

History of the Commercial Buildings Power Systems Committee

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FROM the 1950's and 1960's the Industrial and Commercial Buildings Power Systems Committee of the IEEE served as the home of the Commercial Buildings Subcommittee. Charles Maust was the Chairman in 1964 of this subcommittee at the time of the publication of the first modern version of the Gray Book. The subcommittee continued unchanged in structure until 1977 when the Commercial Buildings Subcommittee became the Commercial Power Systems Committee. Richard Koestner, was elected as the first Chairman of the Committee. The makeup of the Commercial Buildings Subcommittee (and later the committee) has always consisted of a relatively loyal cadre of engineers conversant with commercial building techniques. The very nature of commercial building design is such that almost all of the committee members are involved in related committees such as Systems Protection, Codes and Standards, and Industrial Power Systems.

In addition to the cadre type of membership a number of individuals primarily active on other committees have a corresponding interest in commercial buildings and as such attend and participate in commercial buildings activities. The Commercial Buildings Committee is closely related to the Space Conditioning and the Production and Application of Light Committees. In fact, the Space Conditioning Committee, which is involved with heating and cooling of buildings and more lately the sophisticated control of building systems, has overlapping membership with the Commercial Buildings Committee. There has been a strong effort to coordinate the activities of the two committees, since building automation is becoming one of the most important aspects of commercial building design.

From the early days of the Commercial Buildings Subcommittee the major emphasis was, and still is the Gray Book, IEEE Standard 241. A new publication which provides information on electrical systems for health care facilities is nearing completion. Over the years, in the move from subcommittee to committee status and with the creation of many more areas of activity, the need for expanded liaison intermeshing with the Production and Application of Light Committee, the Codes and Standards Committee, the Protection Committee, and others has been important. The Commercial Buildings Committee and the Space Conditioning Committee have often had common sessions at conferences.

As time goes on, there will be an increasing emphasis in the area of building technical sophistication which will be reflected in the types of papers published and in newer editions of the Gray Book.

The earliest edition of the Gray Book dealt primarily with building wiring and as editions have evolved, controls have been increasingly emphasized and the impact of electronic

systems is now in vogue. It is interesting to note that the earlier chairmen of the subcommittees and committees were oriented in the power area of building design, but in later years individuals, such as Al Marden who has served as Chairman, have been heavily involved in the area of building control. Energy conservation has had a significant impact on the activities of the Commercial Buildings Committee and with common membership there has been participation with the Energy Subcommittee of the Industrial Power Systems Committee. The topics covered in the Commercial Buildings paper have included lighting, energy conservation, building automation rehabilitation, system protection, and high-rise designs; and of them are all prepared in a manner which reflects the unique commercial buildings aspects of design.

SCOPE OF THE ACTIVITIES OF THE COMMERCIAL BUILDINGS COMMITTEE

The original Commercial Buildings Subcommittee was concerned primarily with the wiring and lighting systems of the buildings and with providing power to motors. The manifestation of this interest involved presentations of papers at committee meetings and preparation of the Gray Book. Today these concerns remain unchanged, however the Commercial Buildings Committee, in common with all other areas of the IEEE, has to accept and incorporate the newer technologies into their activities. The meaning of commercial buildings has been expanded to cover just about all types of buildings except industrial buildings and residences. Included are air terminals, land terminals, marine terminals, data processing facilities, hospitals, sports arenas, theatres, and in particular public and institutional type buildings. Since the Commercial Buildings Subcommittee was an outgrowth of a parent industrial committee, the thinking has gone from a more industrial approach to the more public and people oriented attitude so commonly associated with the typical commercial buildings. In many ways the commercial building has always been a creature governed by the National Electric Code and local codes; in contrast, for the most part, industrial buildings have been less code oriented until the advent of the Occupational Health and Safety Administration (OSHA), which initiated a major concern with code considerations.

In many ways, the power systems of commercial buildings have been relatively simpler in design than those of industrial establishments and have been less concerned with heavy machinery. The commercial buildings concern has become increasingly oriented toward system controls, communications, safety, fire protection, and security systems.

In the future, the scope of the committee will undoubtedly

be expanded to include more and more environmental and people considerations. Electrical safety in commercial and especially in the public buildings will be the trend of the future along with energy conservation.

THE GRAY BOOK

The Gray Book has always been the rallying point for the Commercial Buildings Subcommittee and Committee. It is a text published on a consensus basis by volunteers who are specialists in various fields and who have developed this comprehensive publication for the commercial buildings area. The contributors have included consultants, designers, engineers, manufacturers, utilities, and contractors. Perhaps the most important aspect of the book is its value as a training aid for younger engineers, although it remains as a reference text for the design of commercial buildings.

The early version of the Gray Book was really a Green Book published by the American Institute of Electrical Engineers (AIEE) in 1949 and entitled, "Interior Wiring Designed For Commercial Buildings."

The next edition or what was really the first edition of the Gray Book, a complete rewriting of the text, was chaired by Charles I. Maust and was published in 1964 by the IEEE. Charles Maust is still participating in the field of electrical engineering today. This text set the tone for later editions of the Gray Book. The 1964 edition was entitled, "Electric Systems for Commercial Building." Some of the outstanding contributors who have been very active in the AIEE and the IEEE over the years included Norman Peach, Jerry Quinn, Don Brereton, Ben Thomas, Jessie Dykes, Auguste J. Bisson, Roy Comstock, Dave Baker, Larry Fisher, Bill Henshel, A. Gype, B. Zimmerman, L. Flagg, and a host of others. This text included a most valuable discussion of load requirements, a new chapter of voltage selection, an extensive space conditioning chapter, and a chapter on classes of buildings, and special requirements. The book was really a comprehensive coverage of electrical systems for commercial buildings.

The next edition, published ten years later in 1974, was initially chaired by Charles Maust and later published under the chairmanship of Daniel L. Goldberg. An examination of the text indicates that a number of the contributors to 1964 edition, listed above, participated in this publication. About one-third of the 1964 edition was rewritten, another one-third completely revised, and the final third heavily edited. The new text brought the state of technology up to date and reflected all of the numerous changes in commercial buildings, particularly in the high-rise area that had been developing since World War II. Well-known IEEE IAS members contributed to the text such as D. Michaels, R. Castenschild, G. Frank, B. Fisher (also of the IES), R. Lee, and T. Sparling.

The latest edition of the Gray Book entitled, "IEEE Recommended Practice For Electric Power Systems and Commercial Buildings" was just published in 1983 under the Chairmanship of Thomas Sparling. Perhaps half of the Chapter Chairman remained unchanged from the previous edition. Extensive sections of the book were rewritten and the entire text was updated and reedited as necessary. Newer aspects of electronic controls, telemetering, and communications

TABLE I
PAST CHAIRMEN OF THE COMMERCIAL BUILDINGS POWER SYSTEMS

Commercial Buildings Power Systems Committee			
Year	Chairmen	Vice Chairmen	Secretary
1984	Jerry Frank		Howard Stickley
1983	Jerry Frank	Richard Burgess	Howard Stickley
1982	Walter Thomas	Jerry Frank	Hugh O. Nash
1981	Alfred Marden	Walter Thomas	Hugh O. Nash
1980	Alfred Marden		
1979	Richard Becker	Alfred Marden	Paul Kaup
1978	Richard Becker		Paul Kaup
1977	Richard Koestner		Richard Becker
Commercial Buildings Subcommittee			
1976	Richard Koestner		
1975	Richard Koestner		
1974	Daniel Goldberg		
1973	Daniel Goldberg		
1972	Daniel Goldberg		
1971	Daniel Goldberg		
1970	Daniel Goldberg		
1969	Roy Comstock		
1968	Roy Comstock		

AWARDS AND ACHIEVEMENTS

Of those individuals whose prime affiliation has been with the Commercial Buildings Committee, the following have recently received recognition.

- 1) Industry Applications Society Achievement Award
Thomas Sparling
Daniel L. Goldberg
- 2) IEEE Standards Medallion—IAS
Thomas Sparling
Daniel L. Goldberg
- 3) Fellows of the Institute of Electrical and Electronics Engineers
Rene Castenschild
Thomas Sparling
Daniel L. Goldberg

systems were included. A new chapter on facility automation was added, and the final chapter on special requirements by occupancy was written.

In each of the three editions of the Gray Book between 50 and 100 engineers contributed their expertise to the publication of the text. The Gray Book has always been a consensus publication in that the contribution of individuals were blended into a text representing the combined thinking of many engineers. As such, it embodied a broad range of the IEEE thinking in the power field and included all aspects of commercial buildings design. It is interesting to note that Bill Fisher contributed to the 1964 edition and chaired the chapters on lighting in the two subsequent editions. The two earliest publications were paperbacks and the last two editions were hardcover as with all the newer color books.

IEEE WHITE BOOK

The IEEE White Book concerning power distribution and control in hospitals reflects an attempt, starting from scratch, to develop a resource document in an area where there is a dearth of published material. Hospitals and health care facilities involve special techniques over the above those required for the normal commercial building and for the uninitiated the information is difficult to obtain. This text which is to be

published shortly will fill this void. Hugh O. Nash has been a dynamic chairman pulling together a number of individuals with diverse specialties throughout the country. In this text, in addition to normal hospital electrical design, areas of grounding in operating rooms where small differences of potential could prove dangerous to patients and the subject of emergency power systems for critical power are presented in detail.



Daniel Goldberg (S'49-M'50-SM'72-F'84) received the B.S. and M.S. degrees in electrical engineering from the New Jersey Institute of Technology, in 1949 and 1950, respectively.

He was with the General Electric Company for two years and then served for four years during World War II as a Commissioned Officer. He has been with the Port Authority of New York and New Jersey for 35 years. He is now Chief Electrical Engineer of the Engineering Department. For a number of years, Mr. Goldberg was in charge of

major electrical power systems rehabilitations with the Port Authority including the Holland and Lincoln Tunnels. For 15 years he has directed the Port Authority's electrical activities in the design of new and expanded electrical systems for airports, tunnels and bridges, marine and land terminals, and other transportation facilities such as J. F. Kennedy International Airport, Newark International Airport, LaGuardia Airport, and the Bus Terminal. His most recent major responsibility was the development of a program for and the implementation of the design of a new distribution and traction power system for the 50 year old Port Authority Trans-Hudson (PATH) rapid transit system. He has recently received the Port Authority's Distinguished Service Medal.

Mr. Goldberg was a Chairman of the Commercial Buildings Power Systems Committee of the Institute of Electrical and Electronics Engineers for five years, a Chairman of the Working Group which developed the 1974 IEEE Gray Book entitled, "Recommended Practice for Electric Power Systems in Commercial Buildings," and has been the Vice Chairman of Papers of the Industrial Power Systems Department for six years. He received the Industrial and Commercial Power Systems Achievement Awards in 1974 and an IEEE Standards Medallion in 1975. He served on the IEEE Admissions and Advancement Committees and the Standards Review Committees for three years each, and is currently a member of the IEEE Standards Board. He is a Registered Professional Engineer in the States of New York and New Jersey.