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INCORPORATING GLOBAL INFO NEWS

Values & Benefits of the IHS Standards Management Solution

The benefits for engineering intensive companies to implement the IHS Standards Management Solution are numerous both from an operational and financial point of view.

Leveraging Standards Management Internally & Throughout the Value Chain

The current global business environment requires having access to the right information and knowledge at the right time, which often means the difference between staying ahead of your competition or struggling to stay alive. The workforce is increasingly mobile and people often change jobs, moving from one position to another either within the same company or to a different company altogether. This means that new people are frequently taking over when someone has left, often not having the same level of expertise within the respective field as the person who left. One solution to this problem is for the new person to have quick access to relevant and continuously updated information, including complete history, which they easily know how and where to find.

In the engineering intensive industries, standards (international, industry or corporate) play an especially crucial role as they offer approved and validated best practices within a specific field. For relevant employees to have immediate access to this information is critical as it prevents the need for reinventing the wheel and can bring new employees quickly up to speed on a specific subject – offering safe and approved solutions for their challenges along with saving the company important time and money.



For large, engineering intensive companies, standards are extremely vital for keeping costs down e.g. by minimizing plant down time and ensuring the necessary quality assurance level within important areas such as environment, health and safety. Thus, increasing the use of standards within large multinational companies offers important cost control, work process improvement, faster and more secure decision making, which can then be used by employees to more quickly solve organizational challenges. The result is decreased project turn around time and rework, which easily delivers a return on investment (ROI) for the IHS solution.

Therefore, ensuring high usage of standards within a company is an important strategic business decision. The optimal solution is for the standards to be available via one central electronic information database, which is automatically kept up to date. All relevant employees will then have immediate online access wherever they reside in the country directly from their desktop, whenever they need it. This will ensure that no matter where the employees reside decisions can be made quickly and based upon the same frame of reference. This will be taken to a whole new level if Standards Management is made an integral part of a business' overall strategic decisions, including active participation in standards development work and implemented as a tool to manage their relationships with business partners, suppliers and customers. All interested parties are then connected to the same "intranet" solution, sharing the same database for standards. The benefits are vast, as everyone will be guaranteed that the other interested parties will have access to exactly the same copy of a standard as themselves – leveraging the Strategic Standards Management (SSM) concept into the value chain.



Put simply, SSM involves recognizing that standards are more of a business issue than a technical one. Global standards are used as a basic vehicle for communicating requirements worldwide to customers and suppliers. They also serve as a fundamental tool in developing marketing strategies: What new products can be developed to standards that already exist? What new standards are under development which affect existing products? How can new standards be used to enlarge existing markets or create new market spaces?

Internal & Corporate Standards

Internal standards are the standards developed by a company for its own specific purpose. "While there are legitimate reasons for their development and use, where proprietary issues are concerned, internal standards often exist simply because the implementer did not know that there was an external standard covering the same subject." Subscribing to the IHS Standards Management Solution, IHS Specs & Standards, will ensure that your company has the best overview of the relevant standards available around the world at any given time before allocating expensive resources for developing, implementing and maintaining an internal/corporate standard.

IHS Specs & Standards – the Standards Management Solution

The IHS Specs & Standards online product offers a standards management solution and is already widely accepted and used by a large number of Fortune 500 companies around the world, as it supports their objectives of achieving strategic standards management. Additionally, the IHS solution allows companies to focus on their core business instead of having numerous people around the world duplicating efforts, which is merely a means to an end.

The IHS way of solving this challenge has been to build a single database, containing standards and specifications from more than 370 standards developing organizations (SDOs) around the world, equivalent to approximately 1 million individual standards and specifications. This vast amount of data is continually updated via direct agreements with the respective SDOs. This extensive standards database/library is made available to IHS customers online globally via our document management solution, IHS Specs & Standards, which in addition to a specialized search engine, the index and bibliographic information also offers access to the electronic document from the 370+ organizations in standardized PDF format 24/7/365.

For quality assurance purposes IHS Specs & Standards also contains an important project management feature called the document "Watch List", which includes automatic e-mail notification. With this feature a company can add important required documents to one or several lists and be kept informed about any changes in status to the documents. The IHS Specs & Standards solution will then automatically inform the respective people via e-mail when changes to the documents happen. IHS is ISO 9001 certified with all solutions built to meet our customers' quality assurance needs.

The IHS Specs & Standards solution contains everything your company needs to ensure that employees are guaranteed online access to the current and/or historical standards they need. The solution is like having your own corporate standards portal via your company's intranet, but without having to bear the costs of maintaining expensive portal solution software and administrate multiple contracts for the various standards needed.

Finally, it is also worth mentioning that the IHS Specs & Standards solution is in accordance with the contractual obligations held with the various standard developing organizations, ensuring the copyright compliance of their intellectual property by following the "fair use" provision, which helps protect your organization from copyright infringement i.e. risk management/mitigation.

IEEE Approves Amendment to Rail Standard for Circuit Breaker Switchgear - IEEE C37.20.1b



The Institute of Electrical and Electronics Engineers Inc. (IEEE) has approved IEEE C37.20.1b - Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear - Amendment 2: Additional Requirements for Control and Auxiliary Power Wiring in DC Traction Power Switchgear.

This amendment provides additional auxiliary power and control wiring requirements for dc traction power substations having a nominal output of up to 3200 volts dc. It's intention is to improve the performance and reliability of dc traction power switchgear and reduce both initial costs and maintenance costs.

IEEE has also begun work on IEEE P1474.3 - Communications-Based Train Control (CBTC) System Design and Functional Allocations, which will define a preferred CBTC system

design and architecture to meet the CBTC performance and functional requirements in IEEE 1474.1. It also will allocate functions to major CBTC subsystems.

IEEE is also revising IEEE P1478 - Standard for Environmental Conditions for Transit Rail Car Electronic Equipment, to address specific technical issues. This standard considers the environmental conditions under which transit rail car electronic equipment should operate and survive. These conditions depend on: Equipment location, such as under car, interior and truck; Temperature; Humidity; Water; Corrosive elements; Vibration; Shock.

IEEE P1478 sets a baseline for contract specifications and the design and manufacture of electronic equipment for transit rail cars.

IEEE has also reaffirmed the continued use of IEEE 11 - IEEE Standard for Rotating Electric Machinery for Rail and Road Vehicles.

IHS Acquires Jane's Information Group

IHS Inc. has acquired Jane's Information Group (Jane's), a leading provider of information to the defence industry and governments throughout the world

"IHS is extremely pleased to welcome Jane's into the IHS family of brands which includes IHS and CERA (Cambridge Energy Research Associates)," said Jerre Stead, chairman and chief executive officer of IHS. "Our strategy is to grow our business of proprietary content and decision-support tools. The addition of Jane's is a perfect complement to the products and services IHS offers today, and reflects our vision to be the source for critical information and insight."

IHS and Jane's are both global operators with long-standing customer relationships in aerospace, defence and government. The acquisition enhances the position of IHS in these industries, the company's second-largest industry after energy. IHS is a leading provider of military and aerospace parts, standards, and regulatory databases, and related decision-support tools and services. The combination of these IHS assets with the information, insight, analysis and brand of Jane's allows IHS to deliver an unparalleled suite of products and services.

The growing shared interest of the defense establishment and energy industry in the security and production of oil and gas around the world presents another opportunity, positioning the combined companies as a global leader in energy security issues.

"The convergence of energy and security issues in recent years has driven markets and prices on a daily basis and placed energy security squarely at the forefront of the minds of everyone from governments to businesses to individuals," said Daniel Yergin, executive vice president of IHS and chairman of CERA. "The insight and expertise that IHS and CERA provide in the energy arena will be a unique, broad-based source of timely information, knowledge and insight into a range of energy security issues around the world."

Jane's was founded in 1898 and is a world-leading provider and publisher of information and analysis on global defence and security. Governments, militaries, business leaders and academics in more than 180 countries rely on Jane's for timely and insightful information on threat and security issues. Jane's has offices in seven locations worldwide and an international network of researchers, correspondents and journalists, who provide the depth and quality of Jane's editorial expertise and independence. Jane's offers a full range of information solutions including: military systems, equipment and analysis; country-by-country internal and external security and threat assessments; defense news and analysis; business risk assessments; airport news equipment and services information; railroad and urban transportation systems; and police and law enforcement news and equipment information.



Euro Standards Organizations Sign MOU with European Railways Association

The heads of the European Committee for Standardization (CEN), European Committee for Electrotechnical Standardization (CENELEC) and the European Telecommunications Standards Institute (ETSI) has signed a Memorandum of Understanding (MOU) with the European Railway Agency (ERA).

The MOU clarifies the relations between ERA and the three European standards organizations (ESOs) regarding the political and technical framework for cooperation for European standardization in the field of railway "will improve the specifications for interoperability on the European rail network", said ETSI. Each of the ESOs has a history of ensuring rail travel in Europe is safe and efficient.

The Global System for Mobile Communications (GSM) specification for telecommunications was adopted as the GSM-Railway (R) standard by the International Union of Railways. It is the European standard for railway communications used in all European Union (EU) member states.

CENELEC's "Electrical and electronic applications for railways" and its subgroups has responded to the needs of the directives for the Railway sector and contributed to the Interoperability Directive for high-speed rail through the direct reference to CENELEC European standards. With the production of standards supporting the Conventional Rail Interoperability Directive, CENELEC is also contributing to the harmonisation of national and regional networks in Europe.

There are more than 50 major manufacturers, infrastructure owners and operators in the mechanical part of the rail sector. These organizations employ more than 150,000 workers in the EU. There are also hundreds of smaller suppliers and other small and medium enterprises (SMEs) employing a similar number of people who provide goods and services to the larger players in the industry.

"All of these players adhere to CEN's more than 100 safety and quality standards" said ETSI. "This is a key factor in the maintenance of rail travel's impressive safety record in Europe. This MOU will further the process of simplifying the lives of railway users, employees and operators in Europe" said ETSI.

ESDU Aerospace Workshops Held In Gauteng

In July, Bateman Watling and Associates – sole distributors of IHS products in South Africa – hosted a series of ESDU Awareness Workshops at the premises of clients Denel Dynamics, Denel Aviation, Denel Aerostructures, SA Airforce - Waterkloof base, CSIR Defence and Aerosud.

The aim of the workshops was to enable current customers to gain more insight into maximizing the use of their subscriptions, and to enlighten them on how ESDU is being used elsewhere in the Aerospace community.

The presenter was Andrew Brown, Business Development Director ESDU, IHS Engineering, who has been with ESDU for over ten years, both in engineering and in customer-liaison roles. Prior to joining ESDU he was an ESDU user at both BAE Systems and Airbus Industries.

The scope of the presentations included an introduction and demonstration of the ESDU on-line product together with its new features, and the experiences of other international ESDU users in the aerospace community were shared with attendees. The advantages of the complimentary ESDU engineering consultancy service was explained.

The workshops also presented an opportunity for local ESDU users to provide feedback which will be used to steer further development of the product, and an invitation was extended to attendee engineers and experts to join and participate with the various ESDU technical committees.

Please contact Blanka Nunes on 011 8352221 should you wish to attend workshops on other ESDU applications that are planned for 2008.

Cost Savings through MRO Parts Optimization

Competing in today's global economy requires peak performance at all levels of operation. Peak performance for asset-intensive organizations is attainable by way of proper management of maintenance, repair and operations (MRO).

A 2005 ARC Advisory Group survey suggests that approximately two-thirds of manufacturing companies do not effectively manage MRO parts, significantly increasing their costs.

Proper management of MRO can be fully optimized when MRO data is accessible and current for all users. The key to successful MRO optimization is data, which is often inaccurate, incomplete, inconsistent, and inaccessible.

Though MRO parts can yield exceedingly high costs they are a vital component keeping operations running smoothly. MRO item cost breakdown:

Premium pricing—MRO items are typically purchased as spot buys, outside of negotiated pricing contracts.

Increased shipping costs— In the event that items are ordered due to a shutdown situation, shipping must be expedited.

Inventory costs—Due to fears of downtime and loss of productivity, MRO parts are often overstocked in inventory.

Protracted procurement process—MRO items are difficult to procure on every level.

Downtime—When an MRO part breaks production stops, which earn the biggest costs.

Incomplete information makes purchasing difficult, extends procurement time, increases downtime, drives shipping costs up and results in higher prices. These costs can be avoided by optimizing MRO parts data. In an effort to reduce inventory and carrying costs, companies should develop a robust MRO catalog, improve procurement, fully utilize Enterprise Resource Planning (ERP), Enterprise Asset Management (EAM) and searching capability, reduce downtime and improve productivity. Using IHS Intermat Solutions will ensure:

- Cleansing and structuring of data
- Standardization of data
- Enrich data with all pertinent information
- Maintenance of data

On account of MRO optimization, significant savings are realized within a relatively short timeframe. The savings continue as yearly

process improvements and best practices continue. Additional savings will be noted as a result of improved uptime and productivity. The financial benefits of MRO optimization results from the following:

- Elimination of duplicate parts
- Optimizing inventory level through reduced carrying costs and less overstocking
- Improving employee productivity through reduced parts procurement timeframes
- Reducing plant downtime and increasing throughput
- Leveraging the full capabilities of EAM and ERP systems

IHS Intermat Solutions holds a strong 27-year record in assisting companies in optimizing MRP parts data. With a full suite of automated tools and services, IHS Intermat Solutions can provide the right level of assistance to any asset-intensive organization.

For further information please contact Blanka Nunes at Bateman Watling & Associates on +2711 835 2221.

Is Dirty Data Clogging your Profits?



The quality of your MRO inventory data has a direct impact on your global performance.

IHS Intermat cleanses and standardizes your material descriptions, which can save you millions of rands by reducing inventory and procurement costs, and increasing productivity and uptime.

Contact IHS Intermat today,
and get those profits flowing
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- bnunes@bwassociates.co.za



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Overcoming the effect of oil fouling with ESDU

Build-up of dirt deposits, or fouling, on the metal surfaces of petrochemical plant heat exchangers is a major economic and environmental problem worldwide. Andrew Brown reports.

Estimates have been made of fouling costs due primarily to wasted energy through excess fuel burn that are as high as 0.25 per cent of the gross national product (GNP) of the industrialised countries.

Many millions of tonnes of carbon emissions are the result of this inefficiency. Costs associated specifically with crude oil fouling in the pre-heat trains of oil refineries worldwide are estimated to be of the order of \$4.5bn.

With oil prices at record highs, the payback from fouling reduction by increased throughput and less wasted fuel increases year on year.

Fouling of heat exchanger equipment results in increased cost of operation, costs vary depending on the process, location and manpower but major costs include:

- Reduced flow.
- Increased pressure
- Loss of throughput (reduced production).
- Increased investment (use of switchable exchangers).
- Replacement of equipment.
- Cleaning and disposing of toxic wastes.
- Increased safety hazards (fires).
- Use of costly chemical additives.

Working with the major oil companies, IHS ESDU has been path-finding new developments into reducing or even eliminating crude oil fouling in pre-heat train heat exchangers. A unique design

methodology in the IHS ESDU heat exchanger design program EXPRESS allows refiners to identify fouling exchangers.

The powerful graphical facilities of EXPRESS then drive the engineer to an optimum solution, perhaps using new hardware supplied by heat exchanger manufacturers that can reduce or eliminate fouling and improve plant efficiency.

As an example a \$4 billion oil refinery at Sines in Portugal will come on stream early 2009. The 250 000 barrel per day refinery will produce 3000 barrels of diesel fuel per day and will be the largest on the Iberian Peninsular.

When fully on stream, the refinery will account for 3 per cent of the Portuguese GDP. This new refinery alone is likely to produce 2.5 million tonnes of carbon emissions from fuel burn each year. At a carbon tax rate of 30/tonne this will cost 75 million pa in taxes alone. Data from refineries ESDU have worked with suggests that crude oil fouling accounts for around 10 per cent of the total CO₂ footprint. Therefore for a refinery of this size properly addressing the crude oil fouling problem could save up to \$7.5 million p.a. in taxes alone. These additional CO₂ emissions arise from the need to burn extra fuel in the furnace. Our experience shows that this results in a 20% increase in fuel cost. ESDU has a demonstrable track record in reducing and even eliminating crude oil fouling in the pre-heat train of many refineries across Europe.

In 2002, French oil company Total revamped one of their refinery crude distillation units to improve efficiency. Soon after the plant restart, it was clear that the preheat train

was experiencing heavy fouling leading to a significant throughput reduction as the furnace bottlenecked. Financial losses were estimated to be around \$1.5M over three months after start-up.

Total decided to implement an in-house study of the problem following methods developed by IHS ESDU in their collaborative research work with Total and other major oil companies. The methods successfully highlighted the rogue exchangers and pointed to retrofit options that were subsequently adopted. Total presented the findings of their study at a major international conference in Santa Fe. Total's paper concluded that the predictions of rogue heat exchangers predicted by the methods were subsequently found to be very close to the true situation. They recommended that designers use the methods built into the EXPRESS program, to identify rogue exchangers and identify retrofit scenarios.

IHS ESDU has recently issued the latest version of EXPRESS heat exchanger analysis software for heat exchanger fouling in the pre-heat train of a crude oil distillation unit. It was developed over a period of more than five years in close collaboration with the Oil Industry Fouling Working Party, a team of oil refiners, heat transfer equipment manufacturers and chemical suppliers. This program complements a state-of-the-art review, with practical guidance on the methods of mitigating fouling, developed by IHS ESDU.

For further information please contact Blanka Nunes at Bateman Watling & Associates on +2711 835 2221.



Commercial and Corporate Standards

AA — Aluminum Association
 AAMI — Association for the Advancement of Medical Instrumentation
 AASHTO — American Association of State Highway and Transportation Officials
 AATCC — American Association of Textile Chemists and Colorists
 ABMA — American Bearing Manufacturers Association
 ABS — American Bureau of Shipping
 ACI International
 AECMA — European Association of Aerospace Industries
 AGA — American Gas Association
 AGMA — American Gear Manufacturers Association
 AIA/NAS — Aerospace Industries Association/National Aerospace Standards
 AIA/NAS Historical Collection (1997 Forward)
 AIAA — American Institute of Aeronautics and Astronautics
 AIChE — American Institute of Chemical Engineers
 AIIM — Association for Information and Image Management
 AMT — The Association For Manufacturing Technology
 ANS — American Nuclear Society
 ANS Historical Collection (1986 Forward)
 ANSI — American National Standards

Institute
 Chemical
 Construction
 Electrical and Electronic
 Financial Services (Not part of "Complete" service)
 General
 Information Systems
 Mechanical
 Miscellaneous
 Nuclear
 Photography
 ANSI Historical Collection (1986 Forward)
 API — American Petroleum Institute
 Environmental & Safety
 Exploration & Production
 Measurement
 Exploration & Production
 Gas Processing Plants
 Marine
 Marketing
 Pipeline
 Refining
 Research Reports
 Transportation, Marketing & Safety
 API Historical Collection (1986 Forward)
 ARI — Air -Conditioning and Refrigeration Institute
 ARINC — Aeronautical Radio, Inc.
 ASA — Acoustical Society of America
 ASABE — American Society of Agricultural & Biological Engineers
 ASCE — American Society of Civil Engineers
 ASHRAE — American Society of Heating, Refrigerating and Air Conditioning Engineers
 ASME International -
 Boiler & Pressure Vessel Code
 Section I:
 Power Boilers
 Section II:
 Material Specifications
 Section II - Part D:
 Materials Properties
 Section II Part M:
 Properties, Metric
 Section III:
 Rules for Construction of Nuclear Power Plant Components
 Section IV:
 Heating Boilers
 Section V:
 Nondestructive Examination
 Section VI:
 Recommended Rules for Care of and Operation of Heating Boilers
 Section VII:
 Recommended Guidelines for Care of Power Boilers
 Section VIII:
 Pressure Vessels

Section IX:
 Welding and Brazing Qualifications
 Section X:
 Fiberglass Reinforced Plastic Pressure Vessels
 Section XI:
 Rules for In Service Inspection of Nuclear Power Plant Components
 Section XII:
 Construction/Service Transport Tanks
 Code Cases:
 Boilers and Pressure Vessels
 Code Cases:
 Nuclear Components Interpretations
 Referenced Standards:
 Boiler & Pressure Vessel Code and Addenda - Historical versions from 1989 forward
 ASME Elevator Code
 ASME Standards
 ASME Drawings & Terminology
 ASME Performance Test Codes
 ASME International Historical Standards Collection (1986 Forward)
 ASME Journals
 ASQ — American Society for Quality
 ASSE/SAFE - American Society of Safety Engineers
 ASTM International
 Construction
 General Test Methods
 Medical Devices
 Metals
 Miscellaneous
 Paint
 Petroleum
 Plastics
 Redlines
 Rubber and Electric
 Insulating Materials
 Textiles
 ASTM International Historical Collection (1986 Forward)
 ASTM Digital Library
 AWS — American Welding Society
 AWS Standards/Specifications/Practices/Procedures
 AWS Historical Collection (1986 Forward)
 AWWA — American Water Works Association
 Battelle — Battelle MMPDS - Metallic Materials Properties
 BHMA — Builders Hardware Manufacturers Association
 BOCA — Building Officials & Code Administrators International, Inc. National Codes
 National Commentaries
 British Defense Standards (MOD UK)
 BSI — British Standards Institution
 Chemicals and Additives

INTERNATIONAL STANDARDS / NATIONAL STANDARDS / EUROPEAN STANDARDS

Civil Engineering and Building
Documentation and Quality
Assurance
Domestic, Office and Institutional
Electronic Components of Assessed
Quality
Electronics and Aerospace
Engineering Components and
Equipment
Health and Safety
Materials
Metrology, Packaging and Print
Process and Heavy Engineering
Production and Plant

CAA - Civil Aviation Authority (UK)

CEA – Consumer Electronics Association

CECC - CENELEC Electronic Components
Committee
Rules and Administrative Documents
Detail Specifications

CEN — European Committee for
Standardization

CENELEC — European Committee for
Electrotechnical Standardization

CEPT - European des
Administrations des Postes et des
Telecommunications

CGSB — Canadian General Standards
Board
Building Materials
Food
French Edition
Furniture
Miscellaneous
Paper, Printing and Office Supplies
Petroleum, Chemicals and Solid Fuels
Textiles and Clothing
Tools, Manufacturing and Testing

CIE — International Commission on
Illumination

CSA — Canadian Standards Association
Business & Environmental
Management Systems
Communications/Information
Construction
Electrical/Electronic
Energy
French Language
Life Sciences
Transportation/Distribution Materials
Technology

CSA America

CSA America Historical Collection (1986
Forward)

CSI — Construction Specifications
Institute

CTI — Cooling Technology Institute

DIN - Deutsches Institut für Normung
e.V (German and English Language)
Agriculture, Food Technology,
Housekeeping
Aircraft and Space Vehicle
Engineering
Chemical Engineering Mining, Paint
Construction, Civil Engineering
Electrical Engineering

Electronics Environment Health
Protection, Safety
Fluid Systems and Components
Information Technology Office
Equipment
Machine Tools Automation
Mechanical Systems and Components
for General Use
Metallurgy
Metrology and Measurement, Testing,
Energy
Image Technology
Natural Sciences, Health Care
Technology
Packaging, Textile and Leather,
Clothing
Paper Industries, Ceramics and Glass
Standardization, Terminology, Quality
Documentation
Telecommunications
Vehicle Engineering Materials
Handling
Welding, Surface Treatment

DNV — Det Norske Veritas

ECA — Electronic Components,
Assemblies & Materials Association

ECMA International

EEMUA — Engineering Equipment &
Material Users Association

EIA — Electronic Industries Alliance

EIA Historical Collection (1997 Forward)

CEA/ECA/GEIA/JEDEC/TIA

ETSI — European Telecommunications
Standards Institute

EU – European Union/Commission
Legislative Documents

EUROFILE – European Harmonized
Standards Service

CEN — European Committee for
Standardization

CENELEC — European Committee for
Electrotechnical Standardization

EU — European Union/Commission
Legislative Documents
Administration/Test & Measurement
Construction & Civil Engineering
Electrical & Electronics
Electrical & Mechanical Engineering
Electrical Telecommunications, IT,
Transportation & Aerospace
Miscellaneous
Process & Manufacturing
Telecommunications

FM Approvals

FMVSS — Federal Motor Vehicle Safety
Standards

GA — Gypsum Association

GEIA - Government Electronics &
Information Technology Association

GOST — Gosudarstvennye Standarty
State Standards (Russian and English
Language)
Agriculture & Food Technology
Aircraft & Space Vehicles Shipbuilding
& Marine

Structures
Chemical Technology
Construction Materials Building, Civil
Engineering
Domestic & Commercial Equipment
Electrical Engineering
Electronics
Energy & Heat Transfer Engineering
Environment, Health & Safety
Fluid Systems & Components
Healthcare Technology, Math &
Science
Information & Image Technology
Telecommunications
Manufacturing Engineering
Material Handling, Packaging &
Distribution
Measurement & Testing
Mechanical Systems & Components
Metallurgy
Mining & Minerals
Non-metal Materials
Paint & Color Industries
Petroleum & Related Technologies
Road Vehicle & Railway Engineering
Terminology & Standardization,
Organization b& Management
Transportation
Textiles, Clothing & Leather

GPA — Gas Processors Association

ICAO — International Civil Aviation
Organization

ICBO - International Conference of
Building Officials 1997 Codes

ICC — International Code Council

ICEA — Insulated Cable Engineers
Association

IEC — International Electrotechnical
Commission
Appliances (Electrical and Electronic)
Applications/Machines and Motors/
Turbines/Generators
Insulation
Microelectronics/Components/
Switchgear
Terminology

IECQ — IEC Quality Assessment System
for Electronic Components

IEEE — Institute of Electrical and
Electronics Engineers
Applications



Communications
 Computers and Electronics
 Instruments/Terminology
 Power
 IEEE Historical Collection (1986 Forward)
 IESNA — Illuminating Engineering Society of North America
 IETF - Internet Engineering Task Force
 INCITS — International Committee for Information Technology Standards
 IP - Institute of Petroleum
 IPC — Association Connecting Electronic Industries
 ISA — The Instrumentation, Systems, and Automation Society
 ISO — International Organization for Standardization
 Aerospace/Fuels/
 Energy/Transportation
 Chemistry/Coatings/
 Construction/Metals
 Information/Image Technology
 Mechanical/Machinery
 Medical/Consumer Goods
 Quality/Measurement/
 Safety/Testing/Environment
 ITU — International Telecommunications Union
 ITU-R — Radio Communication Sector
 ITU-T — Telecommunication Sector
 JEDEC — Solid State Technology Association
 JSA — Japanese Standards Association
 Electrical/Electronic
 Fluid Systems/Fasteners/Heat Transfer Instruments
 Metallic Materials
 Miscellaneous
 Nonmetallic Materials
 Power Transmissions and Hardware
 Production Equipment and Services
 JSAE — Society of Automotive Engineers of Japan
 MPIF — Metal Powder Industries Federation
 Self-Lubricating Bearings
 Structural Parts
 Injection Molded Parts
 Steel Parts
 MSS — Manufacturers Standardization Society of the Valve and Fittings Industry
 NACE International
 NEMA — National Electrical Manufacturers Association
 NEMA Historical Collection (1986 Forward)
 NFPA — National Fire Protection Association
 NFPA — National Fire Protection Association Fire Codes
 Handbooks
 NFPA Historical Collection (1986 Forward)

NISO — National Information Standards Organization
 NSF International
 NTS — Norsok Teknologisenter
 NYSBC - New York State Building Codes
 PAPTAC — Pulp and Paper Technical Association of Canada
 PFI — Pipe Fabrication Institute
 PIA — Parachute Industry Association
 PIP — Process Industries Practices
 PPI — Plastics Pipe Institute Inc
 RWMA — Resistance Welder Manufacturers Association
 SAE International
 SAE Aerospace Material Specifications (AMS)
 SAE Aerospace Standards (AS)
 SAE Ground Vehicle Standards (J Reports)
 SAE Manuals
 SAE Technical Papers
 SAE Digital Library
 SBCCI — Southern Building Code Conference International Codes
 SMACNA — Sheet Metal and Air Conditioning Contractors' National Association, Inc.
 SMPTE — Society of Motion Picture and Television Engineers
 SSPC — Society for Protective Coatings
 TAPPI - The American Pulp & Paper Inst.
 TIA — Telecommunications Industry Association
 UOP (Petroleum Industry)
 UL — Underwriters Laboratories, Inc.
 Electrical
 Non-electrical
 UL Directories
 UL Historical Collection (1986 Forward)
 ULC — Underwriters Laboratories of Canada

Electronics and Telecom

ECMA International
 European Telecommunications Documents
 CEPT - Conference of European Postal and Telecommunications
 ECMA
 ETSI – European Telecommunications Standards Institute
 European Net Standards
 ITU – International Telecommunications Union (Telecommunications and Radio Communications)
 OSI - Open Systems Interconnection Documents
 Telecom Worldwide Standards Service

Fiber Optics Standards Collection:
 ANSI, ASTM, EIA, TIA, ETSI, IEEE, and ITU-T that drive central fiber optic technologies including SONET, SDH, FDDI and Fiber Channel.
 ISO/IEC Telecom Standards Collection
 ISO and IEC compliance related standards within the telecom industry and offers an ideal solution to any other Telecom Standards Collection.
 Mobile/Wireless Standards Collection
 EIA, TIA, IEEE, ETSI, ITU-T and ITU-R that drive the design and construction of CDMA, TDMA, PCS and other wireless products and services.
 Premises Wiring and Safety Standards Collection
 ASTM, CSA, EIA, TIA, ICEA, IEEE, ISO, ITU-T and UL critical to the design, development, installation and maintenance of safe, reliable telecom cable and wiring infrastructure.
 Telecom Systems Standards Collection
 ANSI, EIA, TIA, IEEE, ITU-T, ITU-R and UL. Telecom Systems is the comprehensive toolkit for telecom systems engineers. This collection provides robust access to standards central in the delivery of information and voice transmissions across network and telephony systems.

Medical Devices

European Directives/Harmonized Standards
 93/42/EEC Medical Devices: General
 90/385/EEC Medical Devices: Active Implantable
 98/79/EC Medical Devices: In Vitro Diagnostic
 Medical Devices Package: Active Implantable and In Vitro Diagnostic
 Medical Devices Package: General, Active Implantable and In Vitro Diagnostic
 89/336/EEC Electromagnetic Compatibility –
 ETSI Documents
 89/336/EEC Electromagnetic Compatibility –
 BSI/CEN/CENELEC Documents
 73/23/EEC Low Voltage Equipment – Medical Subset
 73/23/EEC Low Voltage Equipment – Complete
 ASTM – Device Standards Library
 BSI Health and Safety Section
 IEC – Device Standards Library
 ISO – Device Standards Library
 ASTM, IEC and ISO Device Standards Library