BLDG. I: NORTH ELEVATION

BLDG. I: SOUTH ELEVATION
BLDG. II: 1st FLOOR PLAN
BLDG. II: 2nd FLOOR PLAN
BLDG. II: 3rd FLOOR PLAN
BLDG. II: NORTH ELEVATION

BLDG. II: SOUTH ELEVATION
BLDG. III: 1st FLOOR PLAN
BLDG. III: 2nd FLOOR PLAN
BLDG. IV: 1st FLOOR PLAN
BLDG. IV: NORTH ELEVATION

BLDG. IV: SOUTH ELEVATION
NORTH ELEVATION  Unit Type A
(PARKING SIDE)

0 4' 8' 16'
SOUTH ELEVATION (LAKE SIDE)
NORTH ELEVATION
(Unit Type B)
(PARKING SIDE)
SOUTH ELEVATION  Unit Type B
(LAKE SIDE)

Domestic Hot Water Solar Collectors
WEST ELEVATION  Unit Type B

DESIGN DEVELOPMENT

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SECTION C-C
Unit Type C

Insulative Roll-up Shutter

Thermal Storage Container
NORTH ELEVATION  Unit Type C
(PARKING SIDE)
NORTH ELEVATION  Unit Type D
(PARKING SIDE)

0 4' 8' 16'
SOUTH ELEVATION
(LAKE SIDE)

0'  4'  8'  16'

Domestic Hot Water Solar Collectors
NORTH ELEVATION  Unit Type E  (PARKING SIDE)

0  4'  8'  16'
ECONOMICS

PROJECTED COSTS:

LAND

Land Acquisition 115,000
Site Development (Sewer, Water, Power, Rough Grading) 70,000
  Ready for Footings (Total) $ 185,000
  Ready for Footings (Per Unit) $ 5,139

BUILDING

8-Unit A @ 1075 SF @ $42./SF 361,200
8-Unit B @ 1355 SF @ $42./SF 455,280
6-Unit C @ 1300 SF @ $42./SF 327,600
6-Unit D @ 1630 SF @ $42./SF 410,760
8-Unit E @ 1425 SF @ $42./SF 478,800
  Total Building Cost $ 2,033,640

ADDITIONAL

Interim Financing (Interest) 30,000
Professional Fees (Legal, Engineering, Architectural, etc.) 40,000
Landscaping (36 units @ $750./unit) 27,000
Pier (36 units @ $350./unit) 12,600
Amenities (Pool, Tennis, etc.) 35,000
  Total Additional Costs $ 144,600 (4017./unit)
ECONOMICS (Continued)

INDIVIDUAL UNIT COST & PROFIT BREAKDOWN

Unit A:
Land 5,139
Building (1075 SF @ $42./SF) 45,150
Additional 4,017
Cost to Developer 54,306
10% Profit Margin 5,430
PROPOSED SALES PRICE $59,736

Unit B:
Land 5,139
Building (1355 SF @ $42./SF) 56,910
Additional 4,017
Cost to Developer 66,066
10% Profit Margin 6,606
PROPOSED SALES PRICE $72,672

Unit C:
Land 5,139
Building (1300 SF @ $42./SF) 54,600
Additional 4,017
Cost to Developer 63,756
10% Profit Margin 6,375
PROPOSED SALES PRICE $70,131
ECONOMICS (Continued)

Unit D:
Land 5,139
Building (1630 SF @ $42./SF) 68,460
Additional 4,017
Cost to Developer 77,616
10% Profit Margin 7,761
PROPOSED SALES PRICE $85,377

Unit E:
Land 5,139
Building (1425 SF @ $42./SF) 59,850
Additional 4,017
Cost to Developer 69,006
10% Profit Margin 6,900
PROPOSED SALES PRICE $75,906
ECONOMICS (Continued)

OVERALL PROJECT BUDGET

Income From Sales:
8-Unit A @ 59,736 477,888
8-Unit B @ 72,672 581,376
6-Unit C @ 70,131 420,786
6-Unit D @ 85,377 512,262
8-Unit E @ 75,906 607,248

NET INCOME FROM SALES $ 2,599,560

Expenses:
Land 185,000
Building 2,033,640
Additional 144,600

NET EXPENSES $ 2,363,240

NET PROFIT POTENTIAL $ 236,320
9. 9. 9. 9. 9. CONCLUSION
CONCLUSION

For many years, I have had a strong interest in housing and the economics of housing. From a building-type standpoint, it is a facet of architecture that is relevant to all people. From a knowledge standpoint, it is a facet of architecture that is practiced in nearly every architectural office in this country and abroad.

"The Waterworks" has provided me with the necessary catalyst to boost my knowledge and my appreciation for housing. My motivation to learn was highly increased due to the nature of the project. I feel that the faculty who helped to mold the final design solution were essential in pushing me to achieve a synthesis which far exceeded any previous design experience.

In retrospect, I am extremely pleased that I was able to work in a "real-world" situation with this Design proposal. By working with Aaron Hinesley, the owner and developer of the project, I was able to get an additional perspective on the overall project. His concerns, primarily economics and marketing, had an affect on the project which also helped to shape the final outcome.

Overall, my knowledge has increased, my skills have been enriched, and my perspective broadened by this Thesis experience.
APPENDIX

For a study of the Building Type and applied research for the Thesis, I have chosen the following articles, all of which point out various aspects of housing:

WHAT TURNS MULTIFAMILY RESIDENTS ON AND WHAT TURNS THEM OFF?
House and Home; January 1976.
Synopsis: This is a great example of post-occupancy evaluation and how it can have a positive affect on future design. The Architectural firm of Childs Bertman Tseckares Associates in Boston assigned Brandt Anderson, an MIT architecture student who was interning with them for a Semester, to go back to three CBT projects to ask the residents what they liked and disliked. Results are surprising!

AFFORDABLE HOUSING
Synopsis: This is a lengthy article which addresses many issues regarding affordability. It touches on land cost, standards, higher densities, reducing construction costs, Government programs, economics, and solutions. In addition, many examples of affordable housing are mentioned and illustrated.

FOREST GROVE CONDOMINIUM TOWNHOUSING, ERIN MILLS, ONTARIO
Synopsis: This is an illustrated article which concentrates on an award-
APPENDIX (Continued)

winning development in Canada.

PASSIVE COOLING
Research & Design; Fall, 1979.
Synopsis: As the subtitle says: "Before energy was plentiful and air-conditioning omnipresent, designers came up with ingenious techniques for letting the forces of nature keep their buildings cool. Today's designers are relearning those techniques. And coming up with a few more." A good source for conceptual strategies in natural ventilation and cooling.

DESIGNING AN EXPERIMENTAL SOLAR COMMUNITY
Landscape Architecture; May, 1977.
This article is followed by a book which is listed in the Bibliography of this Thesis. The article and book both deal with a "Solar Subdivision" in Davis, California which has received a great deal of acclaim. It is touted as a New Town and has been very effective in terms of overall land use and site planning.

LOWERING THE COST OF NEW HOUSING
The Canadian Architect; June, 1977
This represents a study of government control and how it affected the following three objectives: 1) To produce housing at prices significantly below current levels; 2) To conserve land through efficient planning; and 3) To provide minimal transportation, servicing and land
APPENDIX (Continued)

costs for residents.

SIX MULTIFAMILY DESIGN AWARD WINNERS
Synopsis: The Homes for Better living awards program is sponsored by the AIA in cooperation with Housing Magazine. Multifamily winners were chosen on the basis of site planning, unit design and architecture. Winners include: Rentals for the elderly, high-density rentals, rental triplexes, Ski Condominiums, Resort Condominiums, and Student Housing.

FISHER-FRIEDMAN ASSOCIATES: HOW ONE FIRM WORKS SUCCESSFULLY (VERY!) WITH DEVELOPERS.
Architectural Record; May, 1978.
Synopsis: "In this tough, market and cost-oriented world there are very few Design superstars. Fisher-Friedman Associates of San Francisco is one of them. Their work for builders has won a wall full of design awards—and they simultaneously enjoy a top reputation for bringing in work that is not just on time and within the budget, but which rents up or sells out by opening day!" Excellent Article.
11. BIBLIOGRAPHY
BIBLIOGRAPHY


BIBLIOGRAPHY (Continued)


BIBLIOGRAPHY (Continued)
