

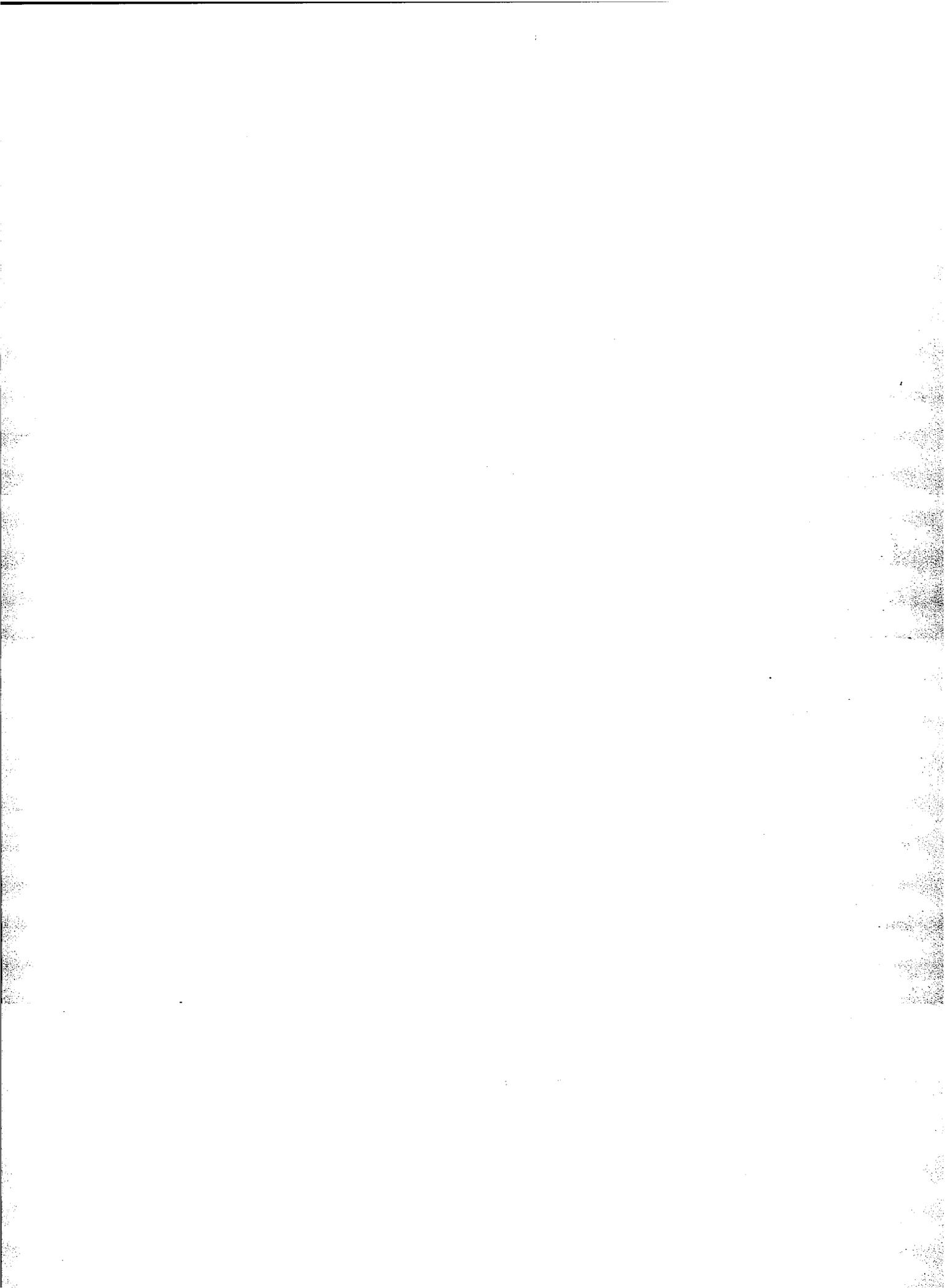
# **LOCATING FIRE INFORMATION**

by

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## LOCATING FIRE INFORMATION

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### ABSTRACT

Locating the best reference or answer to a specific question in fire science may be difficult. There are standard reference books and journals that may be used. New source continue to become available, in particular, electronic tools that are available internationally. This discussion will center on developing an information tool kit identifying resources from the print media, multitopic bibliographic databases, fire databases, and the World Wide Web, to enable one to find the answer from either the traditional print media or an electronic resource.

### THE PRINT MEDIA

In this category, several types exist: reference books, journals, newsletters and textbooks. Two reference tools used worldwide are the NFPA (National Fire Protection Association) *Fire Protection Handbook*[1] and the *SFPE Handbook of Fire Protection Engineering*[2]. There are no other reference tools in English that have the completeness and coverage of these two books. In Japan, the *Kasai Binran (Fire Handbook)* covers a broader range of information from the technological to the scientific, with a final section on Japanese law[3]. In addition, there are reference books widely used in special fire science sectors, e.g., *Handbook for Fire Calculations and Fire Risk Assessment in the Process Industry*[4], *Handbook for Fire Engineers*[5], *Prévention contre l'incendie dans le bâtiment (Fire Prevention in Building Structures)*[6].

Journals in the fire science literature have grown somewhat in the last decade. Publishing houses have been successful with several journals, e.g., *Fire and Materials*, *Fire Safety Journal*. Professional fire associations also publish journals for their membership and other interested parties, e.g., *Fire Journal (Australia)*, *VFDB Zeitschrift Forschung und Technik im Brandschutz*. There also are special interest newsletters or bulletins by individuals, manufacturers, or trade organizations, e.g., *Fire and Flammability Bulletin*, *Sprinkler Newsletter* *Fire Marshal Newsletter* (Ontario, Canada).

Textbooks offer a concise source of information but few are available for the evolving fire science discipline. To incorporate a body of data and analysis techniques for the emerging discipline of fire science, the John Wiley & Son's Fire Science Series was initiated. The first fire science textbook was written by Dougal Drysdale[7]. There are several books in preparation for this series, but they have yet to be published.

One of the most elusive, and perhaps never complete enough, sources of information is statistical data. The World Fire Statistics Centre in Geneva, Switzerland prepares its annual report to the United Nations. *Fire International* publishes a yearly article, "World Fire Statistics" which summarizes this data. The national fire protection associations, governmental agencies, or national fire commissioners also gather statistical data and provide it in several formats. Some of the organizations are: Fire Defense Agency (Japan), Home Office (UK), Fire Commissioner of Canada, Commonwealth Scientific and Industrial Research Organization (Australia). For a yearly compilation of United States statistics, one can read the *NFPA Journal's* September/October issue; the November/December also has an

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analysis of the Large Loss Fires in the United States. The Fire Protection Association of Southern Africa publishes its yearly statistics in the June issue of *Fire Protection*.

## THE ELECTRONIC MEDIA--BIBLIOGRAPHIC DATABASES

Electronic resources offer the same and/or enhanced resources to a larger pool of users. Bibliographic databases provide a one-way flow of information, whereas bulletin boards, the Internet, and the World Wide Web (Web) offer interactive communications and multimedia information.

In the 1970s, database systems started to evolve; the standard abstracting services took the printed format, digitized it and made it available electronically to subscribers. There are several companies which provide bibliographic information: STN (Scientific and Technical Information Network) International, Karlsruhe, Germany; ESA (European Space Agency), Frascati, Italy; Knight-Ridder ([formerly Dialog], Mountain View, CA, USA) which includes DataStar (Mountain View, CA, USA); Questal/Orbit, Inc. ([formerly Orbit, Inc], McLean, VA, USA); CDP Online ([formerly BRS], New York, NY, USA). These database systems allow access to many individual databases. It would be impossible to list all of the databases that fire protection engineers or scientists would use in the course of a year as the topics could include the plastics, chemical, construction, economic, business, newspapers, and technology arenas. The following databases are those frequently used by engineers and scientists but definitely not the only ones used:

**CA SEARCH\*\*** (the Knight-Ridder name); it is a condensed version of *Chemical Abstracts* with controlled vocabulary, CA General Subject Index Headings, and CAS Registry Numbers). There are over 10 million citations in the chemistry literature and its applications. It is maintained by Chemical Abstracts Service, Columbus, OH, USA. The computerized databases cover information from 1967 to the present.

**COMPENDEX PLUS** (the Knight-Ridder name; the printed publication is *Engineering Index*); it has abstracted information from the significant literature of engineering and technology. It covers approximately 4500 journals and selected government reports and books. Subjects covered include: automotive, biological, civil, energy, environmental and aerospace engineering, computers, industrial robots, and robotics. It is maintained by Engineering Information, Inc., Hoboken, NJ, USA. The computerized database covers information from 1970 to the present.

**ICONDA** (International CONstruction DATase); it covers the worldwide literature on all fields of building construction, civil engineering, construction engineering, architecture and town planning. It has over 250,000 citations in the built environment. It is the bibliographic database of the International Council for Building Research, Studies and Documentation (CIB) and is maintained by the Information Center for Regional Planning and Building Construction (IRB) of the Fraunhofer-Society, Stuttgart, Germany. The coverage is from 1976 to the present.

**NCJRS** (National Criminal Justice Reference Service) bibliographic references from 1972 to the present on all aspects of law enforcement and criminal justice, including arson and police activities. It is maintained by the National Institute of Justice, Rockville, MD, USA.

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\*\* Use of a trade name or vendor in this publication does not imply endorsement.

NTIS has unclassified United States government-sponsored research, development, engineering, and analytical reports from 1964 to the present prepared by federal agencies, their contractors or grantees. Some state, local, and foreign government agencies also contribute their reports. It is maintained by the National Technical Information Service, Springfield, VA, USA.

**PASCAL** (the print version is *Bibliographie internationale* [previously *Bulletin signaletique*]); it covers world's scientific and technical literature in the fundamental disciplines of physics and chemistry, life sciences, applied sciences and technology, earth sciences and information sciences. The original title is included and, in most cases, a French translated title is added. Most abstracts are in French. Controlled descriptors from a vocabulary of over 80,000 terms are provided in English, French, and, in some cases, Spanish. The coverage is from 1973 to the present. It is maintained by the Centre National de la Recherche Scientifique (CNRS), Vandoeuvre-les-Nancy, France.

**RAPRA Abstracts** (the print version also is called *Rapra Abstracts*) has abstracts on rubber, plastics, adhesives, and polymeric composites from 1972 to the present. It also has a large collection of heavily indexed summaries of subjects covering technical, academic, commercial, and marketing aspects of the rubber and plastics industry. It is maintained by Rapra Technology, Ltd., Shropshire, UK.

**TOXLINE** has bibliographic references from 1970 to the present covering the adverse effects of chemicals, drugs, and physical agents on living systems. It is maintained by the U. S. National Library of Medicine, Bethesda, MD, USA.

**U. S. PATENTS FULLTEXT** includes the complete text of over 1.8 million patents issued by the U. S. Patent & Trademark Office since 1974, with partial coverage of selected technologies from 1971 through 1973. It is maintained by the Knight-Ridder Information, Inc., Mountain View, CA, USA.

Three fire organizations have decided to digitize significant portions of their existing information. The inflexibility of the card catalog provided the impetus to move to the electronic media shortly after database systems emerged. In the United States the National Institute of Standards and Technology (NIST) created **FIREDOC**[8], a bibliographic database devoted to the subject of fire research and related areas of interest to the NIST staff, e.g., combustion toxicology, arson, and fire modeling. It was created at NIST in 1985 as access to the Fire Research Information Services (FRIS) literature collection. Today the database may be accessed with a computer and a modem or an Internet connection. **FIREDOC** contains approximately 50,000 references (including keywords and some abstracts) from fire research organizations throughout the world. The references are to reports, journal articles, conference proceedings, books, and audiovisual items.

The other English language database was created by the Fire Research Station/Building Research Establishment, United Kingdom. **FLAIR**[9] is part of the **BRIX** database and available from the European Space Agency. **FLAIR** contains references to the Fire Research Station's literature collection. It can be searched independently or jointly. The contents and search features are similar to that of **FIREDOC**.

**Fachinformationszentrum Technik e. V. (FIZ Technik e. V.)** is the German fire database. It is the electronic version of the monthly publication, *Fachdokumentation Brandschutzwesen*, and adds 120 abstracts of fire-related articles from journals, reports, etc. monthly. There is a special software license and software to accommodate searching with DataStar Online[10].

## THE ELECTRONIC MEDIA--BULLETIN BOARDS

Electronic bulletin boards were the first major information exchange medium in the fire community. NIST pioneered the use of a bulletin board containing technical information. Its main function was to make available to the fire community the fire models that have been developed by NIST. The FSBBS[11] (Fire Science Bulletin Board) is available via modem 24 hours a day. As yet the complete FSBBS is not available on the Internet. As an interim procedure, it is accessed at the Anonymous ftp site [candela.cfr.nist.gov](http://candela.cfr.nist.gov). Another purpose for the bulletin boards was the rapid exchange of information. Fire departments have been very active in this arena too. The ICHIEFS[12] bulletin board is one of the most popular ones in the United States. It is run by the International Association of Fire Chiefs. There are setup and monthly charges associated with its usage. The British Chief Fire Officers (CACFOA) have a similar bulletin board service called FINDS[13].

## THE ELECTRONIC MEDIA--THE INFORMATION HIGHWAY

Electronic information exchange has been greatly enhanced by the Internet. The Internet is a network of networks connecting the user and the user's computer with computers around the world. The connection may be made through the government, corporations, universities, public institutions (e.g., libraries), or commercial services (e.g., CompuServe, America Online). A recent article stated that "11% of the U.S. and Canadian population 16 years or older--24 million people-- have used the Internet in the past three months; 8% of these Internet users have used the World Wide Web. ... Users spend an average of five hours and 28 minutes on-line a week. ... 64% of the Web users have a four-year college degree, compared with 28% of the general population." [14] Once the user is connected there are several generic activities: electronic mail (also called e-mail), chat lines, usenet groups, and the World Wide Web. All of the sources can provide you with some type of answer. Much of the information has been created by governments, schools, companies, as well as individuals.

E-mail has dramatically changed the way we exchange information and do business. A letter can be written and read within minutes of pressing the "Send" key. This type of communication tool is similar to the telephone, fax, or telegram, and it is gaining worldwide acceptance.

A chat line allows the user to communicate interactively with other users; some refer to a chat line as "going to a party". The chat lines may be divided by age or interest. It has the potential of enabling conferences without attendees leaving their organizations, e.g., a professional society meeting. To further explore this mode of communication, you may wish to review on the Web the Worlds Inc.'s Worlds Chat (<http://www.worlds.net>).

Usenet groups, also called newsgroups or discussion forums, are more in-depth discussions of a particular topic. There are many groups devoted to each topic. One posts a question (or message) and then transmits it to the members of the group. One or thousands of people may respond, either individually or to the entire group. This could be a useful way for fire scientists and engineers to exchange information.

The Internet is the "world-wide 'network of networks' that are connected to each other, using the IP (Internet Protocol) and other similar protocols. The Internet provides file transfer, remote login, electronic mail, news, and other services." [15] It is the non-graphical communication mode that has been used since the 1960s and is now available via commercial or governmental organizations and found in many offices, homes, and schools. Although many of the Internet sites (or files) also are now available on the Web, it may be more convenient to use the direct approach. The Library of Congress has a site on the Web but the search function of its collection is still performed from a telnet

session. The address is telnet locis.loc.gov or gopher marvel.loc.gov. The National Fire Protection Association also has a number of Internet addresses, e.g., NFPA Customer Service (Custserv@NFPA.org) or its Library (Library@NFPA.org).

There are electronic journals on specific subject areas on the Internet, but to date none in the fire field. The concept of a journal that has little or no peer review and is quickly disseminated is quite revolutionary. Science and engineering depend on peer review to help ensure honesty, correctness and consistency. These values must be maintained while not sacrificing speed of dissemination. There is the classic question of who will archive the information, especially if the format becomes obsolete. If an electronic journal does evolve in the fire field, the issues of peer review and archiving must be addressed.

Current (i.e., up to date) directories of fire experts do not exist. The closest database that exists is one that has been created by Jim Shanley (NAFI) in the United States. It contains the names, addresses, telephone and fax numbers, and e-mail addresses of people with an interest in fire. If you would like to be added to this list to make it more comprehensive, or to obtain a copy, contact Jim at shanleyj@nafi.org or shanleyj@delphi.com.

The Web is a hypertext-based system for finding and accessing Internet resources.[16] The number of Web sites is growing by a thousand per day and the discussion will be limited to the ones of greatest interest to the fire professional. There are several ways information can be located on the Web; the search engine for finding material on specific topics is only as precise as the information in its database. As a way of keeping current, one may wish to search all of the following for their particular interest. They are:

Aliweb	<a href="http://web.nexor.co.uk/public/aliweb/aliweb.html">http://web.nexor.co.uk/public/aliweb/aliweb.html</a> ***
Lycos	<a href="http://www.lycos.com/">http://www.lycos.com/</a>
Webcrawler	<a href="http://www.webcrawler.com/">http://www.webcrawler.com/</a>
Yahoo	<a href="http://www.yahoo.com/">http://www.yahoo.com/</a>

The following sources related to the fire field may be able to answer a variety of questions. Each HomePage reflects the interests of the organization, staff, and related information. A staff person at the Technical Research Center of Finland (<http://www.vtt.fi>) can be located using a search engine on http. The University of Maryland's Fire Protection Engineering staff (<http://www.enfp.umd.edu>) provides staff information, plus a map of nearby Annapolis, Maryland and hotel locations: This selection is intended to identify different types of information on a HomePage; it is not possible to provide a complete list, as the information changes daily, including, in some instances, the address of the HomePage.

**DISASTER RESEARCH** is a modified bulletin board on the Internet for creators and users of information regarding hazards and disasters. Each "issue" has a Table of Contents. Examples of recent topics: Looking for People Interested in the Risks Associated with Wildland Fire Fighting, Research Information Needs for HazMat Responders; Developing a Data Base of Disaster Research, Projects, and Programs. If you would like to subscribe, send an Internet message to: [listproc@lists.colorado.edu](mailto:listproc@lists.colorado.edu). Send a one-line message in the body of the e-mail: SUBSCRIBE HAZARDS

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\*\*\* The URL or address of a HomePage has the format of <http://> followed by the unique information for that organization. In this paper that information will appear in parenthesis if appropriate.

<Your Name>. It also is available on bulletin boards in the United States (telephone: (1) + 202-646-2887) and Australia (telephone: (61) + 54-262-594).

The Fire Research Information Services' HomePage as part of the **Building and Fire Research Laboratory's** Web site has a list of the previous year's publications, including the complete bibliographic citation, keywords, and abstract. Current reports are available in full text, including graphics, and the entire report may be read and/or transferred to the user's computer. The address is: <http://www.bfrl.nist.gov>.

**FIRENET** has current information about Australian landscape and wildland fires. It is designed for fire managers, fire researchers, and students. Its initial contents includes a bibliographic database, some software packages, current weather reports and imagery, and various documents, including source material and graphics for tertiary courses[17]. It is possible to access FireNet over the Web. The address is: <http://online.anu.edu.au/Forestry/fire/firenet.html>.

**HAZMATMED** is an open discussion list on the Internet. There are announcements about new products, services, or technologies specific to hazardous materials response, including commercial announcements. To subscribe to the list on Internet, send e-mail to: [listserv@medicom.nordenl.com](mailto:listserv@medicom.nordenl.com) and then complete the subscription message.

The **International Association of Fire Safety Science (IAFSS)** has created a listserve that is open to people in the fire field who would like to exchange information, post questions, or discuss all types of fire problems. To request a subscription, send a message to: [mailserv@cc.newcastle.edu.au](mailto:mailserv@cc.newcastle.edu.au). Omit the subject line. Type: `sub iafss your_first_name your_last_name` and, on the next line, type: `end`.

The **International Organization for Standardization (ISO)** is online. It can be accessed over the Web in English or French. The address is <http://www.iso.ch/welcome.html> for the English version; to read or search in French, click twice on the "Version française" icon. It contains a catalog to all ISO International Standards including drafts. A search tool is provided to find information by keywords or by ISO reference number. It also has a complete list of ISO members and technical committees and other information.

**Worcester Polytechnic Institute's** Center for Fire Safety HomePage has many sections (<http://www.wpi.edu/Academics/Depts/Fire/>) e.g., New Events, Fire Protection Engineering Courses. A section with available WPI cone calorimeter data is of interest to the engineer and scientists alike. They also have created the HomePages for the National Fire Protection Association (<http://www.wpi.edu/~fpe/nfpa.html>) and the Society of Fire Protection Engineers (<http://www.wpi.edu/Depts/Academic/Fire/SFPE/sfe.html>).

## MULTIMEDIA RESOURCES

The CD-ROM (compact disk-read only memory) provides a method of storing information, visual or auditory (and perhaps sensory) information and then viewing and/or printing it (if textual or graphical). To access the information, a search engine is usually included. In the United States the BFRl has published a CD-ROM that has the full text of its 1994 publications[18]. To locate information a keyword search, title word, or author name can be used. It will be a product available

each year from the editors. In the United Kingdom five organizations (Home Office, Loss Prevention Council, Fire Protection Association, Fire Research Station, Fire Services Examination Board) have joined to create *FIRE-CD*[19]. It has full text of reports, statistics, manuals, annual reports produced by the five participating organizations. It is a subscription service with updates throughout the year.

The National Fire Protection Association has published the *1994 Life Safety Code (LSC)* and the *1994 National Electrical Code (NEC)* on computer disks. The *NEC* also is available on CD-ROM; in addition, there is a video and workbook for the *National Electrical Code, Guide to the Major Changes*. Both products will operate on an IBM or IBM-compatible PC with 512K RAM, DOS 3.0 or higher. The disks come with a built-in search engine that indexes every word in the document, thereby allowing for easy access to the information. To order a copy in the United States, telephone 800-344-3555; outside of the United States the telephone number is (1) + 617-770-3000.

## CONCLUSION

There is no one best resource to answer a specific question. However, today there are many information tools that can be searched to find the relevant information. This paper provides examples of current print and electronic information sources that constitute an ever-expanding information tool kit for use by the fire protection engineer and scientist. These tools offer ways of meeting the challenges of the information age. As more tools are used by the fire community, information users should communicate with information providers about the next generation of tools needed to capture the worldwide fire information.

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8. Contact: Ms. Nora H. Jason, NIST, Bldg. 224, Room A252, Gaithersburg, MD 20899 USA  
Tel: (1) + 301-975-6862, FAX: (1) + 301-975-4052, e-mail: nora.jason@nist.gov.

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9. Contact: European Space Agency-Information Retrieval Service, via Galileo Gallei, 1-0044 Frascati, Italy. Tel: (39) + 9-941-801, FAX: (39) + 6-941-80361.
10. Contact: Herr Schneider, Fachinformationszentrum Technik e.V., Ostbahnhofstrasse 13, D-60315 Frankfurt am Main, Germany, Tel: 49-69-4308-222, FAX: 49-69-4308-200.
11. Contact: Ms. Phyllis M. Martin, NIST, Bldg. 224, Room A247, Gaithersburg, MD 20899 USA Tel.: (1) + 301-975-6669, FAX: (1) + 301-975-4052, e-mail: pmartin@enh.nist.gov.
12. Contact: Information Management Center, IAFC, 4025 Fair Ridge Dr., Fairfax, VA 22033, Tel: (1) + 703-273-0911, FAX: (1) + 703-273-9363
13. Contact: Mr. John Aitken, Chief & Assistant Chief Fire Officers Assn., 10-11 Pebble Close, Amington, Tamworth B77 4RD Staffordshire, UK. FAX: (44) + 18-27-615-30.
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