Building for the Environmental Age

THE KORTRIGHT BIOLOGICAL WASTE TREATMENT CENTRE

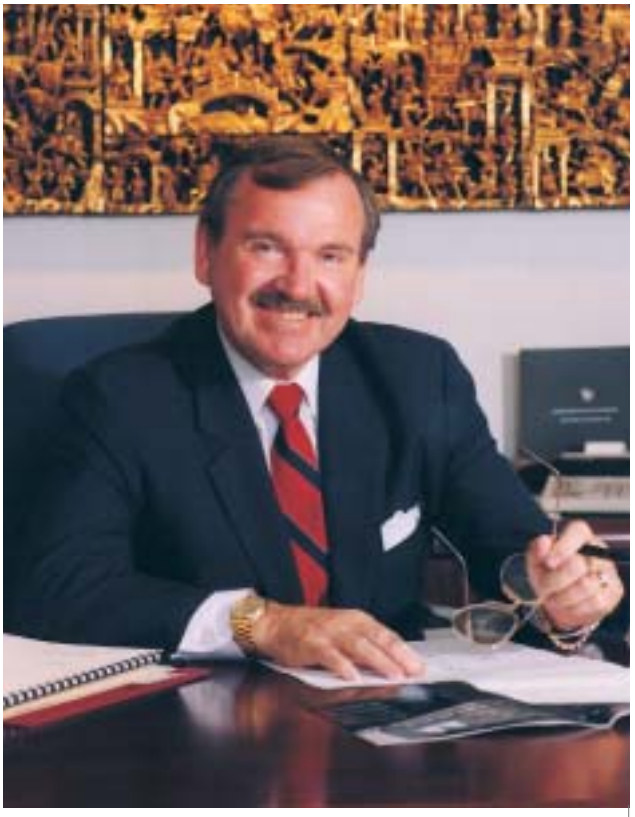
Galvanized Steel
and The Kortright Biological Waste Treatment Centre

Just 40-minutes from downtown Toronto, Canada's greenest building will soon be open to the public. Designed by Canadian architect Edward Russell, this innovative, pre-engineered steel and glass building will house a Living MachineTM biological ecosystem for wastewater treatment. On the eve of a new century, the Kortright Biological Waste Treatment Centre will be a state-of-the-art building which demonstrates the latest developments in resource recycling, water waste treatment, water conservation, energy efficient design and solar and earth energy technologies.

Centre of excellence

Situated amid 800 acres of forests and fields along the Humber River, the Kortright Centre for Conservation is Canada's largest environmental education centre, receiving over 130,000 visitors annually. Kortright is also a centre of excellence in the field of renewable energy and energy efficient technologies, housing Canada's largest renewable energy demonstration. Kortright has built a reputation with the public, educators, industry and the media for providing quality environmental programs which introduce a wide variety of conservation practices and green technologies to the public at large.

Architect Dr. Edward D. Russell has created innovative and practical designs that can be seen throughout Canada and the United States. Among his designs are the Military Electronics Research and Development Centre in San Diego, California, Armco Canada's headquarters in Guelph, Ontario and the All Pro Sports Camps in Orlando, Florida. Russell has received many honours and awards including the Ford Travel Fellowship from Cornell University, the Canada Council Fellowship, and the Central Mortgage and Housing Fellowship for City Planning Work in Canada. So what attracted Russell to design a revolutionary waste water treatment centre?

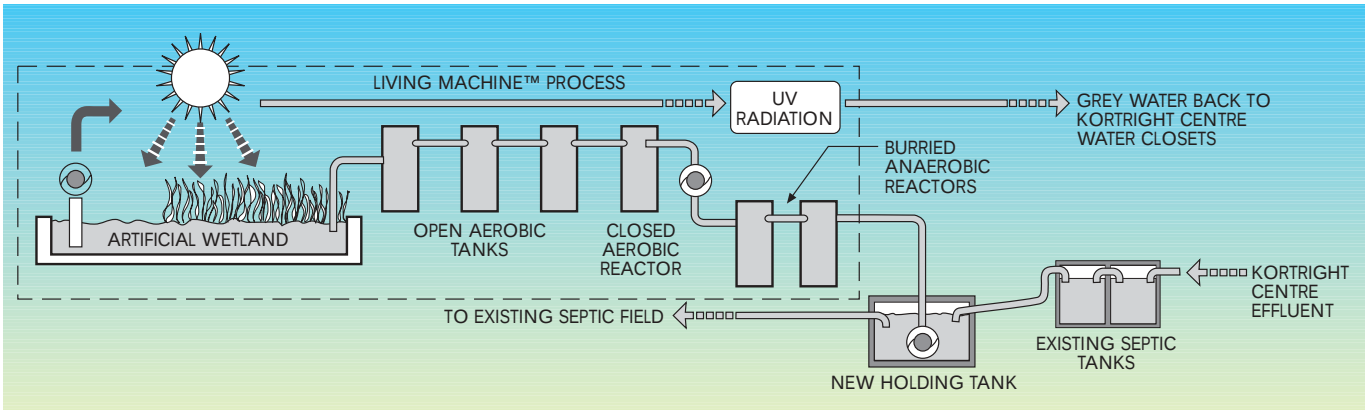


Architect
Dr. Edward D. Russell

On time and within budget

"I've always been concerned with getting the clients' work done on time and within the budget," Russell explains. "Building with steel satisfies both concerns. Steel is malleable, can be bent, moulded and shaped to every need. It can be cut and fabricated in advance of its need, cutting down on site time, and it's more flexible than Lego blocks. It is predictable and easily quantifiable, making estimates easy, and if galvanized, it can last forever."

Early in the 1960's, Edward Russell demonstrated to the Pre-engineered Steel Building Industry in Canada and the United States how to break the monotony of the box-like structures being offered to industry, and, thereby, make these buildings more appealing to commercial and educational clients. Thirty years of working with steel led to his selection by the steel and zinc industries to design and build an enclosure to satisfy some very special needs.



Waste Water Recycling

Building materials that are durable and beautiful

"The project called for cutting-edge technologies to be used in a public demonstration program that will present recycled and recyclable construction materials in a solar environment," says Russell, "all this to educate the public in the use of alternative waste water treatment. The environment will be humid and the building materials have to be permanent, durable, and beautiful to look at."

Living Machine™ biological ecosystem

The new building will house a Living Machine biological ecosystem that simulates a natural wetland for the purpose of treating domestic sewage waste. The biological components of the Living Machine - bacteria and plants - naturally decompose the sewage generated in Kortright's main visitor centre. The final effluent from the Living Machine will be reused to supply water back to the toilets in the visitor centre.

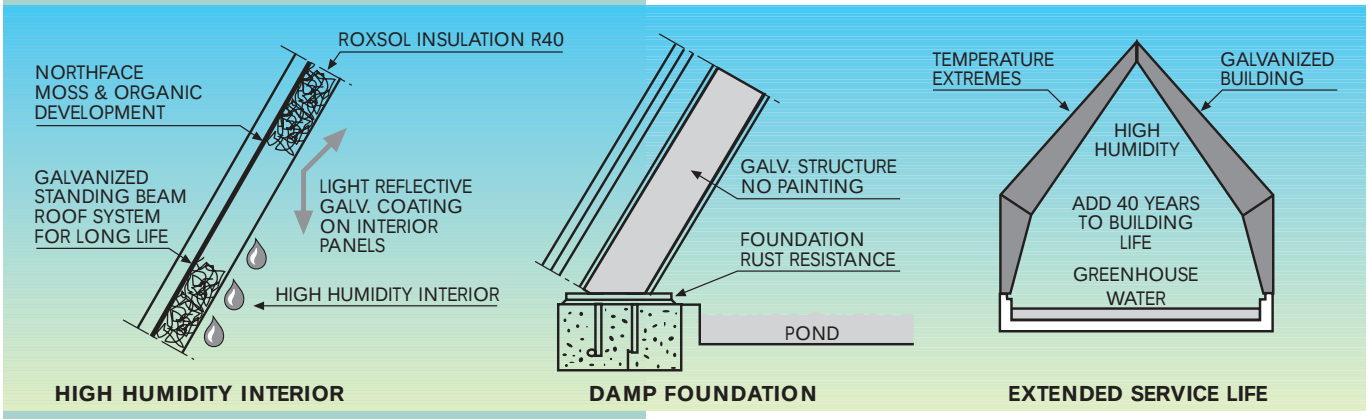
The building will open in the summer of 1998 for a wide variety of educational uses for school, corporate and public programs, demonstrating that many "green" technologies have advanced well beyond inventors' dreams and are ready for use today.

Zinc is vital to the building

International Zinc Association (IZA) - together with the American Iron and Steel Institute, Canadian steel companies and other corporate and public bodies - is sponsoring the construction of the Kortright Biological Waste Treatment Centre. Zinc is vital to the building, protecting its steel frame against corrosion. Outdoors, the steel must withstand the rigours of sun, wind, rain and Canadian winters. Indoors, the environment will be warm and very humid with luscious vegetation throughout the year. Zinc has a vital anti-corrosion role to play here. Moreover, zinc is entirely natural, it is an essential element in the environment, and like the steel it protects, zinc is 100% recyclable. Thus, the zinc used today, far from being lost, constitutes a valuable resource for future generations. Co-sponsoring construction of this innovative "green building" is a natural step for IZA, given the zinc industry's commitment to sustainable development and environmental responsibility.

Zinc ensures durability

Galvanizing with zinc ensures the durability of the Centre's steel structure. Despite the rural location, the potential for corrosion is significant due to the building's high humidity greenhouse interior and damp exterior conditions with temperature extremes. The cost of maintenance is minimised thanks to the long service life of the galvanized steel.



Durability of Steel - Zinc Protection

Some Innovative Technologies Used in The Kortright Biological Waste Treatment Centre

The Building

- **utilises recyclable steel coated with recyclable zinc**
- **high durability**
- **innovative design**
- **highly insulated and energy efficient**

Heating System

- **passive solar design**
- **ground source heat pump**
- **active solar heating for hot water and assisting ground source heat pump**
- **radiant floor heating**

Waste Water Treatment

- **Living Machine (simulated wetland) treats 24m³ waste water per day**
- **recycled water reused**
- **water efficient toilets**

For more information about The Kortright Biological Waste Treatment Centre, visit the Kortright Centre website at

http://www.kortright.org

Dr. Edward Russell can be contacted at:
Russell Associates - Architecture & Planning
1440 Pelham Street
Fonthill, Ontario LOs1eO
phone: 905-892-2703 fax: 905-892-3089

ZINC

For information on zinc, visit

http://www.iza.com

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International Zinc Association
168 Avenue de Tervueren, Box 4
1150 Brussels - Belgium
Tel: +32 2 7760070
Fax: +32 2 7760089
E-mail: email@iza.com