

AFFORDABILITY AND CHOICE TODAY (A•C•T) DEMONSTRATION PROJECT

Safe Housing Standards for Affordable Renovation

**Office of the Commissioner of Housing, Planning and Development
City of Edmonton, Alberta**

Prepared for:

Federation of Canadian Municipalities

Canadian Home Builders' Association

Canadian Housing and Renewal Association

Canada Mortgage and Housing Corporation

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FOREWORD

The project documented in this case study received funding assistance under the Affordability and Choice Today (A•C•T) Program. A•C•T is a joint initiative, managed by the Federation of Canadian Municipalities, the Canadian Home Builders' Association, and the Canadian Housing and Renewal Association, together with the funding agency Canada Mortgage and Housing Corporation. The A•C•T Program is administered by the Federation of Canadian Municipalities.

A•C•T, which was launched in January 1990, was designed to foster changes to planning and building regulations and residential development approval procedures in order to improve housing affordability, choice and quality.

Through A•C•T, grants are awarded to municipalities, private and non-profit builders and developers, planners and architects to undertake innovative regulatory reform initiatives in municipalities across Canada. Three types of projects are awarded grants under the A•C•T Program: Demonstration Projects, Streamlined Approval Process Projects, and Case Studies (of existing initiatives).

- *Demonstration Projects* involve the construction of innovative housing that demonstrates how modifications to planning and construction regulations can improve affordability, choice and quality.

- *Streamlined Approval Process Projects* involve the development of a method or an approach that reduces the time and effort needed to obtain approvals for housing projects.
- *Case Study* grants are awarded for the documentation of existing regulatory reform initiatives.

Change and innovation require the participation of all the players in the housing sector. A•C•T provides a unique opportunity for groups at the local level to work together to identify housing concerns, reach consensus on potential solutions, and implement action. Consequently, a key component of A•C•T-sponsored projects is the participation and cooperation of various players in the housing sector in all phases of each project, from development to realization.

All projects awarded a grant under the A•C•T Program are documented as case studies in order to share information on the initiatives and the benefits of regulatory reform with other Canadian communities. Each case study discusses the regulatory reform initiative, its goals and the lessons learned. Where appropriate, the cost savings resulting from modifications in various planning, development, and construction regulations are calculated and reported.

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PROJECT OVERVIEW

Existing, inner-city housing stock represents a potential source of affordable housing, but many buildings require upgrading to meet health and safety standards. The challenge is to find ways to do this economically. The cost of upgrading old buildings to national and provincial or territorial codes can discourage owners from undertaking renovation, or move housing out of the range that is affordable to low-income households.

In 1993, the City of Edmonton received an A•C•T grant to demonstrate that inner-city housing can be economically upgraded to acceptable standards of health and safety using guidelines alternative to those prescribed by current regulations. Building on the results of another A•C•T project—the Association for Preservation Technology's *Code and Approval Process Models for Residential Renovation*,¹ Edmonton's Safe Housing Committee had drafted a set of safe housing standards for multiple-occupancy dwellings. Through A•C•T, the City aimed to test and refine the draft standards.

The project involved the following steps:

- Reviewing the draft standards to ensure they would be easily understood by property owners

- Surveying and evaluating a typical converted nine-unit "Division A" demonstration building to identify existing hazards
- Preparing a design brief to address building deficiencies with reference to the draft standards
- Consulting and negotiating with stakeholders to reach agreement on improvements to be made
- Preparing design drawings, specifications and construction cost estimates
- Preparing working drawings, and renovating to the standards a purpose-built 21-unit "Division B" demonstration building
- Evaluating and finalizing the standards

A three-storey, 21-unit rooming house in a neighbourhood adjacent to the downtown core was chosen for upgrading. The building had been vacated in June 1992 as a result of numerous building code infractions and related fire, health and safety concerns.

The draft standards were used to proceed with the renovation necessary to upgrade the rooming house to an acceptable level of health and safety. Work began in August 1993, and the building was occupied by spring 1994. The reaction of tenants to their new living environment was unanimously positive.

¹ A copy of the A•C•T case study documenting APT's project may be obtained from the Canadian Housing Information Centre, 700 Montreal Road, Ottawa, Ontario, K1A 0P7, Tel: (613) 748-2367, Fax: (613) 748-4069, TTY: (613) 748-2143.

The finalized Safe Housing Standards document was issued in June 1994.² The Standards establish the minimum levels of health and safety required for all existing, residential rental buildings in Edmonton (including rooming and boarding houses), six storeys in height or less and containing three or more units.

The Standards were adopted by the Edmonton Board of Health. The Edmonton Fire Chief advised the City that compliance with the Standards would achieve an “acceptable level of life safety” in accordance with the Alberta Fire Code.

The upgrading cost on a per unit basis for the 21-unit rooming house compared very favourably with Residential Rehabilitation Assistance Program (RRAP) projects undertaken in

Edmonton’s inner-city area. The cost of upgrading the rooming house to achieve compliance with the Safe Housing Standards for the A•C•T project was approximately \$2,381 per unit. The cost of renovating to comply with the Alberta Building Code for RRAP projects in the inner-city area at the time ranged from \$8,803 to \$18,052 per unit, with an average cost of \$13,522.

It is clear that Edmonton’s Safe Housing Standards have significant potential to make renovation more affordable and improve the quality of housing in Edmonton’s inner-city areas. The project provides a model for other municipalities across Canada seeking economical approaches to transforming deteriorated building stock into safe and healthy housing.

² Copies of *Safe Housing Standards* may be obtained from Maps and Publications, Planning and Development Department, City of Edmonton, 2nd Floor, The Boardwalk, 10310-102 Avenue, Edmonton, Alberta, T5J 2X6, Tel: (403) 496-6160, Fax: (403) 496-6299. Copies are available for \$4 + GST. For information regarding the Safe Housing Standards, contact J. Dennis Freeman, Senior Planner, Office of the Commissioner of Housing, Planning and Development Department, #1001, 10th Floor Centennial Building, 10015-103 Avenue, Edmonton Alberta, T5J 0H1, Tel: (403) 496-6026, Fax: (403) 496-6011.

1.0 PROJECT DESCRIPTION

1.1 Finding A Practical Approach

A 1990 study identified more than 2,000 households living in overcrowded or poor physical conditions in 43 inner-city Edmonton neighbourhoods.³ Sixty percent of the substandard housing was concentrated in five neighbourhoods alone. One neighbourhood in particular was identified as having a high incidence in all of the housing need indicators—affordability, overcrowding, poor housing condition and redevelopment potential.

Many of the single-family dwellings in the neighbourhood, dating from the early to mid-1900s, had been converted into multiple-unit housing that had deteriorated considerably over the years. Closing the buildings would exacerbate the shortage of suitable housing for low-income households. However, the cost of renovating deteriorated housing stock to comply with national and provincial building codes would be considerable. Finding a practical approach to upgrading the buildings to acceptable levels of health and safety would ensure an important source of affordable housing continued to be available.

In 1992, Edmonton's Safe Housing Committee developed a draft set of alternative renovation standards based on

the A•C•T project undertaken by the Association for Preservation Technology (APT). APT identified requirements in the National Building Code that discourage renovation of deteriorated residential buildings, and developed a Table of Alternate Technical Measures that can be applied as equivalencies to the Code.⁴

In 1993, the City of Edmonton was awarded an A•C•T grant to demonstrate that the standards could be used to help make housing safe and healthy for occupants, and help make renovation financially viable for landlords while maintaining affordability for low-income households.

1.2 Project Objectives

The main objective of Edmonton's A•C•T project was to test the viability of the draft standards. The project team aimed to:

- Finalize the standards based on experience gained through a practical application
- Explore innovative construction techniques and materials that meet the intent of building code health and safety provisions
- Identify a new application process and administrative procedure for inspecting and reviewing the renovation of residential buildings

³ Larrie Taylor, *Edmonton Inner City Housing Need and Demand Study*, (Larrie Taylor Architect Ltd.: 1990). The study was commissioned by Alberta Municipal Affairs, Alberta Mortgage and Housing Corporation, City of Edmonton Community and Family Services, and the Edmonton Coalition on Homelessness.

⁴ Please refer to footnote 1 on page i for information on obtaining a copy of the A•C•T case study documenting APT's project.

1.3 Project Methodology

Edmonton's Office of the Commissioner of Housing worked with representatives of the following organizations on the project team:

- Greater Edmonton Home Builders' Association, Renovation Committee
- Alberta Labour, Building Standards Branch
- Alberta Municipal Affairs, Housing Division
- Alberta Association of Architects
- Inner-City Housing Society

In addition, Richard J. Vanderwell Architect Ltd. was selected as a consultant to the project team.

The project proceeded in two phases. The first phase included:

- A review of the draft standards to ensure they would be easily understood by property owners
- A detailed site evaluation of a demonstration building to identify existing hazards
- Preparation of a design brief to address building deficiencies with reference to the standards
- Consultation and negotiation with stakeholders on improvements to be made
- Preparation of design drawings, specifications and construction cost estimates

The second phase of the project involved the preparation of working drawings, renovating a demonstration building, and

conducting a post-renovation assessment in order to determine the effectiveness of the draft standards and to identify changes required in order to finalize them.

Phase II of the project demonstrated that practical and cost-effective upgrading to meet health and safety requirements can be achieved in a residential property by carefully applying Safe Housing Standards.

—A•C•T Project Team

1.4 The Safe Housing Standards

Edmonton's Safe Housing Standards,⁵ discussed in the next section of this case study, address the following:

- Definitions
- Administration
- Smoke alarms
- Fire alarm systems
- Means of egress
- Compartmentation
- Fire suppression equipment
- Electrical requirements
- Building structure and health requirements
- Plumbing and gas
- Heating and ventilation
- Definitions of Division "A" and "B" buildings and additional standards required for each (outlined following)

⁵ Please refer to footnote 2 on page i for information on obtaining a copy of the City of Edmonton's *Safe Housing Standards* document.

Division “A” Building

- **Contains a residential occupancy only**
- **Has a maximum building height of three storeys**
- **Has ten or less occupants**
- **Has a resident owner or resident person capable of supervising the building**

Division “B” building

- **All other buildings six storeys or less**
- **Has a residential occupancy not defined for Division “A” buildings**

The Safe Housing Standards . . . provide a fair and concise set of safety, occupancy, health and upgrading standards to inner-city property owners. The current standards will help alleviate some of the past problems associated with uneven or sporadic interpretation and application of standards by various City of Edmonton Departments.

—A•C•T Project Team

2.0 THE SAFE HOUSING STANDARDS DEMONSTRATION PROJECT

2.1 Phase I: Reviewing the Standards

Two, privately owned properties had been identified as potential sites for the demonstration project when the City submitted its A•C•T grant application. Both buildings were representative of housing in inner-city neighbourhoods that had been converted to rooming houses and apartment use. Both were three-storey rooming houses, one with nine units in a converted single-family dwelling, and the other had 21 units. The nine-unit rooming house qualified as a Division “A” building and was used for Phase I. The 21-unit, Division “B” building was renovated in the second phase of the project.

Modifying the Standards

A detailed report on proposed revisions to the draft standards and design upgrades for the nine-unit building was submitted by the architect in June 1993. Modifications were recommended for several of the definitions (“acceptable window,” “fire escape,” “sleeping room,” “occupant load,” “occupancy”), to describe and convey accurately the intent of the standards. Comments were given on the administrative and enforcement section of the draft standards, and other sections pertinent to existing hazards or deficiencies in this Division “A” building were reviewed and assessed in detail.

Several changes to the draft standards were made relating to safety and fire precautions:

- Heat detectors are not required where an acceptable automatic sprinkler system has been installed.
- Smoke detectors are required as part of a fire alarm system.
- Existing fire escapes can remain, provided their construction is deemed safe and practical to the Safe Housing Committee; new exterior fire escapes must be constructed to Alberta Building Code requirements.
- Automatic sprinklers or approved fire-resistant, sprayed material are acceptable for service and storage rooms in a Division “A” building, in lieu of fire separations and/or fire dampers; these rooms do not require a fire separation if the room is not located on the same floor as residential occupancy and the stairway is enclosed with a fire separation.
- Duct-type smoke detectors are required in re-circulating air systems.
- An interconnected smoke alarm system is permitted in lieu of a fire alarm system where cooking facilities are not provided in any suite in a Division “A” building.

Other recommendations on health and safety provisions were incorporated in later revisions to the draft standards:

- Exact heights and details of required guards at stairs and landing
- A more detailed description of the food preparation facility
- Safe working conditions for gas appliances
- Cooking appliances are not permitted for space heating
- Numerous clarifications and additional regulatory information on heating and ventilation
- Safety requirements for common cooking areas

For Further Consideration

The project team identified four points for further consideration:

- Auto-reset smoke alarms should be accepted for installation in sleeping rooms to reduce the chances of smoke detector tampering with, or removal of batteries from, the unit installed near the kitchen (specifically for one-room or small two-room units).
- Metal-clad doors should be referenced in the standards as being equivalent to solid wood doors.
- The term “access to exit” should be defined in the “Definitions” section to distinguish it clearly from “exits” for Division “B” buildings.
- An existing automatic sprinkler system, installed on either a partial or full floor coverage basis, could be considered as an equivalency

measure for required exits, fire separations, wall and/or floor ratings, dead-end corridor situations, or a combination of other Safe Housing Standards life-safety measures; further research is required to determine the exact measures, equivalencies and site servicing implications.

Limitations of Division “A” Buildings

Phase I of the project revealed that full compliance with the standards in Division “A” buildings would be difficult. Many of these buildings are older, single-family dwellings which have been converted over the years to rooming houses, without regard to building codes. Interior changes have been incremental and have resulted in houses being divided into numerous individual suites or rental units.

The following areas present specific problems to achieving compliance in Division “A” buildings:

- It is difficult to provide two acceptable and separate exits from each and every floor.

Solutions such as adding exterior stairs or extensive modifications to existing interior ones can be costly, and it can be difficult to undertake the necessary construction work. Careful attention to design considerations in applying the standards would be imperative to avoid claustrophobic and narrow interior exit corridors. Acceptable windows can be used, however, as an alternative to having two exits.

- Older, single-family dwellings converted into multiple-unit rooming houses frequently do not have adequate counters, sinks, drains or hot and cold water plumbing installed. Adding these items can be costly and difficult.
- Typical rents in the area would prevent Division “A” building owners from increasing their rents to offset upgrading costs.
- Economies of scale cannot be readily achieved in smaller buildings.

2.2 Phase II: Renovating a Demonstration Building

The 21-unit, three-storey rooming house used for the demonstration component of the project consisted of a combination of two- and one-room units, and it qualified as a Division “B” building. All units shared bathroom facilities, located on each floor. The building was originally two storeys, built in the 1940s, with the third floor added later.

The project team’s architect inspected the 21-unit rooming house as renovations progressed, and documented the upgrading work completed in compliance with the standards in detailed working drawings.

Exterior Work

- Wood components of the exterior, north fire escape were substantially rebuilt and upgraded to achieve required handrail and balustrade heights, structural integrity and support, and safe exiting from all three upper floor levels.
- The enclosure around the north basement exit stair was removed completely.
- Exterior wood, double-hung windows were repaired, cleaned and repainted in accordance with the standards’ “acceptable window” criteria.
- The owner had the entire exterior of the building cleaned and an overcoat of new stucco applied. This work was not required for compliance with the standards, but it greatly enhanced the overall appearance and marketability of the building.

Figures 1 and 2 following show exterior views before and after renovations.

The demonstration project located at 9612-102 Avenue has been transformed into a safe, comfortable and attractive building. When interviewed informally, many residents said they like the "new" building and feel very good about living there. Rents in the completed building are comparable with other properties in the inner-city neighbourhood.

—A•C•T Project Team

figure 1. Exterior Before Renovation



Original public corridor: wood doors and frames did not meet SHS; all plumbing and electrical services were exposed



Original low wall and roof structure over north basement stair: entire enclosure has been demolished

Source: Office of the Commissioner of Housing, Planning and Development, City of Edmonton

Figure 2. Exterior After Renovation



Completed exterior of building following stucco work/repainting



Completed north fire escape construction

Source: Office of the Commissioner of Housing, Planning and Development, City of Edmonton

Interior Work

Selected aspects of the interior work undertaken are summarized following.

Smoke Alarms

- Battery-powered smoke detectors were removed, and new, hard-wired alarms were installed in each unit.

Fire Alarm System

- A new fire alarm system was installed in accordance with the Standards and CAN4-S524-M. The system is designed to provide early warning to all occupants.

Means of Egress

- Two separate and independent building exits are now provided at each floor level.
- Exterior wood doors, frames and hardware were upgraded, repaired or replaced at fire exit locations.
- Each residential unit has an “acceptable window” unit, which also provides emergency exiting.
- The clear width of the main floor corridor in one location is 7.6 cm to 10.2 cm (3 in. to 4 in.) less than allowed by the standards, due to the presence of a column. The architect recommended that in such instances the Safe Housing Committee permit exceptions, as alterations would

require substantial and costly structural modifications.

- A maximum flame spread rating of 75 for finishes that form part of public corridors was achieved by using painted drywall, painted wood trims and metal-clad doors, sheet flooring and acoustic mineral tile ceilings.

Compartmentation

- All suites were effectively separated from public corridors and adjacent suites by a three-quarter hour fire separation.
- Upgraded floor/ceiling assemblies are deemed to provide equivalent three-quarter hour fire separation ratings.
- All service, storage and laundry areas have a fire separation rating from the remainder of the building at an equivalent three-quarter hour.
- The north fire escape was reconstructed in accordance with the 1990 Alberta Building Code.

Electrical Requirements

- A new, 400-amp electrical service was provided for the building with new load panels, splitters and breakers designed to suit actual electrical loads and distribution requirements.
- Complete rewiring of the building was done in accordance with Part 1 of the Canadian Electrical Code.

Building Structure and Health Requirements

- All dwelling units have access to upgraded, shared washrooms with acceptable water supply, flush toilets, wash basins and/or bathtubs or showers.
- Each dwelling unit has acceptable food preparation facilities, including a kitchen sink with a hot and cold water supply, new enclosed counter/cabinets, an electric stove and a refrigerator.

Plumbing and Gas

- The entire plumbing and sanitary drainage system for the building, including drains, fixtures, stacks, traps, vents and wastes, was checked and repaired or upgraded as required.
- Individual water shut-offs were provided for all fixtures.

Heating and Ventilation

- The majority of forced-air heating supply ducts and registers were replaced or upgraded.
- Existing vent connectors for all gas-fired appliances in the basement area were relocated 6" away from all combustible material or are protected by a metal shield.
- The supply of outside combustion air is in accordance with Natural Gas Installation Code requirements.
- New clothes dryers and washrooms were vented directly to the outside.

Figures 3 and 4 show interior views before and after renovations. Figure 5 shows the final, as-built floor plans of the renovated building.

Figure 3. Interior Before Renovation



Suite interior: lifting and broken floor tiles, wall patching and deformed floor registers



Original public corridor: wood doors and frames did not meet SHS; all plumbing and electrical services were exposed

Source: Office of the Commissioner of Housing, Planning and Development, City of Edmonton

Figure 4. Interior After Renovation



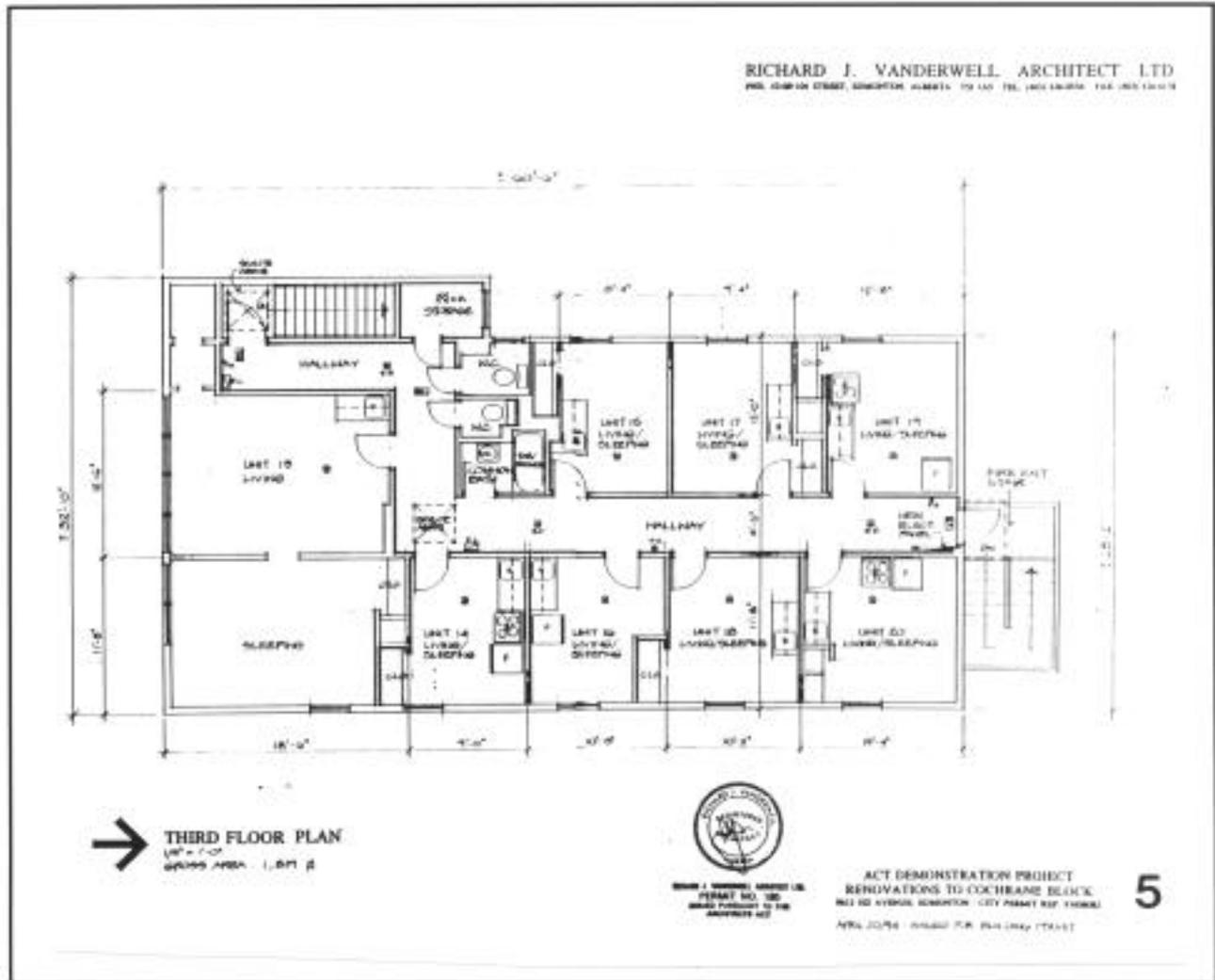
Completed third floor public corridor; note: exit light, fire bell, new lighting and smoke detector



New solid wood door frames and insulated metal-clad door at suite entry

Source: Office of the Commissioner of Housing, Planning and Development, City of Edmonton

Figure 7. Third Floor Plan



Source: Office of the Commissioner of Housing, Planning and Development, City of Edmonton

2.3 Cost Comparisons

The project team estimated that the upgrades specified for the nine-unit, Division “A” rooming house to bring it into compliance with the Safe Housing Standards would cost approximately \$15,700 (\$1,743 per unit). The team estimated that it would cost approximately double that amount—\$31,700 (\$3,522 per unit)—to comply with the 1990 Alberta Building Code. Using the Safe Housing Standards, significant savings could be achieved in relation to fire alarm and interior egress systems, and electrical requirements. Appendix A contains a detailed comparison of estimated costs for the nine-unit building.

The cost incurred to renovate the 21-unit, demonstration building to comply with the Safe Housing Standards was \$50,000 (2,381 per unit). Appendix B contains a breakdown of costs for the demonstration building.

Safe Housing Standards Prove Economical

The cost difference between the two methods of achieving comparable levels of life-safety and health upgrading is considered substantial and compelling.

—A•C•T Project Team

The cost incurred to renovate the demonstration building compares very favourably to four RRAP projects undertaken in the inner-city area. As shown in figure 9 below, the per unit cost for the RRAP projects ranged from \$8,803 to \$18,052 to upgrade to comply with the Alberta Building Code, with the average per unit cost being \$13,522. Rents in the upgraded demonstration building remained comparable with other rental units in the area.

Clearly, the Safe Housing Standards offer an affordable alternative for upgrading housing stock.

Figure 9. RRAP Project Costs

Building	Renovation Cost	No. of Units	Cost per Unit
Jasper Block	\$255,275	29	\$ 8,803
El Noraldo	\$585,940	33	\$17,756
Fascination Video	\$108,312	6	\$18,052
Elgin Hotel	\$189,515	20	\$ 9,476

Source: Office of the Commissioner of Housing, Planning and Development, City of Edmonton

3.0 PROJECT BACKGROUND

3.1 Edmonton's Safe Housing Committee

Edmonton's multi-disciplinary Safe Housing Committee was established in February 1992 with the goal to improve housing conditions for Edmontonians living in substandard rental accommodation. The Committee aimed to achieve its goal by initiating a program of coordinated inspections, adjudication and enforcement of minimum standards of health and safety for existing multiple-occupancy, rental dwellings. This involved a new, coordinated, proactive approach among the participating agencies, specifically the various City of Edmonton departments involved with housing (Planning and Development, Finance, Power, Fire, Law) and the Edmonton Board of Health.

The Safe Housing Committee proceeded to inspect 21 properties. This assessment, and three rooming house fires, underscored the urgent need to upgrade health and life safety measures in substandard, multiple-occupancy dwellings. It was also readily apparent, however, that it was neither practical nor economical to upgrade housing that had

been constructed several decades previously to the current Alberta Building Code. The Committee concluded that a practical and flexible guideline outlining alternative safety measures for upgrading old dwellings was required.

In 1992, in keeping with a number of motions put forward to City Council, the Safe Housing Committee was mandated to:

- Continue with a program of coordinated inspections, adjudication and enforcement of minimum standards of health and safety for all multiple occupancy dwellings
- Work with the Office of the Commissioner of Housing and the Office of the City Solicitor to develop a guideline for the upgrading of existing multiple occupancy dwellings to an appropriate level of safety, pursuant to the Alberta Building Code and Fire Code
- Work with the Office of the Commissioner of Housing on a pilot project to demonstrate the effectiveness of acceptable alternatives with respect to health and safety measures

4.0 REGULATORY REFORM INITIATIVES AND IMPACT ON HOUSING COST, CHOICE AND QUALITY

Edmonton's Safe Housing Standards demonstration project transformed a seriously dilapidated rooming house into a safe, comfortable and attractive building, while keeping renovation costs within reasonable limits.

With over 2,000 households in inner-city Edmonton alone, living in overcrowded or poor physical conditions, there is considerable potential for this project to have a significant impact in providing safe and affordable housing. By the end of September 1995, 121 buildings had been inspected by the Safe Housing Committee. Of these, 20 (249 units) have been closed, 12 (66 units) have been converted to single-family dwellings and 26 (431 units) have been upgraded to comply with the Safe Housing Standards.

The City of Edmonton's Safe Housing Standards offer tested and feasible alternative measures for renovating older properties. The Safe Housing Standards can be readily applied elsewhere in Alberta and will be of considerable benefit to municipalities across Canada that have aging housing stock in need of repair.

This A•C•T project demonstrates that residential buildings that might otherwise have been demolished or remain vacant, because of prohibitive costs in renovating to meet current building code requirements, can be revitalized economically to meet the pressing need for affordable housing.

APPENDICES

APPENDIX A: DETAILED COST COMPARISON— DIVISION “A” (9-UNIT) BUILDING

The estimated costs following are based on a detailed assessment of upgrades required for a nine-unit, Division “A” rooming house converted from a single-family dwelling.

PRELIMINARY SECG PROJECT BUDGET ESTIMATE

The following costing information is provided for approximate budget purposes only; it is not intended to reflect final or fixed construction costs for the project. It is assumed the Owner will be capable of undertaking and completing major portions of the work described below:

Smoke Alarms	\$ 700.00
Fire Alarm Upgrading	1,000.00
Egress System Upgrading (interior)	1,650.00
Basement	\$ 150.00
Main Floor	350.00
Second Floor	150.00
Third Floor	1,000.00
New Exterior Fire Escape Stair (Option 1)	1,750.00
Acceptable Windows	540.00
Emergency Lighting	500.00
Fire Resistance Upgrading	450.00
Exit Signs/Lighting	200.00
Continuous Illumination at Exits	150.00
Suite Door/Frame Upgrading	540.00
Door Closers	275.00
Door Clearances	100.00
Transom Infills	50.00
Compartmentation	275.00
Service/Storage Room Fire Separations	500.00
Access Opening Upgrading	50.00
Sealing of Combustible Piping	50.00
Additional Fire Extinguishers	60.00
Additional Duplex Receptacles	400.00
Kitchen Split Receptacles	720.00
Unsafe Electrical Conditions	300.00
Storm Window/Weatherstripping Upgrades	150.00
Screens	50.00
Wall/Ceiling Upgrades	250.00
Floor Finish Upgrades (shower)	400.00
New Wash Basin/Vanity	250.00
Kitchen Cabinet Upgrading	750.00
Sleeping Unit Minimum Size Upgrading	450.00
Plumbing System Upgrading/Venting	450.00
Boiler Combustion Air Upgrade	125.00
Attic Stairway Upgrading	275.00
PRELIMINARY COST ESTIMATE:	\$ 13,410.00
Design/construction contingency 10%	1,341.00
GST @ 7%	938.70
TOTAL ESTIMATED SECG UPGRADING COSTS:	\$ 15,689.70

SHCG AND ALBERTA BUILDING CODE 1990 UPGRADING

A comparative cost approach to building upgrading and renovation was undertaken by the consultant team. The intent was to compile a scope of work and related costs for code upgrading work required above and beyond current SHCG. The following is based on an additional/expanded scope of work required to satisfy the Alberta Building Code 1990:

Smoke Alarms	\$ 700.00
Supervised Fire Alarm System (new)	4,000.00
New Stair Egress System (interior)	10,100.00
Basement	\$ 150.00
Main Floor	1,250.00
Second Floor	3,200.00
Third Floor	5,500.00
New Exterior Fire Escape Stair (Option 1)	1,750.00
Acceptable Windows	540.00
Emergency Lighting	500.00
Fire Resistance Upgrading	450.00
Exit Signs/Lighting	200.00
Continuous Illumination at Exits	150.00
Suite Door/Frame Upgrading	540.00
Door Closers	275.00
Door Clearances	100.00
Transom Infills	50.00
Compartmentation	275.00
Service/Storage Room Fire Separations	500.00
Access Opening Upgrading	50.00
Sealing of Combustible Piping	50.00
Additional Fire Extinguishers	60.00
Additional Duplex Receptacles	400.00
Kitchen Split Receptacles	720.00
Main Electrical Service/Panel Upgrading	2,500.00
Unsafe Electrical Conditions	300.00
Storm Window/Weatherstripping Upgrades	150.00
Screens	50.00
Wall/Ceiling Upgrades	250.00
Floor Finish Upgrades (shower)	400.00
New Wash Basin/Vanity	250.00
Kitchen Cabinet Upgrading	750.00
Sleeping Unit Minimum Size Upgrading	450.00
Plumbing System Upgrading/Venting	450.00
Boiler Combustion Air Upgrade	125.00
PRELIMINARY COST ESTIMATE:	\$ 27,085.00
Design/construction contingency 10%	2,708.50
GST @ 7%	1,895.95
TOTAL ESTIMATED SHCG AND ABC UPGRADING COSTS:	\$ 31,689.45

APPENDIX B: DETAILED RENOVATION COSTS— DIVISION “B” (21-UNIT) BUILDING

The costs detailed below were incurred for the work required to upgrade the 21-unit demonstration building for the City of Edmonton’s A•C•T project. The costs do not include additional costs incurred by the owner for overall management, other improvements made but not required for compliance with the Safe Housing Standards, or other costs such as appliances or furniture.

Architectural

General interior/exterior carpentry scope (Basic doors, frames, handrails, walls)	\$ 5,000
Fire separation upgrading (rated drywall)	7,500
General interior finishing work (Basic portion of flooring and painting finishes)	8,500
Miscellaneous materials and door hardware	1,200

Mechanical

Plumbing upgrading (drainage and supply)	7,300
Heating system safety upgrading	2,000

Electrical

New fire alarm system	5,000
General electrical upgrading	10,000
New electrical service	<u>3,500</u>

TOTAL	\$50,000
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Cost per residential unit: \$50,000 ÷ 21 units = \$2,380.95