

**Ashburner
Francis**

**consulting
engineers**

Ecologically Sustainable Developments



Introduction

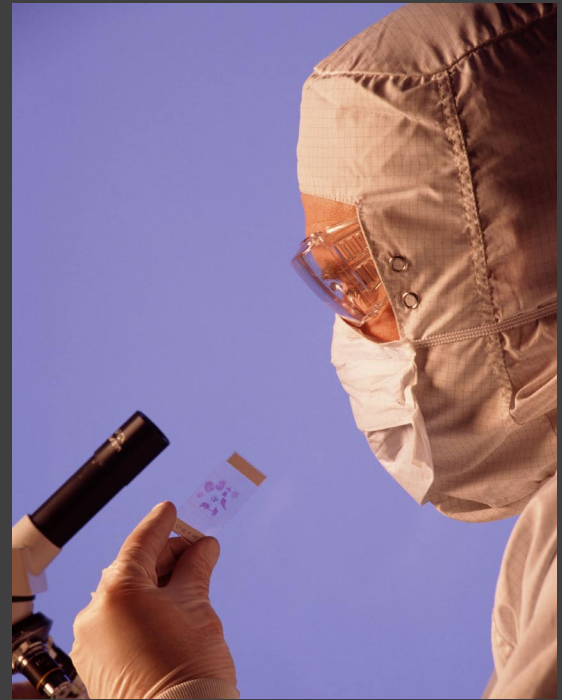
Here at Ashburner Francis we accept our responsibility to the Environment. As a leading Mechanical and Electrical design consultancy we understand the need for ecological sustainable developments, considering the Earth's natural resources and biodiversity. That's why we have our own internal ESD department, employing accredited engineers for sustainable developments, energy audits and alternative design, using the most advanced computation tools available within Australia.

A lesson in Sustainability

The renowned American Physicist and Nobel Prize winner (1930) Robert Millikan famously quoted :

"there is no risk that humanity could do real harm to anything so gigantic as the Earth".

How wrong he was, with scientific evidence today telling us that Australian's are facing risks of damaging climate change unless effective international action is taken. Indeed, such lessons have been seen before, most notably at Easter Island in the Pacific Ocean, an example of Environmental Vandalism and termed "Easter Island Syndrome"



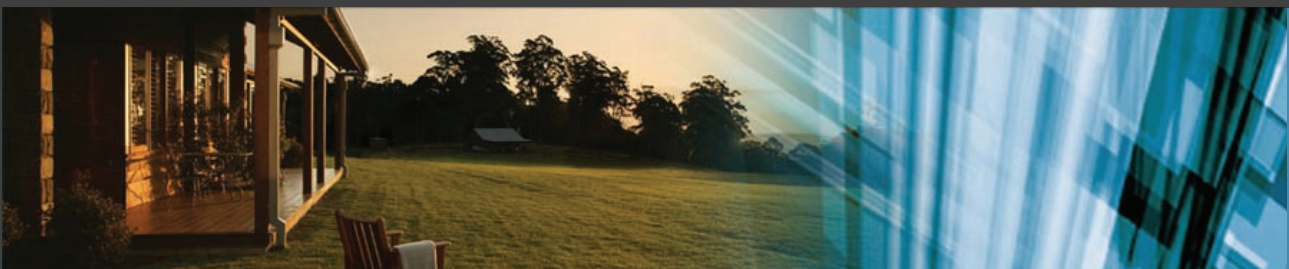
Easter Island Syndrome

When Easter Island was occupied around 900AD natives found an Island of dense subtropical forestation. Their cult of worshipping statues led the inhabitants to cut down the forests, using the timber as rollers for the movement of the large statues, canoes for fishing, the construction of buildings and fuel supplies. As their appetite for larger statues grew, one of the largest being Paro, measuring in at 75 tonnes and 10m high, the felling of trees intensified, leading to a reduction of the islands natural resources.

When the last tree was felled they could no longer build their homes and canoes, the birds and animals became extinct and the soil eroded into the sea, resulting in a loss of over 90% of its population through their actions being unsustainable.

We today also have a "Cult", that for economic growth, consumer consumption and GDP, and year on year we continue to erode the planets natural resources such as quarries and forests to enable our own material consumption.

Indeed, Easter Island was a *lesson in Sustainability*.



The Impact of the Built Environment

The construction industry globally accounts for:

- 50% of all material resources consumed
- 43% of generated energy for lighting, heating, ventilation and cooling
- 5% of generated electricity for construction
- 40% of water use
- 70% of timber products
- 60% of lost land.

Australia contributes to those figures, with energy usage in the commercial sector increasing by 91% from 1990 to 2010 and Greenhouse gas emissions rising 94% in the same period.

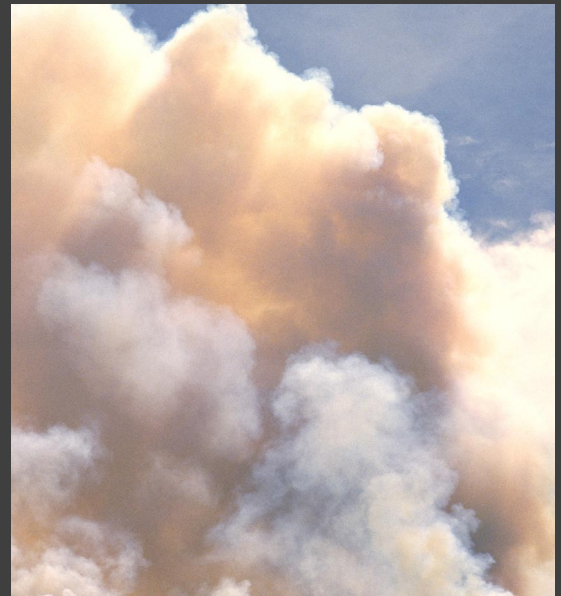
What we can do for you

Sustainable Design Philosophy

Here at Ashburner Francis we can contribute to this process of delivering sustainable building design for your new or refurbished facility. To achieve a sustainable building design many contributing factors need consideration, starting from first principles.

- Building Orientation
- Shading Methods and load prevention techniques.
- Evaluation of the most efficient lighting design and controls.
- Evaluation of the most energy efficient air conditioning, such as mixed mode and hybrid systems, and the use of free cooling through natural ventilation.
- Evaluation of alternative energies such as geothermal, wind and solar technology.
- The use of recyclable materials
- Water harvesting and management

Our approach is to apply these principles in a realistic and cost effective way, so that the final design provides good value for money.



Technology

- Natural Ventilation through careful architectural design and control, often linked with mechanical systems providing Hybrid systems
- Modern Air Conditioning Systems using Variable Refrigerant Flow technology with heat recovery branch controllers.
- Chilled Beams for passive cooling in open plan office Environments.
- Ground Source Heat Exchange systems, utilizing the Earth's temperatures at depths below ground surface, providing a heat sink for heat rejected from the building.
- Photovoltaics, using Monocrystalline, Amorphous and Polycrystalline cells for power generation.
- Intelligent Lighting, using low energy equipment and sensory controls
- Control Technology and the use of building management software
- Advanced commissioning and monitoring techniques

Ashburner Francis are advocates of Ecological Sustainable Developments and welcome your enquiry.



Other Services Offered

- Green Star Audits

A voluntary environmental rating system for buildings through consideration to various environmental and operational factors including management, indoor quality, energy, transport, water, materials, land use, ecology, emissions and innovation.

- National Australian Built Environment Rating Scheme (NABERS)

A voluntary rating scheme, applicable to commercial office buildings which rates the actual energy consumed over 12 continuous months and calculates the corresponding greenhouse gas emissions. Water consumption, indoor environment and waste can also be rated under this scheme.

- Section J Energy Efficiency Reports

Energy Efficiency Reports to ensure compliance with the Building Code of Australia (BCA) "Section J – Energy Efficiency", through the use of advanced software tools.

- Building Energy Rating Scheme (BERS)

Used for the assessment of thermal comfort within residential buildings in accordance with the BCA through the use of advanced software.

- Level 1-3 Energy Audits

AS/NZS3598 Level 1-3 Energy Audits by AIRAH accredited auditors, evaluating energy usage and methods to reduce consumption, through the understating of waste, equipment operation and system performance, promoting cost savings, better thermal comfort and reduced carbon emissions.

- BASIX

A mandatory Government scheme which operates in New South Wales. A building sustainability index (BASIX) certificate is required to be issued as part of the development approval for residential buildings in NSW.



Benefits of owning a Sustainable Building Design

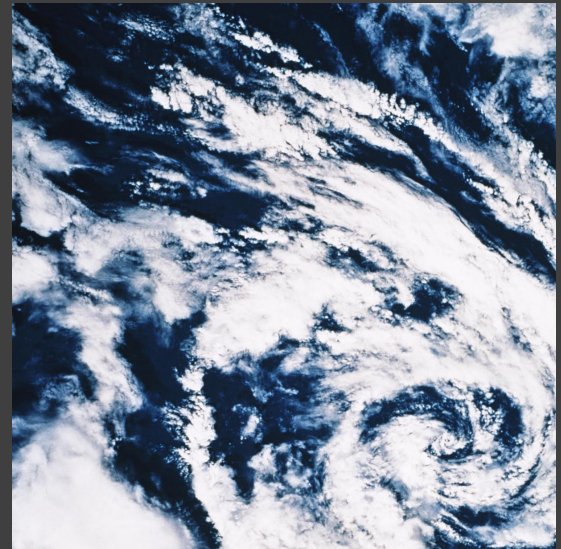
- Low Energy Consumption reducing annual running costs.
- Healthy Interior, improving working efficiency and the wellbeing of the building occupants.
- Small Ecological Footprint, presenting a proactive role in the reduction of carbon emissions
- Minimum impact on surrounding environment, ensuring local ecology is maintained.
- Carbon Pricing Scheme advantages against any Government legislation through the selling of carbon credits.
- Letting Potential will increase through increased desirability, attracting Governmental and Blue-Chip organizations.
- Future asseting of your building will maximised
- Reduced Insurance Cost for the overall building.

Quality Assurance

Ashburner Francis Pty Ltd holds Quality Systems Certificates of Registration Number 1087 to AS/NZS ISO 9001:2000 granted by Sci- Qual International Pty for third party accreditation by JAS-ANZ.

Pre Qualification

As part of the Queensland Government Prequalification (PCQ) system, Ashburner Francis Pty Ltd holds certificates of prequalification registration number 0250A, with a PQC rating of Level 4 : leading edge practice in multi-sectoral global context.



Contact your local office for further information.

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