SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT:

AN INTEGRAL PART OF SAINT-GOBAIN'S STRATEGY

Saint-Gobain's strategy naturally leads the Group to make sustainable development a priority. As a leader in the habitat and construction markets, we offer innovative and efficient solutions to the challenges of saving energy and protecting the environment. Such solutions include low emissivity glass, which helps to reduce heat loss while allowing rooms to be warmed by direct sunshine, combined glass wool and plasterboard insulation products and solar panels offering an alternative energy source.

Our Research and Development teams are working on further energy-saving solutions for the future, such as more energy efficient lighting systems and fuel cells for generating electricity and heating water in the home.

Considering our strategic positioning in these markets, it is essential that our sustainable development performance be beyond reproach. Rather than simply complying with regulations, we take a highly committed stance on minimizing the environmental impact of our processes, protecting the health and safety of our employees, and making proper allowance for labor and social issues in all our business activities.

Sustainable development guidelines

Our business model is based on a set of strong internal values backed by publicly-stated sustainable development commitments.

These commitments are set out in our **Principles of Conduct and Action**, which were drawn up in 2003 as a formal expression of the values that guide and inspire the Group.
The values of professional commitment, respect for others, integrity, loyalty and solidarity represent a unifying force and shape the conduct of each and every member of Saint-Gobain, from senior management down to junior staff.

Respect for the law, the environment, occupational health and safety and employee rights guides the actions of all corporate leaders and employees in the performance of their duties.

The Principles of Conduct and Action [1] explicitly refer to International Labor Organization (ILO) conventions, OECD guiding principles and the OECD Anti-bribery Convention.

They form a solid foundation on which the Group builds its response to sustainable development issues. The Principles require subsidiaries to «actively protect the environment» and to «take all necessary measures to meet the highest standards of workplace health and safety» for employees and for contractors working on our sites. They have been applied in the **Environment, Health and Safety** (EHS) policy, which is based on respect for individuals and their environment. In 2008, Group senior management set out the EHS policy's main principles and guidelines in a letter to all employees. These objectives are listed in a **charter** displayed at all of our facilities and currently translated into 38 languages.

The Principles of Conduct and Action and the Group's commitments also inform ours labor and social policies, as well as its management practices.

Our commitments

In 2003, we demonstrated our responsible and sustainable development approach by pledging to support the United Nations Global Compact and undertaking to comply with the Compact's ten principles in the areas of human rights, labor standards, the environment and anti-corruption.

This commitment was taken a step further on December 10, 2008—the 60th anniversary of the Universal Declaration of Human Rights—when our Chief Executive Officer signed the declaration of management support for human rights, an initiative organized by the United Nations.

In January 2009, the Group endorsed the Caring for Climate statement and the CEO Water Mandate, two documents that complement the UN Global Compact. Caring for Climate is an action platform to demonstrate leadership on the issue of climate change. The 318 corporations that have endorsed the statement are committed to setting improvement targets and to publicly disclosing their greenhouse gas emissions. Caring for Climate provides a unique opportunity for businesses of all sizes in both emerging and developed economies to come together and devise practical solutions to a global challenge.
The CEO Water Mandate supports the United Nations Millennium Development Goals of reducing poverty and improving environmental sustainability by 2015. Pierre-André de Chalendar and 45 other CEOs have formally committed to making water-resources management a priority and to working with governments, UN agencies and non-governmental organizations to address the global water challenge.

(1) see section IV for more information on the Principles' distribution.

Sustainable development organization

Sustainable development initiatives are organized on a cross-functional basis and are coordinated by Compagnie de Saint-Gobain. Their deployment relies on close cooperation among several departments, including:

- The **Environment, Health and Safety (EHS) Department**, which oversees and monitors employee health and safety in the workplace, as well as environmental compliance, at all Group sites worldwide. The department also works with the Research Department, the Corporate Marketing Department and the Sectors to ensure that sustainable development considerations are taken into account in the Group's products and solutions.
- The **Employee Relations, Training and Executive Career Management units**, which support the Group's development by providing the skill-sets that best match its needs, while responding to employees' aspirations.
- The **Responsible Development Department**, which issues the Principles of Conduct and Action and educates employees on their application. It also works with the Divisions, businesses or regions on applying the Principles to reflect local situations.

These departments are supported by robust networks within the various businesses and regions, helping to guarantee a consistent approach to responsible and sustainable development, both at global level and within each unit, where the approach is tailored to local circumstances.

The table below presents a broad outline of the Group's sustainable development challenges, as well as actions taken and future initiatives.

The first part of this section discusses Saint-Gobain products and solutions that contribute to sustainable development, while the second part sets out our commitments on environment, health and safety issues.

The last two sections examine the Group's values and its model for Human Resources Development and Corporate Social Responsibility.

Indicators mentioned in the text are listed in a table at the end of the section, along with details of the methodology used to collect and compile the data.

CHALLENGES, ACHIEVEMENTS AND **OUTLOOK**

We have identified a number of challenges in the areas of environmental protection, Human Resources Development, Corporate Social Responsibility and business practices.

Guided by the Group Principles of Conduct and Action, which serve as a blueprint for all employees, we have defined policies and action plans to address these issues.

The table below summarizes our priority challenges, which are described in greater detail in the main body of the text.

Environment

Challenges	Action taken	Pages	Outlook and future initiatives
Reduce CO_2 emissions: In our operating processes	• Research into furnace design for improved energy efficiency • Recycling of secondary raw materials • Selection of most appropriate energy source • Combustion settings for glassmaking furnaces • Definition of CO_2 emission reduction targets for each Division by 2010 • Initial distribution of a Suppliers' Charter designed to raise supplier awareness of the importance of sustainable development for the Group. The charter includes information on the issue of reducing CO_2 emissions. • Carbon emissions assessments launched in manufacturing subsidiaries in France in 2009	50 48	• Using 2007 emissions as a base, a 6% reduction in emissions at "concerned sites" by 2010 (see reporting methodology, page 77 • Development of a methodology for conducting an Overall Carbon Assessment at the Group level
With our products	• Construction industry: insulation products • Renewable energies: photovoltaic panels, etc. • Vehicles: automobile glass, lighter auto body parts, etc. • Incorporation of an EHS sign-off procedure in R&D projects • Deployment of a shared methodology for assessing and communicating life-cycle analyses for all construction products	30 38 30	• Research and development of new products • Systematic life-cycle analyses for all construction product lines by 2010
With our awareness-raising initiatives	• Dedicated industry associations and labels • Information and training for contractors and other professionals • Group-wide celebration of International Environment, Health and Safety Day	33 42	• Continuation of awareness-raising campaigns
In our transport operations	• Distribution of a Purchasing Charter • Initiatives within Building Distribution Sector companies to reduce CO_2 emissions from road transport • Adoption of CO_2 emissions criteria for automobile fleets in certain European countries	50	• Rollout to other Building Distribution Sector companies and then to the Group as a whole
In our buildings	• Factor 4 targets for office buildings: Care:4™ project • Energy consumption at all new office buildings (offices, training centers excluding production shops, warehouses, stores, etc.) must be below 80 or 120 kWh/sq.m, depending on the country • First buildings certified to Care:4™ standards	47	• In 2010, introduction of support tools for conducting an energy assessment of the Group's office buildings, to help prepare future measures for thermal compliance (Care:4™ program)
Reduce atmospheric emissions of NO_x, SO_2, dust, metals and other pollutants	• Pollution reduction at the source (primary measures) and through treatment of stack gas (secondary measures) • Selection of the cleanest energy source • Combustion settings for glassmaking furnaces • Development of electrostatic precipitators in the Flat Glass Division	52	• Continued investment in electrostatic precipitators in the Flat Glass Division
Optimized withdrawal and use of natural resources Water	• Closed-circuit operation extended to all facilities • Improved operating processes • Constant innovation for Pipe products • Definition by each business of water withdrawal reduction targets for end-2010	56	• 6% reduction in water withdrawals by end-2010 at "concerned sites", based on 2007 production output
Wood	• Environmental policy applied to wood for the Building Distribution Sector	55	• 80% of wood product purchases sourced from certified forests by end-2010
Silica, iron ore, gypsum	• Recycling of secondary raw materials • Design of lighter products	50	• Development and deployment of a pilot biodiversity project in the Gypsum Division
Waste management	• Improved reporting • Reuse and recycling of raw materials • New avenues for reuse of waste in new materials, in products or as energy • Disposal as a last resort through certified disposal networks • Definition by each Division of landfill waste reduction targets for end-2010	50	• 6% reduction in landfill waste disposal by end-2010 at "concerned sites", based on 2007 production output

Environmental actions are undertaken as part of a policy of continuous improvement. The aim is to extend ISO 14001 certification to over 80% of "concerned sites" during 2010.

Employee and community relations

Challenges	Action taken	Pages	Outlook and future initiatives
Health and Safety – Workplace safety	• Stepped-up action to prevent serious and fatal accidents: continuation of the Serious Accident Plan • Continuous monitoring of accident incidence rates • Deployment of risk assessment and accident/incident analysis standards • Definition of four safety standards: working at height, management of outside firms operating on company sites, work permits, lockout/tagout • Definition of safety standards for lifting equipment and lift trucks • Distribution of a Purchasing Charter • Initial distribution of a Suppliers' Charter designed to raise supplier awareness of the importance of sustainable development for the Group. The charter includes a section on work safety issues. • Health and Safety charter setting out reciprocal commitments of the Group and temporary employment agencies • Deployment of SMAT (Safety/Senior Management Audit Tool)	42 36 41	• Closer cooperation on safety issues with employee representatives through the European Social Dialogue process • An overall lost-time incident rate (LTIR) of 3.7 in 2010 (7 for the Building Distribution Sector) and a total recordable incident rate (TRIR) of under 7 for the Industrial Sectors • Group-wide deployment of risk assessment by 2010 • Introduction of new safety standards for lifting equipment and lift trucks in 2010 and for confined spaces, vehicles and pedestrians, and warehouses and loading in 2011 • EHS audit system with schedule reflecting site size and operations • Deployment of the Environment, Safety and Risk Prevention audit in the Building Distribution Sector • Enhanced tracking of temporary staff and subcontractors • Distribution of critical EHS standards: best practices for training of new hires
– Ergonomics	• Development of a method for identifying risks related to handling, lifting and workstation posture • Pilot sites in each Division starting in 2009 • Distribution of a training kit for applying the method	45	

Challenges	Action taken	Pages	Outlook and future initiatives
– Noise	• Introduction of a noise standard • Tracking of reductions by Division, under annual plans	44	• Definition by each Division of reduction targets for the highest noise and chemical exposures by end-2010
– Chemicals	• Rollout of the Toxic Agents Standard and implementation guidelines • Tracking of reductions by Division, under annual plans • EU REACH regulations: creation of a dedicated network, development of IT resources, update of substance inventories in Europe • Rollout of the substance inventory to include all countries and all Divisions • Addition of a REACH clause in all purchasing contracts	44	• Integration of the toxic substance standard computer application and risk assessment software into an online resource in 2010, with deployment across all industrial divisions within each country
Human resources planning and development – Hiring	• R&D partnership/Executive Development/Schools	57	• Ongoing efforts to strengthen local ties with schools and universities • More student internships
– Training	• Introduction of New Managers' sessions in Southeast Asia • Re-working of the "Masters" cycle in France • Introduction of all WCM programs • Continuation of School of Marketing and Purchasing programs in Europe, Asia, North America and Eastern Europe • Deployment of risk prevention programs in all Delegations • Finalization of the EHS training matrix, with the introduction of distance-learning modules and design of training modules in the Delegations • Creation of a distance-learning network and training on LMS and module design for correspondents in the Delegations	59-62	• Inclusion of a "Habitat" approach in management training • Introduction of a new program for senior managers and identified talents • Finalized deployment of FIND new hire induction programs • Deployment of the EHS training matrix in the Delegations • Fine-tuning of specific training programs for the various skill-sets • Creation of a technical training network to encourage sharing of good practices among trainers • Continued development of distance-learning capabilities in the Delegations
– Career planning	• Gradual development of a single performance review form • Development of system functions • Introduction of specific training programs	58-59	• Deployment of capabilities management and succession planning resources
Motivation	• Expansion of the Group Savings Plan to China and Bulgaria • Grant of seven shares without consideration to all employees in the global plan	65-66	• Group Savings Plan: creation of a more advantageous top-up system for the lowest wage categories • Top-up payment for French employees who invest their profit share in the Group Savings Plan
High quality social dialogue	• Rollout of the Human Resources Planning and Development agreement to companies in France • Signature of a mobility agreement concerning assistance in deploying shared services centers within the Group • Signature of amendment 7 to the European Social Dialogue Agreement • Measures to broaden and deepen social dialogue	64-65	• Negotiations on diversity and psychosocial risks • Search for ways to achieve convergence for health care coverage in host countries • Implementation of amendment 7 • Measures to maintain active social dialogue
Diversity	• Discussions on diversity issues with employee representatives • Continued efforts to increase the proportion of women managers • Signature of a charter to include disabled persons in the workforce	62-63	• Negotiations on diversity • Continued efforts to increase the proportion of women managers • Deployment of the charter signed in 2009
Participation in local community life	• Development of the Saint-Gobain Initiatives International Corporate Foundation • Development of the "100 opportunities—100 jobs" scheme in new employment areas • Sponsoring of new graduates as part of the "Our neighborhoods have talent" program	72-77	• Implementation and financing of the first wave of selected projects • Continued development of these two initiatives

Business practices

Challenges	Action taken	Pages	Outlook and future initiatives
Responsible purchasing	• Deployment of a structured process for auditing suppliers • Distribution of the Suppliers' Charter and self-assessment questionnaire to 1,000 suppliers	71-72	• Audits using the new guidelines • Gradual expansion, with distribution of the charter and questionnaire to more suppliers • Development of purchases from sheltered workshops
Compliance program	• Introduction of a Group compliance program based on responsible development, the Fair Competition Plan, the internal control system and a whistle-blower system • Responsible growth: creation of a distance-learning module for the Principles of Conduct and Action; introduction of a program for non-managerial staff • Fair competition plan: expanded training on fair competition and unannounced internal audits • Internal control: annual compliance statements from the units' Presidents • Whistle-blower system: analysis of legal constraints in certain countries, request for required administrative authorizations	69-71	• Global deployment of the Group compliance program • Responsible growth: meetings with all managers; deployment of the distance-learning module for the Principles of Conduct and Action; development of communication materials for non-managerial staff • Fair competition plan: introduction of a second on-line training campaign on competition law for all managers; continued unannounced audits • Whistle-blower system: deployment in all host countries where not barred by legal or administrative constraints • Deployment of an organization with compliance correspondents and committees in the Delegations and a Group compliance committee reporting to the CEO

I. PRODUCTS AND SERVICES THAT CONTRIBUTE TO SUSTAINABLE DEVELOPMENT

We contribute to sustainable development in a variety of ways through our products and services, and constantly strive to raise public awareness about environmental challenges. Around 30% of our net sales and 40% of our operating profit derive from solutions to save energy, produce energy and protect the environment.

A brochure highlighting these solutions entitled "Building our Environment Together" was published in 2009 and posted on our website.

Limiting the environmental impact of buildings

An international commitment to sustainable building

To play an active role in discussions on the sustainable buildings of tomorrow, we joined the United Nations Environment Programme's Sustainable Buildings & Climate Initiative (UNEP-SBCI) in 2009 and the Sustainable Building Alliance in 2008.

UNEP-SBCI is a partnership among businesses, governments, non-governmental organizations, research institutions and other key stakeholders to promote sustainable building practices worldwide.

The Sustainable Building Alliance's goal is to develop common metrics that can be used to monitor the environmental quality of buildings. These metrics are to be based on a shared methodology but adapted to local labor, economic, cultural or weather conditions.

To demonstrate our commitment, we have decided to conduct product life-cycle assessments (LCAs) for all building industry product lines by the end of 2010. It is crucial to assess the environmental impact of habitat-related products across their life cycle, from raw materials to end-of life disassembly and disposal. A new life-cycle assessment will be conducted for all new building industry product lines that are not covered by an existing LCA. To meet this objective, we produced a common methodological framework for all building industry products in 2009 that provides a single format for reporting results. This framework complies with ISO:21930:2007 (Sustainability in Building Construction—Environmental Declaration of Building Products) and takes the specific characteristics of certain host countries or skill-sets into account. In 2009, the majority of building industry products underwent a life-cycle assessment.

Saint-Gobain at Batimat

The 27th Batimat trade fair for French building industry professionals was held in Paris on November 2-7, 2009. The fair gave Saint-Gobain the opportunity to bring together 16 of its brands to present both its expertise and its large range of solutions and services for the habitat and construction market. The Group won two Batimat Innovation awards in the structure category: a gold medal for Saint-Gobain Solar Sunstyle, a photovoltaic roofing system for large roofs, and a silver medal for Placo® Duo'Tech from Placoplatre (Construction Products), a plasterboard with enhanced noise-proofing features.

High performance insulation

Housing accounts for 40% of all energy use in Europe, compared with 32% for transport and 28% for industry(2). In single family homes, heating accounts for 75.5% of energy consumption(3). Developing solutions to reduce building energy consumption is therefore of vital importance.

Saint-Gobain offers building solutions that, in a very short time frame, save more energy than it takes to produce them. These solutions play a significant role in making heating and air conditioning systems more energy efficient and in reducing the related greenhouse gas emissions. A properly insulated building consumes four or five times less energy for heating (or air-conditioning) than a non-insulated home(4).

Tests have shown that the energy saved by using **glass wool** in building insulation is over a hundred times greater than the energy consumed in its manufacture and transportation. The thermal performance of glass wool is steadily being enhanced thanks to ongoing research and development that has yielded dozens of patents. In 2009, Saint-Gobain Isover launched its new generation G3 glass wool in France that offers the triple guarantee of low environmental impact, high performance and healthy living. Not only does the manufacturing process uses less energy and water, but the product is highly compressible for optimized shipping. G3's organic and plant-based binders emit fewer volatile organic compounds (VOCs), for excellent indoor air quality.

(1) Data from environmental and health declarations, which include LCA results, will be posted at www.inies.fr and are available on request from the subsidiaries and companies in question.
(2) Source: EUROSTAT, IEA (International Energy Agency).
(3) Source: Observatoire de l'Energie (energy assessments), DGEMP, French Ministry of the Economy, Finance and Industry.
(4) Source: Eurima

Flat glass is also a fundamental part of insulation. A study by the Glass for Europe association suggests that replacing every window in the European Union with advanced, low-emissivity double glazing would cut CO_2 emissions by up to 90 million metric tons annually—equivalent to one third of the European Union's building greenhouse gas emissions target.

In 2009, Lapeyre rolled out high-performance vinyl windows with an energy label similar to the one found on appliances in the European Union. The label, which classes products from A to F, helps customers identify the most energy-efficient solutions.

As the world's top producer of coated glass, Saint-Gobain Glass provides practical solutions to ensure that buildings are energy efficient. Its expertise in applying thin films has produced a wide range of low-emissivity (or low-E) glass that when combined in double- or triple-glazing systems achieves insulation close to that of an opaque wall. Solar control glass also helps to reduce energy consumption in air-conditioned buildings. Over the past twenty years, Saint-Gobain has achieved a sixfold increase in the energy efficiency of its flat glass products, thanks to a significant investment in research and development. We are pursuing our efforts to bring new glass solutions to the market.

To give an example, SGG PLANITHERM® ONE, introduced in Germany two years ago, is now marketed in France. This coated glass exhibits an emissivity level of just 1% and, in double glazing, reflects 99% of interior heat back into the room. With a light transmission factor of 71% and a solar transmission factor of 50%, PLANITHERM® ONE offers the best thermal insulation performance for a double-glazed unit in the world(1).

A number of other Saint-Gobain products also contribute to improved building insulation, such as **plasterboard laminates** and expanded polystyrene from Saint-Gobain Gyproc, exterior thermal insulation systems from Saint-Gobain Weber and Saint-Gobain Technical Fabrics, and Point.P thermal insulation products.

SHEERFILL® architectural membranes from Saint-Gobain Performance Plastics help reduce the need for air conditioning in buildings by 10% to 15%. SHEERFILL® has received an Energy Star® rating from the US Environmental Protection Agency and a cool roof rating from the California-based Cool Roof Rating Council (CRRC).

Acoustic comfort and air quality

Saint-Gobain building materials also provide enhanced acoustics and soundproofing for buildings to ensure greater user comfort. In the United States, Saint-Gobain Performance Plastics' Green Glue unit produces particularly effective noise-proofing compounds that are cost-effective, easy to use an environmentally friendly. Green Glue's solutions considerably reduce noise transfer from one room to another. Used with plasterboard, Green Glue's compound, noise-proofing clips and noise-proofing sealant offer the perfect noise-proofing solution for residential and commercial buildings. In Europe, Saint-Gobain has launched a high soundproof plasterboard for hospitals called Duo Tech.

In air treatment, the Innovative Materials Sector—High-Performance Materials Division has developed a photocatalytic air purification filter using a spinoff from Bioclean self-cleaning window technology. The new system features a quartz filter that destroys organic matter to remove smell, smoke, viruses, bacteria, etc. It is complementary to existing treatment and filtration technologies, and proves highly effective in interior applications.
In 2009, Saint-Gobain Technical Fabrics developed NOVELIO® CleanAir, a new paintable wall covering that filters indoor air. Designed for both new buildings and renovation, NOVELIO® CleanAir traps and neutralizes the noxious components in Volatile Organic Compounds (VOCs). NOVELIO® CleanAir is durable, rugged and fire resistant.

Promoting renewable energies

Through several of our product lines and R&D projects, we are promoting alternatives to fossil fuels and, in particular, helping to drive rapid growth in renewable energy.

Solar energy

In 2009, we created a dedicated unit called Saint-Gobain Solar to combine all our solar energy solutions.

Saint-Gobain is a major supplier of **solutions for the photovoltaic industry**. These include quartz crucibles for smelting silicon slabs, engineered abrasive grains for cutting them and fluoropolymer films for encapsulating photovoltaic panels. We hold 20% of the photovoltaic glass market with our special high-efficiency glass products.

As part of our policy to expand in solar solutions, we have acquired Shell's interest in our Avancis joint venture. Avancis manufactures photovoltaic panels using a highly competitive Copper Indium Selenium (CIS) technology in which a thin film of CIS is applied to a glass substrate. The venture's first plant in Torgau, Germany, has an annual capacity of 20MW. This promising technology requires leading-edge expertise in glass coating and glass thermal treatment—two of Saint-Gobain's core competencies. We intend to step-up industrial development of Avancis, which is now fully owned.

In 2009, Saint-Gobain Solar created a unit to design and market photovoltaic solutions installed on rooftops, facades and windows. These solutions include complete photovoltaic systems, installation by a network of qualified partners and related turnkey services.

(1) Emissivity measures a material's ability to emit energy by radiation. When two surfaces at different temperatures face each other, they exchange heat through radiation. The lower the emissivity, the lower the transfer of radiant heat. Because clear glass has an emissivity of 89%, a low-emissivity layer is added to improve thermal performance.

Saint-Gobain also manufactures **solar mirrors** that concentrate the sun's rays in order to heat water to generate electricity using a steam turbine. In 2009, we inaugurated the world's largest facility dedicated to producing parabolic cylindrical mirrors for use at solar thermal power plants in Covilis, Portugal. Covilis boasts the Group's first large parabolic cylindrical mirror line, with an annual production capacity of more than 2 million mirrors. The facility primarily supplies markets in southern Europe, the United States, the Middle East and Australia.

Saint-Gobain Performance Plastics makes ethylene tetrafluoroethylene (ETFE) film to protect photovoltaic panels. The Group has invested in new plastic film production lines at its plant in Worcester, Massachusetts (USA). To support market growth, we have also equipped the new photovoltaic lab at our R&D center in Northboro, Massachusetts to perform durability tests for the entire product range.

In 2009, CertainTeed Corporation announced that it had forged a partnership with SRS Energy in Philadelphia, Pennsylvania (USA). SRS Energy has developed photovoltaic roofing tiles with CertainTeed made from energy-generating polymers. This attractive, energy efficient solution is scheduled for market roll-out in 2010.

Also in 2009, CertainTeed and Energy Conversion Devices (ECD), the world's leading provider of thin-film solar laminates, made significant progress in developing roof-integrated photovoltaics for residential and commercial buildings. CertainTeed intends to deploy several products from this joint development agreement in 2010.

Saint-Gobain also promotes hydraulic and wind power solutions. In Norway, for example, Building Distribution Sector banner Dahl supplies small-scale hydraulic power plants. In wind power, the Innovative Materials Sector—High-Performance Materials Division's Cerec unit manufactures ceramic ball bearings whose long working life and ability to withstand significant loads make them an excellent choice for wind turbines.

Several other Group banners are expanding their range of energy solutions. In the United Kingdom, for example, Building Distribution banner Greenworks (founded in 2006) has published the *Greenworks Product Guide—Renewable Energy, Sustainable Heating and Water Saving Solutions*, which is also distributed in Jewson and Graham outlets. The guide responds to growing demand for these types of solutions, spurred by new sustainable development legislation in the UK, consumer pressure and rising energy prices. Products presented include solar collectors, heat pumps, photovoltaic panels, wind turbines, the Unico small-duct central heating and air conditioning system, rainwater collection systems, biomass boilers and other solar energy products.

Processes are also being reviewed to promote the use of biomass (see page 38).

Reducing energy consumption

Innovative products for reducing reliance on fossil fuel

The solid oxide fuel cell (SOFC) is an extremely interesting development from both a business and an environmental standpoint, as it uses fossil fuels more efficiently and substantially reduces CO_2 emissions in household use. Solid oxide fuel cells use stacked functional-ceramic layers that convert chemical energy directly into electrical and heat energy. By combining electricity generation and heat recovery, such systems can achieve overall fuel efficiency of more than 80% and electrical efficiency of more than 45%. This technology is expected to expand rapidly in the years ahead. Saint-Gobain is actively participating in SOFC research, with a focus on the ceramic layers in the fuel cell stack. Our involvement spans from raw material processing to assembly.

Lastly, Saint-Gobain PAM is developing a full range of solutions for cast-iron underground heat exchangers. In these shallow geothermal systems, outside air passes through a horizontal network of cast-iron pipes buried one to two meters underground. Because the air is heated or cooled to ground temperature, depending on the season, this passive system reduces the need for heating and air conditioning. What's more, it consumes practically zero energy in use.

High-performance automotive glazing

Compared to traditional automotive glazing, Saint-Gobain Sekurit's heat-resistant solutions significantly reduce the need for air conditioning, leading to improved fuel efficiency. For example, optimally combining a heat-reflective windshield with extra-tinted heat-absorbing glass for the rear and rear side windows cuts fuel consumption by 2.4% per 100 km and CO_2 emissions by 5g/km, at speeds of 90 kph. Tinted and extra-tinted glass with heat-reflecting or heat-absorbing properties considerably improves thermal comfort for vehicle occupants while effectively addressing the environmental concerns of fuel consumption and CO_2 emissions. Moreover, the thin automotive glass now appearing on the market is lighter than traditional glass, which means it will help automakers meet their objectives for lighter weight vehicles that consume less fuel.
In addition, a major R&D effort is underway to improve recycling of automotive glass, using modules or submodules that are easily dismantled to provide a simpler, less costly and more environmentally friendly method of recycling at the end of the product's life.

Developing water transport solutions

Pipe Division products address a major sustainable development challenge, namely the supply of drinking water and the removal of wastewater. As urban centers expand, water has to be brought from farther and father away. The Pipe Division manufactures large pipes of up to two meters in diameter that are used to transport drinking water to major cities across dozens or even hundreds of kilometers. In many countries, these pipes meet a vital need.

Each year, the Pipe Division is involved in worksites in more than 120 countries on average, supplying more than 40,000 km of piping. The Division has won numerous major contracts. For example, it is working on Finland's largest water supply system, with a contract for 96 km of 1,200 mm-diameter ductile cast iron pipe, representing 50,000 metric tons of cast iron. Deliveries for this environmentally friendly project, which will use natural filtration, are scheduled to run through 2010.

Saint-Gobain products are particularly well suited for water transport, because cast iron is an exceptionally safe and durable material, as hundred-year-old pipes in Prague or Montevideo attest. They require very little maintenance and can be laid in all types of soil. What's more, thanks to the pipes' easy-fit couplings, very few technical resources are required for installation. Saint-Gobain PAM is reducing its energy and raw material use, as well as CO_2 emissions, by developing lighter weight pipe ranges like BLUTOP® (50% lighter) and more ergonomic installation processes. Its new ZINALIUM® coating also increases pipe lifespan by a factor of three compared to standard coatings. Saint-Gobain applies stringent standards in selecting coatings, seals, patching material, lubricant pastes and other materials that have been formally approved in France for use in the manufacture of water supply and distribution products.

In addition to pipe transport, the Pipe Division offers financial engineering services to local authorities, aiding them in their efforts to obtain project finance from banks, insurance companies and other financial organizations. The Division monitors and maintains an active presence among major global funding agencies such as the World Bank, regional development banks and European and Arab funds, and gives customers the benefit of its knowledge of these organizations and their procedures.

Partial renovation of the supply network for the fountains at Versailles

In 2009, Saint-Gobain PAM delivered TAG 32 ductile cast iron pipe to the celebrated Château de Versailles to replace part of the cast iron water supply system for the garden fountains, laid more than 300 years ago. 80% of the original network is still in operation, attesting to the longevity of cast iron. Because cast iron can be recycled over and over without compromising its mechanical properties, the old pipes will be recovered and used to make new pipes-although a few will be conserved for their historical value

Raising awareness among stakeholders

A collective approach

In response to the challenge of global warming, Saint-Gobain has adopted a proactive communications policy to raise public awareness about the enormous impact of buildings on the environment (through their CO_2 emissions) and on fossil fuel consumption, and to convince the public to take action to significantly reduce this impact.

Isover recognizes best energy efficiency practices

In 2009, architects from seven European countries took part in the second Isover Energy Efficiency Awards, which recognized 17 ambitious, innovative projects to make new or renovated residential and non-residential buildings more energy efficient.

A document published for the awards ceremony in June 2009 highlights the best projects, describing the performance achieved and solutions deployed. This document will help convince the architects' future clients, as well as members of the European Parliament who are unsure about the feasibility of enhancing thermal regulations.

In late 2003, Saint-Gobain Isover and Saint-Gobain Eurocoustic from the Insulation Division, Placoplatre from the Gypsum Division and Saint-Gobain Glass from the Innovative Materials Sector—Flat Glass Division were among the founding members of **"Isolons la Terre contre le CO_2"**, a French group dedicated to generating support for energy efficient buildings among the general public, public officials, opinion leaders and relays. Prompted by local subsidiaries of Saint-Gobain Isover, a number of sister associations have been established since 2005, including **Isoterra** in Belgium, **Spaar het Klimaat** in the Netherlands and **Isolando** in Italy. In Germany, Saint-Gobain Isover G+H has launched **CO_2NTRA**, a similar program designed to combat CO_2 emissions.

Isolons la Terre played a major role in creating and developing France's **Effinergie** label for very low energy consumption buildings. Effinergie has brought together a range of institutions with a stake in energy efficiency, including leading construction industry professionals, public authorities, local governments and the banking sector. Through its companies, the Group has helped spur regulatory progress in favor of more energy-efficient buildings—including both newbuilds and renovations—by introducing an energy performance diagnostics system. It has also boosted funding for energy-efficiency initiatives through campaigns to mobilize the banking sector.

In France, Saint-Gobain is a member of the **"Club de l'Amélioration de l'Habitat"**, a group comprised of both government agencies and private firms active in renovation projects, as well as **Promodul**, a trade association committed to energy efficiency and building comfort.

In a sign of its commitment to environmental protection and sustainable homes, the Group is also a member of **Green Building Councils** trade associations that promote sustainable housing, and are actively supporting its commitment to protecting the environment. Saint-Gobain has joined the **Green Building Councils** in several countries, including the United States, Colombia, South Africa, the United Kingdom, Italy, the Netherlands, Spain and Germany.

These partnerships will give Saint-Gobain the opportunity to share its expertise in environmental quality with other businesses and encourage best practices in the building industry, while recognizing each country's specific characteristics.

Educating young people

The young people of today will drive change in the future, which is why Saint-Gobain is committed to raising their awareness of the environmental challenges we face. Each of the Sectors is actively engaged in this task.

The Packaging Sector, for example, educates consumers about glass container recycling and its environmental benefits. The Sector's campaigns are especially geared to children and young adults.

In Europe, Packaging Sector companies have signed onto the European Container Glass Federation's Friends of Glass movement, which uses youth-friendly Internet resources to raise awareness. A video clip featuring Hank the Singing Bottle, launched in the spring of 2009, illustrates the movement's fun approach to recycling glass.

In Italy, the Group renewed its participation in a campaign to teach young people about selective sorting in 2009. Members of Assovetro, the Italian association of glass manufacturers, met with students at the 13th Ecomondo show, an international exhibition devoted to recycling, energy efficiency and sustainable development.

In the United States, Saint-Gobain Containers brought out a second episode in its animated series "The Adventures of Captain Cullet and the Little Gob o' Glass", which highlights the importance of glass recycling. The Captain Cullet educational program for primary schools is designed to raise awareness with two short videos ("The Original Adventure" and "Becoming a Glass Super Agent"), an activity book with age-appropriate games, mazes and puzzles and downloadable coloring pages.

Since 2005, the Insulation Division has organized a competition for architecture students on thermal and sound insulation, energy efficiency and building comfort solutions (www.isover-students.com). In 2009, 132 participants from 16 countries were asked to design a Multi-Comfort corporate headquarters building offering excellent thermal insulation and airtightness, environmental protection features and maximum comfort for occupants. Awards were handed out in four main categories and three special categories in recognition of projects combining functionality and esthetics in a design and construction package that complies with Multi-Comfort House principles.

The Building Distribution Sector's role

The Building Distribution Sector primarily targets members of the building trade and plays a central role in educating them on the environmental aspects of selecting and using building materials. The Sector's banners have introduced numerous initiatives in this area. Point.P in France, for example, has been offering a waste disposal service that encourages environmental awareness among builders for the last several years. In the United Kingdom, Saint-Gobain Building Distribution UK & Ireland's main banner, Jewson, has joined forces with the UK Environment Agency to inform customers about plaster and plasterboard recycling. The campaign provides Jewson customers with specific instructions on how to recycle plaster-based products. In Spain, banner Plataforma de la Construccion identifies green products in its catalogue with three dedicated logos: "environmentally friendly", "renewable energies" and "energy efficient".

Back in France, Point.P and Lapeyre have developed in-house awareness campaigns for employees. Lapeyre's first environmental communication kit includes three fact-filled posters with handy tips on paper, waste and energy consumption. For the last several years, Point.P has put out leaflets and guidelines to inform employees about its EHS commitments, wasted electricity, hydrocarbons and other topics.

Training professionals

The home of the future will be built in partnership with the entire construction industry. To help customers and partners embrace green principles, a broad-based program has been introduced to train builders in emerging energy-saving techniques and solutions. In 2009, more than 17,000 training sessions for small contractors, specifiers and distributors were held in France.

The Construction Products Sector opened several training centers in 2009. A third Placo® and Isover center dedicated to plaster and insulation was inaugurated in Chambéry, France in February. Saint-Gobain Weber opened its first training center in Norway in March and the Construction Products Sector unveiled its first center in Italy in June (see page 60). In Brazil, seven new Brasilit and PlacoCenters training facilities came on stream during the year.

By opening these centers, we help small contractors, installers and other building industry professionals meet their own customers' expectations in a market shaped by significant improvements in energy efficiency, new regulations and other major changes. The Pipe Division has taken a similar approach with Saint-Gobain PAM's school for customers and Université Cana and CertainTeed's training centers in the United States.

The Building Distribution sector also puts a priority on training for professionals. In Germany, more than 600 contractors from across the country attended the third Holzrahmenbatag organized by Saint-Gobain Building Distribution Deutschland on building techniques for wood frame houses. Information was provided on the latest techniques, innovations and directives covering wood frame newbuilds and renovations. Saint-Gobain Building Distribution Deutschland has made deep inroads in this expanding market over the last several years and is counting on its team members' technical skills to make the difference. For this reason, the Saint-Gobain Building Distribution Deutschland Academy has set up a training session for employees in partnership with several skills centers specialized in wood and roofing.

In the UK, Saint-Gobain Building Distribution UK & Ireland's renewable energies banner Greenworks inaugurated a first-of-its-kind training center in 2009 in partnership with the country' leading trainer in microgeneration and renewable energies. Twenty specialized packages have been developed to provide contractors with the skills they need to implement sustainable solutions and renewable technologies.

In France, the Novibat regional trade show created by Point.P to showcase new products focused on all types of energy performance solutions in 2009. Events were also organized in a number of demo areas during the show to give professionals a more in-depth view of the related techniques.

II. OUR ENVIRONMENTAL,

HEALTH AND SAFETY COMMITMENTS

Our manufacturing, distribution and research activities are defined by the overarching principle of respect for people and for health, safety and the environment. We have instituted policies on environmental protection and industrial health and safety that are binding across the Group.

A comprehensive Environment, Health and Safety (EHS) system

Developing resources and a roadmap

At Saint-Gobain, we leverage several resources to deploy our **EHS policy**—described in the commitment letter signed by the CEO—and to broadcast the objectives defined in our EHS charter (see introduction).

The «Charter and Resolutions» brochure is issued to all operating personnel and to facility managers, in particular. It defines the objectives and obligations of Group companies with regard to risk assessment and subcontracting.

The EHS Frame of Reference is a guide to EHS management, offering a detailed description of our practices in this area. Describing each phase in the process in a straightforward manner, from identification and planning to action plan implementation, evaluation and monitoring, remedial action and adjustments, it serves as a reference base for all Group systems. In the Building Distribution Sector, the Frame of Reference has been tailored to the specific nature of each business.

The EHS Handbook is a compilation of best practices found within the Sectors and is intended for Group senior management. Its purpose is to distill our EHS policy guidelines and associated management systems, as well as the EHS resources, standards and recommendations that staff can apply directly in the field. The handbook was updated in 2009 to include new EHS standards and regulations.

Senior management establishes priorities and quantitative **objectives** for the Group as a whole in the areas of health (deployment of standards), safety (reduction in workplace accident frequency rates) and the environment (optimized use of materials combined with reduced emissions). These objectives are transposed by the Sectors and Delegations in accordance with the conditions applicable to their business. The facilities use the objectives as a reference framework from which to design an annual EHS policy, taking into account their specific constraints. By taking an integrated approach to the environment, health and safety, the Group is able to get a comprehensive view of these interrelated issues and act more effectively. The EHS objectives for 2008-2010 were announced to Group managers by the CEO in September 2007 and were rolled out to each Division in 2008.

The documents described above are available through the EHS portal on the Group intranet site. This interactive forum for providing and sharing information is an effective, responsive resource for keeping all Group employees up to date about EHS issues.

Extending EHS policy to temporary staff, subcontractors, suppliers and customers

The EHS policy applies not only to Saint-Gobain employees but also to **temporary staff** working at Group sites. To help Saint-Gobain manufacturing and distribution sites develop EHS procedures based on resources adaptable to any environment, an EHS checklist was established and distributed in 2008. The items on the checklist are currently being deployed.

To improve workplace safety for temporary staff, an enhanced prevention system pilot project has been introduced at four sites in France in cooperation with temporary employment agencies. The agencies support their staff on site and implement prevention and awareness-raising measures to take workplace safety into account more effectively.

In 2010, Saint-Gobain will include safety data for temporary staff in its internal presentations alongside data for Group employees.

In addition, the Group will audit certain agencies in accordance with its safety standard on managing contractors.

Lastly, a Purchasing Charter, based on the Principles of Conduct and Action with specific application to the purchasing function, encourages buyers to take sustainable development criteria into account in their supplier selection processes. A Suppliers' Charter governing requests for proposals has been distributed to a selection of service providers and outside contractors. More extensive distribution is planned. The Suppliers' Charter describes our policy of giving preference to companies that fully subscribe to the principles of sustainable development and health and safety in the workplace.

We also communicate with **customers** about our EHS policies.

Mobilizing resources to deploy the EHS policy

The EHS Department provides management and supervisory resources to help sites develop their own EHS practices, in line with Group policy.

Effective management methods

We recommend that our sites adopt certain management practices designed to deliver the best results in terms of environmental protection and industrial health and safety.

In 2004, the Group initiated across-the-board deployment of the **"5S"** management method as part of the **World Class Manufacturing (WCM)** framework. Already in use for several years at a number of Group sites, this method has proven effective in enhancing safety, quality and productivity. It is based on five principles: sort, set in order, shine, standardize and sustain.

World-Class Manufacturing is a structured approach to manufacturing excellence currently being deployed in all of our industrial Sectors. It comprises two main pillars: EHS and risk prevention. Following a series of pilot projects, notably within the Gypsum Division and the Brazil Delegation, a Groupwide program was launched in 2007. Fostering continuous improvement and operating efficiency, WCM projects have significantly improved manufacturing safety and performance while quickly generating financial results. WCM projects are currently underway at nearly 550 Saint-Gobain sites and the program is being extended to all of the Group's manufacturing operations.

Rigorous standards and recommendations

In addition to these general management practices, we have developed a set of **recommendations** and mandatory **standards** dealing with specific EHS issues. They are conveyed through a variety of media, including implementation guides, procedures, training kits and IT resources. The standards require employees to implement a uniform risk assessment method to quantify and control risks, ensuring that the same preventive measures are used across the Group, regardless of the country or local legislation concerned. These measures are deployed simultaneously across the Group. Our EHS standards and recommendations are described below under the relevant headings. The standards governing toxic agents and noise, for example, are addressed in the section on industrial health, while the accident analysis standard is discussed in the section on safety. These resources constitute a shared methodological foundation for EHS departments within the various Sectors, Divisions and Delegations, and can be enhanced with specific recommendations for particular businesses or that reflect local regulations.

A coordinated network of expertise

The EHS system hinges on a **network of correspondents that mirrors Saint-Gobain's matrix organization**. The correspondents' activities are coordinated by a corporate unit that reports directly to Group senior management. Within each Sector, one or more employees are appointed to propose an EHS policy tailored to the specific nature of the Sector's operations and to oversee its implementation. Similarly, within each General Delegation, a representative is selected to coordinate Group, Sector and Divisional EHS initiatives at the local level and to ensure compliance with local regulations and Group standards. These EHS representatives work in turn with correspondents at the various companies and facilities. In liaison with the Group's EHS Department, these professionals form a network responsible for supporting operations managers in developing and implementing EHS policies. This organizational structure enables the EHS function to remain close to business operations, respond to specific local circumstances and ensure overall consistency.

The **International EHS Committee**, composed of Sector and Delegation heads, meets twice a year to take stock of EHS policies, learn about resources available to the network for deploying these policies and share best practices. Similar meetings are increasingly being held within each Sector and Delegation, so that EHS staff can exchange ideas on issues specific to their business or local environment.

Within the EHS network, doctors and industrial hygienists also meet to set objectives and develop preventive methods and resources to promote workplace health and industrial hygiene. The results of their collaboration are then presented to the Group.

In addition, **regular meetings are held on matters of general interest relating to EHS**. These meetings bring together specialists in the field to discuss relevant topics, such as the database of chemical substances used within the Group—an essential resource for complying with the European Union's REACH[1] legislation (see page 45).

Forums such as these, enhanced by regular exchanges and information circulated through the various EHS communication channels described above, ensure that EHS staff form an effective network.

(1) Regulation (EC) N° 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), and establishing a European Chemicals Agency.

Close cooperation with research and development centers

The Group's Research and Development centers cooperate with the EHS network at three different levels to enhance our environmental protection, industrial health and safety performance.

Making EHS an integral part of product innovation

Research and Development is situated at the start of the new product design process. For each project, the R&D teams consider a potential product's impact on human health and the environment across its lifecycle—uring manufacture and use right through to final disposal. In 2008, an EHS sign-off procedure known as Saint-Gobain EHS Stage Gates was added to the process for managing Research and Development projects. At each major "gate" in the process, project managers submit an EHS checklist to the steering committee that identifies all issues to be addressed during the course of the project—from raw materials and manufacturing processes to product use and end-of-life treatment.

Making EHS an integral part of process innovation

The R&D teams also look continuously for ways to improve existing processes, notably as concerns EHS. The Saint-Gobain Recherche and Saint-Gobain Conceptions Verrières research centers regularly join forces to improve the environmental performance of glass-melting processes, for example through enhanced combustion to minimize nitrogen oxide (NO_x) emissions; techniques to treat stack gases, save energy and reduce carbon dioxide (CO_2) emissions; and recycling of products and process waste. Research is also being conducted in non-glass activities in pursuit of similar objectives, such as to reduce the amount of water used by the Gypsum Division to manufacture plaster.

R&D projects on using biomass in processes have been introduced by the Packaging Sector, as well as by Innovative Materials—Flat Glass.

Biomass

In a comprehensive approach, the Packaging Sector is conducting R&D into how biogas can be used as a fuel for glass furnaces and creating partnerships with potential suppliers of raw materials. Once it has identified biomass sources near its plants, the Packaging Sector gives preference to those linked to local communities or its customers' businesses.

Saint-Gobain Oberland, for example, is currently studying a project to process biogas from farm or forest waste to supply its Bad Wurzach (Bade Wurtemberg) plant, with an initial objective of providing between 5% and 10% of the three glass furnaces' energy needs. As the world's largest wine bottle maker, the Packaging Sector has launched an ambitious research program to produce a syngas from vineyard biomass with the specific characteristics required for the container glass melting process.

A pilot project in France's champagne-making region has been set up to supply 5%-10% of the energy needed by the furnace that makes champagne bottles by end-2011. Thanks to the experience gained from these tests, the Sector hopes to ultimately increase the percentage of energy from biomass used in its furnaces to 50% or more. Not only will this reduce fossil fuel CO2 emissions from glass packaging plants, but it will also help shrink the plants' environmental footprint by turning waste to energy.

Working together to meet new EHS challenges

- **Ultrafine particles**

One example of this type of teamwork is the research underway since 2005 into the risks posed by ultrafine particles. Although we are not actively involved in this field, some of our research requires us to work with ultrafine particles. We have therefore compiled an implementation guide for Research and Development teams with a view to restricting the use of ultrafine particles to certain sites, creating specially equipped facilities to protect R&D staff and setting out specific handling procedures. A computer-based system for applying the guide was rolled out in 2009 in the R&D centers that have been authorized to work with ultrafine particles. The system, which will help R&D project teams get a better view of the EHS risks involved, will be included in the Saint-Gobain Stage Gates procedure. A valuable tool in the decision making process, the system will be fully deployed in authorized R&D centers as from 2010.

Crystalline silica

In 2009, researchers at our Shanghai R&D center, in collaboration with the EHS team, transposed a method for measuring crystalline silica in samples. Implementation of this very specific methodology will make it possible to analyze samples from Group sites in Asia-Pacific and facilitate deployment of Saint-Gobain's standard across the region.

Research and Development underpins our strategy of development and leadership in the habitat and construction markets. Budgets for projects related to environmental protection and energy savings rose to €64.2 million in 2009 from €41.5 million in 2008 (see indicators, page 81).

Accurate EHS reporting

Since 2004, the Group has used a centralized EHS reporting system known as Gaïa (see Reporting Methodology, page 77).

A customized audit system

Our EHS audit system includes EHS cross-auditing and self-diagnostic processes, initiated by the EHS Department, and a self-assessment process, initiated by the Internal Audit and Control Department.

EHS audits

EHS audits provide the most in-depth and reliable assessments of EHS performance.

Under this system, 12 or 20-step cross-audits are performed by teams from outside the audited Sector who have a thorough knowledge of Saint-Gobain's EHS policies. These integrated audits incorporate our core environmental, industrial health and safety concerns and are based on procedures that are fully consistent with the OHSAS 18001 and ISO 14001 standards. The 20-step and 12-step audits are used for the Group's manufacturing operations. Between January 1 and November 30, 2009, 90 12-step audits and 155 20-step audits were performed. Industrial sites are audited at least once every three years. In 2009, audits were conducted in many countries, most recently in the United Kingdom, Spain and France.

EHS auditors are drawn from a pool of specially trained and experienced managers, primarily from the EHS field but also from other areas such as Human Resources, quality assurance and risk management.

These audits are designed to yield practical recommendations. The site manager and the local EHS manager, with support from the EHS Department at the Delegation level, are responsible for ensuring that the resulting action plans are carried out.

There are 635 auditors for all of the Delegations. They take part in a professional certification course taught by outside consultants who specialize in auditing techniques and by seasoned in-house auditors with expertise in Saint-Gobain's internal auditing process.

At recently acquired Maxit, integrated audits were conducted in 2009 in a number of units, in accordance with the audit plan defined by the Delegations. Similarly, a number of EHS coordinators at Maxit sites received training in Saint-Gobain's EHS standards, based on a training schedule set by each Delegation, to enable them to join Saint-Gobain's team of EHS auditors. Overall, Maxit has been brought under Saint-Gobain's EHS umbrella as scheduled.

Audit quality assessments have been carried out in France since 2006. These assessments are used to evaluate satisfaction levels and identify areas for improvement.

In 2009, a specific, customized audit was developed for the Building Distribution Sector to replace the 12-step audit used previously. Known as ESPR for Environment, Safety and Prevention of Risks, the audit includes a section on equipment safety and business interruption risk. The majority of ESPR auditors belong to the Building Distribution Sector. In 2009, 134 auditors conducted 277 ESPR audits.

In France, where almost all audits performed in 2009 were ESPR audits, 70 auditors received ESPR training. Training is continuing in several Delegations.

Internal control: compliance statements

Compliance statements[1] are used to periodically assess units' compliance with a number of internal control reference base fundamentals. In 2009, five questions concerning EHS were included in the compliance statement to ensure that Group requirements are met or that corrective action has been taken.

Self-diagnostics

Self-diagnostics are used to make a general assessment of EHS practices at a given site. They include a detailed list of questions and an evaluation grid, designed to provide facility managers with a quick and easy overview of EHS conditions at their sites. Saint-Gobain uses two types of self-diagnostic, one for industrial operations and the other for distribution sites with fewer than 50 employees. The latter takes into account two specific attributes of the Building Distribution Sector: i) the presence of customers on the site and ii) a supervisory structure that is more dispersed and therefore occasionally less visible, providing limited guidance. These self-diagnostics are now being implemented in all of Saint-Gobain's newly acquired companies and continue to be used on an annual basis at the discretion of Asia-Pacific, North America and certain other Delegations.

(1) See Chairman's report on internal control, page 132.

2008-2010 objective

Saint-Gobain is committed to the objective of systematically conducting 12- and 20-step audits at least once every three years at each site in its Industrial Sectors. It is also committed to performing ESPR audits in the Building Distribution Sector in accordance with the schedule set out for each unit

An assertive certification policy

Certification of concerned sites remains a Group priority, in accordance with the target set in 2007 to obtain ISO 14001 certification for 80% of these sites by 2010. As explained in the Reporting Methodology section (see page 77), concerned sites are those with the greatest environmental impact, as measured by their energy use, water use, quantity of nonrecycled waste and other criteria. Non-concerned sites, such as Building Distribution Sector builders' merchant outlets, are also strongly encouraged to incorporate environmental certification into their action plans. Jewson, the leading UK distributor of wood products from managed forests and building materials, obtained ISO 14001 certification for its 500 branches after a rigorous three-year assessment program. This certification rewards the banner for its commitment to implementing an effective environmental management system at all levels of the organization.

SGBD Deutschland and Point.P LMP in southern France have received triple ISO 9001, ISO 14001 and OHSAS 18001 certification, recognizing the deployment of a comprehensive management system for quality, environment, health and safety. SGBD Deutchland's certification covers its headquarters in Frankfurt and 260 sales outlets.

As of December 31, 2009, nearly 55% of concerned sites were ISO 14001-certified versus 46% in 2008 on a comparable scope basis. 85 new concerned sites are preparing for **environmental** certification. In 2009, 252 Saint-Gobain sites were awarded OHSAS 18001, BS 8800 and other **health and safety** certifications, compared with 197 in 2008 on a comparable scope basis. In addition, 723 Group sites have earned ISO 9001:2000, ISO 9002, QS 9100 and other **quality** certifications, compared with 678 in 2008 on a comparable scope basis.

2008-2010 objective

ISO 14001 certification will be obtained for more than 80% of concerned sites by end-2010, with 55% already certified as of 2009. Another 21%, or 85 units, are preparing for certification. The sites were selected for inclusion by the Sector or Division on the basis of water use, energy consumption, emission levels, waste volume and other environmental criteria (see Reporting Methodology, page 77)

Substantial financial resources

Environmental spending in 2009 totaled €123 million and included the following outlays:

- €1.9 million to obtain or renew ISO 14001 or EMAS environmental certification. This includes all certification-related expenses and charges for outside consultants, internal and external training, the development and upkeep of EMS and ISO 14001 systems, audits and certification coordination and review meetings.
- €9 million for technical measures, including the cost of measuring air, groundwater and noise pollution and other emission levels, the cost of measurements carried out by independent laboratories, and the cost of impact and hazard assessments requested by authorities prior to granting operating permits and environmental authorizations.
- €13.7 million to cover the cost of soil decontamination, rehabilitation of decommissioned sites and miscellaneous items.
- €64.2 million in environment-related Research & Development spending.
- €4.85 million for insurance and warranties, comprising all insurance premiums covering accidents and pollution with a potential environmental impact—including pollution beyond the company's property—and warranties for environmental risks such as soil pollution.
- €21.5 million in personnel costs for environmental management staff. This does not include salaries of employees in charge of waste sorting, water treatment activities or maintenance of gas treatment equipment.
- €7.1 million for environmental taxes, including all environmental management taxes and levies paid to local authorities or associations such as water management boards.
- €0.45 million to cover the cost of environmental incidents, including the cost of making good environmental damage arising from recent incidents and, where applicable, the cost of restoring compliance.
- €0.35 million for environment-related fines, including all fines levied by authorities as a result of regulatory non-compliance or recent environmental incidents.

Capital expenditure on environmental protection measures, including spending on both compliance programs and voluntary initiatives, totaled €47.4 million in 2009.

When the Group considers that it is exposed to an environmental risk, a provision for the estimated future cost is recorded in provisions for other liabilities. These provisions totaled €167 million at December 31, 2009.

Comprehensive training

Training offers a unique opportunity to provide employees at all levels in the organization with the knowledge they need to fulfill EHS policy objectives. Environment, health and safety accounted for 24% of training hours provided in 2009.

The Group is careful to design a core EHS curriculum for all training courses covering essential and recommended training topics for each function. This training is provided at the local level with support from the Delegations. The courses address management issues as well as key areas such as risk identification, industrial hygiene and environmental compliance techniques, audit procedures and feedback. The core EHS curriculum is now available in all the Delegations for application. After deploying Safety/Senior Management Audit Tool or SMAT training throughout the Group in 2008, we included an introduction to EHS in all Group Management Institute seminars in 2009.

SMAT

SMAT (for Safety/Senior Management Audit Tool) is a system that uses observation and discussion to raise awareness among employees about how their behavior impacts their own safety and that of their co-workers. The Gypsum Division has been using SMAT for several years and has made significant strides in establishing a safe workplace, prompting the Group's senior management to extend its use to all Sectors in 2008. The CEO and Senior Vice President for Human Resources received SMAT training when the system was first deployed. Each Delegation uses a local service provider to conduct the training, based for the key points on the Saint-Gobain SMAT standard, which is available online on the EHS intranet.

SMAT video contest

The SMAT video contest launched by the Construction Products Sector in early 2009 to promote SMAT in its plants was a resounding success. A total of 26 entries from 10 countries and representing all Divisions were submitted, reflecting team members' active involvement in the project and their commitment to improving safety. Saint-Gobain PAM (France) won the contest,in which participants were asked to produce a video showing how to carry out an effective SMAT program in compliance with Saint-Gobain standards. The best entries were compiled in a single video for all countries that will be used in training to improve the quality of SMAT programs.

Lastly, Saint-Gobain makes every effort to educate employees about EHS-related issues via print media, internal communication and other methods. International Environment, Health and Safety Day provided an opportunity to raise awareness of EHS issues among Group employees. The event represents one of the highlights in our Communication On Progress for the United Nations Global Compact.

Extensive communication

Events

The **Health & Safety Diamonds** awards ceremony has been held each year since 1990. During the ceremony, the sites with the best health and safety results are recognized and their best practices are shared with the rest of the Group. The event promotes healthy competition and provides an opportunity for useful exchanges among all participants. In 2009, 25 units in 17 countries won awards for health and safety improvements in 2008. A number of Delegations, including Brazil, the United Kingdom, the United States and Italy have set up similar ceremonies of their own to give their teams added encouragement.

An International Health and Safety Day was held in 2004 and again in 2006, to raise awareness among both Saint-Gobain employees and outside contractors. The International Health and Safety Day held on May 15, 2008 addressed the topic of the environment for the first time, in line with the Group's strategic positioning in environmental solutions. At these events, each Group facility is encouraged to organize workshops, conferences, games and other initiatives, with input from employees, workplace health and safety committees and representatives of consultative bodies, among others. At the same time, managers are encouraged to become more involved in health and safety matters through direct action, field visits and participation in site activities. The next International Health and Safety Day will take place on October 7, 2010.

In-house publications

The safety scorecard is published each week in The Bridge, a newsletter sent to managers in all host countries. The Month, a magazine published in four languages, regularly carries articles on EHS topics. In January 2005, the EHS Department launched a special EHS newsletter called EcHoeS for the entire EHS network. Lastly, the Group and Delegation intranets offer 24/7 information on Saint-Gobain's EHS policies and performance.

The Delegations and Sectors also include EHS information in their own internal communications. A number of Delegations, including Asia-Pacific, Spain, India, Italy and United Kingdom, Ireland & South Africa publish newsletters devoted to EHS issues, as does the Packaging Sector. However, the bulk of communication takes place at the sites themselves, because, like training, it plays a vital role in improving performance.

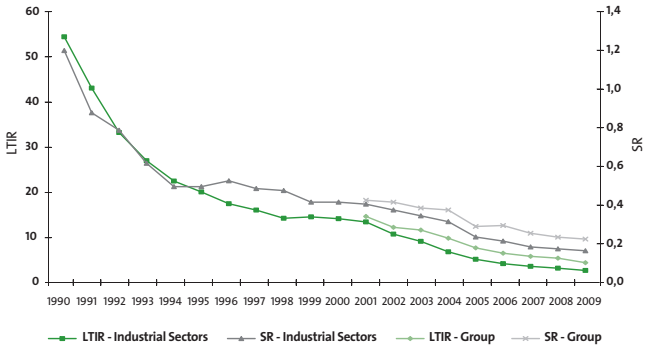
Encouraging results

Safety

Incident frequency and severity rates

Lost time incidents

As part of our safety policy, we use a number of specific indicators to monitor our progress and performance. The lost-time incident rate (LTIR), defined as more than 24 hours' lost time, stood at 3.8 in 2009, representing a one-point improvement from 2008 and a 27% decrease from 2007. This compares with a target for 2009 of less than 4.2. The severity rate (SR), defined as the number of lost-time days per thousand hours worked, stood at 0.21, down 0.01 points from 2008 and down 13% from 2007.



All of the Sectors reported steady improvement. The lost-time incident frequency rate in the industrial Sectors declined from 2.6 to 2.1 in 2009, a decrease of 30% in two years. At the same time, the severity rate fell to 0.15, representing a decrease of 12% over two years. The Packaging Sector posted the greatest improvement in LTIR during the year, with a 34% decline from 2008, while the Innovative Materials Sector—High-Performance Materials Division once again reported the best score at 1.4 (down 0.2 points). With an LTIR of 2.7, the Innovative Materials Sector—Flat Glass Division improved its score by nearly 25% over 2008. The Construction Products Sector's LTIR also improved from the previous year, by 17%.

Progress continued in the Building Distribution Sector, where the LTIR dropped to 6.9 in 2009 from 8.7 in 2008, and by 28% over the past two years. This performance put the Sector ahead of schedule in meting its target of 7 by 2010. The Sector's severity rate declined as well, to 0.32, for a 14% decrease in two years.

Reportable incidents

The Group also monitors the frequency of reportable incidents, corresponding to incidents that lead to medically diagnosed injuries regardless of whether they result in lost time. In the industrial Sectors, the total reportable incident rate (TRIR) stood at 8.2 in 2009 compared with 11 in 2008, for a 25% improvement. The Group's target for the industrial Sectors is a TRIR of below 7 by end-2010.

Data used to calculate frequency rates of recorded incidents and so-called near incidents are not yet wholly reliable, but they nevertheless provide representative data that can be communicated to the workforce. The Group's EHS newsletter, *EcHoeS*, includes a section entitled "Remain Vigilant" that describes a recent incident or near-incident, explains the measures that were taken and reminds readers about safety guidelines.

2008-2010 objective

The Group is targeting an overall lost-time incident frequency rate (LTIR) of less than 3.7 for 2010, with a goal of 7 for the Building Distribution Sector, and a total reportable incident rate (TRIR) of less than 7 for the industrial Sectors. The Group's LTIR improved to 3.8 in 2009. LTIR in the Building Distribution Sector stood at 6.9, while TRIR in the industrial Sectors came to 8.2.

Preventing serious accidents

The number of fatal work-related accidents involving either Group employees or other workers declined significantly in 2009, with five fatalities versus 14 in 2008.

We regret to report that there were three work-related deaths among Saint-Gobain employees (versus eight in 2008) and two among employees of outside contractors (five in 2008) during the year. There were no fatalities among temporary workers (one in 2008) or other third parties (zero in 2008).

The Group recorded nine non-work-related deaths among employees in 2009 (versus eight in 2008) and nine fatal accidents during commutes (four in 2008).

To enhance prevention of the most significant risks, the Group's senior management unveiled a Serious Accident Plan in September 2006 supported by resource indicators to monitor the effectiveness of key actions. Developed in close consultation with EHS managers at the Sectors and Delegations, the plan focuses on consolidating preventive measures, coordinating communications activities and managing outside contractors. The Serious Accident Plan process has helped the Group identify resources for reducing serious accidents. These include risk analyses, safety standards and safety training.

The overall risk assessment process is carried out using a special computer application to identify hazards, quantify the associated risks and prioritize the potential threats to health and safety at Saint-Gobain plants or Distribution outlets, with a view to determining priorities and action plans for risk reduction and control. This new application will also help the Group achieve its targets for reducing the overall incident frequency rate.

Despite the significant progress achieved, the number of fatal accidents remains unacceptable and demands priority attention. The entire Saint-Gobain management team is determined to reach the only acceptable safety target of zero work-related accidents. We are continuing to establish health and safety standards to help improve our performance in these areas. Four health standards were introduced in 2009 and two more will be deployed in 2010.

Safety standards

Building on the Serious Accident Plan, the Group has defined a number of safety standards. The causes of the most frequently reported accidents have been identified to define standards for priority deployment.

New safety standards introduced in January 2009 concern work at height, the management of outside contractors working on-site, work permits and commissioning/decommissioning procedures. Two other standards concerning lifting equipment and lift trucks were drafted in 2009 and distributed for application in the Divisions and Delegations in January 2010.

Safety standards must be applied in their entirety at each of our industrial sites. The standards include key provisions that must be adopted by each Building Distribution outlet alongside any existing standards or procedures applicable to their operations. If no other standard or procedure exists, the entire Saint-Gobain safety standard must be applied. These standards will be implemented by the various Divisions, with support and oversight by their respective Delegations. The Delegations provide support in training, sharing of locally identified best practices and finding outside experts to help implement the standards locally if needed. The units are required to report safety data annually so that the Group can assess their level of compliance.

Operating in degraded and/or maintenance mode poses an especially high risk of accidents. Consequently, a "60 seconds to think" guide is being introduced at every Saint-Gobain site. The guide presents 12 essential questions that employees should ask themselves before taking action in particular situations. Training activities will also be organized to address such situations.

The Sectors actively address safety concerns and publish standards covering the specificities of their processes. Innovative Materials—Flat Glass, for example, has developed a specific program to manage the risks involved in loading, unloading and storing glass. A catalogue of best practices, many of which are mandatory, has been updated. A system of specific audits has been put in place to assess progress made by the program and to complete its deployment in 2010. The program also includes a poster campaign entitled "Glass Falls", a two-year project to make technical improvements in glass handling equipment, an online training module on handling and warehouse traffic rules, and a module with various building blocks that outline fundamental rules and guidelines (working at height, for example). All warehouse operators are expected to comply with these modules.

Encouraging progress

The Group uses the Health & Safety Diamonds (see page 41) and the Millionaires Club to spread the word about progress at each site. Launched in March 2004, the Millionaires Club includes those sites or groups of sites that deliver the best safety performance. As of December 31, 2009, the Club had 142 member sites compared with 107 the year before. Of these, 58 had accumulated more than a million hours worked without a lost-time incident and 84 smaller sites had had no lost-time incidents for at least five years. By Sector, 83 belong to Innovative Materials, 55 to Construction Products and four to Packaging.

Two new categories were created in 2009 to highlight safety excellence: millionaire sites with no lost-time incidents over the past 10 years and millionaire sites with no lost-time incidents over the past 15 years. As of end 2009, there were 25 sites in the 10-year category and five in the 15-year category.

Industrial health and hygiene

As part of our operations, we process and use mineral and chemical substances that may potentially expose some of our employees to risks. The industrial hygiene initiatives and innovative remedial solutions we have developed seek to minimize this risk.

Reducing exposure to noise

Our industrial processes involve many different sources of noise, including cooling systems, machine tools and furnaces. Measures to protect individual employees and reduce overall noise levels have been implemented at every site.

In addition to complying with regulatory requirements in each country, we introduced our own **NOise Standard** (NOS) in 2004 to detect, measure and control potential sources of noise exposure in the workplace. The standard was rolled out to the entire Group in 2005 with the goal of protecting all employees and contractors. The standard includes guidance on establishing indicators that can be used to prioritize noise reduction initiatives, monitor conditions and track progress over time. The NOS is applicable to all Group companies regardless of local legislation, and may be more stringent than national regulations in a given country. Noise levels are determined on the basis of a specific measurement standard applied to groups of comparable types of exposure. This ensures more precise measurement of exposure levels and consistent methods of exposure assessment across the Group. Data is entered in the Gaïa reporting system, which generates a matrix that classifies the information by level of exposure (high, moderate or low). Deployment of the standard at Maxit, acquired in 2008, was virtually completed in 2009. A training kit is available to assist with local deployment of the standard.

2008-2010 objective

Each Division will monitor reductions in noise exposure as part of its annual plan.

Preventing exposure to toxic agents

Our operations entail the use of raw materials that are then processed and treated to create high-technology products—potentially leading to mineral dust and chemical exposure. We have introduced a standard policy for measuring and controlling the related risk.

The **Toxic Agent Standard** (TAS), developed in 2004, provides a framework for identifying, assessing and eliminating or controlling potential sources of exposure to toxic agents in the workplace. As with the Group's other standards, the TAS has been rolled down into implementation guides. The first of these concerns crystalline silica and was issued in conjunction with a 2005 project involving the distribution of crystalline silica kits to all Group companies, supported by appropriate employee training. The standard will be implemented at Maxit, acquired in 2008, in 2010.

Three other guides have been issued since 2004:

- The Saint-Gobain EHS Code of Conduct Applying to Nanomaterials, which was updated in 2008 as part of a joint initiative by EHS, medical and R&D personnel (see page 38).
- A guide to the use of fibrous materials that explicitly defines safety rules for employing fibrous materials in processes, equipment, systems or buildings. In 2007, with support from Saint-Gobain Conceptions Verrières, the EHS Department provided technical, engineering and research teams from each Sector and Division with online access to a Group database on fibrous materials. On October 1, 2007, Saint-Gobain imposed a Groupwide ban on the use of any fibrous material not listed in this database.
- A guide to the construction, renovation and maintenance of melting furnaces.

The Sectors and Delegations have implemented a number of risk-reduction solutions appropriate to each business. In 2002, the Innovative Materials Sector—High-Performance Materials Division developed and deployed a particularly innovative computer application called Toriman to meet TAS objectives. Toriman identifies each substance used within the Sector and, based on potential risk and conditions of use, provides information and recommendations by product family concerning the substitution of certain substances, general protective measures and, as a last resort, mandatory protective equipment to be used by individual employees. Toriman is a critical resource for enhancing toxic risk assessment in each country, regardless of differences in local knowledge and expertise. An updated version for use across the Group should be available in 2010.

Wood dust is primarily an issue for Lapeyre, which has embarked on a campaign to prevent and reduce employees' exposure at source. Lapeyre has been measuring levels of wood dust at its sites since 1996. At the same time, it has been investing in equipment to reduce wood dust volumes through ventilation or suction and to protect employees. Lapeyre is pursuing its measurement campaigns and has replaced virtually all panel saws with models that have more effective dust collection systems. In 2000, Lapeyre developed a plan to track and medically monitor employees who have been or continue to be exposed to wood dust, regardless of their current level of exposure. Initially introduced in the Group's plants, the plan was extended in 2003 to include in-store woodworking shops, where technical upgrades have been introduced in tandem with revised measurement procedures. As part of the medical monitoring plan, a monitoring guide has been developed with occupational health officials and distributed to everyone involved in prevention, both inside and outside the company. Prevention plans are also under way.

We are implementing the **European Union's REACH[1] regulation**, which came into force on June 1, 2007, and seeks to identify the substances of greatest concern with a view to phasing out unsafe applications. Under the regulation, all such substances manufactured or imported in Europe in quantities greater than or equal to one metric ton per year per legal entity must be registered. The IT Department has developed a computer application to assist with drawing up an on-line inventory of chemical products found at Group sites. In line with REACH, inventories at European Union sites were updated at the end of 2008. As part of this process, we submitted 533 pre-registration dossiers in 2008 for 105 Group companies and 202 different substances. From now on, in accordance with the "No data, no market" principle, substances that have not been pre-registered may not be manufactured or imported in Europe unless or until they have been registered with the European Chemicals Agency.

The next step is to prepare these registrations in partnership with other reporting companies in Europe. To this end, Saint-Gobain is participating in several Substance Information Exchange Forums (SIEFs) with other reporting companies in Europe who want to register the same substances.

In 2009, the Group began rolling out an online substance inventory to include all countries and all Divisions. It has also inserted a specific REACH clause in all purchasing contracts to ensure that suppliers are REACH-compliant.

Operations are identifying how inventoried substances are used so they can verify compliance with suppliers. This process should be completed before the end of 2010 for substances with a December 2010 registration deadline.

The online inventories also feed data into an analytical program designed to verify REACH compliance by Group entities in Europe. E-learning modules, available to 1,000 potential users, have been developed to support the program's deployment. The program uses the Group's substance database, S'B@SE V2, which was brought online in 2008 and updated in 2009. Saint-Gobain's goal is to combine all standards concerning risk and toxic agent assessment in the Toriman application, for which specifications were drawn up in 2009. Implementation and deployment are scheduled to begin in 2010.

At the same time, several countries are preparing to adopt the UN's Globally Harmonized System (GHS), designed to establish a uniform international hazard classification and labeling system. The REACH project team is simultaneously tracking GHS's implementation and deployment.

2008-2010 objective

Each Division monitors reductions in exposure levels as part of its annual plan. The Group has created risk prevention resources to help them. One example is the Toriman application, launched in 2009 to support deployment of the Toxic Agents Standard. Implementation and deployment of related assessment software are scheduled to begin in 2010.

In addition, in compliance with the European Union's REACH regulation, substance inventories were updated at all European sites at the end of 2008, using newly developed computer applications. In 2009, the Group began rolling out an online substance inventory to include all countries and all divisions. It has also included a specific REACH clause in all purchasing contracts to ensure that suppliers are REACH-compliant.

Enhancing workstation ergonomics

Although factory automation and the use of ergonomic assist devices have gradually reduced risks for employees, we remain attentive to problems of movement and posture at each workstation. A specific Posture/Lifting/Movement (PLM) method for identifying the risks inherent in handling operations and work postures has been developed and distributed to EHS managers in the Sectors and Delegations for use in industrial and distribution facilities. EHS guidelines have been issued, describing how the method should be used. A training DVD has also been distributed and a PLM software program, available on the Intranet, has been developed in several languages.

Four manuals highlighting various hazardous scenarios are available on the EHS intranet in French, English and Spanish. Designed to encourage operator input, each manual comprises a first section describing preventive action to be taken at the workstation and a second section to assist employees in observing and evaluating each workstation's setup.

In the Building Distribution Sector, musculoskeletal disorders represent a major health risk for employees, given the handling

(1) EC regulation 1907/2006 concerning the registration, evaluation, authorization and restriction of chemicals, and establishing a European Chemicals Agency.

activities their work entails. At Point.P, all newly hired warehouse employees attend mandatory training in proper motion and posture.

In the Pipe Division, an ergonomist devises solutions to ergonomics issues specific to the Industrial Projects unit. In addition, two assessment programs—Ergo-Progress and Ergo-Team—have been developed, the former for new investments and the latter for correcting installations at existing sites. A new version was launched in 2009 for deployment in 2010 according to a specific timetable. In this new version, the ergonomist's signature is required for all new investment requests to ensure that ergonomic considerations are taken into account at the earliest stages of the design process.

2008-2010 objective

The Posture/Lifting/Movement (PLM) ergonomics process was implemented at pilot sites in each Division in 2009.

Preventing biological hazards

Following an outbreak of **Legionnaires' disease** in France in late 2003, and the introduction of new French regulations in 2004, Saint-Gobain sites in France have taken proactive measures to prevent and control risks in this area. All potentially affected Sectors in France have taken the necessary steps to ensure compliance, including monthly or even weekly monitoring of water quality, frequent cleaning of pipes to prevent the formation of biofilm and the commissioning of audits by qualified external inspectors. In addition, many have organized training in crisis management. A number of sites have upgraded their facilities to minimize hazards. For example, dead-leg piping has been eliminated to prevent the accumulation of standing water and the emergence of the bacteria responsible for Legionnaires' disease. Although these stringent regulations currently apply solely to France, a number of businesses, such as the Innovative Materials Sector—Flat Glass, have replicated these practices in other European countries and beyond.

In response to the increased risk of an **H1N1 flu** pandemic, the Group introduced a series of preventive measures in 2009 that mobilized the EHS and Human Resources Departments:

- First, the Group carefully tracked the pandemic's spread worldwide. General instructions were issued based on the pandemic risk scale published by the World Health Organization and on recommendations from local governments. As a result, travel was restricted to Ukraine and banned to Mexico during the height of the flu outbreak.
- Business continuity and staff protection plans were put in place at the Group level and cascaded down in each of the Sectors.
- A dedicated page was opened on the EHS intranet to facilitate tracking of the pandemic, post Group recommendations and deploy continuity plans and preventive measures.
- The Sectors integrated the risk of a pandemic into their operational crisis management plans. The Construction Products Sector, for example, provided all its sites with a manual to help them prepare effectively for the foreseeable consequences of a pandemic. This manual was designed to go with the optional system for evaluating continuity plans distributed in 2008.

Environmental issues

Saint-Gobain is committed to continuous improvement when it comes to its operations' efforts to protect the environment. These operations include both manufacturing and distribution, with Building Materials Distribution accounting for 45% of the Group's sales. Environmental impact needs to be taken into account in quarries, production facilities, distribution outlets and shipping. Technological risk from the manufacturing processes is relatively low (units covered by specific regulations are identified in the section on industrial and environmental risks in the chapter on risk factors). This is also the case for distribution operations.
Saint-Gobain is working to reduce its environmental footprint and has defined environmental indicators and general measures at the Group level to support continuous improvement.
More specific measures have been implemented in the Sectors and Divisions to meet their operations' particular needs.
In 2009, Saint-Gobain pursued its policy of obtaining environmental certification for its units. Certification is a good way to include environmental issues such as water and waste management, energy consumption and atmospheric emissions in a unit's overall management. It also requires a commitment to continuous improvement and to preventing pollution.
That said, the results of certain environmental indicators are not representative of the Group's efforts in this area. This is the case, in particular, for indicators with specific values, like emissions per ton of finished product, because at equivalent performance, a sharp decrease in business levels has a negative impact on this type of indicator (see Reporting Methodology, page 77).
We also assess the environmental impact of our products.
We have defined a life cycle analysis methodology for building products (see page 30) and also carry out life cycle analyses for Packaging Sector products.

A winning eco-design approach

Eco-design is a major part of the Packaging Sector's sustainable development policy. Around the world, Sector companies market esthetically pleasing eco-designed bottles and jars that showcase their contents while preserving the environment. This allows food and beverage brands to offer attractive products that consumers feel good about buying, while guaranteeing a smaller environmental impact across the life cycle, from raw materials to use and on through to selective sorting and recycling. Perceived quality criteria are maintained, adapted or re-invented thanks to active collaboration between marketing and technical teams in R&D, production, engineering and design.

In 2009, eco-designed ranges were successfully launched, primarily under the ECOVA name (a French acronym for "ecology and recovery"), in France, Spain, Argentina, Chile, Brazil and the United States. The ranges mainly target the wine and sparkling wine markets. Local marketing and sales teams adapt the ranges in each country to the regional market's needs.

Like all Packaging Sector products, the eco-designed ranges offer the environmental advantages of glass—a neutral, inert material that is fully recyclable, over and over again. They also benefit from improvements in the Sector's glass-making process, which include optimizing equipment energy performance, increasing the proportion of recycled glass in furnaces and reducing CO_2 emissions from the extraction of raw materials, production and shipping.

The Packaging Sector is the first glass packaging manufacturer in the world to offer eco-designed packaging that creates value for customers while enhancing consumers' well-being.

Climate change and energy consumption

Saint-Gobain is fully aware of its responsibility in helping to attenuate climate change and reduce energy consumption. Through our products and actions, we are rising to the challenges of tomorrow in the areas of energy and habitat (see page 30). We are also working to reduce our own energy consumption by making our buildings, facilities and outlets more energy efficient. Since 2003, we have participated in the Carbon Disclosure Project (CDP), an international initiative designed to encourage the development of a shared methodology for measuring greenhouse gas emissions. In 2009, Saint-Gobain was included in the French Carbon Disclosure Leadership Index (CDLI), which recognizes the 20 top-scoring French companies in CDP's disclosure rating.

CO_2 emissions and energy consumption at our office buildings

Because energy-efficient buildings play an extremely important role in any strategy for reducing greenhouse gas emissions, we have pledged to achieve a fourfold reduction in overall energy consumption and greenhouse gas emissions at our office buildings by 2040 as part of the Company Actions for the Reduction of Energy by 4, or CARE4® project. To do this, each building's thermal performance must be made consistent with the most stringent national standards, such as PassivHaus and Effinergie. If no national standard exists, the building must meet the strictest possible target for energy content and the highest efficiency value for the local climate. The campaign extends to any heated or air-conditioned workplace owned by the Group, with the exception of production shops and warehouses. An action plan governing new construction and major renovations was launched in 2008. Energy consumption for all new offices, training centers and other buildings, apart from production shops, warehouses and depots, must now be less than 80 or 120 kWh/sq.m, depending on the country. In 2010, the Group will map the results of an energy analysis covering all of the Group's office buildings to plan actions for thermal compliance. Actions to upgrade the entire building stock will be taken starting in 2011.

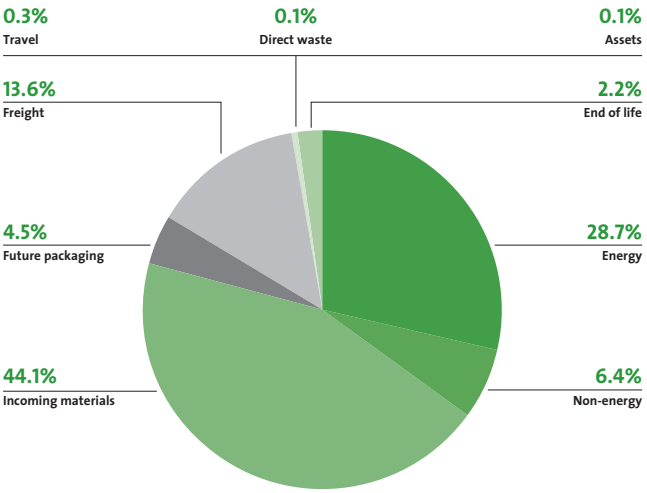
In a Group first, two buildings earned the CARE4® label in 2009—one at the R&D center in Northboro, Massachusetts (USA) and the second at the Saint-Gobain Isover facility in Chemillé, France.

Le Bilan Carbone™ carbon assessment

To gain a more thorough understanding of our greenhouse gas emissions, several Group companies—including Saint-Gobain Isover and Saint-Gobain Eurocoustic—carried out a carbon assessment in 2009.

Known in France as *Le Bilan Carbone™*(1), these assessments help companies identify where their CO_2 emissions are coming from so as to reduce them as much as possible. The assessments performed by CITEPA for Saint-Gobain Isover and Saint-Gobain Eurocoustic revealed the major areas of emissions were incoming materials, energy consumption, freight, and carbonate removal at concerned sites.

Breakdown of CO_2 emissions at an industrial site (Isover Orange, 2008)



A survey of all French industrial operations (excluding High-Performance Materials) was then conducted using the Bilan Carbone™ method. This survey confirmed the initial assessment's results and targeted the same four areas for priority action in reducing greenhouse gas emissions. These four areas account for more than 90% of emissions, even though the ranking differed from unit to unit.

At present, the Bilan Carbone™ carbon assessment is not appropriate for the Group worldwide. Saint-Gobain is monitoring improvements in assessment resources and international standards with a view to conducting a Groupwide assessment in the near future.
It is difficult to apply the Bilan Carbone™ to distribution operations as well, because we would need to know the CO_2 content of all distributed products to conduct a full assessment. This data is not necessarily available, since the Building Distribution Sector handles products from manufacturers other than Saint-Gobain.

Transportation (shipping and customer travel) is the main area of emissions in our distribution operations. For this reason, the Sector has decided to test a reporting method for transportation emissions, with initial deployment at Lapeyre and other businesses.

Saint-Gobain plays a major role in reducing energy consumption in North America

Saint-Gobain named Energy Star partner of the year

In the United States, the Environmental Protection Agency (EPA) recognized Saint-Gobain as a 2009 Energy Star Partner of the Year for its energy management and reduction of greenhouse gasses. In 2008, the Group considerably reduced its energy consumption in North America and its CO_2 emissions by 70,000 metric tons.

Through awareness campaigns, improvements in key processes and the deployment of best energy management practices, Saint-Gobain companies in North America saved enough energy to manufacture nearly 700 million glass bottles or insulate more than 160,000 homes with glass wool. The 2009 Energy Star Partner awards recognized Saint-Gobain's efforts to use energy efficiently in its plants and to make improved energy management part of its overall organizational strategy. The award winners were selected from among more than 12,000 participants in the EPA's Energy Star program. Saint-Gobain has partnered with Energy Star since 2005.

Saint-Gobain joins the Save Energy Now® LEADER program in the United States

Saint-Gobain recently joined the Save Energy Now® LEADER program launched by the US Department of Energy (DOE), signing a voluntary pledge to reduce its industrial energy intensity by 25% over the next decade. The LEADER program is a new component of the existing and successful Save Energy Now initiative, which provides participating businesses with access to tools and training to reduce their energy consumption and operating costs. Along with other LEADER companies, Saint-Gobain will serve as a role model and pace setter for others in the industrial sector. In return, LEADER companies receive access to select DOE resources, as well as national recognition for energy management achievements.

(1) Le Bilan Carbone™ is a method for measuring an organization's greenhouse gas emissions developed by the French Agency for Environment and Energy Management (ADEME).

Direct CO_2 emissions [1]

Reducing carbon dioxide (CO_2) emissions, primarily generated by glass furnaces, is a priority focus of Saint-Gobain's environmental policy. In 2009, the Group's concerned sites generated 13.5 million metric tons of CO_2, down 4.2% from 14.1 million metric tons in 2007 based on comparable output and scope of consolidation. The target is to cut emissions by 6% by end-2010 based on 2007 output. Emissions from all Group sites totaled 12.9 million metric tons in 2009.
Our CO_2 emissions represent less than 0.3% of the greenhouse gas emission allowances allocated in Europe, i.e., 5.6 million metric tons of CO_2 generated in the European Union countries participating in the emissions trading system[2] (excluding Maxit). Including Maxit, the total comes to 5.7 million metric tons. For the period 2008-2012, **the EU greenhouse gas emission allowance trading scheme** applies to a total of 86 Group facilities, including 20 glassworks, 22 Insulation Division sites, one Pipe Division site, 10 Gypsum Division sites, five Industrial Mortars Division sites that manufacture expanded silicates, two Textile Solutions sites, 25 Packaging Division sites and one combined heat and power plant.

Each Division does everything in its power to reduce CO_2 emissions attributable to its operations. At the glassworks, for example, each metric ton of cullet used in the melting process avoids 255 to 300 kg of CO_2 emissions (see above).

In the Pipe Division, environmental impact studies are conducted for all product upgrades and life cycle analyses are being performed for each product family. The Division is also closely monitoring the Ultra-Low CO_2 Steelmaking (ULCOS) project, a European Union initiative to identify and develop innovative methods for reducing CO_2 emissions in the steelmaking industry. ULCOS' ultimate goal is to halve CO_2 emissions generated by the current primary melting process.

Lastly, Saint-Gobain Glass' facility in Sriperumbudur, India, is recovering waste heat to generate electricity. Since February 2009, the float glass plant has generated around 500,000 kWh per month, with a target of more than six million kWh for 2010 as a whole. This project, which has reduced atmospheric CO_2 emissions by around 7,500 metric tons a year, is up for Clean Development Mechanism (CDM) certification. Introduced as part of the Kyoto Protocol, the Clean Development Mechanism allows countries with an emission-reduction or emission-limitation commitment to implement an emission-reduction project in a developing country and earn credits towards meeting Kyoto targets.

(1) The amounts given here do not include indirect emissions for road transportation, commuting, business travel, electricity consumption, the purchase of steam from outside providers, etc. They cover CO_2 generated by the combustion of fossil fuels and CO_2 generated by chemical reactions in our processes.
(2) Calculated values.
(3) For competitive reasons, Saint-Gobain does not wish to disclose detailed data on energy consumption at its different member companies.

2008-2010 objective

Saint-Gobain has set a target of reducing its CO_2 emissions at concerned sites by 6% by end-2010, based on 2007 output. In 2009, the Group had already reduced its emissions by 4.2%.

Energy consumption in our processes

In 2009, energy use by our concerned sites stood at 53.5 TWh[3]. Every Group company recognizes the importance of reducing its energy use.

Glass production is powered primarily by fuel oil and natural gas. Energy consumption is being steadily reduced by replacing outdated equipment at the end of its life with newer, more energy-efficient equipment, and by enhancing combustion methods and refractory performance. The use of cullet (glass that has already been processed) also helps to save energy. For each 10% of cullet added to a glass batch, 2.5% to 3% of melting energy is saved. Around half of the furnaces used by the Insulation Division are fully electric and we also frequently use electricity in addition to fossil fuels to aid in the melting process, accelerate convection currents in the glass bath and ensure uniform treatment in the furnace. Elsewhere, electricity is used primarily to supply compressed air, heat the lehrs and power the cooling fans used in furnace shells and forming machinery. Centralized management, speed drive technology and advances in equipment design have all been instrumental in reducing energy consumption beyond the melting process.

The Pipe Division uses coke and coal to fire the blast furnaces and cupola furnaces, as well as electricity and natural gas. The Division is focusing on improving energy efficiency at its plants, developing techniques for injecting oxygen and carbon-bearing matter into the melting process and relying more heavily on secondary melting when the raw materials are available. On acquiring the Xuzhou facility in China, we opted to launch an extensive project to modernize the site and improve its performance, drawing on existing best practices. Thanks to substantial outlays, CO_2 emissions from the renovated blast furnaces now compare to European levels. At our site in Barra Mansa, Brazil, iron ore is smelted primarily using eucalyptus charcoal (biomass) (711 GWh).

The Innovative Materials Sector—Flat Glass Division has also demonstrated a serious commitment to reducing its energy consumption and developing innovative energy-saving solutions, such as those adopted by Saint-Gobain Sekurit.In May 2008, Saint-Gobain Sekurit launched the international Energy Saving project to improve energy efficiency in all its plants by at least 10% in three years. The first step in this four-step project involved implementing an energy management system in all plants. An international database of best practices was developed to share ideas from Sekurit plants concerning the configuration of standby status, heat recycling and frequency variation for fans. Promising solutions such as more efficient injection nozzles for the tempering process and lighter weight, less insulated equipment for furnaces on laminated glass lines are tracked and included in R&D action plans.

Saint-Gobain Sekurit Germany was the first European manufacturer to be certified to the DIN 16001:2009 standard—Energy Management Systems. The certification covers six plants, as well as Sekurit's headquarters in Germany. The standard's objective is to set up a management system for tracking energy and for continuously optimizing energy efficiency. This certification further enhances the effectiveness of existing programs to reduce energy consumption and share best practices launched by Saint-Gobain Sekurit as part of the international Energy Saving program.

CO_2 emissions from transportation

Our businesses give rise to transportation-related CO_2 emissions at the various stages of the product manufacturing and distribution process. Transferring raw materials to the factory, transporting certain products to a second site for additional processing and delivering finished products to the distribution outlet all generate emissions.

The issue is of particular concern for the Building Distribution Sector, which has set up a reporting system to track these emissions. The system has enabled the Sector to streamline the delivery process by changing supply sites, modifying delivery routes and improving inventories.

This strategy of seeking out alternatives to road transport offers clear benefits in the case of the Building Distribution Sector, but is being adopted in other Sectors as well. For example, some 40% of Saint-Gobain PAM products are transported to their destination entirely via sea, river and/or rail links.

To reduce truck fleet fuel consumption, Point.P and Saint-Gobain Building Distribution in Germany have launched an extensive Responsible Driving program to educate their drivers on better driving practices that will save fuel and cut down on CO_2 emissions. This customized training has improved fuel consumption by as much as 15%. Several other initiatives are also being undertaken by Point.P. In a move that can reduce fuel consumption by 3%, truck speed was capped at 80 kph in the greater Paris area and Bordeaux in 2008 and at Asturienne and other units in northern France in 2009. In addition, onboard computer systems that display and monitor each driver's actual use of fuel have been installed in vehicles, helping to reduce consumption by up to 7%.

The Building Distribution Sector is taking steps to optimize its truck fleets as part of its Responsible Procurement initiative, for which reducing CO_2 emissions is of key importance. Depending on the results, these measures are likely to be extended to the entire Sector and to other Group facilities.

In addition, Saint-Gobain's purchasing department uses CO_2 emissions as a criterion in several European countries when selecting vehicles for long-term lease. It is also a member of the Transport taskforce at Entreprises pour l'Environnement, a non-profit organization of which the Group is a member.

Lastly, Saint-Gobain Isover has developed a patented process to compress glass wool. Thanks to their elasticity, glass wool products can be compressed up to ten times when packaged into rolls and palletized. This offers multiple opportunities for energy savings during shipping, for reducing transportation-related greenhouse gas emissions and for cutting down on the number of trips between production sites and distributor warehouses. It also makes handling easier on worksites and reduces packaging waste.

Reducing the environmental footprint of our processes

Minimizing waste and reducing consumption of primary raw materials

Our waste management priorities, outlined in the EHS charter, are as follows, in order of importance:

- Reduce the amount of by-products.
- Reuse by-products internally.
- When by-products cannot be reused internally, promote external recovery processes such as recycling or energy recovery through incineration.
- As a last resort, landfill final waste.

As these objectives show, waste reduction is a priority for the Group. In 2009, concerned sites generated 3.7 million metric tons of production waste, compared with 3.6 million in 2007 based on comparable output and scope of consolidation.

The Sectors adapt this waste reduction policy to their own operations. For example, in 2005 and 2006, the Lapeyre and Point.P banners in the Building Distribution Sector jointly developed a waste reporting system derived from the Group's EHS reporting system, but adapted to the specific profile of distribution operations. This specific resource, which is currently being deployed, was expanded in 2008 and 2009 to include information on water and energy consumption. Point.P has also developed a fee-based waste disposal system, governed by strict specifications, for use by its customers, who are invited to drop off their waste materials upon completion of a project and reload their vehicles with new materials. This service has the added benefit of generating a competitive advantage for the Group. There are currently around 100 waste disposal points in service, and given its success, the program is likely to be extended to other banners in the Sector. PUM Plastiques, for instance, has started to open waste disposal points at its outlets.

In Norway, Brødrene Dahl chose waste management firm Retura to process its waste nationwide in early 2008. Some 80% of the waste from the banner and its customers is sorted and recycled. The remaining waste is incinerated and recycled into a new, environmentally friendly energy source.

The real challenge of waste reduction lies in recovery—in other words, recycling. Some of this recycling is performed within the Group at specialized companies like Valoref. Valoref recycles refractory materials left over after full or partial furnace overhauls, produces secondary materials from the recoverable waste and then develops and sells finished products.

The more we use recycled materials, the less we consume primary raw materials. In addition to recovering our own waste

products, we use recycled materials from outside sources, such as cullet and recovered scrap metal, to optimize our raw material consumption.

Three materials that are critical to our operations—glass, cast iron and gypsum—are infinitely recyclable.

Glass

The primary method for reducing resource consumption in glass furnaces is to include cullet (crushed recycled glass) among the raw materials. By making new glass from recycled glass, the Group saves on both primary raw materials and energy (because the waste glass has already been prepared, the energy that would normally be used for its chemical processing is no longer needed). Saint-Gobain has five facilities that produce cullet from waste glass. Located in France, Germany and Italy, these facilities mainly supply the Packaging Sector's furnaces. The Group also purchases cullet from external sources. There are two main constraints on glass recycling. The first is that it is difficult to recover clean, uncontaminated glass—an especially important consideration for flat glass manufacturing. The second is that collected household waste glass has leveled off in some countries for a variety of reasons, including declining alcoholic beverage consumption and changes in waste collection practices. The proportion of nonrecycled glass used within the Group fell between 2008 and 2009 based on a comparable scope of consolidation. In 2009, glass furnaces at concerned sites used 10.9 million metric tons of primary raw material, compared with 13.1 million metric tons in 2008, 4.2 million metric tons of externally-sourced cullet, versus 4.4 million in 2008, and 2.9 million metric tons of internally generated cullet, compared with 2.8 million in 2008.

Both the Insulation Division and the Packaging Sector use significant volumes of recycled glass materials in their furnaces. Use of cullet from internal and external sources has increased: in 2009, it accounted for 24.3% and 42.4%, respectively, of glass wool production at the concerned sites in the Insulation Division (compared with 18.9% and 40.9% in 2008 based on a comparable scope of consolidation), and 16.8% and 43.5%, respectively, of container glass production at the concerned sites in the Packaging Division (versus 17% and 40% in 2008 based on a comparable scope of consolidation). The Packaging Sector recycles 100% of the glass it collects worldwide. The Sector is committed to intensifying its collection efforts to ensure a steady increase in the percentage of recycled glass used in its furnaces.

Although its quality requirements for cullet are stricter than those of the Packaging Sector or Insulation Division, the Innovative Materials Sector—Flat Glass Division pursues an assertive policy of recovering cullet generated at its own or customers' sites. Internal and external cullet accounted for 31.8% and 7.3%, respectively, of flat glass production at the concerned sites in the Innovative Materials Sector—Flat Glass, (compared with 23.5% and 11.5% in 2008 based on a comparable scope of consolidation).

The Innovative Materials Sector's Textile Solutions business is also involved in glass recycling. Two Saint-Gobain Vertex plants in Hodonice and Litomysl, Czech Republic, have recycled their fiberglass since 1999 and 2003, respectively. Their recycling lines can transform nearly 10,000 metric tons of recovered product per year to replace a significant quantity of raw materials. Thanks to this process, Vertex has reduced its glass waste by 80%. It has also lowered its raw material consumption and considerably reduced its energy use.

Cast iron

The Pipe Division uses two melting processes to produce cast iron: primary melting, which produces cast iron from iron ore in blast furnaces, and secondary melting, in which cast iron is manufactured from scrap metal and recovered cast iron. The process used depends on numerous factors, including the host country's primary and secondary raw materials markets. Secondary melting demands a substantial regional scrap metal market, which exists in industrialized nations but not in developing countries such as China. In 2009 the use of primary melting increased, representing 75.8% of production at concerned sites (compared with 71.9% in 2008 based on a comparable scope), while 37% of finished cast iron was produced from recycled materials at concerned sites (versus 47.8% in 2008 based on a comparable scope).

Reducing product weight has been a major focus of our R&D efforts for several years now for a number of reasons. To start, lighter products require smaller quantities of natural resources and less energy during the manufacturing process, as there is less raw material to be smelted. In addition, transportation of raw materials and finished products generates fewer CO_2 emissions. The cast iron used in the 2005 Natural® pipe range weighs 25% less per linear meter than that of the 1990 K9 pipe range, thanks to ongoing enhancements to the centrifuging process and coating and fitting techniques.

Gypsum

The conversion of gypsum into plaster is an age-old process. Plaster is very environmentally friendly because it requires very little energy to be produced and can be recycled indefinitely. As with cullet, the only limitation on recycling plaster is the problem of waste sorting. In 2009, at the concerned sites within the Construction Products Sector's Gypsum Division, 24.3% of finished gypsum was produced from recycled materials, compared with 25.5% in 2008. Waste recycling facilities have been established in several countries. In Austria, the Ri-cycling program helps to protect the environment while also reducing costs. Buyers of Rigips-brand plasterboard are given Ri-cycling bags for collecting site waste, which is then reintroduced into the production cycle.

This type of system can vary in scope, depending on the country and local demand. In the United Kingdom, for example, a comprehensive service is provided that includes onsite collection, mechanical sorting to separate paper from other waste components, and gypsum reuse. The service is being coordinated by a dedicated team at British Gypsum. In France, Placoplatre has set up a dedicated collection network for plaster waste comprising recycling units at its three production sites in Chambéry, Cognac and Vaujours and more than 30 partner organizations that collect plaster waste. The service saved over 1,000 metric tons of natural resources per month in 2009 (2,000 metric tons projected in 2010) and eliminated the need to bury an equivalent volume of waste at specialized landfills. Gyproc has set up a similar program in Belgium at its Kallo site called "Gyproc ∞ Recyclage". The program was among the five winners in the "Cradle to Cradle" competition organized by the Flemish Ministry of Social Economy.Lastly, the Gyproc plant in Kalundborg, Denmark, is a historic partner of the Industrial Symbiosis. Created in the 1970s, this is one of the best known and most ambitious initiatives in the field of industrial ecology. The Gyproc plant uses a gypsum by-product from the local power plant's flue gas desulfurization unit (also known as FGD gypsum), as well as plasterboard recovered by the local waste processing plant. In all, the plant recycles the equivalent of 15 million square meters of plaster a year.

Numerous initiatives are also underway to recycle other waste products. For example, the Innovative Materials Sector—Flat Glass has launched a campaign to expand its stack gas pollutant recycling program. In Europe, all waste products generated by stack gas processing are recycled directly into the glass furnaces themselves wherever they are fitted with electrostatic precipitators, with the result that no additional waste is generated. In 2009, 58.2% of waste tonnage produced was recycled in Saint-Gobain glass furnaces, compared with 60.9% in 2008.

2008-2010 objective

Saint-Gobain has set a target of reducing landfill waste at concerned sites by 6% by end-2010, based on 2007 production output.

Atmospheric emissions

- **NO_x and SO_2**

Some of our facilities—mainly glassworks and Pipe Division plants—emit sulfur dioxide (SO_2) and nitrogen oxides (NO_x), which contribute to acid rain. These two forms of emissions are regulated, notably by the European Union's Integrated Pollution Prevention and Control (IPPC) directive aimed at reducing pollution generated by industrial plants.

Our different Sectors have been working to cut their sulfur dioxide emissions for several years now by using higher-quality fuel oil or coal slack, reducing their energy consumption and introducing desulfurization processes. Investments in pollution control equipment for the Innovative Materials Sector—Flat Glass Division (see below) are part of this effort. In 2009, glass furnaces at Saint-Gobain's concerned sites discharged 2.42 kg of SO_2 per metric ton of finished glass produced, while concerned sites in the Pipe Division discharged 1.4 kg of SO_2 for each metric ton of cast iron produced, representing a total of 33,954 metric tons of SO_2.

Saint-Gobain companies seek to reduce their nitrogen oxide emissions by emphasizing primary measures to prevent or limit NO_x production at source. Oxygen furnaces offer an attractive alternative because they produce substantially less NO_x by eliminating the nitrogen contained in the combustion air. However, cost considerations make it difficult to adopt this technology in the Innovative Materials Sector—Flat Glass and Packaging Sectors. The Flat Glass Division is continuing to work on developing primary methods for reducing NO_x emissions. A pilot furnace installed at its Calarasi site in Romania offers greater gas combustion efficiency, with the result that NO_x concentration in the stack gas is less than 800 mg/Nm3. In 2009, glass furnaces at concerned sites discharged 2.32 kg of NO_x per metric ton of finished glass produced, while Pipe Division concerned sites discharged 1.32 kg of NO_x for each metric ton of cast iron produced, representing a total of 32,436 metric tons of NO_x.

Dust

We take vigorous steps to control dust emissions, as required by the IPPC directive. We have invested extensively in electrostatic precipitators and bag filters, depending on the type of furnace. In addition, particulates from the filtration process are increasingly being recycled at each site or recovered through appropriate channels (see below).

All of the Packaging Sector's European plants have now been equipped with electrostatic precipitators, leading to a very significant decrease in the amount of dust emitted by glass furnaces. Over time, electrostatic precipitators will be installed at all of the Sector's facilities worldwide, notably in the United States starting in 2010. In 2009, glass furnaces and glass production lines at concerned sites discharged an average of 0.27 kg of particulates per metric ton of glass produced.

The Pipe Division distinguishes between ducted dust and diffuse dust. For many years, Saint-Gobain plants have been capturing and treating the large volume of ducted dust they generate, drawing on advances in available technology to make ongoing improvements to their filtration systems. In 2009, the Pipe Division's concerned sites generated 1.07 kg of ducted dust per metric ton of finished cast iron produced following treatment. Diffuse dust emissions are less substantial but difficult to capture and treat. Diffuse dust is found only in metal melting areas and consists primarily of mineral substances. There is no standard methodology for quantifying diffuse dust emissions. Nonetheless, the Pipe Division began taking action in 2004 to improve the recovery and treatment of diffuse dust.

The Innovative Materials Sector—Flat Glass Division is taking measures to manage atmospheric emissions from its furnaces and is pursuing its investments in electrostatic precipitators. In 2009, electrostatic precipitators were brought on stream at plants in Calarasi, Romania and Dabrowa, Poland.

The Sector also gained experience after the first full year of operation of new treatment equipment at Saint-Gobain Glass's site in Arboç, Spain. Not only can this equipment capture dust and reduce SO_2 emissions, but it can also control NO_x emissions.

Other regulated substances

Volatile Organic Compounds (VOCs) derive from the organic matter used for various applications, including fiber bonding, binders for glass wool and abrasives, silicon carbide (especially polycyclic aromatic hydrocarbons), asphalt roofing shingles, solvent-based coatings for cast iron pipes and wood finishing and preservation products at Lapeyre. Because the release of VOCs into the atmosphere can pose a chemical risk to employees, chemical risk assessments are planned on a broad scale so that we can gain a better understanding of these emissions and take corrective action to reduce them. The Pipe Division has fine-tuned its applications for solvent-free coatings, such as epoxy powder for pipe fittings, cataphoresis for pipe connectors and, for municipal castings, autophoretic coating, a process developed in 2004 and adopted for use in 2007. Where there is no alternative to solvent-based paints, as is the case for pipes in particular, special equipment is used to capture and treat VOCs via oxidation on the production line.

Other regulated substances generated by Saint-Gobain sites—primarily in the Packaging Sector and Pipe Division—are closely monitored. They include heavy metals resulting from impurities in raw materials, cullet and other furnace input. Based on levels of dust fallout in the vicinity of Group plants as measured by devices installed at several sites in France, our analyses indicate that these substances have a negligible environmental impact. Pollution control equipment, such as the electrostatic precipitators described above, has proven effective in reducing emissions of heavy metals.

Managing natural resources and preserving biodiversity

Saint-Gobain understands that biodiversity is important to humankind and needs to be preserved. We look for ways to limit our impact on ecosystems and to manage the natural resources we use in a sustainable manner.

Although our processes do not, in general, pose a particular threat to local flora and fauna, impact studies are performed in most countries prior to the siting of a new industrial facility.

Soil

Each time a site is acquired or sold, regulatory compliance tests are conducted and the quality of groundwater is assessed. If any contamination is detected, appropriate measures are taken, such as pollution abatement, containment or monitoring.

In managing contaminated sites and soil, the Innovative Materials Sector ensures that precautionary measures and monitoring systems are implemented so that soil at sites in operation is not affected. It also manages rehabilitation of brownfield sites. For example, around 35 acres occupied until 1962 by Saint-Gobain Glass in Aniche, northern France, are currently being redeveloped. Extensive studies of the soil and groundwater have made it possible to identify the sources of potential contamination, control them with geomembrane liners and other techniques and monitor them with piezometers. The redevelopment work, which is scheduled for completion in the spring of 2010, has involved clearing and leveling the land and removing trees, adding layers of soil with a specific level of permeability or membranes, and landscaping around a rainfed lake.

Quarries

The Group operates 161 underground and open-cast quarries worldwide. The vast majority belong to the Gypsum Division.

The quarries are operated in an environmentally friendly manner in compliance with local and national regulations. During extraction and restoration, the effects on local communities and the environment are reduced as much as possible. These include the visual impact of the operations, dust, noise and vibration, added road traffic and any hydrogeological or hydrographic repercussions.

Restoration is planned and gradually implemented during extraction. Areas where extraction is complete are systematically replanted and maintained. This is the case, for example, in two regions near Natura 2000 sites: Sorbas, Spain, where the local flora has been reestablished on 79 acres, and Monte Tondo, Italy, where tunnels have been restored so that tourists can visit archeological sites and scientists can protect and study local bat colonies. In the same vein, the Gypsum Division in France has planted more than 170,000 trees at two quarries that were in operation in recent years: Cormeilles (128 acres) and Le Pin-Villeparisis (106 acres). Varying the type of trees and shrubs planted at different sites helps promote the development of ecosystems.

When extraction is complete, each site is restored appropriately. With open-cast quarries, the Group's aim is to return the land as nearly as possible to its original contours. When this is not possible, the land is sculpted harmoniously to create the right kind of habitats for final use and to blend in with the surrounding environment. Each recovery project respects the local climate and encourages biodiversity with local species. Since the early 1990s, the Gypsum Division in France has redeveloped more than 495 acres of open-cast quarries in the greater Paris region and planted over 190,000 trees.

Indicators developed in 2007 by a working group have provided us with a profile of each mine and quarry site in terms of area, number of Saint-Gobain employees, production in metric tons of usable material extracted, type of site (active, dormant or closed), quantity of minerals sold or transferred internally, number of trees cut and planted and land area restored. As part of its ongoing efforts to address the environmental impact of its extraction sites, the Gypsum Division, which operates the largest number of quarries, is piloting the implementation of a biodiversity policy.

Highlighting cultural heritage inside preserved ecosystems

Saint-Gobain PPC Italia operates Tana del Re Tiberio, a natural gypsum cave with bronze-age finds and bat habitats located near a Natura 2000 site. The karst system is 4,500 meters long and the last 60 meters of the caves are well-known for their archeological features.

After being closed to visitors for years because of safety concerns, the site was recently secured thanks to work to consolidate the cave floor. A monitoring system has also been set up so that archeological excavations can be carried out and visitors can tour the cave without risk.

The local municipality has been given free access rights to the last 60 meters of the cave for 99 years to install a museum and carry out additional archeological work with public and private funds. In this way, it will be able to manage tourist flows more effectively and promote this extremely interesting site.

The caves' tunnels are also home to bat colonies. When the quarry was extended, the entrance to an old tunnel was partially sealed and bat boards were installed in the surrounding forest. Habitat and underground climate assessments have been conducted and the bat populations have been regularly monitored. Six bat species now use the old mine tunnels as an alternative karst environment. Bat populations have both recovered and increased.

Wood supplies

Preserving natural wood resources is a major challenge for the Building Distribution Sector, which manufactures or sells a number of wood products such as flooring, timber frames, shutters and windows. Five banners are particularly concerned by this issue: Point.P, Lapeyre, Saint-Gobain Building Distribution UK & Ireland, Saint-Gobain Building Distribution Deutschland and Saint-Gobain Distribution Nordic. Together they account for more than 90% of the Building Distribution Sector's wood purchases.

A Sector-wide environmental policy on wood was introduced in September 2007 to define purchasing and selling criteria for wood and wood-based products. By setting common guidelines, the policy will help the Sector source more environmentally respectful products, deepen the sales force's involvement and inform customers more effectively.

Upstream, the policy is designed to preserve woodland biodiversity and the surrounding environment for local communities with timber-based economies. Downstream, it aims to develop ever safer products, panels and flooring for users.

The policy is based on two main principles:

- Responsible procurement, which includes three major components: (i) protecting endangered species by adapting the sales plan to reflect each species' degree of vulnerability, (ii) ensuring that all the wood procured by the Group is legally sourced by using effective tracability systems, and (iii) promoting sustainable forest management by increasing the proportion of wood that is certified by the Forest Stewardship Council (FSC) and the Program for the Endorsement of Forest Certification schemes (PEFC), with a focus on local sources.
- Responsible sales, which means involving the sales force and informing customers about the products offered.

Our objective for 2010 is to source 80% of incoming wood from certified forests in 2010 through an approach of continuous improvement, with quantified, set commitments.

Point.P banner Dispano recognized for its active environmental approach

When it comes to responsible procurement and sales, Point.P naturally follows the Building Distribution Sector's environmental policy for rough lumber, flooring, plywood, woodwork and all other wood-based products.

Dispano, a Point.P banner in France with 50 branches specialized in wood, panels and woodwork does not sell certain endangered species, in compliance with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Seven other wood species have been removed from the sales plan either because they are on the International Union for Conservation of Nature's IUCN Red List or because they come from countries that do not comply with international conventions or good forestry practices. Customers are offered alternatives such as stained oak or walnut to replace wenge flooring. Similarly, Dispano substitutes plantation teak for forest grown teak from Myanmar.

In 2009, the French wood commerce association LCB awarded Dispano a maximum three leaves for its active environmental policy following an audit based on the LCB environmental charter. LCB ranks companies on the basis of strict criteria concerning responsible procurement and sales.

Jewson Timber Trading Academy

To truly inform and involve the sales forces in its responsible approach, the Building Distribution Sector needs to develop team members' skills, knowledge and understanding of the timber industry. Saint-Gobain Building Distribution UK & Ireland is doing just that with the Timber Trading Academy developed by main banner Jewson. Numerous Jewson employees have trained at the academy since it opened, gaining specialist knowledge about timber.

Water

In its processes, Saint-Gobain primarily uses water to cool installations that operate at high temperatures. Water is increasingly being recycled internally, which considerably reduces the demand for natural water resources.
In 2009, based on 2007 output, the Group's concerned sites withdrew 89.8 million cubic meters of water, down 2.2% from 91.7 million cubic meters in 2007. The target is to cut water withdrawals by 6% by end-2010, based on 2007 output. In all the Group's sites uses 81.3 million cubic meters of water in 2008.

All the Sectors have taken steps to optimize water use over the years.For example, the Pipe Division, which uses water to cool equipment, has introduced action plans to improve its water management and reduce withdrawals through recycling.
In 2009, the cast iron pipe plant in Santander, Spain became a zero-discharge facility thanks to an effective industrial water treatment and recycling program. Investments to improve existing physical-chemical installations made it possible to achieve this performance. All water is treated and recycled on site, reducing water consumption by a factor of four between 2007 and 2010.

Elsewhere, the Point.P group's ready-mix concrete and concrete products unit has adopted a policy for treating and recycling water used in the production process. Ultimately, each of its facilities will be equipped with settling tanks or recycling stations to ensure that recycled water can be returned to the manufacturing process or used to clean vehicles.

Reducing water consumption is also a priority in the Innovative Materials Sector's environmental policy. The Saint-Gobain Glass plant in Aniche, France, for example, has adapted its water cooling circuit to reduce consumption by installing an osmosis unit with a water softener. As a result, the water used to regulate process temperature is almost pure and can be fully recycled. The installation, which came on stream in early 2009 and is expected to pay for itself within about a year, has allowed the plant to save nearly 100,000 cubic meters of water a year (equivalent to 40% of total consumption).

In Worcester, Massachusetts (USA), the Saint-Gobain Abrasives and Saint-Gobain Ceramic Materials plants have reduced their annual well-water consumption by nearly 80% thanks to joint efforts over the past two years. Until recently the sites used well water in equipment and furnace cooling processes. Not only did this use a precious natural resource, but discharges of hot water on the surface could negatively affect certain species. Solutions included replacing water with air in the cooling system for two compressors and installing a heat exchanger. The site used 96,000 cubic meters of water in 2008 compared with 465,000 cubic meters the year before. Consumption is expected to decline to less than 76,000 cubic meters in 2010, a reduction of 85%-90% from 2007.
In the Packaging Sector, the Port Allegany, Pennsylvania (USA) plant installed a new cooling water recovery circuit that has reduced the amount of wastewater discharged from the plant to the municipal treatment center by more than 80% (or more than 330,000 cubic meters).

2008-2010 objective

Saint-Gobain has set a target of reducing water withdrawals at concerned sites by 6% by end-2010, based on 2007 output. In 2009, the Group had already reduced its withdrawals by 2.2% from 2007.

III. HUMAN RESOURCES

DEVELOPMENT COMMITMENTS

Human resources policies

Saint-Gobain's human resources policies are based on a longstanding tradition of respect for employees, social dialogue and internal promotion. These policies leverage our shared values, described in the Principles of Conduct and Action that all team members are expected to embrace. Senior Management also issues mandatory guidelines on hiring, training, skills development, career management, occupational health, safety and working conditions.

Saint-Gobain recognized for the quality of its Human Resources management

Saint-Gobain Weber Bulgaria (Construction Products) was selected Best Employer of 2009 by Hewitt Associates, an international HR consulting and outsourcing firm, following a survey of 91 Bulgarian companies.

In Brazil, Weber Quartzolit (Construction Products) ranked among the top 150 good places to work, with employees giving it an average grade of 81.2%. For the fourth year in a row, Telhanorte (Building Distribution) won top honors as the most admired company in the building materials distribution category in a survey conducted by *CartaCapital* magazine.

Preparing tomorrow's teams today

Refreshing the age pyramid and building new teams

In 2009, applicants under 26 accounted for 33% of new hires, all socioprofessional categories combined.
Well aware of the benefits of international experience and the acquisition of diversified skills, Saint-Gobain provides rising executives and other employees with opportunities for geographical and functional mobility whenever possible.

In most cases, hiring needs are still defined locally by the Delegations and companies, which devise the most appropriate hiring strategy for their markets. Depending on their needs, they build relationships with national and regional schools and universities, offer internships, sponsor classes and coordinate site tours to introduce Saint-Gobain to students (see section on educational support, pages 74-75).

Each year, the General Delegations take part in university recruitment forums in many countries, nurturing ties with leading business and engineering schools through programs to sponsor a class year or to provide mentoring for selected students.

An example is the Global Player Program introduced by the Central and Northern Europe Delegation to recruit high potential graduates and prepare them for an international career with the Group. The 18-month program includes three successive projects, one of which must be completed outside the participant's home country and Sector. The participants are evaluated at the end of each project and receive comprehensive training throughout the program.

Internships during a student's final year of study are a particularly effective way of introducing our businesses and corporate culture to potential applicants, who can then be inducted more effectively into the Group upon completing their studies. Each year in France, for example, more than 1,000 interns receive training in programs lasting six months or more. The internships are government-regulated and remunerated according to a uniform recommended pay scale.

In close cooperation with the French Agency for International Business Development (UBIFRANCE), Saint-Gobain offers assignments worldwide to French students as part of the country's Volunteer for International Experience (VIE) program. In all, 31 contracts were signed in 2009, bringing the total number of interns hosted since 2001 to almost 250. The United States, Germany, Brazil and the Netherlands were the top destinations for participants. On average, more than 30% of VIE participants are subsequently hired, principally in the fields of industrial processes, finance and research and development.

A core component of the Group's strategy, innovation is driven by an extensive research and development commitment. As a result, particular care is given to recruiting researchers. Despite a general slowdown in hiring in 2009, 43 research managers were hired in the Group's R&D centers around the world to support major strategic projects and contribute to organic growth.

Saint-Gobain has initiated long-term collaborative research projects with top-ranked university laboratories, with the ultimate goal of hiring researchers in strategic countries to help drive our local growth. Higher learning institutions meeting the Group's specifications are being identified and financing has been put in place for thesis work and postdoctoral internships.

Identifying talent

The Saint-Gobain Talents program is designed to identify managers throughout the Group who have significant growth potential or key competencies and demonstrate a high level of professional commitment. As a likely source of future senior managers and executives, this talent pool needs to be prepared for a career shaped by mobility. Operational supervisors are responsible for identifying SG Talents, with support from Human Resources managers at the appropriate level.

Sustaining the Group's long-term development

The transfer of expertise across countries and generations represents a critical challenge for Saint-Gobain, whose businesses rely on precise, complex skills and capabilities. This is an area where our principles of professional commitment and solidarity play a critical role.

In keeping with these values, the forward-looking management of jobs and skills agreement (GPEC) signed in 2008 by CEO Pierre-André de Chalendar and four French labor unions (CGT, CFDT, CGC and CFTC) was deployed in the Group's French companies in 2009. The agreement highlights the signatories' shared commitment to strengthening the role of collective bargaining, to defining a common base of Human Resources planning procedures applicable to all Saint-Gobain employees in France and to giving employees a voice in building their career paths.

The agreement also expresses the Group's commitment to retaining older workers and to expanding work-study opportunities.

Maintaining and passing on expertise is especially important in glassmaking, where the gradual transfer of acquired capabilities and skills poses a strategic challenge. A number of retired engineers, for example, continue to teach and instill their knowledge, notably at the Glass University, a forum for interaction and dialogue where skills can be handed on to a new generation of engineers.

Another initiative designed to facilitate the transfer of expertise is the Manufacturing Know-How Transfer & Training project (MKT2), which is designed for operators in the Flat Glass and Insulation businesses.

Strengthening mutual support among generations

Maintaining ties with previous generations of employees also strengthens team members' sense of belonging and helps them identify with Saint-Gobain's values. This is the goal of the retired employees' club.

The retired employees club celebrates its 70th anniversary

Founded in 1939 by Saint-Gobain employees who wanted to help colleagues taken prisoner during World War II, the retired employees' club is now an institution that reflects the key Group values of mutual support and respect.

The club celebrated its 70th anniversary on March 30, 2009. Honored guests included Jean-Louis Beffa, Chairman of the Board of Directors of Saint-Gobain; Roger Fauroux, Chairman and CEO of Saint-Gobain from 1981 to 1986; Pierre-André de Chalendar, CEO of Saint-Gobain; and Maurice Hamon, Vice President General Relations.

The club's purpose is to strengthen ties among retired former employees and keep them informed of the Group's progress. Aside from organizing cultural and recreational activities, the club keeps track of former employees so they do not become isolated. The club has 3,000 members across France.

Encouraging and facilitating job mobility

Employee mobility is a powerful tool for driving growth and consolidating our corporate culture, as people change positions among our different businesses and country organizations. The number of transfers has nearly doubled over the past decade across both Sectors and regions.

The Human Resources organization includes an international network of mobility managers who guide and supervise employees in planning their move.

Combined into an integrated information system, a wide variety of systems and resources help facilitate the exchange of information on employee aspirations and mobility opportunities. They include:

- The annual performance review, where HR managers can identify an employee's interest in changing jobs in the near to medium term. In 2009, 79% of managers and 48% of non-managers had a performance review. The review is conducted using a standardized form deployed throughout the Group since 2009.
- Employee reviews and succession planning, which are performed every year using a standardized form. These reviews are designed to anticipate possible changes in positions and people over the medium and long term in the various Sectors and Delegations, taking into account each employee's mobility aspirations.
- Easy transfers among Sectors and Delegations, supported by the circulation of a document describing available positions, current and future expatriate opportunities and other key mobility information.

In addition, employees looking to advance their careers have access to several internal sources of information, including a regularly updated intranet site with a list of job openings by country, skills cluster and type of employment contract and an International Mobility Guide that facilitates the process of relocating to a new country.

A common approach to international mobility

To ensure equal treatment and consistency, management of expatriate assignments has been revised and revamped at the global level in liaison with the Sectors and Delegations.

Management of expatriates from France has been centralized at Compagnie de Saint-Gobain. A skills center has been created to harmonize international mobility guidelines and to draw up and manage expatriation and seconding contracts, which were previously handled by the Sectors or Divisions. The same centralization process has been gradually implemented in the Delegations.

For each mobility assignment, the employee's home Sector indicates the type of position requested. The skills center interfaces with the host Delegation to determine the employee's local compensation and living situation. A letter of assignment is drawn up based on standard contracts for expatriation and seconding. During the term of the contract, the employee addresses all questions concerning mobility issues to the HR manager at his or her home Sector, or to the head of executive career management. This reorganization has harmonized the guidelines and contract terms for all employees on an international mobility assignment. It has simplified procedures and put expatriates on an equal footing, notably as concerns health coverage and protection against fluctuating exchange rates.

The updated International Mobility Guide issued in September 2009 has been revised to reflect these new guidelines.

At the end of 2009, 1,379 executives were working outside their home countries. Of these, 401 were expatriates, a significant decline from the year before. In its commitment to creating more international teams, the Group is focusing on promoting local managers, notably in emerging markets. Local team members represent 100% of the senior management team in India, for example, and 94% in Brazil.

Geographical and job mobility is not restricted to managers. Technicians are also offered opportunities to apply their experience abroad or as part of project teams in multicultural environments. In the Innovative Materials Sector—Flat Glass Division, for example, an average of 15 technicians and supervisors are posted to international assignments each year to help build or repair furnaces or to provide technical assistance at processing units.

Developing skills through training

The Group has an unwavering commitment to training, no matter how the economy is performing.

In 2009, all programs were carried out as planned. That said, less costly options, such as distance training, were favored.

Distance training reaches more people (69% of employees in 2009 versus 66% in 2008) and noticeably reduces the overall training costs (2% of payroll in 2009 worldwide compared with 2.5% in 2008).

Training policies are designed to support deployment of our strategic vision, notably by helping to develop employee capabilities in emerging markets and in building skills clusters.

They are driven by three priority objectives.

Making training more accessible to all employees

To train the greatest number of employees, instructional courses and on-the-job training programs have been pushed far down to the local level with the support of the Delegations and local managers.

Focus on apprentices

In January 2009, Saint-Gobain Building Distribution in Brazil introduced a two-year training program for apprentices comprising two modules—"Administration and Human Resources" and "Sales"—as well as an internship in a sales outlet. One hundred apprentices have participated in the program.

New front-line training centers have been opened at Weber in Norway and at Placoplatre in France (see below).

First training center in Norway

On March 4, 2009, Saint-Gobain Weber (Construction Products) opened its first training center in Norway next to the light aggregates plant in Lillstrøm, near Oslo. Nearly 150 people attended the inauguration, including leading customers and partners and executives from Saint-Gobain Weber and the Construction Products Sector. The center comprises a demonstration lab for practical training, specific displays for products and solutions and high-tech meeting rooms. This in-house training center will also serve as a Saint-Gobain Weber international training platform, notably for flooring products.

Distance learning offers the triple advantage of easy access, quick implementation and lower costs. In addition:

- Each employee can organize his or her schedule to limit the impact on operations.
- A large number of employees can be reached in a short period.
- No travel is required, resulting in lower costs and fewer CO_2 emissions.

Distance learning is particularly well-suited to the acquisition of basic knowledge about products, skills clusters, foreign languages, etc., as well as to one-off training on important topics. It is also useful for supporting cross-functional projects (EHS modules, annual performance review, managerial capabilities scorecard, etc.).

To develop this new type of training, the Training Department has set up e-learning relays in the General Delegations and large operating units. In 2009, 62 people received training in the design and deployment of on-line training modules.

In North America, a dedicated e-learning platform has been commissioned offering direct access to some one hundred online courses for all managers located in the Delegation's scope.

Saint-Gobain Abrasives University in Europe

The Abrasives University trains all Abrasives Division managers and non-managers in Europe. The University's 75 trainers in 26 countries offer courses in 11 languages, with a focus on products, sales and management (in liaison with the Saint-Gobain School of Management). Its goal is to make each individual an abrasives professional. In all, 4,630 employees have been trained at the University since it opened in October 2007.

In response to the 2009 recession, the University looked for innovative solutions to maintain training while gaining in efficiency. Courses on pricing and product lifecycle management were adapted and put online, as were several technical seminars. The University was included in the Group's intranet during the year, under "Form@net". It also published its first catalogue of courses in Europe in both hard copy and electronic versions.

In 2010, the University will build on work done in previous years, ramping up technical programs for the sales force. It will focus in particular on "Professional Selling Process", a program designed to win back market share in technical businesses.

The MKT2 Program

Distance learning is open to all employees, not just managers. It is widely used to deliver technical training, especially to sales representatives in the Building Distribution Sector and operators in the Innovative Materials—Flat Glass and Construction Products Sectors.

For example, the Manufacturing Know-how Transfer & Training program (MKT2) is helping to capitalize best practices in existing units and step up their transfer to new ones. After a successful launch in the Innovative Materials Sector—Flat Glass several years ago, MKT2 is now being deployed in the Insulation Division.

Nearly 130 modules were created in 2009, representing more than 130,000 hours of training.

Supporting implementation of the Group's strategy

Training plays an active role in the implementation of our strategy, with major initiatives supported by training programs conducted Groupwide or within the Sectors and Delegations.

The drive to improve operating efficiency, consolidate technological expertise, deploy World Class Manufacturing projects and enhance environmental, health and safety performance is prompting the development of training programs that are regularly revised and realigned with the changing needs and trends in our businesses.

Technical training, broadly defined, accounted for 51% of all training in 2009, while EHS courses accounted for 24%.

The World Class Manufacturing program

Unprecedented training was required to deploy the World Class Manufacturing (WCM) program, a core component of Saint-Gobain's policy to reduce costs, improve performance and increase customer satisfaction. The Training Department led the way at the corporate level, supported by the Sectors and Delegations, so that all operations could be covered.
In all, 120 Champions, 200 Black Belts, more than 1,000 Green Belts and 70,000 employees have been trained. In 2009 alone, this represented 400,000 hours of training worldwide. Nearly 550 sites were able to introduce or expand WCM in the front lines.

Another goal of training is to expand our marketing capabilities. In addition to courses offered at the corporate level, the Delegations are gradually organizing specific programs dedicated to marketing or sales development in their geographic areas. Similar steps are being taken for purchasing.

At the same time, deployment of the "SMKT2" sales and marketing training program is continuing in China.

The Building Distribution Sector is also developing the skills it needs by training low- or unskilled employees directly in-house. Since 2004, Point.P has been offering front-line employees (storeroom attendants, drivers, sales people) and local managers (store managers, shift supervisors, etc.) in France programs that enable participants to earn a Vocational Qualification Certificate. By the end of 2009, more than 2,500 employees had successfully completed certification.

New training center in Chambéry

Making new and existing buildings more energy efficient is the best way to achieve the objectives set out at France's environmental summit. To meet this challenge, solutions must be implemented properly by committed professionals. Saint-Gobain, through its subsidiaries, has set an ambitious goal of training 5,000 building contractors and professionals each year.
On February 5, 2009, a new training center was inaugurated in Chambéry, France, extending the network of local centers in France, with locations in Guipry, Strasbourg, Vaujours and, soon, Chemillé. The Chambéry center is designed to train up to 1,000 participants a year. Its programs are targeted to building professionals and young job seekers in the Rhône-Alpes region and south-eastern France.

Located just a few meters from a Placoplatre® plant and built onto a renovated storage facility, the center is a perfect example of sustainable building and low energy consumption. A 450 square-meter roof-integrated photovoltaic array supplies a third of the center's needs. The array's total annual output of 27,000 kWh (representing the annual consumption of 12 households) is sold back to national electric utility EDF and fed into the grid as part of a 20-year contract. As a result, nine metric tons of CO_2 emissions are avoided each year.
The center offers business owners, contractors, wholesalers, specifiers and teachers a selection of courses in six areas: renovation, residential buildings, non-residential buildings, finishing work, regulations and technical solutions, and introduction to Placo® products and systems. The program combines classroom theory and hands-on training. A special program on making buildings more energy efficient is in the works.

Strengthening and instilling our corporate culture

Training courses and workshops also offer a prime opportunity for strengthening ties among the members of our corporate community and enhancing their sense of belonging.

The School of Management plays a critical role here, supporting managers at every step in their careers and serving as a unique forum for cross-fertilization among our cultures, businesses and functions. Its courses are designed both to provide training and develop managers' capabilities in fields targeted for expansion and to promote interaction and closer ties among managers from different Sectors, professional backgrounds and countries.

In 2009, the School of Management offered 24 sessions, attended by 660 managers. This was 3% less than in 2008, but much higher than in previous years.

The 2009 student body represented 45 different nationalities (versus 26 in 2001), confirming the Group's growing cultural diversity and the School of Management's support for diversity. In a sign of the Group's commitment to integrating local teams

more effectively, employees from emerging markets accounted for around a third of the participants. A session entitled "New Managers" was launched in Southeast Asia in 2009 to bring training closer to local teams.

The FIND (Fast INDuction) new-hire orientation program launched in the Benelux countries in 2008 was extended to other countries during the year, with final deployment scheduled for 2010. Designed to ensure a smoother induction for new employees, FIND combines traditional training techniques with distance learning as a way of introducing participants to the Group, its values and its culture.

The Master's program, a key platform for instilling the Group's messages, methods and values, was entirely revamped during the year. A first introductory session using the new format began in November 2009.

Expanding diversity and equal opportunity

Respect for diversity and opposition to every form of discrimination are enshrined in the Group Principles of Conduct and Action, and specifically in the principles of respect for others and respect for the rights of employees. These principles shape our Human Resources practices at every step in an employee's career.

In addition to its general commitments to fostering diversity and providing opportunities for the disabled, the Group actively develops initiatives in each host country that are aligned with local practices and culture and that meet the specific needs of each business.

Fair hiring practices

At the Group level, every step in the hiring process, from advertising open positions to selecting curricula vitae and conducting interviews, is based on the most objective, professional criteria possible. Although specific practices may vary from one company or country to another, any form of discrimination is universally proscribed.

In France, community outreach initiatives have been organized in recent years, in association with Saint-Gobain Développement, to match young people seeking employment or vocational training with potential employers. One example is the "100 opportunities—100 jobs" program to provide job opportunities to young people with few skills from disadvantaged neighborhoods. Saint-Gobain has participated in the program since 2006. In 2009, Saint-Gobain helped launch the "100 opportunities—100 jobs" program in the Nice area (see box page 75). Another example is the "Our neighborhoods have talent" initiative to provide job opportunities for young graduates from low-income neighborhoods. Saint-Gobain signed on to the initiative in 2009 (see box page 75).

Fostering gender diversity

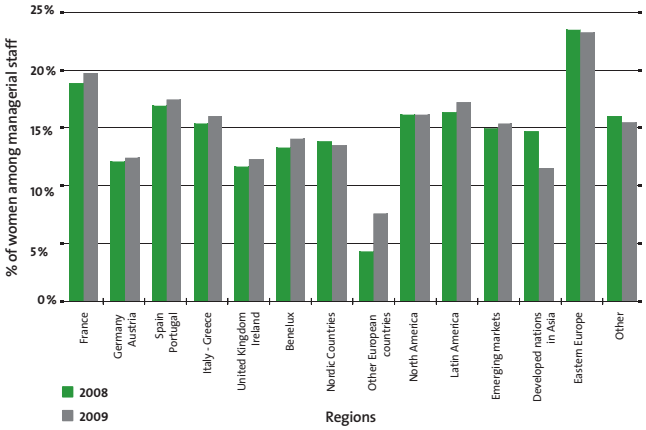
The percentage of women in the Group's workforce held stable in 2009, at 20.1%.

Of the 38,338 women working at Saint-Gobain as of end-2009, 10.7% were managers, 66.0% were administrative employees, technicians or supervisors and 23.3% were operators.

The Group is committed to achieving a better gender balance, particularly at the managerial level, with regard to both hiring and access to positions of responsibility.

Among managers working outside their home countries, 20.5% were women.

The percentage of women managers increased to 16.4% overall, with Eastern Europe and France reporting the highest scores at 23% and 19%, respectively. Operations in northern Europe had lower percentages (12%-14%), as did those in developed Asian nations (11%).



In all, 76.7% of the women at Saint-Gobain were employed in white collar positions, versus 75.3% in 2008.

Several measures have been introduced to help women rise up through the ranks.

- Special emphasis has been placed on increasing the number of women attending the School of Management. The percentage of women in the student body increased to 22% in 2009 from 19% in 2008. Women accounted for 14% of the participants in the International Management Seminar, 23% in the New Managers sessions, 22% in the Line Management courses and 26% in classes on the Group and its businesses.
- A section devoted to female gender issues is systematically included in employee reviews, which are especially important tools in managing careers and preparing succession plans.
- Periodic reports and an annual assessment are submitted to the Chief Executive Officer, describing progress in enhancing gender balance at each level of responsibility and within each business process.

In addition to corporate initiatives, local measures have also been introduced to make a targeted impact aligned with conditions in each business or country.

In the United States, for example, the Women's Network was created in 2003 by female managers in the North America Delegation. It meets on a regular basis to track and lead a number of programs, such as mentoring new employees, providing recruitment support and advice, and sharing information with networks in other countries.

In 2009, women accounted for 23.4% of new hires, up from 22.5% in 2008.

A Saint-Gobain Woman of Distinction

Shawn Puccio, Vice President of Finance, Saint-Gobain Corporation, was a recipient of the 2009 Women of Distinction award from the Philadelphia Business Journal. The award recognizes remarkable women who are making headlines in their professional field and in their community.

Supporting integration of the disabled

Disabled persons represented 4% of employees in France as of December 31, 2009, compared with 3.6% in 2008. This increase reflects efforts by local subsidiaries to facilitate inclusion of disabled employees in the workplace.

When employees become disabled, the Group is committed to retaining them whenever possible. In France, 155 workstations were adapted for disabled persons in 2009.

During the year, French action plans for mainstreaming the disabled continued to expand in a variety of areas, including hiring and retaining the disabled, outsourcing to sheltered workshops and companies employing people with special needs, and employee sensitivity training. At the same time, a disability task force comprising Human Resources managers from the various businesses meets regularly to allow members to share their practices and enhance action plans.

As in previous years, Saint-Gobain took part in several forums throughout France designed to give disabled students and young graduates a chance to meet with companies. The largest was the job fair organized in November as part of France's Disability Week by ADAPT, an association that promotes the integration of the disabled into society and the workplace. During one of the week's events, several Saint-Gobain teams played host to young visitors to let them experience an actual job or business activity first-hand for a day.
In addition, several Group companies are members of the Tremplin (Springboard) Association, which assists and coaches disabled students and graduates entering the job market and provides access to a network of employers in the greater Paris area. Several participants have already joined the Group as interns or new employees.
Group companies are also encouraged to use sheltered workshops, and several Sectors have set up outsourcing agreements with sheltered employment programs and companies with special-needs employees.

Signature of a charter to include disabled persons in the workforce

On November 13, 2009, Saint-Gobain joined 30 other CAC 40 companies in signing a charter presented by the French Secretariat of Family and Solidarity to include disabled persons in the workforce.

The signatories undertake to:

- Pursue their efforts to bring disabled persons in the workforce and to include issues facing the disabled in their corporate strategy.
- Help change collective perceptions of disabled persons in society and within the corporate world.
- Deploy resources to make buildings and training accessible to the disabled, from schoolchildren to students to employees.
- Share best practices for including disabled persons in businesses.

Hiring and retaining older employees

Applicants age 50 and better represented 4.7% of new hires in 2009. In accordance with the French social security financing act passed in 2009 and to increase the employment rate for seniors, stop the trend towards early retirement and preserve pension schemes, Saint-Gobain units in France signed agreements or implemented action plans with specific targets and tracking indicators in the following areas:

- Hiring of older employees.
- Forward-looking career planning.
- Improved working conditions and prevention of physically challenging situations.
- Development of skills and qualifications and access to training.
- End-of-career scheduling and transition to retirement.
- Transmission of skills and competencies and development of mentoring.

Honest, open, high quality social dialogue

In each business, most of the social dialogue process takes place at the company or facility level, where it can deliver an appropriate response to local concerns and issues. Employee representatives negotiate and sign agreements with individual companies, in accordance with local legislation and practices. These practices vary from country to country. In 2009, 64% of employees had an employee representative body in their unit.

Of the 1,579 agreements signed with employee representatives during the year, 29% addressed compensation issues, 25% jobs and 22% work organization.

In all, 64% of employees (99.7% in France) are covered by a collective-bargaining agreement.

European social dialogue

Since 1988, the European Social Dialogue Convention has helped to enhance the quality of the social dialogue process by addressing issues of mutual concern and facilitating the exchange of information, supporting both local negotiations with employee representatives and the Group's Europe-wide employee relations commitment.

Now comprising 70 union representatives from 20 European Union host countries plus Switzerland and Norway, the Convention's annual meeting offers an opportunity for General Management and employee representatives to exchange views on the Group's strategy and on various business, financial and employee relations issues of concern to all of our European subsidiaries.

A permanent secretariat provides a forum for more extensive and frequent dialogue with management. It currently includes nine members of eight different nationalities (German, French, British, Spanish, Italian, Dutch, Norwegian and Polish) who are provided with technological resources and receive time-off pay for the performance of their duties.

The permanent secretariat is led by a three-member committee comprised of a secretary and two deputy secretaries. This tends to be the most active part of the organization during the year, since it is responsible for monitoring the general process and ongoing day-to-day dialogue with management. In turn, management keeps the committee informed of any international transactions that affect the Group's scope of consolidation or structure.

General Management requested an increase in the number of meetings with the permanent secretariat to respond to questions from employee representatives about the current business environment.

Particularly important in periods of economic and financial crisis, social dialogue helps employees understand the Group's strategy while allowing the Group to anticipate possible difficulties down the road and reduce the impact on the workforce. An outside expert reviews all of the Group's industrial facilities in Europe and works with Sector management to identify potential restructuring risks. A summary of the expert's finding, updated annually, is distributed to the Convention's 70 members.

New agreement drives further progress in European social dialogue

On September 23, 2009, an addendum to the Group's 1992 European Social Dialogue Agreement was signed by CEO Pierre-André de Chalendar, the delegation responsible for implementing the Agreement, led by Thierry Logeon, delegation secretary, and the two representatives of the EMCEF and FECCIA European trade unions, Sylvain Lefebvre and François Vincent.

"At Saint-Gobain, social dialogue isn't just a fad," noted Pierre-André de Chalendar in the October 2009 issue of *The Month*. "The Group has consistently demonstrated a deep commitment to active, sincere social dialogue that complies with our Principles of Conduct and Action and that respects employee representatives' rights." The addendum aligns the 1992 Agreement with Directive 2009/38/CE of the European Parliament and Council dated May 6, 2009, on European Works Councils. It describes, in particular, the process for informing and consulting employee representatives in Europe on transnational employment issues. While European social dialogue does not replace the work done by local representative bodies, which perform their duties in accordance with local legislation in units across Europe, it is the key forum in which Saint-Gobain management consults with employee representatives on strategic issues. The objective is to involve employee representatives more deeply in major decisions that affect the company's everyday operations, creating a climate of trust that nurtures meaningful discussion. With the signature of the addendum, the secretariat—re-named "Select Committee"—was given broader responsibilities. "This addendum is an important step forward that will help us anticipate challenges we will be facing in the area of employment together," explained Pierre-André de Chalendar." During the first half of 2009, Group management met with the representatives of the European trade unions on several occasions in order to respond effectively to the need to anticipate and support change at European level. This dynamic will continue so we maintain a long-term dialogue with employee representatives."

Assessments and surveys

Saint-Gobain continuously pursues dynamic, interactive dialogue with employees, through a variety of forums, surveys and interviews, in a commitment to fostering a sense of alignment among the various internal stakeholders and to effectively addressing employee expectations and aspirations.

A number of regular events enable managers to talk directly with General Management. Held four times a year, the Carrefours Saint-Gobain forums offer 200 to 300 managers an opportunity to gain greater insight into our strategic vision, as senior executives talk about our strategic challenges, priorities and objectives, and then answer questions from participants.

Some of the Delegations and companies also regularly conduct surveys to gauge employee opinion at every level and define local action plans. This is the case at Point.P, for example.

The Brazil Delegation encourages its subsidiaries to survey their entire workforce every one or two years to assess employee views and expectations on Group strategy, the image of the company and the Group, working conditions and the extent to which their personal aspirations are being fulfilled.

Employee compensation and profit-sharing

Wages

Compensation policies are designed to be fair, motivating and transparent. The Delegations set base salary scales for their region by country and business, in line with market practices. Each company sets employee salaries based on its business and its financial and employee relations situation. Wages of blue collar workers and non-managers are at least in line with the levels defined in the collective-bargaining agreements.

In addition, to foster team spirit and ensure that all employees have a stake in their company's success, the Group encourages member companies to sign discretionary profit-sharing agreements whenever possible. In France, 99% of employees were covered by such an agreement in 2009, with the French subsidiaries paying a total €57.5 million in profit-shares for the year, or 6.9% of total payroll. The reason payout decreased by around 10% from 2008 is that discretionary profit-sharing criteria are often based on performance targets that were harder to meet due to the recession.

Managerial compensation generally includes a bonus, governed by rules set at the Group level and tailored to each region based on local conditions.

Saint-Gobain adopted common guidelines for determining variable and other bonuses in 1999. In 2009, these guidelines were revised and combined into a single system for all of Europe based on three factors: individual performance, the unit's performance and, in the interest of mutual support, the performance of the Division, Sector or Delegation. Uniform assessment criteria measure and reward improvements in profitability and cash preservation. Other criteria are also used to measure workplace safety, team and skills development, successful completion of specific projects and other non-financial factors. To align bonuses with local situations, the new system is administered by the General Delegations in liaison with the Sectors.

Supplemental benefits

In most host countries, subsidiaries provide employees with supplemental healthcare and other benefits, as well as stipends for meals and occasionally for transportation. These additional benefits vary considerably from one country to another. They generally go well beyond employers' obligations under labor law and depend on local living standards.

The Group Savings Plan

Since 1988, the Group Savings Plan has helped to give employees an even greater stake in their company's earnings and growth by enabling them to become shareholders under preferential terms. They are not only offered shares at a discount, but in some countries they are entitled to an attractive matching contribution as well. Investments in the Plan must be held for a period of five or ten years.

At the end of 2009, Plan funds held 7.6% of Compagnie de Saint-Gobain's outstanding capital and 9.6% of the voting rights (see page 106).

The Plan was extended to China and Bulgaria during the year, bringing the total number countries covered to 42.

Saint-Gobain recognized by employee share owners association

In November 2009, Saint-Gobain was recognized with the 2009 Lauréat d'honneur award from the French Federation of Employee Shareholders (FAS) at the Actionaria exhibition, in Paris.

Grant of seven shares without consideration to all employees

On November 19, 2009, the Board of Directors approved a global plan to grant seven shares without consideration to all Group employees. The grant was contingent on the grantee's period of service with the Group and on the rates of growth in the Group's consolidated operating income (excluding the Packaging Sector) for the years 2010 and 2011. The program's goal is to enable all Group employees to be Saint-Gobain shareholders.

In 2009, Saint-Gobain set up a socially responsible investment fund for employees within the Group savings plan with a focus on sustainable development. Five to ten percent of the diversified fund is continuously invested in socially responsible French companies to finance inclusion programs, and the rest is invested primarily in bonds and shares of socially responsible companies in other European countries.

Employment data

At December 31, 2009, Saint-Gobain had 191,442 employees.

During the year, the Group had to take rightsizing measures in response to the recession. Because the economic and financial crisis was global in scope, the Group took action worldwide. All Divisions and regions were asked to make cuts so that the workforce breakdown by Division and region remained relatively stable.

By Sector

The Building Distribution Sector accounted for 35.3% of total headcount, followed by the Innovative Materials Sector (31.3%) and Construction Products (24.4%).

Innovative Materials

The Innovative Materials Sector felt the greatest impact from downsizing, with headcount declining by a gross 11.4% between 2008 and 2009.

- **Flat Glass**

The flat glass workforce declined by 9.9% like-for-like in 2009.

- **High-Performance Materials**

The number of High-Performance Materials employees declined by 13.1% like-for-like during the year. Cuts were spread across the business portfolio, with the largest number in Abrasives.

Construction Products

The Construction Products Sector saw its workforce decrease by a gross 8.1%.

Like-for-like, the reduction came to 9.2%, spread across all Divisions (Exterior Products, Pipes, Gypsum, Insulation and Industrial Mortars).

Building Distribution

Total employment in the Building Distribution Sector declined by a gross 7.7%.

Rightsizing was carried out at virtually all of the banners in response to lower market demand.

Packaging

The Packaging Sector saw its workforce decrease by a gross 3.8%.

By Delegation

Overall headcount in the Delegations declined during the year, with the largest declines seen in the regions hardest hit by the recession.

On a like-for-like basis, the cuts were as follows: Mexico, Venezuela, Colombia & Central America, down 16.5%; Eastern Europe, down 14.2%; North America, down 13.5%; Asia-Pacific, down 13.1%; Spain, Portugal, Morocco, down 12.2%; Russia and Ukraine, down 10.9%; United Kingdom, Republic of Ireland, South Africa, down 9.6%; Central and Northern Europe, down 9.1%; Italy, Egypt, Greece, Turkey, down 6.8%, France, down 6.3%, Brazil, Argentina, Chile, down 3.9%, and India, down 3.1%.

Separations

The separation rate narrowed by 0.5 points to 17.8%.

- Attrition declined to 10.6% from 13.2% in 2008.
- The resignation rate decreased sharply to 4.5% from 7.1% in 2008. This trend was seen in all Sectors and all regions, with the notable exception of India (13%). In a recession, employees seemed to have more interest in pursuing their careers within the Group.
- The overall termination rate rose to 8.6% from 5.8% in 2008, reflecting workforce cuts made necessary by the recession. All the Sectors were affected, in varying proportions.

The termination rate stood at 17.3% in Latin America, 14.8% in North America, 13.2% in Central and Eastern Europe, 6.3% in Western Europe and 5.5% in the emerging economies of Asia.

Because the impact of terminations was offset by the lower attrition rate and decline in resignations, the overall separation rate was virtually stable and had no direct effect on changes in employment data.

Restructuring

Layoffs, restructuring programs or site closures are carried out only when they are unavoidable to preserve the financial health of the subsidiary or Sector in question. In such cases, the Group's size and diverse business base offer a wide variety of opportunities for inplacement transfers.

In France, restructuring may include plans to preserve employment, as was the case in 2009 in the Avignon employment pool, or voluntary separation, which is sometimes better suited to certain situations. In all cases, Saint-Gobain Développement leads an active support process designed to place as many of the affected employees as possible in new positions. In particular, local job centers deliver ongoing, personalized support, even after the work site has closed. Procedures are also in place to address the professional, material, psychological and personal consequences of losing one's employment. Depending on their needs, employees may benefit from additional training, relocation assistance, spousal job placement or support for pursuing a personal project.

Signature of a mobility support agreement in connection with the deployment of shared services centers within the Group, in France

General Management has continued to deploy the Symphonie program as part of its strategy to make administrative processes more efficient by leveraging synergy within the Group. Symphonie's measures are designed to make organizations even more efficient, notably by automating and pooling certain administrative tasks that, until now, were handled by different Saint-Gobain companies.

On January 20, 2009, the Employee Relations Department in France signed a Groupwide agreement with employee representatives to provide support for mobility in connection with the deployment of shared services centers. The agreement calls for a set of assistance and support measures to encourage employees to accept positions in a shared services center whenever possible. These measures are applicable in all Group companies in France concerned by this issue.

Hiring

Given that the overall separation rate remained virtually unchanged, the decline in the workforce reflected reduced hiring. An assertive policy was implemented at the Group level and operations managers were asked to be extremely selective in renewing their teams. All hiring plans had to be validated higher up.

As a result, the hiring rate declined to 9.2% from 16% at end-2008 and 20.1% at end-2007.

This decline was apparent in all Sectors, with hiring down 58% in the Innovative Materials Sector, 47% in the Construction Products Sector and 44% in the Building Distribution Sector.

In all, the Group hired 17,354 people in 2009, around half as many as in 2008.

All host regions were involved in scaling back hiring.

Use of temporary workers and subcontractors

Temporary work

In a tight employment situation, the use of temporary workers is carefully monitored to ensure that it is truly justified. Common reasons include a lack of visibility for certain incoming orders, temporary difficulties in hiring and the need to replace an absent employee.

The absenteeism rate was 3.7% in 2009, versus 4% in 2008. The most common causes of absenteeism are illness, maternity leave and workplace accidents.

The services of temporary work agencies are particularly well suited when there is little advance notice and the duration of the need is unknown. This makes them an ideal solution for replacing absent employees, bridging a temporary gap or satisfying a large manpower requirement at short notice. Hours worked by temporary staff represented 7.2% of total hours worked in 2009, with sharp differences by region.

Fixed-term employment contracts are more effective for assignments spanning several months, such as to replace workers on maternity leave or extended sick leave, or to handle spikes in production resulting from large orders. The percentage of Group employees on fixed-term contracts declined to 3.4% in 2009 from 4% in 2008 and 6.2% in 2007.

During the year, 31.1% of fixed-term employment contracts were converted to permanent contracts, compared with 48.5% in 2008.

Subcontracting

Group companies in every host country use subcontractors to perform certain activities that fall outside their core competences. Two types of task may be outsourced:

- The most common are ancillary tasks such as security, maintenance, cleaning, catering, medical services and, at smaller units, payroll, information technology and accounting.
- Other tasks that are sometimes outsourced include packaging, goods transport and various handling tasks. While related to product production and distribution, these services remain peripheral to each Sector's core business.

Before signing an outsourcing agreement, subsidiaries are required to verify that the partner company's operations and employment contracts comply with applicable legislation. Employees of service providers and subcontractors working on a Group site are expected familiarize themselves with site safety standards upon their arrival. During their presence on-site, they are subject to the same health and safety rules and regulations applicable to Group employees working at the same facility. They receive specific training in these areas as needed.

Employee categories

Managers

The proportion of managers in the workforce rose to 13.1% in 2009 from 12.3% the year before.

The percentage is generally higher in Western countries, where our longer history is reflected in a greater number of head offices and Research and Development centers. This is especially true in France (16.5%) and North America (20.8%).

India is a special case, with managers accounting for a record 22.1% of the workforce.

In 2009, women accounted for 16.4% of the Group's managers.

Administrative employees, technicians and supervisors

This category, which also includes sales personnel, rose to 41.3% of the total workforce from 40.5% in 2008 and 39.2% in 2007. In 2009, women accounted for 32.1% of employees in this category. However, in Russia, Eastern Europe and North America, the percentage of men and women is more or less the same overall.

Operators

Operators represented 45.5% of the total workforce in 2009, a nearly two-point decline from 47.3% in 2008. The decrease was seen in all Sectors and regions, with the exception of India, where the percentage increased by 2.2 points.

Women accounted for 10.3% of the category in 2009.

Working conditions

Shift work

Shift work primarily concerns the manufacturing operations, where it is organized in response to technical production requirements. Distribution operations are not generally organized in shifts.

In 2009, 32.6% of employees in manufacturing operations worked in shifts. Days may be organized into two, three or more shifts, in the case of round-the-clock production, 365 days a year. Groupwide, round-the-clock production is performed in cycles, with alternating active and idle periods. In every country, shift workers work fewer hours a year than day workers.

In Building Distribution, customer needs at certain banners sometimes require that employees work in shifts. This is the case in Brazil, for example, where some stores are open 24 hours a day.

Overtime

To respond to a temporary increase in workload, some Group companies are occasionally required to ask their employees to work overtime. On average, overtime represented 3.9% of all hours worked in 2009.

Part-time work

Part-time work concerned 3.3% of the workforce in 2009.

IV. VALUES SUPPORTING

RESPONSIBLE GROWTH

Promoting the Group's values and preventing business risks

Saint-Gobain's response to the challenges of sustainable development is rooted in the values shared by all our employees.

These shared values are enshrined in the Group Principles of Conduct and Action, which everyone in the corporate community is expected to apply.

The Principles have been translated into 33 languages and distributed to employees at every site in our host countries.

The Responsible Development Department coordinates programs to ensure that the Principles are integrated in daily management practices. General Management has asked to the Sectors and Delegations to systematically refer to the Principles in all employment contracts. Similarly, the annual performance review form used throughout the Group includes a specific paragraph on compliance with the Principles of Conduct and Action.

Certain corporate departments, such as Purchasing and Environment, Health & Safety, have prepared charters adapting the Principles to address their specific issues. In addition, Delegations in the United States, India and other countries have drafted local charters extending the Principles in their region.

Lastly, the Responsible Development Department participates in the some thirty management seminars organized each year by the Group Training Department. The General Delegations also arrange targeted awareness-building initiatives for employees in their respective territories, in liaison with the Responsible Development Department.

On July 23, 2009, the Board of Directors approved the launch of a Group Compliance Program to ensure that the Principles are applied properly in all Divisions worldwide.

Group Compliance Program

Over the years, Saint-Gobain has taken the necessary steps to deploy a clear policy affirming its values and rules and to ensure these values and rules are effectively applied. Key documents include the Principles of Conduct and Action, the Competition Plan and charters prepared by the Purchasing, Suppliers and Environment, Health & Safety departments. The Responsible Development, Audit and Internal Control departments also play a major role.

ALIGNING AND ENHANCING EXISTING SYSTEMS

The Group Compliance Program relies on four main levers to align these systems and make them even more effective:

The Responsible Development Department, which issues the Principles of Conduct and Action and educates employees on their application. The department is responsible for making employees aware of the Principles so that they use and apply them in their daily work. More broadly, the department supports the functions in applying the Principles and adapting them to each skill-set, such as Responsible Purchasing.

The Competition Plan, which is designed to teach team members about the basic rules of competition law and ensure full compliance throughout the Group. Training and spot audits have been developed and applied in all Divisions and host countries, including those where competition law is less stringent than in Europe and the United States.

Internal Control, which is responsible for controlling the units' main business risks. The internal control system is designed to ensure that units comply with laws and regulations and apply the strategy and guidelines set by General Management. Internal control also verifies that processes operate properly, that financial information is reliable, that property, plant and equipment and intangible assets are safeguarded and that fraud is detected and eradicated. The Audit and Internal Control Department has designed and deployed a compliance statement that all Division heads are asked to sign each year.

A whistle-blower system, which is being deployed in the Group's host countries to enhance compliance and give employees a way to alert correspondents of any serious violations of the Principles of Conduct and Action, applicable legislation or internal procedures. In implementing this system, the Group is taking into account any legal or administrative constraints, as well as national regulations governing this type of procedure.

The whistle-blower system comprises one e-mailbox per country, accessible solely through the Group intranet. The rules of use are as follows:

- The system is non-obligatory and, except in exceptional circumstances, limited to cases where the violation has already been reported to supervisors with no result.
- The violation must be serious.
- The report must be submitted in good faith.

- Anonymous reports are not accepted.
- The whistle-blower's identity must be kept confidential. In addition, no disciplinary action may be taken against an individual for filing a report.

CASCADING THE SYSTEM TO ALL LEVELS

The Group Compliance Program is global in scope and applies to all Saint-Gobain host countries. Reflecting the Group's matrix organization, the program organization includes a network of front-line correspondents backed by Compliance Committees.

Network of front-line correspondents

Each General Delegation has appointed one or more compliance correspondents, depending on its organization and linguistic profile. Two correspondents have been appointed in France. Their mission is to implement all aspects of the Group Compliance Program, with a special focus on local communication and training and management of the whistle-blower system. As concerns this system, correspondents are responsible for taking appropriate measures after consulting with the General Delegate and for reporting any suspected fraud to the Audit and Internal Control Department.

Compliance Committees in the Delegations

The Compliance Committees are another key component of the compliance system in the Delegations. Chaired by the General Delegate, the Committees are made up of functional and operational managers in each General Delegation's host country or countries, as well as its compliance correspondents. The Committees meet periodically to hear the report(s) of the compliance correspondent(s), review any difficulties in applying the program and offer suggestions on improving the program. The compliance correspondents are responsible for implementing the Committees' instructions.

Group Compliance Committee

The Group Compliance Committee, comprising representatives from Compagnie de Saint-Gobain and the Sectors, meets at least three times a year. The Committee reports to the CEO. It reviews reports submitted by the correspondents and any comments from the Delegation Compliance Committees. The Group Compliance Committee coordinates the Delegation Compliance Committees' actions, issues instructions and proposes additional measures to ensure or improve the Group Compliance Program's effectiveness worldwide. It files a report with the Chairman of the Board of Directors of Compagnie de Saint-Gobain. The Group Compliance Committee also serves as the Delegation Committee for France, which includes France's two compliance correspondents.

Responsible development

In addition to the measures to promote the Principles described above, particular efforts were made in 2009 to raise awareness among non-managers. During the year, the Construction Products Sector included a module on the Principles in its annual seminar on safety.

In addition, a module known as "Adhere" has been developed to ensure systematic training on the Principles for the broadest possible audience.

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Online training in the Principles of Conduct and Action

Training resources have been improved to help employees understand and embrace the Principles of Conduct and Action. The Responsible Development Department, with support from the Training Department, has developed an online training program called "Adhere" along the same lines as the "Comply" module on competition law used since 2006. With "Adhere", users are asked to guide fictional characters in different situations, based on the Principles of Conduct and Action. The goal is to give employees a simple and active opportunity to think about the consequences of certain on-the-job decisions and the Principles' fundamental role in the decision-making process.

The two-part training program comprises an informational section that presents the Principles with explanatory sheets and additional resources on the intranet and a hands-on section in which fictional characters in different jobs play out situations covered by the nine Principles. While not exhaustive, the scenarios illustrate the various professional situations in which Group employees may find themselves. At the end of each story, the user is asked to identify the Principle in question and assess the characters' behavior, referring to the explanatory sheets if necessary.

Developed in 2009, "Adhere" is designed for all Group employees. Deployment of French and English versions began in the first quarter of 2010. Other languages will be added gradually. Training will be organized by the compliance correspondents.

Once they have completed the module, employees will have direct access to the catalog of scenarios. They may use the stories and, if needed, real-life situations to discuss the Principles with their teams.

Competition Plan

The effectiveness of our risk prevention mechanisms depends to a large extent on ensuring that management and employees embrace and strictly observe the Principles of Conduct and Action.

For this reason, General Management initiated deployment of a Competition Plan in 2007. Since then, the plan has been gradually rolled out across the Group. As of end-2009:

- More than 20,000 managers had been introduced to the basic rules of competition law through the "Comply" online training course, which has been translated into 16 languages. A new campaign to raise and refresh awareness will be deployed in 2010.
- More than 2,000 managers in 14 countries had attended 98 seminars on competition law led by lawyers and Group legal specialists.
- 84 unannounced audits had been performed, covering more than 350 people across all Sectors in 20 countries.
- 27,000 people had received a copy of the Competition Law Compliance Guide, which reviews competition rules, banned practices and the consequences of non-compliance. The Guide has been translated into 17 languages.

Everyone in the Saint-Gobain corporate community is expected to comply at all times with good competition practices.
The measures called for in the Competition Plan are implemented and repeated regularly to ensure that all employees are aware of the stakes involved at all times. General Management regularly reminds team members of the Group's zero tolerance policy.

Internal control

For a detailed description of the Group's internal control system, see the Chairman's Report (pages 131 to 136).

Whistle-blower system

The fourth lever of the Group Compliance Program, the whistle-blower system is intended for deployment in all host countries. The system is based on the concept of non-anonymous alerts sent to compliance correspondents at a dedicated e-mailbox. Each country has its own e-mailbox so that all employees can use the system in their own language.

So far, 53 e-mailboxes have been set up. A number of mandatory procedures need to be completed in certain countries before the system can be implemented, including obtaining administrative authorizations or consulting employee representatives. The goal is to have the system up in running in all host countries by the end of 2010.

Responsible purchasing

The responsible purchasing process reflects the application of the Principles of Conduct and Action to Group purchasing. The process is based on a Purchasing Charter, which provides guidelines for routing purchasing practices, and a Suppliers' Charter, which spells out the Group's environmental and social criteria for suppliers and service providers. Both Charters refer explicitly to the Principles of Conduct and Action.

The process has been gradually rolled out across the Group. In particular, the responsible purchasing policy has been widely circulated and clauses concerning sustainable development have been included in general purchasing terms and conditions.

In 2009, the Suppliers' Charter was distributed to 1,000 suppliers along with a self-assessment questionnaire, with the goal of raising supplier awareness of the Group's commitment to selecting partners that demonstrate the highest compliance with sustainable development principles. The program will continue in 2010 with an expanded number of suppliers.

A structured process to audit suppliers was also developed in 2009, with specific sections devoted to responsible purchasing. This new system will be implemented in 2010.

The responsible purchasing process was included in Purchasing Department training throughout 2009. The Principles of Conduct and Action were described in detail, as were the specific guidelines in the Purchasing Charter.

The 2008-2010 Purchasing Action Plans also include sustainable development initiatives, to reduce energy and raw materials use, optimize supply chain flows, and manage the corporate vehicle fleet's carbon footprint.

As part of the Group's commitment to mainstreaming disabled workers, discussions were initiated on expanding purchases from sheltered workshops. These discussions should lead to tangible measures in 2010.

More generally, to improve risk identification and prevention, sustainable development considerations are being built into all of the internal control and audit processes (see pages 142 and 148).

Supporting community development

Our decentralized organization means that we can act as a good corporate citizen in all of our host communities by effectively responding to each one's specific characteristics and needs.

We have long encouraged corporate social responsibility (CSR) initiatives at the most appropriate level (Delegation, company or site). In 2009, we devoted around €4 million to community initiatives of all kinds. Aside from financial support, we actively encourage our team members to get involved as volunteers.

Local organizations are empowered to determine the most effective type of initiative, which may include setting up a dedicated structure, working with non-governmental organizations (NGOs) on a specific project or on a regular basis, or supporting employee involvement in outreach programs.

Examples include:

- The Saint-Gobain Corporation Foundation in North America, which divides its contributions among three programs:
  - Matching Gifts, through which the Foundation matches up to 50% of employee donations to non-profit organizations or educational programs.
  - Community Gifts, through which each facility in the United States or Canada contributes to the local community. The sites are responsible for selecting recipients and initiatives based on local needs and priorities.
  - Direct Grants, through which the Foundation supports certain non-profit organizations involved in energy conservation, environmental issues and home insulation.
- The Saint-Gobain Foundation in India, which primarily supports educational projects.
- The PAM Foundation in France, which has assisted young people with employment or financial difficulties since 1999 by offering mentoring support from Group employees.
- The Gypsum Division's Fondation Placoplatre® in France, which prepares young people for jobs in the construction industry and supports local environmental initiatives and gypsum-related cultural activities.
- The Saint-Gobain Initiatives international corporate foundation, which began operating in the first half of 2009.

The Saint-Gobain Initiatives international corporate foundation

We believe that as a leader in the habitat and construction market, we have a duty to conduct Group-level CSR programs in areas aligned with our strategic vision. This is the role of the Saint-Gobain Initiatives international corporate foundation, which supports clearly identified projects with financing or technical assistance in three focus areas:

- Preparing young people for jobs in the habitat and construction industry.
- Building, improving and renovating low-income housing, to support local communities.
- Improving the energy efficiency and environmental performance of low-income housing.

The Foundation's intention is that projects be sponsored by Group employees, who participate in assessing them and, if possible, in monitoring them through to completion.

The Foundation is administered by a 15-member Board chaired by Saint-Gobain CEO Pierre-André de Chalendar and including five qualified individuals from outside the Group. Operations are handled by a Management Committee, supported by a Selection committee and a coordination team. Financing is provided in equal proportions by Compagnie de Saint-Gobain and Sectors involved in the habitat and construction market.

A vast internal communication campaign was launched in January 2009 to introduce the Foundation to all Group employees.

During the year, the Selection Committee and Management Committee each met three times. Six initial projects were greenlighted:

- Renovation of an orphanage in Salzburg, Austria.
- Rehabilitation of existing buildings and construction of a halfway house for mentally or socially disabled persons in Cherbourg, France.
- Construction of a drinking water purification system in Long An, Vietnam.
- Training in building industry skills for young people in Marseille, France.
- Participation in a project to build wood frame homes to provide emergency housing for distressed persons who are unable to live in a group setting, in Bordeaux, France.
- Construction of energy efficient houses for distressed persons in Worcester, Massachusetts (USA).

The Foundation is currently evaluating some forty projects around the world.

Supporting local economic development

In most host countries, Group companies nurture a close relationship with professional organizations and local authorities, while the General Delegations actively participate in industry associations and chambers of commerce (or similar bodies), and are in regular contact with national government agencies. In addition to these basic community outreach programs, Group companies help to develop their local employment catchment areas, thereby fostering a favorable economic environment.

Relations with local communities are the most highly structured in France, where the Group's presence is the most concentrated. This is primarily due to Saint-Gobain Développement, which supports local development and the revitalization of employment catchment areas.

Saint-Gobain Développement contributes to local economies in a variety of ways, from forging partnerships with small- and medium-sized enterprises (SMEs) and helping employees create their own businesses to participating in regional events and providing support to local development networks and organizations.

To support growing SMEs, Saint-Gobain Développement offers a comprehensive range of solutions, including unsecured, low-interest participating loans, expertise sharing and skills transfers, as part of a long-term "manufacturer–entrepreneur" partnership.

In 2009, Saint-Gobain Développement signed 33 agreements involving more than €1.1 million in loans, thereby helping to finance the creation of 453 jobs in our host communities. Most of the loans were first granted to companies involved in the environment.

In addition, Saint-Gobain Développement offers SMEs the services of a skills transfer specialist, who supported 27 companies in 2009, sometimes with input from Group employees on specific issues.

In a commitment to strengthening its corporate citizenship outreach and forging ties with local economic development stakeholders, the Group takes part in a number of programs to support local and regional development in France:

- Alizé programs (local intercompany initiatives in employment areas) enable large corporations and government agencies to pool their technical and financial resources to support business development in a given region. Saint-Gobain Développement has participated in these programs for several years now and is particularly active in northern France, Savoie, Vaucluse and Isère.
- A national network of regional centers for technical support and innovation, known as Creati, brings together government agencies and large corporations in a given region to support SME innovation projects and contribute the necessary capabilities. Saint-Gobain is involved in a number of Creati centers, including in the greater Paris area, Aquitaine and Picardie. Saint-Gobain Développement leads the Picardie network, which it helped create.

- Constructive Innovations, which focuses on energy efficiency and materials in partnership with institutions, groups, SMEs and other members, intends to build a model village to present innovating habitat solutions. Saint-Gobain Développement is networking Group team members and coordinating the project as part of the Habitat mission.

More generally, the Group is active in economic development networks and participates in the annual meetings of local economic agencies in its host regions.

Saint-Gobain Développement further focuses on fostering deeper local relationships in disadvantaged areas. In late 2005, for example, the Group signed a charter with local authorities in the grouping of suburban towns north of Paris known as Plaine Commune. Our local companies are now actively involved in creating jobs, through visits to schools and participation in job fairs.

Lastly, Saint-Gobain Développement helps employees who want to start their own businesses by conducting feasibility and other in-depth studies and, if appropriate, by providing technical and/or financial support for up to five years. Energy efficiency projects are a special focus. Given the difficult economic situation in 2009, priority was also given to projects that could create jobs in the hardest hit regions.

In all, 25 projects were monitored and financed in 2009, but the impact in people terms was probably much larger, since successful projects often result in the creation of several jobs.

Supporting education and training

Saint-Gobain provides support for education at every level, from secondary schools to universities, and in a variety of forms, including equipment donations, site visits, participation in national programs and assistance in technical training classes. Locally, this support often comprises assistance in building primary schools, equipment donations to schools and scholarships for struggling youths.

Nationally and internationally, a number of subsidiaries also organize contests on subjects related to their business, as an opportunity to raise young people's awareness of specific issues. In Eastern Europe, for example, subsidiaries in the Construction Products Sector have partnered with architecture schools in Romania, Bulgaria and Croatia by supporting and participating in architectural competitions. This approach offers a number of advantages: it places students in a real-world work environment, transfers knowledge and demonstrates Saint-Gobain products, and provides opportunities for students from different universities to interact.

Supporting technical and vocational training is another major focus for our subsidiaries, as they can leverage their skills and capabilities and offer targeted training programs that meet the specific needs of their businesses. Students from nearby schools are frequently invited for on-site visits, allowing them to discover our businesses in greater detail, connect what they learn in the classroom with the actual workplace practices and explore the possibility of working for the Group. Other sites are involved in programs to support young people as they enter the workforce.

The Group also encourages its subsidiaries to take on young people as part of on-the-job training schemes, such as work/study programs, apprenticeships and skills certification programs. In 2009, these young trainees accounted for 2.5% of the workforce in France.

Our neighborhoods have talent

On September 28, 2009, Saint-Gobain officially launched a partnership with the "Our neighborhoods have talent" initiative, which supports new university-level graduates from lower income neighborhoods in France—many of immigrant background—in obtaining their first jobs. Since 2005, 4,000 young people have been sponsored by managers from large corporations, who donate their time to provide guidance in the job search process.

Saint-Gobain supports this initiative, which is aligned with its ambition to raise awareness in-house about the importance of diversity within the Group. Each new graduate is sponsored by a two-person team comprising a junior manager and a Group executive.

In the first three months after launch, some fifty employees participated in sponsoring 24 new graduates in the greater Paris area and the Rhône-Alpes region.

100 opportunities—100 jobs

For many years, Saint-Gobain has actively participated in the "100 opportunities—100 jobs" program that began in Chalon-sur-Saône, France, and has been gradually extended to Grenoble, Chambéry, Le Havre, Rouen, and the Hauts-de-Seine and Seine-Saint-Denis departments near Paris. Designed to provide an on-ramp for disadvantaged young people with few skills, the program brings together the local job placement and unemployment offices, local communities and other companies in the area. The support given by the Group includes mock interviews, site visits, vocational training programs and work/study contracts.

Since the program was launched, 128 young people out of 231 have successfully found employment in the Chalon-sur-Saône area, for a long-term job placement rate of 56%.

On October 12, 2009, Saint-Gobain officially launched a new partnership in the Nice area. Twenty-two businesses in the region are involved in the initiative, among them Group subsidiaries Dispano, K par K, Lapeyre, La Plateforme du Bâtiment, Point.P, SFIC and Soprover. Other partners include Vicat, Schneider Electric and Brinks. The young people are tracked by the community's local job placement office and other employment agencies. The Building Distribution Sector's local sites coordinate the program.

Encouraging solidarity and supporting cultural activities

Saint-Gobain is involved in a wide variety of corporate patronage programs, through the direct participation of employees or by providing financial support for charitable organizations. Issues that attract the greatest attention include healthcare, support for the underprivileged, cultural programs and research.

Helping to re-build L'Aquila after the earthquake

Saint-Gobain Gyproc and Saint-Gobain Glass have helped finance the reconstruction of new offices for the university in L'Aquila, a town located in central Italy's Abruzzo region that was severely damaged by an earthquake on April 6, 2009. Built using a drywall technology, the university building will be energy efficient. The Group is also involved in other projects nearby. Saint-Gobain Gyproc, for example, is playing an active part in the construction of a daycare center in Poggio Picenze, near L'Aquila, with donations of building materials and plasterboard.

Healthcare

All of the subsidiaries and Delegations encourage employee involvement in initiatives supporting health-related projects.

Employees regularly participate in national campaigns to raise money for charitable organizations, such as the Together project in the United Kingdom, the Telethon in France and Télévie telethon in the Benelux countries.

Launch of a new "Together" program

Saint-Gobain Building Distribution UK and Ireland (SGBD) has launched a new charity partnership with Help the Hospices for 2009-2010 through the Together campaign. For the first time, all SGBD banners and sites are involved, representing a total of 11,000 employees at 1,000 sites. To create an effective SGBD Hospice Hub support network, each site is twinned with its own local hospice. In addition to raising funds, SGBD puts its expertise in building and construction to use in hospice rehabilitation and construction projects.

Many sites also participate in blood drives, offering an opportunity for a large number of employees to donate.
In countries facing certain social and health problems, subsidiaries often deploy more local initiatives, most often designed to meet the needs of neighboring communities. This is the case in India, where for several years, Saint-Gobain Glass India has organized campaigns to help prevent eye diseases.
AIDS awareness-raising campaigns are also organized, with subsidiaries in South Africa playing a particularly active role.

Emergency assistance in Viareggio

Saint-Gobain Gyproc, Saint-Gobain Weber, Saint-Gobain Glass and Saint-Gobain PAM joined forces to assist the residents of Viareggio in Tuscany following a train derailment and subsequent fire on June 29, 2009 that caused a number of fatalities and extensive damage. The four companies, who have a deep local presence, decided to allocate funds to the purchase of a new ambulance after the disaster, to help replace some of the emergency-response resources destroyed by the fire. The ambulance was delivered on August 8 and commissioned the next day.

Solidarity with the underprivileged

Solidarity is often expressed at a very local level, to provide direct assistance to people in the host community in the form of toys, clothing and other items donated by employees.
Donations are also made through local specialized organizations, such as the Red Cross in many countries or more specifically, the United Way of Massachusetts in the United States. Saint-Gobain's US subsidiaries have for many years contributed to the United Way, the country's largest charitable organization.

Support for the Niall Mellon Township Trust

Saint-Gobain Construction Products South Africa has teamed up with the Niall Mellon Township Trust to build quality social housing for impoverished families living in the townships of South Africa. The company donated ZAR 1 million (around €90,000) worth of Isover, Gyproc and Weber building materials for the Trust's 2008 Building Blitz, during which 250 homes were built. As the top donor, Saint-Gobain Construction Products South Africa was named a Blitz Partner.

Along with providing materials, several of the companies managers participated personally in the construction work in Khayelitsha Township, near Cape Town. Two groups of 50 Saint-Gobain employees were involved in the Building Blitz in 2008 and 2009.

Lastly, some of these initiatives are designed to promote international solidarity. In France, head office teams enthusiastically participated in the first inter-company challenge organized in the La Défense business district by the *Action Contre la Faim* association, raising more than €3,000 for its campaign against hunger.

Donations for a disabled children's center

Saint-Gobain Construction Products Malaysia organized a half-day charity event to help 57 disabled children at the Pusat Jagaan Anbe Sivam home near Kuala Lumpur.

The event came on the heels of a donation drive that collected MYR 4,532 (around €900) in cash, along with household appliances, food and clothing. Some forty employees and their families participated directly by helping to renovate classrooms and physical therapy units at the center using Gyproc products. They also repainted the walls and renovated in the interior decoration to give the children a pleasant environment in which to learn and grow.

Friends of scrap collectors in Brazil

Saint-Gobain Canalização is supporting a project launched in 2003 to promote selective sorting of household waste in Itaúna, Brazil. All the waste collected is sent to the COOPERT recycling cooperative, which provides a decent living for former scrap collectors who lived off what they could find in the streets. With support from city officials and partners like Saint-Gobain Canalização, they have been able to organize themselves as an identified category of workers.

Thanks to its participation, Saint-Gobain Canalização has been recognized as a corporate supporter of selective waste sorting in Itaúna, a town that has become a benchmark for recycling.

Children's foster home in Poland

Since 2002, Saint-Gobain Sekurit HanGlas Polska has supported a foster home for orphans that offers both schooling and healthcare services. To express their thanks, the children sent the company original artwork painted on Saint-Gobain glass. Saint-Gobain Sekurit HanGlas Polska has used the attractive paintings both in house and in external communication with customers, suppliers and public organizations.

Research

Most of our research centers work closely with government research agencies and universities in France and abroad. In 2006, the Saint-Gobain University Network (SUN) was formed with leading universities in France, Germany, the United States, Russia and India. The network was expanded to Japan in 2009.

Since 1995, the Group has sponsored the Saint-Gobain Young Researcher's Award under the aegis of the French Physics Society. In France, the Group has endowed a joint chair at École Polytechnique and École Supérieure de Physique et de Chimie Industrielles (ESPCI). It is currently looking at partnerships with other engineering schools.

In the same spirit of intellectual exchange, the Group continues to support the Cournot Center for Economic Research, a corporate foundation co-chaired by Robert Solow, winner of the Nobel Prize in Economics, and Jean-Louis Beffa. The Center regularly organizes conferences and debates to support research and promote knowledge-sharing in economics.

Lastly, we have fostered relationships with start-ups by investing in venture capital funds since 2006, in line with our commitment to effectively encouraging and supporting innovative projects.

Culture

From April 29 to November 1, 2009, the Group sponsored an exhibit on environmental living for sustainable cities at Palais de Chaillot in Paris as part of a partnership forged in 2008 with Cité de l'Architecture et du Patrimoine. The partnership is perfectly aligned with Saint-Gobain's positioning as a provider of homebuilding solutions.

The Group is also involved in a wide range of local support programs, such as in Spain, where Saint-Gobain Canalización partners the Santander Music Festival.

Sponsoring budding musicians in Brazil

Saint-Gobain Canalização is financing a school music program as part of its commitment to supporting the community near its Barra Mansa plant and to offering social activities for young people. The company has invested more than €30,000 to train young musicians in the Barra Mansa symphonic orchestra. The program targets students in public schools located in disadvantaged neighborhoods. The students are introduced to music through games. They then learn to play an instrument and gradually become professional musicians, ready for the job market. The young people involved in the program have played on numerous occasions in brass bands and at the Rio de Janeiro opera, wining several critics' and people's choice awards. More than 5,000 young people in difficult circumstances have been trained since the program was created in 2003.

Reporting methodology

The data published in this sustainable development report comes from two separate reporting systems:

- The NRE system set up in 2002 to comply with the disclosure requirements of France's NRE Act. Data on employee numbers from a reporting system established several years ago has been included since 2008.
- The Gaia environment, health and safety (EHS) reporting system set up in 2003, which was upgraded in 2008.

Basic reporting principles

Baseline

The baseline for Saint-Gobain social reporting and the Gaia EHS system was developed in line with the requirements of the UN Global Compact and France's NRE Act of 2001.

Social reporting

Stability was a primary consideration in determining social indicators, to provide the most reliable basis for comparison. Consequently, there have been no major modifications to these indicators since they were introduced in 2002, with the only change being the introduction of new indicators (socio-professional category and age) to refine the analyses.

EHS reporting

To keep pace with developments in international standards such as the Global Reporting Initiative and respond to feedback from sites, working groups meet on a regular basis to propose improvements to EHS indicators. These proposals are discussed and approved at steering committee meetings held twice a year.

Scope

Social reporting

In 2009, there were 761 social reporting units, defined based on the Group's business structure so as to cover virtually all consolidated companies.

The merger of the two separate reporting systems used in prior years has improved the reliability of data collection, with a 99% coverage rate for all indicators.New companies joining the Group are included from the date on which they are consolidated, while divested companies are excluded from the figures for the year of divestment.

Employee numbers are reported on a monthly basis, while NRE data—corresponding to the indicators specified in France's NRE Act of 2001—are reported annually.

EHS reporting

There were approximately 1,300 EHS reporting units in 2009, corresponding to all of the Group's facilities. The number increased slightly from 2008, due primarily to the inclusion of Maxit. The scope of reporting covers the facilities operated by all companies that were at least 50%-owned by Saint-Gobain at the balance sheet date, including, where possible, facilities that came on-stream or were acquired during the year and excluding facilities that were closed or sold. Safety data for Maxit, acquired in 2008, were included in the 2009 reporting but were not included in the 2009 consolidated results. This information will be included as from January 2010. Environmental data for Maxit facilities were not included in the 2009 reporting.
The majority of data are entered directly in the Gaia system by the EHS units, and the remaining information is extracted from reporting systems used for other purposes (such as "Teams" for the Insulation Division).

- **The Safety, Industrial Health & Hygiene, General and Safety-On-Line (SOL) questionnaires** are designed to cover all facilities and all Group employees. The Safety and Safety-On-Line questionnaires include questions about temporary staff, and the Safety-On-Line questionnaire also includes questions about sub-contractors.
  Safety data are reported on a monthly basis and comprise information about all accidents that occurred during the month and their severity. The system covers about 95% of employees across the Group.
  Lost-time accidents (including fatal accidents) are reported systematically via the Safety-On-Line system, with a description of the circumstances of the accident. The Industrial Health & Hygiene questionnaire and the General questionnaire are completed annually.
- **The Environment questionnaire** is completed annually by 941 facilities.
  Environmentally sensitive, or "concerned" sites have been identified based on 2007 reporting data, and their performance will be tracked in relation to 2010 environmental targets. Results for concerned sites will therefore be reported on a comparable scope basis in each year through 2010. Any divested facilities will be removed (from current year indicators and the 2007 baseline) but no acquisitions will be taken into account until January 1, 2010, when the scope will be adjusted.
  In addition, environmental indicators will be calculated each year by reference to the 2007 baseline. In line with this principle, 2009 emissions and consumption have been adjusted based on 2007 production output. This choice was made in order to focus efforts on the facilities with the greatest environmental impact, as well as to make the data and progress in meeting objectives easier to understand. The Divisions have validated certain criteria, such as energy consumption, water consumption, and quantity of non-recycled waste, enabling clear identification and monitoring. The 410 concerned sites represent, for example, 95% of the Group's CO_2 emissions (excluding Building Distribution). Data for concerned sites are presented using environmental subgroups. Because of the Group's wide-ranging business operations, the environmental indicators managed in Gaia do not all apply to all businesses. The indicators are therefore combined into "batches" and allocated to groups of units with similar environmental impacts and ratios (i.e., indicators expressed by unit of production, generally per metric ton). The main unit groups—referred to as environmental sub-scopes—are as follows:
  – The "Glass" sub-scope, comprising units in the Innovative Materials Sector—Flat Glass, the Packaging Sector, the reinforcements business (Innovative Materials Sector—High-Performance Materials) and the Insulation Division, excluding rock wool (Construction Products Sector), that use glass furnaces (111 concerned sites out of a total of 118 units).
  – The "Pipe" sub-scope (21 concerned sites corresponding to the 21 units).
  – The "Innovative Materials—High-Performance Materials—Silicon Carbide" sub-scope (8 concerned sites out of 10 units).
  – The "Innovative Materials Sector—High-Performance Materials excluding Silicon Carbide and Glass operations" sub-scope (104 concerned sites out of 200 units).
  – The "Others" sub-scope, covering all other units (industrial mortars, Lapeyre plants, glass products, gypsum, etc.) (166 concerned sites out of 589 units). This sub-scope also includes the 161 quarries.

Questionnaire	Frequency	Scope	Content
Safety-On-Line	When needed	Global, all categories of victims	Instant alert in the event of accidents involving fatalities or lost time
Safety	Monthly	Global, all categories of victims	Accidents, number of days lost, hours worked, etc.
General	Annually	Global (all facilities except certain offices or related sites)	Certification, audit results, etc.
Complaints and financial data	Annually	"Concerned" sites + Sites requiring an operating permit + Other sites at the Sectors' discretion	Complaints and financial data in compliance with the NRE Act
Health	Annually	Global (all facilities except certain offices or related sites)	Assessment campaign, health standards tracking, etc.
Environment	Annually	"Concerned" sites + Sites requiring an operating permit + Mines and quarries (excluding sites connected to plants) Other sites at the Sectors' discretion	Output, raw materials, energy consumption, atmospheric emissions, water, waste
Mines and quarries	Annually	Mines and quarries	Rehabilitation plan, etc.

One of the principles applied by the Group for the calculation of ratios is to use tons of finished product complying with quality standards ("tons of finished products"), rather than tons floated (for glass) or cast (for cast iron).

EHS financial data (expenses and capital expenditure) have been tracked in Gaia since 2007. Annual data are adjusted during the following year to take into account information obtained after the year-end.

The frequency, scope and content of the various questionnaires are described in the previous table.

Indicator definitions

The indicators are defined in detailed glossaries that have been prepared in several languages to ensure that all contributors understand what is required.

Social reporting

The social reporting glossary is available in French, English, German, Spanish, Russian, Chinese and Polish, and is distributed by the Delegations.

EHS reporting

The EHS reporting glossary is available in its entirety in French and English, and translations of the main terms are also available in German and Portuguese. Certain Delegations have also prepared supplementary handbooks.

Consolidated data

Social reporting

Saint-Gobain's social reporting process comprises three stages:

- Data input by contributors at the individual company level.
- Data validation by the head of Human Resources at the company or Delegation level, depending on the country.
- Data verification and consolidation by the Group Employee Relations Department.

EHS reporting

The EHS reporting process (monthly and yearly) involves four stages:

- Data input by the EHS correspondent or correspondents at the reporting unit concerned.
- Data validation, usually by the unit manager or by the company or Divisional coordinator.
- Data verification by EHS managers in each Sector.
- Data consolidation by the Group EHS Department.

Difficulties and limitations

Social reporting

The main difficulty in social reporting stems from the Group's wide geographic presence. Indicators may be interpreted differently from one country to another, due to differences in local legislation and practices. For example, certain employee categories commonly used in France, such as «cadre» (roughly translatable as "manager") and «CDI" (employee with a permanent employment contract) may not have any direct equivalent in other countries. The Doctrine Department is working on commonly understood definitions to avoid this problem.

EHS reporting

Difficulties can be experienced with consolidating data across businesses that use different units of measurement. Problems can also arise from differences in the interpretation of technical terms across different countries and businesses. The definition of "waste" for example, can vary depending on local legislation. The same applies to its components (production waste, by-product, final waste, etc.). Since Groupwide reporting systems were launched, reporting quality has steadily improved thanks to effective feedback and increased familiarity with the systems. The new version of Gaia will allow the Group to deploy modules for the daily tracking of environmental data, in alignment with monitoring practices at the operational level. This will enable more frequent reporting of EHS data according to operational needs, so that data controls can be performed at shorter intervals.

Due to the recession, Saint-Gobain experienced a significant slowdown in business in 2009. This explains to a large extent the sharp decline in consumption (water, energy and raw materials for glass furnaces) and emissions (CO_2, NO_X and SO_2). These gross volumes are considerably smaller than those reported by Saint-Gobain, in 2008 (see Social and EHS Indicators table), masking the impact of action taken by the Group to limit its environmental footprint.

The glass plants operated at lower capacity, which meant that they used more internally-generated cullet than in previous years.

NO_x and dust emissions declined in indicators expressed in specific values, such as emissions per ton of finished product, primarily because of a number of furnaces were banked (often those with the lowest environmental performance). The installation of electrostatic precipitators also helped decrease dust.

Specific value measurements of SO_X emissions were stable, as were CO_2 emissions based on 2007 output because banked or idled furnaces still consume energy, which leads to CO_2 and SO_X emissions (from impurities in fossil fuels) per ton of finished product. Plants are less efficient during a slowdown than in stabilized mode since they use raw materials and energy for less finished product. The same phenomenon was apparent in the data on water consumption based on 2007 output, albeit to a lesser extent. Although down slightly, this indicator does not fully reflect Saint-Gobain's efforts to reduce water consumption.

Social and EHS Indicators

Social indicators	2008	2009	Pages
Number of millionaire sites (sites that have clocked up over one million incident-free hours of work and/or more than five years' work without any lost-time incidents)	107	142	44
Lost-time incident rate (LTIR) (more than 24 hours' lost time)—Group	4.8	3.8	42
Severity rate—Group	0.22	0.21	42
Lost-time incident rate (LTIR) (more than 24 hours' lost time)—Building Distribution Sector	8.7	6.9	42
Total recordable incident rate (TRIR)—Industrial Sectors	11.0	8.2	42
Number of workplace fatalities—Saint-Gobain employees	8	3	43
Number of Health & Safety-certified sites—comparable scope	197	252	40
Total headcount	209,175 employees	191,442 employees	66
Departure rate	18.3%	17.8%	66
Resignation rate	7.1%	4.5%	66
Termination rate	5.8%	8.6%	66
Recruitment rate	16.0%	9.2%	67
Percentage of temporary workers	6.5%	7.2%	67
Percentage of fixed-term employment contracts	4.0%	3.4%	67
Percentage of fixed-term employment contracts transformed into permanent contracts	48.5%	31.2%	67
Training expenditure as a percentage of total payroll	2.5%	2.0%	59
Percentage of employees who took at least one training course during the year	66%	69%	59
Number of training hours per employee	24	22	59
Percentage of training hours dedicated to technical training and EHS	Technical training: 49% EHS training: 25%	Technical training: 51% EHS training: 24%	61
Percentage of female employees	20.1%	20.1%	62
Percentage of white-collar workers among female employees	75.3%	76.7%	62
Female managers as a % of total managers	15.9%	16.4%	62
Percentage of disabled employees in France	3.6%	4.0%	63
Percentage of employees with employee representation	63.4%	64.0%	64
Number of agreements signed with employee representatives	1,479	1,579	64
Percentage of employees covered by a collective bargaining agreement (and percentage for France)	62.7% France: 99.4%	63.7% France: 99.7%	64
Percentage of employees in France covered by the discretionary profit-sharing scheme	96.1% (€63.6 million)	99.0% €57.5 million)	65
Percentage of shares held by Group employees	7.8%	7.6%	65
Number of countries covered by the Group Savings Plan	40	42	65
Sickness absence rate	4.0%	3.7%	68
Percentage of employees performing shift work	31.7%	32.6%	68
Overtime rate	4.1%	3.9%	68
Percentage of part-time employees	3.2%	3.3%	68
Percentage of executives and managers	12.3%	13.1%	68
Percentage of administrative employees, engineers and supervisors	40.5%	41.3%	68
Percentage of blue-collar workers	47.3%	45.5%	68
Percentage of managers who had a performance review	76.5%	79%	58
Percentage of employees in France taken on under a youth employment scheme	2.2%	2.5%	57

Development of local communities indicator	2008	2009	Pages
Group community development spending	Nearly €3 million	€4 million	72
Number of jobs created outside the Group in France with the support of Saint-Gobain Développement	482 jobs (through 127 SME support agreements representing over €1m)	453 jobs (through 33 SME support agreements representing €1.1m)	73

Environmental indicators	2008	2009	Pages
Number of quality-certified sites—comparable scope	678	723	40
Percentage of concerned sites that are environmentally-certified	46%	55%	40
Number of Seveso-classified sites	6	6	146
Total environmental expenditure	€94.6m	€123.05m	40
Salaries and other payroll expenses for environmental officers	€22.0m	€21.5m	40
ISO 14001 and EMAS environmental certification and renewal costs	€1.7m	€1.9m	40
Environmental taxes	€4.8m	€7.1m	40
Insurance and warranties	€4.5m	€4.85m	40
Environmental fines	€0.3m	€0.35m	41
Cost of environmental incidents	€2m	€0.45m	41
Cost of technical measures	€6.1m	€9.0m	40
Environmental R&D budget	€41.5m	€64.2m	40
Soil decontamination, site remediation and other clean-up costs	€11.6m*	€13.7m	40
Capital expenditure on environmental protection measures	€90.5m*	€47.4m	41
Provisions for environmental risks	€158m	€167m	41
Quantity of production waste—concerned sites (based on 2007 production output)	3.6mt**	3.7mt**	50
Consumption of primary raw materials in glass furnaces—concerned sites	13.1mt	10.9mt	51
Consumption of cullet in glass furnaces—concerned sites	2.8 mt internally sourced; 4.4 mt externally sourced	2.9 mt internally sourced 4.2 mt externally sourced	51
Percentage of cullet in each ton of finished product of glass wool produced—concerned sites	18.9% internally sourced; 40.9% externally sourced	24.3% internally sourced; 42.4% externally sourced	51
Percentage of cullet in each ton of finished product of container glass produced—concerned sites	17% internally sourced; 40% externally sourced	16.8% internally sourced; 43.5% externally sourced	51
Percentage of cullet in each ton of finished product of flat glass produced—concerned sites	23.5% internally sourced; 11.5% externally sourced	31.8% internally sourced; 7.3% externally sourced	51
Percentage of tons of finished products from primary melt—concerned sites	71.9%	75.8%	51
Percentage of recycled materials in each ton of finished product of cast-iron produced—concerned sites	47.8%	37.0%	51
Percentage of recycled materials in each ton of finished product of gypsum—concerned sites	25.5%	24.3%	52
Percentage of waste generated by the processing of recycled stack gas in Saint-Gobain Glass furnaces—concerned sites	60.9%	58.2%	52
CO_2 emissions, based on 2007 production output—concerned sites	13.5 mt**	13.5 mt**	49
CO_2 emissions—Group, based on a comparable scope	14.7 mt	12.9 mt	49
Number of facilities concerned by the EU greenhouse gas emission allowance trading scheme	83	86	49
CO_2 emissions concerned by greenhouse gas emission allowances	6.5 mt, i.e. less than 0.3% of allocated allowances	5.6 mt (excl. Maxit), i.e. less than 0.3% of allocated allowances (5.7 mt including Maxit)	49
Energy use—concerned sites	61.6 TWh	53.5 TWh	49
SO_2 emissions per ton of finished product of glass produced—concerned sites	2.47 kg	2.42 kg	52
SO_2 emissions per ton of finished product of cast-iron produced—concerned sites	1.01 kg	1.4 kg	52
SO_2 emissions by the Pipe Division and the glass businesses—concerned sites	38,007t	33,954t	52
NO_x emissions per ton of finished product of glass produced—concerned sites	2.62 kg	2.32 kg	52
NO_x emissions per ton of finished product of cast iron produced—concerned sites	1.31 kg	1.32 kg	52
NO_x emissions—concerned Pipe and glass sites	40,814 t	32,436 t	52
Particulate emissions per ton of finished product of glass produced—concerned sites	0.36 kg	0.27 kg	53
Captured particulate emissions per ton of finished product of cast-iron produced—concerned sites	1.04 kg	1.07 kg	53
Water withdrawals, based on 2007 production output—concerned sites	93.8** million cu.m.	89.8** million cu.m.	56
Water withdrawals—Group, based on a comparable scope	101.2 million cu.m.	81.3 million cu.m.	56

**Data presented in the 2008 report has been corrected: expenses were re-classified as investments at one site and the amount of an investment was reduced at another site.*

***The calculation method has been refined since last year's report and takes into to account each Division's output separately. For the Gypsum Division, the base value is 2008 (more reliable than 2007, the first year of reporting).*