

CXC – Green Engineering Solution



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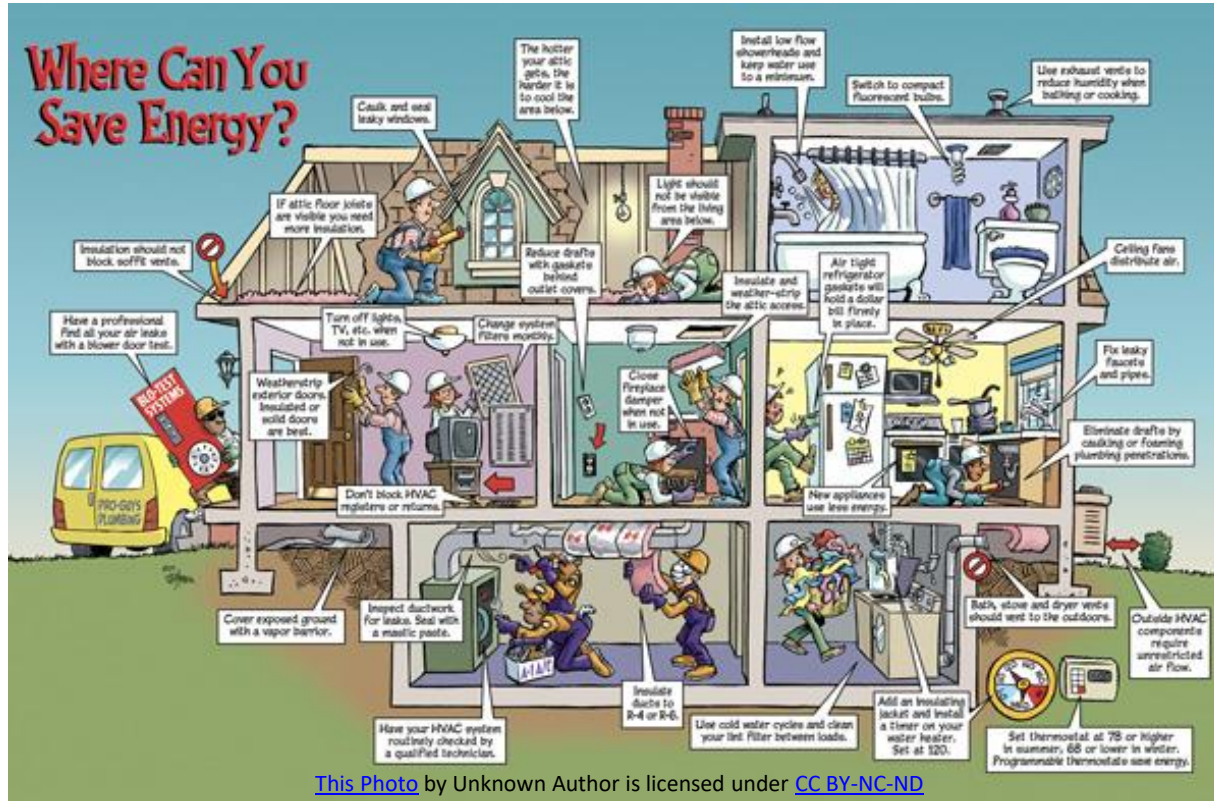


Energy Efficiency

The efficient use of energy to reduce the amount of energy required to provide products and services; while minimizing energy waste



Green Solution – Saving Energy



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Energy Efficiency



- Energy consumption reduction
- Fuel consumption reduction
- Cost reduction
- Emission reduction
- Loss reduction
- Long term sustainability

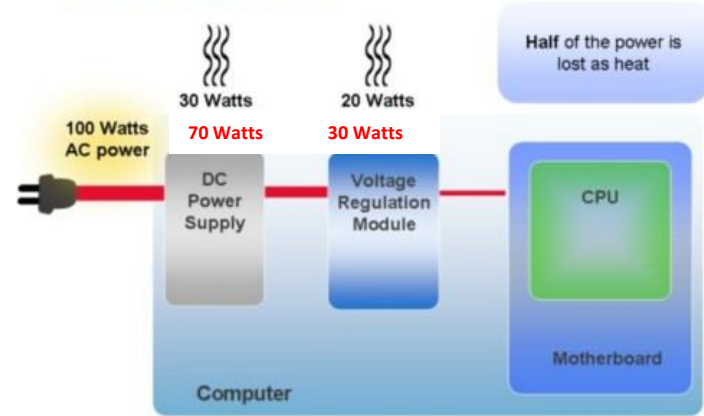


Energy Efficiency

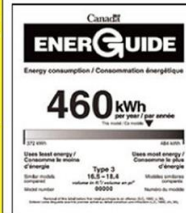
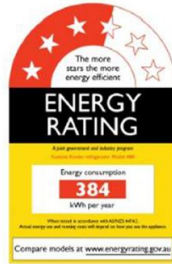


A – Well Done!

Power Conversion



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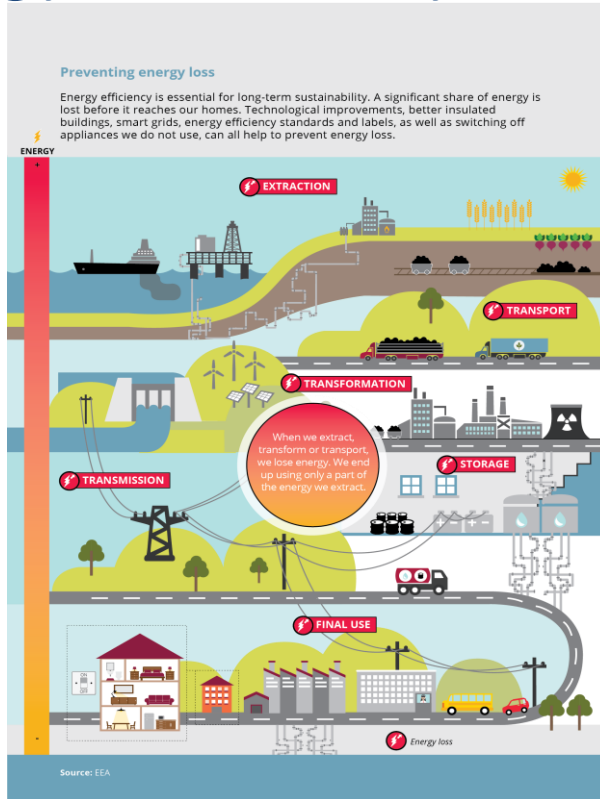
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The Energy Pyramid



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Energy Efficiency



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- **Preventing Energy Loss**

- Energy efficiency is essential for long term sustainability
- Energy is lost before it reaches the end user (for example, your home)
- Improvement in technology, better insulation for buildings, computer aided delivery of energy (smart grids), switching of appliances when not in use can help to reduce energy loss.



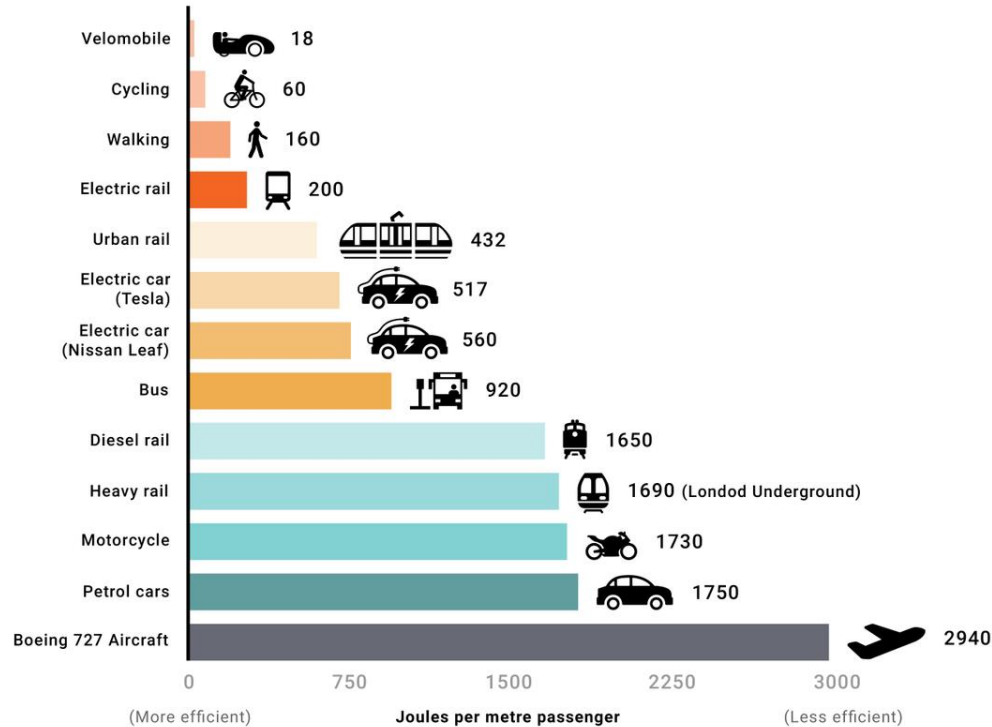
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TRANSPORT ENERGY EFFICIENCY



Source: English Wikipedia (Energy efficiency in transport).

Based on Banister et al. (1997), Hughes (1993), Stead (2000), CEC (1992), Scholl, Schipper and Kland (1994).

Data: Sustainable Transport and public policy.



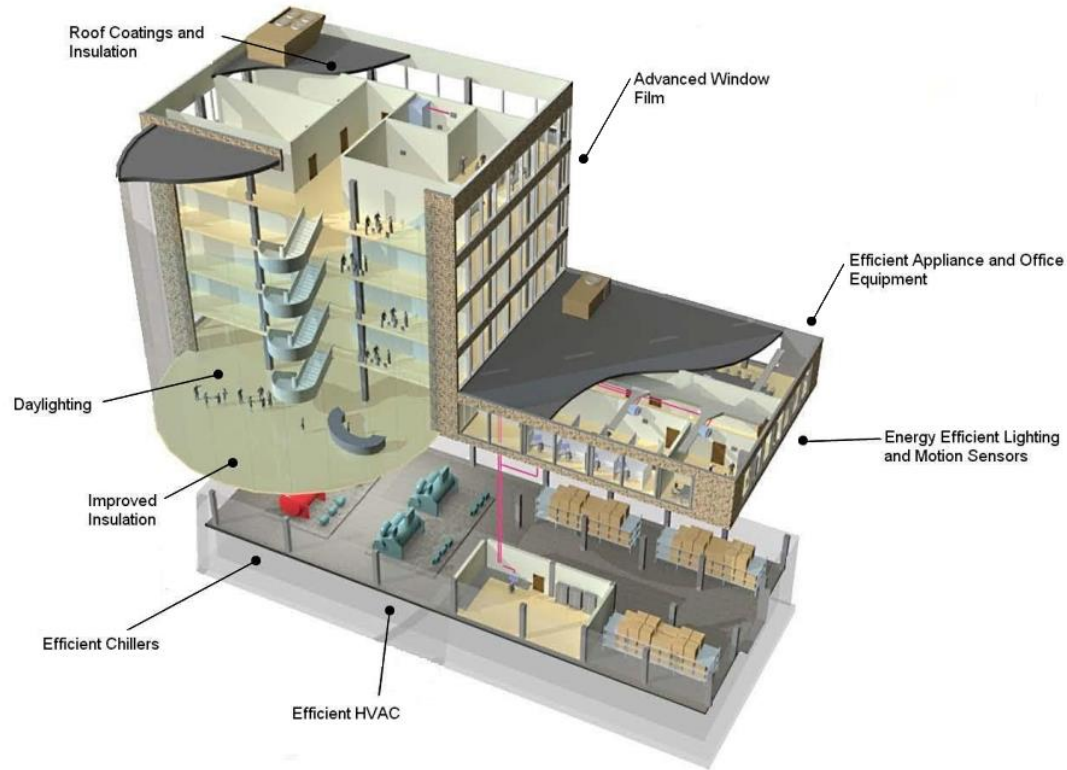
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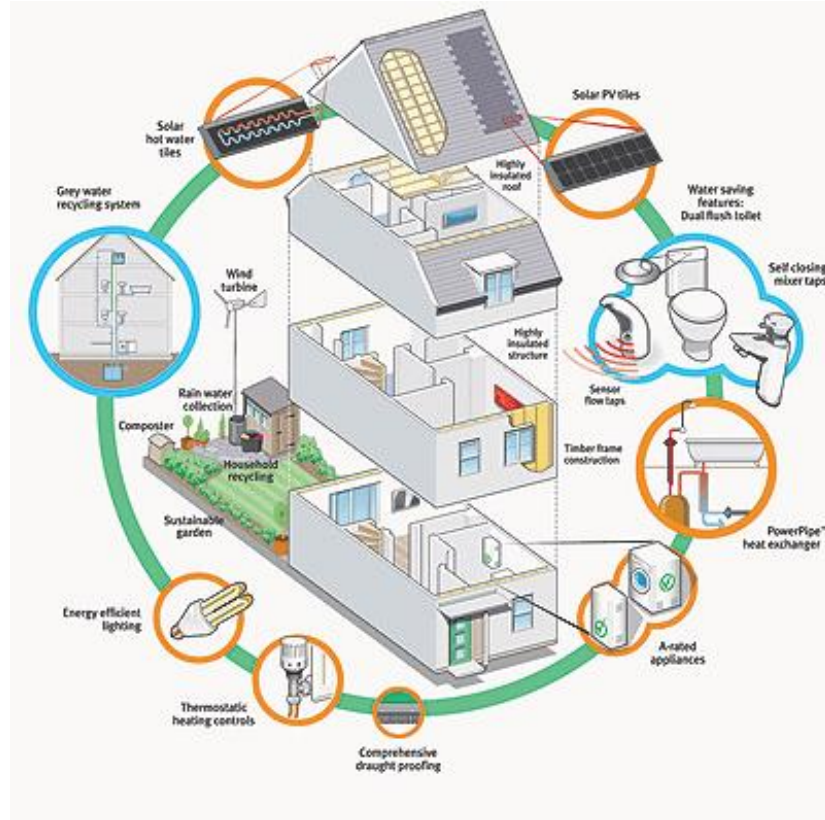
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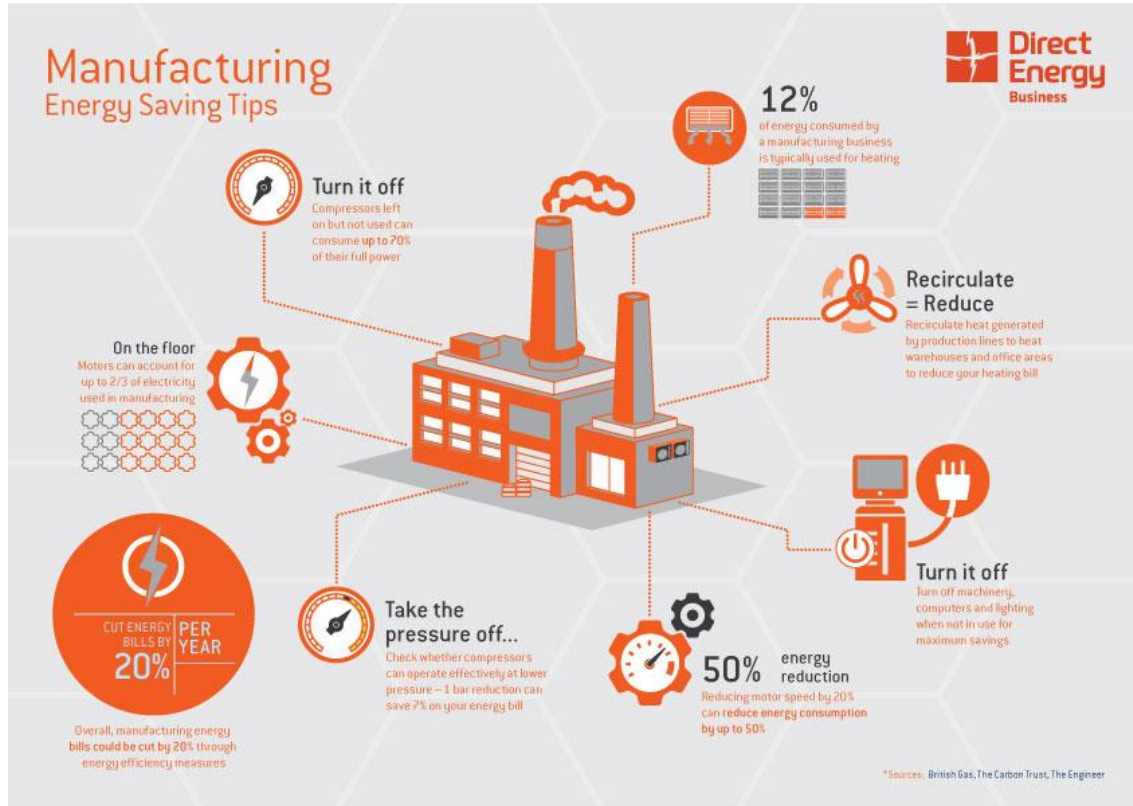
Anatomy of an Energy Efficient Building



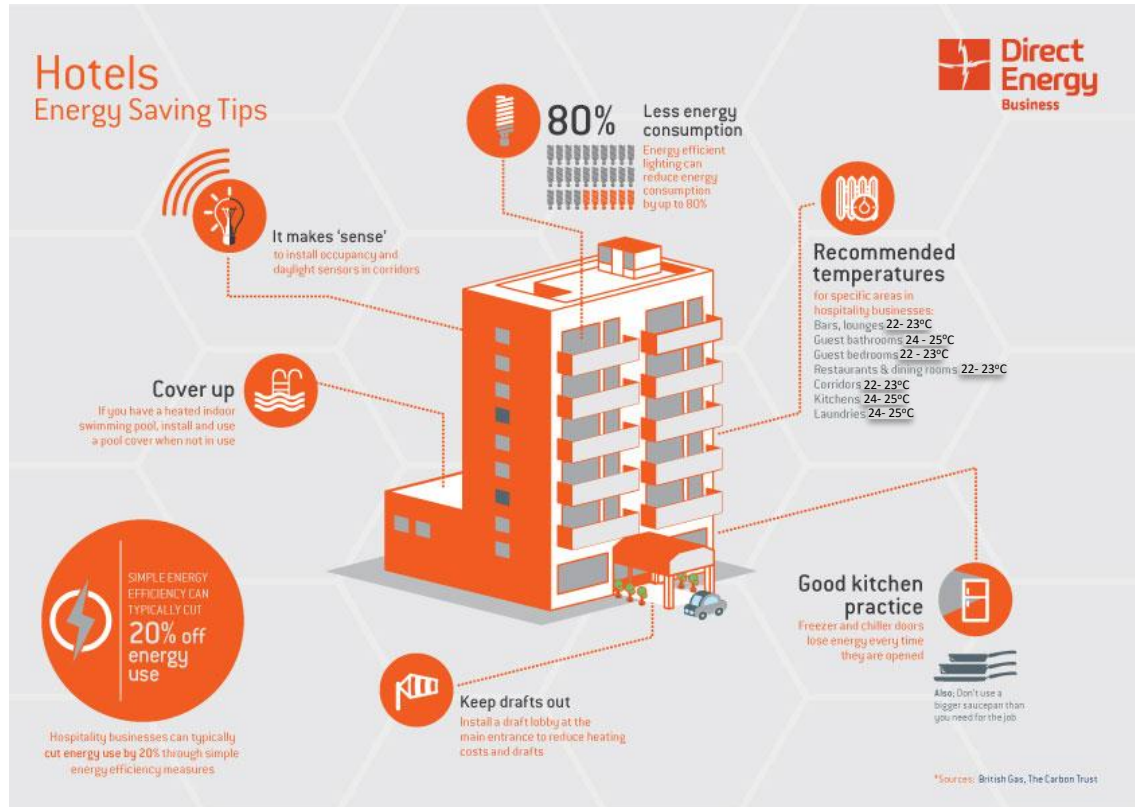
Anatomy of an Energy Efficient Home



Energy Efficient Manufacturing



Energy Efficient Hotel

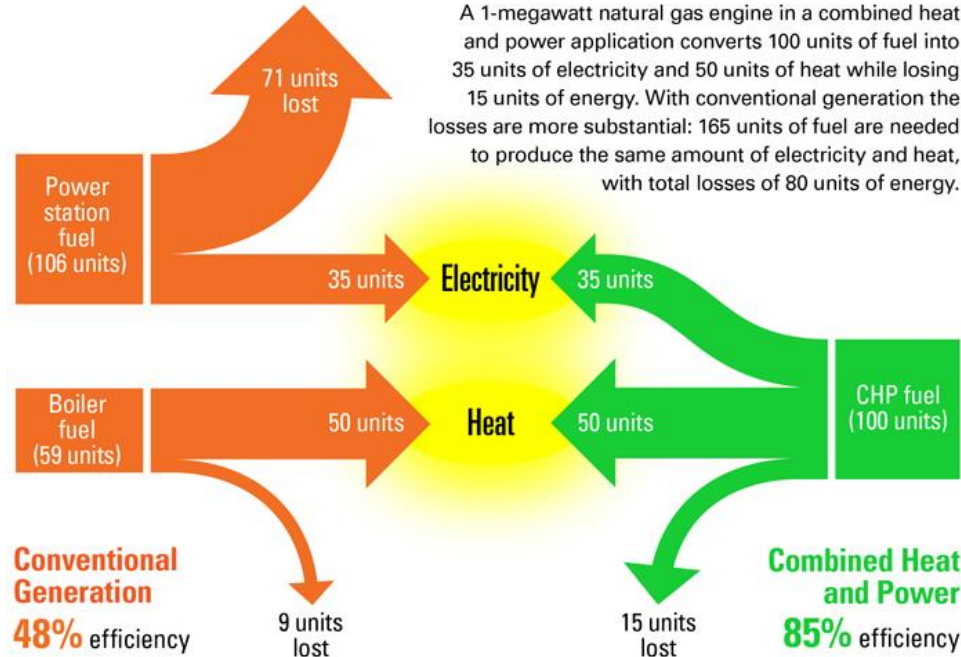


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An Energy Efficient Power Plant

Combined Heat and Power: Energy savings and efficiency



Source: U.S. Department of Energy Northeast CHP Technical Assistance Partnership



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SUSTAINABLE DEVELOPMENT GOALS

Social Policies and Inclusion... Key to meeting the SDGs!

1 NO POVERTY 	End poverty in all its forms everywhere for all people	2 ZERO HUNGER 	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	3 GOOD HEALTH AND WELL-BEING 	Ensure healthy lives and promote well-being for all at all ages	4 QUALITY EDUCATION 	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5 GENDER EQUALITY 	Achieve gender equality and empower all women and girls	6 CLEAN WATER AND SANITATION 	Ensure availability and sustainable management of water and sanitation for all	7 AFFORDABLE AND CLEAN ENERGY 	Ensure access to affordable, reliable, sustainable and modern energy for all	8 DECENT WORK AND ECONOMIC GROWTH 	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	10 REDUCE INEQUALITIES 	Reduce inequality within and among countries	11 SUSTAINABLE CITIES AND COMMUNITIES 	Make cities and human settlements inclusive, safe, resilient and sustainable	12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	Ensure sustainable consumption and production patterns
13 CLIMATE ACTION 	Take urgent action to combat climate change and its impacts*	14 LIFE BELOW WATER 	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	15 LIFE ON LAND 	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification	16 PEACE, JUSTICE AND STRONG INSTITUTIONS 	Promote peaceful and inclusive societies for sustainable development
17 PARTNERSHIPS FOR THE GOALS 		Strengthen the means of implementation and revitalize the global partnership for sustainable development					



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social.un.org

United Nations Department of Economic and Social Affairs - Division for Social Policy and Development



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SUSTAINABLE DEVELOPMENT GOALS



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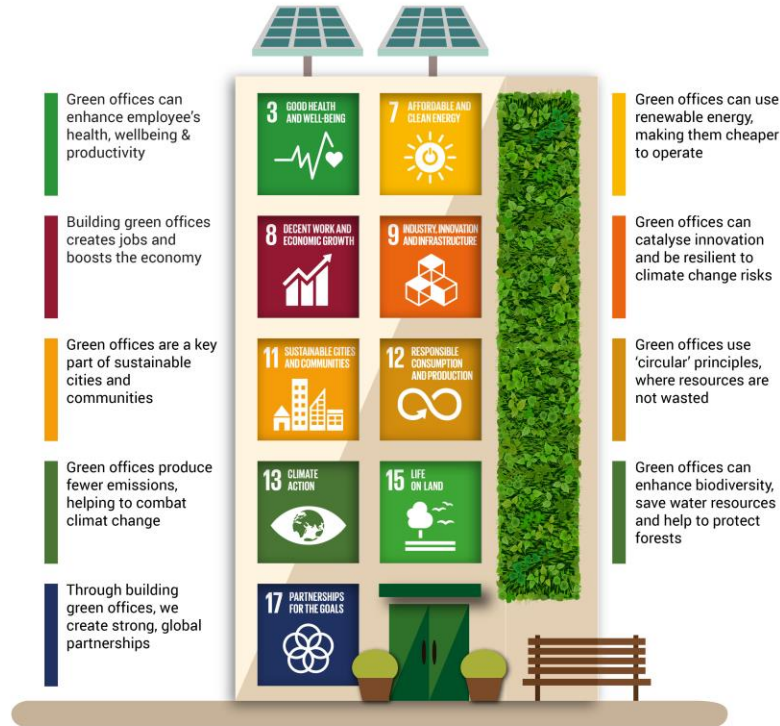
<https://www.worldgbc.org/green-building-sustainable-development-goals>

How **green offices**
can provide the foundations
towards meeting several
Sustainable Development Goals



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Greener solutions – Cleaner Environment



