In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of APPLIED SCIENCE | SCHOOL OF ARCHITECTURE
The University of British Columbia
Vancouver, Canada

Date APRIL 21, 1998
ABSTRACT

The TRANSCOM building is a speculative high-rise industrial building proposed for the Central Waterfront Port Lands site on Burrard Inlet, Vancouver, BC (directly to the east of Canada Place). Designed for 24 hour/day, 7 day/week use, The TRANSCOM building incorporates innovative cargo delivery systems to ensure that all five (double height) floors are equally well served. In particular, a large external crane runs the length of the building's west side, delivering intermodal containers to private and shared corridors on all floors.

The comprehensive site plan includes waterfront walks and parkland that will be shared with the public. It is therefore assumed that government and private industry would jointly develop the waterfront 'industrial park' of which the TRANSCOM building would be the first of several similar buildings. Specifically, the TRANSCOM building is intended to be a 'state-of-the-art' industrial facility purposefully located with high visibility to showcase vital Canadian Manufacturing.

Three primary goals drive this proposal. First, exploit the opportunity to locate manufacturing right at the convergence of material, labor and other resources, as well as at a direct 'gateway' to world markets. Second, achieve more productive land use than is usual in current industrial practice - a response to increasingly scarce industrial land supplies in Vancouver. Finally, develop a building system which by practical means; accommodates the widest possible tenant use, achieves an increased building life cycle, and effects reduced operating costs.

Concepts central to the design strategy include: maximizing land use by several means, freight access by conventional and container means to all points, reuse and reconfiguring of 'core' building, natural ventilation and solar controls, designing to enable shared use of resources and amenities.
# TABLE OF CONTENTS

Title Page
Abstract
Table of Contents
Acknowledgment

Introductory Note
Screen Captures of Web Pages From Presentation, 1 & 2
Screen Captures of Web Pages From Presentation, 3 & 4
Parti: The TRANSCOM Building Site
Site Context
Site Plan & Detail
Plan: Ground Floor & Main Entrance: Perspective and Elevation
Plan: Typical Floor & Details: Container Loading, Truck Loading
Plan: Roof & Detail: Overhead Gantry Crane
West Elevation: Development
West Elevation & Detail
East Elevation & Detail
Section: Looking North & Details
Perspective View From South
Illustration of ‘Shuttleator’
Building Envelope Detail: Perspective and Orthographic Views
Perspective and Interior Views of West Elevation
Solar Analysis
Perspectives: Circulation
ACKNOWLEDGEMENT

I am most grateful for the time and effort given to this project by the three members of my committee. Ray Cole and Chris Macdonald, professors of Architecture at UBC, were terrific friends as well as mentors, while Peter Busby gave very generously of his time, notwithstanding a demanding architectural practice, civic work and other commitments.
INTRODUCTORY NOTE

In the following documentation, pages 2 & 3 are representative of web pages that were presented at thesis defense, April 01, 1998. The presentation of the thesis was organized in a notebook computer as a website and projected by high intensity LCD projector onto a screen.

Icons on the upper title bar when 'clicked' bring up various content bars including those shown at left. The icons on these content bars in turn call up various pages - many linked to interactive pages such as .wrl - virtual worlds and .dwf - drawing web format views of Autocad drawing files.

The remaining pages produced here (4 - 18) have been reformatted for print from graphic files that were also projected at the thesis defense. Hundreds of additional images and 'links' were available on the website to illustrate the TRANSCOM Building proposal as well as related issues. Those selected and included here satisfactorily represent the building and graphic style of presentation.
There has been a steady increased awareness of both operating and environmental costs associated with extensive land use. In addition to problems of consumption of non-renewable energy, the costs of extensive land use, including increased energy consumption, public subsidy of roads and utilities, removal of land from agricultural and other use, etc., are being reexamined and evaluated.

Paying for the Costs of the Car

Studies done for Transport 2021 suggest that all transport modes contain an element of subsidy. In the case of cars, this amounts to about a quarter of the cost of each trip. Having drivers cover more of the true cost of the use of the car has the double advantage of raising revenues and helping to induce a switch.
The view (above) is of the west side of the building, so the transportation and lifting are visible to the public at many vantage points from Canada Place to the old CPR station, including the Sea Bus and Waterfront Subway station.
PARTI:
The TRANSCOM Building Site

Extended land mass accommodates three related industrial buildings oriented to Canada Place and existing waterfront morphology.

Park and public walkways surround site, including extended breakwater which approaches existing container port to northeast.
Context
1. Existing Central Waterfront Port Lands (CWPL) site.
2. Possible future street extension with proposal.

3. The TRANSCOM Building proposal - Context
TRANSCOM Building Site Plan (above)

Detail: TRANSCOM Building Site Plan
Transcom Building Plan Ground Floor

Above: Waterfront Road entrance, perspective view
Below: Waterfront Road entrance elevation. Closed (left) Open (right)
overhead/gantry crane
1. The TRANSCOM Building
   early sketch of west facade

2. The TRANSCOM Building: early computer modeling

3. The TRANSCOM Building: West elevation
West Elevation

Detail of west elevation
note: stepped container bays -
containers not shown.
crane rolls left to right.
East Elevation

Detail of elevation
note: concrete core structure, gated circulation bays,
and freight 'shuttle' elevators.
Section looking north through circulation bay (above)

Security gate closed  Security gate open

Various wall panels: east facade and interior circulation bays
(above) Early computer model of The TRANSCOM Building: oblique view from south

(below) East Facade of The TRANSCOM Building
Computer model
Three perspective views
1. view of west facade (partial) from above.
2. exterior view along expanded metal service walkway.
3. interior view looking west.
Solar Analysis for environmental controls design
(above) southwest facade

(below) sectional analysis through south facade
computer rendered view looking south along shared circulation 'roadway'.

computer rendered view looking east through circulation bay