenient fashion, contact information and a

deadline were included in the statement. The statement was then revised and edited in the same fashion as the questions until the group felt that it could be easily understood by anyone who received it. The questionnaire is available in Appendix D.

#### **4.2.2 - Questionnaire/Interview Questions Design**

The questionnaire and interview questions were aimed exclusively at the members of FPA Australia. Since the technical publications section is only available to FPA Australia members the questions were purposefully biased to the members, by request from the FPA Australia staff members.

All but one of the questions were kept close-ended to ensure consistency in the interviews with members from different sectors of the fire industry. The open-ended question permitted the members to discuss ideas related to the technical publications section of the web site. Keeping the questions consistent for all of the interviews allowed for a quantitative analysis of the responses.

#### **4.3 -Sampling**

Initial lists of members were acquired from various personnel of FPA Australia. There were many important factors to be considered when compiling the list of contacts. A diverse representation of the fire industry was desired, thus the industry sector that the respondent belonged to was considered the most important factor in compiling a list of contacts. Using this criterion, the contact lists were reviewed by the staff members at FPA Australia. From the lists came a sub list of members to interview. These members were chosen because of their proximity to the FPA Australia office and their differing areas of interest in the fire industry. The rest of the correspondents were contacted via e-mail and fax since the feedback they provided

was also essential in getting a good broad list of suggested publications. All these contacts came from the member database at FPA Australia.

#### **4.3.1 - Interview Documentation**

As the interviews were completed, a folder of all the notes from each member were stapled together and stored. From these notes, the member's name, organization, and the date of the interview were taken. It was felt that the best method of documenting the interviews would be to do it as a group. Since all group members had varying notes, a more comprehensive summary of the interviews was compiled, making the descriptions more detailed. Each interview resulted in suggested materials for the web site. These were compiled into lists, where they were separated into categories by industry sector. This categorization will allow FPA Australia to easily view the list of suggestions. The details from the interviews will be included in Chapter 4, Data Analysis.

#### **4.4 - Web Integration**

Another key aspect to this project was the integration of FPA Australia documents with the association's current web site (<http://www.fpaa.com.au>). Since this web site is the source for any new technical publications of interest to members, great importance must be given to the presentation of these documents. Due to the potentially immense database of these publications, simply listing them on the web site would be lengthy and confusing to site visitors. To avoid this potential problem, it was determined that the use of a search engine to reference documents may be preferable. Therefore the potential of a search engine will be included in the questionnaires and interviews. Using a search engine, members visiting the site are able to reference

articles relevant to their keyword inquiry. This approach alleviates the need to manually search through long lists of publications.

The current search methods in place at FPA Australia are offered as a member service. For this reason, providing search capability to all site visitors may be undesirable. Another section of the interviews and questionnaires included a discussion relating to having the technical publications section of the web site available only to members of FPA Australia. This would provide an incentive for non-members to join the organization and to stay abreast of current fire related issues.

The establishment of a members-only section also allows for easy integration of future member services into the FPA Australia web site. Up until the time of this project, FPA Australia's web site was primarily used as a distribution point for existing materials and links to other web sites. Even if members were encouraged to submit resources of interest, there was no way of easily doing so through the existing web interface. In order to promote member involvement, it was deemed necessary to structure the member section to accept feedback and resource suggestions. Features that allow this type of member interaction include resource submission forms and fire industry discussion forums.

Keeping the material on FPA Australia's web site up to date was also a concern. Manually editing web documents can be somewhat of a tedious process, and requires a certain deal of technical knowledge. Since it is impractical to educate the entire staff on the inner working of the web site, the job of updating resources was previously restricted to one person. Dividing the workload amongst the staff would require a way of editing the site content without warranting additional skills. To do this, a great deal of effort was put into the back-end management of the site. The use

of web-based forms to administer discussion forum proceedings and to manage member resource submissions was a necessary pursuit.

#### **4.5 -Search Engine**

A comprehensive and easy to use search engine would be of great service to the members of FPA Australia. It has been established that the use of a keyword search would be more beneficial than simply listing numerous FPA Australia documents. Having such a search feature available on the web ensures that members are not required to personally visit the association's library in order to find documents of interest. Prior to this web integration, the only other way of conducting a search of library materials was to telephone or fax FPA Australia. As can be seen from Appendix F, this process could become quite tedious and time consuming if the desired materials were not found through the first search. With a web-based search, members are able to revise their search multiple times, without any associated time penalties.

Alongside the search engine is the database from which the search engine sources all the relevant information. It was necessary to ensure FPA Australia's web search engine incorporated all resource databases currently offered in the association's library. This included a database of video publications, a Standards Australia publication listing, and an extensive library database listing all other materials available through the association. In addition to these databases, a web-only search of technical publications was included on the site. In this section, technical publications of interest to the members of FPA Australia can be cataloged.

It was important that web database updates be conducted in an efficient manner. To best integrate current databases, any changes made to current databases should only need to be exported to a text file and uploaded to the web site. This way,

the association can continue to use its current software package to manage document listings.

#### **4.5.1 - Search Engine Design**

Having established what types of documents should be searchable and how different databases need to be updated, actual design of the engine could be undertaken. Since FPA Australia's web site's location may be subject to change in the future, the use of the PERL scripting language was used due to its flexibility over a wide range of server platforms. PERL is also an excellent candidate for dynamic web-page creation because of its ease of text manipulation.

Programming of the engine was fairly straightforward; however, several key aspects to search functionality needed to be taken into account. For instance, modifiers such as plus or minus symbols, as well as quote-delimited phrases needed to be included. If someone wishes to conduct a search with the word "sprinkler" in it, documents containing the word "sprinklers" are also acceptable. However, if the search were for the word "ship," referring to fires on boats, a search revealing the word "relationship" would not be desirable. Thus, offering functionality while still allowing for flexibility was a primary concern.

Another aspect of the search engine is how to display results of the conducted search. Since different databases do not always take advantage of the same field criteria, the output must remain structured and easy to read, while still being legible in print. Incorporating color themes already present on FPA Australia's web site also helped to structure these different criteria.

#### **4.5.2 - Search Engine Testing**

The search engine was designed to incorporate databases that already exist in the FPA Australia library. Inconsistencies across the various databases called for each to be analyzed for compatibility with the search engine. To minimize any possibility of future problems, testing was conducted before the search engine was made available for member use. Since it was impossible to simulate all scenarios of use through testing by just the project team, the FPA Australia staff also aided in the tests. This testing found any possible loopholes and areas of concern that could occur during the full implementation for use by the members.

#### **4.6 -Web Forms**

Traditionally, input forms are a useful way for entering information into computers. When used in conjunction with web CGI programs, forms can allow for the manipulation of web pages and databases, but avoid the time and expertise needed to manually edit HTML pages. For this reason, web based forms were chosen as the primary means of administrating FPA Australia's web site. In this way, staff members were presented with a familiar interface, making it easier to keep web content current.

Another use for the web based form on FPA Australia's web site is to allow members easier interaction with the association. To do this, we constructed forms to allow members to request documents, submit titles and abstracts, and to submit search requests.

#### **4.7 -User's Manual**

Part of any new product is the user's manual. This is an important document for a new user since it provides a how-to guide for the product. This was included as



part of the project since it would allow any of the staff members at FPA Australia to be able to use the new features added to the web site.

#### **4.7.1 - User's Manual Design**

After looking at manuals for various products, it was decided that the best user's manuals included pictures of what is actually seen by the user. This not only made the instructions easy to follow, but also gave the user a way to confirm that the instructions were being executed correctly. In order to make a similar manual; screen shots were taken of the DB/TextWorks. These screen shots are images of the steps to export a database. The full manual can be found in Appendix E. Once the screen shots were taken, they could be pasted into Adobe PageMaker to construct the layout of the pages. These images were cut to fit the space available on the pages. After the images were put in the correct order, it was necessary to explain the things shown in the image. Concise and clear instructions were added. The same process was used for the explanation of how to use the search engine and administration forms. Because of the complexity of some of the modifiers that can be used in the search engine, it was necessary to include a glossary of useable functions.

#### **4.7.2 - User's Manual Testing**

Testing is an important phase for any user's manual. The staff of FPA Australia tested our manual since they will be the primary users. It is important that they be able to perform all the necessary steps described without any problems. The testing resulted in feedback concerning the size of images and text clarity. These suggestions were used to modify and make the manual instructions as clear and precise as possible. From this process, the final draft of the user's manual was published.

## **5 - Data Presentation and Analysis**

This section of the report covers the results of the research conducted throughout the project. This research was done through interviews and questionnaires that were sent to members via electronic mail and fax. The information gathered through the data collection process provided a basis for recommendations made to FPA Australia.

### **5.1 -Question Justification**

The questionnaire and interview questions were designed primarily to get general insight as to what kind of resources members of FPA Australia would find useful in a technical publications section available exclusively to members. The questions established a better understanding of whether the members were using electronic methods of research and communication. A general sense of which industries were using the web site and FPA Australia's library was acquired. All but one of the questions was kept close-ended since we did not need a great amount of detail from those questions. The question that was open ended was of the most interest and generated a variety of answers. There were three general types of question that were asked which served different purposes. The three types of questions asked related to background information, FPA Australia's current resources, and a members only section.

**Type 1 Background Information:** These questions focused on information concerning the members' background. They were used to determine whether the members have used the current methods of information dissemination. Also asked was members' familiarity with FPA Australia's current resources such as the FPA Australia library, conference CD-ROM, and web site.

**Type2 FPA Australia Current Resources:** Questions focusing on the members' knowledge of FPA Australia's web site and on-site library were important. These questions helped to establish a general idea as to whether members use FPA Australia as an information resource.

**Type 3 Members Only Section:** These questions were designed to get feedback on the member's only section of the FPA Australia web site. They were the main information gathering tools. The purpose was to establish a sense of interest from the members and to get suggestions so that the members only section would address their needs.

The questionnaire was designed using the guidelines for surveys, which are described in the literature review. Similar questionnaires were used for e-mail and faxes, with slight variation between them. This was done to maintain continuity in the type of information gathered from the various methods used. The interview questions were the same, but at times some questions were omitted to maintain a casual flow of conversation. A full version of the questionnaire can be found in Appendix D. A description of the questions and their appropriateness for distribution will now be discussed.

**(Cover Page)** The cover page has the title of the questionnaire, a brief description of the project, and contact information. It also communicates the goals of the questionnaire to the respondent and why it is being conducted.

Fire Protection Association Australia  
Questionnaire

We are a project group from Worcester Polytechnic Institute, an engineering college in the United States, working on-site with Fire Protection Association Australia. The purpose of our project is to determine the kinds of materials that members would like to see in a member's only section of the FPA Australia Web site. In particular, the types of technical publication that would be included under the publications section of the Web site. We will accomplish this through interviews of the FPA Australia members. All responses to the questions below will be kept completely anonymous. Thank you for your time spent in answering the questions. Please e-mail or fax your responses by April 9<sup>th</sup>.

FPA Australia Project Team

Keith Berard

Ryan Metivier

Frederick Toy

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(1-4) The first four questions were designed to obtain background information about the member. They also helped to establish how much knowledge the member had about FPA Australia's resources. The Internet and electronic mail usage questions were omitted on questionnaires sent via electronic mail.

1. What is your level of membership?
2. Are you aware of the materials available in the FPA Australia library?
3. Do you have access to the Internet (at home/work)?
4. Do you use electronic mail?

(5) Question 5 was designed to get a sense of the familiarity the member had with FPA Australia's web site.

5. Do you feel FPA Australia provides adequate information on the web?

(6) The design of question 6 gave the respondent a sense of the direction of the questionnaire as well as giving context to the questions that follow.

6. Do you like the idea of having a member's only section?

(7-8) Questions 7 and 8 asked the member for information regarding his or her use of FPA Australia's library. These questions were used as a precursor to the following questions regarding the technical publications section. This information was gathered simply to see if members were using the search services currently provided by FPA Australia.

7. Have you ever conducted a search at the FPA Australia Library?

8. Have you ever faxed or phoned in a library inquiry to the FPA Australia office?

(9-11) Questions 9 and 10 dealt with the content of a members only section of the web site. These questions gathered information about interest and content of the members only section. Question 10 data is for the compilation of a list of recommended technical publications. The last question was aimed to establish the respondent's interests and the usefulness of publications that are not easily accessed.

9. Would you use a searchable FPA Australia library list in the member's section?

10. What types of technical papers would you like to see in a member's section?

11. Would you be interested in seeing research material from universities which concerns the fire industry?

## **5.2 -Personal Interviews**

Eight personal interviews were conducted with various members of FPA Australia. The interviews were conducted with the intent of getting feedback about the FPA Australia web site and the addition of new features. The interviews provided insight regarding the use of the Internet and the desire for web based documents and search engines. Most of the interviewees were well versed in the use of electronic mail. Many use electronic mail regularly to remain in contact with their colleagues. The interviewees were generally in favor of having a technical publications section available only to members.

There were many different ideas regarding the material to be included in a section available to members. Some of the ideas were a discussion forum, lists of experts in the fire industry, lists of definitions for non-standard fire terms, fire product listings, and the possibility for members to submit papers. The potential for some of these ideas will be discussed in chapter 6 of the report.

There were a wide variety of suggestions for papers to be included in the technical publications section. These suggestions covered many topics including NFPA material, university papers, proprietary product designs, general product reviews, product test reports, burn test procedures, member contributions, conference material, human egress, Australian standards, detailed fire statistics, international standards, and state news.

The interviewees were chosen to depict the variety of backgrounds in FPA Australia's member base. Having representations from different areas of the fire industry aided in establishing the needs of each facet of the member base. The backgrounds of the interviewees ranged from private consultants to research scientists and building contractors.

### **5.2.1 - Interview 1**

This first interview was conducted with an employee of a research and consulting firm. The firm is partially government funded and participates in private research and testing. Some of the major fields that the firm deals with are paints, material testing, material research, and private consulting. The interviewee has access to the Internet at home and at work, and occasionally uses electronic mail. The interviewee noted that because of his organization's orientation towards science, they do not frequently utilize the material that FPA Australia provides. Having a private library has also led the organization not to rely solely on FPA Australia's resources. Because the universities do not enter a high level of research, those types of documents are of questionable usefulness to the firm. While the firm does find the conferences a useful way of interacting with the rest of the industry, they do not feel that the information FPA Australia has to offer in their newsletter to be of much use. A more technical journal is needed by the organization, which FPA Australia does not provide. Although it was agreed that a search engine would be more convenient than current methods, the interviewee did not feel that his organization would be inclined to use it.

### **5.2.2 - Interview 2**

The second interview was conducted with a long time member of the fire industry. He has spent 30 years in the fire service and is now working in the consulting business. He currently holds a chair position within FPA Australia, and was a board member for many years. He feels that the involvement of FPA Australia members has been a long time in coming. His excitement in the project was evident and made for some extremely useful comments. One specific comment dealt with benefits of becoming a member. He felt that having a technical publications section of the web

site dedicated to members would be a good service. He felt this section would give better service to the members and encourage others to join the organization.

The interviewee believes that NFPA documents should be included in a technical publications section. Other items of interest were building and fire codes of Australia. Reprinting the documents on the web site would be in violation of copyright laws, but only including abstracts, titles, and other vital information would solve the problem. National Fire Conference proceedings were also considered useful since they bring the members up to date with current events in industry. He brought up the idea of recruiting a group of volunteers to form a panel to be responsible for maintaining technical publication listings and the web page. Having a volunteer keeping track of these resources would alleviate any extra pressure on the FPA Australia staff to maintain the web site.

### **5.2.3 - Interview 3**

The third interview was conducted with the president of a consulting firm that specializes in building surveying. He has access to the Internet and electronic mail, but does not use them regularly. The other workers in the company use the Internet and electronic mail on a regular basis. One of the major interests for the company would be a place to easily locate manufacturers and products. It would also be useful to be able to locate test reports and opinions on fire related products. He noted that many organizations keep technical papers local, since they may have a monetary investment in the information. Because of this, many of these documents may not be available for public use. He felt that it would be a benefit to have a searchable database of abstracts, titles, and authors of the test reports about specific products in a member's only technical publications section.



Other topics of interest to his company would be materials and reports from research organizations dealing with performance based fire safety. He felt that architects and fire engineers would benefit most from these types of papers since they constantly need access to current information on materials and their performance. He recommended that the documents should be in a widely accepted format, such as the Portable Document Format (PDF). He stated that he would also be interested in fire related research papers that universities publish.

#### **5.2.4 - Interview 4**

This interview was conducted with a board member from the Melbourne Fire Brigade. He does not use the Internet on a regular basis due to lack of time, but he uses electronic e-mail quite often. He provided many ideas about the technical publications section and felt that having a searchable document and library database would be beneficial to many members.

He suggested including drafts of standards in the technical publications section of the web site. Having the drafts available to read on the web site would inform the members as to what the various committees are working on. Many publications in the fire industry are related to technical topics and fire products. The interviewee felt that it would be important to include publications relating to human behavior with the rest of the documents. Human related topics such as egress and fire protection training would be of particular interest to fire brigades around the world. He also considered university papers very useful, and feels that they should be more publicly accessible. Since the research is being conducted all over Australia, it would be of great benefit to the entire industry.

One particular suggestion made was the use of a discussion forum to allow members to exchange ideas. This would allow the members located in different parts

of Australia to discuss related fire topics and would make the members an active part of FPA Australia. Topics of discussion would include recent article summaries, standard drafts, and general fire related discussions.

#### **5.2.5 - Interview 5**

As an FPA Australia board member from a consulting firm in the Melbourne area, this interviewee provided a consultant's point of view for the data collection process. He is an occasional electronic mail checker that prefers to keep the amount of unsolicited mail received to a minimum. The Internet is used on an as needed basis. When asked about having a technical publications section of the web site available only to members, he mentioned that he thought that it would be a good service to members of FPA Australia. He followed up with some suggestions as to what he would like to see in such a section.

Currently FPA Australia publishes its Fire Australia conference proceedings on a CD-ROM. The interviewee felt that those documents, as well as other conference proceedings, should be made available to members in the technical publications section. Having materials presented at conferences available would aid in keeping the members up to date as to what is happening in the industry. Other topics of interest mentioned were documents relating to building codes, fire related state news, and standards. Also discussed was the possibility of breaking the topics of interest into sub-sections, such as fire suppression, fire detection, and miscellaneous fire services. When asked about universities submitting fire related papers, he replied "The more information the better."

The interviewee believed that having a searchable publications and library database would be of great use to all members. A useful feature to the search engine would be to put hyperlinks on documents pointing to materials that are not available

directly from FPA Australia. Overall, he was enthusiastic about the idea of having a technical publications section of the web site.

#### **5.2.6 - Interview 6**

A research scientist was the subject of the sixth interview. Talking to a research scientist was of great value to the interview process, because it gave insight towards the types of technical papers that could be incorporated into the technical documents section. This interviewee uses electronic mail on a regular basis, and has access to the Internet. He thought that having member only access to the technical publications section was a good idea. Many ideas were discussed regarding the potential for such a section of the web site.

As a research scientist, he felt that the web site should include more technical and scientifically oriented papers. One of his areas of interest was the detailing of fire testing and the results, specifically, whether specific items actually passed a fire test or if it was the fire test that failed. Technical documents relating to fire testing procedures are of great use to the interviewee. He was also concerned with the lack of fire materials relating specifically to Australia. He would like to see more Australia based papers such as local fire details. Other documents of interest were related to fire testing, performance codes, fire materials, and health regulations. He felt that having the previously discussed documents, as well as FPA Australia's library database, searchable on the web site would be a useful tool for conducting research. Also relating to technical publications, the interviewee discussed the potential of having his company's research results available via the FPA Australia web site.

Also talked about was the potential for a discussion forum in the technical publications section. He felt that giving members a chance to communicate their ideas on fire related topics would help keep them up to date with current events in the

industry. His only concern was with moderation of such a forum. He felt that some members might abuse the privilege of having a discussion forum by advertising their products and submitting unrelated comments. To combat this, the interviewee proposed the establishment of a review board to moderate the discussion. Having new postings sent to the board for review would take care of any moderation necessary.

### **5.2.7 - Interview 7**

This interview was conducted with an associate from an international consulting firm. This interviewee provided the point of view of a more internationally based FPA Australia member. He is a frequent electronic e-mail user, using it for interoffice communications, client contacts, and discussion with colleagues. He is another supporter of having the technical publications section for use only by members. As an international consultant, his interests are not limited to Australia and New Zealand. He would like to see many different types of documents, from all over the world, available in a technical publications section.

As a consultant, he would like to see documents relating to current research being conducted in the fire safety field, standards, current engineering designs, and technical journals. He felt that including searchable document and library databases in the technical publications section was a good idea, and that members would find it particularly useful. One thing that he mentioned that was different from all of the other interviewees was a section dedicated to listing international specialists in various aspects of the industry. He felt that having such a list would be of great help to many members of FPA Australia. For example, he mentioned that there are specialists in coal mine fires; having contact information to these people would be a very valuable resource to members of FPA Australia.

Another topic of interest was the potential for a discussion forum on FPA Australia's web site. The interviewee was not as enthusiastic about that section as he was about the searchable publications database. The reasoning behind his disagreement was the simple fact that he much prefers face to face communications but felt that some members would utilize a discussion forum. He also mentioned that many members would fall in the same category as him.

### **5.2.8 - Interview 8**

The last of the personal interviews was conducted with an employee of a private consulting firm. He is not very familiar with the Internet and electronic mail. One of his employees does most of his Internet research for him. Although he is not a regular web user, he provided numerous ideas for a member's section of FPA Australia's web site. He felt that having the technical publications section of the web site available to members only is a good idea. He was also very enthusiastic about having a searchable technical document and library database on the web site for member use.

Some of his ideas for the web site included linking FPA Australia's library search engine with other international fire organizations around the world, such as in those in North America, Europe and Asia. Having an international base of searchable information would be of great use to him and other members of FPA Australia. The interviewee was also interested in having a list of companies that deal with fire models available for the exchange of information related to fire modeling.

He was very helpful in providing ideas for information to include in a technical publications section of the web site and was very interested in having reliable fire statistics available to members. Examples of the statistics of interest are firewall performance, human behavior, and detailed reports of fires around the world. He

stresses the importance of having large amounts of data from various fires available in an easy to access database. Another interesting idea that the interviewee put forward was the possibility for having a non-ISO (International Standardization Organization) glossary of fire terms commonly used in the fire industry around the world available on the web site.

### **5.3 -E-mail/Fax Questionnaire**

The e-mail and fax questionnaire used very similar questions, the only difference between them was that the e-mail version had question 4 omitted. For e-mail recipients, an initial e-mail was sent out requesting the participation of the FPA Australia member (*see Appendix C*). By doing this, the members knew what the questionnaire was about before ever seeing the questions. This resulted in people needing to request the questionnaire by replying to the initial e-mail, but led to a high return rate since the questionnaire was filled out voluntarily. The fax questionnaires were efficient, because they required minimum effort. They were very time effective since all the member had to do was fax the questionnaire right back with their responses. Below is a summary of the responses from the members who chose to fill out the survey. These responses lack the details that an interview would have given but still provide valuable input.

#### **5.3.1 - Fax Response 1**

This recipient was aware of the materials that FPA Australia offers in their library. The member has conducted FPA Australia library inquiries for material via the phone and fax. Lacking the ability to connect to the Internet, the member is not aware of the current resources on the FPA Australia web site. Despite not having visited the web site, he feels that having a searchable database would be useful. In addition,

information from the universities would be a valuable resource. Some technical publications that this member would like to see are performance-based design for sprinklers, new products, and mist/gas sprinklers.

### **5.3.2 - Fax Response 2**

Having Internet access both at home and work has made this member well aware of the FPA Australia web site. A few suggestions that were made to make the site more useable are e-mail to members of FPA Australia, update details and dates to prompt re-visitation of the site. This member has also used the library to conduct a search and would find the web-based search engine useful as well as information about university research. The main topics that would benefit this member are fire safety engineering development and building regulatory advisory notes.

### **5.3.3 - Fax Response 3**

Having Internet access at work has allowed this member to view the current FPA Australia web site. Accepting the current level of information on the web site, the member also commented that more information concerning research would be useful. The member would also like to see the members only section provide extra services. The extra services would justify the member costs in this respondent's mind. Having used the library and done some searches, this member felt it would useful to see a searchable database. Some of the topics that would be useful for this member are leading edge research, new ideas, new concepts, and quantified performance of systems, agents, and techniques. Also the respondent felt that university papers would be a useful addition to the technical publications section of the web site.

#### **5.3.4 - Electronic Mail Response 1**

The electronic mail respondent works with a contracting/engineering firm. This person uses the Internet and electronic mail regularly. He felt that the web site is a good site despite the menial technical publications section. He is a supporter of having the technical publications available to members only. Having never conducted a search at the FPA library, he was not familiar with the resources available to members in the library. Unfortunately due to his busy schedule, he was not able to fully complete the questionnaire. The questions omitted were related to the search engine, technical publications, and university papers.

#### **5.4 -Phone Interviews**

Two phone interviews were conducted by request by members who received our fax or electronic mail questionnaire and were not available in the local area of Melbourne. The phone interviews provided a somewhat conversational atmosphere, but they were not as conducive to conversation as the personal interviews. The lack of conversation resulted in less information being extracted from the phone interviews. One potential source for non-ideal communication was that it is more difficult to establish a rapport with an interviewee over the phone than it was with a personal interview.

##### **5.4.1 - Phone Interview 1**

The first phone interview was conducted with a research scientist. He is a regular user of the Internet and electronic mail. Surprisingly, he felt that a technical publications section of the web site should not be restricted to member use, feeling that the kind of information that would be offered should be available to the public. Having



documents related to all areas of the fire industry included in a technical publications section of the web site would be beneficial to many individuals.

#### **5.4.2 - Phone Interview 2**

This interviewee was initially contacted by electronic mail. His response to the electronic mail questionnaire led to a follow-up phone interview to clarify some of the replies. He is a chief engineer working for an international engineering firm that is very active in the fire industry. He was supportive of having the technical publications section of the web site restricted to member use only. He felt that it would be important to mention the types of materials that are available only to members in a public section, so non-members could see what they are missing. The types of materials that he would like to see included in the technical publications section are reports from the various committee meetings, status of standard drafts, possible interpretations and questions regarding the drafts of the standards, and even some international standards work. He felt that keeping members up to date is a very important task that can be accomplished using the Internet.

The interviewee also favored having a searchable library and document database available in the technical publications section. He was also interested in having Australia based documents, as well as international papers dealing with the fire industry. A discussion forum in the technical publications section would also be of interest to him. He felt that a discussion forum would be an excellent place for members to discuss matters dealing with the various aspects of the fire industry, as well as a venue for FPA Australia to make announcements.

## **5.5 -Response Analysis**

In order to determine the most viable solutions for FPA Australia's web site, the responses from the data collection process were analyzed thoroughly. A thorough analysis of the replies received from the interviews and questionnaires enabled the team to determine the final course of action related to the web site, and to provide FPA Australia with recommendations for future developments.

### **5.5.1 - Familiarity with Available Materials**

The interviews and questionnaire had three questions related to the respondent's level of familiarity with FPA Australia's available resources. Of the thirteen members contacted, eight of them were familiar with FPA Australia's resource library. Occasionally they would visit the office and do the search manually, other times he or she would phone or fax in a search request to an FPA Australia staff member. The members who did use the FPA Australia library felt that it sometimes took too long to find a particular document.

The other five respondents were either not aware of the materials available in FPA Australia's library or had no need to utilize the documents available. There were two primary reasons for members not using the library. The first reason was that the respondent had access to his or her own company's library. Having access to a local on-site library rendered spending time searching through another library unproductive. In most cases, the libraries that the respondents have access to are specialized for the particular type of research that he or she needs to conduct. The second reason for members not using FPA Australia's available resources was that he or she was not aware of the materials available in the on-site library. Having members not aware of

the materials available to them can be a problem since they are not receiving one of the benefits of becoming a member.

### **5.5.2 - Members' Internet Utilization**

The interviews and questionnaires also provided information regarding the members' level of comfort with the Internet and electronic mail. Since the project is focusing on additions to an existing web site, it is important to determine how familiar members are with using the Internet. All of those contacted via interview and questionnaire use electronic mail. Knowing the number of members who use electronic mail is important because it provides another method for FPA Australia to communicate to its members.

Although all of the members questioned used electronic mail regularly, there were two respondents that either do not use the Internet or do not have access to it. Four of the interviewees have access to the Internet, but do not use it regularly. The reason that they do not use the Internet very often is because they are generally too busy and do not have the time to use the Internet. The other seven respondents that use the Internet on a more regular basis had visited FPA Australia's web site at least once. The overall impression of the web site was that it was well set up, but was lacking information related to the fire industry. All of the members interviewed were supportive of the addition of a technical publications section to the web site.

### **5.5.3 - Technical Publications Section**

The questions relating to the technical publications section of FPA Australia's web site were the most important questions in the interviews and questionnaires. Since the focus of the project was the technical publications section of the web site, the outcomes and results of the entire project were based on these questions.

### **5.5.3.1 - Member Only**

One aspect of the technical publications section that was discussed during the interviews and included with the questionnaire, was the idea of having the technical publication section of the web site available only to members of FPA Australia. Only one of the thirteen respondents felt that the section should be available to the public. The rest of the respondents felt that it would be a good idea to keep such a section of the web site available only to members. Those who felt that it should be kept members only said that it would be a good benefit for the paying members of FPA Australia. Also mentioned was the idea of having a page describing what was available in the technical publications section in order to promote new members.

### **5.5.3.2 - Document Search Engine**

Another idea posed in the interviews and questionnaires was a search engine to provide members with an easy to use resource to find materials available in FPA Australia's library as well as other technical documents that could be posted and added to the publications database. All of the members interviewed were very enthusiastic about the availability of such a resource. Respondents felt that a search engine on the web site would be a useful tool for conducting research and locating information.

### **5.5.3.3 - Technical Papers**

The last two questions of the interview and questionnaire focused on documents that members would find useful in the technical publications section of the web site. Since the interviews and questionnaires were directed at members from different areas of the industry, the responses varied greatly. A complete listing of the suggested materials can be found in the Results and Recommendations section of the report.

There is a very large amount of information that members would like to see available in the technical publications section of the web site. Due to the potential for copyright infringement on the part of FPA Australia, it is very difficult to provide the entirety of any document on the Internet. Although the members interviewed would prefer to have the whole article available on the Internet, they understood the difficulty of providing such a resource. Just having basic information such as title, abstract, and author would be of great use to all of the respondents, as well as their other colleagues in FPA Australia.

#### **5.5.3.4 - Discussion Forum**

The fourth interview brought up a very interesting aspect of web page design. He mentioned that having a common place for members to discuss the various aspects of the fire industry could be useful communication tool. The topic was mentioned in a few of the following interviews. The four members that were approached with the idea thought that it was a very interesting avenue for the FPA Australia web site. Mentioned in the interviews were potential topics for a discussion forum on the FPA Australia web site: active and passive fire suppression, detection, standards, and an area for general discussion. This forum will be used as a recommendation for future work.

#### **5.5.3.5 - Expert Listing**

One of the interviewees brought up the idea of having a list of experts in the fire protection field. The fire protection industry has a multitude of facets, and there are experts in each. Having such a listing would enable members to find them in a central location. For example, specialized fields of the fire protection industry are coal mine fires, tunnel fires, and other specialized topics of interest. This expert listing will be presented to FPA Australia as a recommendation for future work.

## **5.6 -Analysis Summary**

Using the information gathered from the interviews and questionnaires, it was possible to establish results for the project, as well as recommendations for future work on FPA Australia's web site. All of the contacts made during the project period were very helpful in the outcome of the project. The next section of the report will cover in detail all results and recommendations to FPA Australia.

## **6 - Results and Recommendations**

This part of the project report outlines the outcomes for FPA Australia concerning the Technical Publications section on their web site. It also outlines the conclusions that were drawn from the data gathered through interviews, discussions with staff members of FPA Australia, and questionnaires. The recommendations were made from the data received during the interview and questionnaire process described in the Data Analysis section of the report.

### **6.1 - Technical Publications**

An outcome for this project was the establishment of a technical publications database. This database is maintained by the FPAA Staff and is revised by administrative forms. The information pertaining to the actual articles can either be from the FPA Australia staff or be suggested by the members. The technical papers that are listed serve to increase the type of information that is available through FPA Australia. Members can become more involved through the suggestion of materials that they would find interesting and they could also play a vital role in the expansion of FPA Australia's technical papers resource. This database comes from the interest that the members expressed during the interviews and questionnaires. All suggested topics for the types of technical publications were purely from the interviews and questionnaires.

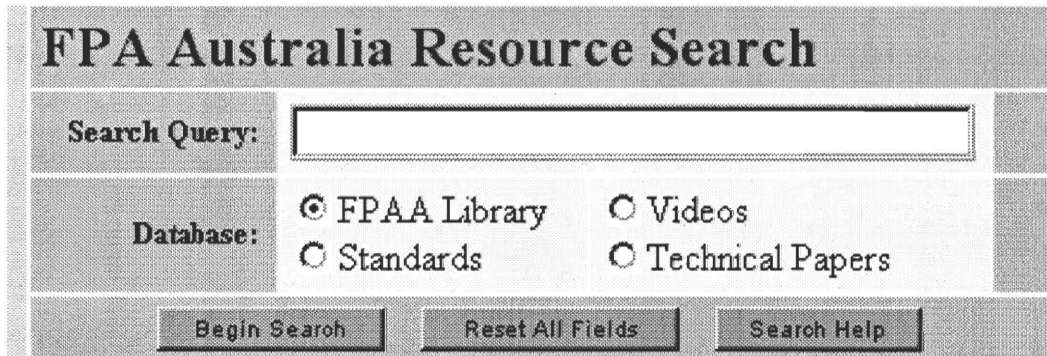
**Recommendation:** Investigate the incorporation of Standards Australia documents.

Many FPA Australia members expressed an interest in seeing some of the Standards Australia materials posted on FPA Australia's web site. Some legal issues could be encountered concerning the copyright, but having abstracts of the standards may prove to be useful to members. Also, drafts of new standards and or revisions of

old standards could prove to be useful and may act as a source for discussion material for the recommended Discussion Forum.

## **6.2 -Search Engine**

The search engine is one outcome of the project. This search engine serves as a new feature to the FPA Australia web site. It has the capability of searching databases that are maintainable by the FPA Australia Staff. This search engine is found on the FPA Australia web site. Below is a picture of the search engine. It is able to conduct basic word searches but it also has some more advanced options; details and the search engine are on the web site and in Appendix H. The search engine is a feature that members of FPA Australia expressed a keen interest in through the interviews and questionnaires. This search engine and the databases it uses are a result of feed back, which the members provided concerning useful technical publications.



FPA Australia Resource Search	
Search Query:	<input type="text"/>
Database:	<input checked="" type="radio"/> FPAA Library <input type="radio"/> Videos <input type="radio"/> Standards <input type="radio"/> Technical Papers
<input type="button" value="Begin Search"/>	<input type="button" value="Reset All Fields"/> <input type="button" value="Search Help"/>

**Figure 6-1: Search Engine**

The search has an easy to use format. The engine searches only one database at a time so that the user knows what type of media they are being presented with when the results are posted. In the Search Query field the user has the most flexibility for the search. It is in that field where the user would use the modifiers that are listed under Search Help, and described in Appendix H.



**Recommendation:** Maintain schedule of database updates.

The maintenance of the search engine databases is crucial to the effectiveness of the searches conducted by members. By maintaining a regular schedule of database updates, the members are always assured of having access to the most recent material available. These updates can be done by any one of the FPA Australia staff members by using the database upload form included in the administration section of the web site.

### **6.3 -Resource Submission Form**

The resource submission form is located in the technical publications section of the web site. It is a means for members to provide FPA Australia with publications and/or locations of publications which members may find useful. This form only allows for the submission of the reference information for a document and prevents any copyright issues from becoming a concern. By having the abstract field in the submission form being limited to a certain number of characters, it prevents the full articles from being submitted. Because the full articles cannot be submitted, it avoids any copyright issues. Authors are free to give FPA Australia distribution rights and send a copy to the office by mail or e-mail. The submission form generates a notice to the FPAA staff, which serves to bring to their attention any important articles that are relevant to members. Because it is difficult to determine the kind of information which members would find useful, FPA Australia sought a method for members to make their needs heard. FPA Australia made this concern during one of the many discussions with the project team. It is through the Resource Submission form that members and FPA Australia can now simultaneously build an information source.

FPA Australia Resource Submission	
<b>Step 1:</b>	Please fill out the following about yourself NOTE: This information will NOT be disclosed.
Member Number:	<input type="text"/>
Organisation*:	<input type="text"/>
First*, Last Name*:	<input type="text"/> <input type="text"/>
Address:	<input type="text"/>
City, State, Postal Code:	<input type="text"/> <input type="text"/> <input type="text"/>
Phone*, Fax:	<input type="text"/> <input type="text"/>
Email:	<input type="text"/>
<b>Step 2:</b>	What type of resource will you be submitting?
Source:	<input type="radio"/> Web Link <input checked="" type="radio"/> Published Media
<input type="button" value="Continue"/> <input type="button" value="Reset All Fields"/> <input type="button" value="General Help"/>	

Figure 6-2: Resource Submission Form

The form for submitting new resources is field separated so that information is easy to fill in. After this form is filled out and the Source is selected, the user is presented with a new form depending on the Source being submitted.

Resource: Published Media			
<b>Step 3:</b>	Please summarize this document.		
Title*:	<input type="text"/>		
Abstract*:	<input type="text"/>		
<b>Step 4:</b>	Additional document information.		
Author:	<input type="text"/>	Corporation:	<input type="text"/>
Publisher:	<input type="text"/>	State/Country:	<input type="text"/>
ISBN:	<input type="text"/>	ISSN:	<input type="text"/>
<b>Step 5:</b>	Comments to FPA Australia?		
Comments:	<input type="text"/>		
<input type="button" value="Continue"/> <input type="button" value="Reset All Fields"/> <input type="button" value="General Help"/>			

Figure 6-3: Publication Submission Form

The Publication submission form is for published works and paper based media. This is a straightforward form that allows the member to include a short abstract.

Resource: Web Link	
<b>Step 3:</b>	Where is the document located?
URL*:	<input type="text" value="http://"/>
<b>Step 4:</b>	Please summarize this document.
Title*:	<input type="text"/>
Abstract*:	<input type="text"/>
<b>Step 5:</b>	Additional document information.
Author:	<input type="text"/>
Corporation:	<input type="text"/>
<b>Step 6:</b>	Comments to FPA Australia?
Comments:	<input type="text"/>
<input type="button" value="Continue"/> <input type="button" value="Reset All Fields"/> <input type="button" value="General Help"/>	

**Figure 6-4: Web Link Submission Form**

The Web Link Submission form allows for an on-line publication to be submitted to FPA Australia. Comments and additional information can be included as well. There are required fields in the form, which are marked with asterisks.

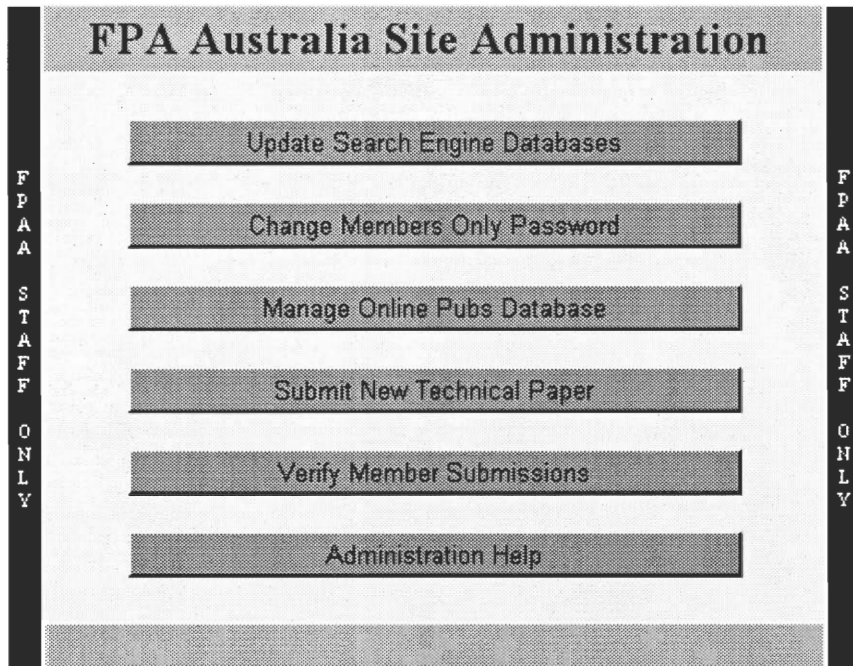
**Recommendation:** Member awareness.

In order to make the Resource Submission Form as effective as possible, it is important to make the FPA Australia members aware of its existence. Posting the information on the web site and including a small article in the FPA Australia publications can do this. By making the members aware of the form, more material is likely to be submitted. Feedback from the members from this form can lead to a better understanding of their current resource needs.

#### **6.4 -Administrative Forms**

The administrative forms were generated because of FPA Australia’s need for easy editing of the Technical Publications database and easy upload of the search engine databases. Uploading the search database only involves the transfer of the file

from a local computer at FPA Australia to the web server. The forms are highly graphical and simple to use. They allow for the submission of titles and abstracts to the Technical Publications database. The administrative forms also allow for the upload of the current search engine databases. There are some other forms that are included, which are pictured and described in the following paragraph. The actual process involved in performing these tasks is described in the User's Manual, which was provided to the staff of FPA Australia for future reference. A copy of the User's Manual can be found in Appendix E. The administration forms are a result of a meeting held with FPA Australia staff. Because the administration of their web site can be time consuming and requires web design knowledge, the web site has not been easy to update and change. By providing FPA Australia with the forms, the project team has alleviated the need for FPA Australia staff to know the inner workings of the new features and simply change things through the forms. The forms that were needed came from various discussions. These discussions established a set of activities that FPA Australia would need to perform on a regular basis. The specific forms are a result of requests from FPA Australia.



**Figure 6-5: Administration Menu**

The Figure 5-5 is the entrance to the administration forms section of the technical publications sections. From this screen, the FPA Australia staff can chose their activity. Each of the buttons allows the staff to go to a particular form for easy administration of the web site.

[\[Back to FPA Australia Administration\]](#)

**Figure 6-6: Member Password Change Form**

The Members Only Password Change form is used to change the password which FPA Australia members use to access the restricted section. FPA Australia staff can use this form to quickly and efficiently change the password needed to access any of the member services.

F P A  S T A F F  O N L Y	<b>Search Engine Database Upload</b>	
	<b>File:</b>	<input type="text"/> <input type="button" value="Browse..."/>
	<b>NOTE:</b>	File must be named one of the following: <b>fpaalib.dmp standard.dmp videos.dmp</b>
	<input type="button" value="Upload File"/> <input type="button" value="Reset Field"/> <input type="button" value="Help"/>	

[\[Back to FPA Australia Administration\]](#)

**Figure 6-7: Database Upload Form**

The form shown in Figure 6-7 is used by the FPA Australia Staff to update the databases that are used by the search engine. The form limits the type of information that can be entered and prevents any errors from occurring in the updating process. The 'Browse...' option is used for finding a file on the local computer. Once the user has double clicked on the file, it is automatically entered into the 'File:' field of the form.

### **6.5 -Web Enhancements**

Through the use of the PERL programming language, the project group was able to design and implement enhancements for the FPA Australia web site. Enhancements for the member side of the web site that were written in PERL include the search engine and the member submission forms. Administrative tools written with PERL were the password change form, member submission verification form, database upload tool, staff resource submission form, and publication management. All mentioned PERL features were customized to best suit the needs of FPA Australia. PERL provided the internal structure to all interactive features of FPA Australia's web

site while HTML served as the user interface to the PERL programs. Please refer to Appendix H for more details.

### **6.6 -User's Manual**

The User's Manual was created for the FPA Australia staff. This booklet is to guide the staff in how to use the various forms and ways to maintain the technical publications section of the web site. For exact content, please view the booklet in Appendix E. Because some of the forms and their functions can get complex, the project team saw a need a User's Manual. Having a manual eased FPA Australia's concerns about being able to get help using the new services once the project team is no longer in Australia.

**Recommendation:** Employ User's Manual for training.

The administrative forms are restrictive in the type of data that can be entered into the fields. Should any FPA Australia staff member require assistance using one of the forms, he or she can consult the User's Manual for detailed instructions. Also, using the User's Manual as a guide to learn how to use the forms is highly recommended so that there is minimal confusion and error.

### **6.7 -General**

**Recommendation:** Investigate the effectiveness of the new services.

An extensive study into whether the new services that are a result from this project are being used effectively would be useful to FPA Australia. The study would also uncover any unforeseen problems with the new services. It would provide FPA Australia with valuable feedback from its members and also help to guide any future changes in the on-line services. The study would also help to determine if the forms provided to FPA Australia satisfied their needs for administration of the on-line

services. Investigation into more forms may be a result of these studies and provide future work for another project group.

**Recommendation:** Member Submission Form Enhancements

An investigation into how a member can submit multiple documents without having to re-enter all their contact information would be of great use. This would need to be an option that can be used at the member's discretion. It would allow the member to click an option that says they want the server to remember which computer and what user was signed on so that it could associate the correct contact information. This option would not just make it easier for the member, but it would encourage the submission of multiple documents.

**Recommendation:** Add electronic commerce on web site.

Follow up work should include investigation into the costs and benefits of adding an electronic means for ordering the material that FPA Australia offers for sale. This could work alongside the current publications request form that is found on the web site. Adding such a service could prove to be invaluable to both members and non-members. Another recommendation along the same lines would be to consider making the on-line order form a member privilege so there is added benefit to becoming a member of FPA Australia. Currently, the materials must be ordered via phone or postal mail. Electronics order forms could prove to be time efficient and promote use of the web site.

**Recommendation:** Provide a listing of fire industry experts.

Members expressed an interest in seeing a listing of fire experts on the FPA Australia web site. Such a listing would allow members of FPA Australia to have easier access to information from an expert source. The listing would be most useful if it was separated into geographic location of the expert and industry sector. This



would be useful since many fire industry experts are scattered around the world. Some method of monitoring would need to be investigated since there is the potential problem of organizations/individuals abusing the listings and using them for advertisement by listing themselves in multiple categories. A listing of experts could come from interviews and research of fire industry members.

**Recommendation:** Create a discussion forum.

This forum would be generated to allow FPA Australia members to discuss current fire industry issues. This would also allow the FPA Australia web site to have current information with minimum maintenance. FPA Australia would have control of the content in the discussions and could include their own feedback. The forum would also need to be divided into separate sections such as the ones suggested by members. These are listed below.

1. Drafts From Standards Australia
2. Fire Suppression
  - a. Active
  - b. Passive
3. Fire Detection
4. General
  - a. Fire Service
  - b. Current News

These categories would allow more structured discussions and also allow members to participate in the discussions of relevance and interest to them. A feature that could also be included in this forum would be a method for adding new topics of discussion. FPA Australia approval for any suggested discussion forum would be important to consider.

**Recommendation:** Investigate the available material for members.

During the data gathering process, members suggested materials that they would find useful for their specific sector of the fire industry. These materials could be included in the search engine database. The location of specific material is suggested, and the locations could perhaps be ascertained from further interviewing of members.

#### Suggested Material

1. Performance based design
2. New products
3. Mist and gas systems
4. Supplier technical papers
5. State issues
6. Test report details
7. Product information
8. Proprietary products listing
9. Standards committee reports
10. Standard drafts summaries
11. International articles
12. Australian fire articles
13. International fire standards
14. Fire safety engineering development
15. Building regulatory advisory notes
16. NFPA materials, assessments of fire systems and techniques
17. Engineering design
18. Technical journal articles
19. University papers abstracts
20. Fire statistics
21. Human behavior in fires
22. FPA Australia meeting topics
23. All paper material published by FPA Australia

#### **Conclusion:**

FPA Australia's technical publications section can be used more effectively since the addition of new services such as the search engine and various administrative forms. The new services provide members with an increased level of access to information and also allow for the members to become more active in broadening the amount of information available. Because the project included a User's Manual, the

entire staff of FPA Australia can now undertake the task of administering the web site. This increased usability will prove to be a valuable tool in helping FPA Australia expand and change as its web needs evolve in the future.

## 7 - Works Cited

- Baldazo, Rex. "Adding Discussion Forums to Your Site".  
<http://builder.cnet.com/Servers/Threads>. Visited March 30, 1999.
- Barnes, Jeffrey A. Quality of Survey Design in the IQP Advisor: James Doyle,  
Project Code: 95D253I. May 2, 1995
- Brennan, Brian ET. Al. Implications of On-Line Surveys, Advisor: Craig E. Wills  
Project Code: 96C011I. February 29, 1996
- Casabona, Helen. "The Finer Points of Writing User Doc"  
<http://www.casabona.com/STCPaper.htm>. Visited April 9, 1999
- Fowler, Floyd J. Survey Research Methods. SAGE Publications, Inc. ©1988
- Help Desk: WPI CCC Help Desk. "Ethernet Card and Software Installation Guide for  
Windows 95 & Windows 98".  
<http://www.wpi.edu/Academics/CCC/Help/Windowsdos/win9xnetworking.html>  
Visited April 12, 1999.
- Keene, Michael L. Effective Professional and Technical Writing. D.C. Heath and  
Company, ©1993
- Lin, Nan. Foundations of Social Research. McGraw-Hill, Inc. ©1976
- Michigan University: Survey Research Center. Interviewer's Manual. Revised Edition.  
Ann Arbor, Michigan: Institute for Social Research, ©1976
- NCSA, "CGI – Common Gateway Interface". <http://hoohoo.ncsa.uiuc.edu/cgi>.  
Visited March 30, 1999.
- Neumann, William Lawrence. Social Research Methods: Qualitative and Quantitative  
Approaches. Allyn and Bacon. ©1994
- Sams, Scott. "CGI & Perl Tutorial". <http://www.catt.ncsu.edu/projects/perl.html>.  
Visited March 30, 1999.
- Wall, Larry. "What is Perl". <http://language.perl.com/info/synopsis.html>.  
Visited March 25, 1999.
- Webcoms Forms Guide. "Forms Tutorial".  
<http://www.webcom.com/html/tutor/forms/intro.shtml>. Visited 31/03/99.
- Williams, Troy. "Fire Protection Association Australia". <http://www.fpaa.com.au>.  
Visited January 27, 1999.

# **APPENDICES**

## **Appendix A - Fire Protection Association Australia History**

The Fire Protection Association Australia (FPA Australia) was formed in early 1997 when the Fire Protection Industry Association of Australia and the Australian Fire Protection Association merged. The two organizations combined resources and successful history have put forth a strong foundation for FPA Australia, enabling it to assume the role as Australia's premier authority in the fire protection field. In fact, FPA Australia is the nation's largest single organization to be involved in both promoting fire awareness and in highlighting the work of the fire protection industry (Williams. 27 January 1999).

The first of these founding companies, the Fire Protection Industry Association of Australia (FPIAA), has contributed its rich history to FPA Australia. In 1926, the Fire Protection Engineers Association of Australia (FPEAA) was founded to help organize various aspects of the fire protection industry. Initially, the FPEAA concentrated its resources on the many aspects of Grimmell sprinklers. These topics included the manufacture, erection, and installation of this type of sprinkler system. Before long, the FPEAA decided to expand its focus, and in 1973, the reference to Grimmell sprinklers was dropped. This allowed for the expansion into many more genres of the fire protection industry, an outlook that could not have been achieved under the organization's former restrictions. The transition also encouraged businesses and individuals in the field to get involved in the movement. Keeping true to their heritage, the association changed its name in 1979 to the Fire Sprinkler Contractors Association of Australia (FSCAA) (Williams. 27 January 1999).

Just prior to the evolution of the FSCAA, several members of the former FPEAA left the organization to incorporate wider industry involvement. They believed that providing a wider range of industry services would lead to more exposure and

interest in the fire protection industry. Under these pretenses, the Fire Protection Industry Association of Australia Limited (FPIAA) was formed in 1967 (Williams. 27 January 1999). Ultimately, the goals of the FPIAA and the FSCAA became so similar that a merger was inevitable, and in 1990, the two organizations joined forces under the FPIAA title.

Despite the FPEAA's struggle to overcome its narrow perspective, the new outlooks proclaimed by the FPIAA and FSCAA were still lacking in the areas of community involvement and education of general fire protection. A group of senior members of the industry formed the Australian Fire Protection Association (AFPA) in 1960 in order to address the lack of focus towards community involvement and education. Contrary to its predecessors, this organization's primary objective was to increase public fire safety awareness, rather than to focus on a pure industry point of view. Many successful programs have resulted from this venture. The AFPA has been responsible for such programs as Australia's Fire Prevention Week, Fire Safety Week, and Fire Awareness Week (Williams. 27 January 1999). The AFPA became an icon for knowledge and education related to the fire safety industry having established its library services for fire related information.

Finally, in January 1997, these two disciplines of the fire protection industry melded and FPA Australia was formed. FPA Australia pursues its mission through many different mechanisms (Williams. 27 January 1999). Experience acquired from the organization's combined history, dating back to the late 1920's, has truly enabled it to stand as an authority in the field.

The Interactive Qualifying Project conducted with FPA Australia in D term 1999 closely relates to the mission of FPA Australia. The project focuses on making FPA Australia's literature distribution more efficient and more accessible to the largest

number of constituents as possible. Through the desire to make FPA Australia's information system more efficient by developing a technical publications section of the web site, the project will follow closely to FPA Australia's goal of educating fire awareness, as well as promoting it as an authority in the fire protection industry in Australia.



## Appendix B - Membership Breakdown

Individual Membership Categories <sup>1</sup>					
	Student	Associate	Assoc. Plus <sup>2</sup>	Inf'l Associate	Retired
Cost	\$55.00	\$85.00	\$130.00	\$85.00	\$40.00
Discount	15%	0%	10%	0%	10%
Fire Australia <sup>3</sup>	1 Copy	1 Copy	1 Copy	1 Copy	1 Copy
Fire Talk / HazMat News <sup>4</sup>	1 Copy	1 Copy	1 Copy	0 Copies	1 Copy

Corporate Membership Categories <sup>2,5</sup>					
	Corporate C1	Corporate C2	Corporate B	Corporate A1	Corporate A
Cost	\$300	\$600	\$750	\$1000 / State	\$1450 / State
Discount	10%	10%	15%	15%	15%
Fire Australia <sup>3</sup>	3 Copies	6 Copies	Unlimited	Unlimited	Unlimited
Fire Talk / HazMat News <sup>4</sup>	3 Copies	6 Copies	Unlimited	Unlimited	Unlimited

1. All individual members receive:
  - Personal Membership Certificate
  - Upcoming Conference Leaflets
  - Access to FPA Australia's Library
2. Framed Personal Membership Certificate
3. Quarterly Published Fire Journal
4. Published intermittently
5. All corporate members receive:
  - Upcoming Conference Leaflets
  - Access to FPA Australia's Library

NOTE A: Some corporate memberships also include a seat on various committees.  
 NOTE B: Free publications available to charity and educational institutions.

### Appendix C - E-mail Inquiry

We are a project group from Worcester Polytechnic Institute, an engineering college in the United States, working on-site with Fire Protection Association Australia for the next six weeks. The purpose of this project is to determine the types of technical papers that members would like to see accessible on FPA Australia's web page. These documents will be found in an area only accessible to members. We would like to know if you have time within the next two weeks to answer a few questions over the phone or via e-mail. Your responses would aid us in determining the type of material that would be included on the web page. We can be contacted via email at [fpaa@aqueous.net](mailto:fpaa@aqueous.net) or by phone (03) 9890 1544.

Thank you,

FPAA Project Team

Keith Berard,

Ryan Metivier,

Frederick Toy



6. Do you like the idea of having a member's only section?
  
7. Have you ever conducted a search at the FPA Australia Library?
  
8. Have you ever faxed or phoned in a library inquiry to the FPA Australia office?
  
9. Would you use a searchable FPA Australia library list in the member's section?
  
10. What types of technical papers would you like to see in a member's section?
  
11. Would you be interested in seeing research material from universities which concerns the fire industry?

## **Appendix E - Web Administration Manual**

The following pages are the administration manual for FPA Australia's web site. They are to be used by the FPA Australia staff to make the web page update procedure as simple as possible. The manual does not appear in its original format, the original format would have two manual pages per page of A4 paper.



FIRE PROTECTION  
ASSOCIATION  
AUSTRALIA

# Website Administration User's Manual

**MAY 1999  
EDITION**

Printed for the  
**Fire Protection  
Association Australia**

In the interest of protecting  
life and property from fire.

---

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# Database Export

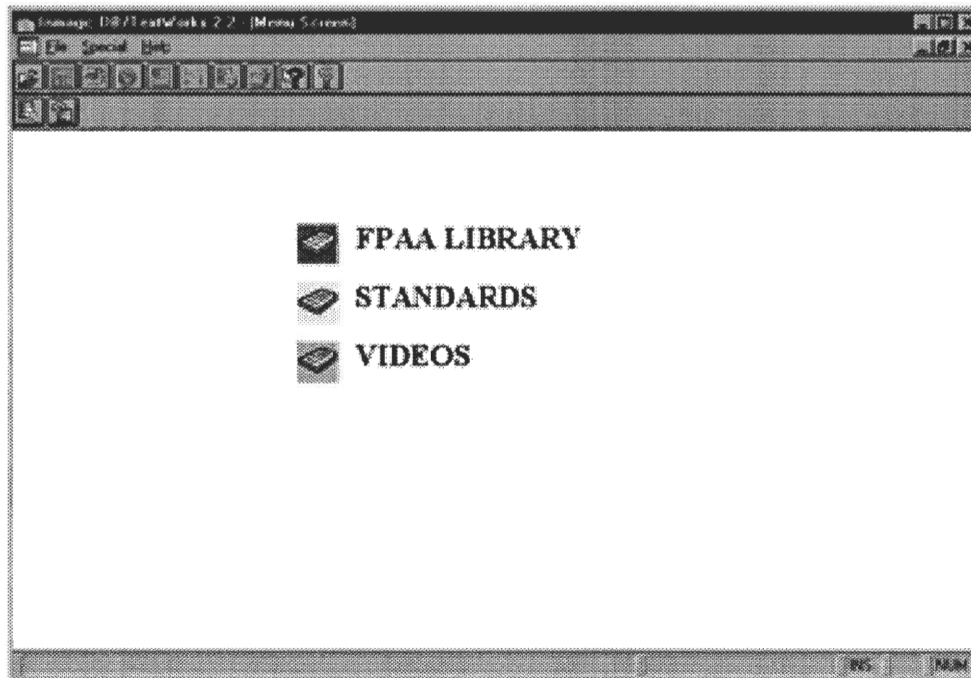
---

In order to integrate the three existing DB/TextWorks databases into the FPA Australia website, they must first be converted to a text-only format. This can be achieved directly from inside the DB/TextWorks program.



The next series of steps will guide you through this process of “exporting” the listings contained in the library database into the format required by the web search engine.

## Step 1 - Choose the Database



The FPA Australia Library program presents a menu listing the three available databases. Simply click on the desired category for export and the program will automatically load the correct database.



---

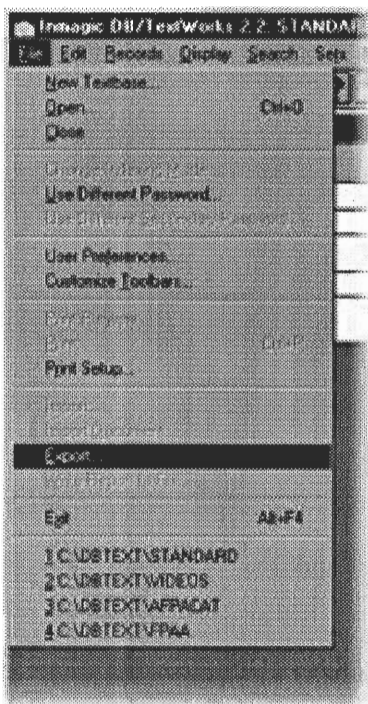
Ensuring that the correct database has been loaded is essential to correct exportation. The name of the loaded database is shown on the titlebar of the window.



If it is noticed that the incorrect database was loaded, the process can be easily started over by restarting the library program.

## Step 2 - Export...

Now that the desired resource listing has been loaded into the DB/TextWorks program, the database is ready for export. This is done by selecting the Export option from the File pull-down menu.



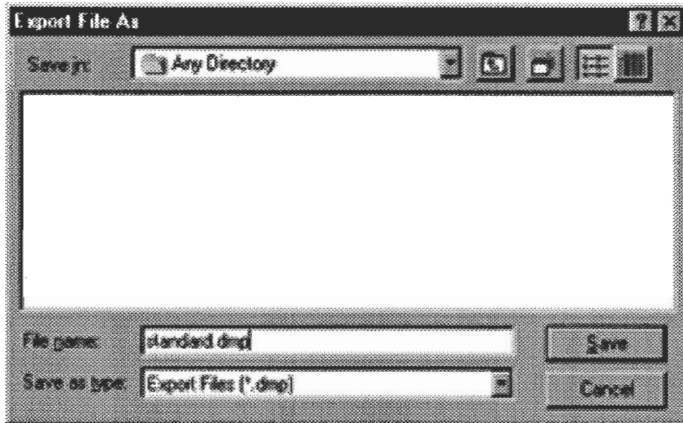
The picture to the right exhibits the selection.

Once the Export option has been selected, an "Export File As" dialog is presented. At this point, you are prompted to specify the location to save the final database. It makes no difference where the file is actually saved. However, it is important to put it in a location where you will be able to find it later.

---

When saving the file, you are prompted to provide a file name. This name is dependant on the database being exported. It is

imperative that the file name is written exactly as below so that the search engine will use the files correctly.



The file extension is .DMP (text dump) so it will not interfere with other databases in the DB/TextWorks directory.

<b>FPAAs Database</b>	<b>File Name</b>
FPAAs Library	fpaalib.dmp
Standards Australia	standard.dmp
Video Library	videos.dmp

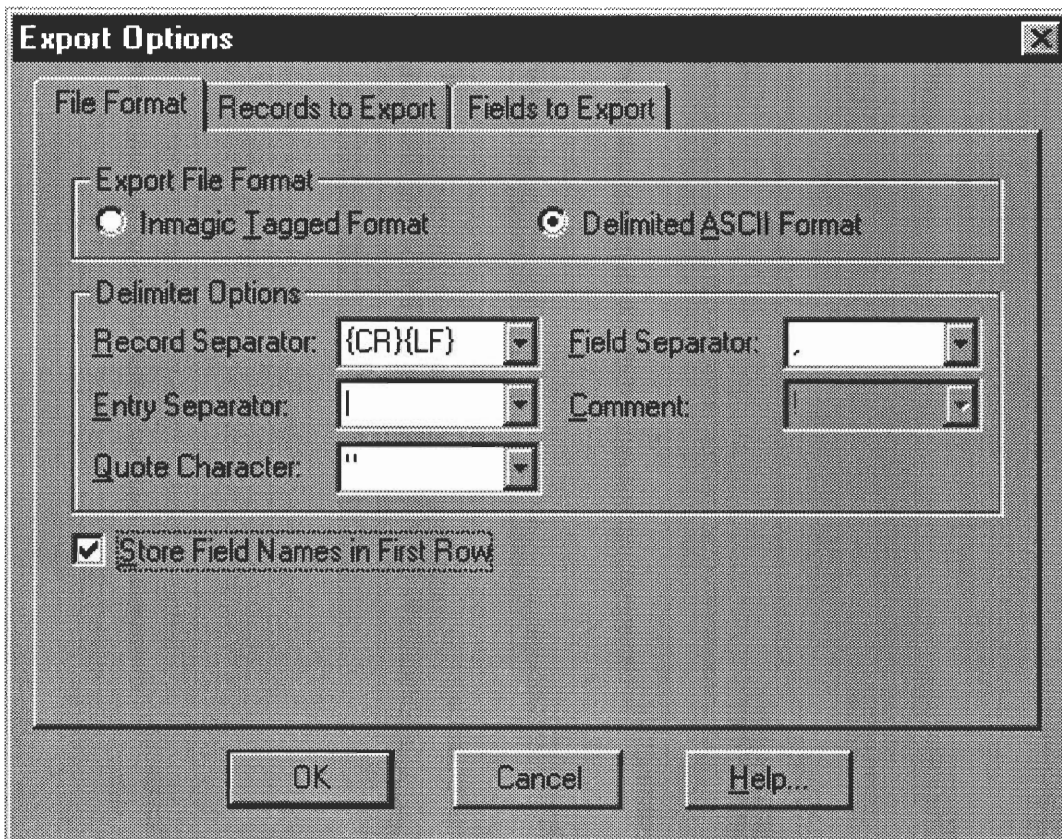
Having typed in the correct name for the file, pressing the Save button will prompt another set of menus.

These menus specify the makeup and organization of the final text-only database. It is therefore necessary to pay careful attention to the following steps to make sure that all options are properly set.

---

## Step 3 - Setting Export Options

All Export Options need to be verified before continuation. Navigation through the three pages is accomplished by clicking the appropriate tab at the top of the window.



The first page is File Format. First make sure that Delimited ASCII Format is selected under Export File Format. Once this is done, changes can be made in the Delimiter Options section. The default settings should be correct, but you may wish to double-check them against the picture shown above. Finally, be sure to check off the box next to "Store Field Names in First Row." Without this checked, the file will not be properly read by the search engine.

---

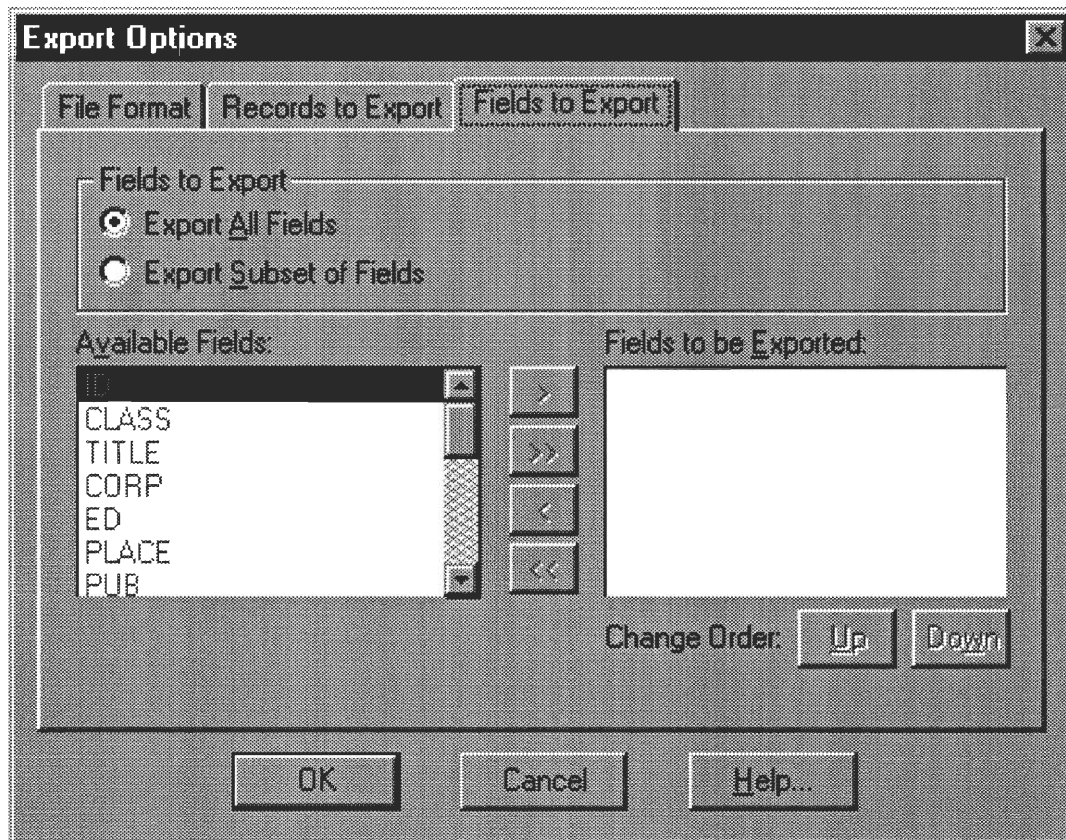
Now, advance to the next settings window by clicking the tab marked "Records to Export."



On this page, just verify that "Export Entire Textbase" is selected. This tells DB/TextWorks to export all the items listed in the current database.

---

The final tab is marked "Fields to Export." This is the last page in the Export Options dialog box.

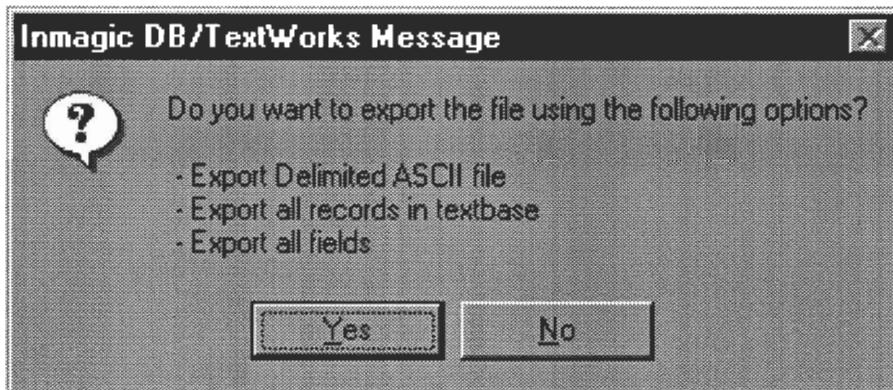


Though not all fields are seen by the members, selecting Export All Fields under the Fields to Export sub-section ensures that no required field will be missing. Each database incorporates different heading styles, making it difficult to manually choose desired listings. For this reason, the search engine will adapt to a variety of field properties. Simply checking off "Export All Fields" and using the default settings should be the easiest approach.

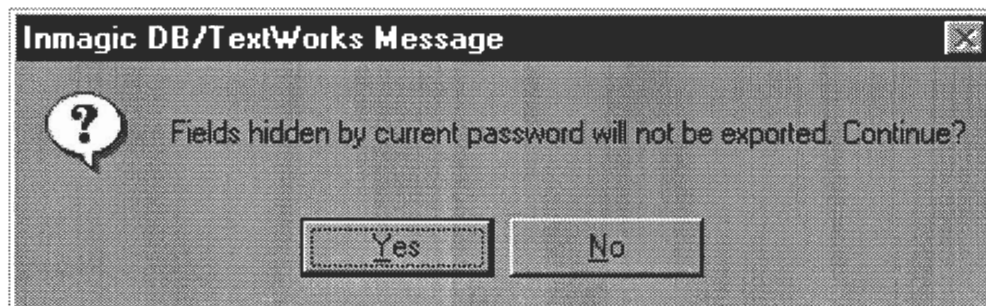
---

## Step 4 - Exporting

Once all the settings have been verified, clicking the OK button will bring up the final summary shown at the left. If all the options look correct, clicking the Yes button will continue the process.



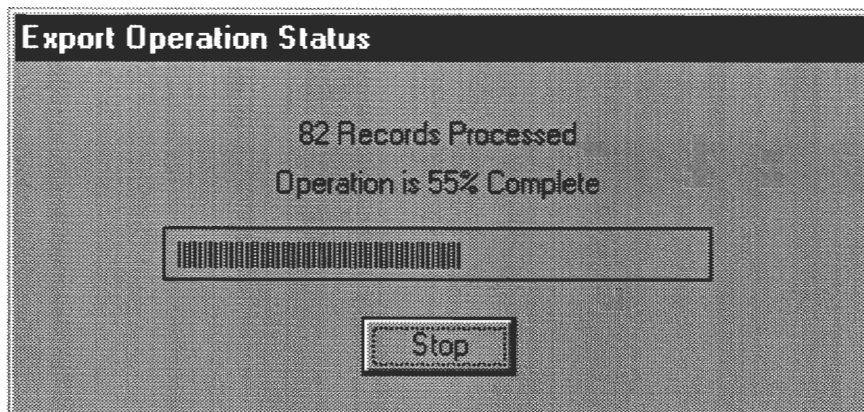
Often times, another dialog box will appear to notify you that some fields will not be exported. This is normal, and will not affect the look or content of the final database.



Again, clicking the Yes button will pass by the dialog box and allow the program to finally export the database.

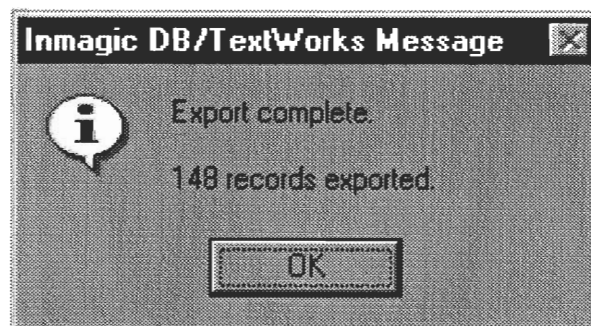
---

During the export, DB/TextWorks shows the current status by noting number of fields processed. This number will depend on the database, ranging from a few hundred to several thousand listings.



## Step 5 - Finishing Up

Upon completion of the export operation, an info box appears. If all went well, the dialog box will look like the one below.



Conversion of the library listing is now complete. The output file, named either `fpaalib.dmp`, `standard.dmp`, or `videos.dmp` can be found in the directory specified earlier.

# Staff Only Web Access

---

The FPA Australia web site administration section is located at:

**<http://www.fpaa.com.au/admin>**

All search engine administration, as well as database uploads are performed from this section of the web site. Before the section can be accessed, a dialog box will appear requesting the staff only username and password.



**Username and Password Required**

Enter username for the FPA Australia staff only section at [www.fpaa.com.au](http://www.fpaa.com.au):

User Name:

Password:

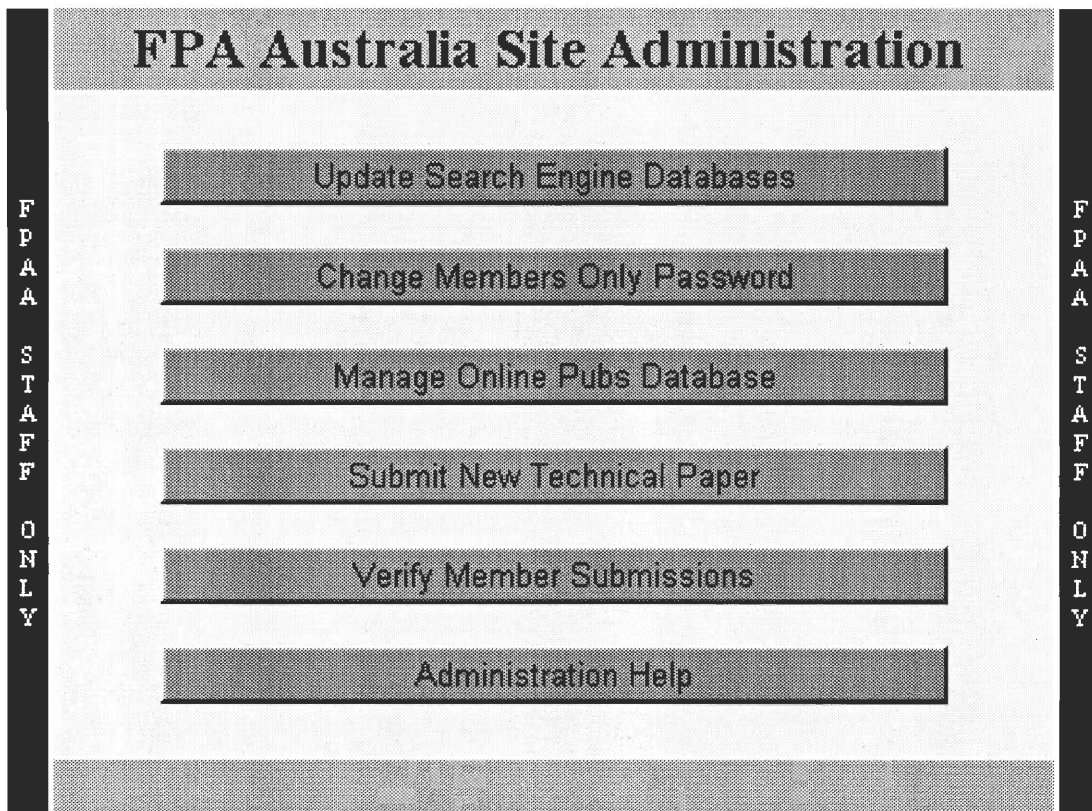
OK Cancel

NOTE: This login and password differs from those used in the Members Only section.



---

Upon entering the Staff Only section of the FPA Australia web site, a menu will be presented listing any further administrative options. This menu is shown below:



From this page, FPA Australia staff can manage all changeable aspects of the Members Only section of the web site.

Use of the various options presented on this web page will be discussed on the following pages of this manual.

# A - Database Upload

---

Once the database has been exported to a format readable by the web search engine, it needs to be uploaded to the server. This can be done directly through the Administration section of FPA Australia's web site. (See Also Staff Only Web Access) Just follow the link to the Search Engine Database Upload page.

Located on this page is the short form shown below:

F P A  S T A F F  O N L Y	<b>Search Engine Database Upload</b>		
	<b>File:</b>	<input type="text" value="C:\Any Folder\standard.dmp"/> <input type="button" value="Browse..."/>	
	<b>NOTE:</b>	File must be named one of the following: <b>fpaalib.dmp standard.dmp videos.dmp</b>	
	<input type="button" value="Upload File"/>	<input type="button" value="Reset Field"/>	<input type="button" value="Help"/>

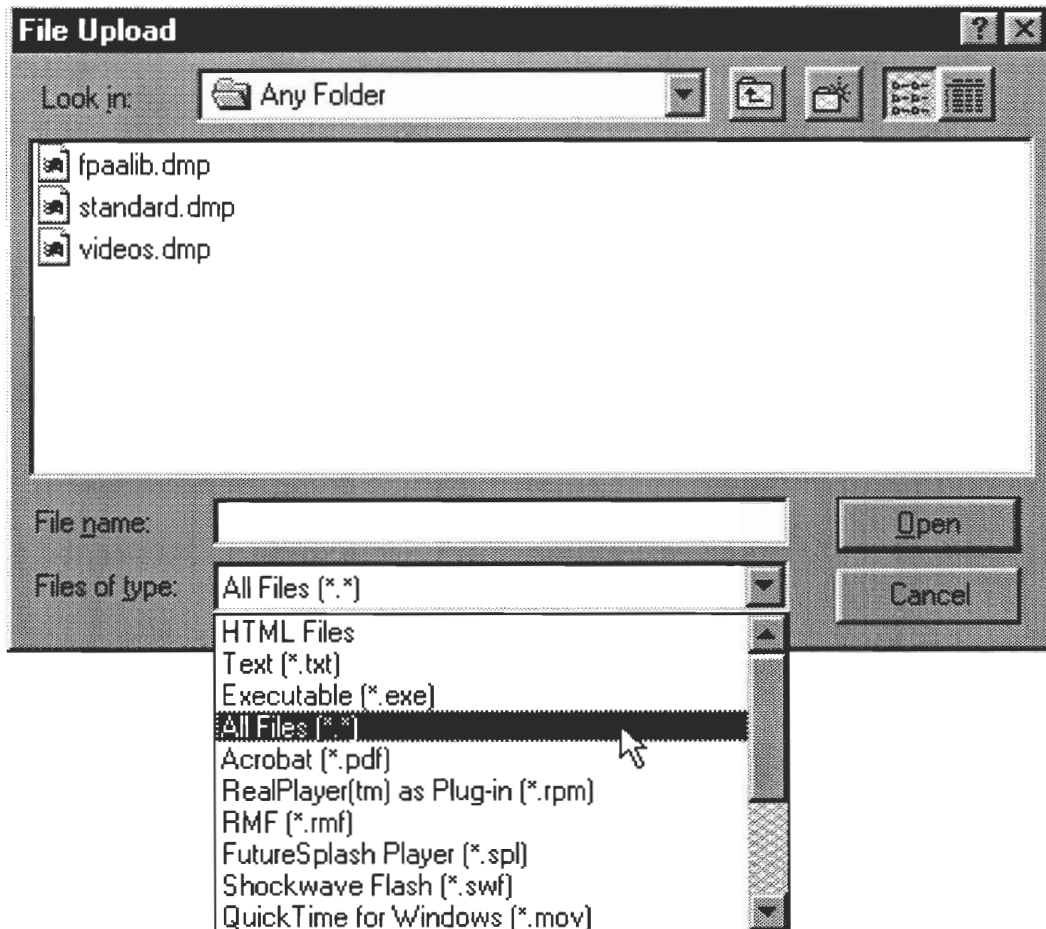
In the File field, type in the location of the text-based database to be uploaded, or click the "Browse..." button to select the file using Windows Explorer.

If the file name and location is typed, make sure that the file name is spelled correctly.

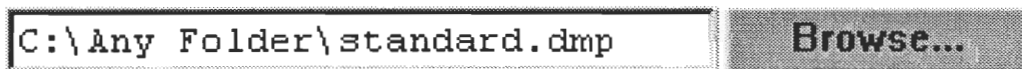
If Windows Explorer is used, a box like the one shown on the facing page will appear.

In Netscape, before you can select the appropriate \*.dmp file, you must change the "Files of type" pulldown to "All Files (\*.\*)"

This is the default setting in Internet Explorer.



After changing the Files of Type pulldown menu to All Files, the database file (named fpaalib.dmp, standard.dmp, or videos.dmp) will be available for selection. Select the desired file and click the Open button. Once this is done, the file will appear in the web form.



If everything looks correct, click the button labeled Upload File to send the file to the website.

---

A final confirmation dialog will pop-up before the file is uploaded.



Clicking the OK button will start the upload. While the file is being sent to the web server, there will be no indication of upload progress. However, the web browser will still be active. DO NOT close the browser window at

this time, or the new database will not be completely sent to the web search engine.

Upon file transfer completion, a web page will appear confirming proper transfer. At this time, there is no possibility of a faulty database upload.

F P A A  S T A F F  O N L Y	<b>Database Upload Finished</b>	
	<b>Status:</b>	Thank you for updating the FPA Australia Online Search Engine Database.
	<b>File Name:</b>	C:\Any Folder\standard.dmp
	<b>Total Size:</b>	67449 bytes

Once the database has been uploaded successfully, any searches conducted by site visitors will turn up the new listings. Other databases can be updated at this time by the same procedure.

# **B - Password Changes**


---

Services offered under the Members Only section are located at

**<http://www.fpaa.com.au/member/>**

The login and password can be changed by using the “Change Members Only Password” form.

To change the current password for this section of the web site, start by typing in the login and password in the entry fields provided. For security reasons, asterisks will replace the password text as it is typed. The password may be as short as you like, but may not be blank, or exceed 12 characters.

FPAA STAFF ONLY	<b>Members Only Password Change</b>		
	<b>Login Name:</b>	<input type="text"/>	
	<b>New Password:</b>	<input type="text"/>	
	<b>Verify Password:</b>	<input type="text"/>	
<input type="button" value="Submit Changes"/>	<input type="button" value="Remove Login"/>	<input type="button" value="Reset All Fields"/>	<input type="button" value="Help"/>

Once the “Submit Changes” button has been pressed, the new password will take effect.

If the “New Password” and “Verify Password” entries differ, you will be asked to re-enter the new password.

Logins can be removed by typing in the login name, and clicking the “Remove Login” button.

# C - Manage Technical Papers

---

Technical papers that have been submitted to the online database can be deleted or edited from this section of the website. In order to make changes to a listing, type the FPAA ID into the provided field. This ID can be found as one of the results turned up by a search.


<b>FPAA ID:</b>	TP00002	<b>Media</b>
<b>Publisher:</b>	No Data Available	<b>Corp</b>

After typing this ID into the form field, click the “View Entry” button to continue.

FPAA  
STAFF  
ONLY

## Online Database Management

FPAA ID:



View Entry    Reset All Fields    Help

If a valid FPAA ID has been submitted, the listing will be presented as a form for changes to be made. A valid ID is any FPAA ID present in the Technical Papers database.

---

The edit form, labelled "FPAA Technical Paper Management," will be displayed as follows:

FPAA Technical Paper Management	
URL:	<input type="text"/>
Title:	<input type="text"/>
Abstract:	<input type="text"/>
FPA ID:	TP00002
Media:	pub
Author:	<input type="text"/>
Corporation:	<input type="text"/>
Publisher:	<input type="text"/>
State/Country:	<input type="text"/>
ISBN:	<input type="text"/>
ISSN:	<input type="text"/>
Keywords:	<input type="text"/>
Save Changes   Restore Listing   Delete Entry   Help	

These entry fields will be filled with the current listing. Any changes to the listing can be made at this time.

Save your edits by pressing the "Save Changes" button. The "Restore Listing" button will return the form to its unedited state. The "Delete Entry" button will remove the listing from the Technical Paper database.

# D - Technical Paper Submission

Technical papers can be submitted directly to the Technical Papers online search database through this administrative form. Since only FPA Australia staff will be able to enter listings from this page, none of the fields are strictly required. However, it is recommended that as much information as possible be entered; with emphasis given to the Title and Abstract fields.

The screenshot shows a web form titled "FPAA Technical Paper Submission". On the left side, there is a vertical label "F P A A S T A F F O N L Y". The form contains the following fields and options:

- URL:** A single-line text input field.
- Title:** A single-line text input field.
- Abstract:** A large multi-line text area with a scroll bar on the right.
- Media:** Two radio button options:  Web Link and  Published Media.
- Author:** A single-line text input field.
- Corporation:** A single-line text input field.
- Publisher:** A single-line text input field.
- State/Country:** A single-line text input field.
- ISBN:** A single-line text input field.
- ISSN:** A single-line text input field.

At the bottom of the form, there are two buttons: "Add Entry To Database" and "Help".

Once everything looks correct, simply click the "Add Entry to Database" button to include this entry in the Technical Papers search database.



# E - Verify Member Submissions

If a member submits a document to the FPA Australia web site, the document must be reviewed by the association's staff before it is allowed into the Technical Papers search engine database.

This section of the web site allows for member submitted documents to be reviewed, edited, deleted, or added to the database.

<b>Member Submission Verification</b>			
F P A  S T A F F  O N L Y	20 April 99	<b>Electrical apparatus for the detection and measurement of flammable gases.</b>	<a href="#">View</a>
	20 April 99	<b>Performance based sprinkler systems and componentry.</b>	<a href="#">View</a>
	20 April 99	<b>Smoke detection in atriums and public halls.</b>	<a href="#">View</a>

Every new member submissions will be listed on this page, giving the date of submission and title. Clicking the "View" button will display the complete submission for staff review.

The displayed submission may be added to the database as it appears by clicking the "Add Entry to Database" button. The submission may be edited by clicking the "Edit Entry" button, or deleted using the "Delete Entry" button.

Additional search keywords may be added to either form to help classify the listing within the search engine. Examples of these full forms can be found on the next page

Note: Contact information will NOT be saved. Be sure to print out a copy of the original submission before saving or editing.

ATTENTION: Before editing or submitting,  
printout this page for your records.

FPA Australia Resource Submission			
<b>Submit Date:</b>	20 Apr 99		
<b>Part One</b>	Personal Information		
<b>Member No:</b>	123456		
<b>Organisation:</b>	Fire Protection Association Australia		
<b>Name:</b>	John Doe		
<b>Address:</b>	13 Ellingworth Parade		
<b>City, State, Postal Code:</b>	Box Hill, VIC 3128		
<b>Phone, Fax:</b>	(03) 9890 1544 (03) 9890 1577		
<b>Email:</b>	<a href="mailto:fpaa@fpaa.com.au">fpaa@fpaa.com.au</a>		
<b>Part Two</b>	Resource Information		
<b>URL:</b>	<a href="http://www.fpaa.com.au/as-nzs-61799-1.html">http://www.fpaa.com.au/as-nzs-61799-1.html</a>		
<b>Title:</b>	Electrical apparatus for the detection and measurement of flammable gases.		
<b>Abstract:</b>	Proposes the adoption of IEC 61779-1:1998, which specifies general requirements for construction and testing (and describes the test methods) of portable, transportable, and fixed apparatus for the detection and measurement of flammable gas or vapour concentrations with air, in potentially explosive atmospheres and in mines susceptible to firedamp. Proposed as a Joint Australian/New Zealand		
<b>FPAA ID:</b>	TP00010	<b>Media:</b>	link
<b>Author:</b>	John Doe	<b>Corperation:</b>	FPA Australia
<b>Publisher:</b>		<b>State/Country:</b>	
<b>ISBN:</b>		<b>ISSN:</b>	
<b>Keywords:</b>	<input type="text"/>		
<b>Part Three:</b>	Comments to FPA Australia		
<b>Comments:</b>	I am happy to be able to contribute to the association.		
<input type="button" value="Add Entry To Database"/>		<input type="button" value="Edit Entry"/>	
<input type="button" value="Delete Entry"/>		<input type="button" value="Help"/>	

F P A A S T A F F O N L Y - F P A A S T A F F O N L Y

## FPA Australia Resource Submission

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A  
F  
F  
  
O  
N  
L  
Y

**Submit Date:** 20 Apr 99

**Part One** Personal Information

**Member No:** 123456

**Organisation:** Fire Protection Association Australia

**Name:** John Doe

**Address:** 13 Ellingworth Parade

**City, State,  
Postal Code:** Box Hill, VIC 3128

**Phone, Fax:** (03) 9890 1544 (03) 9890 1577

**Email:** [fpaa@fpaa.com.au](mailto:fpaa@fpaa.com.au)

**Part Two** Resource Information

**URL:**

**Title:**

**Abstract:**

**FPA ID:** TP00010

**Media:** link

**Author:**

**Corporation:**

**Publisher:**

**State/Country:**

**ISBN:**

**ISSN:**

**Keywords:**

**Part Three:** Comments to FPA Australia.

**Comments:** I am happy to be able to contribute to the association.

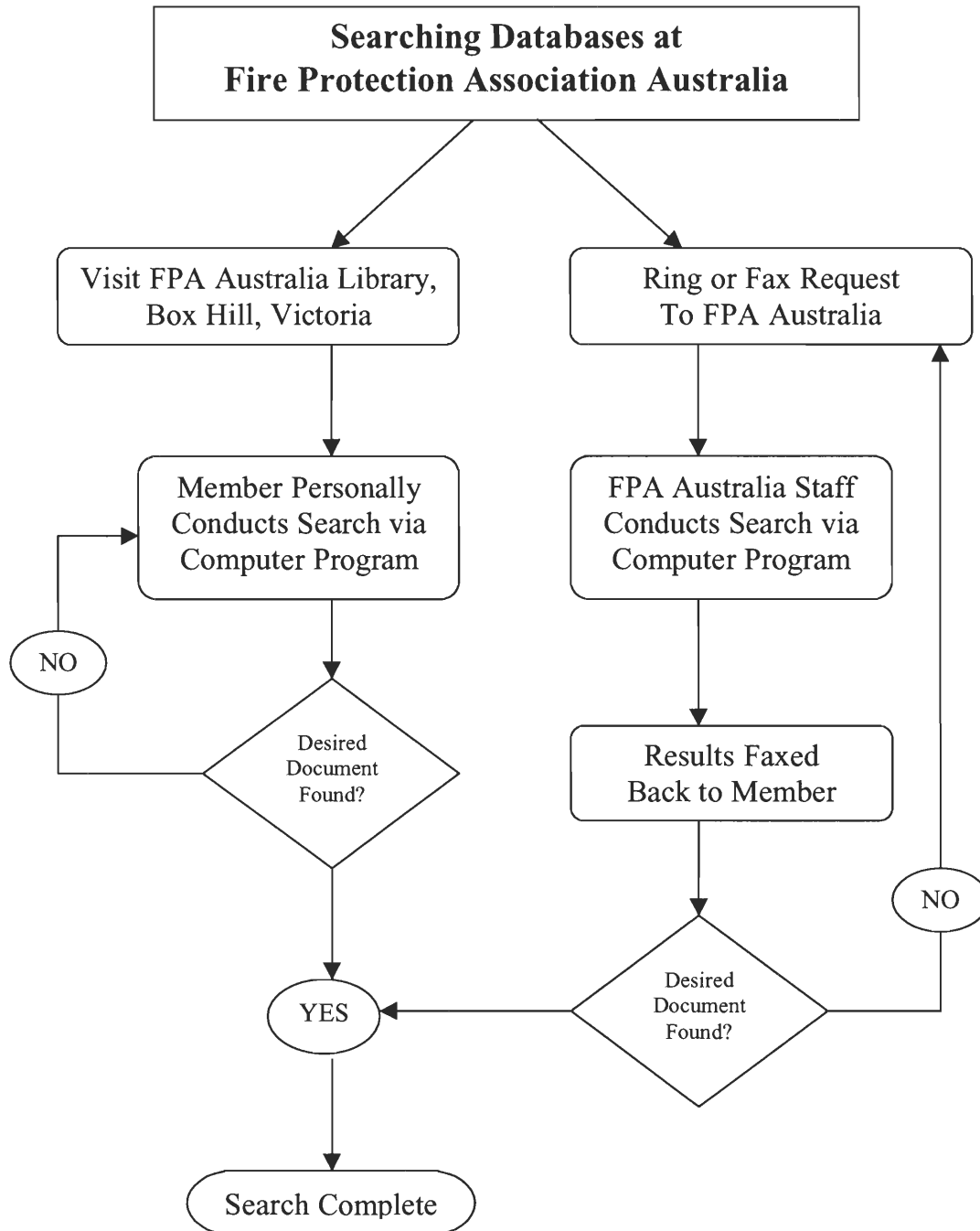
# **Passwords & Notes**

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**Appendix F – Search Inquiry Chart**



### **Appendix G - Web Site Disclaimer**

FPA Australia reserves the right to refuse any material herein without reason. The views expressed on this web site are not necessarily those of FPA Australia. FPA Australia accepts no responsibility for any such views. The information provided on this web site should not be relied upon as professional advice. Recipients of the provided information are advised to seek professional advice.

## **Appendix H – Web Site Component Technical Reference**

Web material that resulted from this project is located in several new sections of the FPA Australia web site. All CGIs and HTML documents are original works, with consideration taken to incorporate existing web site design.

### **CGI Materials**

All CGI materials are located in the `cgi-bin` directory, located off the root of the site. The specific server location for these files is at:

```
/var/web/www.fpaa.com.au/htdocs/cgi-bin/
```

The files contained in this directory are itemized as follows:

### **Member Scripts & Helper Files**

```
search.cgi - Perl Script - 332 lines - 10 kb
```

This is the main script that interprets document search requests. The GET method of posting is used in order to allow for links to NEXT/PREV 10 listing without the use of form buttons.

If the help button was pressed, this CGI displays the help page and exits. Otherwise, the search query is split up into its components (i.e.: +water to require the word water to be in the search). From here, the lists of search components are passed to the `search3.pl` helper script to parse the database file, then to the `search2.pl` helper script to print the findings.



search3.pl - Perl Script - 58 lines - 2 kb

This helper script is invoked for each word in the search query. It takes either a current search result list, or a file name to search on. It returns two lists: matches in the database, and the remaining, non-matching items. Both are necessary, since a search may be restricted using the minus operator to exclude words, thus making the non-matching list desirable.

search2.pl - Perl Script - 658 lines - 19 kb

This helper script takes a final listing of matching items, and generates an HTML listing. This also adds in navigation, as well as form buttons for document request.

helpsearch.html - HTML File - 75 lines - 3.5 kb

This is the help file displayed by the search pages. If any changes need to be made to the search engine help, this file can be edited and the CGI will reflect the changes.

searchnone.html - HTML File - 78 lines - 3 kb

This page is used by the search engine CGIs to notify the user that they must type in at least one search word. This happens when a blank search is submitted.

submit.cgi - Perl Script - 54 lines - 1.2 kb

This is the main CGI called by the member submission web pages. During the submission process, this script parses the web input and calls its supplemental scripts to continue. If the help button was pressed, a submission help page is returned instead.

sub2.pl - Perl Script - 535 lines - 18 kb

Once the initial page containing member contact information has been submitted, this script first looks to make sure all required fields have been typed in. If something was missed, the original form is presented requesting the missing information. If nothing was missed, the script then returns the appropriate document info follow up page. This is determined based on whether a web link, or published media type was selected by the member.

sub3.pl - Perl Script - 440 lines - 15 kb

sub4.pl - Perl Script - 483 lines - 17 kb

These two pages are similar to sub2.pl in that they check for missing fields and return appropriate forms. If all fields have been submitted, both scripts return a final listing of what the member has typed in for verification before final submission. Script sub2.pl deals with web-link submissions, whereas sub3.pl handles all other publication types.

sub5.pl - Perl Script - 134 lines - 5 kb

This is the final script to handle member document submissions. Once the member has verified that all information to be submitted is correct, this script is invoked to:

1. Add the listing to the temporary database to await staff review.
2. Email the staff to notify that a document has been submitted.
3. Print out a thank-you page for the member.

### **Administrative Scripts & Helper Files**

dbupdate.cgi - Perl Script - 303 lines - 8 kb

This script is used by the FPA Australia staff to allow search databases to be updated via a web-based interface. This file will only allow for the upload of "standard.dmp," "fpaalib.dmp," and "videos.dmp" to avoid any problems that could occur. The CGI only saves the database if the complete file has been transferred, eliminating potential problems that could occur if the upload was stopped short.

passchange.cgi - Perl Script - 244 lines - 7 kb

This script is used by the FPA Australia staff to be able to add, remove, and update the logins and passwords for the members only section of the web site.

tpadmin.cgi - Perl Script - 996 lines - 31 kb

This is the first of two administration scripts to manage the online technical publications database. With this CGI, member submissions existent in the temporary database can be listed, edited, deleted, or added to the search database.

tpadmin2.cgi - Perl Script - 419 lines - 13 kb

This administration script allows for any updates that need to be made to the online technical papers section of the FPA Australia web site. Listings can be added, removed, or edited.

### **Other Miscellaneous CGI Components**

tempDB.dmp - Temporary Database File - Variable Lines

This temporary database holds submissions made by members while awaiting for FPA Australia staff verification. This file is not accessed by the web-based document search.

FPAAID.dmp - Technical Paper ID Count - 1 line

This file holds the current count of the technical publications listings. Each time a member or staff member submits a document to the search database, the number in this file is incremented, and the new number is used as the basis for the FPA ID. The ID is of form TP<COUNT> (i.e.: TP00023) and may not be changed.

adminhelp.html - HTML Document - 32 lines - 1 kb

Administration online help file.

### **Other Web Documents & Directories**

Web databases are stored in the following directory:

```
/var/web/www.fpaa.com.au/htdocs/member/dmp/
```

Other HTML documents have been added to the web site to interface the CGIs.

These documents are located in the following directories:

```
/var/web/www.fpaa.com.au/htdocs/admin/
```

This directory contains all administrative HTML documents, and may only be accessed by using the administrative login and password.

```
/var/web/www.fpaa.com.au/htdocs/member/
```

This directory contains all member HTML documents, and may only be accessed by members who have logged in to the site.

Since these files are only interfaces to the CGI programs, only a short description will be given.

In the /member/ directory:

search.html - Interface to the document search.

submission.html - Interface to member document submission.

In the /admin/ directory:

index.html - Main Administration interface page.

dbupload.html - Page to interface database updates.

passchange.html - Page to interface password changes.

managetp.html - Page to edit the technical paper database.

admtppadd.html - Page for administration to add tech papers.

adminhelp.html - Help page.

admin.html - Link to index.html

manual.pdf - PDF copy of the administrator's manual.

access\_log - Link to the web site access log.

error\_log - Link to the web site error log.